INSTRUCTIONS FOR:-

EXPLOSION-PROOF TUBULAR HEATER

Series:- TXT3

These instructions apply to models with the following characteristics

Voltage	230V 1ph
Temperature Class	T3
Maximum Air Temperature	40°C
Minimum Air Temperature	-30°C
Construction Material	Steel with epoxy coating

Heaters with variations on these characteristics are available but will require alternative instructions.

Section 1 – Introduction

Section 2 – Installation and Maintenance

Section 1 – Introduction

1.1 General

1.1.1 Use

The electric finned tube air heater type TXT3 has been designed to heat areas where a potentially explosive atmosphere can arise from handling inflammable dusts, gasses, vapours and liquids. The heaters can be used in confined spaces such as hazardous material storage containers and painting booths. The maximum and minimum allowable surrounding temperature is limited by the ambient temperature specifications found on the heater's type label.

1.1.2 Applications

The electric finned tube air heater type TXT3 can be used in:

- Offshore drilling platforms
- Gas tankers
- Gas regulator station
- Battery rooms
- Fuel filling stations
- Hazardous material storage containers
- Gas or liquid handling/processing cabinets
- Spray booths/paint storage rooms and cabinets
- Many other areas, including confined spaces, with potentially explosive atmosphere

1.2 Description and Data

1.2.1 Mechanical Construction

The electric finned tube air heater type TXT3 comprises a finned tube welded to a flameproof enclosure. The heating element is made from stacked ceramic parts in which the resistance wire is located. The electrical connection of the heater must be carried out using a certified flameproof cable gland. The heater has two supports for horizontal floor or wall mounting and is finished with a grey epoxy coating.

1.2.2 Temperature Regulation

The electric finned tube air heater type TXT3 does not have its own temperature regulator.

The heater has been designed to have stabilised heat-transfer between the heating element and the ambient air, while being energised at its rated voltage and with an ambient temperature up to the maximum allowable temperature of 40°C. The heat-density (W/cm²) is determined in such a way that, during normal operation, the surface temperature remains below the T3 temperature class.

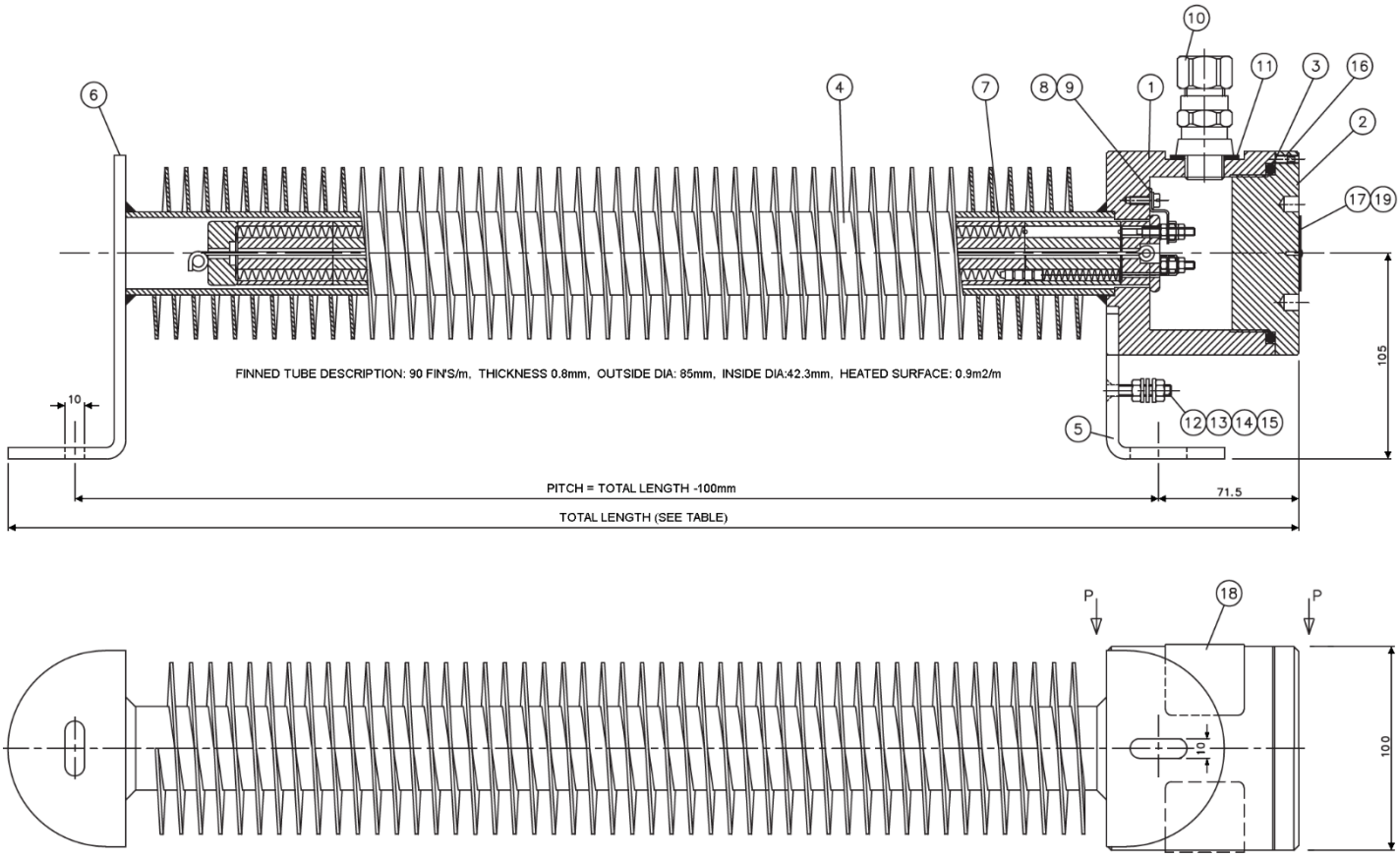
The ambient temperature must be regulated by a direct or indirect, separate explosion proof room thermostat or other suitable temperature control device. The standard temperature range for this thermostat is 0-40°C. The room thermostat will switch off the heater once the ambient temperature reaches the set-point (40°C max.), safeguarding against overheating.

