

**BUREAU VERITAS**  
Certification



## Certificate of Conformity

AWARDED TO APPLICANT  
**EXHEAT LIMITED / EXHEAT INDUSTRIAL LIMITED**

THREXTON ROAD INDUSTRIAL ESTATE  
WATTON – THETFORD – NORFOLK – IP25 6NG – UNITED KINGDOM

**MANUFACTURER: EXHEAT LIMITED**  
THREXTON ROAD INDUSTRIAL ESTATE  
WATTON – THETFORD – NORFOLK – IP25 6NG – UNITED KINGDOM

**EXHEAT INDUSTRIAL LIMITED**  
THREXTON HOUSE - THREXTON ROAD INDUSTRIAL ESTATE  
WATTON – THETFORD – NORFOLK – IP25 6NG – UNITED KINGDOM

Bureau Veritas Certification certify that the product constant at scope of supply below specified, has been assessed and find in accordance with requirements of documents of reference.

### Documents of Reference

ABNT NBR IEC 60079-0:2013, ABNT NBR IEC 60079-1:2016, ABNT NBR IEC 60079-7:2008,  
ABNT NBR IEC 60079-31:2014 and ABNT NBR IEC 60529:2017

CERTIFICATE ISSUED BASED ON THE MANUFACTURER EVALUATION OF QUALITY  
MANAGEMENT SYSTEM AND PRODUCT TESTS MODEL, ACCORDING TO CLAUSE 6.1 OF THE  
CONFORMITY EVALUATION RULE, ATTACHED TO THE ORDINANCE Nº 179 FROM  
INMETRO, ISSUED IN MAY 18<sup>TH</sup> 2010.

### Scope of Supply

**IMMERSION ELECTRICAL HEATER**  
**MODELS: FP..., FP...(A), FP...(G)**  
**MARKING: ACCORDING PAGE Nº 05**

*Initial date of this cycle: AUGUST 28<sup>TH</sup> 2017.*

*Certificate valid until: AUGUST 27<sup>TH</sup> 2020.*

*This Certificate of Conformity was issued according to the certification model 5 and is valid only accompanied by pages 1 to 7. The validity of this Certificate is linked to carrying out assessments maintenance and treatment of possible non-conformity in accordance with the Bureau Veritas Certification guidelines and in the specific Inmetro Ordinances (RAC).*

*To check the updated condition of regularity of this Certificate must be obtained from the product database and Certificate Services on Inmetro site.*

*Product Certification Contract: BR.2821727.*

*Certificate Number: BRP233923-X*

*Issue Date: AUGUST 31<sup>ST</sup> 2017.*

*Número do Certificado INMETRO: BVC14.3923-X*

*Original approval Date: AUGUST 28<sup>TH</sup> 2014.*

  
Marco Antônio de Almeida Gomes  
Coordenador Técnico de Certificação de Produto  
Bureau Veritas Certification  
Avenida Alfredo Egídio de Souza Aranha, 100, Torre C,  
3º andar  
Centro Administrativo Santo Amaro  
04726-170, Chácara Santo Antônio, São Paulo, SP, Brasil  
[www.bureauveritascertification.com.br](http://www.bureauveritascertification.com.br)  
tel.: 11 2655-9000 / fax: 11 2655-9322

*O uso da Identificação acima indica a acreditação com Relação às  
Page 1 of 7 atividades cobertas pelo Certificado nº OCP-0018.*



**BUREAU  
VERITAS**  
1709011359001





## Certificate of Conformity

# BVC14.3923-X

### Scope of Supply

**SPECIFICATION:**

The heater comprises a cylindrical enclosure having a threaded detachable cover, and a welded flange, all made of stainless steel or coated mild steel. The cover is secured by a locking screw.

Alternative arrangement allows the assembly of a increased safety auxiliary terminal box.

The heaters can be equipped with 1 to 249 heating elements and at least one thermostat.

The enclosure contains terminal assemblies mounted on brackets, to provide connexion of the element ends and temperature sensing cut-outs set to limit the internal temperature of the enclosure to 5° C below that temperature shown in the table. To maintain the Temperature Classification, flange temperature and process liquid temperature thermostats are fitted, the sensing elements of wich are fitted in thermostat pockets inside the heated vessel. The flange temperature thermostat is set at 5 °C below the flange temperature shown in the table.

Anti-condensation heaters may be optionally fitted within the enclosure.

Alternative arrangement of the immersion heater to allow the substitution of the thermostats by thermocouples or RTDs mounted off support pillars inside the heated vessel. The free end of the temperature devices can be connected to internal elements of terminal box or (alternative arrangement) to internal elements of second terminal box certified for the considered using.

In this form the units are designated: type FP....(A).

A variation allows the alternative positioning of the thermocouples or RTDs into the flange plate.

In this form the unit is designated type FP...(G).

