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Visit our web site at [www.ehpricesales.com](http://www.ehpricesales.com)
A Wide Range of HVAC Products

Founded in Winnipeg, Manitoba in 1946 the PRICE organization began as a manufacturer’s sales agent supplying quality air distribution products to the Canadian marketplace. Since then the company has grown into an international distributor and manufacturer that employs 1300 employees across 15 sales offices in Canada, and three plants in North America. Our organization’s commitment to service and quality has been integral in our becoming the market leader of air distribution products in Canada.

In addition to the world-class grilles, diffusers, registers and fans that our Canadian offices supply, PRICE has also been a supplier of electric duct heaters for over 50 years. With the PRICE line of electric duct heaters you can be 100% assured that you will receive the same premier quality that you have come to expect from all PRICE products. You can also be assured that the service and support you receive will be reflective of our years of experience with this product line.
A PRICE Innovation: 
Web Based Heater Selection Software

With Price you now have duct heater selection software that can be accessed directly from the internet: www.selectheater.com

Whether you are an engineer or a contractor, our software allows you to easily specify and/or select the required electric heater by simply entering the basic data: duct dimensions; airflow; power; voltage; number of stages; control signals; etc. all from a user friendly window. Our software then calculates the optimum specifications for each electric heater.

Easy to Select

Once you have made your selection, simply forward the selected list of heaters to one of our representatives for a fast quotation!
The PRICE 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 the transfer of plans and specification data between the client, the R&D department and manufacturing personnel.
- Highly advanced CNC technology for sheet metal fabrication is used in manufacturing all Price heaters.

All of these factors were key in designing a complete line of electric heaters that are both durable and dependable.
section II

Overview & Mechanical Construction
fig. 2.1

- Disconnect switch
- 2 knockouts
- Slip-In type frame
- Control terminal block
- Line voltage terminal block
- Stage fuses
- Transformer
- Contactor
- Control panel
- Protective screen
I.5 Disconnect Switch
Cuts the power supply to the heater in order to safely perform installation and maintenance tasks.
Standard when required by code, otherwise optional

Transformer
Supplies power to the control circuit. Supplied with a fuse.
Standard

Automatic Reset Thermal Cut-Out
An automatic reset, primary safety device. Removes power from elements if overheating occurs.
Standard

Airflow Switch
Safety component used to prevent a heater from operating if there is no airflow.
Standard for ON/OFF heaters

II.3

Solid State Relay (SSR)
Proportionally controls the amount of power transmitted to the heating elements. Allows quiet operation and is exceptionally reliable.
Standard for proportional heaters

Manual Reset Thermal Cut-Out
A secondary safety device which removes power to the elements if overheating occurs.
Standard when required by code, otherwise optional

PRICE HEC Electronic Controller
A unique control and safety component. Controls and optimizes the power transmitted to the heating elements according to the duct temperature and air flow.
Standard for proportional heaters

Pneumatic Electric Switch
Converts a pneumatic ON/OFF signal to an electric signal.
Standard for heaters with pneumatic ON/OFF signal

Pneumatic Electric Control
Converts a proportional pneumatic control signal to a proportional electric signal.
Standard for proportional units with pneumatic signal

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

Fuses
Protects the total load and/or the individual heater stages.
Standard when required by code, otherwise optional

Mercury Contactor
Provides power to the individual stages of the heater. Allows quiet, reliable operation.
Optional
Mechanical Construction
**Slip-In Electric Heater - Type I**

The slip-in type electric heaters are designed so that the entire frame can be inserted into the duct.

**Advantages of slip-in electric heaters:**
A system using a slip-in heater permits the installation of the entire ventilation duct system before the heaters become available. Retrofits are much simpler and require no extra supports.

To order a PRICE slip-in heater, specify the dimensions of the duct and the selection software will automatically calculate the optimum heater dimensions.

**Installation:**
Allow for a proper sized opening on one side of the duct, see fig. 2.2, as well as installation clearances to avoid any obstructions around the duct. The PRICE slip-in heater has a standard 1" (25.4mm) flange on each side of the control box and can be attached directly to the duct with sheet metal screws.

---

**Flanged Electric Heater - Type F**

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, see fig. 2.3. Standard 1" (25.4mm) on the heater frame are used to attach it to the duct.

Flanged heater dimensions match the dimensions of the duct. Heaters requiring extra support for large heaters or custom flanges can be provided.

**Installation:**
The PRICE electric heater comes with 1" (25.4mm) standard flanges installed around the frame and on each side of the control box. It can be attached directly onto the duct with sheet metal screws.

**Note:** Round collar option available with flanged electric heater type F
Round Collar option

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

Installation:
The PRICE round collar electric heater comes with a 1” (25.4mm) extension on each side of the frame. The heater is attached directly onto the duct using sheet metal screws.

Zero Clearance Construction

All PRICE 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.

Horizontal or Vertical Mounting

PRICE electric heaters are designed to be installed in either horizontal or vertical ducts. Please specify the airflow direction with an H for horizontal and a V for vertical to ensure correct orientation of the components in the control panel.

Optional Accessories:

Protective Screens
Optional protective screens are available to prevent accidental contact with the heating elements.

Option 10 or 01: Protective screens on one side only - 10 left of the control panel, 01 right of the control panel.
Option 11: Protective screens on both sides of the heater.
**Standard Control Panel**

The control panel attached to the heater exceeds the frame dimensions by 1" (25.4mm) on the top and bottom. If installation conditions do not allow for this standard extension a control panel with dimensions equal to the heater frame can be provided. The standard extension of the control panel is to the left. If installation conditions do not permit the extension to the left you must specify a right extension on your order.

**Control 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) with 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.
## Enclosure Types (control panels)

### Nema 1
*(IP 10)*
- **Protected against access**: This enclosure type is standard on PRICE electric heaters.

### Nema 4
*(IP 56)*
- **Protected against splashing water**: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment. Provides a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water.

### Nema 4X
*(IP 65)*
- **Protected against corrosion**: The control panel and/or the electric heater are constructed in stainless steel for this option.

### Nema 12
*(IP 52)*
- **Dust-protected**: Enclosures constructed (without knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment. Provides a degree of protection against falling dirt, circulating dust, lint, fibers, as well as water or oil filtration.

