



## Technical Letters

### **General FAQ's About Over Shipments, Electric (Resistance) Heater Failure, Thermocouple Color Codes, T/C Temperature Tolerances, T/C Testing & Heater Hook Up Wiring**

#### **Why did I receive an over-shipment?**

Due to the difficulty of custom manufacturing, a small percentage of heaters may fail during one of the many quality assurance tests associated with the manufacturing process. As this is a known factor, almost all heater manufacturers reserve the right to build extra heaters to offset any losses. The extra heaters are shipped and billed to the customer. NPH, in an effort to help our customers, has the following policy:

Exact quantities will be shipped from stock and on non-stock orders of 1 to 4pc. A shipping variation of +/- 10% will apply for manufactured items of 5pc or more unless NO OVERSHIPMENTS ALLOWED is noted on the order. In this case, an under-shipment may occur. To avoid an over shipment, simply alert your sales representative, and your account will be tagged for permanent NO OVER-SHIPMENT STATUS.

#### **What makes heating elements fail?**

There are three main causes of heating element failure. These include contamination or other physical abuse, shorting due to dielectric failure of the electrical insulation material, or the internal Ni-Chrome wire simply opens due to usage fatigue. The number one reason is application related or physical abuse.

[More Info-Cartridge Heater Failure Prevention Tips](#)

#### **Where along the probe of a thermocouple is temperature sensed?**

Most commonly in the very tip of the thermocouple probe, however other locations can be specified on a special order basis.

#### **Is there an easy way to prevent cartridge heaters from sticking in a bore?**

While this can be a hotly debated subject, there are a few suggestions that can minimize bore seizure. Using an anti-seize lubricant such as Prolube often helps. Increasing heat transfer with NPH's HTC (Heat Transfer Compound) helps minimize warping. We also suggest using the [Split Sheath Cartridge Heaters](#) .

## **Why do cartridge heaters seem to fail during startup—especially after a weekend?**

[Cartridge Heaters](#) use MgO, (Magnesium Oxide) a white powdery substance as their electrical insulator. MgO is hygroscopic, and as such tends to absorb moisture from the air. When full voltage is applied to a cartridge heater with moisture laden MgO, it can cause voltage arcs to the sheath tripping circuit breakers, blowing fuses, and destroying heaters.

[More Info-Cartridge Heater Failure Prevention Tips](#)

## **What dimensions do I need to order a Cartridge Heater?**

Diameter, heater length, lead type and length, watts, and volts.

## **What dimensions do I need to order a Band Heater?**

Inside diameter, width, lead type and length (or post terminals), lead/post location, watts, volts, and any special requirements (like holes or cutouts).

## **What should I do if I believe I have a faulty thermocouple that is brand new?**

First check our [Thermocouple Color Chart](#) to verify that you have the correct calibration type. Second, make sure you have the thermocouple connected properly (positive and negative legs). Thirdly, verify that your controller is set to the proper thermocouple calibration type. Fourth, verify that any extension wire used is in fact thermocouple extension wire and not electrical extension wire. Fifth, verify that you have not run thermocouple wire with power connection wire in the same conduit. Also view the [ANSI Thermocouple Temperature Ranges & Color Codes](#)

## **I need a heater in a hurry — can I use a 240V heater from stock instead of a 120V heater?**

Yes, in some cases. Contact [National Plastic Heater, Sensor And Control Inc.](#) for help in choosing the right heater.

## **Can I re-order parts using the NPH Sensor And Control Part Number?**

Yes. We offer a number of ways that make doing business with NPH Sensor and Control Inc. easy and convenient for you.

## **I didn't receive my product on your acknowledged ship date. What happened?**

Our acknowledged ship dates are estimated based on average manufacturing production times. Actual ship dates may vary. Ask your Account Manager about our Rush Priority Order Fulfillment Programs.

## How do I wire up my heating element?

See our wiring pages in the [Technical Letters and Industrial Process Heaters Literature Guide](#). As always, electrical wiring should be performed by a certified and licensed electrician who is familiar with national, state and local wiring codes and practices. Also check our [Technical Resource Center](#) for additional tips and process information data.



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