



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Ex COMPONENT CERTIFICATE

Certificate No.: **IECEx PTB 20.0014U** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2020-05-27

Applicant: **nVent Thermal Belgium N.V**
Research Park Haasrode - Zone 2
Romeinse Straat 14
B-3001 Leuven
Belgium

Ex Component: Integrated Heat Tracing Connection System Type JBx-100-xx-xx and T-100

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Increased Safety 'eb', Protection by Enclosure 'tb', Encapsulation 'mb'**

Marking: Ex eb mb IIC Gb

Ex tb mb IIC Db

Approved for issue on behalf of the IECEx
Certification Body:

Dr. -Ing. D. Markus

Position:

**Head of Department "Explosion Protection in Energy
Technology"**

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany





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Manufacturer: **nVent Thermal Belgium N.V**
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Additional
manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/PTB/ExTR20.0015/00](#)

Quality Assessment Report:

[GB/BAS/QAR07.0053/08](#)



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Ex Component(s) covered by this certificate is described below:

The JBx-100-xx-xx and T-100 Connection box series is a connection system for electrical trace heating systems. The JBx-100-xx-xx Connection box series is subdivided in four different versions (JBS-100-xx-xx, JBM-100-xx-xx and T-100). This junction box series is mounted on an integrated pipe stand for the connection of electrical heating cables to the mains supply or to provide a splice between 2 or 3 heating cables. The different models of the series include options such as: boxes equipped with an offshore plate (earth plate) and boxes with an optional light module and lens. Another part of the Connection box series is JBU-100-xx-xx. This version has the same features, but is mounted directly on the pipeline with a support bracket instead of the pipe stand.

Technical data and nomenclature see Annex.

SCHEDULE OF LIMITATIONS:

Alternative strip heaters must not be used, unless the manufacturer's approval has been obtained.

Annex:

[COCA200014U_I0.pdf](#)



Applicant: **nVent Thermal Belgium N.V**
Research Park Haasrode - Zone 2
Romeinse Straat 14
B-3001 Leuven
Belgium

Electrical Apparatus: Integrated Heat Tracing Connection System
Type JBx-100-xx-xx and T-100

Description

The JBx-100-xx-xx and T-100 Connection box series is a connection system for electrical trace heating systems. The JBx-100-xx-xx Connection box series is subdivided in four different versions (JBS-100-xx-xx, JBM-100-xx-xx and T-100). This junction box series is mounted on an integrated pipe stand for the connection of electrical heating cables to the mains supply or to provide a splice between 2 or 3 heating cables. The different models of the series include options such as: boxes equipped with an offshore plate (earth plate) and boxes with an optional light module and lens. Another part of the Connection box series is JBU-100-xx-xx. This version has the same features, but is mounted directly on the pipeline with a support bracket instead of the pipe stand.

Product type JBS-100-xx-xx

The junction box is installed on an integral pipe support. Inside the JBS-100-xx-xx junction box there is installed one DIN rail on which are installed a number of certified terminals. Additional terminals can be added to allow an external thermostat to be connected. The junction box is designed to connect one heating cable to one power cable (with or without thermostat). Power cables are fed in the junction box by means of a hole in the sidewall of the box and a certified cable gland.

Product type JBM-100-xx-xx

The junction box is installed on an integral pipe support. The JBM-100-xx-xx junction box is designed to accommodate up to a maximum of three heating cables. Therefore, there are three pairs of certified terminals provided. Occasionally more terminals can be installed to support daisy chaining of the power supply. The power cable will be fed in the box via a hole in the sidewall of the box and a certified cable gland. Additional strain relief is provided for the heating cables. The strain relief is avoiding that the heating cables will slip when pulled.

Product type JBU-100-xx-xx

The JBU-100-xx-xx is not installed on an integral pipe support. The junction box can be installed on a stable structure such as a pipe rack; a wall via the M6 screws or can be installed via an optional support bracket directly on the pipe. The junction box is designed to accommodate up to a maximum of four heating cables to the mains supply. The electrical connections are established by means of terminals that are installed on a DIN rail inside the junction box.