### Nema 2X
*(IP 65)*
- **Protected against corrosion**: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment. Provides a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water. This enclosure is also available to withstand the external formation of ice.
**Special Electric Heaters**

**Heater with Cold Section**

In special cases a cold section in the air duct is required. For example; when air flow has been altered near the area where the heater is located. In this case the heater will be built to specifically adapt to this constraint. Specify the location and dimensions of the cold section(s) using the control panel as your reference point. (see fig. 2.10)

**Large Heaters**

Heaters whose dimensions exceed 40" (1.0m), will be reinforced to assure proper rigidity. Multiple thermal cut-outs will be installed and evenly distributed to obtain the same level of safety as a standard size heater. In some cases, the large heater will be constructed in two sections to simplify the installation.

**Process Heaters**

Special Heaters for high temperature applications (baking, drying) can be designed for up to 1000kW, and temperatures of 1200°F (648°C).
**Materials**

PRICE heaters are manufactured with the appropriate gauge of galvanized steel to assure rigidity and corrosion protection. PRICE heaters can be constructed with 304 stainless steel for special applications.

**Typical Dimensions**

**Type I (Slip-in)**

![Type I (Slip-in) Diagram](image1)

**Type F (Flanged)**

![Type F (Flanged) Diagram](image2)

**Type R (Round Collar)**

![Type R (Round Collar) Diagram](image3)

W: Width of air duct  H: Height of air duct
Open Coil Elements - Model C

Standard open coil elements are NiCr 60 (grade C). They are composed of 60% Nickel, 16% Chrome and 24% Iron. The maximum operating temperature is 1,850ºF (1,000ºC). For applications in a humid environment space, we recommend the optional NiCr 80 (grade A) elements. They are composed of 80% Nickel and 20% Chrome (no iron). This composition allows for a maximum operating temperature of 2100ºF (1150ºC), and can be installed in ducts where condensation may be present.

Standard Tubular Elements - Model T

Tubular elements are made with an Incoloy 800 (Nickel alloy) tube with a diameter of 3/8" (9.5mm) that contains a heating coil in magnesium oxide powder. The U or W shape of the tubular elements is determined by the heater dimensions.

Option: Tubular elements can be made in stainless steel upon request

Finned Tubular Elements - Model F

Finned tubular elements are made with an Incoloy 800 (Nickel alloy) tube with a diameter of 3/8" (9.5mm) that contains a heating coil in magnesium oxide powder. The tube is equipped with aluminum fins to allow for more efficient heat dissipation. The U or W shape of the tubular elements is determined by the heater dimensions.

Option: Fins can be supplied in stainless steel upon request
## Selection Guide

<table>
<thead>
<tr>
<th>Element Types</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Coil</td>
<td>- Excellent heat dissipation</td>
<td>- Elements in direct contact with air</td>
</tr>
<tr>
<td></td>
<td>- Minimal pressure drop</td>
<td>- Cannot be installed in humid environments</td>
</tr>
<tr>
<td></td>
<td>- Fast response time</td>
<td>- Cannot be installed in dusty environments</td>
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<tr>
<td></td>
<td>- More kilowatts per sq.ft.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Quick delivery</td>
<td></td>
</tr>
<tr>
<td>Standard Tubular</td>
<td>- Less sensitive to humidity and dust</td>
<td>- Increase in pressure drop</td>
</tr>
<tr>
<td></td>
<td>- Suited to demanding environments</td>
<td>- Slower response time</td>
</tr>
<tr>
<td></td>
<td>- Excellent mechanical resistance</td>
<td>- Less heat dissipation</td>
</tr>
<tr>
<td></td>
<td>- Heating element not in direct contact with air</td>
<td>- Less kilowatt per sq.ft.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Limited Quick Build Availability</td>
</tr>
<tr>
<td>Finned Tubular</td>
<td>- Good heat dissipation</td>
<td>- Increase in pressure drop</td>
</tr>
<tr>
<td></td>
<td>- Less sensitive to humidity and dust</td>
<td>- Slower response time</td>
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<tr>
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<td>- Heating element not in direct contact with air</td>
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### Static Pressure Loss

![Static Pressure Loss Graph](fig.2.19)

- Pressure drop (Inches of Water)
- Air Velocity (Feet Per Minute)

**table 2.1**
**Calculation of Required Capacity**

**Imperial**

\[
\text{kW} = \frac{\text{CFM} \times (T^\circ \text{F} - T^\circ \text{F}) \times 1.08}{3413}
\]

- \text{kW} : Power in kW
- \text{CFM} : Air volume in cubic feet per minute
- \text{T}*2 : Temperature of air leaving heater in °F
- \text{T}*1 : Temperature of air entering heater in °F

**Metric**

\[
P = \frac{\text{Q} \times (T^\circ \text{C} - T^\circ \text{C}) \times 1.3}{3600}
\]

- \text{P} : Power in kW
- \text{Q} : Air volume in m³/hr
- \text{T}*2 : Temperature of air leaving heater in °C
- \text{T}*1 : Temperature of air entering heater in °C

**Minimum Air Velocity**

**Open Coil Elements**

![Graph showing minimum air velocity for open coil elements](image)

**Tubular Elements**

![Graph showing minimum air velocity for tubular elements](image)
Basic rules:

- Allow a minimum distance of 36” (914mm) between any obstacle or elbow and the electric heater.
- Airflow must be evenly distributed across the duct.

If these basic rules are not respected overheating may occur.

- If the electric heater is located too close to a filter or diffuser, overheated areas may occur (fig. 2.22).
- If the electric heater is located too close to a fan, overheated areas may occur (fig.2.23).
- If the electric heater is located to close to an elbow, overheated area may occur (fig. 2.24).
- If the electric heater is located too close to a transition, overheated areas at the edges of the heater may occur (fig.2.25).

