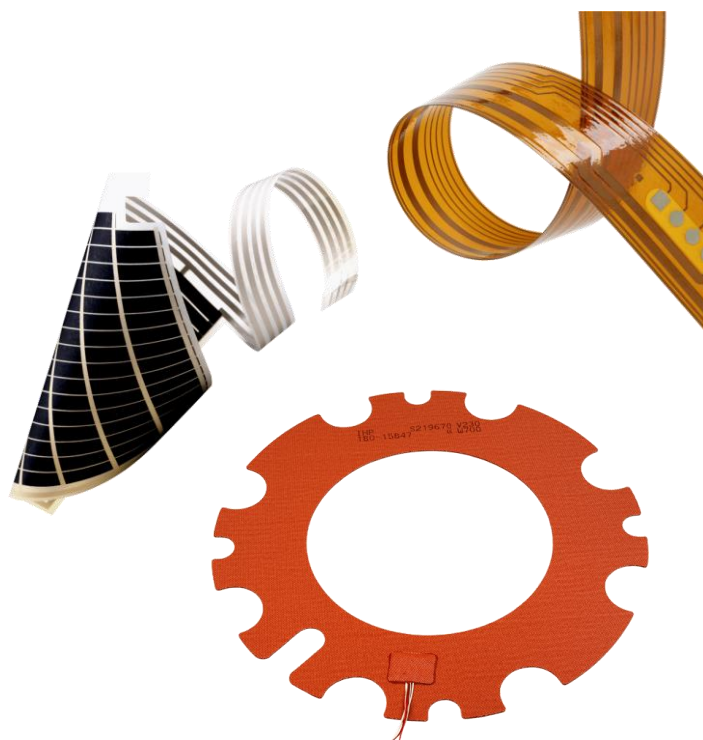




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General Safety Instructions and Warnings

- 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 surface to the medium 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.
- Never pull the cable of the heating element or use it as a handle.
- The overall condition of the heater should be checked for signs of damage.
- Install the connections away from sharp edges to prevent short circuits, and always ensure that the leads are protected from heat.
- Metallic components in contact with a foil heater must incorporate protection measures of at least protection class 1 (including protective earth connection).
- After installing the power connections, verify both the grounding and electrical insulation.

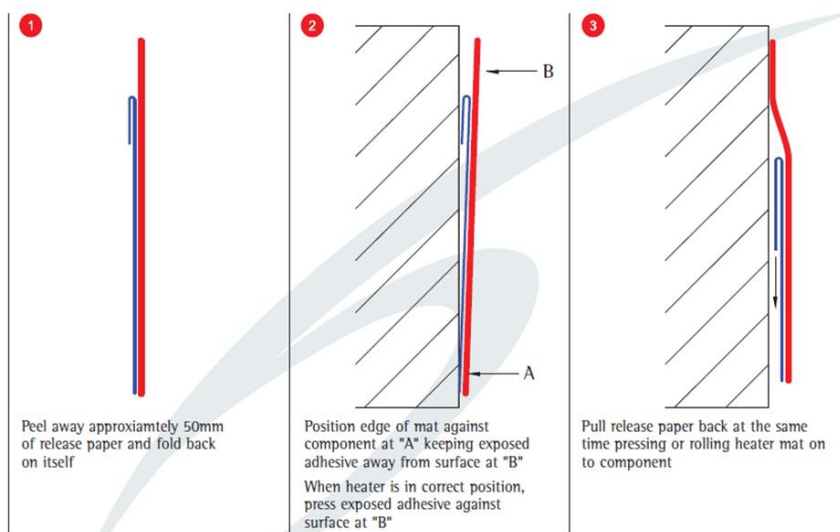
- All connections should be checked for tightness.
- Install the heater only on the geometry they are designed for.
- Ensure there are no cables or adhesive tapes under the heater.
- Check for any sharp edges that may damage the product.
- Foil heaters are designed for surface heating and should always be mounted on a surface.
- Foil heaters are only moisture-resistant and are not suitable for immersion.



Installation of Self-Adhesive foil Heater

1. Handle the heater with care, avoiding bending, creasing, or folding, especially while the backing paper is still attached.
2. Ensure that the surface to be heated is clean of grease and dirt; use a cleaning solvent if necessary. Ensure the surface is smooth to prevent air pockets.
3. The surface must be warm to the touch for the glue to adhere properly.
4. Peel the release paper starting from the farthest corner away from the lead connection (refer to Fig.1).
5. Immediately position the foil heater after peeling off the paper to prevent dust or grit from adhering to the heater (refer to Fig. 2).
6. Place the heater in the exact position, roll from one edge against the surface to be heated, and press firmly to ensure good, even contact (refer to Fig. 3).
7. Route and secure the heater's cold leads/cable away from warm parts.
8. Visually inspect the heater installation to ensure no air pockets can form.
9. Electrically static test the heater for the correct element resistance reading and earth isolation.
10. Ensure that equipment fitted to the heater provides protection against electrical shock according to relevant European standards.

