

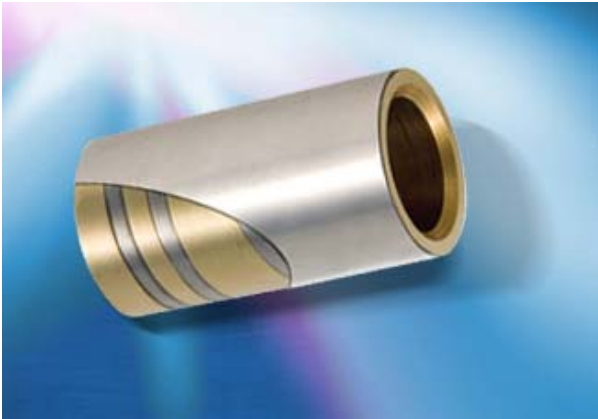
implementable process improvement solutions.

National Plastic Heater Coil Heaters are the number one choice among United States Hot Runner Injection Molding OEMs. NPH **coil heaters** are also the preferred choice of many leading scientific measurement, diagnostic and test OEMs around the world. Demand for our coil heaters has been increasing continuously among emerging markets such as form-fill and seal packaging, top seal packaging, rubber injection molding, liquid heating, electric heating process assemblies and medical equipment.

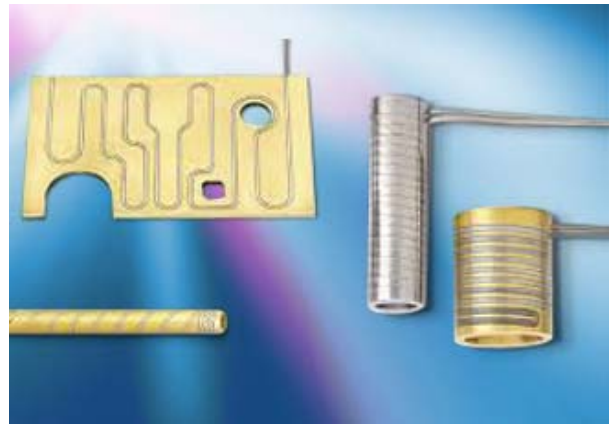
Successfully positioned in domestic trade, National Plastic Heater is engaged in the business of exporting industrial and commercial grade coil heaters, flexible tubular heaters for manifolds, temperature sensors and control systems to OEM's, R & D Specifiers, Plastics Industry Fabricators, Distributors, Universities and End Users.

NPH products are a critical component for major manufacturers operating in industries such as plastics, packaging, medical semiconductor processing, foodservice, power generation, petroleum, water purification, military technology, automotive and a variety of other industrial process control applications.

Pressed in Brass Coil Heaters-Cast in Brass Coil Heaters:



Pressed in Brass Coil Heater



Pressed in Brass Coil Heaters- Small Manifolds

National plastic Heaters' pressed in brass coil heaters deliver the benefits of cast in brass coil heaters and eliminate known problems associated with the casting process. Originally designed for the mass spectrometry market, NPH pressed in brass coil heaters have measured 8% faster responding than cast in brass heaters. The machined path in the brass for the heater enables exact repeatability of heat profile. By never exposing the coil heater to molten brass there are no risks of shifted heater coils, or destruction of the thermocouple junction.

Once the brass component is designed and in stock, NPH pressed in brass coil heaters can be delivered in 7 business days or less.

Flexible design options include internal, external "wound in" or external slotted type J or type K thermocouple

For OEM applications NPH can heat profile a pressed in brass coil heater specifically to your nozzle.