If one of these overheating conditions exists the life expectancy of the heating elements will be affected. We advise that the basic rules stated above be followed. If these conditions cannot be avoided, PRICE can provide cold sections in the appropriate areas of the electric heater (see the section on special electric heaters fig.2.10).
Electric Heater Current Calculation

Single phase

\[ IE = \text{Current through element in Amps} \]
\[ VE = \text{Element Voltage in Volts} \]
\[ IL = \text{Line Current in Amps} \]
\[ VL = \text{Line Voltage in Volts} \]
\[ P = \text{Power in Watts} \]

Voltage Selection

In order to avoid overheating due to inappropriate voltage, we recommend selecting PRICE standard voltages as listed below:

### Single phase

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</thead>
<tbody>
<tr>
<td>PRICE Standard Voltages</td>
<td>120V</td>
<td>208V</td>
<td>220V</td>
<td>240V</td>
<td>277V</td>
<td>347V</td>
<td>380V</td>
<td>416V</td>
<td>480V</td>
<td>600V</td>
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</tbody>
</table>

### Three phases

**Delta connection**

\[ IE = \frac{IL}{1.732} \]

**Wye connection**

\[ VE = \frac{VL}{1.732} \]

Please carefully select the supply voltage of the electric heater. Over estimation of the supply voltage may result in inadequate performance of the electric heater. Under estimation of the supply voltage may cause erratic fluctuations with the electric current. Please consult your PRICE representative for any non-standard voltage.
section III

Electrical Construction
Electric Control

ON/OFF Control

The control panel of an ON/OFF electric heater includes the following components:

- Transformer and control fuse
- Automatic reset thermal cutout
- Manual reset thermal cutout when required by code, otherwise optional
- Airflow switch
- Contactor(s)
- Fuses when required by code, otherwise, optional
- Disconnect switch when required by code, otherwise optional

Operation:
A thermostat contact activates each stage of the electric heater.
In addition to wiring to the power supply, you must also connect the appropriate wires to the thermostat (see wiring diagram figure 3.18).

Proportional Control (Modulating)

The control panel of a proportional electric heater includes the following components:

- Transformer and control fuse
- Automatic reset thermal cutout
- Manual reset thermal cutout when required by code, otherwise optional
- PRICE HEC controller
- Contactor(s)
- Solid state relay(s) (SSR)
- Fuses when required by code, otherwise optional
- Disconnect switch when required by code, otherwise optional

Operation:
The proportional T-stat spacing transmits an electric signal to the HEC controller. The HEC then activates the proportional stage of the electric heater. The other stages are generally ON/OFF and are controlled by the HEC controller.
Besides wiring to the power supply, you must also connect the appropriate wires to the thermostat (see wiring diagram figure 3.19).
Pneumatic Control

ON/OFF Control

The control panel of an ON/OFF electric heater with pneumatic input includes the following components:

- Transformer and control fuse
- Automatic reset thermal cutout
- Manual reset thermal cutout when required by code, otherwise optional
- Airflow switch
- Pneumatic electric switch/proportional
- Contactor(s)
- Fuses when required by code, otherwise optional
- Disconnect switch when required by code, otherwise optional

Operation:
A pneumatic signal from a pneumatic thermostat activates the different stages of the electric heater. In addition to wiring to the power supply, you must also connect a 1/4" (6mm) diameter, pneumatic signal tube to the pneumatic electric switch (see wiring diagram figure 3.20).

Proportional Control (Modulating)

The control panel of a pneumatic proportional electric heater includes the following components:

- Transformer and load fuse
- Automatic reset thermal cutout
- Manual reset thermal cutout when required by code, otherwise optional
- PRICE HEC controller
- Pneumatic electric controller
- Contactor(s)
- Solid state relay(s)
- Fuses when required by code, otherwise optional
- Disconnect switch when required by code, otherwise optional

Operation:
A proportional signal from a pneumatic thermostat is transmitted to the HEC controller. The HEC activates the proportional stage of the electric heater. The other stages are generally ON/OFF and are controlled by the HEC controller. In addition to wiring to the power supply, you must also connect a 1/4" (6mm) diameter, pneumatic signal tube onto the pneumatic electric module (see wiring diagram figure 3.21).
**Magnetic Contactor** - code: CA

Magnetic Contactors are the Price standard, and are tested to a minimum of 250,000 operations.

**Features:**
- Coil Voltage: 24 or 120VAC
- Resistive Load from 25 to 50A at 600 VAC 50/60Hz
- Number of Poles: 1, 2, or 3

**Transformer (supplied with a control fuse)** - code: TR

A transformer is standard on PRICE electric heaters. The transformer supplies power to the control circuit. If you prefer that the control power be supplied by others, you must specify this with your order.

**Features:**
- Primary Voltage: same as that of electric heater
- Secondary Voltage: 24 or 120VAC from 25 to 250VA
- Insulation: Class B

**Automatic Reset Thermal Cutout** - code: AC

Standard for all PRICE electric heaters. If overheating occurs, the automatic reset will remove power from the elements.

**Features:**
- Maximum Voltage and Current: 240VAC, 25A
- Cut-off Temperature:
  - Open coil elements: 110°F (43°C)
  - Tubular elements: 167°F (75°C)

**Airflow Switch** - codes: PDN or PDA

A non-adjustable airflow switch (PDN) is standard for all ON/OFF PRICE heaters. Prevents heater from operating if there is no airflow.

**Features:**
- Triggering Pressure: 0.03+/−0.02" w.c. (0.762+/−0.508mm w.g.) - adjustable optional (PDA)
- Maximum Pressure: 0.5psi (3.5kPa)
- Maximum Voltage and Current: 227V, 15A
- Tube Connections: 2 nozzles ¼" (6.35mm)
- Accessories: supplied with 3’ (914mm) pilot tube to be installed in the duct.

**Solid State Relay** - code: SSR

Standard for proportional PRICE heaters. Proportionally controls the amount of power transmitted to the heating element.