If there is a risk of exceeding the maximum allowable ambient temperature while the heater is energised, it is recommended to have an additional explosion proof limiter thermostat installed. This could happen if excessive power is applied in a well-insulated small or confined space as transmission losses will be less than supplied heat.

Other methods of temperature control, such as electronic sensors and regulators, can be used provided safe and reliable operation is ensured by the installer / end user.

1.2.3 Technical Data

Maximum Voltage	230v 1 phase
Ex Code	Ex II 2 G EX db IIC T3 Gb according to EN/IEC 60079-0 and EN/IEC 60079-1
	Ex II 2 D EX tb IIIC T200°C Db according to EN/IEC 60079-0 and EN/IEC 60079-31
Ingress Protection	IP66
Certificated Number	ISSeP 15ATEX0032X
Cable Gland	M20 x 1.5mm ex-proof (selection according to EN/IEC 60079-14)
Temperature Regulation	See paragraph 1.2.2



Model No.	Total Length	Voltage	Wattage	Weight
TXT3-04	650mm	230V	400W	10kg
TXT3-05	850mm	230V	500W	11.5kg
TXT3-10	1450mm	230V	1,000W	16kg
TXT3-15	2050mm	230V	1,520W	19.5kg

Section 2 – Installation, Use and Maintenance

2.1 Installation and Use

2.1.1 General/Before Installation

Prior to unpacking the equipment, ensure that all crates and packaging are in good condition and free from damage. Any damage must be reported to BN Thermic Ltd. Suitable fixing devices must be used for mounting.

- TXT3 heaters must be stored in clean, dry conditions and protected from dust.
- Recommended storage conditions: 0°C to 40°C, less than 55% RH.
- Preservation may be necessary if stored for long periods of time.
- Installation should be carried out by qualified personnel only.
- Installation must meet the requirements of EN-IEC 60079-14.
- All applicable prevailing rules, guidelines and regulations must be observed during installation and use.
- Make sure it is safe to work in the area concerned.
- Ensure that the heater is suitable for the location. The type label specification must comply with the applicable hazardous area zone, gas group and temperature class.
- Heaters longer than 1m are heavy and difficult to handle by one person.
- Make sure sufficient people, the required lifting equipment and other required tools are available before starting installation.
- Prevent any mechanical damage to the heater during installation.
- Check the protective paint finish before commissioning. Repair any damaged spots for continued corrosion protection.
- Check the flameproof enclosure including the threads for possible damage or excessive corrosion.
- Ceramic fragments inside the heater enclosure could indicate a damaged heating element. Replace the heating element if any ceramic parts are damaged.
- Supply voltage must correspond to the type label specification.
- Use suitable cables and Ex ‘d’ cable glands.
- A suitable RCD and over-current protection must be used.
- TXT3 heaters are designed for industrial use and will have surface temperatures above 65°C. BN Thermic provides wire guards if protection against contact is required.
- Unauthorised modification of a TXT3 heater is strictly forbidden and will invalidate certification.

