Enclosure Heaters

Caloritech™
Engineered Electric Heat

Norseman™
Electric Explosion-Proof Heaters
CCI Thermal’s Line of Enclosure Heaters

1. **Caloritech™ Strip & Finned Strip Heaters (Page 4)**
   Strip and finned strip heaters are versatile and economical heating sources. They are ideal for enclosure heating where space is limited and an inexpensive heating solution is required. Strip heaters are often used in control panels in conjunction with a thermostat to prevent condensation or to maintain a minimum temperature within the enclosure for proper component operation. Strip heaters with a watt density of 8 watts/in² or less should typically be used and they should be mounted on stand-offs to allow free airflow underneath the heater. Finned strip heaters can further increase the surface area of the heater providing lower strip heater surface temperatures.

2. **Caloritech™ PXFT Control Panel & Pump House Heaters (Page 5)**
   The PXFT Control Panel & Pump House Heater is a natural convection heater engineered to provide freeze protection inside an enclosure containing water pipes or electrical instrumentation. It is approved for mounting horizontally or vertically on the floor or lower wall of the enclosure. Standard units come equipped with a built-in thermostat. Units without the thermostat are also available on special order.

3. **Caloritech™ PH Fan-Forced Enclosure Heaters (Page 5)**
   The PH Fan-Forced Enclosure Heater is designed to control the environment within enclosures by maintaining a stable temperature, eliminating low temperature adverse effects such as corrosion, freezing and condensation. The Enclosure Heater provides an optimal performance environment for the critical components contained within the control panel.

4. **Norseman™ XPA Explosion-Proof Panel Heaters (Page 6)**
   The XPA Explosion-Proof Panel Heater is designed specifically for freeze protection of control enclosures in locations where explosive atmospheres exist. Typical applications include control cabinets, instrument enclosures and small storage rooms or cabinets for volatile products.

5. **Norseman™ XB Explosion-Proof Convection Heaters (Page 7)**
   The XB Explosion-Proof Natural Convection Heater is designed for heating applications where explosive substances may be present. These applications include control cabinets and small enclosures, storage rooms for paints and cleaners, grain elevators, flour mills, spray booths, gas plants, pump houses, oil platforms, cleaning and dyeing plants, and marine/offshore areas. This safe and reliable heater offers a state of the art design, featuring CCI Thermal’s unique copper-free aluminum extruded converter and patented $x\text{-}\text{Max}^\text{®}$ terminal housing.
Enclosure Heating Systems

CCI Thermal Technologies Inc. offers a broad selection of electric heating options for control panels, instrument enclosures, cabinets and small rooms. Heaters are available for nonclassified areas and for hazardous locations where explosive substances or atmospheres may be present. From strip heaters to fan-forced to explosion-proof convection heaters, CCI Thermal has the heater for you. We also have a full range of thermostats, controllers, junction boxes and mounting accessories to complete your system.

Our products are supported by extensive approvals including CSA, CE/ATEX, UL, and EAC.

For more detailed information on the heaters in this brochure, visit www.ccithermal.com. Or contact your local sales representative and let our applications experts help you select the heater with the optimum sizing, configuration and controls for your application.

Heater Sizing

**Option 1: Do-it-yourself**

The wattage requirement is determined from a consideration of the surface area, insulation properties of the enclosure or space and the temperature difference between the ambient and the enclosure. For small enclosures (less than 100 ft² surface area) conservative values for heat loss are as shown in the table below.

**Heat Loss**

(Watts/ft² per 10°F Temperature Difference)

<table>
<thead>
<tr>
<th></th>
<th>Indoors</th>
<th>Outdoors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsulated</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Insulated (min. 1” thick)</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**Example:** Find heater wattage requirements for an uninsulated enclosure 2’ x 3’ x 1’, which must be held at 40°F in a 10°F outdoor ambient. Internal electrical components use 80 watts.

**Surface Area** = 2[(2’ x 3’) + (2’ x 1’) + (3’ x 1’)] = 22 ft²

**Heat Loss:** From the table above, an uninsulated outdoor enclosure requires 7 watts for each 10°F temperature difference.

**Temperature Difference** = 40°F - 10°F = 30°F

**Wattage Required** = (30°F/10°F) x 7 x 22 = 462 watts

**Heater Wattage** = Wattage required less component wattage

= 462 - 80

= 382 watts

**Option 2: Contact CCI Thermal with the following information**

- Exterior dimensions of enclosure
- Insulation thickness and type
- Required temperature
- Minimum ambient temperature
- Internal heat source (i.e. electrical current draw of panel components)
- Voltage
- Hazardous area classification
- Applicable space and mounting limitations
Caloritech™ Strip and Finned Strip Heaters
RUGGED, VERSATILE AND ECONOMICAL

Features

• Constructed of specially selected, high grade materials, including high temperature alloy resistance wire, corrosion-resistant aluminized steel sheath (suitable for maximum sheath temperature less than 538°C (1000°F)) or stainless steel sheath (suitable for maximum sheath temperature less than 649°C (1200°F)).