**Features:**
- Maximum Voltage: 600V
- Current: 50A, 100A or 125A
- Zero voltage crossing detection and switching
ELECTRICAL COMPONENTS

Manual Reset Thermal Cutout - code: MC
Standard when required by code, otherwise optional. Optional for all other electric heaters. If overheating occurs, the device must be manually reset.
Features:
- Maximum Voltage and Current: 240V, 25A
- Cut-off temperature adapted to:
  - Open coil elements
  - Tubular elements

Pneumatic Electric Switch (ON/OFF) - code: PSO or PSC
Standard for heaters with pneumatic ON/OFF signal. Transmits the pneumatic signal to the electric circuit.
Features:
- Pneumatic Signal: from 2 to 20psi (14 to 138kPa)
- Maximum Pressure: 30psi (207kPa)
- Maximum Voltage and Current: 277V, 25A
- Pneumatic Connection: 1, 3/16” (5mm) nozzle for 1/4” (6mm) O.D. polyethylene tube
- Normally Open (PSO) or Normally Closed (PSC)

Pneumatic Electric Controller - code: PCD or PCR
Standard for modulating electric heaters with proportional pneumatic control signal. Transmits proportional pneumatic control signal to the control circuit.
Features:
- Pneumatic Signal: 0 to 15psi (0 to 103 kPA)
- Direct (PCD) or Reverse (PCR) Acting
- Output Signal: 1 to 5VDC
- Supply Voltage: 12 or 24VAC
- Pneumatic connection: 2 3/16” (5mm) nozzles for 1/4” (6mm) O.D. polyethylene tube

Pilot Lights - codes: LP, LH, LN, LS or LO
Pilot lights are optional for all heaters. Pilot lights can indicate any of the following:
- Line Power ON (LP)
- Electric heater ON/OFF (LH)
- No airflow (LN)
- Stage ON (LS)
- Overheat (LO)
Pilot lights are installed on the front door of the control panel.
Features:
- Voltage and Amperage: 24V, 0.073A or 120V, 0.025A
- Color: Red or Green depending on application.
Disconnect Switch - codes: DS or TS

A disconnect (DS) with door interlock or a toggle switch (TS) is optional (except when required by code). The disconnect will cut the power supply to the heater in order to safely perform installation and maintenance tasks. The disconnect switch with door interlock (DS) prevents the control panel from being opened if the heater is powered. It is installed on the door of the control panel.

Features:
- Number of Poles: 3
- Maximum Voltage and Current: 600V, 800A

Fuses - code: SF or LF

Fuses are optional, except when required by code. They can be installed either on the supply line (LF) and/or on the individual heater stages (SF). They protect the total load if overheating or a short circuit occurs. Characteristics depend on current flow.

Features:
- Maximum Voltage: 600VAC
- Current: from 1 to 600A
- Type: HRC form 1 (fast acting)

Mercury Contactor - code: CM

For special applications where quiet operation is required, magnetic contactors can be replaced with optional mercury contactors. Mercury contactors have been tested for a minimum of 5,000,000 operations.

Features:
- Coil Voltage: 24 or 120VAC
- Resistive Load: 35A at 600VAC, 50/60Hz
- Number of Poles: 1

Silent Relay- code: CS

As an alternative to a mercury contactor, silent relays can be supplied as an option. These relays are for special quiet operations.

Features:
- Coil Voltage: 24VAC
- Resistive Load: - 26.0A at 120, 208, 240, 277VAC ; 60 Hz
  - 13.6A at 480VAC ; 60 Hz
  - 10.4A at 600VAC ; 60 Hz
- Number of Poles: 2

Auxiliary Switches - code: AUX

Auxiliary switches can be installed as an option when the 3 pole standard magnetic contactor has been selected.

Features:
- Number of Poles: 2 (1 N.O. & 1 N.C.)
- Contact Rating: 10A at 600VAC
The PRICE HEC is a universal controller. It accepts any input signal used in the industry and converts it to a modulating or ON/OFF control signal to the solid state relay(s) and/or the contactor(s).

This controller assures an extra level of safety by precisely measuring the air velocity and continuously updating the proportional control signal to the heater. This prevents the heater from tripping the thermal cutouts in VAV applications, when the air filters are dirty or when the duct is obstructed.

The PRICE HEC universal controller considers only convection heat and differential temperature. By continuously updating the signal to the solid state relay the HEC is able to control the heater output with great precision, the result is an extremely precise control of heater output.

Features:

Inputs
- Analog: 0-10 VDC, 2-10 VDC or 4-20 mA.
- Pulsed: AC pulsed to ground, AC pulsed to 24 VAC or DC pulsed to ground.
- Pneumatic: modulating 0-15 PSI, direct or reverse action.
- Resistive PRICE signal: from X100 room thermostat, X200 setpoint controller + DS100 duct sensor or X200 setpoint controller + WS100 wall sensor.

Outputs
- TPM signal: 1-24 VDC for solid state relay.
- ON/OFF: Up to 4 step control for ON/OFF stages (standard), additional steps optional, Hybrid control - Sequential or Binary.
- Option: Fan relay for fan contact or pilot light contact.

Internal Setpoint Option
The Internal Setpoint option allows you to control the temperature setpoint with a potentiometer directly installed to the HEC board. In this case, the electric heater will be connected either to a WS100 wall sensor or a DS100 duct sensor.

Patent Pending

With the PRICE HEC universal controller, you no longer require an airflow switch. The control system is installed directly onto the electric heater and assembled in our plant. This assures both accuracy and reliability.
Typical Wiring Diagrams

Three phase supply
**ON/OFF electric signal** - 2 stages
(Equipped with disconnect switch, stage fuses and airflow switch options)

![Typical Wiring Diagram](image)

(For legend see next page)

Three phase supply
**Modulating (0-10VDC) electric signal** - 3 stages
(Equipped with disconnect switch and stage fuse options)

![Typical Wiring Diagram](image)

(For legend see next page)
Single phase supply
ON/OFF Pneumatic signal - 2 stages
(equipped with disconnect switch, stage fuses and airflow switch options)

