

UK Type Examination Certificate CML 21UKEX31147X Issue 1

United Kingdom Conformity Assessment

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **HTS1F and HTS1FA Range of Trace Heating Tapes**
- 3 Manufacturer **Heat Trace Limited**
- 4 Address **Mere's Edge,
Chester Road, Helsby,
Frodsham, Cheshire,
WA6 0DJ,
United Kingdom** **Cromwell Road,
Bredbury, Stockport,
SK6 2RF,
United Kingdom** **Unit 9 Southside,
Bredbury Industrial
Estate, Bredbury,
Stockport, SK6 2SP,
United Kingdom**

- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

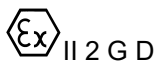
The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018

EN 60079-30-1:2017

- 10 The equipment shall be marked with the following:



II 2 G D

Ex 60079-30-1 IIC T6...T1 Gb

Ex 60079-30-1 IIIC T85°C...T450°C Db

Withstand temp range: -40°C to +200°C



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11 Description

The HTS1F and HTS1FA ranges of series resistance heating tapes are rated at 1000 VAC (3 phase) at 50 Hz and up to 50 W/m. They have one copper or aluminium heating conductor (foil); that is insulated in silicone rubber, covered with a tinned copper/nickel plated copper braid, or aluminium jacket, and an option to have a silicone rubber or fluoropolymer (MFA/PFA) outer jacket for corrosion protection.

The nomenclature for the product is as follows:

Heat Trace Ltd HTS1*-**WXY** 1000VAC

Longline Tape

Type:

Available Part No's: HTS 1 * - **W** **X** **YY** 1000VAC

Options: HTS Heating Tape Type (no options available)

1 No. of foils

* (F) Copper foil

 (FA) Aluminium foil

W Continuous conductive covering

 (C) Tinned Copper Braid

 (A) Aluminium Jacket

 (N) Nickel Plated Copper Braid

X Optional Outer Jacket Materials Available

 (F) Fluoropolymer (MFA/PFA)

 (S) Silicone Rubber

YY Conductor Cross Sectional Area

 For copper conductor:

 (13) 13mm²

 to

 (55) 55mm²

 For aluminium conductor:

 (17) 17mm²

 to

 (65) 65mm²

 1000VAC (3 phase) Rated/Maximum voltage (at 50Hz)

The power output is determined by the resistance of the foil; therefore, the foil cross sectional area is altered to provide the required power output.



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The temperature class is dependent on the maximum pipe temperature.

HTS1FA							
Product types	Nominal output (W/m)	Maximum permissible workpiece temperature (°C)					
		T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
HTS1FA-C HTS1FA-A HTS1FA-N	10	47	66	107	181	200	200
	20		32	75	157	191	191
	30			41	132	163	163
	40				108	133	133
	50				76	97	97
HTS1FA-CS HTS1FA-AS HTS1FA-NS	10	57	73	112	181	200	200
	20	37	53	93	166	180	180
	30		31	73	152	157	157
	40			51	127	127	127
	50			27	92	92	92
HTS1FA-CF HTS1FA-AF HTS1FA-NF	10	57	73	112	181	192	192
	20	37	53	93	166	177	177
	30		31	73	152	165	165
	40			51	127	127	127
	50			27	92	92	92

HTS1F							
Product types	Nominal output (W/m)	Maximum permissible workpiece temperature (°C)					
		T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
HTS1F-C HTS1F-A HTS1F-N	10	47	66	107	181	200	200
	20		32	75	157	191	191
	30			41	132	163	163
	40				108	133	133
	50				76	97	97
HTS1F-CS HTS1F-AS HTS1F-NS	10	57	73	112	181	200	200
	20	37	53	93	166	180	180
	30		31	73	152	157	157
	40			51	127	127	127
	50			27	92	92	92
HTS1F-CF HTS1F-AF HTS1F-NF	10	57	73	112	181	192	192
	20	37	53	93	166	177	177
	30		31	73	152	165	165
	40			51	127	127	127
	50			27	92	92	92