National Plastic Heaters, Benefits and Advantages:

- Custom wound from straight stock for same day shipments
- Flexible cold section
- Higher watt density than a cable heater
- Resistance wire centered for more repeatable heat profile
- Sealed transition head for moisture resistant applications available
- NPH can wind coil heaters from stock and ship same day or build to order in 7 business days

Technical Specifications:

- Profile: 1.8mm(.071") Thick X 3.2mm(.126") Wide
- Thermocouple: Integrated type J or type K
- Maximum Sheath Temperature: 1382 deg. F
- Sheath Material: Cr-Ni Steel
- Maximum Total Straight Length: 3000mm (118.11")
- Length Tolerance: Heated +/-1%; Unheated +/- 2.5%
- Maximum Voltage: 250VAC
- High Voltage Stability: 800 VAC
- Wattage Tolerance: +/-10% (contact hotset for special)
- Minimum Bending Radius: 8mm(.315")
- Watt Density: 38.7 Watts/ln2
- Insulation Resistance: >=5M Ohm @ 500 VDC (cold)
- Leakage Current: <= 0.1mA @ 253 VAC (cold)
- Length of Unheated Zone: 65mm(2.56"); 25mm(1.00") Transition Head
- Standard Connection from Stock: 48" Teflon Leads.

Axial Clamp/Cam Lock Mini Coil Heaters & Flange/Screw Operated Clamping Coil Heaters:



Axial Clamp/Cam Lock Mini Coil Heater



Flange/Screw Operated Coil Heaters

National Plastic Heaters, Benefits and Advantages:

- Positive locking positioning
- Anti-Seize Coating for ease of removal
- Replaceable external thermocouple
- Profiled for more heat at the Tip
- Caps and Closure Applications
- Also used in Plastic molding for the cosmetic industry

Technical Specifications:

- Heater Sheath: CrNi Steel
- High Voltage Stability: 800VAC
- Insulation Resistance: $\geq 5\text{M ohm}$ at 500 VDC (Cold)
- Leakage Current: $\leq 0.5\text{ mA}$ at 250VAC (Cold)
- Wattage Tolerance: +/- 2%, +/- 4%, or +/-10%
- Maximum Voltage: 250V
- Standard Connection: 72" Teflon to 500 deg. F

Flat Coil Heaters-Custom Coil Heaters:



Flat Coil Heater-2.5 x 3.2 mm



Flat/Square Coil Heaters

National Plastic Heater's flat coil heaters set the standard with respect to precise fit and profiling to optimize the performance of nozzles and other mating components. Available with or without internal thermocouples -Type J or Type K. At 2.5mm(.098") in height, the NPH flat coil heater can accommodate today's design objective of placing nozzles closer to waterlines and minimizing material usage. With a superior width of 3.4mm (.134") surface contact is maximized resulting in less required heated length and more watts per linear inch.

National Plastic Heater, Sensor and Control Offers a wide range of performance enhancing options including:

- Outside sheath to improve heating efficiency
- Inside/Outside sheath with sealed end rings to prevent contaminants shortening heater life
- Embedding in brass to create high thermal mass surrounding the heater improving high temperature performance and heater life
- Moisture resistant transition head
- High temperature lead and potting options
- Flexible cold section
- Wide variety of standard and custom lead exit options

National Plastic Heaters, Benefits and Advantages:

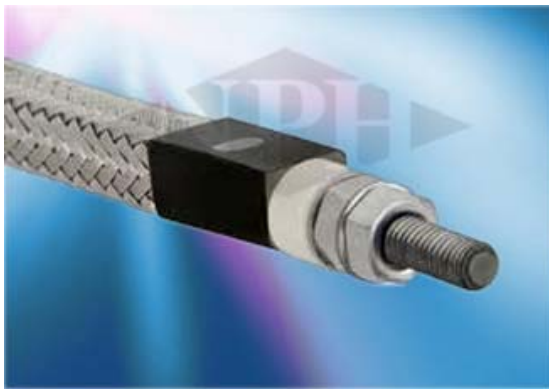
- Custom wound from straight stock for same day shipments
- Flexible cold section
- Higher watt density than a cable heater

- Resistance wire centered for more repeatable heat profile
- Sealed transition head for moisture resistant applications available
- NPH can wind coil heaters from stock and ship same day or build to order in 7 business days

Technical Specifications:

