Inschroefelementen Handleiding

Dear customer,

Thank you very much for placing your trust in heating elements from the IHNE & TESCH Group. We have been developing and producing high-quality electrical heating technology of the kind you have opted for since 1932.

1. General

Our heating elements are high-quality products made in Germany that have be subjected to rigorous quality checks throughout all stages of development and production. A high degree of vertical integration and the many years of experience of our employees ensure that our high level of performance can be maintained.

This quality standard will give you a guarantee of continued reliable use of the heating elements over long periods of time, provided that the technical information set out below is observed.

If you have any other questions on installing and using the heating elements or any of our other products not covered in the information below, our field service staff and sales engineers will be happy to help.

Our heating systems conform to the applicable provisions of relevant EU directives and Equipment and Product Safety Act and bear the CE mark.

2. Applications

Our Screw-in Tubular Heaters can be used for the direct heating of various liquids (alkalis and other non-aggressive fluids) and in gaseous media.

The heating elements are components, not fully operational equipment. The intended use is in industrial electrothermal machinery.

3. Safety information

The instructions for use must be read carefully and understood prior to commissioning the heating systems. Incorrect assembly, selecting the wrong heating system and regulating a heating system incorrectly will cause defects and accidents.

For safety reasons, the heating systems may only be used for the applications described in these instructions for use. General operating instructions and safety information must be observed. When assembling the system, the safety instructions relevant to the installation location and generally accepted technical rules and standards must be observed.

Heating systems must not under any circumstances be commissioned if there are visible signs of (transport) damage.

Heating systems must not be commissioned until it has been ensured that the insulation resistance is ≥ 1 MOhm.

The surface temperature of the heating systems must not cause the temperature of the material to be heated to rise to a critical level that could, for example, trigger a fire, explosion, the emission of smoke or gas, etc.

The heating systems must not be commissioned until they have been mounted such the entire contact surface cannot move.

5.2.4 Miscellaneous

Wine, milk, honey	0,2 - 0,5	W/cm²
Kerosine	0,5 - 1	W/cm²

Caution: Risk of combustion!

High temperatures occur during operation. All surfaces must be cold (≤ 40°C) when performing work on heating systems.

4. Connection

Caution: Electrical connections !

The electrical connection must only be performed by qualified electricians or persons trained in electrical safety. Work on equipment must be carried out with the equipment disconnected from the mains. It must also be ensured that the equipment cannot unintentionally be made live again.

Note the connection voltage!

Standards and specifications for electrical work must be observed. Particular attention must be paid here to conformity of the operating voltage (as embossed on the equipment) with the supply voltage.

4.1 Protective conductor

It is imperative that the protective conductor is connected, where available. Otherwise the connection of the protective conductor of the heating system must be checked as part of the mechanical connection to the machine.

4.2 Connecting line

To avoid short circuits, the connecting lines must be routed such that they cannot come into contact with sharp edges or objects. It must be ensured that the terminal area is protected against the penetration of materials (e.g. oils, plastics, moisture, greases and gases).

Note:

The appropriate connection variant for the terminal area (e.g. cables, stranded wires, connectors, busbars etc.) must be chosen depending on the ambient temperatures.

5. Technical data

5.1 Surface temperature

The data given below are maximum values at the Tubular Cartridge Heater walls and must not be exceeded:

Stainless steel 1.4541:	750 °C max.
Stainless steel 1.4828:	850 °C max.
Stainless steel 1.4876 + 2.4858:	950 °C max.

5.2 Surface load

Some examples are given below: Depending on the medium, the surface load must be determined.

5.2.1 Water

Water	4 - 15	W/cm²
Seawater	2 - 6	W/cm²

5.2.2 Oils

Synthetic oil	1 - 4	W/cm²
Vegetable oil	4 - 8	W/cm²
Heating oil	2 - 3	W/cm²

5.2.3 Air

Convection	4	W/cm² max.
2 m/s	6	W/cm² max.
5 m/s	8	W/cm² max.
10 m/s	10	W/cm² max.

Wilmod heating & systems

6. Fitting

Heating elements with sealing ring are to screw into the thread, the correct thread size and density has to be observed.

Remove the cover screws of the terminal box. Strip the lead ends and prepare them for the connection. Insert the leads into the rubber sealing. The lead entry (cable gland) has to be tightened steady after assembly.

After first commissioning retighten the nut. The tightness of the connection/thread has to be checked at regular intervals of density.

7. Operating conditions

7.1 Application notes

Avoid crusting at all costs. It must be avoided at all costs a crusting. The poor thermal conductivity of the crusts restrain the heat transfer to the medium.

Possibly occurring scaling, crusting, etc., depending on strength can affect the service life of the heating elements and should therefore be subject to regular visual inspection. If necessary, the heating element (tubing) must be cleaned of deposits and deposits. With this process the heating elements must not be damaged.

7.2 Temperatures

The connecting lines must be protected against temperature effects or be designed to withstand them.

7.2.1 Temperature control

Heating systems can absorb moisture during storage or storage in the wrong conditions, so they must be fitted with temperature control with start-up circuitry.

7.3 Storage

If storing for a prolonged period of time (several months), it must be ensured through measures within the system that the insulation resistance will drop.

Heating systems must not be commissioned until it has been ensured that the insulation resistance is ≥ 1 MOhm.

Note:

We recommend that heating systems are stored in a dry environment and that a suitable desiccant is added as appropriate.

7.4 Disposal

Disposal must be carried out in accordance with statutory regulations.