

CERTIFICATE OF CONFORMITY



1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. Certificate No: FM20US0147X
3. Equipment:
(Type Reference and Name) Raychem HTV Self-Regulating Heat Trace Cable Systems, including JBS-100-A, JBS-100-A6, JBS-100-L-A, JBS-100-STB, T-100, JBM-100-A, JBM-100-A6, JBM-100-L-A, JBM-100-STB, E-100-A, E-100-L-A, JBU-100-A, JBU-100-A6, JBU-100-L-A, C75-100-A, and HAK-C-100 Connection Kits, along with S-40 and E-40 Integral Components
4. Name of Listing Company: nVent Thermal LLC
5. Address of Listing Company: 899 Broadway St,
Redwood City, California 94063-3104, USA

6. The examination and test results are recorded in confidential report number:

PR459751 dated 15th April 2021

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

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

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Electrical Resistance Trace Heater for Class I, Division 1, Groups A, B, C, and D T3A...T2B; Electrical Resistance Trace Heater for Class I, Division 2, Groups A, B, C, and D T3A...T2B;
Electrical Resistance Trace Heater for Class II/III, Division 1, Groups E, F, and G T3A...T2B;
Electrical Resistance Trace Heater for Class II/III, Division 2, Groups F and G T3A...T2B;
Integral components for Class I, Division 2, Groups A, B, C, and D T3A...T2B;

Certificate issued by:

4 June 2023

J.E. Marquedant
VP, Manager - Electrical Systems

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

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Integral components for Class II/III, Division 2, Groups F and G T3A...T2B;

Maximum continuous operating temperature: 205°C

Maximum withstand temperature: 260°C

Minimum installation temperature:-60°C

Termination Kits Explosionproof for Class I, Division 1, Groups B, C, D T3A... T2B;

Termination Kits Dust-ignitionproof for Class II/III, Division 1, Groups E, F, and G T3A... T2B; Termination Kits Suitable for Class I, Division 2, Groups A, B, C, and D T3A... T2B;

Termination Kits Suitable for Class II, Division 2, Groups F and G T3A... T2B; hazardous (classified) locations; with possible ambient temperature ranges from -40°C, -55°C, or -60°C to +40°C or +56°C and IP66 and Type 4X environmental ratings..

Note—protection concept, temperature class, and ambient temperature range depend on the type of termination kits used. Refer to the tables in the description section.

11. The marking of the equipment shall include:

Electrical Resistance Trace Heater

Class I, Division 1, Groups A, B, C, D T3A...T2B -40°C, -60°C ≤ Ta ≤ +56°C

Class II, Division 1, Groups E, F, G, T3A...T2B -60°C ≤ Ta ≤ +56°C

Class I, Division 2, Groups A, B, C, D, T3A...T2B -60°C ≤ Ta ≤ +56°C

Class II/III, Division 2, Groups F and G, T3A...T2B -60°C ≤ Ta ≤ +56°C

Termination Kits

Class I, Division 1, Groups B, C, D, T3A...T2B -40°C ≤ Ta ≤ +50°C

Class II/III, Division 1, Groups E, F, G, T3A...T2B -40°C ≤ Ta ≤ +50°C

Class I, Division 2, Groups A, B, C, D, T3A...T2B -40°C, -55°C, or -60°C ≤ Ta ≤ +40°C or +56°C

Class II/III, Division 2, Groups F and G, T3A...T2B -40°C, -55°C, or -60°C ≤ Ta ≤ +40°C or +56°C
IP66 Type 4X

12. Description of Equipment:

Raychem HTV family of parallel self-regulating heating cables provide solutions for industrial freeze protection and process temperature maintenance applications with high maximum continuous exposure temperature. HTV heating cables can withstand temperature up to 260°C and the maximum continuous operating temperature of +205°C. Minimum installation temperature is -60°C.

The cables have a minimum braid density of 70%.

The minimum bend radius is ½" (12.7 mm) at -60 °C.

The voltage ratings are 90-130 VAC and 190-277 VAC.

