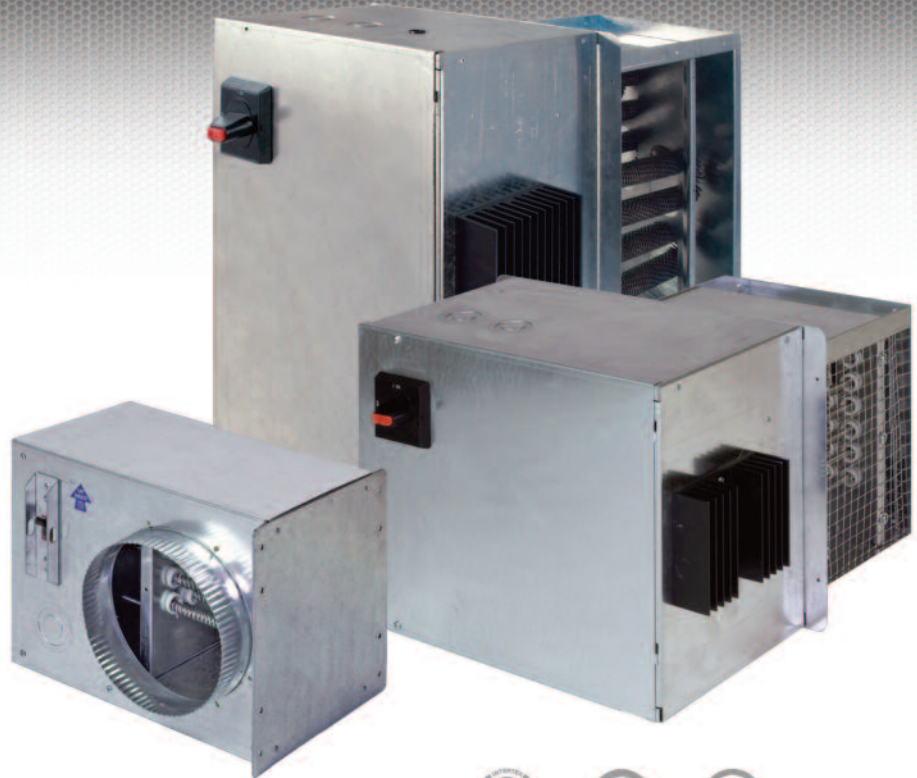


ELECTRIC

HEATERS



neptronic[®]

www.neptronic.com

ELECTRIC | HEATERS

The Neptronic electric heater is manufactured using the most advanced technologies available. Total automation from design to production using integrated CAD/CAM systems not only assures maximum efficiency, but also prevents errors in plans and specification data. The most advanced CNC technology for sheet metal fabrication is used in manufacturing the heaters. All these factors are key to offering standard features that our competitors offer only as options, and allows us to respond in record time to your needs and to the most demanding specifications.

Electric Heater Advantages

- ▶ HECB Networkable Electric Duct Heaters
- ▶ Patented EAS Electronic Air Flow Sensors (US 7,012,223)
- ▶ Unique interactive software
- ▶ Up to 40kW per sq. ft. (24 kW per sq. ft.)
- ▶ Modulating, ON/OFF or staging
- ▶ Standard from 0.5 to 1000 kW, larger loads available

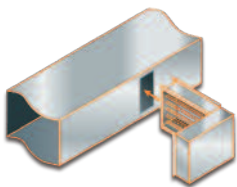
Typical Applications

- ▶ HVAC systems VAV boxes
- ▶ Fan coil units
- ▶ Load banks testing
- ▶ Make-up air / Air handlers
- ▶ Process air heaters
- ▶ Transport / Railcar / Marine



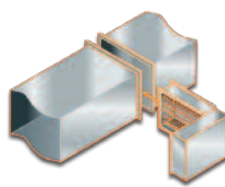
■ Typical Installation

Slip-In



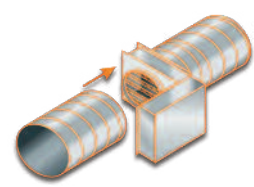
The slip-in type electric heaters are designed so that the entire frame can be inserted into the duct. Using a slip-in heater permits the installation of the entire ventilation duct system before the heaters become available.