Model	Temperature Class	Terminal Box Flange Plate Clearance	Maximum Terminal Box temperature	Flange Plate Fluid Temperature
Stand off version	T6	40 mm	70 °C	75 °C
	T5	40 mm	80 °C	90 °C
	T4	40 mm	80 °C	125 °C
	T3	100 mm	130 °C	190 °C
	220 °C	100 mm	130 °C	210 °C
	T2	150 mm	130 °C	290 °C
	T1	200 mm	130 °C	440 °C
Non stand off version	T1 – T6	00 mm	80 °C	80 °C

*Issue Date: AUGUST 31<sup>ST</sup> 2017*



## Certificate of Conformity

# BVC14.3923-X

### Scope of Supply

#### ELECTRICAL CHARACTERISTICS:

Nominal Voltage (Un):	690 Vac
Ceramic Element (Pmax):	360 kW
Hairpin Element (Pmax):	1400 kW

#### TECHNICAL DOCUMENTATION:

- Certificate of Conformity n° LCIE 01 ATEX 6056 X of 2001/11/26;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/01 of 2002/01/24;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/02 of 2002/04/04;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/03 of 2003/10/21;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/04 of 2007/05/04;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/05 of 2008/06/16;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/06 of 2013/09/13;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/07 of 2014/01/15;
- Certificate of Conformity n° LCIE 01 ATEX 6056 X/08 of 2015/06/08;
- Certificate of Conformity n° IECEx LCI 06.0006 X of 2008/01/02;
- Certificate of Conformity n° IECEx LCI 06.0006 X/06 of 2016/06/30;
- Test Report LCIE n° 60033931-533247-02 of 2006/10/05;
- Test Report LCIE n° 116966-633822/02 de 2013/09/06;
- Test Report LCIE n° 123909-648791 de 2013/12/12;
- Test Report LCIE n° 60048485-548992-02 de 2007/05/04;
- Test Report LCIE n° FR/LCIE/ExTR15.0042/00 of 2015/05/22;
- Technical File n° 2004-21-TF of 2015/04/24;
- Technical File n° 2008-21-TF of 2015/04/24;
- Analysis Report (RA) n° 001/2014 of 2014/07/23;
- Analysis Report (RA) n° 002/2017 of 2017/08/08;
- Factory Inspection performed in 2017/02/28;
- Manual in Portuguese.

Issue Date: AUGUST 31<sup>ST</sup> 2017

## Certificate of Conformity

# BVC14.3923-X

### Scope of Supply

Drawing	Description	Revision	Date
2008.01.79	7/16" Bore Tubing Nut, Olives and Hole Drilling Details.	2	2006/10/11
2008.02.97	10 mm Bore Tubing Nut, Olives and Hole Drilling Details	2	2006/10/11
2008.02.98	3/8" Bore Tubing Nut, Olives and Hole Drilling Details.	2	2006/10/11
2008.08.89	12 mm Bore Tubing Nut, Olives and Hole Drilling Details	2	2006/10/11
2008.21.03	Typical Cut-out Wiring Diagram for FP Type Heater Ex d IIC	1	2006/03/30
2008.21.86	12,5 mm Bore Tubing Nut, Olives and Hole Drilling Details	2	2006/10/11
2008.21.88	FP Type Heater Ex d IIC Alternative Cast Terminal Box LID	1	2006/03/30
2008.21.91	FP Type Heater Ex d IIC Detail Drawing	5	2015/04/21
2008.21.94	FP Type Heater Ex d IIC Alternative Cast Terminal Box LID Detail	1	2006/03/31
2008.21.97	Thermostat Pocket for Flameproof Heaters	3	2006/10/11
2008.21.98	Typical Cut-out Wiring Diagram for FP (A) & FP (G) Type Heater Ex d IIC	1	2006/03/31
2008.04.74	FP Terminal Box Body – Base & LID Details	3	2013/12/04
2008.21.01	FP Type Solid Heater Ex d IIC Cast in Elements Variant General Arrangement	10	2015/02/02
2008.21.87	FP Type Heater Ex d IIC Alternative Plate Terminal Box LID/BASE	3	2013/12/11
2008.21.89	FP Type Heater Ex d IIC Alternative terminal Box Range	4	2013/12/11
2008.21.90	FP Type Heater Ex d IIC General Arrangement Drawing	8	2013/12/11
2008.21.91	FP Type Heater Ex d IIC Detail Drawing	5	2015/04/21
2008.21.93	FP Type Heater Ex d IIC Terminal Box Detail	4	2013/12/11
2008.21.95	FP (A) Type Heater Ex d IIC General Arrangement	7	2013/12/12
2008.21.96	FP (G) Type Heater Ex d IIC General Arrangement	7	2013/12/12
2008.21.99	FP Type Heater Ex d IIC General Arrangement Drawing with Dummy Flange Ex d IIC	7	2013/12/13
2009.21.92	FP Type Heater Ex d IIC Label Details	3	2017/08/31