Three phase supply
Modulating pneumatic signal - 3 stages
(Equipped with disconnect switch and stage fuse options)
### Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Reset Thermal Cutout</td>
<td>![Diagram](Automatic Reset Thermal Cutout)</td>
</tr>
<tr>
<td>Manual Reset Thermal Cutout</td>
<td>![Diagram](Manual Reset Thermal Cutout)</td>
</tr>
<tr>
<td>Airflow Switch</td>
<td>![Diagram](Airflow Switch)</td>
</tr>
<tr>
<td>Disconnect Switch</td>
<td>![Diagram](Disconnect Switch)</td>
</tr>
<tr>
<td>Contact (N.O.) (normally open)</td>
<td>![Diagram](Contact N.O.)</td>
</tr>
<tr>
<td>Contact (N.C.) (normally closed)</td>
<td>![Diagram](Contact N.C.)</td>
</tr>
<tr>
<td>Transformer</td>
<td><img src="Transformer" alt="Diagram" /></td>
</tr>
<tr>
<td>Contactor Coil</td>
<td>![Diagram](Contactor Coil)</td>
</tr>
<tr>
<td>Back-up Contactor Coil</td>
<td>![Diagram](Back-up Contactor Coil)</td>
</tr>
<tr>
<td>Fuse</td>
<td><img src="Fuse" alt="Diagram" /></td>
</tr>
<tr>
<td>Heating Element</td>
<td>![Diagram](Heating Element)</td>
</tr>
<tr>
<td>Pneumatic Electric Switch</td>
<td>![Diagram](Pneumatic Electric Switch)</td>
</tr>
<tr>
<td>Modulating Pneumatic Controller</td>
<td>![Diagram](Modulating Pneumatic Controller)</td>
</tr>
</tbody>
</table>

### Terminals

<table>
<thead>
<tr>
<th>Terminal Block</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Block Single phase</td>
<td>![Diagram](Terminal Block Single phase)</td>
</tr>
<tr>
<td>Terminal Block 3 Phase</td>
<td>![Diagram](Terminal Block 3 Phase)</td>
</tr>
<tr>
<td>Power Block</td>
<td>![Diagram](Power Block)</td>
</tr>
<tr>
<td>Ground Terminal</td>
<td>![Diagram](Ground Terminal)</td>
</tr>
<tr>
<td>Interlock</td>
<td><img src="Interlock" alt="Diagram" /></td>
</tr>
<tr>
<td>Terminal Block (control)</td>
<td>![Diagram](Terminal Block (control))</td>
</tr>
<tr>
<td>Solid State Relay Terminals (Input) by others</td>
<td>![Diagram](Solid State Relay Terminals (Input))</td>
</tr>
<tr>
<td>Solid State Relay Terminals (Output) by others</td>
<td>![Diagram](Solid State Relay Terminals (Output))</td>
</tr>
<tr>
<td>Control Circuit Supply</td>
<td>![Diagram](Control Circuit Supply)</td>
</tr>
<tr>
<td>Pilot Light</td>
<td>![Diagram](Pilot Light)</td>
</tr>
</tbody>
</table>
section IV

Thermostats
Room Thermostats - White Rogers

Heating: 1 stage - Model 1F30
ON/OFF thermostat, allows control of 1 heating stage.
Input Voltage: 24 VAC

Heating: 2 stages - Model 1F37.
ON/OFF thermostat, allows control of 2 heating stages.
Electrical supply: 24 VAC

Room Thermostat - Honeywell

Heating: 1 stage - Model T822.
ON/OFF thermostat, allows control of 1 heating stage.
Input Voltage: 24 VAC
Duct Thermostats - Honeywell

Heating: 1 stage - Model T675A 1466.
ON/OFF thermostat, allows control of 1 heating stage.
Mounted on duct downstream of heating coil.
Input Voltage: 24 VAC

Heating: 2 stages - Model T678A 1445.
ON/OFF thermostat, allows control of 2 heating stages.
Mounted on duct downstream of heating coil.
Input Voltage: 24 VAC

Note: For duct thermostats with more than 2 heating stages, please contact PRICE.
Proportional Thermostats

Room Thermostat - X100

The PRICE X100 wall mounted thermostat allows for setpoint adjustment directly in the room where it is installed. This design makes the X-100 elegant, simple and affordable.

Operation:
The X-100 is installed directly on the wall. The two temperature sensor wires are connected to the PRICE HEC controller located in the electric heater using two 28AWG wires.

Duct Sensor - DS100

The PRICE DS-100 duct sensor dictates the air temperature which the coil must heat to. The required setpoint can be adjusted using the X200 setpoint controller or a PTA thermostat. The X200 can be installed on a wall or on the duct in close proximity to the DS-100.

Operation:
The DS-100 is installed directly to the ventilation duct by inserting the temperature sensor into the duct downstream of the electric heater. The two wires of the DS100 sensor are connected directly to the X200 setpoint controller (or PTA thermostat) which is then connected to the PRICE HEC controller. Two 28AWG wires are required for all connections.
Proportional Room Thermostat - PTA

The PRICE PTA thermostat is for room temperature control applications. Two heating and two cooling output ramps are available. It includes 0-10 VDC proportional output signals for heating and cooling ramps and a TPM (time proportional modulation) output for heating. A NSB (night set back) input is available to expand the deadband around the setpoint for energy savings during unoccupied periods. An internal temperature sensor is standard with the PTA, however an external sensor (DS-100) may be used.

Features:
- Setpoint range: 57º to 88ºF (14º to 31ºC)
- Deadband: 0.5ºF (0.3ºC) or +/- 0.25º F (+/-0.15ºC)
- Power consumption: 2VA
- Output Signals:
  - Proportional heating and cooling: 0-10VDC (2 heating and 2 cooling ramps)
  - One TPM heating ramp: 1.2 or 24 VDC
- NSB input (day/night adjustment): 0-10VDC or 24VAC

Operation:

**Proportional Mode:**
The PTA adjusts the 0-10VDC output signal proportionally to the difference between measured temperature and setpoint temperature. The proportional band can be 3.5ºF (2ºC) or 7ºF (4ºC). With a 7ºF (4ºC) proportional band, the difference between the measured temperature and the setpoint temperature of 3.5ºF (2ºC) results in a 50% demand corresponding to 5VDC. The second proportional heating or cooling ramp may be used as a high demand signal.

**TPM Mode (time proportional modulating) for Heating:**
This mode allows the adjustment of a TPM period of 2 seconds proportional to the difference between measured temperature and setpoint temperature. The output voltage is a 24VDC pulse. The proportional band can be 3.5ºF (2ºC) or 7ºF (4ºC). With a 7ºF (4ºC) proportional band, a difference between the measured temperature and the setpoint temperature of 3.5ºF (2ºC) results in a 50% demand corresponding to 24VDC, half the time, i.e. every other second.

**NSB Mode (day/night setting)**
A 0-10VDC or 24VAC input from an external source is used to expand the deadband to 12ºF (7ºC) or to 14ºF (8ºC).
This specification summary is designed to help you make a quick selection among the many available options.