Product type T-100

The T-100 is a box used as a connection (Splice) box for connecting up to maximum 3 heating cables. The Box is installed on a pipe stand providing the entries and protection for the installed heating cables. Additional strain relief is provided for the heating cables. The strain relief is avoiding that the heating cables will slip when pulled. The connection between



the conductors of the heating cables is established via ferrules. Once installed the conductors are electrically isolated using protective caps made out of temperature resistive silicone.

Technical data

Ambient temperature range	Standard version	-55°C to +56°C
	With pilot lamp	-40°C to +40°C
Max. number of heating cables	JBS-100-xx-xx	1
	JBM-100-xx-xx	3
	JBU-100-xx-xx	3 (4 without power cable)
	T-100	3
Standard number of terminals*	JBS-100-xx-xx	L+N+PE
	JBM-100-xx-xx	2xL + 2xN + 2xPE
	JBU-100-xx-xx	2xL + 2xN + 2xPE
	T-100	-
Max. wire cross section	JBS-100-xx-xx	0.5 mm ² to 10 mm ²
	JBM-100-xx-xx	0.5 mm ² to 10 mm ²
	JBU-100-xx-xx	not applicable
	T-100	not applicable
Rated voltage**	Strip heater type	
	BTV1, QTVR1, XTV1, KTV1	max. 120 V
	BTV2, QTVR2, XTV2, KTV2	Max. 277 V
	VPL1	max. 120 V
	VPL2	max. 230 / 254 V
	VPL4 + FHPC	max. 480 V
Rated current	JBS-100-xx-xx	Max. 53 A
	JBM-100-xx-xx	Max. 53 A
	JBU-100-xx-xx	Max. 53 A
	T-100	Max. 40 A

* More terminals are permitted as long as the total current through the enclosure is not exceeding 32A

**subject to protection and max. permissible rated current, max. permissible temperature of the surface to be heated; see data sheets and operating instructions of the manufacturer.



Nomenclature

JB	x	-	100	-	xx	-	xx
	1		2		3		4

- 1 S JBS – for connection of one heating cable
 M JBM – for connection of up to three heating cables.
 U JBU – universal
- 2 100 Above installation
- 3 A version with unthreaded holes
 L model with optional Light module
 E version with threaded metric holes
 P model with optional off shore plate
 D model with optional drain plug
- 4 E version with threaded metric holes
 A version with unthreaded holes
 P model with optional off shore plate

Notes for manufacturing

1. The temperature accepted as a maximum for the surface to be heated (tube temperature) shall be determined on the basis of the specific performance category, the max. admissible operating temperature of the parallel strip heaters, the voltage rating and the max. admissible current carrying capacity.
2. Applications for which heat-resistant incoming cables incl. cable glands from metal have to be used, have to be specified by the manufacturer and must be compiled with the installer/user.
3. Restrictions regarding the use of type JBS-100-L-xx, JBM-100-L-xx and JBU-100-L-xx (with pilot lamp) have to be specified by the manufacturer and must be complied with the installer/user.
4. The parallel strip heaters, type VPL and FHPC, have to be installed so that their cold ends start outside the terminal box.
5. If JBU-100-xx-x with voltage infeed is installed, an adequate heat-resistant feeder and screwed metal glands, incl. gasket, must be used at $40\text{ °C} < T_a < 56\text{ °C}$. For the screwed metal glands, incl. gasket a separate IECEx Certificate must have been issued and they must have been verified by nVent Thermal.
6. For heating cables, certified nVent Thermal LLC glands of type C25-100-METAL must be used at $40\text{ °C} < T_a < 56\text{ °C}$.
7. The version of the connection box with a drain plug must be suspended on the pipe to ensure proper function.

Schedule of Limitations

Alternative strip heaters must not be used, unless the manufacturer's approval has been obtained.