1 EU - TYPE EXAMINATION CERTIFICATE

2 **Product or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU – Annex III**

3 EU - Type Examination Certificate No.: **TRAC12ATEX0020X (incorporating variations V1 to V5)**

4 Product: **EJBC and EJBT Series Enclosures EJB 2/10/15/S1/S2/3/4/5/60**

5 Manufacturer: **JCE Group,**

6 Address: **East Way, Lee Mill Ind. Estate, Ivybridge, Devon, PL21 9LL, United Kingdom**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Element Materials Technology, Notified Body number 2812, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential report **TES-004531-33-03A, TRA-012089-33-00A, TRA-032511-33-00A and TRA-032511-33-01A.**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 **EN 60079-1:2007** **EN 60079-28:2006**

EN 60079-31:2009

Except in respect of those requirements listed at section 18 of the schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of use specified in the schedule to this certificate.

11 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.

12 The marking of this product shall include the following:

II 2 G Ex d [ ] IIB Gb T4..T6
II 2 G Ex d [ ] IIB+H2 Gb T4..T6
II 2 D Ex tb [ ] IIIC Db T135..T85°C.

II 2 G Ex d op pr [ ] IIB Gb T4..T6
II 2 G Ex d op pr [ ] IIB+H2 Gb T4..T6
II 2 D Ex tb op pr [ ] IIIC Db T135..T85°C.

Note: [ ] refers to Ex coding for the optional associated 'i.s' output.

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the Element Materials Technology Ex Certification Scheme.

S P Winsor, Certification Manager

Issue date: 2019-11-01

Voorerf 18, 4824 GN Breda, Netherlands
Element Materials Technology Rotterdam B.V.
Registered in the Netherlands. Registered Office: PO Box 6854, 4802 HW, Breda, Netherlands
Company Reg No. 24170257

13 SCHEDULE TO EU - TYPE EXAMINATION CERTIFICATE

14 CERTIFICATE NUMBER TRAC12ATEX0020X (incorporating variations V1 to V5)

15 Description of Product

The EJBC Series enclosures and EJBT Series terminal boxes are flameproof enclosures designed for use with a variety of internal equipment (including terminals). They consist of a rectangular body and a lid which is secured by socket cap screws. On certain versions the lid may incorporate a hinge.
The enclosures are manufactured from LM25 aluminium alloy which may be painted or powder coated.

The lid can be provided with a square or circular window of various sizes as detailed in the schedule below. The circular windows which may be fitted are identical to the lids fitted to the GUB1 (60mm dia.) and GUB3 (86mm dia.) enclosures.

Holes for cable entries, operators, indicators and breathers in the size range M20 to M90 and 1/2" to 3" NPT may be drilled in the enclosure in the areas indicated in the manufacturer's documents. This equipment has been tested and assessed for use with a Redapt BD-U breather drain (IECEx SIR.08.0096X & Sira 08ATEX1240X).

The equipment may also be provided with intrinsically safe connections and an option to fit a fibre optic transmitter.

The various lids can be provided with a square or circular window of various sizes as detailed below.

Enclosure Series and Lid Variations

Refer to Appendix-B for full EJB series list

Permitted Ambient Temperature Ranges

Series Designation	Gas Group	Dust Group	Ambient Temperature Range
EJB10, EJB15, EJBS1	IIB+H_2	IIIC	-40°C to +40°C or -40°C to +60°C
EJB2, EJBS2, EJB3A, EJB4A, EJB5A, EJB60	IIB or IIB+H_2	IIIC	-20°C to +40°C or -20°C to +60°C.

