International Heating Products

Instruction Manual

Table of content

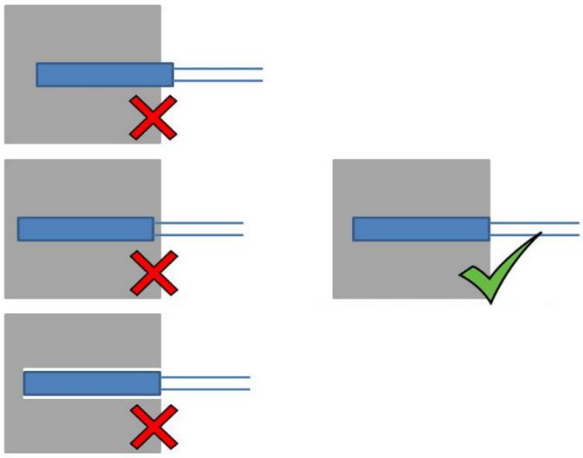
General Safety Instructions and Warnings

- Carefully review this manual before use.
- As the operating authority, you are legally responsible to prevent direct and indirect risks.
- Perform a risk assessment before using this equipment to ensure your safety and the safety of others.
- Do not remove warning labels.
- Recommendation: Place a warning sign “Caution: electrical heating, burn danger” on the outside, close to the heater.
- Only authorized personnel should handle heating elements and conduct installation and maintenance.
- Wear safety goggles, protective gloves, and high-temperature clothing when handling electrical heating elements.
- If a heater is ordered and designed with removable insulation, open conductors or without insulated power cables, the customer is responsible for the safety of the facility and personnel according to current regulations.
- Ensure proper installation with perfect H7 tolerance to the hole being heated.
- Utilize adequate thermal control measures.
- Never use in explosive or hazardous environments when not designed according to ATEX directive.
- Avoid touching with energized heating elements.
- Do not exceed maximum operating temperatures that the heater is designed for.
- Maintain appropriate spacing between heating elements. Heating elements may never overlap.
- Do not use damaged heating elements.
- All our heating elements are designed for industrial use.
- IHP recommends using a Residual-current Circuit Breaker (RCD) for all installations.
- Always protect leads and connections against the ingress of liquids and gases to avoid short circuits.
- Always make sure the heaters are cool when handling.
- **Warning!** Without a temperature regulator, the heater must be continuously monitored, with regular checks and prompt intervention if needed.

For additional security information tailored to special applications, please contact our sales office.

Installation

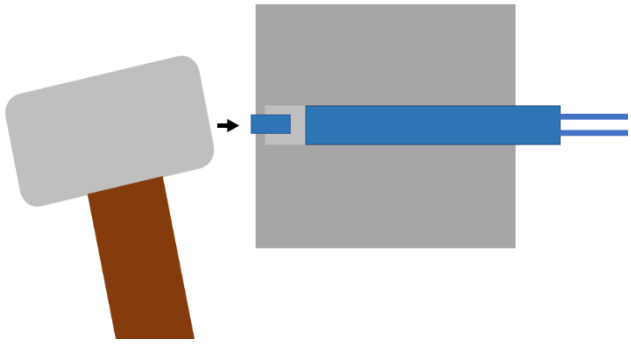
- Only authorized personnel may install electric heating elements.
- The overall condition of the heater should be checked for signs of damage.
- Accepted tolerances
  Length tolerance ± 1.5 % (minimum 1mm)
  Diameter tolerance +0 -0, 02 -0, 06 mm
  Lead length tolerance ± 15 mm
  Wattage tolerance (cold) +5 -10 %
  Ohm tolerance is -5 +10 % (minimum 1 ohm)
- Install the connections away from sharp edges to prevent short circuits, and always ensure that the leads are protected from heat.
- After installing the power connections, verify both the grounding and electrical insulation.
- Always aim for a smooth surface inside the drilled hole. Avoid scratches and uneven diameters as they can result in uneven heat transfer, leading to burning and a shortened service life of the element over time. For optimal heat transfer, it's advisable to finish drilling by reaming the inside of the hole.
- About hole for sensor, please check chapter Temperature Control.
- Before mounting the heater on metallic or electrical conducting surfaces, make sure compliant grounding is provided.
- Install and operate the heater in a manner that eliminates risks to operators, the environment, or the heated medium, even in unsupervised or accidental activation scenarios.
- Install the heater only on geometries it is specifically designed for.
- Utilize well-cleaned holes with H7 tolerance.
- Aim for a smooth inner surface within drilled holes.
- Take precautions to assure that no humidity can enter the heaters electrical parts.
- Keep cables and adhesive tapes away from the heater.
- Safeguard electrical connections from liquid (e.g., oil, plastic material) and gas intrusion to prevent short circuits.
- Avoid pulling the heating element cable or using it as a handle.
- Do not attempt to repair damaged power leads; replace them with original parts if they break.



