

# BriskHeat®



DHCH series



DHCX series



DPCH series



ECONO series

## **Silicone Rubber Band Drum / Pail Heaters**

**DHCH, DHCS, DHCX, DHNH, DHNS, DHNX, DPCH,  
DPCS, DPNH, DPNS, ECONO, and Custom Series**

### Instruction Manual



Read and understand this material before operating or servicing this drum heater. Failure to understand how to safely operate this heater could result in an accident causing serious injury or death. This heater should only be operated by qualified personnel.

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**INTRODUCTION**

Thank you for purchasing a BriskHeat® Silicone Rubber Drum / Pail Heater. Your heater is designed to provide a long and efficient service life with function, reliability, and safety in mind. For additional information concerning this, or other BriskHeat® products, please contact your local BriskHeat® representative or contact us directly at 1-800-848-7673 (toll free, U.S. / Canada) or 614-294-3376.

**SAVE THESE INSTRUCTIONS!**

Additional copies of this manual are available upon request.



**SAFETY ALERT SYMBOL**

The symbol above 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.



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



Hazards or unsafe practices which **COULD** result in severe personal injury or death



Hazards or unsafe practices which **COULD** result in minor personal injury or property damage.

**IMPORTANT SAFETY INSTRUCTIONS**



**⚠ DANGER**  
 A person who has not read and understood all installation instructions is not qualified to install this product.

**⚠ DANGER**

- Do not immerse heater in liquid.
- Keep volatile or combustible material away from heater when in use.
- Use heater only in approved locations.
- Keep sharp metal objects away from heater.
- All DHCX and DHNX heaters have T ratings described in Article 501 of the NEC code. The heaters should not be used in an area with a lower T rating than the heater. The T rating is stated in marking on the heater.

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

**⚠ WARNING**

**End User Must Comply to the Following:**

- Only qualified personnel are allowed to connect electrical wiring.
- Disconnect all supply power at the source before making any power connections.
- All electrical wiring must follow local electrical codes and highly recommend following NEC Article 427.
- Final installation / wiring is to be inspected by the authority who has jurisdiction in the area that the heater is installed.
- The end-user is responsible for providing a suitable disconnecting device.
- The end-user is responsible for providing suitable electrical protection device. It is highly recommended that a ground fault circuit breaker is used.
- DHCX and DHNX series: A NRTL (National Recognized Testing Laboratory) listed temperature controller with a failure annunciation must be used to control the surface temperature of the heater. The controller must be approved for the area where it is located.
- DHCX and DHNX series: If heater is used to heat volatile material, an auxiliary temperature control, sensing the contents of the vessel, should be used to avoid overheating the material.

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

**Agency Approvals**

DHCH, DHCS, DHNH, DHNS, DPCH, DPCS, DPNS, DPNH, DPNS, ECONO, and Custom series

**CE** 73/23/EC (Low Voltage Directive)

**DHCX and DHNX series**

**FM** APPROVED Hazardous Locations Class I, Division 2, Groups A\*, B, C, & D Class II, Division 2, Groups F & G

\* DHNX series only

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

**⚠ CAUTION**

- Never handle the heater while it is in operation; always disconnect the heater from the power source and allow to cool prior to handling.
- Inspect heater before use.
- Never operate heater without a temperature control device.
- 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 rated temperature value.
- Fasten heater to device using approved methods only.
- Do not repair damaged or faulty heaters.
- Do not crush or apply severe physical stress on heater or cord assembly.
- Disconnect heater when not in use.
- Use specified sized heater with samed sized drum. Do not use for other applications.
- DHCX series: Never allow the full weight of the thermal bulb controller to hang from the heater.
- DHNX series: the metal enclosure must not support more than 10lbs (4.5kg).

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

**⚠ WARNING**

Read and understand this entire manual before operating this electric heater.

**SUMMARY OF OPERATION**

BriskHeat® Silicone Rubber Drum Heaters are designed to heat the contents inside either metal or poly drums / pails. “DH..” and “ECONO” are designed for metal drums / pails. “DP..” is designed for poly drums / pails.