- Thermocouple: Integrated type J or type K
- Profile: 2.5mm(.098") Thick X 3.4mm(.134") Wide
- Maximum Sheath Temperature: 1382 deg. F
- Sheath Material: Cr-Ni Steel
- Maximum Total Straight Length: 3000mm (118.11")
- Length Tolerance: Heated +/-1%; Unheated +/- 2.5%
- Maximum Voltage: 250VAC
- High Voltage Stability: 800 VAC
- Wattage Tolerance: +/-10% (contact hotset for special)
- Minimum Bending Radius: 6.35mm(.250")
- Watt Density: 38.7 Watts/in²
- Insulation Resistance: >=5M Ohm @ 500 VDC (cold)
- Leakage Current: <= 0.1mA @ 253 VAC (cold)
- Length of Unheated Zone: 65mm(2.56"); 25mm(1.00") Transition Head
- Standard Connection from Stock: 48" Teflon Leads.

"Nextflex" Manifold Formable Flexible Tubular Heaters:



Formable Manifold Flexible Tubular Heaters



Nextflex Formable Tubular Heaters-Installation

With "Nextflex" Tubular Flexible Heaters-you never have to wait for a custom bent tubular heater again. User formable in three dimensions and available in 6.5, 8.0, 8.5, and 10 mm diameters-NPH's Nextflex® formable tubular heaters are proving to be the long lasting alternative to traditional tubular heaters for end users and OEMs alike.

The "nextflex" formable tubular heaters eliminates costly downtime associated with waiting for a custom bent tubular heater. Same day shipping in straight lengths, simply installed, easily stored, and improved thermal performance compared to traditional tubular heaters, the "nextflex" heater is your best choice for immediate, durable, high performance replacement heaters. OEMs who standardize on "nextflex" heaters have found they can reduce lead time for manifolds and plates requiring bent tubular heaters. Nextflex heaters have improved heat transfer and do not expand when installed. Installation cannot be easier, simply start in the middle of your mold channel, forming first at the marked center location of the Nextflex, then tap in with a Teflon or rubber mallet working your way to each end.

National Plastic Heater Formable "Nextflex" Tubular Heaters- Benefits and Advantages:

- Immediate stock sizes available
- More even distribution of heat when compared to a standard tubular heater
- Moisture resistant pin connection
- Improved durability vs. a standard tubular heater

Flexible/Bendable Tubular Heaters "Nextflex"-Technical Specifications:

- 6.5, 8.0, 8.5, and 10 mm Diameters
- Minimum Bending radius R10
- 30 mm unheated zones at each end
- Wattage tolerance +/- 10%
- Diameter tolerance +/- 0.1 mm

Applications:

- Plastic Injection Molding
- Rubber Molding
- Packaging
- Plastic Welding
- Plate Heating
- Specialty heated tools
- Food Processing Market

Low Profile Coil Heaters-Custom Coil Heaters:



Low Profile Coil Heater-1.8 x 3.2 mm



Higher Wattage Low Profile Coil Heaters

National Plastic Heater has responded to industry calls for a thinner coil heater with integral thermocouple option by creating the 1.8mm x 3.2mm flat low profile coil heater. The 3.2mm width allows for greater watt density while the 1.8mm height allows OEMs to design drops closer to each other and, also, closer to coolant line. The 3.2mm

width delivers higher wattage per linear inch compared to mini coils

National Plastic Heater, Sensor and Control offers a wide range of performance enhancing options including:

- The 1.8 x 3.2 coil, delivers the performance of standard NPH coil heaters in a thinner profile.
- Thinnest available coil heater with an integrated TC (J or K)
- Flexible Cold section
- Moisture resistant transition head, that is sealed for moisture resistant applications available
- High temperature lead and potting options
- Build to order & ships in 7 business days
- Wide variety of standard and custom lead exit options

National Plastic Heaters, Benefits and Advantages:

- Custom wound from straight stock for same day shipments
- Flexible cold section
- Higher watt density than a cable heater
- Resistance wire centered for more repeatable heat profile
- Sealed transition head for moisture resistant applications available
- NPH can wind coil heaters from stock and ship same day or build to order in 7 business days

Technical Specifications:

- Profile: 1.8mm(.071") Thick X 3.2mm(.126") Wide
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Maxi Coil Heaters-For High Temperature Coil Heater Applications



Maxi Coil Heaters (4.6 mm x 8.6 mm)