Temperature class and maximum power dissipation data:

Enclosure series	Max. Power Dissipation (W)					
	+40°C ambient			+60°C ambient		
	T4 T135	T5 T100	T6 T85	T4 T135	T5 T100	T6 T85
EJB2	-	-	50	-	50	20
EJB3A	-	-	100	-	100	35
EJB4A	-	-	100	-	100	35
EJB5A	350	150	90	350	150	90
EJBW5A	-	150	90	-	150	90
EJBS1	-	-	50	-	50	20
EJBS2	-	-	70	-	70	35
EJB10/15	-	-	20	-	-	20
EJB60	1300	240	240	800	240	130
EJBW60	-	-	240	-	240	130

16 Test Report No. (as added for this issue of the certificate): N/A

17 Specific Conditions of Use

1. Where painted or powder coated, the enclosures could present an electrostatic hazard. Clean only with a damp or anti-static cloth.
2. For equipment with temperature class T5 or T4, cables must be suitable for use at temperatures of 100°C (T5) or 135°C (T4).
3. Only suitably ATEX certified cable glands and blanking elements shall be used.
4. As part of the routine maintenance schedule, the condition of the window cement shall be periodically inspected for any degradation or discolouration of the cement that may compromise the explosion protection.
5. The enclosure is to be earthed externally using the earth point provided.
6. Where internal intrinsically safe equipment is fitted, refer to the instructions for permitted category, equipment protection level and gas group.
7. Yield strength of screws shall be 700N/mm^2 minimum. All cover screws shall be tightened to the minimum torques listed for the enclosure version.
8. No modification or refurbishment to flamepaths shall be made without reference to the manufacturer.
9. The minimum distance between flanged joints and any obstructions shall be in accordance with EN60079-1 Table 8 (30mm for gas group IIB, 40mm for gas group IIB+H_2.
10. A fiber optic transmitter may be fitted, the output from which must always be routed out of the enclosure via armored cable or conduit and must be terminated within a suitably certified enclosure or safe area.

Attention is drawn to the operating and installation instructions which may contain useful information in relation to conditions of use.

18 Essential Health and Safety Requirements (Directive Annex II)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

19 Drawings and Documents

The list of controlled technical documentation is given in Appendix A to this schedule.

20 Routine Tests

1. The manufacturer shall perform a 1.5x routine pressure test in accordance with EN 60079-1 Clause 16.1 at the pressures detailed below. There shall be no prominent deformation or damage which would affect the type of protection, and the flameproof joints shall in no place have been permanently enlarged.

	Enclosures not containing fans	Enclosures containing fans
EJBS1	14.7bar	Not Permitted
EJBS2	12.3bar	15.8bar
EJB2	12.3bar	Not Permitted
EJB3	11.1bar	11.1bar
EJB4	11.1bar	11.1bar
EJB5	12.2bar	Not Permitted
EJB10	14.3bar	Not Permitted
EJB15	14.3bar	Not Permitted
EJB60	10.5bar	13.5bar

