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607 N. Central Avenue Wood Dale, IL 60191-1452 USA
P: 630-350-2252 Toll Free: 800-323-6859
F: 630-350-0232 E: info@tempco.com
www.tempco.com

Installation Instructions for “DHR” Series: Tempco Silicone Rubber Drum Heater



⚠ You must read and understand this manual before installing, operating, or servicing this product. Failure to understand these instructions could result in an accident causing serious injury or death.

Keep these instructions for future reference.

INTRODUCTION

Thank you for purchasing a Tempco Silicone Rubber Drum / Pail Heater. Your heater is designed to provide a long and efficient service life with quality, reliability and safety in mind. For additional information concerning this product, please contact your local Tempco representative or contact us directly at 1-800-323-6859.

APPLICATIONS

Intended Applications:

- Freeze protection
- Viscosity control
- Product heating

Prohibited Applications:

- Immersion
- Exposed to weather
- Hazardous locations
(See our DHX line of heaters)

APPROVALS



Approvals valid only when installed in accordance with all applicable instructions, codes, and regulations.

IMPORTANT SAFETY INSTRUCTIONS

Safety Alert Symbol

This symbol is used to call your attention to instructions concerning your personal safety. It points out important safety precautions. It means **“ATTENTION! Become alert! Your personal Safety is involved!”** Read the message that follows and be alert to the possibility of personal injury or Death.

 **DANGER** Immediate hazards which **WILL** result in severe personal injury or death.

 **WARNING** Hazards or unsafe practices that **COULD** result in severe personal injury or death.

 **CAUTION** Hazards or unsafe practices that **COULD** result in personal injury or property damage.



A person who has not read and understood all operation instructions is not qualified to operate this product.



- Do not immerse heater in liquid.
- Keep volatile or combustible materials away from heater when in use.
- Keep sharp objects away from heater.
- Do not modify this product. Modification will void warranty and could lead to personal injury or death.

Failure to observe these warnings may result in electric shock, risk of fire and personal injury or death.



End-User Must Comply to the Following:

- Only qualified personnel are allowed to connect electrical wiring.
- Disconnect all power at the source before making any power connections.
- All electrical wiring must follow local and national electrical codes.
- The person who performs the final installation / wiring must be qualified for this work.
- The end-user is responsible for providing a suitable disconnecting device.
- The end-user is responsible for providing suitable electrical protection devices. It is highly recommended that a ground fault circuit breaker is used.
- Consult proper authorities for information for safe heating of materials of any vessel being heated.

Failure to observe these warnings may result in personal injury or damage to the heater.

CAUTION

- **DO NOT** apply power to heater prior to proper installation. Disconnect power supply to heater before removing the heater from installation.
- Never handle the heater while it is in operation. Always disconnect the heater from the power source and allow to cool prior to handling.
- Never operate a heater without a temperature control device.
- Inspect heater before use.
- **DO NOT** wrap the heater over itself.
- If spillage of foreign matter onto heater occurs, disconnect from power source and clean after heater is allowed to cool.
- Never operate a heater without an appropriate heat sink. (device being heated is considered a heat sink)
- **DO NOT** operate heater above the rated temperature value.
- **DO NOT** attempt to repair a damaged or faulty heater.
- **DO NOT** crush, fold or apply severe physical stress on heater or cord assembly.
- Disconnect heater when not in use.
- When cool, heater should be rolled for convenient storage and placed in original packaging.
- Use specified heater with corresponding drum size. Do not use for other applications.

Failure to observe these warnings may result in personal injury or damage to the heater.

INSTALLATION INSTRUCTIONS



Failure to follow these instructions could result in property damage, personal injury, or death.

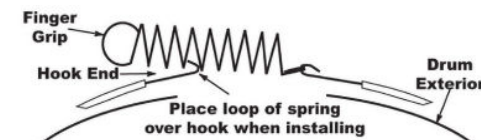
Requirements:

- Electrical terminations must be completed by qualified persons.
- Installation temperature range: -60°F (-51°C) to 131°F (55°C)
- Minimum Clearance of 3" (7.5cm) required around vessel during installation.
- Voltage and frequency must be within +/-10% of the rated value specified on the product.

Surface Preparation:

Always install your heater on a clean even surface for optimum performance and longevity. Debris and residue on the surface can not only damage your heater, but may also reduce the effectiveness of the heater by reducing the heat transfer between the surface and the heater.

