

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 01**
2. **Product:** DP-E/DP-E4 and CV/CV-M Ex eb / Ex tb and BD-U Ex db / Ex eb / Ex tb Breather Drains
3. **Manufacturer:** Eaton Electrical Systems Trading as Redapt, Raxton or Capri
4. **Address:** Kingsway South, Westgate, Aldridge, West Midlands, WS9 8FS
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 reports G102174344D dated November 2016, 104039337LHD-001c dated 3rd September 2019 and 104757223LHD-001 dated 11th July 2022.
7. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018, EN 60079-1:2014, EN IEC 60079-7:2015/A1:18 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 eb IIC Gb
I M2 Ex db I Mb, II 2G Ex db IIB+H2/IIC 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

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

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

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

Certification Officer:

M Newman

Date:

20th July 2022

SCHEDULE:

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11. Description of Product or Protective System

The Ex eb / Ex tb DP-E/DP-E4 Breather/Drains are designed to allow moisture emission from Increased Safety Type 'Ex eb or tb' enclosures. Each device has an M20, M25, M32, ½", ¾" or 1" NPT 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. NPT breather Drains may be manufactured without holes in the thread.

The Ex db/ Ex eb / Ex tb BD-U Breather/Drains are designed to allow moisture emission from either Flameproof Type 'Ex db' enclosures, Increased Safety Type 'Ex eb' or "Ex tb" 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. For Ex eb & tb applications only, holes may be drilled in the thread. A weather cap to get an IP66 rating is provided.

The Ex eb / Ex tb CV / CV-M 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 eb' 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. NPT breather Drains may be manufactured without holes in the thread.

Surface coating:

The products may additionally be metallic plated to suit the application.

Plating Options: Nickel, Zinc, Electroless, Chromatised, Anodized.

Maximum thickness 0.008mm

Alternative materials of manufacture:

Groups I and II – Brass, lead free brass, mild steel or stainless steel

Group II only - Glass filled nylon or Aluminium

O' ring seals:

'O' ring seals materials fitted into the Breather/Drain may be provided in Nitrile, Viton, EPDM, Neoprene, Silicone or Fluorosilicone to suit the application

Threads:

NPT, NPS BSPP, BSPT, Imperial Conduit, ET or Pg

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. This Certificate is accredited under UKAS schedule 0010

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

NPT, NPS BSPP, BSPT, Imperial Conduit, ET or Pg

Any other thread form conforming to Table 3 of IEC 60079-1 and clauses C2.2 & C2.3.1 as applicable (Ex d)

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

UKCA Marking shall be accompanied by the identification number of the Approved Body responsible for surveillance of production.

12. Report Number

Intertek Report: 104757223LHD-001 dated 11th July 2022.

13. Special Conditions of Certification

- 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:

| Product | Temperature ranges |
|-------------------------------|---|
| DP-E Metal with HDP-E sinter | -50°C +85°C |
| DP-E Metal with Bronze sinter | -60°C to +200°C |
| DP-E4 GFN with HDP-E sinter | -30°C to +85°C |
| DP-E4 GFN with Bronze sinter | -30°C to +90°C |
| BD-U with bronze sinter | -60°C to +150°C (limited due to Ex d application) |
| CV Metal with Bronze sinter | -60°C to +200°C |
| CV-M GFN with Bronze sinter | -20°C to +65°C |

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| 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.

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

- These breather/drains are only suitable for bottom entry applications when used to drain. They can be used in other orientation if for breathing only.

Type BD-U:

- For 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.
- These devices shall not be used with enclosures with a volume greater than 190ltrs
- 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.
- The reference pressure is limited to 4000kPa (40 Bar) maximum.

Type CV/CV-M:

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

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report: 104757223LHD-001 dated 11th July 2022.

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15. Drawings and Documents

| TITLE | DOCUMENT Nr | LEVEL | DATE |
|--|--------------|---------|------------|
| *Technical Specification DP-E/DP-E4, CV/CV-M, BD-U | SPEC-BREA | Rev-I-0 | 28/02/2022 |
| *Ex d FLAMEPROOF BREATHER DRAIN | BDU-BREA | Rev-I-0 | 07/03/2022 |
| Ex d BREATHER SINTER | 99-D-12 | 1 | 07/10/2008 |
| *INCREASED SAFETY BREATHER DRAIN | DPE-BREA | Rev-I-0 | 07/03/2022 |
| *INCREASED SAFETY BREATHER DRAIN | CV-BREA | Rev-I-0 | 07/03/2022 |
| *Marking Specification DP-E/DP-E4, CV/CV-M, BD-U | MARK-BREA | Rev-I-0 | 07/03/2022 |
| Ex e BREATHER SINTER | Ex e Sinters | 4 | 25/08/2016 |
| *Ex accessories Regulatory Instruction | CAP18267 | 2022-03 | As stamped |

Note: An * is included before the title of documents that are new or revised.

16. Details of Certificate changes

Issue 01 (20th July 2022):

- Update as per latest standard EN IEC 60079-0:2018.
- Correct some typographical mistakes.
- Special conditions modified with respect to bottom application and wall thickness restriction.
- IP & Temperature range clarification.
- BD-U re-classified as IIC when material composition of the sinters within limits of the Annex B EN 60079-1.
- BD-U & Weather Cap statement added - for Ex e applications only, holes can be drilled in the thread. Note that this product is Ex db/ Ex eb / Ex tb approved.
- Lead Free Brass added.

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