



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Component intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 13ATEX7397U** Issue: **0**

4 Component: **Electrical Feedthrough Models EX-BG210-1H, EX-BG230-1H, EX-BG250LLH, EX-BG310H and EX-BG350H**

5 Applicant: **The BG Service CO., Inc.**

6 Address: **1400 Alabama Avenue  
West Palm Beach  
Florida 33402  
USA**

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of a component intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012

EN 60079-6:2007

EN 60079-7:2007

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 The sign 'U' is placed after the certificate number to indicate that the product assessed is a component and may be subject to further assessment when incorporated into equipment. Any special conditions for safe use are listed in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified component. If applicable, further requirements of this Directive apply to the manufacture and supply of this component.

12 The marking of the component shall include the following:



II 2G  
Ex e o IIB Gb

C Ellaby  
Deputy Certification Manager

Project Number 70004569

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**SCHEDULE**

**EC TYPE-EXAMINATION CERTIFICATE**

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Issue 0

**13 DESCRIPTION OF COMPONENT**

The electrical feedthroughs are designed to provide electrical connection through the wall of an oil filled (Ex o) sealed or unsealed electrical equipment enclosure. The parts external to the oil filled enclosure are increased safety (Ex e) and intended to be protected by a suitably certified enclosure.

The feedthroughs comprise a copper conductor provided with threaded ends and associated brass locking nuts for the securing of ring terminals. The copper conductor passes through a stainless steel threaded fitting designed to allow installation into a threaded entry point in the intended oil filled enclosure. PTFE and ceramic insulators are provided between the copper conductor and the stainless steel fitting. The ceramic insulator is secured to the stainless steel fitting by epoxy sealing compound. The two insulators extend beyond the stainless steel fitting, the outer ceramic insulator being secured by epoxy sealing compound to a brass cap that is secured to the copper conductor by solder. The latter assembly is encased within a PTFE insulating cap.

Rating	Model Numbers		
	EX-BG210-1H and EX-BG230-1H:	EX-BG250LLH	EX-BG310H and EX-BG350H:
Maximum operating voltage	630 Vac.	1000 Vac.	630 Vac
Maximum operating current	145 A	145 A	225 A
Service temperature range	-45°C to +121°C	-45°C to +121°C	-45°C to +121°C
Temperature rise at maximum rated operating current	40K	41K	34K
Maximum rated gauge pressure	3445 kPa	3445 kPa	3445 kPa
Maximum rated gage vacuum pressure	69 kPa	69 kPa	69 kPa

**14 DESCRIPTIVE DOCUMENTS**

**14.1 Drawings**

Refer to Certificate Annexe.

**14.2 Associated Sira Reports and Certificate History**

Issue	Date	Report no.	Comment
0	23 July 2014	R70004569A	The release of the prime certificate.

**15 SPECIAL CONDITIONS FOR SAFE USE**

15.1 Service Temperature Range: -45°C to 121°C.

15.2 Temperature rise at maximum rated operating current:

- Models EX-BG210-1H and EX-BG230-1H: 40 K.
- Model EX-BG250LLH: 41K.
- Models EX-BG310H and EX-BG350H: 34 K.

15.3 Maximum Rated Gauge Pressure: 3445 kPa.

15.4 Maximum Rated Gauge Vacuum Pressure: 69 kPa.

15.5 Ring terminals of suitable size shall be used to make electrical connections with the feedthroughs. The brass nut/ring terminal electrical connection tightening torque specified in item (15.6) below shall not be exceeded to avoid copper conductor thread damage. It is recommended that two wrenches are used to tighten the brass nuts, such that the nuts are tightened one against the other when securing ring terminals.

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**Sira Certification Service**

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## SCHEDULE

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Issue 0

- 15.6 Brass nut/ring terminal electrical connection tightening torque range:
- Models EX-BG210-1H, EX-BG230-1H, and EX-BG250LLH: Minimum 4.3 Nm; Maximum 4.5 Nm.
  - Models EX-BG310H and EX-BG350H: Minimum 13.0 Nm; Maximum 13.5 Nm.
- 15.7 The end user shall assess the suitability of the feedthroughs for use in their equipment taking into consideration the equipment's operating electrical ratings, minimum and maximum temperatures attained in service, operating temperature range, and compatibility of the feedthrough construction materials with the equipment operating environment including the protective liquid of the equipment.
- 15.8 Feedthroughs must be installed with the PTFE insulator end into a suitable ATEX certified-oil filled (Ex o) enclosure, compliant with EN 60079-6, with the PTFE insulator fully immersed in the oil when in service. Consideration needs to be given to Clause 4.8 of EN 60079-6:2007 titled "Immersion Depth" when installing the feedthroughs. The portion of the feedthrough external to the oil filled enclosure shall be fully enclosed within a suitable ATEX certified increased safety (Ex e) enclosure compliant with EN 60079-7.
- 15.9 The end user shall ensure that the threaded joint between the feedthrough and Ex o enclosure meets IP66 ingress protection rating. The end user must determine a suitable installation torque taking into consideration application conditions (e.g. Ex o enclosure material) and if required must provide additional sealing components needed to maintain the IP66 ingress protection rating. Electrical continuity shall be maintained between the feedthrough stainless steel threaded fitting and the Ex o enclosure to assure grounding path continuity.
- 15.10 The end user shall apply the provided adhesive certification label adjacent to the installed feedthrough.
- 15.11 The feedthroughs shall be subjected to the routine tests on sealed enclosures per clause 5.2.1 of EN 60079-6:2007 or to the routine test on unsealed enclosures per clause 5.2.2 of EN 60079-6:2007 as applicable, as part of any routine testing that needs to be performed on the associated fully certified equipment in accordance with EN 60079-6:2007.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**
- The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF CERTIFICATION**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 Dielectric Strength Test per EN 60079-7:2007 Cl. 7.1: every feedthrough shall be subjected to a dielectric strength test using the test voltages specified below applied between the copper conductor and the stainless steel threaded fitting for a minimum of 60 seconds. There shall be no evidence of breakdown. Alternatively, a voltage 20% higher may be applied for a minimum of 100 ms. Where it is more convenient to do so, a DC voltage instead of an AC voltage may be applied, provided that the DC voltage used is 1.4 times the AC voltage value.
- Test voltages:
- Models EX-BG210-1H, EX-BG230-1H, EX-BG310H, and EX-BG350H: 2260 Vac.
  - Model EX-BG250LLH: 3000 Vac.

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# Certificate Annexe

Certificate No.: Sira 13ATEX7397U  
Component: Electrical Feedthrough Models EX-BG210-1H,  
EX-BG230-1H, EX-BG250LLH, EX-BG310H & EX-BG350H  
Applicant: The BG Service CO., Inc.



## Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
S26550	1 to 5	6	22 Jul 14	CSA Schedule Dwg: EX-BG210-1H Electric Feedthrough Assy
S26555	1 to 5	6	22 Jul 14	CSA Schedule Dwg: EX-BG230-1H Electric Feedthrough Assy
S26560	1 to 5	6	22 Jul 14	CSA Schedule Dwg: EX-BG250LLH Electric Feedthrough Assy
S26565	1 to 5	6	22 Jul 14	CSA Schedule Dwg: EX-BG310H Electric Feedthrough Assy
S26570	1 to 5	6	22 Jul 14	CSA Schedule Dwg: EX-BG350H Electric Feedthrough Assy

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