1 - Selection of heating elements
- Model C - Open coil elements
  - Grade C
  - Grade A
- Model T - Standard tubular elements
  - Incoloy 800
  - Stainless Steel
- Model F - Finned tubular elements
  - Steel fins
  - Stainless Steel fins

2 - Selection of duct type (Installation)
- Type I - Slip-in
- Type F - Flanged
  - 1" (25.4mm) flange
  - 1.5" (38mm) flange
- Round collar option

3 - Control panel details
- Standard control panel
  - Extends 1" (25.4mm) on top and bottom
  - Left extension (if required)
- Special extension
  - Right extension
  - Top extension
  - Centered extension
- Control panel flush with duct
  - Flush with top of duct
  - Flush with bottom of duct
- Control panel on the bottom
- Insulated control panel
  - 1" (25.4mm) thick insulation
- Remote control panel

Degree of protection of control panel against external condition
- NEMA Type 1 (IP10)
- NEMA Type 12 (IP52)
- NEMA Type 4 (IP56)
- NEMA Type 4X (IP65)

4 - Special electric heaters
- Electric heater with cold section(s)
  - Cold section on control panel side; dimensions:
  - Cold section opposite side of the control panel; dimensions:
  - Cold section on top; dimensions:
  - Cold section on bottom; dimensions:
- Process heater.
  - Specify output temperature (no thermal protection)

5 - System information
- Air flow: ________ CFM
  - Horizontal
  - Vertical
- Voltage: ________ VAC
- No. of phases: _____
- Total power: ________ kW

6 - Heating stage(s) details
- Input signal: Pneumatic
- Electric

<table>
<thead>
<tr>
<th>No. of stages</th>
<th>Control Signal</th>
<th>kW</th>
<th>No. of stages</th>
<th>Control Signal</th>
<th>kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>ON/OFF</td>
<td></td>
<td>Stage 3</td>
<td>ON/OFF</td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td>ON/OFF</td>
<td></td>
<td>Stage 4</td>
<td>ON/OFF</td>
<td></td>
</tr>
</tbody>
</table>

7 - Control panel components
- Standard components:
- Options:
- Control voltage provided by others
- 24Vac
- 120Vac (on-off only)
- Disconnect switch (door interlock) (DS)
- Toggle switch (TS)
- Line fuses (LF)
- Stage fuses (SF)
- Mercury contactor (CM)
- Thermal relay (RT)
- Silent relay (CS)
- Manual reset thermal cutout (MC)
- Manual reset thermal cutout (MC)
- Airflow switch, fixed (PDN)
- Adjustable (PDA)
- Fan relay (FR)
- Starter motor for fan, Power: ____ HP
- Auxiliary switches (normally open & normally closed) (AUX)
- Qty: 1 per contactor or 2 per contactor
- No pilot lights
- Pilot lights
- Line Power (LP)
- Heating ON (LH)
- No airflow (LN)
- Stage On (LS)
- Overheat (LO)

8 - Thermostats
- White Rodgers
  - 1F30
  - 1F37
- Honeywell
  - T822
  - T675A
  - T678A
- X100 - Room thermostat
  - DS100 + X200 - Duct sensor and room set point controller
  - DS100 + PTA - Duct sensor and room modulating thermostat
  - DS100 + HEC/ISP - Duct sensor and Internal set point controller
  - PTA - PRICE proportional room thermostat

See overleaf to select reference number of required electric heater.
I Slip-In
F Flanged
Round collar option

0 No protective screen to the left of the control panel
1 Protective screen to the left of control panel

0 No protective screen to the right of control panel
1 Protective screen to the right of control panel

H Horizontal airflow
V Vertical airflow

Example:

D F C I 1 1 H
Open coil elements, slip-in type, screen to the left and right of control panel, horizontal installation.

D F F 0 0 V:
Finned tubular elements, flanged type, no screens, vertical installation.

Available Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td>Full Break Contactor</td>
</tr>
<tr>
<td>RT</td>
<td>Thermal Relay</td>
</tr>
<tr>
<td>CA</td>
<td>Magnetic Contactor</td>
</tr>
<tr>
<td>CS</td>
<td>Silent Relay</td>
</tr>
<tr>
<td>CM</td>
<td>Mercury Contactor</td>
</tr>
<tr>
<td>LF</td>
<td>Load Fuses</td>
</tr>
<tr>
<td>SF</td>
<td>Stage Fuses</td>
</tr>
<tr>
<td>DS</td>
<td>Disconnect Switch with Door Interlock</td>
</tr>
<tr>
<td>TS</td>
<td>Toggle Switch</td>
</tr>
<tr>
<td>AC</td>
<td>Automatic Thermal cutout</td>
</tr>
<tr>
<td>MC</td>
<td>Manual Thermal cutout</td>
</tr>
<tr>
<td>TR</td>
<td>Transformer</td>
</tr>
<tr>
<td>PDN</td>
<td>Pressure Differential Switch - Non Adjustable</td>
</tr>
<tr>
<td>AUX</td>
<td>Auxiliary switch (specify quantity max. 2)</td>
</tr>
<tr>
<td>PDA</td>
<td>Pressure Differential Switch - Adjustable</td>
</tr>
<tr>
<td>HEC</td>
<td>Price Electronic Controller</td>
</tr>
<tr>
<td>HEC/ISP</td>
<td>Price HEC Controller with Internal setpoint</td>
</tr>
<tr>
<td>EAS</td>
<td>Electronic Airflow Sensor (HEC required)</td>
</tr>
<tr>
<td>SSR</td>
<td>Solid State Relay</td>
</tr>
<tr>
<td>LP</td>
<td>Pilot Light - Power</td>
</tr>
<tr>
<td>LH</td>
<td>Pilot Light - Heating</td>
</tr>
<tr>
<td>LN</td>
<td>Pilot Light - No Airflow</td>
</tr>
<tr>
<td>LS</td>
<td>Pilot Light - Stage On</td>
</tr>
<tr>
<td>LO</td>
<td>Pilot Light - Overheat</td>
</tr>
<tr>
<td>FR</td>
<td>Fan Relay</td>
</tr>
<tr>
<td>SMA</td>
<td>Starter Motor for Fan Automatic</td>
</tr>
<tr>
<td>SMM</td>
<td>Starter Motor for Fan Manual</td>
</tr>
<tr>
<td>PSO</td>
<td>Pneumatic/Electric Switch Normally Open</td>
</tr>
<tr>
<td>PSC</td>
<td>Pneumatic/Electric Switch Normally Closed</td>
</tr>
<tr>
<td>PCD</td>
<td>Pneumatic/Electric Controller Direct Acting</td>
</tr>
<tr>
<td>PCR</td>
<td>Pneumatic/Electric Controller Reverse Acting</td>
</tr>
<tr>
<td>CGA</td>
<td>Open Coil Grade A</td>
</tr>
<tr>
<td>EF</td>
<td>Extended Flange - 1.5&quot; (38mm)</td>
</tr>
<tr>
<td>PH</td>
<td>Process Heater</td>
</tr>
<tr>
<td>N12</td>
<td>Control Panel - NEMA 12 (IP52)</td>
</tr>
<tr>
<td>N4</td>
<td>Control Panel - NEMA 4 (IP56)</td>
</tr>
<tr>
<td>N4X</td>
<td>Control Panel - NEMA 4X (IP56)</td>
</tr>
<tr>
<td>RP</td>
<td>Remote Panel</td>
</tr>
</tbody>
</table>