Flanged



Flanged heaters are designed so that the heater is an integral part of the duct work. The heater frame is attached to matching duct flanges. Standard 1" (25.4mm) flanges on the heater frame are used to attach it to the duct.

Round Collar



Round collar electric heaters are available for installation on round duct systems with a standard diameter of 6" to 24" (152mm to 609mm). They are provided with one male and one female adapter for ease of installation.

System Overview

Disconnect Switch (Lockable)

Cuts the power supply to the heater in order to safely perform installation and maintenance tasks. (Standard when required by code, otherwise optional)

Control terminal block

Line voltage terminal block

Stage fuses

Protect the total load and/or the individual heater stages. (Standard when required by code, otherwise optional)

Transformer

Supplies power to the control circuit. Supplied with a fuse

Enclosure

Manufactured with the appropriate galvanized steel gauge to assure rigidity and corrosion protection

Slip-In type frame

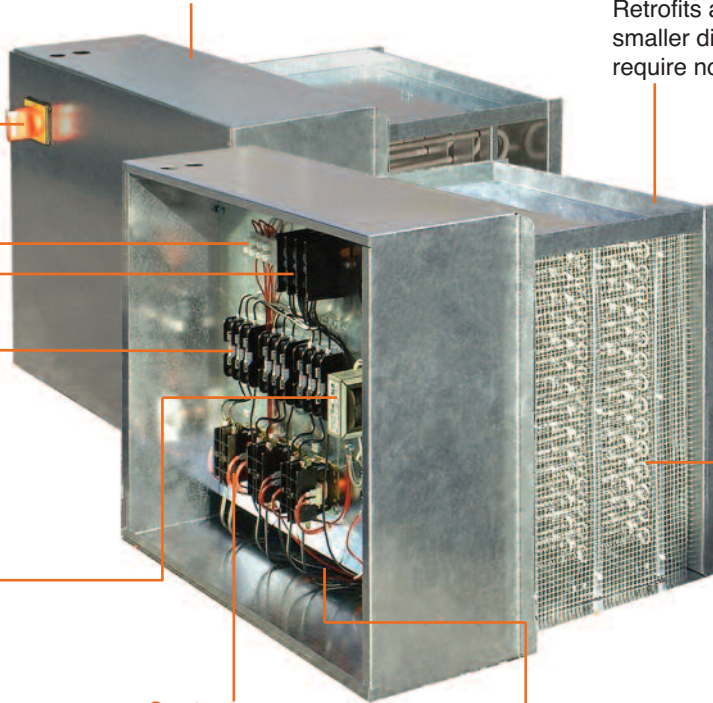
Permits the installation of the entire ventilation duct system before the heaters become available. Retrofits are much simpler, smaller dimension slip-in heaters require no extra supports

Patented EAS Electronic Air Flow Sensors

No mechanical air flow switch required. Shuts off heater if air flow is too low.

Protective screen

Prevents accidental contact with heating elements (optional)



Contactor

Provides power to the individual stages of the heater

Control Panel

Variety of Heating Elements

Open Coil



- ▶ Grade C NiCr60 (60% Nickel and 16% Chrome)
- ▶ Grade A NiCr80 (80% Nickel and 20% Chrome)

Advantages

- ▶ Excellent heat dissipation
- ▶ Minimal pressure drop
- ▶ Fast response time
- ▶ More kilowatts per sq.ft.
- ▶ Quick delivery

Tubular



- ▶ Incoloy 800 (Nickel alloy)
- ▶ Stainless steel 304 or 316
- ▶ U or W shapes depending on heater dimension

Advantages

- ▶ Less sensitive to humidity and dust
- ▶ Suited for demanding environments
- ▶ Excellent mechanical resistance
- ▶ Heating element not in direct contact with air