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The manufacturer declared parameters for the heating foils are listed below:

Ambient temperature range:	-40°C to +60°C
Process temperature range (Maintain Temperature):	See tables above
Maximum Continuous Exposure Temperature (Power On):	+200°C
Maximum Permissible Exposure Temperature (Power Off):	+200°C
Maximum Withstand Temperature:	+200°C
Minimum Installation Temperature:	-40°C
Maximum Voltage:	See part no. breakdown above
Rated Power Output:	See part no. breakdown above
Minimum Bend Radius:	75mm
Braid Coverage:	>70%
Braid Thickness:	0.5mm
Earth Braid Resistance:	18.2Ω/km
Cable Length:	up to 5Km

SK/HTS1F – Inline splice kit between two heating tapes

This splice construction involves the joining of two HTS1F heating tapes, with the conductor foils connected between two metal plates, which are connected between the plates via M6 set screws, M6 spring washers, M6 nuts and M6 lock nuts (all manufactured from high tensile steel). The connection of the heating tapes is made in a silicone rubber tube, that is filled and sealed with a RTV silicone sealant, which holds two RTV slotted bushes in place (one at each end) where the insulation of the heating tapes pass through an elongated oval slot. The electrical bonding is achieved by the braid of each heating foil, which are connected externally to the silicone with a tin-plated copper crimp.

TK/HTS1F/50 and TK/HTS1F/95 – Termination kit between heating tape and cold lead

The construction and material specifications of this splice is similar to that of the inline splice between two heating tapes (above), but with a tin-plated copper long palm crimp being used to provide the electrical connection to the cold lead. There is a separate material specification for the circular slotted bush to enable the long palm crimp to pass through on one side. The slot in the bushing is round in cross-section as a result of the long palm crimp. The electrical bonding is achieved by the braid of each heating foil, which are connected externally to the silicone with a tin-plated copper crimp

Variation 1

This variation introduced the following modifications:

- i. Introduction of alternative braid option.
- ii. To recognise a change to the trademark.
- iii. To recognise additional manufacturing locations.
- iv. Amendments to formatting and typographical errors in product description.



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12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	26 Aug 2022	R14618L/00	Issue of prime certificate. CML 19ATEX3388X, Issue 0 is attached and shall be referred to in conjunction with this certificate.
1	04 Jan 2023	R16006A/00	Introduction of Variation 1

Note: Drawings that describe the equipment are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- An electric strength test of 2U+1000 V shall be applied for each heater manufactured between the conductors and the outer braid or jacket as appropriate for 60 seconds as required by clause 5.1.2 of EN 60079-30-1.
- An electric strength test of the over jacket used for corrosion resistance shall be carried out in accordance with the requirements of EN 60079-30-1 clause 5.2.1.
- The manufacturer shall verify the output rating for each cable manufactured in accordance with EN 60079-30-1 clause 5.2.2.

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- The heaters shall be installed in suitable certified terminal boxes, via suitable certified terminals and cables.
- Suitable cold leads shall be selected by the end user.
- Testing for outdoor exposure in accordance with EN 60079-30-1 Clause 5.1.16 was not conducted. Therefore, the heating tapes and splices (permitted by this certificate) shall not be exposed to UV light, or a combination of UV light and moisture in service.

