

Transit Car Floor Heaters



Transit Car Specifications

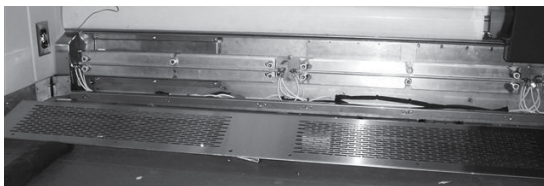
Transit car applications typically require floor heaters and even heat distribution. Heaters are normally installed in enclosures that take in air at the bottom and discharge air at the top or at the base of the window. Enclosure surfaces which can be contacted should not exceed temperatures of 52°C (125°F).

Calvane™ Heaters

Calvane™ heating elements in lengths up to 120" (3048 mm) can be purchased factory-mounted to stainless steel sub panels, ready for easy installation. These lengths reduce the number of field interconnections and allow series-connected elements to be powered at car ends or mid-car, thus minimizing assembly and wiring costs during car building. Calvane™ heaters also offer more even heat output and resultant lower casing temperatures than steel case strip heaters in similar applications. Calvane™ element weight is approximately 25% of steel case strip heater weight.

For transit car applications with supply voltages in the 600V nominal range, ceramic stand-off insulator systems are available. These insulators provide the required creepage and clearance distance for operation at over 240V. They also allow for expansion and contraction of the elements with minimal noise.

Actual Calvane™ Installation



Calvane™ Standard Product Features

- Two standard widths: 2.25" (57 mm) & 3.25" (83 mm)
- Light weight:
 - 2.25" (57 mm) wide = 0.2 lbs/ft
 - 3.25" (83 mm) wide = 0.3 lbs/ft
- Low watt density
- Calrod® construction for long life
- Fast start-up and cool down periods
- No magnetic noise
- Low pressure drop
- Resistance to damage from shock and vibration
- Easily isolated for high voltage applications

Strip Heaters

CCI Thermal offers steel case strip heaters in chrome, aluminized, and rust resistant steel. For more information refer to pages A27-A34.

Typically, strip heaters designed for transit application are straight with terminal studs at each end. A high temperature nickel chromium resistance wire is uniformly spaced evenly over the width of the heater embedded in a special refractory material that possesses excellent heat transfer



characteristics for demanding railcar environments.

Strip Heater Standard Product Features

- Uniform heat distribution
- Vibration resistant
- Rust resistant sheath material

Car Floor Heaters

Overhead HVAC & Fan-Forced Electric Heaters

Overhead HVAC Heaters

Low to high temperature open coil and finned tubular overhead heaters are designed for operation with the primary HVAC system.

Tubular Overhead HVAC Heaters

Finned or non-finned tubular elements positioned in a metal fabricated frame generally designed for removal during servicing without disturbing the heater frame. Elements are rigidly braced to minimize vibrations.

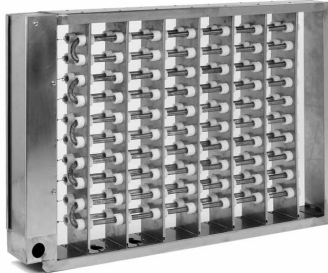


Features

- Fully protected against mechanical shock, vibration or breakage.
- Completely encased resistance wire that will not, sag, oxidize or deteriorate.
- Coiled alloy resistor wire is centered and permanently encased within highly compacted magnesium oxide surrounded by a steel sheath.

Open Coil Overhead HVAC Heaters

Helical wound high grade nickel chromium resistant wires supported by interlocking ceramic insulators with four times the creepage distance between terminal and ground.



Features

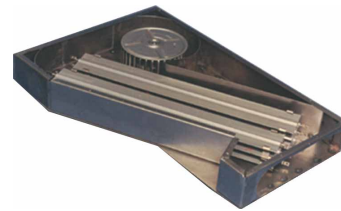
- Static pressure drop through open coil is very low, reducing fan horsepower requirements.
- Low element mass yields relatively small amounts of residual heat on fan shut down, reducing heat effect on surrounding material.

Fan-Forced Electric Heaters

Caloritech™ fan-forced electric heaters provide efficient and economical comfort heating for transit car use in operator cabs, lavatories, and passenger areas.

The illustrations show examples of various fan-forced electric heaters designed and built to meet customer specifications.

Calvane™ Cab Heater



The Calvane™ heater is lightweight (6.35 kg) and quiet. It contains six horizontally staggered 333 watt Calvane™ heaters with a 250 c.f.m. centrifugal fan strategically placed in a brushed aluminum frame. The heater is low profile, having a depth of 60" (1520 mm). Rated 208V, 3 phase, 60hz, 2 kW.

Open Coil Cab Heater

The open coil cab heater has a speed-controlled fan, one 500 watt and one 1000 watt open coil element.



Tubular Element Cab Heater

The tubular element cab heater consists of a single entry axial flow fan that forces air over tubular elements. An automatic reset thermal cutout acts as the primary protector. In this design the fan and the elements operate on 480V while the controls function on a separate 120V feed.



Overhead HVAC & Fan-Forced Electric Heaters

TYPE PH - Enclosure Heater

The PH fan-forced heater is a light weight heater typically used in confined areas.



Features

- Available in 125W, 200W, 400W and 800W
- CSA_{US} approved
- Light weight unit
- Low maintenance
- Aluminum alloy outer casting
- Externally adjustable thermostat -18°C to 38°C (0°F to 100°F)
- Pilot light for "heat-on" indication
- High temperature safety protection
- Fan on/auto switch to prolong motor life
- Terminal strip provides quick installation and accepts both standard and solid wire
- Optional DIN rail mounts available

Refer to Caloritech™ Catalog Section C, page C6 for more information on the Type PH Enclosure Heater.

Other Heaters

CALBAR™ Threshold Heater

Threshold heaters utilize the unique CALBAR™ heating element. The flat cross section of the CALBAR™ ensures maximum heat transfer to the threshold. Threshold heaters are hermetically sealed.



Customized designs and mounting hardware allow adaptation to existing thresholds. Alternatively, CALBAR™ heaters can be factory-installed in threshold extrusions.

Type PXFT Natural Convection Heater

A natural convection heater engineered to provide freeze



protection inside an enclosure or wall containing water pipes or electrical instrumentation.

The PXFT uses a high surface area aluminum heat emitter to eliminate the need for a fan while providing low radiation and high convection heating to the enclosure. The thermostat rating is 25A at 240V S.P.S.T., adjustable from 0°C to 50°C (30°F to 120°F). A movable bracket allows the heater to be floor or wall mounted with the terminal box located on the left or right side, top or bottom. Wire guards are provided standard with the PXFT-300, 400 and 600 watt heaters, and are available as an option on the PXFT-050, 125 and 200 watt units.

Refer to Caloritech™ Catalog Section C, page C7 for more information on the Type PXFT Natural Convection Heater.

TYPE CX Immersion Heaters



Screwplug immersion heaters are primarily used to heat water in tanks through natural convection currents. Typical heaters have standard 1" to 2 1/2" NPT tapered plugs. Other sizes or plugs are available on special order.

All thermostat equipped screwplug heaters with moisture or explosion-proof housings feature a convenient terminal block mounted to a slide out trolley.

Refer to Caloritech™ Catalog Section B, pages B6-B14, B17-B28 for more information on the Type CX Immersion Heater.

Fan-Forced Electric Heaters