2.1.2 Cable and Cable Gland Selection

! Warning ! Correct cable / cable gland selection and installation is a condition for maintaining the flameproof protection of the TXT3 heater. Incorrect installation can be dangerous.

Use high quality cables only. Cables with low tensile strength sheaths are NOT allowed. According to EN-IEC 60079-14, cables should be sheathed with thermoplastic, thermosetting or elastomeric material. They should be circular and compact. Any bedding or sheath shall be extruded. Fillers, if any, shall be non-hygroscopic. If, for some reason, flexible cables are preferred, they must comply with EN-IEC 60079-14.

Braided or armoured cables are recommended but are not mandatory. Cable current/voltage rating, temperature characteristics and dimensions (e.g. cross-section conductors and cable length) must be suitable for the connected heater. Observe the electrical load information on the heater type label.

The cable gland shall be selected to match the cable diameter. The use of sealing tape, heat shrink or other materials to make the cable fit the gland is not permitted. The cable gland must comply with EN-IEC 60079-1 and must be certified as Ex 'd' equipment

In some instances, TXT3 heaters may be supplied with additional cable entries. If required, these can be sealed using Ex 'd' stopping plugs. Adaptors shall not be used together with stopping plugs.

2.1.3 Heater Installation

Remove any preservation or packing material before installation. Do not install in a location where natural convection is obstructed or where heat accumulation is possible. The following clearances should be used as a guideline: 105mm from wall, 900mm from ceiling.

In some cases, it may not be possible to adhere to the above guideline. In these instances, pay particular attention to the ambient temperature near the heater. Appropriate control limiting device or devices must be used to ensure that air temperature near the heater never exceeds 40°C.

2.1.4 Mounting Instructions

- Check that the supply voltage complies with the voltage shown on the type label.
- Fix the supports for horizontal mounting on the floor or the wall.
- Loosen the terminal cover locking screw and then unscrew the cover.
- Connect live, neutral and earth to the M4 terminals provided. The heater must be earthed.
- Follow the manufacturer's instructions for the cable gland and use a suitable sealing washer to maintain IP rating.
- After connecting the power cable, refit the cover. Make sure the rubber seal ring is correctly located and undamaged. The cover thread must be kept clean and undamaged (grease is allowed). Secure the cover by re-tightening the locking screw (M4 x 10mm). A suitable tool is provided with the heater.
- If necessary, connect the external M5 earth bolt on the support to avoid electrostatic discharge.
- Connect the heater to the temperature control/limiting device(s).
- Install protection guards, if required.
- Check the temperature settings of the thermostat and/or other temperature control/limiting devices.

2.1.5 Inspection before use

- Check that the finned tube air heater is mounted horizontally.
- Ensure that the finned tube air heaters can freely transfer its heat to the surrounding air
- Check that the electrical connections have been made according to these instructions
- Ensure that the cable gland has been mounted correctly and that the cable has been fastened thoroughly.
- Ensure that the cover has been refitted and secured.

! Warning ! The heater and the optional guard must never be covered as this can cause dangerous overheating!

2.1.6 Conditions for Safe Use

Minimum Ambient Temperature	-30°C
Maximum Ambient Temperature	+40°C
Temperature Class	T3 (G) T200°C (D)

- The heater must be mounted horizontally
- The heater (and optional guard) must never be covered

Additional conditions for areas with dust explosion hazard

- The layer of dust accumulated on the heater must not exceed 5mm
- The ignition temperature of the dust shall be higher than 275°C

2.1.7 Instructions for Use

- Do not energise the heater unless the conditions as stated in paragraphs 2.1.5 and 2.1.6 are verified and met.
- The electric heating element in the finned tube air heater will generate heat all the time it is energised by the temperature control device. The heater's residual heat will result in a lengthy cooling down period before the heater surface returns to the ambient temperature.
- Before energising, adjust the thermostat or other control device to the desired temperature within the ambient temperature range.
- Apply supply voltage by activating the external isolator.
- Do not touch the heating surface of the heater while it is energised

2.2 Maintenance and Regular Inspection

2.2.1 General Instructions

Make sure it is safe to work before carrying out any inspection or maintenance activities. No hazardous gasses and/or hazardous dusts may be present.

Fully isolate the equipment from the electrical supply before opening the cover or working on the electrical connections.

Do not energise the heater with the cover open (during testing/servicing) while an explosive atmosphere may be resent. This will result in an explosion hazard.