Certificate Annex

Certificate Number CML 21UKEX31147X
Equipment HTS1F and HTS1FA Range of Trace Heating Tapes
Manufacturer Heat Trace Limited



The following documents describe the equipment defined in this certificate:

Issue 0

The following drawings are the complete set associated with this UK Type Examination certification:

Drawing No	Sheets	Rev	Approved date	Title
HC1451/C	1 to 1	6	26 Aug 2022	Copper Longline HTS1F
HC1454/C	1 to 1	7	26 Aug 2022	Aluminium Longline HTS1FA
HC1456/C	1 to 1	1	26 Aug 2022	HTS1F Copper Conductor – Conductor CSA vs. Resistance graph
HC1457/C	1 to 1	1	26 Aug 2022	HTS1FA Aluminium Conductor - Conductor CSA vs. Resistance graph
SK/HTS1F/C	1 to 1	3	26 Aug 2022	In-Line splicing kit for Longline HTS1F between two heating tapes
TK/HTS1F/C	1 to 1	3	26 Aug 2022	Supply end termination kit for Longline HTS1F between heating tape and cold lead
TK/HTS/EG1/C	1 to 1	0	26 Aug 2022	Termination GA for Longline HTS1F via a Cable gland (e or d)
HTS1F-Markings	1 to 1	3	26 Aug 2022	HTS1F Copper Foil – ATEX, IECEx and UKEX Markings
HTS1FA-Markings	1 to 1	3	26 Aug 2022	HTS1FA Aluminium Foil – ATEX, IECEx and UKEX Markings
TK0485/C	1 to 1	0	26 Aug 2022	Longline HTS1F Splice/Termination Tube
HTS1F Drum Label	1 to 1	3	26 Aug 2022	Drum Cable Label – For Cable Type HTS1F
HTS1F-01/C	1 to 1	4	26 Aug 2022	Certification Drawing for HTS1F Marking Label
HTS1F-02/C	1 to 1	4	26 Aug 2022	HTS1F ATEX, IECEx and UKEX Label

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Drawing No.	Sheets	Rev	Approved date	Title
HC1451/C	1 of 1	7	08 Dec 2022	COPPER LONGLINE HTS1F
HC1454/C	1 of 1	9	08 Dec 2022	ALUMINIUM LONGLINE HTS1FA
HC1456/C	1 of 1	2	08 Dec 2022	GRAPH SHOWING HTS1F COPPER CONDUCTOR CROSS SECTIONAL AREA VS RESISTANCE

Certificate Annex

Certificate Number CML 21UKEX31147X

Equipment HTS1F and HTS1FA Range of Trace Heating Tapes

Manufacturer Heat Trace Limited



Drawing No.	Sheets	Rev	Approved date	Title
HC1457/C	1 of 1	2	08 Dec 2022	GRAPH SHOWING HTS1FA ALUMINIUM CONDUCTOR CROSS SECTIONAL AREA VS RESISTANCE
HTS1F DRUM LABEL	1 of 1	4	08 Dec 2022	DRUM CABLE LABEL – FOR CABLE TYPE HTS1F
HTS1F-MARKINGS	1 of 1	4	08 Dec 2022	HTS1F COPPER FOIL- ATEX, IECEX and UKEX MARKINGS
HTS1F-01/C	1 of 1	5	08 Dec 2022	CERTIFICATION DRAWING FOR HTS1F MARKING LABEL
HTS1F-02/C	1 of 1	5	08 Dec 2022	HTS1F ATEX, IECEX & UKEX LABEL
HTS1F-MARKINGS	1 of 1	4	08 Dec 2022	HTS1F ALUMINIUM FOIL- ATEX, IECEX and UKEX MARKINGS
SK HTS1F / C	1 of 1	4	08 Dec 2022	IN-LINE SPLICING KIT FOR LONGLINE HTS1F BETWEEN TWO HEATING TAPES
TK HTS EG1/C	1 of 1	1	08 Dec 2022	Termination GA for Longline HTS1F Via a Cable Gland (e or d)
TK HTS1F/C	1 of 1	4	08 Dec 2022	SUPPLY END TERMINATION KIT FOR LONGLINE HTS1F BETWEEN HEATING TAPE AND COLD LEAD
TK0485/C	1 of 1	1	08 Dec 2022	LONGLINE HTS1F SPLICE/TERMINATION TUBE