Please contact factory for special options
Specification: Open Coil Element Heater

Supply as described below and/or on the drawings, CSA approved electric heaters according to CSA standard C22.2 No. 155 and UL 1996, as manufactured by PRICE.

Mechanical Construction
PRICE electric heaters shall be manufactured using galvanized steel of appropriate gauge and will provide proper rigidity and resistance to corrosion. Electric heaters will be manufactured and approved for zero clearance for all combustible materials.

Heating Elements (Open Coil)
Heating elements will be manufactured from a grade C nickel chrome alloy (NiCr60).

Modulating Heaters
PRICE modulating electric heaters will be supplied with an electronic sensor on each side of the heater to measure the temperature and the airflow, and a PRICE HEC controller to adjust the output temperature in accordance with the measured parameters. The PRICE HEC controller will shut off the electric heater when there is no airflow.

Electrical Construction
Electric heaters will be supplied with a control panel with electric components adapted to the required voltage and current of the system. The control panel will be manufactured for indoor conditions and will provide safety features against accidental contact with internal components (Nema type 1) (IP10). The control panel will include a removable, hinged door to provide easy access. The connection terminals will be clearly identified, and a corresponding wiring diagram will be affixed to the control panel. The following standard components will be installed:

- Transformer with secondary fuse
- Magnetic contactor
- Automatic thermal cutout
- Manual thermal cutout (when required by code)
- Airflow switch
- Solid state relay (modulating control)

Additional components are optional, see list of options.

System Conditions
Electric heater operation shall not be affected by airflow direction and heaters may be installed in either the vertical or horizontal position. Modulating electric heater operation shall not be affected by the airflow direction. The PRICE HEC controller will automatically recognize the direction of airflow and will operate accordingly. The mechanical dimensions, electrical requirements, and airflow direction will be as indicated on the heater schedule.

Approvals
Mechanical drawings and wiring diagrams shall be submitted to the Consulting Engineer for approval prior to production.
List of Options

Mechanical Construction

These options available:

- Slip-in electric heater
- Flanged electric heater
- Round collar electric heater
- Heating section (frame) in 304 stainless steel

Open Coil Elements

- Open coil elements in grade A (NiCr80) Nickel Chrome alloy, no traces of iron

Electrical Construction

- 304 stainless steel control panel
- Remote control panel
- Nema12 (IP52) Control panel (protection against dust)
- Nema4 (IP56) Control panel (protection against foul weather)
- Nema4X (IP56) Control panel (protection against foul weather and corrosion)
- No transformer-control voltage provided by others
- No contactor-control components provided by others
- Mercury Contactor
- Disconnect switch - no door interlock
- Disconnect switch with door interlock
- Load fuses HRC form 1
- Stage fuses HRC form 1
- Manual reset thermal cutout
- PRICE HEC controller (provides precise modulation for heating and provides protection against overheating if there is a loss of in airflow).
- Power supply pilot light
- Stage pilot light
- Airflow pilot light
- Overheat pilot light

Heater Protective Screens

Optional:

- 1 protective screen to the left of control panel.
- 1 protective screen to the right of control panel.
- 1 protective screen to the left and one to the right of control panel.

Special Construction

PRICE electric heaters may be constructed to adapt to particular conditions. Special construction will be available upon request according to the many options described in the catalogue and on the options summary sheet.
Specification: Tubular Element Heater

Supply as described below and/or on the drawings, CSA approved electric heaters according to CSA standard C22.2 No. 155 and UL 1996, as manufactured by PRICE (PRICE).

Mechanical Construction
PRICE electric heaters shall be manufactured using galvanized steel of appropriate gauge and will provide proper rigidity and resistance to corrosion.
Electric heaters will be manufactured and approved for zero clearance for all combustible materials.

Heating Elements (Standard Tubular)
Heating elements will be standard tubular type, made of an Incoloy 800 (Nickel alloy) tube with a diameter of 3/8" (9.5mm) containing a heating coil in magnesium oxide powder.

Modulating Heaters
PRICE modulating electric heaters will be supplied with an electronic sensor on each side of the heater to measure the temperature and the airflow. The electric heater will also be provided with the PRICE HEC controller to adjust the output temperature in accordance with the measured parameters. The PRICE HEC controller will shut off the heater when there is no airflow.

Electrical Construction
Electric heaters will be supplied with a control panel with electric components adapted to the required voltage and current of the system.
The control panel will be manufactured for indoor conditions and will provide safety features against accidental contact with internal components (Nema type 1) (IP10).
The control panel will include a removable, hinged door to provide easy access.
The connection terminals will be clearly identified, and a corresponding wiring diagram will be affixed to the control panel.

The following standard components will be installed:
☐ Transformer with secondary fuse
☐ Magnetic contactor
☐ Automatic thermal cutout
☐ Manual thermal cutout (when required by code)
☐ Airflow switch
☐ Solid state relay (modulating control)

Additional components are optional, see list of options.

