



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX SIR 12.0056X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 4	Issue 3 (2021-09-29)
Date of Issue:	2023-12-04		Issue 2 (2015-04-27)
Applicant:	<b>Watlow Electric Manufacturing Company</b> 6 Industrial Loop Road Hannibal Missouri 63401 <b>United States of America</b>		Issue 1 (2014-06-17)
Equipment:	<b>Flange Immersion Heaters, Series FE</b>		Issue 0 (2012-11-14)
Optional accessory:			
Type of Protection:	<b>Increased Safety eb</b>		
Marking:	Ex eb IIC T1-T6 Gb Ta = -40°C...-35°C to +60°C		

Approved for issue on behalf of the IECEx  
Certification Body:

**Michelle Halliwell**

Position:

**Director Operations, UK & Industrial Europe**

Signature:  
(for printed version)

Date:  
(for printed version)

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Certificate issued by:

**CSA Group Testing UK Ltd**  
Unit 6, Hawarden Industrial Park  
Hawarden, Deeside CH5 3US  
United Kingdom



10-54723 Rev A



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Page 2 of 4

Date of issue: 2023-12-04

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Manufacturer: **Watlow Electric Manufacturing Company**  
6 Industrial Loop Road  
Hannibal  
Missouri 63401  
**United States of America**

Manufacturing locations: **Watlow Electric Manufacturing Company**  
6 Industrial Loop Road  
Hannibal  
Missouri 63401  
**United States of America**

**Watlow Electric Manufacturing (Shanghai) Co., Ltd.**  
Building 5, No.358 Shenxia Road  
Malu Town, Jiading District  
Shanghai 201818  
**China**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

### Test Reports:

[GB/CSAE/ExTR21.0082/00](#)  
[GB/SIR/ExTR15.0085/00](#)

[GB/SIR/ExTR12.0247/00](#)  
[GB/SIR/ExTR23.0185/00](#)

[GB/SIR/ExTR14.0149/00](#)

### Quality Assessment Reports:

[DE/TUR/QAR10.0001/05](#)

[DE/TUR/QAR14.0003/05](#)



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Certificate No.: **IECEX SIR 12.0056X**

Page 3 of 4

Date of issue: 2023-12-04

Issue No: 4

## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Flange Immersion Heaters, Series FE, 690 Vac max, 120 W/sq in. max tubular.

The heaters comprise a range of sizes of Ex eb certified metal enclosures with a number of heating elements and/or thermocouples installed such that the terminations of the elements are within the enclosure. The enclosure may also contain Ex eb certified terminals, which provide connection facilities for thermocouples and externally mounted certified temperature transmitters. Alternatively, the externally mounted certified temperature transmitters may be used to terminate thermocouples..

The heater elements are installed into the enclosure via welded joints. Thermocouple elements are installed the same way. The interior of the heater may be fitted with an Ex eb certified anti-condensation heater.

Optionally, the heaters may be designated by 4 or more numerical digits followed by a dash, followed by 4 numerical digits, followed by a type designation (ex. 2681-3997 FE).

## Refer to the Annexe for Additional Information

### SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The anti-condensation heater, when fitted, must be interlocked such that it cannot operate when the enclosure temperature is above 35°C.
2. The heating element supply circuit must include an electrical protection device in conformity with Annex D of IEC 60079-7:2017 Ed. 5.1..
3. The equipment must be provided with sensing devices to protect against zero fluid flow or empty vessel conditions.
4. Uncertified thermocouples and RTDs must be connected into intrinsically safe circuits.
5. When the Eaton Crouse Hinds Ex-Cell Series Enclosure is used and gland plates or enclosure panels are painted, the required entry holes provided by Cooper Crouse Hinds shall not have paint on the entry hole seal faces. If cable entry holes are added by the end user in the gland plates/enclosure panels, they shall ensure that any paint is removed from the entry hole seal faces.
6. When the Yokogawa Temperature Transmitter, Type YTA Series is used, precaution shall be taken to minimize the risk from electrostatic discharges and propagating brush discharges on the non-metallic parts (excluding glass parts) and coated parts of the equipment.
7. When the Yokogawa Temperature Transmitter, Type YTA Series is used, flameproof joints are not intended to be repaired. Contact Yokogawa representative or Yokogawa office.
8. Equipment fitted with warning 'POTENTIAL ELECTROSTATIC CHARGING HAZARD' shall only be cleaned with a damp cloth to prevent the risk of electrostatic discharge.
9. When Pepperl+Fuchs SE FXL, SL, XL Series are used, repair of any flameproof joints must be made in compliance with the structural specification provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 1 and 2 of IEC 60079-1.
10. The Flying lead on the HEF type heater (with or without an additional in-line thermostat) must be terminated within any IECEx Zone 1 certified enclosure, or within a non-hazardous area.
11. The HEF type heater shall be earthed to the enclosure which it is installed.
12. When Model 644R Temperature Transmitter is fitted with the Transient Protector Assembly, the equipment is not capable of withstanding the 500V isolation test as defined in IEC 60079-11. This must be taken into account during installation.
13. When Model 3144P Fieldbus Temperature Transmitter is fitted with the transient terminal options, the apparatus is not capable of withstanding the 500V electrical strength test as defined in Clause 6.3.13 of IEC 60079-11: 2011. This must be taken into account during installation.