• Controlled coil process and placement assures uniform heat distribution over the entire active surface of the heater

• Special refractory material possesses excellent heat transfer characteristics, superior insulation properties and rigid vibration resistance to provide a heavy-duty heating unit

• Slotted mounting tabs allow lineal expansion during initial heat-up period

• Rated at 120V or 240V, depending on size; secondary insulators must be used when voltage to ground exceeds 300V

• High-voltage models rated up to 600V when secondary insulators are used

• Maximum amperage of 48 amps

• Overall length limit of 42.25" (1073 mm); effective heated length limit of 38.25" (972 mm)

Type SS - Terminals At One End

• Aluminized steel sheath with available wattage range of 100 W to 1500 W

  or

• Stainless steel sheath with available wattage range of 100 W to 1500 W

Type SD - Terminals At Opposite Ends

• Aluminized steel sheath with available wattage range of 100 W to 1250 W

  or

• Stainless steel sheath with available wattage range of 100 W to 1500 W

Type FS - Finned

• Aluminized steel sheath

• Finned to reduce surface temperature

• Fins are 0.020" (0.508 mm) thick, nominal four fins per inch

• Available wattage from 150 W to 4150 W

Note:
Consult factory for accessories: thermostats, secondary insulators, post terminal covers and junction boxes.
2. **Caloritech™ PXFT Control Panel & Pump House Heaters**

**COMPACT AND EASY TO INSTALL**

**Features**
- High surface area aluminum heat emitter
- Natural convection heating
- Available in 50 W to 600 W range
- Available in 120V or 240V service
- Approved for horizontal or vertical mounting
- Built-in thermostat
- Moisture-resistant option available
- Rated for nonhazardous applications
- UL and CSAUS certified; GOST approved for global markets

<table>
<thead>
<tr>
<th>PXFT Control Panel &amp; Pump House Heaters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part No.</strong></td>
</tr>
<tr>
<td>PXFT050</td>
</tr>
<tr>
<td>PXFT125</td>
</tr>
<tr>
<td>PXFT200</td>
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<tr>
<td>PXFT300</td>
</tr>
<tr>
<td>PXFT400</td>
</tr>
<tr>
<td>PXFT600</td>
</tr>
</tbody>
</table>

*Note:* For units without thermostat, omit ‘T’ in catalogue number.

3. **Caloritech™ PH Fan-Forced Enclosure Heaters**

**FAN FORCED FOR UNIFORM HEATING**

**Features**
- Forced convection for optimum heat distribution
- Low maintenance
- Light weight
- Available in 105 W to 800 W range
- Available in 120V, 220V or 240V service
- Fan/On/Auto switch to prolong motor life
- Terminal strip for quick installation
- Built-in pilot light for “heat on” indicator
- Aluminum outer casting
- 0°F to 100°F (-18°C to 38°C) adjustable thermostat
- UL and CSAUS certified; GOST approved for global markets

<table>
<thead>
<tr>
<th>PH Fan-Forced Enclosure Heater</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part No.</strong></td>
</tr>
<tr>
<td>PH12511</td>
</tr>
<tr>
<td>PH12531</td>
</tr>
<tr>
<td>PH20011</td>
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<tr>
<td>PH20031</td>
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<td>PH40031</td>
</tr>
<tr>
<td>PH80011</td>
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<tr>
<td>PH80031</td>
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</table>
### Norseman™ XPA Explosion-Proof Panel Heaters

**COMPACT AND EASY TO INSTALL**

**Features**

- High surface area copper free aluminum convector
- Black anodized to resist oxidation and to maximize heat transfer
- Natural convection heating
- Available in 50 W to 700 W range
- Available in 120V, 208V or 240V service
- Available in a variety of mounting orientations
- Standard 10°C (50°F) preset thermostat
- Optional adjustable thermostat
- CSA listed certified for Class I, Div. 1 & 2, Groups A, B, C & D hazardous locations
- EAC marked for Eurasian markets