System Conditions
Electric heater operation shall not be affected by airflow direction and heaters may be installed in either the vertical or horizontal position.
Modulating electric heater operation shall not be affected by the airflow direction. The PRICE HEC controller will automatically recognize the direction of airflow and will operate accordingly.
The mechanical dimensions, electrical requirements, and the airflow direction will be as indicated on the heater schedule.

Approvals
Mechanical drawings and wiring diagrams shall be submitted to the Consulting Engineer for approval prior to production.
List of Options

**Mechanical Construction**

*Three options available:*

- Slip-in electric heater
- Flanged electric heater
- Round collar electric heater
- Heating section (frame) in 304 stainless steel

**Heating Elements (Finned Tubular)**

- Heating element shall be finned tubular type, made of an Incoloy 800 (Nickel alloy) tube with a diameter of .375" (9.5mm) containing a heating coil in magnesium oxide powder.

**Electrical Construction**

- 304 stainless steel control panel
- Remote control panel
- Nema12 (IP52) Control panel (protection against dust)
- Nema4 (IP56) Control panel (protection against foul weather)
- Nema4X (IP56) Control panel (protection against foul weather and corrosion)
- No transformer-control voltage provided by others
- No contactor-control components provided by others
- Mercury Contactor
- Disconnect switch - no door interlock
- Disconnect switch with door interlock
- Load fuses HRC form 1
- Stage fuses HRC form 1
- Manual reset thermal cutout
- PRICE HEC controller, assures precise modulation for heating demand and provides protection against overheating if there is a decrease in airflow.
- Power supply pilot light
- Stage pilot light
- Airflow pilot light
- Overheat pilot light

**Heater Protective Screens**

*Optional:*

- 1 protective screen to the left of control panel.
- 1 protective screen to the right of control panel.
- 1 protective screen to the left and one to the right of control panel.

**Special Construction**

PRICE electric heaters may be constructed to adapt to particular conditions. Special construction will be available upon request according to the many options described in the catalogue and on the options summary sheet.
## Formulas

### Power or electric heater capacity

<table>
<thead>
<tr>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>$kW = \frac{\text{CFM} \times (T^\circ2 - T^\circ1) \times 1.08}{3413}$</td>
<td>$P = \frac{Q \times (T^\circ2 - T^\circ1) \times 1.3}{3600}$</td>
</tr>
</tbody>
</table>

- $kW$: Power in kW
- CFM: Air volume in Cubic Feet per Minute
- $T^\circ2$: Temperature of air leaving heater in °F
- $T^\circ1$: Temperature of air entering heater in °F
- $P$: Power in kW
- $Q$: Air volume in m³/hour
- $T^\circ2$: Temperature of air leaving heater in °C
- $T^\circ1$: Temperature of air entering heater in °C

### Temperature differential

<table>
<thead>
<tr>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta T = \frac{kW \times 3413}{\text{CFM} \times 1.08}$</td>
<td>$\Delta T = \frac{P \times 3600}{Q \times 1.3}$</td>
</tr>
</tbody>
</table>

### KW per square foot

<table>
<thead>
<tr>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{kW}{pi^2} = \frac{kW}{S}$</td>
<td>$\frac{kW}{m^2} = \frac{P}{S}$</td>
</tr>
</tbody>
</table>

- $kW$: Power in kW
- $S$: Surface area in square feet
- $P$: Power in kW
- $S$: Surface area in m²

### Duct area

<table>
<thead>
<tr>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S = \frac{W \times H}{144}$</td>
<td>$S = W \times H$</td>
</tr>
</tbody>
</table>

- $S$: Surface area in square feet
- $W$: Duct width in inches
- $H$: Duct height in inches
- $S$: Surface area in m²
- $W$: Duct width in meter
- $H$: Duct height in meter

### Electric power

<table>
<thead>
<tr>
<th>Single phase</th>
<th>3 phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P = V \times I$</td>
<td>$P = \frac{V^2}{R}$</td>
</tr>
</tbody>
</table>

- $P$: Power in Watts
- $V$: Voltage in Volts
- $I$: Current in Amps
- $R$: Resistance in Ω (Ohm)

### Line current

<table>
<thead>
<tr>
<th>Single phase</th>
<th>3 phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I = \frac{P}{V}$</td>
<td>$I = \frac{P}{V \times 1.732}$</td>
</tr>
</tbody>
</table>

### Conversions

<table>
<thead>
<tr>
<th>°F to °C</th>
<th>°C to °F</th>
<th>BTU to kW</th>
<th>kW to BTU</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C = \frac{(°F - 32)}{1.8}</td>
<td>°F = (1.8 \times °C) + 32</td>
<td>1 kW = 3413 BTU/hre</td>
<td>1 BTU/hre = 0.29307 \times 10^{-3} \text{ kW}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>mm to inches</th>
<th>Inches to mm</th>
<th>CFM to FPM</th>
<th>FPM to CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in = 25.4 mm</td>
<td>1 mm = 0.03937 in</td>
<td>\frac{1 \text{ CFM}}{S}</td>
<td>1 CFM = 1 FPM \times S</td>
</tr>
</tbody>
</table>

- $S$: Surface area in square feet
The founding principles of our company have never changed - business integrity, first class service and a commitment to people. Price manufacturing endeavors arose from our belief that we could supply superior products and services at a reasonable price. Our mission is to become the worldwide supplier of preference for air distribution products and services. You can rely on Price – our products and services – with confidence. Product improvement is a continuing endeavor at Price. Therefore, specifications are subject to change without notice. Consult your E.H. Price Sales representative for current specifications or more detailed information.

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**Warranty:** The Company warrants and guarantees that all goods within this brochure that have been manufactured by the Company have been manufactured in accordance with the specifications published herein and will be free from defects in material and workmanship for a period of twelve (12) months from the Bill of Lading issued by the Company. The Company will replace defective product at its option, but will not be responsible for labor or material charges in replacing product or consequential damages. Any installation not conforming with the Company’s specifications, manuals, bulletins or instructions or any misuse or any modification not authorized by the Company voids this warranty. This warranty is in lieu of all Provincial, State, and Federal statutory warranties and the conditions herein are in substitution and replacement of which warranties, statutory or otherwise.