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Certificate No.: **IECEX SIR 12.0056X**

Page 4 of 4

Date of issue: 2023-12-04

Issue No: 4

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

**This issue, Issue 4, recognises the following changes; refer to the certificate annex to view a comprehensive history:**

1. Minor revisions to the manufacturer's documents
2. Addition of alternate terminal enclosures
3. Addition of alternate anti-condensation heaters
4. Addition of alternate terminal blocks
5. Standard update
6. Revised Product Description, Specific Conditions of Use, and Conditions of Manufacture

**Annex:**

[IECEX SIR 12.0056X Annexe Issue 4.pdf](#)

Annexe to: IECEx SIR 12.0056X Issue 4

Applicant: Watlow Missouri Inc.

Apparatus: Series FE Flange Immersion Heaters



The heaters may be designated as follows:

FEaabbccddeeffgg

FE = Flange Heater

aa = flange Size

b = element size

cc = enclosure size

dd = voltage

eee = power rating

fff = number of elements

gg = number of temperature sensors

Optionally, the heaters may be designated by 4 or more numerical digits followed by a dash, followed by 4 numerical digits, followed by a type designation: (ex. 2681-3997 FE)

The temperature class is related to the heating element temperature or process temperature, whichever is the highest

Temperature class	Maximum surface/process temperature
T6	80°C
T5	95°C
T4	130°C
T3	195°C
T2	290°C
T1	440°C

## Conditions of Manufacture

1. The manufacturer shall ensure that the maximum enclosure temperature or equipment temperature, as applicable, will not exceed the temperature defined in the table on Sheet 3 of the drawings listed on the certificate.
2. The manufacturer shall carry out a routine dielectric strength test at twice the rated voltage + 1000 V, for at least one minute, on every unit. There shall be no dielectric breakdown. Alternatively, the test may be carried out at 1.2 times the test voltage, but maintained for at least 100 ms.

Annexe to: IECEx SIR 12.0056X Issue 4  
Applicant: Watlow Missouri Inc.  
Apparatus: Series FE Flange Immersion Heaters



## Full certificate change history

Issue 1 – this Issue introduced the following change:

1. The recognition of a modified label drawing

Issue 2 – this Issue introduced the following changes:

1. The introduction of the following alternative end seals with a maximum temperature rating of 130°C.
  - Protavic PNE – 47207
  - Polycast – 159
  - Polycast RTV - 710WE
2. The introduction of an alternative cable gland, Peppers CR-S Conduit Stopper Box.
3. The removal of a superfluous Condition of Certification.

Issue 3 – this Issue introduced the following changes:

1. Add manufacturing facility Watlow Electric Manufacturing (Shanghai) Co., Ltd.
2. Update standard IEC 60079-7:2006 Ed 4 to IEC 60079-7:2017 Ed 5.1.
3. Add optional air conditioners for enclosure Ice Qube Inc. EX and EVZ2 series.
4. Change in minimum ambient temperature from -20°C to -40°C.
5. Addition of alternate enclosure Eaton Crouse Hinds Ex-Cell series.
6. Evaluation of minor changes to drawing T1111259.

Issue 4 – this Issue introduced the following changes:

1. Minor revisions to the manufacturer's documents
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4. Addition of alternate terminal blocks
5. Standard update
6. Revised Product Description, Specific Conditions of Use, and Conditions of Manufacture