Finned Tubular

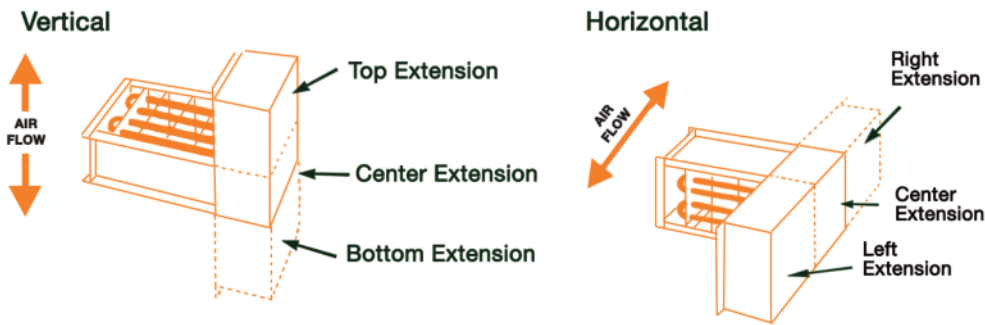


- ▶ Incoloy 800 (Nickel alloy)
- ▶ Stainless steel 304 or 316
- ▶ U or W shapes depending on heater dimension. Aluminum fins and available with stainless steel fins as an option to allow for more efficient heat dissipation.

Advantages

- ▶ Good heat dissipation
- ▶ Less sensitive to humidity and dust
- ▶ Suited for demanding environments
- ▶ Excellent mechanical resistance
- ▶ Heating element not in direct contact with air

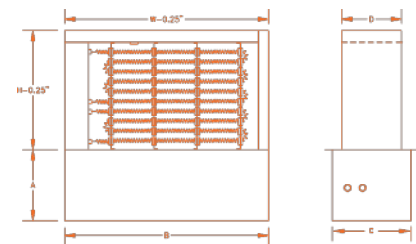
■ Mounting



■ Panel Options

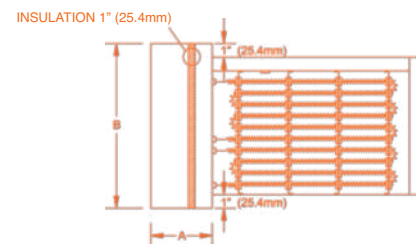
■ Bottom Control Panel

A bottom control panel can be supplied, when required for easy installation and maintenance. This option is available for all heaters (Slip-in, flanged and round collar) of small dimensions.



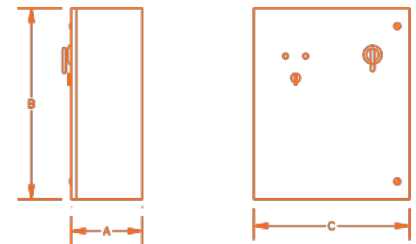
■ Insulated Control Panel

An insulated control panel is recommended for high duct temperatures. Insulation material, 1" (25.4mm) thick is installed between the panel and the hot area to prevent condensation on electrical components.



■ Remote Control Panel

In certain cases it may be more convenient to install the control panel remotely from the heater or in a separate room. A remote control panel can be supplied upon request.



Zero Clearance Construction

All Nepronic heaters are designed and approved for zero clearance to combustible material. Zero clearance construction means that there is no restriction on the distance between combustible materials and the section of the duct housing the heater, or the heater itself. The control panel must be accessible for servicing.

Enclosure Types

Nepronic heaters come with enclosure types Nema 1, Nema 12, Nema 4 and Nema 4x.

Special Heaters

- ▶ Heater equipped with automatic and manual thermal cutouts
- ▶ Large Heaters with reinforcement and multiple cut-outs
- ▶ Process Heaters for applications requiring a high discharge temperature up to 1200°F with proven standards



Neptronic introduces the first BACnet/Modbus Electric Duct Heater. Designed with today's energy efficiency expectations, it enables you to view real-time power consumption, to perform automatic/dynamic load shedding, limit consumption based on multiple variables, create energy optimization strategies as well as monitor trends and alarms.



