Electric Heaters for Original Equipment and Processes
Strip Heaters

**Sheath Material:** Stainless steel suitable for sheath temperatures up to 1200° F

**Sheath Sizes:** Rectangular low profile 5/16” x 1-1/2” or 1/2” x 2-1/2”, Lengths to 8 ft.

**Installation:** 5/16” x 1/2” mounting slot cut-outs at each end of tube

**Standard Termination:** #10-32 screw and nut with off-set orientation

**Common Options:** Wattage and voltage combinations, terminal orientations, lead wires, terminal housing, right angle flex conduit

Finned Strip Heaters

**Sheath Material:** Stainless steel with nickel plated steel fins for heat dissipation

**Sheath Sizes:** Tube is 1/2” x 1-1/2”, Fins measure 1-3/8” x 2”, Lengths to 4 ft.

**Installation:** 5/16” x 1/2” mounting slot cut-outs at each end of tube

**Standard Termination:** #10-32 screw and nut with off-set orientation

**Common Options:** Wattage and voltage combinations, terminal screw orientations, mounting brackets, lead wires, terminal housing, right angle flex conduit

Cartridge Heaters - Standard Construction

**Sheath Material:** 304 stainless sheath suitable for temperatures up to 1200° F and watt densities up to 50 watts/sq in. depending on application

**Sheath Sizes:** 3/16” to 1-1/4” diameters in lengths from 1” to several feet

**Installation:** Insertion into tight tolerance hole

**Standard Termination:** High temperature lead wires internally connected

**Common Options:** Wattage and voltage combinations, flex conduit, right angle lead wires, internal thermostats, potted end seal

Cartridge Heaters - Thunderbolt High Wattage Construction

**Sheath Material:** Alloy sheath suitable for temperatures up to 1500° F and watt densities up to 350 watts/sq in. depending on application

**Sheath Sizes:** 1/4” to 3/4” diameters in lengths from 1” to several feet

**Installation:** Insertion into tight tolerance hole

**Standard Termination:** High temperature lead wires externally connected

**Common Options:** Wattage and voltage combinations, flex conduit, right angle lead wires, internal thermostats, potted end seal

Tubular Heaters

**Sheath Material:** Copper, Steel, Stainless, or Nickel Alloy. Selections for a variety of liquids, air/gas, and solids applications

**Sheath Sizes:** 1/4” to 1/2” with lengths up to 20 ft.

**Installation:** Heaters can be supplied in almost any formed configuration with or without fittings, flanges, or custom mounting brackets

**Standard Termination:** Screw and nut studs (#8 - 32 or #10-32 depending on tube size)

**Common Options:** Wattage and voltage combinations, lengths, custom brackets, lead wires, tab terminals, stainless steel tube and fins, heavy Armorwall construction

Finned Tubular Heaters

**Sheath Material:** Steel with corrosion resistant finish suitable for sheath temperatures up to 800° F

**Sheath Sizes:** 7⁄16” diameter with 1-3⁄16” OD spiral wound fin brazed to tube

**Installation:** Standard models are available with and without threaded mounting fittings. Sheathed models are available with and without threaded mounting fittings.

**Standard Termination:** Screw and nut studs (#8 - 32 or #10-32 depending on model)

**Common Options:** Wattage and voltage combinations, lengths, custom brackets, lead wires, tab terminals, stainless steel tube and fins, heavy Armorwall construction

Bushing Immersion Heaters

**Sheath Material:** Copper, Steel, Stainless, or Nickel Alloy. Selections for a variety of liquid materials.

**Sheath Sizes:** 5/16” to 1/2” in standard diameters. Single and multiple heating elements. Depth to 10 feet.

**Installation:** 1”, 1-1/4”, 2”, and 2-1/2” NPT threaded mounting fittings in steel, stainless, and brass

**Standard Termination:** Screw and nut studs. Models with and without housing

**Common Options:** Wattage and voltage combinations, length, terminal housing, thermostats, temperature sensors, thermowells, lead wires, cordsets
Flanged Immersion Heaters

**Sheath Material**: Copper, Steel, Stainless, or Nickel Alloy. Selections for a variety of liquid materials.

**Sheath Sizes**: 5/16” to 1/2” in standard diameters. Multiple heating elements. Depth to 10 feet.

**Installation**: 3” through 14” 150 lb rated ANSI steel pipe flanges

**Standard Termination**: Screw and nut studs with general purpose or moisture resistant housing

**Common Options**: Wattage and voltage combinations, length, alternative terminal housing constructions, thermowells, thermostats, temperature sensors