Note: Once a silicone heater is installed, it cannot be reapplied.



Installation of Non-Adhesive silicone Heater with RTV silicone rubber

1. Ensure that the surface to be heated is clean of grease and dirt, using a cleaning solvent if necessary, and smooth to prevent the formation of air pockets.
2. While the elements are flexible, handle them with care to avoid rough handling, folding, or creasing.
3. Ensure the silicone heater is free of dust and dirt; use a damp cloth for cleaning if necessary.
4. The surface must be warm to the touch for the glue to adhere properly.
5. Apply a thin layer of suitable silicone rubber adhesive to cover the side that will be in contact with the surface.
6. Place the heater against the surface to be heated and press firmly to ensure good, even contact.
7. Route and secure the heater's cold leads/cable away from warm parts.
8. Visually inspect the heater installation to ensure that no air pockets can form.
9. Electrically static test the heater for the correct element resistance reading and earth isolation.
10. Ensure that equipment fitted to the heater provides protection against electrical shock according to relevant European standards.

Note: Once a silicone heater is installed, it cannot be reapplied.

Installation of Foil Heater pressed between two surfaces

1. Ensure that the surface to be heated is free of grease and dirt, using a cleaning solvent if necessary, and smooth to prevent the formation of air pockets.
2. Handle the elements with care, avoiding rough handling, folding, or creasing, even though they are flexible.
3. Ensure that the lead/cable exit is free from pressure. If there is a patch on the heater, make a cutout on one of the pressing surfaces.
4. Route and secure the heater's cold leads/cable away from warm parts.
5. Visually inspect the heater installation to ensure that no air pockets can form.
6. Perform an electrically static test on the heater to verify correct element resistance reading and earth isolation.
7. Ensure that equipment fitted to the heater provides protection against electrical shock according to relevant European standards.

Installation with hooks and springs

1. Ensure that the surface to be heated is free of grease and dirt, using a cleaning solvent if necessary, and smooth to prevent the formation of air pockets.
2. While the elements are flexible, handle them with care, avoiding rough handling, folding, or creasing.
3. Once the heater is placed on the surface to be heated, hook the springs to the hooks to ensure a firm fit to the surface.
4. Route and secure the heater's cold leads/cable away from warm parts.

5. Visually inspect the heater installation to ensure that no air pockets can form.
6. Perform an electrically static test on the heater to verify correct element resistance reading and earth isolation.
7. Ensure that equipment fitted to the heater provides protection against electrical shock according to relevant European standards.

Installation with straps

1. Ensure that the surface to be heated is free of grease and dirt, using a cleaning solvent if necessary, and smooth to prevent the formation of air pockets.
2. Handle the elements with care, avoiding rough handling, folding, or creasing, even though they are flexible.
3. Once the heater is placed on the surface to be heated, strap the straps tightly around the heater to ensure a firm fit to the surface.
4. Route and secure the heater's cold leads/cable away from warm parts.
5. Visually inspect the heater installation to ensure that no air pockets can form.
6. Perform an electrically static test on the heater to verify correct element resistance reading and earth isolation.
7. Ensure that equipment fitted to the heater provides protection against electrical shock according to relevant European standards.

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.
- Bulb and capillary thermostats, as well as bimetals, have limited lifespans and are not recommended for process temperature control, as they may respond too slowly or fail — potentially causing the heater to remain off or overheat.
- **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.



Working temperatures:

- Silicone wire wound, non-adhesive from -60° to +250°C
 - Silicone etched foil, non-adhesive from -60° to +200°C
 - Polyimide (Kapton®), non-adhesive from -269° to +200°C
 - Silicone/polyimide, self-adhesive from -30° to +180°C
 - Polyester from -30° to +90°C
-
- 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, 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.
- Clean the surface of the heater using a damp cloth. Avoid using solvents.

Storage

- Keep stored in a dry location at room temperature.

Malfunction

- If any damage or malfunction is detected, the heater must be immediately disconnected and taken out of service.



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
- Failure to comply with the documents sent to your company via e-mail, national and local regulations concerning installation operating and maintenance requirements for electrical equipment to be used in a potentially explosive atmosphere



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