

EU-Type Examination Certificate



- EU-TYPE EXAMINATION CERTIFICATE**
- Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- EU-Type Examination Certificate Number: ITS16ATEX101338X Issue 0
- Product:** DP-E and CV Ex e/ Ex tb and BD-U Ex d Ex e/ Ex tb Breather Drains
- Manufacturer:** Eaton Electrical Systems Trading as Redapt or Raxton
- Address:** Kingsway South
Westgate
Aldridge
West Midlands
WS9 8FS
- This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- Intertek Testing and Certification Limited, Notified Body number 0359 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council dated 26 February 2014, certifies that the 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 Annex II to the Directive.

The examination and test results are recorded in confidential Intertek Report Ref G102174344D Issue 1 dated November 2016
- Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11:2013 and EN 60079-1:2014, EN 60079-7:2015 and EN 60079-31:2014 except in respect of those requirements referred to at item 16 of the Schedule.
- If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Safe Use specified in the Schedule to this certificate.
- This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- The marking of the product shall include the following:



THE FOLLOWING INFORMATION WILL BE MARKED ON THE PRODUCT: -

- EATON, RAXTON, REDAPT
- THE PRODUCT SERIES No. CODE. BD-U, DP-E, CV
- DESIGNATED MALE THREAD
- CERTIFICATE NUMBER & BODY. IE IECE_x ITS 16.0014X & ITS 16ATEX10338X
- CLASSIFICATION MARKING. BD-U Ex d I/IIc MbGb
Ex tb IIIC Db IP66
OR
CLASSIFICATION MARKING. DP-E & CV Ex e I/IIc MbGb
Ex tb IIIC Db IP66
OR
CLASSIFICATION MARKING. DP-E4 + DP-E5 & CVM + CVB Ex e IIc Gb
Ex tb IIIC Db IP66
- ADDITIONAL ATEX MARKING: I M2 NOT FOR DP-E4 + DP-E5 & CVM + CVB
 II 2GD

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V.K. Varma
Certification Officer
14th March 2017



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13. Description of Equipment or Protective System

The **Ex e / 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 d/ 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.

Alternative materials of manufacture:

Groups I and II – Brass, mild steel or stainless steel

Group II only - Glass filled nylon (Durethan glass filled nylon BKV30) or Aluminium

Alternative equivalent entry threads:

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

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

Surface coating:

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

The **Ex e / Extb 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.

Material options, O-ring and Entry thread options:

Brass CZ121/CZ122 EPDM (standard) Metric to ISO PT 172, Stainless steel 316 Nitrile PG to DIN

40430:1971, Aluminium BS1474, 6062T6 Neoprene BSPP to BS 2779

Aluminium bronze BS 1400B2 (JM-03 or LM7-16) Viton BSPT to BS21

Silicone ET Conduit to BS31

Fluorosilicone NPT/NPS to ANSI/ASME B1.20.1:1983

Alternative materials of manufacturer: Mild steel to BS970:1983

Stainless steel to BS970:1983

Class filled nylon MDF2 900 (Not for Group I use)

Plating Options: Nickel, Zinc, Electroless

Nickel maximum thickness 0.008mm

Alternative threadforms in equivalent sizes: Metric to ISO 965 parts 1 & 3

PG to DIN 40430:1971

BSPP to BS2279:1985

ET to BS 31:1979

NPS to ANSI/ ASME B1.20.1-1983

Any other threadform conforming to Table 3 of IEC 60079-1 and clauses C2.2 & C2.3.1 as applicable.

14. Report Number

Intertek Report Ref: G102174344D Issue: 1 Dated: November 2016

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15. Special Conditions of Certification

(a). Specific Conditions of Safe Use

General:

1. These breather/ drains are only suitable for bottom entry applications. In flameproof applications the BD-U and CV-M types 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. The 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	Dependant on filter and seal material
Nylon body	-50°C to +125°C, unless limited by filter material
HDPE dust/ moisture seal	-50°C to +125°C
Metallic dust/ moisture seal	Dependant on body and interface material

Interface O-ring Material	Maximum Service Temperature
Nitrile	-20°C to +80°C
EPDM	-20°C to +100°C
Neoprene	-40°C to +80°C
Viton	-5°C to +130°C
Silicone	-50°C to +180°C
Fluorosilicone	-50°C to +130°C

N.B. 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

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

Type DP-E-4 :

1. The Ex e DP-E-4 Breather Drain is only considered to provide the minimum level of protection IP54 when used in a bottom entry application.

Type BD-U:

1. These devices shall not be used with enclosures with a volume greater than 190litrs
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

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(b). Conditions of Manufacture - Routine Tests

- 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

Type CV

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

The limiting temperature ranges of these devices depends upon their material of manufacture and the type of 'o' ring used in their construction as defined by the manufacturer, the user shall therefore install these devices in accordance with temperature values stated in the table below:
'o'-ring Material Limiting temperature limiting temperature:

Brass, mild steel or stainless steel Nylon, MDF2 900

None -50°C to +150°C

Nitrile -20°C to +80°C

EPDM (fitted as standard) -30°C to +125°C

Neoprene -20°C to +80°C

Viton -5°C to +130°C

Silicone -30°C to +150°C

Flurosilicone -50°C to +130°C

N.B. 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

16. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report Ref: G102174344D Issue: 1 Dated: November 2016

17. 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	1	08-03-2016
BREATHER DRAIN PLUGS	CV	1	04-03-2016
Ex e GLASS FILLED NYLON BREATHER DRAIN PLUGS	CV-M	1	04-03-2016
BREATHER SINTER	Ex e SINTERS	4	25-08-2016
MARKING DRAWING	IECEXITS16.0014X / ITS16ATEX101338X	1	15-11-2016

18. Details of Certificate

Original Issue 0: This certificate

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This Certificate is the property of Intertek Testing and Certification Ltd and is subject to Intertek Testing and Certification's Conditions for Granting Certification

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.