#### Norseman™ XPA Heater Selection

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Watts</th>
<th>Temperature Code</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>kg (lbs)</td>
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<tr>
<td>XPAR-050</td>
<td>50 W</td>
<td>Vertical Only</td>
<td>1.7 (3.8)</td>
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<tr>
<td>XPAR-080</td>
<td>80 W</td>
<td>Vertical Only</td>
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<tr>
<td>XPAR-125</td>
<td>125 W</td>
<td>Vertical Only</td>
<td>1.7 (3.8)</td>
</tr>
<tr>
<td>XPAR-150</td>
<td>150 W</td>
<td>Vertical Only</td>
<td>1.7 (3.8)</td>
</tr>
<tr>
<td>XPAR-075</td>
<td>75 W</td>
<td>✓</td>
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<tr>
<td>XPAR-100</td>
<td>100 W</td>
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<tr>
<td>XPAR-125</td>
<td>125 W</td>
<td>✓</td>
<td>3.4 (7.4)</td>
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<tr>
<td>XPAR-150</td>
<td>150 W</td>
<td>✓</td>
<td>3.4 (7.4)</td>
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<tr>
<td>XPAR-200</td>
<td>200 W</td>
<td>✓</td>
<td>3.4 (7.4)</td>
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<tr>
<td>XPAR-250</td>
<td>250 W</td>
<td>✓</td>
<td>3.4 (7.4)</td>
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<tr>
<td>XPAR-100</td>
<td>100 W</td>
<td>✓</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAR-150</td>
<td>150 W</td>
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<td>XPAR-200</td>
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<tr>
<td>XPAR-250</td>
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<tr>
<td>XPAR-500</td>
<td>500 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
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<tr>
<td>XPAR-600</td>
<td>600 W</td>
<td>µ</td>
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</tr>
<tr>
<td>XPAR-700</td>
<td>700 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
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#### Norseman™ XPAL Heater Selection

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<th>Part No.</th>
<th>Watts</th>
<th>Temperature Code</th>
<th>Weight</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>kg (lbs)</td>
</tr>
<tr>
<td>XPAL-100</td>
<td>100 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-150</td>
<td>150 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-200</td>
<td>200 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-250</td>
<td>250 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-300</td>
<td>300 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-400</td>
<td>400 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-500</td>
<td>500 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-600</td>
<td>600 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
<tr>
<td>XPAL-700</td>
<td>700 W</td>
<td>µ</td>
<td>5.9 (12.8)</td>
</tr>
</tbody>
</table>

#### Norseman™ XPAS Heater Dimensions

#### XPAS - Heater Dimensions

- 9" (229 mm)
- 6.3" (160 mm)
- 3/4" female NPT conduit entry
- 4" (102 mm)
- 5" (127 mm)
- 4.4" (111 mm)
- 6.3" (160 mm)
- 229\(\frac{2}{3}\) mm

#### XPAL - Heater Dimensions

- 9" (229 mm)
- 6.3" (160 mm)
- 3/4" female NPT conduit entry
- 4" (102 mm)
- 5" (127 mm)
- 6.3" (160 mm)
- 4" (102 mm)
- 229\(\frac{2}{3}\) mm

#### XPAR - Heater Dimensions

- 13.75" (350 mm)
- 0.625" (15.9 mm)
- 5.50" (139.7 mm)
- 1.8" (44 mm)
- 11.2" (285 mm)
- 6.3" (160 mm)
- 4" (102 mm)
- 3/4" female NPT conduit entry
- 5.5" (141 mm)
- 1.8" (44 mm)
- 11.2" (285 mm)

- MOUNTING BRACKET
- SLIDE MOUNT ONTO PANEL MOUNTED BOLTS
- PROTECTION GRILL
- OPTIONAL

- MOUNTING BRACKET SLIDE MOUNT ONTO PANEL MOUNTED BOLTS
- PROTECTION GRILL (OPTIONAL)

- 2.294" (58.3 mm)
- 3/4" NPT threaded conn. (Typ.)
Norseman™ XB Explosion-Proof Convection Heaters
FOR LARGER ENCLOSURES IN HAZARDOUS LOCATIONS

Features

- High surface area copper free aluminum convector
- Black anodized to resist oxidation and to maximise heat transfer
- Patented x-Max® terminal housing comes with threaded covers for easy access to internal components
- Optional externally adjustable thermostat
- Available in 50 W to 5000 W range
- Available in 120V to 600V service
- Vertical mounting, supplied with brackets for attachment to wall or floor
- Rated for hazardous locations [CSAUS] and CE/ATEX*
- Units available for temperature codes T2D, T3B, T4A & T6 and T3, T4 for CE/ATEX units
- EAC marked for Eurasian markets