**DHCH, DHCS, DPCH, DPCS and ECONO series** drum heaters are integrated with an adjustable thermostat controller.

**DHCX series** drum heaters are integrated with a dual set-point NEMA 7 temperature controller and a high temperature limit indicator light designed to maintain temperature at a given set-point. The temperature controller uses a liquid-filled sensing bulb to measure the drum temperature.

Once installed, the sensing bulb is in constant contact with the drum. The sensing bulb must be installed on the drum as close as possible to the actual heater; this ensures safety as well as accurate measurement and control. When the temperature of the drum reaches the temperature set-point, a “micro switch” is actuated and power is shut off to the heater. Once the temperature decreases below the set-point, power is supplied to the heater to raise the temperature. The constant feedback from the sensing bulb, coupled with the controller, enables the desired temperature control of the drum.

**DHNN, DHNS, and DHNX series** drum heaters DO NOT include a temperature controller. These heaters must be connected to an external control device approved for the desired location. These heaters must not be operated without some form of temperature control.

**PRIOR TO INSTALLATION**

1. Check for suspected damage to the heater like rips, punctures, etc.
2. Verify surface to be heated is free from all sharp edges, weld splatter, rust, oil, etc.
3. Check that the desired placement of the heater will not cause damage to the heater through impact shock, vibration, ambient temperature, or by neighboring moving parts.
4. Confirm voltage / wattage rating of heater is appropriate for power supply device or temperature controller. The heater is designed to work at a specific voltage to heat properly. For additional information, contact your local distributor or BriskHeat®.

5. Confirm heater maximum exposure temperature rating is suitable for environment. The temperature of the internal heating element may run up to 25% higher than the external surface of the heater. Use extreme caution for applications that require a process temperature near the maximum exposure temperature ratings of the drum heater.

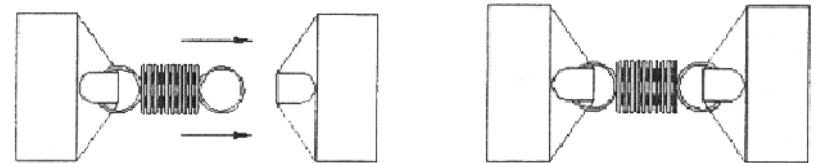
- All Silicone rubber drum heaters except DHCX and DHNX exposure temperature range: -60°F to 450°F (-51°C to 232°C)
- DHCX and DHNX exposure temperature range: -60°F to 400°F (-51°C to 204°C)
- T3: 292°F (145°C) high limit thermostat
- T4A: 158°F (70°C) high limit thermostat

5. Do NOT connect to AC power until all installation steps are completed.

**INSTALLATION OF HEATER**

1. Verify drum surface is clean, free of weld splatter, and not damaged in anyway.
2. Select a suitable location on the drum, below the lowest expected content level. For almost all applications, the heater should be mounted on the bottom 1/3 of the drum.
3. Wrap the heater around the drum. Extend the spring attached to the metal tab; latch the spring loop onto the hook on the opposite side as shown in **Figure 1**.
4. Verify there are no air gaps between the heater and the drum.

**⚠ WARNING** Do not use metal tab as a handhold when extending the spring. The heater **MUST** make continuous contact with the drum. Do not overlap the drum heater onto itself or another heater.



**FIGURE 1**

## MOUNTING OF TEMPERATURE SENSOR (DHCX series)

1. Mount the temperature sensor as close as possible to the heater, on the outside of the drum. It is best to mount the sensor vertically. Avoid bending or coiling the capillary tube tighter than a 1/2" (13mm) radius.

*NOTE: The sensing point is the entire length of the sheath (10.5" / 267mm). It is important that as much of the bulb's surface is in contact with the drum.*

**⚠ WARNING** Do not immerse the sensing bulb into the contents of the drum.

2. Once an appropriate location has been determined, secure the sensor to the drum using aluminum or fiberglass adhesive tape.