BMS Integration



BACnet & Modbus



Energy Management



Monitor Alarms



Remote Diagnostics



Auto Load Shedding

Unique Benefits

- ▶ Integrate with BMS and intelligent buildings via BACnet MS/TP or Modbus
- ▶ Real-time feedback output signal of heater capacity
- ▶ Built-in Current Transducers (1 per phase) Provides power consumption data (KW in real-time)
- ▶ Calculate ΔT by using the provided supply and discharge temperature sensors. This allows the possibility to read the air temperature before and after the heater elements from your BMS
- ▶ Configurable BACnet scheduler (6 events)
- ▶ Optional wall-mount room thermostat with LCD (TRL24) Enables the user to remotely view the status of the heater and change the setpoint
- ▶ Built-in PID algorithm Maximizes the heater's efficiency when there is a sudden change of velocity or temperature within the system
- ▶ Remote monitoring (status, alarms, diagnostics, and trending)
- ▶ Multiple BACnet/Modbus points to propel you towards the Internet of Things

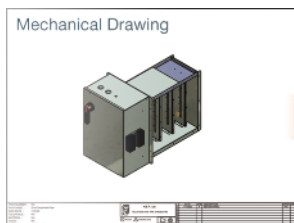
■ Heater Selection Software

Our selection software allows access to technical data and formulas to specify Neptronic heaters and much more. Whether you are an engineer or a contractor, our software allows you to select the required electric heater by entering basic data (duct dimensions, airflow, power, voltage, number of stages, control signals, etc.) from a user friendly window. The selection software then calculates the optimum specifications for each electric heater. The comprehensive heater specifications, as well as the approval list, may be edited or inserted in the project file.



Interactive Online Software

Linked to an automated manufacturing process, Neptronic's web-based selection software allows you to easily select the required electric heater by entering the basic data.



Specifications entered are transformed in parametric design



Electric heater is produced by automated machines



Heater is ready in record time produced with minimum human inputs.

- ▶ Multiple components & options available to design your heaters
- ▶ Allows you to make as many changes as you want in your selection
- ▶ Retrieve immediately your heater's schedule and specification
- ▶ Creates mechanical and electrical drawings
- ▶ Generates approval specification sheets
- ▶ Saves your project history in a database

■ Thermostats & Temperature Sensors for Electric Heaters

TRO24-EXT1

Room controller thermostat



- ▶ For modulating, ON-OFF, staging or pulsed heater
- ▶ Backlit LCD display
- ▶ 2 heat / cool analog outputs (0-10VDC)
- ▶ 4 TRIAC outputs (for ON-OFF, pulse or floating signal)
- ▶ Selectable internal/external temperature sensor
- ▶ Selectable proportional control band
- ▶ Selectable internal/external temperature sensor
- ▶ Fahrenheit or Celsius scale selectable

TRO5404

Room controller thermostat



- ▶ For modulating, ON-OFF, staging or pulsed heater
- ▶ Backlit LCD display
- ▶ 2 heat / 2 cool analog outputs (0-10VDC)
- ▶ 1 TPM (time proportional modulation) output (0 or 22VDC)
- ▶ Selectable internal/external temperature sensor
- ▶ Selectable proportional control band
- ▶ Fahrenheit or Celsius scale selectable

STS3 / ITO3

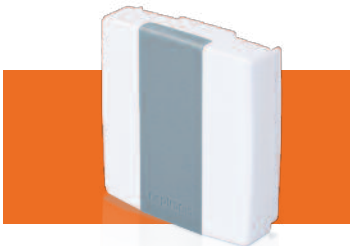
Wall thermostat



- ▶ Modulating, ON-OFF or staging heater
- ▶ STS3 with sensor 3.3 K Ω or available in 10 K Ω
- ▶ ITO3 wall thermostat must be used with external duct or wall sensor
- ▶ Fahrenheit or Celsius scale selectable

STR1

Room temperature sensor



- ▶ Wall sensor for remote temperature reading
- ▶ Sensor 3.3 K Ω or 10 K Ω available

STC8

Duct temperature sensor



- ▶ Duct sensor for remote temperature reading
- ▶ Sensor 10 K Ω
- ▶ High accuracy, fast thermal response
- ▶ Epoxy encapsulated sensor
- ▶ High stability

TMA54

Wall mount controller



- ▶ Features a fully configurable Proportional-Integral-Derivative (PID)
- ▶ 2 heat / cool analog outputs (0-10VDC)
- ▶ Selectable internal/external temperature sensor
- ▶ Fahrenheit or Celsius scale selectable

MANUFACTURER OF ■

- HVAC CONTROLS
- ELECTRIC ACTUATORS
- ACTUATED VALVES
- HUMIDIFIERS
- ELECTRIC HEATERS

■
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