



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 10ATEX1155X** Issue: **2**

4 Equipment: **Flange Immersion Heaters, Series F**

5 Applicant: **Watlow Electric Manufacturing Company** **Watlow Electric Manufacturing (Shanghai) Co., Ltd**

6 Address: **6 Industrial Loop Road Hannibal Missouri 63401 USA** **Building 5, No.358, Shenxia Road Forward High Tech Zone, Jia Ding Dist, Shanghai 201818, China. PRC**

7 This equipment and any acceptable variation thereto is 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 equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment 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 60079-1:2007

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 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

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

12 The marking of the equipment shall include the following:



II 2G

Ex d IIC T* Gb

Ta = -60°C to +80°C

Note: Temperature classification is assigned as appropriate; as per previous certification.

A C Smith
Certification Manager

Project Number 70027056

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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

Flange Immersion Heaters, Series F, 690 Vac max, 1 or 3 Phase, 120 W/sq in. max tubular.

These heaters use a range of sizes of flameproof enclosures with a number of heating elements and/or thermocouples installed such that the terminations of the elements are within the enclosure.

An approved temperature-limiting device shall be provided and installed by the end user to interrupt or remove power from the heater circuit preventing the unit from overheating.

Flange Heaters consist of the following:

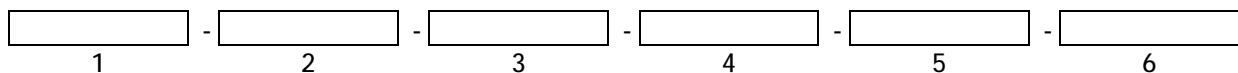
- Heater enclosure;
- Heater Elements
- Heater Flange
- Thermocouples and/or RTD's Optional
- Thermostats (optional)
- Connection facilities (terminal blocks, jumpers, etc.) (optional)
- Enclosure Heater (optional)
- Thermocouple/RTD transmitters (optional)

The heater elements are installed into the enclosure by welding individual elements into machined holes in the flange or enclosure baseplate assembly. Thermocouple elements are installed the same way.

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

MODEL NOMENCLATURE description



1 – Heater Type

F – Flange Heater

2 – Heating Element Outside Diameter, Nominal

- 3 – 0.315 inches (8.00 mm)
- 6 – 0.430 inches (10.92 mm)
- 7 – 0.475 inches (12.06 mm)
- 8 – 0.490 inches (12.45 mm)
- F – 0.685 inches (17.40 mm) (50 WSI max)
- H – 0.935 inches (23.75 mm) (50 WSI max)

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3 – Enclosure Size

ENC-CE-1	Unit Size (Nominal): 03
ENC-CE-2	Unit Size (Nominal): 04
ENC-CE-3	Unit Size (Nominal): 05
ENC-CE-4	Unit Size (Nominal): 06
ENC-CE-5	Unit Size (Nominal): 08
ENC-CE-6	Unit Size (Nominal): 10
ENC-CE-7	Unit Size (Nominal): 12
ENC-CE-8	Unit Size (Nominal): 14
ENC-CE-9	Unit Size (Nominal): 16
ENC-CE-10	Unit Size (Nominal): 18
ENC-CE-11	Unit Size (Nominal): 20
ENC-CE-12	Unit Size (Nominal): 24
ENC-CE-13	Unit Size (Nominal): 28
ENC-CE-14	Unit Size (Nominal): 30
ENC-CE-15	Unit Size (Nominal): 34
ENC-CE-16	Unit Size (Nominal): 38
ENC-CE-17	Unit Size (Nominal): 42
ENC-CE-18	Unit Size (Nominal): 46

4 – Voltage

12 – 120 V
2A – 200 V
20 – 208 V
22 – 220 V
23 – 230 V
24 – 240 V
38 – 380 V
40 – 400 V
41 – 415 V
44 – 440 V
46 – 460 V
48 – 480 V
57 – 575 V
60 – 600 V
69 – 690 V

5 – Watt Density (Flux Density), Heater Sheath

XXX – insert numerals corresponding to nominal watts/square inch

Options: Up to 120 watts/square inch

Example: 023 corresponds to 23 watts/square inch (WSI)

6 – Number of Heating Elements and Temperature Sensors

XXXXX – insert number of heating elements in first three digits, followed by number of temperature sensors in the last two digits.

Example: 04802 corresponds to 48 heating elements and 2 temperature sensors

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Variation 1 - This variation introduced the following changes:

- i. The series designation was changed to Series F from Series FX, the description is amended.
- ii. The maximum upper ambient temperature was approved to be increased to +80°C from +40°C the marking is amended accordingly.
- iii. Expanded gas group to Group IIC from Group IIB + H2. All products will be marked for Group IIC, only the marking is amended accordingly.
- iv. The rated voltage was increased to 690 V ac from 600 V ac the description is amended.
- v. The sheath diameters were increased up to 0.935 inches, which were previously limited to 0.475 inches.
- vi. Addition of IP66 rating to the equipment, which has been independently tested in accordance with EN 60529.

