

## Operating Instructions for Tubular Heaters

### Preparation and Installation of Heaters with Threaded Fittings or Blind Flanges for Liquid Operation

- If the heater is equipped with a head or a flange, a gasket must be used before installation. The connection surface must be clean, free of rust and irregularities to ensure leak-tight sealing.
- The electrical head must be positioned so that it is not exposed to direct contact with water, splashes, or condensing steam from the boiler.
- The heating zone of the heater must remain below the water level.

### Installation in an Air Duct or Enclosure

- The mounting hole for the tubular heater must be made with an H7 tolerance, ensuring proper heat distribution and safe operation.
- Heaters should be installed in holes with clean, undamaged surfaces, free of burrs and contamination.
- A heater equipped with a radiator (fin heater) must be installed only in air ducts or air chambers designed for this purpose and allowing unrestricted airflow.
- Ensure the heater does not come into contact with other structural elements of the device, and maintain proper safety distances from the duct walls.
- Bending the tube or damaging the fins (radiators) is strictly prohibited.
- The heater must be mounted to the enclosure only using designated mounting components such as cable glands, heads, brackets, or flanges.
- Air heaters must operate with a minimum ensured airflow (e.g., *X m/s at the heater location*) to prevent overheating of the heating elements.

## Power Connection

- The heater must be connected to the supply voltage according to the device specifications. Connecting it to a voltage higher than designed may cause the nominal power to be exceeded, which can result in heater damage and safety hazards.
- Heaters may be connected and operated only by persons holding appropriate electrical qualifications.

## Structural Characteristics

- Tubular heaters have a non-heating zone located at the point where the lead wires connect to the heating coil, depending on the model. The length and position of the non-heating zones may vary depending on the specific design.

## Operation After Storage

- In the case of long-term storage (over 3 months), it is recommended to preheat the heater at 100°C for approximately 1 hour before first use. This procedure helps remove moisture from inside the heater and prevents failures.

## Safety

- Installation, electrical connection, and operation of the heaters must be performed by qualified personnel authorized to work with electrical equipment.
- Before performing any service work, the heater must be disconnected from the power supply and allowed to cool down completely.

## Maintenance and Final Notes

- Regularly check the condition of the lead wires and the cleanliness of the contact surfaces.
- Self-repair of heaters is prohibited.
- The instruction manual should be kept near the point of use to ensure quick access for operating personnel.