- Remove or avoid contact with sharp edges including rough corners, welds and weld spatter, exposed bolts, dents, etc.
 - Remove or avoid contact with rust, stickers, or other coverings.
 - Remove oil, moisture, gel or other liquids from the vessel's surface.
1. Inspect heater prior to each installation (See inspection procedures)
 2. Inspect vessel to be heated for any sharp edges, rust, oil, etc.
 3. Ensure there are no combustible materials within 12" (30cm) of the surface to be heated.
 4. Select a suitable location to install the heater.
 5. Attach the heater assembly to the drum to be heated by hooking the spring over the hook clip at the other heater end as pictured below.



6. Most importantly, be sure to wrap the heater tightly around the drum where it will be in full contact with the drum, making sure the heater is perfectly flat and straight against the side of the drum to avoid hot spots that can shorten the life of the heater (avoid installing heater over drum ridges).
 - A. **DO NOT** place the drum heater over dents or extreme rust spots.
 - B. **DO NOT** immerse heaters in liquid.
 - C. **DO NOT** operate heaters at a voltage higher than the specified or rated voltage as indicated on the label.
 - D. **DO NOT** expose heaters to chemicals, acids, alkalis, oils, fluids or other substances that could ignite or cause damage to the heater.
 - E. **DO NOT** place any insulated material over the heater unless adequate measures are taken to control heater temperature.
 - F. **DO NOT** leave heaters operating unattended unless an external High Limit temperature controller is installed to ensure safety.
 - G. **DO NOT** attempt to repair damaged heaters. Immediately discard damaged or torn heaters to avoid injury and hazardous conditions.
7. The heater must be mounted below the level of liquid in the drum. The heater should be located below the lowest expected content level (typically the bottom 1/3) of the vessel.
8. To avoid damaging the internal element of the heater, do not bend the heater sharply.
9. **DO NOT** twist the heater or cover any protrusions that may cause an air gap between the vessel and the heater.
10. It is recommended to open the bung of the vessel to allow for expansion of the contents when heating.
11. Make sure heaters are installed and used by qualified, trained professionals.

When not in use, heater should be rolled for convenient storage and placed in original packaging.

CONNECTING HEATER TO POWER SOURCE



All electrical wiring must be completed by qualified persons and must be in compliance with local codes and regulations.

Heaters provided with a plug:



Connect the provided plug to the matching power supply receptacle.

Heaters provided with wire leads:

The power cable consists of three color-coded conductors: black, white and green. The black wire should be connected to Line 1. The white wire should be connected to Line 2. The green wire should be connected to earth ground. The power connections must be adequately rated to electrically support the voltage and amperage of the heater. The identification (Stamping) mark on the heater displays voltage and wattage of the heater. Never cut or remove the ground plug pin.

Thermostat Equipped Models:

The products that are equipped with a dial adjustable thermostat temperature controller.

1. Before connecting the heater to an electrical source set the thermostat to the minimum temperature setting by rotating the knob fully counter clockwise.
 
2. Follow the steps below to bring the temperature of contents to desired level.
 - 1) Rotate the thermostat clockwise a small amount.
 - 2) Allow contents to stabilize at new temperature. Stabilization may take a few hours. Make sure the temperature has stabilized before increasing the temperature set point.
 - 3) Repeat steps 1 and 2 until desired temperature is reached.
3. **The maximum allowable temperature of the silicone rubber drum heater is 450°F.** 

- A. **Certain conditions, such as thermodynamic heat transfer involving the thermostat, physical condition of the drum, liquid level in the drum and the desired temperature of drum contents, may cause thermostat to allow the set temperature to be exceeded.**

BE CAREFUL to avoid damaging the heater prematurely.

Continued on next page

NOTE:

Ambient conditions will affect the dial's position in which the heater begins to heat. In cooler temperature conditions the heater will begin to heat at a lower temperature position on the dial and in warmer temperature conditions the heater will begin to heat at a higher temperature position on the dial. It is recommended that a thermometer is attached to the vessel being heated. Adjust the dial until you achieve the desired temperature.