21 Specific Conditions for Manufacture

1. Sources of ultrasonic radiation may not be fitted.
2. Sources of optical radiation may be fitted in windowed and non windowed enclosures. If sources of optical radiation are fitted in windowed variations the complete window must be populated to ensure that the optical energy remains contained within the enclosure. See sheet 2 & 10 drawing no. A3C-3001
3. The contents of the Ex component enclosure may be placed in any arrangement providing that an area of 40% (IIB+H_2) or 20% (IIB) of each cross sectional area remains free to permit unimpeded gas flow and unrestricted development of an explosion. Separate relief areas may be aggregated provided that each area has a minimum dimension in any direction of 12.5mm.
4. Where fuses are fitted the enclosure shall be marked with the warning “DO NOT OPEN WHEN ENERGISED”.
5. Where switchgear is fitted the conditions stated on drawing A3C-3001 Sheet 2, note 2 shall be adhered to.
6. Where power supply conductors for EJB equipment are greater than 16mm^2, a dedicated earth terminal with dimensions equal to or greater than the terminals for connection of supply conductors shall be fitted. The corresponding earth conductors shall also be of an equivalent or greater size as the incoming power conductors.
7. Where Intrinsically Safe equipment is fitted the maximum power dissipation shall not exceed those stated of drawing no A3C-3001 Sheet 1. When the maximum power dissipation does not exceed the limitation of the +60°C upper ambient, the equipment shall be marked with an upper ambient of between +40°C and +60°C (not exceeding the upper ambient rating of the Intrinsically Safe component itself). The manufacturer shall perform a thermal test to ensure that, in the location where the Intrinsically Safe equipment is fitted, the internal ambient temperature does not exceed the maximum permitted ambient temperature of the Intrinsically Safe equipment.
8. The EJBT series equipment shall include a dedicated earth terminal with dimensions equal to or greater than the terminals for connection of supply conductors.
9. Earth wiring shall have a cross-sectional area in accordance with EN60079-0 Table 10.
10. Separation between bare live parts of intrinsically safe equipment and non-intrinsically safe equipment shall conform to the requirements of EN60079-11:2011 Clause 6.1.
11. Maximum number of terminals shall be calculated as defined on JCE drawing no. A3C-3012. The manufacturer shall ensure the power dissipation for the relevant temperature class/ambient temperature range does not exceed that permitted.
12. If a breather is fitted then the minimum Temperature Class is T5 for a +60°C ambient.
13. Skim machining of the base internal face of the EJBC60 enclosure is permitted. Components/Base Plate may be mounted directly to the enclosure base providing that the remaining thickness of the enclosure wall into which the components are fastened is at least one third of the nominal diameter of the screw or stud and has a minimum remaining wall thickness of 3mm. Screws used to mount enclosures to the base of the enclosure must be fitted with a washer. If a washer is not utilized at least one full thread must remain free at the base of the blind hole. See sheet 7 of drawing no. A3C-3001.
14. A maximum of two fans may be included in enclosures EJBC S2, 3, 4 and 60. Each fan must have an impeller diameter of not greater than 119mm and a flow rate not greater than 94m3/h for Gas Group IIB applications only. The manufacturer shall ensure the power dissipation for the relevant temperature class/ambient temperature range does not exceed the permitted levels, and that the cross sectional area restrictions detailed in condition 3 are adhered to. See sheet 2 drawing no. A3C-3001.
15. A fibre optic transmitter may be fitted, the output from which must always be routed out of the enclosure via armored cable or conduit and must be terminated within a suitably certified enclosure or safe area. See sheet 2 drawing no. A3C-3001.

16. Up to two 12V secondary batteries in series are permitted to be installed inside the EJB S2, 3, 4, 5 and 60 enclosures. Battery type Saft VR 4 D Nikel Cadmium Type K with associated protection circuitry as detailed on Drawing A3C-3001 Sheet 11.
17. Single coin cells of IEC Type A, B, C, E, L or S conforming to UL1642 or IEC60086-1 may be fitted.
18. Where secondary cells are fitted the enclosure shall be marked with the warning “DO NOT OPEN WHEN AN EXPLOSIVE GAS ATMOSPHERE IS PRESENT”
19. For EJB60 and EJBW60 enclosures utilizing up to a maximum of two fans internally, as detailed by SCOM 14. The enclosure must be used in conjunction with the hardened lid variant as detailed in drawing no. A3C-3014.