### Standard Norseman™ XB Heater Selection

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Watts</th>
<th>Standard Voltages</th>
<th>T2D</th>
<th>T3B</th>
<th>T4A</th>
<th>T6</th>
<th>Weight lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>120</td>
<td>208</td>
<td>240</td>
<td>480</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø10</td>
<td>Ø10</td>
<td>Ø3Ø</td>
<td>Ø10</td>
<td>Ø3Ø</td>
<td></td>
</tr>
<tr>
<td>XB1-1047T2D</td>
<td>475</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>10.0 (254)</td>
</tr>
<tr>
<td>XB1-3075T2D</td>
<td>750</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>16.7 (424)</td>
</tr>
<tr>
<td>XB1-4100T2D</td>
<td>1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>XB1-6125T2D</td>
<td>1250</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>30.1 (765)</td>
</tr>
<tr>
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<td>✓</td>
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<tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>23.4 (594)</td>
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<td>✓</td>
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<td>XB4-6450T2D</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>30.1 (765)</td>
</tr>
</tbody>
</table>

**Note:**

*Standard heaters are approved for Class I, Division 1, Groups A, B, C & D. For other wattages and area classifications please contact factory.

Front Views

Note:

Overall depth of each style is 8” (205 mm).
As a leader in advanced heating and filtration solutions with facilities across North America, CCI Thermal Technologies Inc. manufactures six of the top brands in industrial heating in addition to a comprehensive line of engineered industrial filtration products including:

**Cata-Dyne™**

**Explosion-Proof Gas Catalytic Heaters**

Cata-Dyne™ is the industry standard in infrared gas catalytic heaters, enclosures, pipeline systems and accessories. Customers across a wide range of industries rely on Cata-Dyne™ to supply them with safe, reliable, efficient and versatile infrared catalytic heating equipment for a variety of applications in both hazardous and non-hazardous environments.

**Ruffneck™**

**Heaters for the Harshest Environments**

Ruffneck™ is renowned for its rugged, reliable and versatile heavy-duty explosion-proof heaters, heating systems and heating accessories. Ruffneck™ has a long and proud history of supplying quality heating products for the harshest industrial environments to a worldwide customer base for over 30 years. Ruffneck™ is well-known in the industry for its “ship the heat in a week” policy, where 95% of all standard orders are shipped within one week of order placement.

**Caloritech™**

**Engineered Electric Heat**

Caloritech™ electric heaters, heating elements and heating accessories are well-known in the industry for their quality, reliability, performance and versatility. In addition to standard “off the shelf” industrial heaters and heating systems components, Caloritech™ also offers engineered heating solutions custom designed, manufactured and tested to satisfy customer specifications. No matter what your application or environment, Caloritech™ has a solution to fit your heating needs.

**3L Filters™**

**Engineered Filtration Systems**

3L Filters™ has satisfied the most demanding industrial filtration requirements for over 40 years. A broad range of standard and custom products includes liquid filters, strainers, separators, pressure vessels, and engineered products and systems. 3L Filters™ has special expertise for nuclear, petrochemical, water treatment and environmental applications.

**Norseman™**

**Electric Explosion-Proof Heaters**

Norseman™ is the most technologically advanced line of explosion-proof electric air heaters and heating accessories, including both forced air heaters and natural convection heaters, as well as unit heaters, panel heaters and thermostats. Norseman™ offers innovative, low maintenance solutions for a wide range of applications in a variety of industrial and commercial environments. Custom engineered heaters or heating systems are available for specialized applications.

**Fastrax®**

**Track and Switch Heaters**

Fastrax® has manufactured railroad track and switch heating since 1995. Fastrax® engineers complete heating packages for the rail industry. Fastrax® track and switch heaters are designed to provide the most efficient heat transfer on rail equipment and components for the coldest environments. In addition to heaters, Fastrax® manufactures fully automatic energy saving controls to complete the rail heating system.

**DriQuik™**

**Infrared Oven Components**

DriQuik™ provides components for infrared drying ovens. DriQuik™ utilizes a pioneered radiant oven technology established in the 1930s providing the industry standard in infrared radiant heating components.

**VISIT WWW.CCITHERMAL.COM FOR DETAILED PRODUCT INFORMATION.**

Edmonton, AB
Head Office
1-800-661-8529
(780) 466-3178
F 780-468-5904

Oakville, ON
1-800-410-3131
(905) 829-4422
F 905-829-4430

Orillia, ON
1-877-325-3473
(705) 325-3473
F 705-325-2106

Houston, TX
1-855-219-2101
(281) 506-2310
F 281-506-2316

Denver, CO
1-855-244-3128
(303) 979-7339
F 303-979-7350

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