For heating temperature sensitive materials that require a specific set-point or have a tight tolerance temperature range, use of an external temperature controlling device is required. Select a temperature controller with the accuracy necessary for the application and is approved to the location and conditions where the drum heater is to be used. If assistance determining a proper temperature controlling device is required, please contact Tempco or your local distributor for application assistance and product solutions.

EMERGENCY PROCEDURES:

 **Read and understand these procedures prior to using this heater. Disconnect power to the heater in the event of an emergency.**

Electric Shock:

- Do not touch the injured person while they are still in contact with the electrical current.
- Call your emergency service if the injured person experiences: severe burns, confusion, difficulty breathing, heart rhythm problems, cardiac arrest, muscle pain and contractions, seizures or a loss of consciousness.

Minor Burns:

- Hold the burned area under cool running water for 10-15 minutes.
- Remove rings or other tight-fitting items from the burned areas.

Major Burns:

- Call your local emergency service.
- Protect the person from further harm.
- Remove rings or other tight-fitting items from the burned areas.
- Monitor breathing and perform CPR if necessary.

Fire:

- Call your local emergency service.
- If it is safe to do so, use a fire extinguisher to fight the fire, otherwise evacuate to a safe distance and wait for help to arrive.
- This heater is built from materials that will not support a flame, but could ignite nearby combustible materials.

 **MAINTENANCE INSTRUCTIONS:**

- All maintenance should be performed after heater has cooled to room temperature and with the electricity disconnected.
- This product should be inspected prior to being installed and at least every 3 months during use
- Dirt, oil, grease or other foreign matter can be removed with a damp rag and mild household cleaners.
- Do not attempt to repair a damaged heater.

 **INSPECTION:**

- Inspection should be performed after the heater has cooled to room temperature and with the electricity disconnected.
- The heater should be free of any cuts, cracks or punctures.
- The power leads should not have any visible breaks in their insulation.
- The heater should be free of any build-up of dirt, oil, grease, or other foreign matter.

STORAGE:

This product should be stored indoors. After cooling it is recommended that the heater be rolled up and placed in its original box. Never fold or crease the heater.

DISPOSAL:

This product does not contain any hazardous materials and may be discarded with domestic waste.

TROUBLESHOOTING GUIDE:

Please read this guide prior to contacting Tempco. This is designed to answer the most commonly asked questions

PROBLEM	SOLUTION(S)
Does not heat	<p>Verify heater is connected to proper voltage. The identification stamp located on the heater displays the heater's voltage requirements.</p> <p>If supplied with a thermostat, set the dial to the maximum heating position. Using an ohm meter, check to see if there is a resistance reading (not an open circuit) in the heater. Correct OHMS is approximately $R = V^2/W$.</p> <p>If external temperature controlling device is installed, ensure the heaters control dial is in the maximum heating position</p>
Circuit breaker is tripping	<p>Validate that the circuit breaker is capable of handling the amp requirement of the heater.</p> <p>$A = W/V$</p> <p>Examine heater and cord for any damage.</p>
Does not fit	<p>Confirm that the heater provided was designed to fit around your specified drum. The heater is intended to fit tightly on the drum when the spring is connected to the hook end.</p>

WARRANTY INFORMATION:

TEMPCO warrants that at the time of shipment, the products manufactured by TEMPCO and sold hereunder, will be free from defects in material and workmanship and will be in conformity with the applicable printed or written specifications. If it appears that within one (1) year of shipment from TEMPCO'S plant, the products sold hereunder do not meet the warranty specified above, and the Purchaser gives written notice to TEMPCO thereof within thirty (30) days of Purchaser's discovery of such non-compliance, then after TEMPCO has examined and tested the allegedly non-complying product and found said to be, in fact, defective within the above warranty period, TEMPCO will at its option, either (A) furnish a replacement for but will not install, any product or components thereof which prove to be not in compliance with the aforesaid warranty, or, (B) issue a credit for the purchase price of any product or components thereof which prove to be not in compliance with the aforesaid warranty. TEMPCO'S liability in all circumstances shall not exceed the dollar amount of the related order. No product claimed by the purchaser to be defective within the above warranty will be accepted for return for replacement or credit without the written authorization (RMA) of TEMPCO, which authorization must be given in advance of Purchaser's return of said product. The complete details of the warranty can be found online at www.tempco.com or by calling us at 1-800-323-6859.

For additional information please contact the appropriate Tempco territorial sales manager.