- When installing the heater, please mark with warning symbols for hot surfaces.
- Disconnect the machine from its power source before installing.
- Ensure the machine or mould is at room temperature before installing a heater.
- Always use a temperature controller system
- If used in liquids, ensure the heater remains submerged.
- Maintain a minimum recommended space of 3x the diameter (ø) of the heater between cartridge heaters.
- Measure the heater in ambient temperature as ohm values may change after heating.

Removal:

- Always disconnect the heating element from the electrical source before removal.
- The cartridge heater must be completely cooled before removal.
- Avoid pulling the electrical leads during removal.
- To facilitate removal, consider drilling a hole opposite the entrance hole.
- Use a suitable tool to gently tap the cartridge for extraction.



Temperature control

- The heater should be regulated using an appropriate temperature control system.
- The sensor should match the temperature range for which the heater(s) is designed.
- For long durability, we recommend a gradually controlled heating.
- **Note:** If a failure could result in a dangerous situation because of the heated medium, an additional temperature limiter or controller must be installed besides the temperature regulator.
- Always connect the sensor to the temperature control system before activating the heater.
- Pay attention to the correct polarization (+/-) when using thermocouples.
- Make sure that thermocouple/sensor leads are protected from the heat source.
- Ensure functionality of control and limiting devices before use.

Operation

- Ensure proper grounding of the heating element and the enclosure.
- Always follow security protocols and regulations for handling electrical equipment and applications.
- Never operate heating elements above the designed working temperature.
- The operating instructions can only highlight risks directly associated with overheating during operation. As the operating authority, you are legally obligated to reduce indirect risks as well.
- Do not touch heating elements while in use. **Risk of injury!**

- Please maintain a safe distance between the heating element and flammable materials during use.
- Heating elements have a specific temperature it can reach and several factors affect how hot it actually gets. These include the material being heated (how well it conducts heat), the rate of material flow (throughput), the surrounding air temperature (ambient temperature), and the type and thickness of insulation used.

Maintenance and care

- Maintenance and care are carried out in accordance with the standards outlined in the 'General Safety Instructions and warnings'
- No equipment should be energized when maintenance is performed.
- The operation of the temperature control and safety limiting device must be verified and the surface and connection cable should be visually inspected for damage and tightened correctly at least once per year.
- Regularly check the application area and the heater, ensuring both are kept clean.
- Inactive or stored heaters may absorb moisture over time, leading to a decrease in electrical insulation. The heating elements can be restored by either dried in oven or gradually raising the temperature.
- Electrical maintenance on all electrical equipment must only be performed by authorized personnel.

Storage

- Keep stored in a dry location at room temperature.
- Store the heaters in closed bag, along with silica gel pouches.

Malfunction

- If any damage or malfunction is detected, the heater must be immediately disconnected and taken out of service.
- Avoid using heat transfer paste to prevent internal contamination, as this can shorten the lifespan of the heater.

Disposal

- Dispose heaters appropriately in a recycling center. For further information please contact the local waste management.

CE statement

The CE declaration of conformity is not included in the scope of delivery but can be provided upon request.

In accordance with our company policy, our products are CE-marked, indicating compliance with the recognized declaration within the European Economic Area (EEA) and EEC Directives.

Since our products are provided as components according to customer specifications for installation by them as part of a final product, we cannot control the installation and conditions of the products. The customer will be responsible for determining the suitability for use and compliance with EEC directives when the sold product is integrated into the final product.

Warranty

IHP's liability for defects in service, product, or component expires twelve (12) months from the earlier of notification of delivery or completion of delivery.
Any alterations or modifications made to the product will void your warranty.
For more info: https://ihpheating.com/delivery/

In short, the warranty does not cover problems or damages resulting, **among other reasons,** from:

- Failure to comply with the operating limits
- Wear caused by lack of maintenance, impact, inexperienced installation / commissioning personnel
- Corrosion or fouling
- Damage caused by debris in the process
- Overheating due to improper heat transfer if the heater is not designed for it
- Overheating and damage to electrical connection boxes without appropriate on-site protection

International Heating Products

www.ihp.se

Hällebergsvägen 5, 44360 Stenkullen, Sweden

T: +46 (0)31 795 30 30 E: info@ihp.se