## ADJUSTMENT OF TEMPERATURE SET-POINT

**⚠ WARNING** Do not operate the heater without a temperature controlling device (if not installed). Failure to use such a device may result in in-process damage or heater failure.

If the operating temperature is within 50°F (10°C) of the maximum exposure temperature of the heater or if the temperature sensor/ controller or thermostat is controlling a process remote to the heater, an intergral high-limit temperature cut-out sensor/controller or thermostat is required to protect the heater.

### DHCH, DHCS, DPCH, DPCS, ECONO series

Adjust dial to desired setting. Drum heaters designed for metal drums (DHCH, DHCS, and ECONO series) can be adjusted 50-425°F (10-218°C). Drum heaters designed for poly drums (DPCH and DPCS series) can be adjusted 50-160°F (10-71°C).

### DHCX series

1. Remove the two screws securing the metal plate opposite the temperature sensor.
2. Remove the metal plate to expose the low and high limit set-point controls.
3. Adjust the high and low temperature set-points to an appropriate level for the environment. The low temperature set-point is the process control. The high limit set point is connected to the high temperature limit indicator light.

*NOTE: These heaters have a built-in, high limit thermostat that will prevent it from overheating.*

*T-3 rated heaters: 292°F [145°C] high limit thermostat*

*T-4A rated heaters: 158°F [70°C] high limit thermostat*

**⚠ WARNING** Do not adjust the low set-point higher than the high limit thermostat.

Do not adjust the low set-point higher than the high temperature set-point connected to the indicator light.

4. Replace the metal plate and secure with two screws.

## CONNECTING HEATER TO AC POWER

1. The drum heater is designed to work at a specific voltage. Refer to the lead wire label or stamp located on the heater for rated voltage and wattage.

**⚠ WARNING** Failure to operate the drum heater at its rated voltage could cause damage to the heater, surface being heated, or contents of drum.

All electrical connections must be made by qualified personnel and in accordance with all local codes and regulations.

Properly sized circuit breakers must be used.

The end-user is responsible for providing suitable electrical protection device. It is highly recommended that a ground fault circuit breaker be used.

### DHCH, DHCS, DPCH, DPCS, ECONO series

2. For 120VAC model, plug standard 3-prong plug to appropriate electrical power supply. For 240VAC model, terminate power cord to appropriate electrical power supply. 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 label located on the power cord displays voltage and amperage requirements. Follow all local electrical codes for proper electrical connections.

### DHCX series

2. Connect the hazardous location approved plug to power source only after all steps listed above are complete.

### DHNS, DHNS, and DHNS series

2. Refer to external temperature controller instructions for power installation instructions.

## TROUBLESHOOTING GUIDE

Please read this guide prior to contacting BriskHeat®. This guide is designed to answer the most commonly asked questions. If you are unable to identify the problem or need additional assistance, please contact your local BriskHeat® distributor or contact us toll free (U.S. / Canada only) at 1-800-848-7673 or 614-294-3376 or [bhtsales1@briskheat.com](mailto:bhtsales1@briskheat.com).

PROBLEM	SOLUTION(S)
Does not heat	Verify heater is connected to proper voltage. The identification label located on the power cord displays the heater's voltage requirement.  Check to see if there is a resistance reading (not an open circuit) in heater using an ohm meter.
Circuit breaker is tripping	Validate that the circuit breaker is capable of handling the amp requirement of heater. The identification label located on the power cord displays the heater's amperage requirement.  Examine heater and cord for any damage.
Does not fit	Confirm that the heater provided was designed to fit around your specified drum.  If the heater was designed for the specified drum, please call 1-800-848-7673 or 614-294-3376 for further assistance.
Something has lightly spilled on exterior or interior	Apply any general household cleaner, that does not contain any silicone rubber dissolving type ingredients, with a clean cloth fabric.

## WARRANTY INFORMATION

BriskHeat® warrants to the original purchaser for the period of eighteen (18) months from date of shipment or twelve (12) months from date of installation, whichever comes first. Contact factory at 1-800-848-7673 (toll free, U.S. / Canada) or 614-294-3376 for complete details.



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