The following connection kits can be used with the HTV self-regulating heating cables:

Class I, Division 1, Groups B, C, D, T3A...T2B

Class II/III, Division 1, Groups E, F, G, T3A...T2B

Model	Description	Ambient temperature range
HAK-C-100	Termination kit for Division 1 hazardous locations	-40°C to +50°C

Class I, Division 2, Groups A, B, C, D, T3A...T2B

Class II/III, Division 2, Groups F and G, T3A...T2B

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Model	Description	Ambient Temperature Range
JBS-100-A	Single entry power connection junction box (maximum conductor size 8 AWG)	-55°C to +56°C
JBS-100-A6	Single entry power connection junction box (maximum conductor size 6 AWG)	-55°C to +56°C
JBS-100-L-A	Lighted single entry power connection junction box (maximum conductor size 8 AWG)	-40°C to +40°C
JBS-100 STB	Single entry power connection junction box (Screw Terminal Block)	-55°C to +56°C
T-100	Splice or Tee connection kit	-55°C to +56°C
JBM-100-A	Multiple entry power/splice connection junction box (maximum conductor size 8 AWG)	-55°C to +56°C
JBM-100-A6	Multiple entry power/splice connection junction box (maximum conductor size 6 AWG)	-55°C to +56°C
JBM-100-L-A	Lighted multiple entry power/splice connection junction box	-40°C to +40°C
JBM-100-A6	Multiple entry power/splice connection junction box (Screw Terminal Block)	-55°C to +56°C
E-100-L-A	Lighted end seal kit	-40°C to +40°C
E-100-A	End seal kit Class I Division 2 Group A,B,C and D	-55°C to +56°C
JBU-100-A	Off pipe junction box (maximum conductor size 8AWG)	-55°C to +56°C
JBU-100-A6	Off pipe junction box (Maximum conductor size 6AWG)	-55°C to +56°C
C75-100-A	Heating cable gland kit	-55°C to +56°C
S-40	Heat shrinkable under insulation splice kit (integral component)	-60°C to +56°C
E-40	Heat shrinkable under insulation end seal Kit (integral component)	-60°C to +56°C

Electrical Resistance Trace Heater	Temperature Class
3HTV1-CT	T3A

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5HTV1-CT	T3
8HTV1-CT	T3
10HTV1-CT	T3
12HTV1-CT	T3
15HTV1-CT	T3
20HTV1-CT	T2D

Electrical Resistance Trace Heater	Temperature Class
3HTV2-CT	T3A
5HTV2-CT	T3
8HTV2-CT	T3
10HTV2-CT	T3
12HTV2-CT	T3
15HTV2-CT	T3
20HTV2-CT	T2D
28HTV2-CT	T2B

Raychem aHTVb-CT Self-Regulating Heat Tracing Cable System

a= output, W/ft@50°F: 3, 5, 8, 10, 12, 15, 20, 28

b= Voltage: 1 (120Vac:90~130Vac) or 2 (240Vac: 190~277Vac)

13. Specific Conditions of Use:

1. HTV Series Heating Cables must be installed using nVent Thermal LLC's JBS-100-A, JBS-100-A6, JBS-100-L-A, JBS-100-STB, T-100, JBM-100-A, JBM-100-A6, JBM-100-L-A, JBM-100-STB, E-100-A, E-100-L-A, JBU-100-A, JBU-100-A6, JBU-100-L-A, C75-100-A, and HAK-C-100 Connection Kits, along with S-40 and E-40 Integral Components
2. Refer to the installation instructions to reduce the potential of an electrostatic charging hazard on the enclosures of the connection kits.
3. The end-user shall mount the equipment per nVent Thermal LLC's instructions at all times
4. IP66 environmental rating does not apply to the HAK-C-100 Connection Kit, which is only rated for Type 4X

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14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
15 April 2021	Original Issue.
28 March 2023	<u>Supplement 1:</u> Report Reference: PR464099 dated 28 th March 2023. Description of the Change: - Update the FM3600 and FM3615 from 2018 to the 2022 version as no technical changes were made. - Add the 28HTV2-CT cable option. - Change the connection kit table so that it reflects the Maximum continuous operating temperature instead of the maximum withstand temperature.
4 June 2023	<u>Supplement 2:</u> Report Reference: RR237224 dated 4 June 2023. Description of the Change(s): After performing and internal project review, nVent requested a more conservative temperature rating for the newly added 28HTV2-CT. The temperate rating was changed from T2C to T2B to allow for 10°C plus an additional margin above the highest maximum sheath temperature.

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