Prevent direct contact with live components such as the heating element connections.

2.2.2 Cleaning the Finned Tube Air Heater

The finned tube air heater is basically maintenance-free. Any dust or dirt should be removed at regular intervals using a soft brush, dry cloth or damp cloth soaked in water and non-aggressive cleaning agent.

2.2.3 General Inspection

Regular inspection according to EN-IEC 60079-17 (especially table 1, Ex 'd') is recommended.

2.2.4 Equipment Specific Inspection

Depending on conditions of use, it may be required to perform additional equipment specific inspections at regular intervals. This could be the case should the heater be located in a severely polluting or harsh environment. The actual required inspection schedule must be determined by the hazardous site manager who is familiar with site conditions.

Equipment Specific Inspections	
Three Monthly	
1	General inspection for mechanical damage
2	Remove dust and dirt from heater enclosure
3	Ensure no objects are present between the element fins
4	Ensure that free convection is not obstructed
Six Monthly	
1	Isolate the electrical supply. Loosen the locking screw and remove cover.
2	Ensure that the inside of the flameproof enclosure is clean and free from loose objects
3	Check for the presence of excessive corrosion
4	Ensure that the electrical connections are intact and secure
5	Check earth continuity
6	Check that the cable gland in mounted correctly and that the cable is fastened thoroughly
7	Inspect the rubber seal ring, make sure it is positioned correctly and refit the cover.
Annually	
1	Check for low dielectric strength by performing a high voltage check between the phase connections and earth.
2	Check the heating element by measuring the ohmic value between live and neutral connections.
3	Ensure the heating element is undamaged and no loose ceramic particles are present.

! Note! The cover and rubber seal ring have been greased with Molykote Longterm grease. Prevent this grease from gathering dirt during repair work.

2.3 Malfunctions

2.3.1 General

Before looking for possible causes of a malfunction, check to see whether all instructions specified in this manual have been carried out correctly.

2.3.2 Malfunction Table: heater does not reach temperature

Possible Cause	Remedy
Over current protection activated	Check nominal current, heating element resistance and insulation
Earth leakage protection activated	Check device setting / heating element insulation
Power not present	Switch on main power switch
Temperature control device set too low	Alter setting
External temperature limiting device is activated	Correct cause of tripping and perform reset
None of above	Insufficient heat capacity

Should repairs or replacement parts be required, contact BN Thermic.

Repairs must be performed by a qualified and skilled technician.

Declaration of Conformity

The TXT3 range of finned tube air heaters is manufactured by our partners Sinus Jevi Electric Heating BV under the under the product code ERB (Model type: D-8500).

Should you need to cross reference heater models, please use following table

Heater Model No.	Sinus Jevi Article No.
TXT3-04	B220510400
TXT3-05	B220710500
TXT3-10	B221311000
TXT3-15	B221911520

EU Declaration of Conformity

We

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declare under our sole responsibility that the product

Explosion Proof Finned Tube Air Heater
Model/ type: **D-8500 and D-8505**
Approved by: Certificate number **ISSeP 15 ATEX 0032X**
Product Quality Assurance System **LCIE 16 ATEX Q 4010**
Notified body number **0081**

With product marking: Ex II 2G Ex db IIC T4 Gb
II 2D Ex tb IIIC T135°C Db

is in conformity with the

Equipment for use in potentially explosive atmospheres ATEX 114 (Directive 2014/34/EU) and has been verified to comply with Directive 2011/65/EU (RoHS).

and the following harmonised standards have been applied:

EN 60079-0:2012 + A11:2013; EN 60079-1:2014; EN 60079-31:2014

It remains the responsibility of the end user to install and operate the appliance according to the rules and regulations that are applicable.

Issued in Medemblik,
On 3 December, 2018

ATEX Quality Manager
Sinus Jevi Electric Heating B.V.

NOTE: *It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.*

This product conforms to EU Directive 2012/19/EU.

This appliance bears the symbol of the crossed waste bin. This indicates that, at the end of its useful life, it must not be disposed of as domestic waste, but must be taken to a collection centre for waste electrical and electronic equipment. It is the user's responsibility to dispose of this appliance through the appropriate channels. Failure to do so may incur penalties established by laws governing waste disposal.

IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Your BN Thermic product is guaranteed for one year from date of purchase. We will repair or replace at our discretion any part found to be defective. We cannot assume any consequential liability. This guarantee in no way prejudices your rights under common law and is offered as an addition to consumer liability rights.

REGISTER: Activate your warranty by registering online at www.bnthermic.co.uk and retain this installation data for future reference.

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