# Operating and Installation Instructions for Tubular Heaters:

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## 1. General

Tubular heating elements, hereinafter referred to as heating elements, are low-mass, highly compressed heating elements. Owing to the wide range of shapes and tubular materials, tubular heating elements are suitable for various applications in industrial heating technology: technology of large kitchens, household appliances, liquid heating, tool heating, air heating and mechanical and plant engineering.

Deviating usages require mutual agreement and such usages should be approved and released by the manufacturer. Otherwise, neither warranty nor liability shall be assumed.

Specified load limits must not be exceeded. Compliance with the operating, maintenance and repair conditions specified by the manufacturer is also a part of the intended use.

In addition to this manual, the binding accident prevention regulations in force in the country of use and at the place of use as well as the recognised technical rules for safe and professional work must be observed.

**VDE regulations:**

The product is manufactured in accordance with the following standards, where applicable:

- DIN-EN 60335-1
- VDE 0700-1

The production of the heating elements is certified according to the current DIN-EN ISO - standards certified by TÜV Thüringen.

This product is electrical equipment. Read these instructions carefully before installation and commissioning. Faultless functioning and operational safety can only be guaranteed if the general safety regulations for electrical installations and the special safety and installation instructions in this manual are observed during installation.

The heating element may only be used in accordance with the following instructions. Gebr. Bach GmbH accepts no liability for damage caused by failure to observe the instructions.

## 2. Technical data

Tubular heating elements are made of stainless-steel alloys depending on the medium to be heated. The centred heating wire is surrounded by compressed magnesium oxide powder. The latter isolates the heating wire electrically and has high thermal conductivity with high insulation resistance.

**Standard diameter:**

| Ø in mm | 6.5 | 8.5 |
|---|---|---|

**Special models:**

Available on request.

**Quality inspections:**

| | |
|---|---|
| Insulation | >2 MOhm at 500 V |
| High-voltage strength | 1600 V |
| Power | -5% to +10% |

## 3. Liability

Incorrect installation and incorrect selection of temperature controllers can lead to defects and accidents. Usage conditions that are deviating or that are not suitable for the intended purpose require the written approval of the manufacturer; otherwise, neither warranty nor liability for these and for resulting damages shall be assumed. The same applies to arbitrary changes to the product.

Our liability is limited to damages which have occurred during intended use. We are not liable for safety defects which are not yet recognisable according to the latest technological advancements. The warranty/guarantee period is the contractually agreed period.

## 4. Safety instructions

The heating element is not intended for use in Ex systems. When handling electrical equipment, the following must be observed: Observe the relevant fire protection precautions. Ensure that critical conditions do not occur at the heating element or in the material to be heated (e.g. fire, explosion, smoke and gas generation, etc.). Installation, maintenance and repair of the heating element are the tasks of a qualified electrician.

The heating elements may only be operated with a suitable temperature controller which ensures that the maximum permissible operating temperature is not exceeded. In case of power supply malfunctions and/or damage to the electrical equipment, switch off the heating element immediately. Do not bypass and dismantle the safety devices or change their functions or circumvent them in any other manner.

When working on the heating element, always disconnect the heating element from the power supply and secure it against being switched on again. The specified operating temperature of the heating elements does not apply to the connecting cable. If necessary, the connecting cable must be adapted as per the application.

**Remark**: The contact protection for the electrical connections must be ensured by the user.

The users must adhere to the accident prevention regulations during operations.

## 5. Installation and commissioning

Only instructed and authorised persons may handle the heating element. Use the heating element only if it is in technically flawless condition; use it in accordance with its intended purpose by keeping safety and hazard aspects in mind.

Avoid deformation of the heating element during installation. Difficult installation conditions should be taken into account at the design stage. Operate the heating elements using with a suitable temperature controller.

**Observe the following points:**

- In principle, however, ensure that no mechanical damage can occur to the metal parts or the connections.

**Electrical installation:**

- Only an authorised electrician or appropriately trained expert may establish the electrical connection.
- Earthing of the heating element must be ensured by appropriate installation if the heating element was ordered without an earthing connection.
- Ensure that the operating voltage matches the supply voltage. Use heat-resistant cables to establish all connections. Lay these cables such that they do not come in contact with sharp-edged metal parts and heat-emitting surfaces.

Put the heating element into operation only after complete installation.

## 6. Maintenance

Regular inspection by a qualified electrician is obligatory. The user must independently determine the period as per operational conditions and execute these inspections.

## 7. Repairs – spare parts

Only our service personnel or qualified electricians may carry out repairs. You can send a request for spare parts to Gebr. Bach GmbH. Gebr. Bach GmbH shall not be liable for damages that arise due to use of spare parts, accessories, lubricants and cleaning agents that are not delivered and approved by Gebr. Bach GmbH.

## 8. Dismantling

If the heating element needs to be reused in future, ensure that it is not deformed. Apply heat-resistant lubricant on clamping screws to ensure easy dismantling.

## 9. Storage

Store the heating element at a dry and dust-free location. If the storage location is too humid, the insulation material used may absorb moisture and there is a risk of a short-circuit.

## 10. Disposal

At the time of disposal, adhere to the statutory regulations that are applicable in the country of operation and the usage site at the time of disposal.

**GEBR. BACH GMBH**
**ELEKTRO-WÄRMETECHNIK**

**Hamburger Straße 4b**
**DE-99885 Ohrdruf**

**Phone: +49 (0) 3624 – 3073 0**
**Fax: +49 (0) 3624 – 3073 200**
**Email: mail@etb-bach.com**