EU Type Examination Certificate CML 17ATEX3169 Issue 3

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

2 Equipment **Powerheat PHT Constant Power Heating Cable**

3 Manufacturer **Heat Trace Limited**

4 Address **Mere's Edge Chester Road Helsby Frodsham Cheshire WA6 0DJ** **Cromwell Road Bredbury Stockport, SK6 2RF United Kingdom** **Unit 9 Southside Bredbury Industrial Estate Bredbury Stockport SK6 2SP**

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 GD

Ex 60079-30-1 IIC T* Gb

Ex 60079-30-1 IIIC T*°C Db

IP67

Ta= -40°C≤Ta≤+285°C

* Temperature Class is determined by the process/workpiece temperature. See product description for Temperature Class

11 Description

The Powerheat PHT Heating Cables are constant power trace heating cables that are used to protect against freezing or maintain temperatures. The cables are rated at up to 70 W/m on a supply voltage up to 277 V. They comprise two insulated parallel bus wires, around which is wrapped a layer of mica and then glass insulation tape. A resistance wire is spiralled over the core, which is notched at intervals so that the resistance wire connects to the bus wires underneath. A further layer of mica and glass tape insulation is wrapped over the top of the resistance wire. The insulation is covered with a fluoropolymer jacket, metallic braid and can have a further, optional, chemical resistant fluoropolymer outer jacket.

The heating cables are cut to length to form a unit that is terminated at each end with a seal kit. The heaters are designed to be used with BES4, BPS4, HES2 and HPS2 end and powered end seals, covered by certificates IECEx CML 19.0133U and CML 19ATEX3390U, and connected to a supply by means of suitable certified cable entries and junction boxes in accordance with the manufacturer's installation instructions.

When the following end and powered end seals are used, the following limiting temperatures apply:

End/ powered end seal type	**Limiting temperature range**
HES2	-40°C to +105°C
HPS2	-40°C to +90°C
BES4 and BPS4 (with standard RTV)	-40°C to +180°C
BES4 and BPS4 (with high temperature RTV)	-40°C to +250°C

The Temperature Class is dependent on the workpiece temperature (temperature of the process pipework), the maximum workpiece temperatures per Temperature Class are detailed in the following tables.

PHT-N (without outer fluoropolymer jacket)

Workpiece Temperatures						
Output	**T6 (T85°C)**	**T5 (T100°C)**	**T4 (T135°C)**	**T3 (T200°C)**	**T2 (T300°C)**	**T1 (T450°C)**
Maximum sheath temperature	**80°C**	**95°C**	**130°C**	**195°C**	**200°C**	**200°C**
10 W/m	43	60	100	181	275	275
20 W/m	2	19	61	148	250	250
30 W/m	-	-	25	114	234	234
40 W/m	-	-	5	80	209	209
50 W/m	-	-	-	49	186	186
60 W/m	-	-	-	26	159	159
70 W/m	-	-	-	-	125	125

PHT-NF (with outer fluoropolymer jacket)

Workpiece Temperatures						
Output	**T6 (T85°C)**	**T5 (T100°C)**	**T4 (T135°C)**	**T3 (T200°C)**	**T2 (T300°C)**	**T1 (T450°C)**
Maximum sheath temperature	**80°C**	**95°C**	**130°C**	**195°C**	**200°C**	**200°C**
10 W/m	39	59	106	186	275	275
20 W/m	-	3	67	160	256	256
30 W/m	-	-	20	133	243	243
40 W/m	-	-	-	101	231	231
50 W/m	-	-	-	64	201	201
60 W/m	-	-	-	27	180	180
70 W/m	-	-	-	-	147	147

Variation 1

This variation introduced the following changes:

i. Change of notified body number on the label drawing from “0518” to “nnnn”
ii. Minor editorial changes to the marking drawings
iii. Change to the drawing numbers
iv. Transfer of certificate from CML UK to CML BV

Variation 2

This variation introduced the following changes:

i. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, the documents previously listed, EN 60079-30-1:2007, is replaced by EN 60079-30-1:2017; as a result, the markings of the equipment were updated.
ii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, the documents previously listed, EN 60079-0:2012+A11:2013, is replaced by EN IEC 60079-0:2018.
iii. The product description was amended to update the certificate numbers of the end and powered end seals from Sira 12ATEX3157U and IECEx SIR 11.0137X to CML 19ATEX3390U and IECEx CML 19.0133U.

Variation 3

This variation introduced the following changes:

i. Introduction of alternative braid options with new product references
ii. Correction from previous assessment to include additional manufacturing locations
iii. Additional conditions of manufacture added to make corrections from previous assessment

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	06 Oct 2017	R2415A/00	Issue of prime certificate
1	1 Nov 2019	R12830A/00	Introduction of Variation 1
2	19 Aug 2021	R13396A/00	Introduction of Variation 2
3	29 Jun 2022	R15271A/00	Introduction of Variation 3

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. Where the product incorporates certified parts or safety critical components the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
ii. An electric strength test of 2 U+1000V rms shall be applied between the conductors and the outer braid or sheath as appropriate for 60 seconds in accordance with the requirements of EN 60079-30-1:2017 clause 5.1.2.
iii. The manufacturer shall verify the output rating for each cable manufactured in accordance with the requirements of EN 60079-30-1:2017 clause 5.2.2.
iv. The manufacturer shall demonstrate, through their quality program, the thermal safety of the trace heating cable with respect to time in accordance with the requirements of EN 60079-30-1:2017 clause 5.1.12

14 Specific Conditions of Use (Special Conditions)

None.

Certificate Annex

Certificate Number	**CML 17ATEX3169**
Equipment	**Powerheat PHT Constant Power Heating Cable**
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
HC2900-C	1 of 1	5	04 Oct 2017	Powerheat PHT
PHT DRUM LABEL	1 of 1	0	04 Oct 2017	Drum label
PHT-01-C	1 of 1	0	04 Oct 2017	Marking label
PHT MARKINGS	1 of 1	0	04 Oct 2017	Marking options
PHT-02-C	1 of 1	0	04 Oct 2017	Marking label
PHT-03-C	1 of 1	0	04 Oct 2017	Temperature Class markings

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
PHT DRUM LABEL	1 of 1	1	1 Nov 2019	Drum Cable Label – For Cable Type PHT
HTML-30/C	1 of 1	1	1 Nov 2019	PHT Marking Label
PHT MARKINGS	1 of 1	1	1 Nov 2019	PHT Heating Cable- ATEX & IECEx Markings
HTML-31/C	1 of 1	1	1 Nov 2019	PHT ATEX & IECEx Label
HTML-32/C	1 of 1	1	1 Nov 2019	“T” Class Termination Label – PHT..N For Hazardous Area Application
HTML-33/C	1 of 1	1	1 Nov 2019	“T” Class Termination Label – PHT..NF For Hazardous Area Application

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
HTML-30/C	1 of 1	2	21 Aug 2021	Certification Drawing for PHT Marking Label
HTML-31/C	1 of 1	2	21 Aug 2021	PHT ATEX & IECEx Label
PHT Markings	1 of 1	2	21 Aug 2021	PHT Heating Cable – ATEX & IECEx Markings

Certificate Annex

Certificate Number	**CML 17ATEX3169**
Equipment	**Powerheat PHT Constant Power Heating Cable**
Manufacturer	**Heat Trace Limited**

Issue 3

Drawing No	Sheets	Rev	Approved date	Title
HC2900/C	1 of 1	7	28 Jun 2022	Certification Drawing for Power Heat PHT
PHT Markings	1 to 4	3	28 Jun 2022	PHT Heating Cable- ATEX and IECEx Markings