Variation 2 - This variation introduced the following changes:

- i. The minimum lower ambient temperature was approved to be reduced from -40°C to -60°C, the marking and condition of certification were amended accordingly.
- ii. The description was amended to accurately reflect the temperature limiting device to be fitted by the end user and a Special Condition For Safe Use was added to emphasis this.
- iii. The Applicant's name was changed from Watlow Missouri Inc to Watlow Electric Manufacturing Company.
- iv. The introduction of a new Manufacturing site was recognised.
- v. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2006 was replaced by EN 60079-0:2012, the EPL was added to the marking.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	08 July 2010	R22290A/00	The release of the prime certificate.
1	09 May 2013	R30154A/00	The introduction of Variation 1.
2	29 June 2015	R70027056A	The introduction of Variation 2.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

- 15.1 The cable glands and blanking elements shall be of a certified flameproof type and suitable for temperatures of least 90°C when used in a +40°C ambient and 130°C when used in a +80°C ambient.
- 15.2 A certified flameproof sealing device such as a conduit seal with setting compound shall be fitted at each entry point. The wiring and setting compound in the conduit seal shall be suitable for temperatures of least 90°C when used in a +40°C ambient and 130°C when used in a +80°C ambient.
- 15.3 The settings of the temperature control devices of the heater bundle shall be such that the surface temperature does not exceed its stated temperature class.
- 15.4 The gap between the enclosure body and the cover shall not exceed 0.038 mm.

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- 15.5 Replacement enclosure fasteners shall be A4-70 grade or better.
- 15.6 The end user shall install an approved temperature-limiting device as indicated by the manufacturer.
- 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 Each welded enclosure assembly shall be subjected to the routine test in accordance with EN 60079-1 clause 16, using a test pressure of 23.1 bar for at least 10 seconds

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Certificate Annexe



Certificate Number: Sira 10ATEX1155X

Equipment: Flange Immersion Heaters, Series F

Applicant: Watlow Electric Manufacturing Company

Issue 0

Drawing No.	Sheets	Rev.	Date (Sira Stamp)	Title
T9511231	1 of 10	P	20 Jun 10	Hazardous Location Enclosure, Material Specifications and Notes
T9511231	2 of 10	N	20 Jun 10	Hazardous Location Enclosure, Dimension Table
T9511231	3 of 10	N	20 Jun 10	Hazardous Location Enclosure, Body Dimension Drawing
T9511231	4 of 10	N	20 Jun 10	Hazardous Location Enclosure, Cover Dimension Drawing
T9511231	5 of 10	J	20 Jun 10	Hazardous Location Enclosure, Enclosure Baseplate Detail
T9511231	6 of 10	Q	06 Jul 10	Hazardous Location Enclosure IEC & ATEX Nameplate Detail
T9511231	7 of 10	E	20 Jun 10	Hazardous Location Enclosure, Enclosure Assembly Drawing
T9511231	8 of 10	L	20 Jun 10	Hazardous Location Enclosure, Flamepath Joint Detail
T9511231	9 of 10	A	20 Jun 10	Hazardous Location Enclosure, Element Weld Details
T9511231	10 of 10	D	06 Jul 10	Hazardous Location Enclosure, General Arrangement Drawing
210.53.3	1 of 1	F	20 Jun 10	Coupling, Half, Class 3000
210.56.1	1 of 1	F	20 Jun 10	Coupling, Half, Class 3000
429.55.5.1	1 of 1	E	20 Jun 10	Metric Bolts
HAN-ENG-008	1 of 1	B	20 Jun 10	Watrod specifications
210-62-1-1	1 of 1	S	20 Jun 10	Coupling, Half, Class 3000
226-0-7-20	1 of 1	3.00	20 Jun 10	Thermocouple/Thermostat settings
HAN-DES-001A	1 to 2	1a	20 Jun 10	Nomenclature Scheme
316-42-51-3	1 of 1	3	20 Jun 10	Special Conditions for Safe Use of IECEx and/or ATEX Certified Component Pipe Flange Heaters

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
T9511231	1 of 10	Q	09 May 13	Hazardous Location Enclosure, Material Specifications and Notes.
T9511231	2 of 10	P	09 May 13	Hazardous Location Enclosure, Dimension Table.
T9511231	3 of 10	P	09 May 13	Hazardous Location Enclosure, Body Dimension Drawing.
T9511231	4 of 10	P	09 May 13	Hazardous Location Enclosure, Cover Dimension Drawing.
T9511231	5 of 10	K	09 May 13	Hazardous Location Enclosure, Enclosure Baseplate Detail.
T9511231	6 of 10	S	09 May 13	Hazardous Location Enclosure, IEC & ATEX Nameplate Detail.
T9511231	7 of 10	F	09 May 13	Hazardous Location Enclosure, Enclosure Assembly Drawing.
T9511231	8 of 10	M	09 May 13	Hazardous Location Enclosure, Flamepath Joint Detail.
T9511231	9 of 10	B	09 May 13	Hazardous Location Enclosures, Connection details up to 690 V.
T9511231	10 of 10	E	09 May 13	Hazardous Location Enclosure, General Arrangement Drawing.
HAN-ENG-008	1 of 1	C	09 May 13	Watrod Specifications.

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Certificate Annexe



Certificate Number: Sira 10ATEX1155X
Equipment: Flange Immersion Heaters, Series F
Applicant: Watlow Electric Manufacturing Company

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
T9511231	1 of 10	R	29 Jun 15	Hazardous Location Enclosure, Material Specifications and Notes.
T9511231	6 of 10	T	29 Jun 15	Hazardous Location Enclosure IEC & ATEX Nameplate Detail

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