Bottom Outlet (Urn Style) Heaters

**Sheath Material**: Copper for water temperatures up to boiling

**Sheath Sizes**: 7/16” diameter, single element and 3 element designs

**Installation**: Compression brass flange for through hole mounting in tank bottom

**Standard Termination**: Screw and nut studs with general purpose housing

**Common Options**: Wattage and voltage combinations, alternative terminal housings, low level thermostat cut-out switch

Over-The-Side Heaters

**Sheath Material**: Steel or Nickel Alloy for liquid heating.

**Sheath Sizes**: 7/16” diameter “L” shape or circular shape heating element bundle

**Installation**: Designed for easy in and out removal through top of tank. Heat is concentrated at bottom

**Standard Termination**: Screw and nut studs with moisture resistant housing

**Common Options**: Wattage and voltage combinations, element configurations, thermostat control, temperature sensors

Circulation Heaters - Pipe Styles

**Sheath Material**: Steel, Stainless, or Nickel Alloy within heat transfer pipe or tube shell.

**Sheath Sizes**: 7/16” and 1/2” diameter with overall exchanger lengths up to 10 feet

**Installation**: Inlet and outlet pipe fitting. Brackets on larger units.

**Standard Termination**: Screw and nut studs with general purpose or moisture resistant housing

**Common Options**: Wattage and voltage combinations, length, alternative terminal housing constructions, thermowells, thermostats, temperature sensors

Circulation Heaters - Compact Models

**Sheath Material**: Nickel Alloy sheath for excellent corrosion resistance

**Sheath Size**: 5/16” diameter with energy efficient multiple hairpin configuration

**Installation**: 1-1/2” NPT female fittings at each end of 2-3/8” diameter stainless exchanger

**Standard Termination**: Lead wires or screw and nut studs within 4 x 4 x 2 enclosure

**Common Options**: Wattage and voltage combinations, control thermostat, overtemp thermostat, exchanger lengths

Flow Through Air Heaters

**Sheath Material**: Stainless steel outer shell with efficient open resistance coil and ceramics

**Sheath Size**: Compact 1-1/4” diameter outer shell

**Installation**: 1/2” NPT male fittings at each end of exchanger tube

**Standard Termination**: High temperature leads with general purpose housing

**Common Options**: Wattage and voltage combinations, length, shell diameter, temperature sensors

Duct Heaters - Low Temperature

**Sheath Material**: Steel with corrosion resistant aluminum finish

**Sheath Size**: 7/16” diameter with 1-3/16” OD spiral wound fin brazed to tube

**Installation**: Integral sheet metal flange for duct mounting. Standard models include auto and reset thermostats

**Standard Termination**: Screw and nut studs wired for single or 3 phase with housing

**Common Options**: Wattage and voltage combinations, insertion depth, temperature sensors

Duct Heaters - High Temperature

**Sheath Material**: Nickel Alloy suitable for sheath temperatures up to 1100° F

**Sheath Size**: 3/8” and 7/16” diameter up to several feet insertion depth

**Installation**: Pre-drilled heavy duty mounting flange plate

**Standard Termination**: Pre-jumpered screw and nut studs with metal housing

**Common Options**: Wattage and voltage combinations, insertion depth, thermostats, temperature sensors, moisture resistant housing
Headquartered in Porter, Maine USA, we take pride in our traditional values and the importance of providing our customers with quality engineered products and exceptional service. We realize that in today's competitive global environment we must continually strive for superior product performance, excellence in our manufacturing operations, and deliver outstanding value to our customers. Our success depends on your success with every Vulcan product purchased.

In addition to Electric Heaters for Original Equipment and Processes, we design and manufacture the following product lines:

**Precision Thermocouples for Silicon Process Technologies**

**Thermocouple Calibration and Repair Services including our Flexible Thermocouple Management Programs**

**Temperature Sensor assemblies including capabilities with a complete range of Thermocouples, RTDs, and Thermistors**

**Temperature switches including the versatile Cal-stat Cartridge Thermostats in 1/4", 1/2" and 5/8" diameters with several mounting constructions**

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**Enclosure Heaters with Shroud**

- **Sheath Material:** Nickel Alloy for maximum longevity in air application
- **Sheath Size:** 5/16" diameter tubular construction configured for maximum heat dissipation
- **Installation:** Perforated shroud can be mounted in various positions
- **Standard Termination:** #10-32 screw tabs
- **Common Options:** Wattage and voltage combinations, terminal housing, lead wires, temperature sensors