Maxi Coil Heaters



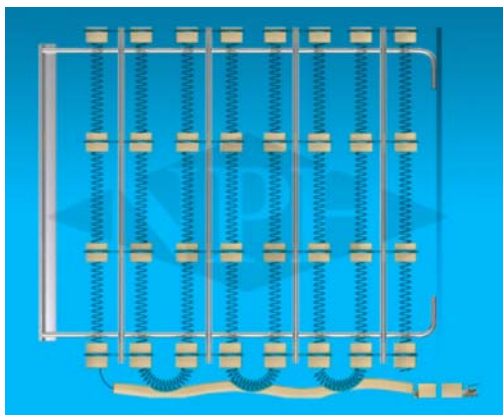
Coil Heaters-With Strap Lock-Up

The Maxi Coil heater is designed to provide maximum service life in high temperature applications and in difficult challenging environments. Maxi Coil's 4.6 x 8.6 heater is robust enough to improve heater life in applications such as zinc diecasting. The maxi coil can be incorporated into sealed inside ID/OD assemblies or tightened to a nozzle with a clamping strap.

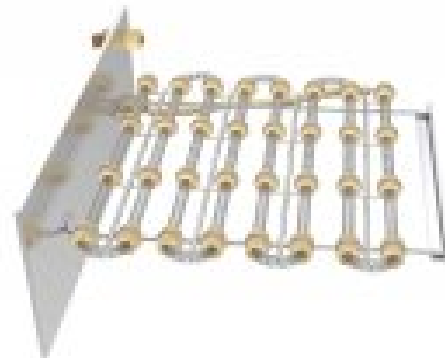
Maxi Coil heaters also offer a durable alternative to mica band heaters with greater opportunity to improve nozzle profile.

The Maxi coil heaters can carry higher watt density. Maxi coils are a high performance larger diameter alternative to MI band heaters, frequently replacing several heaters with one profiled heater.

Open Coil Heating Elements for Duct Heaters, Ovens & Many Other Industrial Applications:



Open Coil Heating Elements-Duct Heaters & Ovens



Open Coil Heaters-With Ceramic Insulators

Open Coil Heating Elements-Description:

Open coil heating elements are coiled resistance wire fixed onto a supporting steel or aluminum frame with ceramic insulators. The selection of the correct wire gauge, wire type and coil diameter requires quite some experience. There are standard elements available on the market, but quite often they need to be custom built. Open coil air heaters work best below air velocities of 80 FPM. Higher air velocities could cause the coils to touch each other and short out. For higher velocities, select a tubular air heater or finned tubular heaters.

General Applications:

The big advantage of open coil heating elements is the very quick response time. Most of these elements need a constant airflow over the resistance wire, but if the watt densities are low enough they may not burn out in still air.

Nichrome resistance wire open coil elements are used extensively in convection heating applications, R&D and as replacement coils in duct heaters, portable heaters and air process heaters, as well as in some infrared applications such as vacuum forming /thermoforming.

Before we can build a heater, we need to know at least the airflow (CFM), Delta T (i.e. change in temperature), volts and watts.

Specifications:

- High Quality grades of NiCr resistance wire (80-20) & (65-35)
- Resistive wire gauges from 6 Gauge wire up to 38 Gauge available
- Coil diameters from .250 inch dia up to 0.875 inch dia
- Arrow Ceramic/steatite clips (insulators) or rounded ceramic clips available
- Termination options include screw type or other alternatives
- Custom stretch ratios available

Features & Benefits:

Quick heat up time & easily replaceable
Outside diameters: 1 7/8" and 2 3/4"
Lengths: 60-320" (5-26 ft)
Single element ratings: 4-20 kW
Pipe Surface: 3-12 W/In²
Voltages: 240, 480 and 600V, 3 PHASE
Used in horizontal 2" or 3" schedule 40 NPS pipe
Equipped with high density electrical ceramic insulating supports
Can be bent in a vertical plane on at least 12" radius
Heavy gauge bus bars
Heavy gauge resistance wire
Special ratings and lengths available upon request



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Terms and Conditions posted below apply:

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