



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

Certificate No.: **IECEX SIR 12.0056X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 3 [Issue 2 \(2015-04-27\)](#)
Date of Issue: 2021-09-29 [Issue 1 \(2014-06-17\)](#)
[Issue 0 \(2012-11-14\)](#)
Applicant: **Watlow Electric Manufacturing Company**
6 Industrial Loop Road
Hannibal
Missouri 63401
United States of America
Equipment: **Flange Immersion Heaters, Series FE**
Optional accessory:
Type of Protection: **Increased Safety eb**
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:

Neil Jones

Position:

Certification Manager

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

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





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Date of issue: 2021-09-29

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

Additional manufacturing locations: **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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

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/ExTR14.0149/00](#)

Quality Assessment Reports:

[DE/TUR/QAR10.0001/03](#)

[DE/TUR/QAR14.0003/03](#)



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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.

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 60079-7:2006.
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.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, Issue 3, recognises the following changes; refer to the certificate annex to view a comprehensive history:

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.

Annex:

[IECEX SIR 12.0056X Annexe Issue 3.pdf](#)

Annexe to: IECEx SIR 12.0056X Issue 3

Applicant: Watlow Missouri Inc.

Apparatus: Series FE Flange Immersion Heaters



The following Ex Auxiliary Equipment can be installed on the Series FE Flange Immersion Heaters. These equipment's are considered entirely separate and are not considered under the scope of this project:

Ex Equipment	Manufacturer	Certificate Number	Marking Code
IQ1000EV Z2, IQ2000EV Z2 IQ3000EV Z2,	Ice Qube Inc.	IECEX QPS 16.0015X	Ex nA nC IIC T6 Gc (without Crankcase Heater), Ex nA nC T5 Gc (with Crankcase Heater)
IQ14000EV Z2, IQ17000EV Z2, IQ20000EV Z2	Ice Qube Inc.	IECEX QPS 16.0015X	Ex nA nC IIC T5 Gc (without Crankcase Heater), Ex nA nC IIC T4 Gc (with Crankcase Heater)
IQ4000EV Z2, IQ5000EV Z2, IQ6000EV Z2, IQ8000EV Z2, IQ10000EV Z2, IQ12000EV Z2	Ice Qube Inc.	IECEX QPS 16.0015X	Ex nA nC IIC T4 Gc (without Crankcase Heater) Ex nA nC IIC T3 Gc (with Crankcase Heater)
IQ4000EX, IQ5000EX, IQ6000EX, IQ8000EX, IQ10000EX, IQ12000EX	Ice Qube Inc.	IECEX QPS 18.0007X	Ex db eb ib IIB+H2 T4 Gb

The heaters may be designated as follows:

FEaabccddeeffgg

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

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 will not exceed the temperature defined in the table on Sheet 1 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 3
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.