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**Enclosure Heaters - Low Profile**

- **Sheath Material:** Stainless steel with Nickel plated steel fins
- **Sheath Size:** Tube is 5/16" x 1-1/2", Fins measure 1-3/8" x 2"
- **Installation:** Right angle brackets with mounting holes
- **Standard Termination:** Screw and nut stud
- **Common Options:** Wattage and voltage combinations, length, lead wires, moisture resistant construction

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**Preweld Heaters**

- **Sheath Material:** Stainless steel for high temperature corrosion resistance
- **Sheath Size:** Special flattened configuration for optimum heat transfer
- **Installation:** Bracket provisions included for mounting bolts
- **Standard Termination:** Twist lock plugs or screw and nut studs
- **Common Options:** Wattage and voltage combinations, tube configurations, alternative terminal housing constructions

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**Heated Cutting and Sealing Tools**

- **Sheath Material:** Alloy sheath for high temperature performance and durability
- **Sheath Size:** 1/2" diameter with precision machined and welded tool
- **Installation:** Hand held tool designed for use on heat resistant work surface
- **Standard Termination:** Cord set for power supply hook-up
- **Common Options:** Wattage and voltage combinations, machined configuration of tool, cord set length
The Total Thermal Solution approach

Vulcan Electric designs and manufactures an extensive selection of metal sheathed heater constructions, temperature sensors, and assemblies. Our capabilities extend well beyond the industry typical sheathed heaters. Many of our customers take advantage of our Total Thermal Solution approach. Too often, the heater and temperature sensor are selected for an application based on “what is available”. This product selection approach may work okay in some applications, however, often the result is inefficient heating and poor temperature control performance (as well as unnecessary costly components and assembly labor). Our experience has shown that significant advantages in performance can be achieved by incorporating the heater and sensor as an integral part of the product or process. In other words, “let us design the heat into your application”. Our engineers will review your complete application and determine the best approach to put the heat in and produce the results you need.

General Application Guide for Heater Types

<table>
<thead>
<tr>
<th>Heater Construction</th>
<th>Advantage</th>
<th>Common Application Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge Heaters - Immersion Style</td>
<td>Compact design, high wattage concentrated in a small space.</td>
<td>Process baths, chillers, dispensing equipment, vending, lab equipment</td>
</tr>
<tr>
<td>Bushing Immersion Heaters</td>
<td>Standard NPT installation fittings in sizes from 1” to 2-1/2”. Permits 1 and 3 phase options.</td>
<td>Water heating, custom process equipment, heat transfer equipment, distillation</td>
</tr>
<tr>
<td>Flanged Immersion Heaters</td>
<td>Standard ANSI pipe flanges for mounting. Very high total wattage capacities.</td>
<td>Industrial processes, waste treatment, holding tanks, viscosity control</td>
</tr>
<tr>
<td>Over-The-Side Heaters</td>
<td>No special adapter fittings or flanges required. Good for temporary heating.</td>
<td>Cleaning tanks, drums, freeze protection, hydraulic oils, evaporation</td>
</tr>
<tr>
<td>Bottom Outlet Heaters</td>
<td>Very low profile. High wattage concentrated in small area. Good for water heating applications.</td>
<td>Water heating, vaporizing, boiling, steam tables</td>
</tr>
<tr>
<td>Circulation Heaters - Compact models</td>
<td>Compact design ready for plumbing to circulation system. Good corrosion resistance.</td>
<td>Recirculating or single pass systems, heat transfer equipment, tanks, cleaning processes</td>
</tr>
<tr>
<td>Circulation Heaters - Pipe models</td>
<td>Standard ANSI pipe body with fittings. Ready for plumbing into circulation system.</td>
<td>Large recirculating or single pass systems, petro-chemical, waste treatment</td>
</tr>
<tr>
<td>* Strip Heaters</td>
<td>Flat low profile. Multiple heaters can be assembled side by side to outside of tank wall.</td>
<td>Square or rectangular tanks, vessels, process equipment, viscosity control</td>
</tr>
<tr>
<td>* Flattened Tubular Heaters</td>
<td>High wattage construction. Can be formed into a variety of shapes mounted to outside of tank wall.</td>
<td>Contoured tanks, vessels, process equipment, viscosity control</td>
</tr>
</tbody>
</table>

* Strip Heaters and Flattened Tubular Heaters are designed for mounting to the outside tank or vessel wall

Underwriters Labs recognition is available on most heaters. Certification for Canadian use is also offered. Contact us for details.