*Issue Date: AUGUST 31<sup>ST</sup> 2017*



## Certificate of Conformity

# BVC14.3923-X

Scope of Supply

**MARKING:**

**Ex db IIC T1 to T6 Gb IP66**

**Ex db e IIC T1 a T6 Gb IP66**

**Ex tb IIIC T85 °C to T450 °C Db IP66**

**-60 °C ≤ Ta ≤ +60 °C**

**OBSERVATIONS:**

1. The letter “X” after the Certificate number means the following special conditions for safe use:  
All safety devices shall operate independently of any measurement or control devices required for operation. Resetting the safety devices shall only be manual.  
The temperature classification is based on the flange temperature. This certificate does not cover the temperature of any part of the heating element inside the vessel or the heated vessel itself. Safety with regard to ignition risks due to hot surfaces inside and outside the vessel is a matter for the manufacturer, installer and/or user as appropriate.  
The anti-condensation heaters must be wired in accordance with the manufacturer drawings.  
The temperature classification may be invalidated unless the elements are completely immersed in the fluid. It is the responsibility of the manufacturer, installer and/or user, as appropriate, to ensure that an explosive atmosphere, as defined in ABNT NBR IEC 60079-0, does not occur inside the vessel.  
The installer and user must ensure that the terminal enclosure and its associated stand-off are not lagged.  
Over temperature thermostats shall be contained within the main certified flameproof terminal box only “d”.  
Alternative arrangement, the terminal box can be equipped of a separated terminal box (minimum distance 75 mm) for the connection of thermocouple or RTD's. This box must be a certified type for considered using (flameproof enclosure “d”, or increased safety “e” or intrinsically safe “i”).  
The elements ensuring the safety temperature shall be mounted within the main certified flameproof terminal box “d”.

*Issue Date:* AUGUST 31<sup>ST</sup> 2017



## Certificate of Conformity

# BVC14.3923-X

### Scope of Supply

Optionally, when the heater is painted with a superior paint thickness layer 0,2 mm the equipment shall be marked with a warning label as below:

**“WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS”**

In the case of assembly with dummy flange, the assembly must be according to manufacturer’s specifications mentioned in his technical file.

The flamepaths are specified in the manufacturer drawings.

**Supplementary special conditions for safe use for the FP...(A) and FP...(G):**

- The free ends of the temperature devices are to be suitably mechanically protected and terminated within suitable terminal or junction facility.
- The RTD/thermocouple assembly of FP...(A) or FP...(G) shall operate independently of any measurement or control devices required for operation, and comply with the EN 50495. Resetting the safety devices shall only be manual.

2. This Certificate is valid only for products with the same model and type as the tested prototype. Any modification in the project, as well as the use of components apart from those defined by the technical documentation, without previous authorization from Bureau Veritas Certification, will invalidate this Certificate.
3. The flameproof enclosures of each heater must be submitted to the static pressure test for at least 10 seconds without exceeding 1 minute, using the values given in the table below:

Type	Pressure Value	Time
FP4 a FP12	18 bars	10 seconds
FP14 a FP24	21,5 bars	10 seconds
Thermostat Pocket	30 bars	10 seconds

4. The heaters must have, fixed in a visible place and in a durable way, the following warning:

**“WARNING – DO NOT OPEN WHILE ENERGIZED”**

**“WARNING – IF THE TEMPERATURE AT THE CABLE ENTRY EXCEEDS 70 °C, HIGH TEMPERATURE CABLE SHALL BE USED” (WHEN APPLICABLE).**

**“WARNING – DO NOT OPEN IN PRESENCE OF EXPLOSIVE ATMOSPHERE”**

*Issue Date: AUGUST 31<sup>ST</sup> 2017*



## Certificate of Conformity

# BVC14.3923-X

### Scope of Supply

5. The heaters shall be marked on the external surface and in a visible place, the conformity mark and the technical characteristics according to the specifications from standards ABNT NBR IEC 60079-0 / ABNT NBR IEC 60079-1 / ABNT NBR IEC 60079-7 / ABNT NBR IEC 60079-31 / ABNT NBR IEC 60529 and the conformity assessment requirements, attached to INMETRO Ordinance n° 179, published in May 18<sup>th</sup> 2010. This marking must be readable and durable, taking into consideration possible chemical corrosion.
6. The equipment must be installed in compliance with the relevant standards in electrical installations in explosive atmospheres and the manufacturer's recommendations.
7. The stopping plugs to close the unused entries and the cable glands shall be certified for appropriate type protection and shall be installed correctly.
8. The activities of installation, inspection, maintenance, repair, overhaul and recovery of equipment are the responsibility of users and must be implemented in accordance with the requirements of current technical standards and the manufacturer's recommendations.
9. The Manufacturer shall provide manual of installation and safe use written in Portuguese.

REVISIONS HISTORY	
DATE	DESCRIPTION
2014/08/28	Initial Issue
2017/08/31	Revision 1 – Recertification

Issue Date: AUGUST 31<sup>ST</sup> 2017