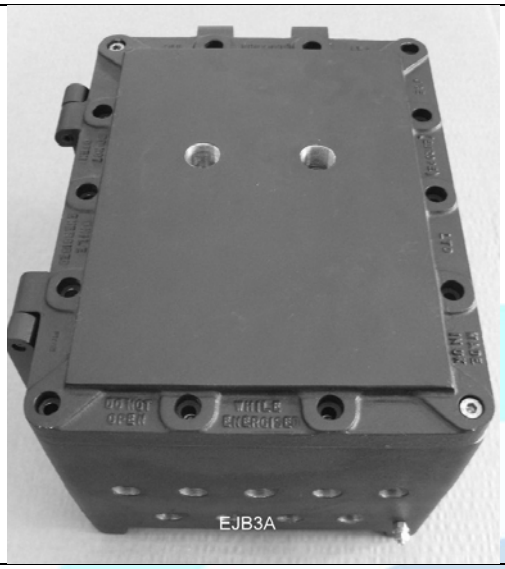
22 Photographs

EJB10


EJB15

EJBS1


EJBS2

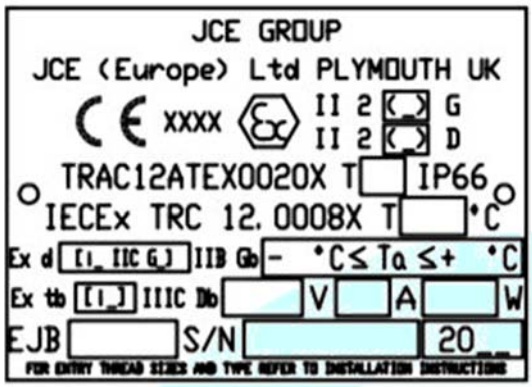


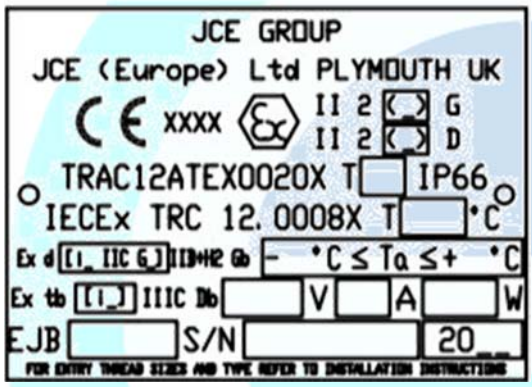
EJBWM4A Window details

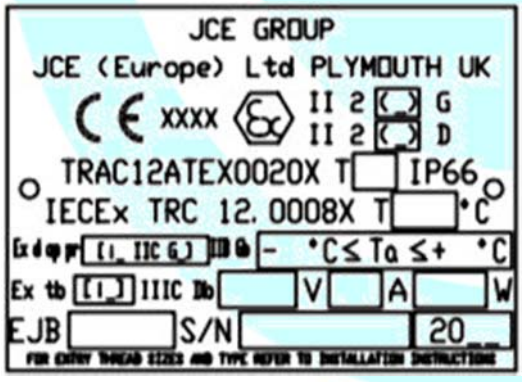
EJBWL4A Window details

23 Details of Markings (typical)

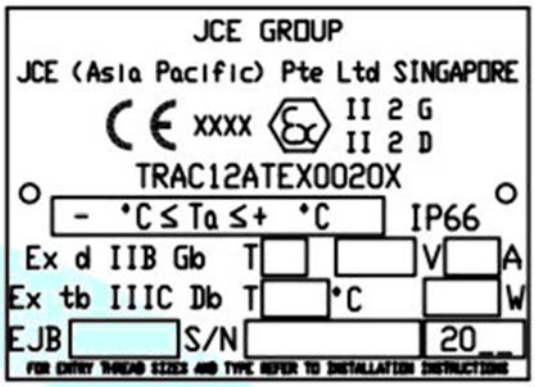
IECEx registered companies

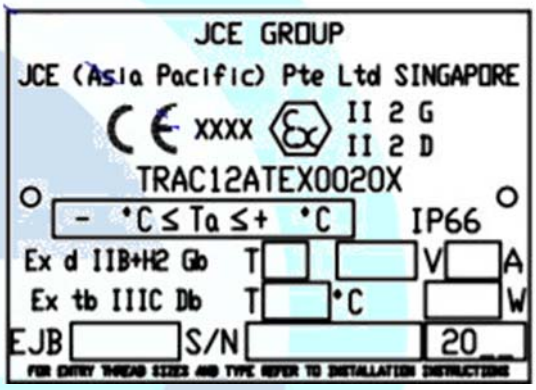


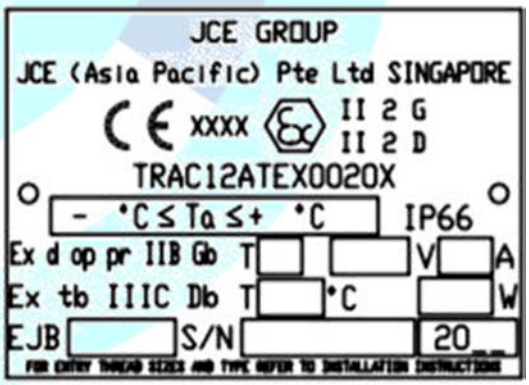




Non-IECEx registered companies







Note: The manufacturer's name and address marked above (i.e. JCE (Asia Pacific) Pte Ltd) may be replaced by the following in accordance with the manufacturer's ATEX accreditations:

JCE (Europe) Ltd.,
East Way, Lee Mill Industrial Estate, Ivybridge, Devon, PL21 9LL, United Kingdom.

