EU Type Examination Certificate CML 19ATEX3388X Issue 1

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

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**

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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 CML B.V., Chamber of Commerce No 6738671, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

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:

Ex 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

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*-**WXYY** 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) 13mm^2
to
(55) 55mm^2
For aluminium conductor:
(17) 17mm^2
to
(65) 65mm^2
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.

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

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.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	09 Dec 2019	R12696A/00	Issue of Prime Certificate
1	04 Jan 2023	R16006A/00	Introduction of Variation 1

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

13 Conditions of Manufacture

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

i. 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.

ii. 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.

iii. 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 (Special Conditions)

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

i. The heaters shall be installed in suitable certified terminal boxes, via suitable certified terminals and cables.

ii. Suitable cold leads shall be selected by the end user.

iii. 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 19ATEX3388X**
Equipment	**HTS1F and HTS1FA Range of Trace Heating Tapes**
Manufacturer	**Heat Trace Limited**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
HC1451/C	1 to 1	6	09 Dec 2019	Copper Longline HTS1F
HC1454/C	1 to 1	7	09 Dec 2019	Aluminium Longline HTS1FA
HC1456/C	1 to 1	1	09 Dec 2019	HTS1F Copper Conductor – Conductor CSA vs. Resistance graph
HC1457/C	1 to 1	1	09 Dec 2019	HTS1FA Aluminium Conductor – Conductor CSA vs. Resistance graph
SK/HTS1F/C	1 to 1	3	09 Dec 2019	In-Line splicing kit for Longline HTS1F between two heating tapes
TK/HTS1F/C	1 to 1	3	09 Dec 2019	Supply end termination kit for Longline HTS1F between heating tape and cold lead
TK/HTS/EG1/C	1 to 1	0	09 Dec 2019	Termination GA for Longline HTS1F via a Cable gland (e or d)
HTS1F Drum Label	1 to 1	2	09 Dec 2019	Drum Cable Label – For Cable Type HTS1F
HTS1F Markings	1 to 1	2	09 Dec 2019	HTS1F Copper Foil – ATEX and IECEx Markings
HTS1F-01/C	1 to 1	2	09 Dec 2019	Certification Drawing for HTS1F Marking Label
HTS1F-02/C	1 to 1	2	09 Dec 2019	HTS1F ATEX and IECEx Label
HTS1FA-Markings	1 to 1	2	09 Dec 2019	HTS1FA Aluminium Foil – ATEX and IECEx Markings
TK0485/C	1 to 1	0	09 Dec 2019	Longline HTS1F Splice/Termination Tube

Issue 1

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
HC1457/C	1 of 1	2	08 Dec 2022	GRAPH SHOWING HTS1FA ALUMINIUM CONDUCTOR CROSS SECTIONAL AREA VS RESISTANCE

Certificate Annex

Certificate Number **CML 19ATEX3388X**

Equipment **HTS1F and HTS1FA Range of Trace Heating Tapes**

Manufacturer **Heat Trace Limited**

Drawing No.	Sheets	Rev	Approved date	Title
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