JCE Group (UK) Ltd.,
Blackburn Business Park, Aberdeen, AB21 0PS, United Kingdom.

JCE (Asia Pacific) Pte Ltd.,
51 Boon Lay Way, Trade Hub 21, #01-55 Singapore 6099657.

JCE Group USA Inc.

24 Details of Variations to this Certificate

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following variations:

- Variation V1 – Enhancement of gas group.
- Variation V2 – Allow the inclusion of up to two fans to be mounted within EJBC S2, 3 & 4 enclosure series for IIB applications, allow the use of secondary cells and associated charging protection circuit within EJBC S2, 3, 4, 5 & 60 enclosure series, removal of raised bosses within EJBC60 series enclosures to allow components to be fitted directly to a base plate mounted to the enclosure wall, to allow approved IR transmitting equipment within the EJB Series enclosure ranges, addition of two previously approved component lids to be used with the EJB4 series and extending the permitted ambient range when I.S. components are fitted within the EJB series enclosures . Routine tests, table to include enclosures containing fans.
- Variation V3 – Inclusion of Type B & E primary cells to list of permitted cells to be installed within EJB range of enclosures in accordance with Table E.1 of IEC 60079-1:2014.
- Variation V4 – Inclusion of a hardened lid version for EJB60 or EJBW60 for use with enclosures housing internal fans.
- Variation V5 - This certificate was originally issued by Notified Body number 0891 under Directive 2014/34/EU. The technical file has been transferred to Element Notified Body number 2812 without further assessment or evaluation.

25 Notes to CE marking

In respect of CE Marking, Element Materials Technology accepts no responsibility for the compliance of the product against all applicable Directives in all applications.

26 Notes to this certificate

Element Materials Technology certification reference: **JCEQ-0007.**

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

Notified Body number 2812 is the designation for Element Materials Technology Rotterdam BV.

In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variation certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

27 Conditions for the validity of this certificate

This certificate remains valid for so long as:

(i) The equipment listed in section 4 is manufactured in accordance with the documents listed in Appendix A of this certificate.

(ii) The standards listed in section 9 of this certificate continue to satisfy the Essential Health and Safety Requirements of Annex II of Directive 2014/34/EU and the generally acknowledged state of the art (e.g. as determined by the publishers of those standards).

APPENDIX A - TECHNICAL DOCUMENTS

Title:	Drawing No.:	Rev. Level:	Date:
Certification Drawing EJB Series Equipment Enclosures to Ex d IIB & IIB+H_2 (Sheets 1 to 14)	A3C-3001	8	2017-05-02
EJBC, EJBWC and EJBT Series Control and Instrument Enclosures. Installation and Maintenance Instructions	-	-	2015-06-22
EJB enclosures – Terminal calculations	A3C-3012	1	2012-05-23
EJB60 Plain Cover TE Hardened (Sheet 1 of 5)	A3C-3014	1	2017-05-02
EJB60 Window Cover Portrait View TE Hardened (Sheet 2 of 5)	A3C-3014	1	2017-05-02
EJB60 Window Cover Landscape View TE Hardened (Sheet 3 of 5)	A3C-3014	1	2017-05-02
EJB60/EJBW60 Hinge Fixings (Sheet 4 of 5)	A3C-3014	1	2017-05-02
EJB60/EJBW60 Material Specifications (Sheet 5 of 5)	A3C-3014	1	2017-05-02
Typical apparatus labels (Sheet 1 of 2)	A3C-3019	1	2019-10-10