Cata-Dyne™
Explosion-Proof Gas Catalytic Heaters

Explosion-Proof Gas Catalytic Heaters
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As a leader in heating and filtration solutions, Thermon Heating Systems, Inc. is committed to ongoing research, product development and above all, excellence in customer service. With facilities across North America, Thermon Heating Systems manufactures five 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
- **Ruffneck™**
  - Heaters for the Harshest Environments
- **Caloritech™**
  - Engineered Electric Heat
- **3L Filters™**
  - Engineered Filtration Systems
- **Norseman™**
  - Electric Explosion-Proof Heaters
- **Fastrax™**
  - Track and Switch Heaters

Cata‑Dyne™ gas catalytic explosion-proof heaters are available in various models with Btu ratings ranging from 1,000 to 48,000 Btu/hr (0.3 kW to 14.0 kW). In addition, these heaters can be banked together to obtain any Btu (kW) rating desired. Thermon Heating Systems’ Cata‑Dyne™ heaters are competitively priced, simple to install and operate, and require minimal maintenance under normal operating conditions. These heaters are economical to operate and highly efficient.

We invite you to visit www.thermon.com to view the broad range of innovative industrial heating products manufactured by Thermon Heating Systems, Inc.
The Industry Standard

Cata-Dyne™ heaters boast the most efficient conversion of hydrocarbon fuels to infrared energy compared to any competitive brand on the market today, with over a quarter of a million units in service during our 40-year history and an exceptional safety record.

Designed for both hazardous and non-hazardous applications, Cata-Dyne™ is the benchmark in innovation for space or spot heating.

Customer Care

Thermon Heating Systems, Inc.’s state of the art, 105,000 square feet, Edmonton manufacturing facility is designed to ensure our worldwide customer base of the most efficient explosion-proof and general purpose infrared gas catalytic heaters and heating systems for use in industrial heating. We are the only fully integrated infrared gas catalytic manufacturing plant in the world, sharing our unique technology and manufacturing techniques with three other manufacturing facilities. This enables us to exert greater quality control over our product lines and allows us to respond quickly to our customer’s special heating application needs.

Thermon Heating Systems, Inc. has set the industry standard for total quality customer service by offering same or next day product delivery. We also refurbish “well used” heaters into “like new” condition in our repair service center.

Every heater manufactured or repaired by Thermon Heating Systems, Inc. undergoes stringent safety and performance testing in accordance with all applicable Safety Certification standards including CSA and FM. Our ongoing commitment to the safety and well being of our customers includes free product safety instruction sessions by our field sales professionals covering everything from an overview of basic infrared technology to detailed explanations on how our unique Cata-Dyne™ catalytic technology works.

Infrared Technology

- Infrared is smart. It heats only what needs to be heated: personnel or equipment within a facility, not the surrounding air
- Infrared is direct. It takes less time and energy to do the job
- Infrared is versatile. It handles a large variety of process and space heating applications
- Infrared is environmentally friendly. It helps surpass today’s ever-tightening standards

Infrared radiation is a form of electromagnetic energy that is generated by the vibration and rotation of atoms and molecules within all objects with temperatures above absolute zero (0°Kelvin; -273°C; or -459°F).

Electromagnetic energy, which travels at the speed of light, is comprised of waves that can be measured both electrically and magnetically.

Infrared (literally meaning below or beyond the red) is located between the visible and microwave portions of the electromagnetic spectrum and shares many of the same properties of visible light, except it has a longer wavelength. When infrared waves encounter a solid object they can be reflected (bounced off), diffracted (scattered), refracted (bent), transmitted (pass through), or absorbed by the object. Several of these effects can take place at the same time.
How Our Cata-Dyne™ Operates

- Power is applied to the electrical elements which provide the required 120°C (250°F) preheat temperature for the catalyst pad
- Fuel enters the rear of the heater through an orifice and a gas distribution system
- The baffle plate prevents the insulation from choking off the fuel entry points
- The first layer of insulation allows the fuel to build up enough pressure to provide even gas distribution throughout the heater
- The fuel passes through the heater insulation and comes in contact with the under side of the catalyst
- With the catalyst pad at the preheat temperature, the fuel is converted into infrared energy

How the Catalyst Works

- Once the catalyst pad has reached the activation temperature of 120°C (250°F) the pad is ready to emit infrared energy
- Natural gas or propane and atmospheric oxygen chemically react with the proprietary catalyst in the pad
- The reaction creates infrared energy with water and carbon dioxide as by-products
- The fuel should be clean dry gas; contaminants such as hydrogen sulphide, oil and moisture will affect the longevity of the pad

\[
\text{Natural Gas: } \text{CH}_4(\text{g}) + 2 \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2 \text{H}_2\text{O}(\text{g}) + \text{Infrared Energy} \\
\text{Propane: } \text{C}_3\text{H}_8(\text{g}) + 5 \text{O}_2(\text{g}) \rightarrow 3 \text{CO}_2(\text{g}) + 4 \text{H}_2\text{O}(\text{g}) + \text{Infrared Energy}
\]
## Model Coding

### Model Series
- W - WX Series
- MK - MK Series
- H - BX Series
- WXS - WXS Series*

### Heater Size
- Voltage
  - 0 - No elements
  - 1 - 12V
  - 2 - 115V
  - 3 - 208V
  - 4 - 240V
  - 5 - 480V
  - 6 - 600V
  - 7 - 24V
  - 8 - 380V
  - 9 - 12V/375W

### Box Bracket Style
- 0 - None
- 1 - Short side
- 2 - Long side
- 3 - Perimeter side flange
- 4 - Perimeter back flange
- 5 - Face tabs
- 6 - Flat brackets
- 7 - Angle side brackets
- 8 - Old style "I" brackets
- 9 - Perimeter flange, back loading

### Certification
- 0 - NONE
- 1 - CSA
- 2 - FM
- 3 - POLISH
- 4 - CE
- 6 - EAC

### Thermal Sensor
- 0 - None
- 1 - Thmcpl & ssov
- 2 - Single pole thmcpl
- 3 - Snapswitch (close on rise)
- 4 - Snapswitch (open on rise)
- 5 - Thermoswitch (close on rise)
- 6 - Thermoswitch (open on rise)
- 7 - Thmcpl & Mertik valve
- 8 - thmcpl & tamper resistant SSOV

### Fuel Rating
- 1 - Natural (7" W.C.)
- 2 - Propane (11" W.C.)
- 3 - Natural (3.5" W.C.)
- 4 - Natural (4.5" W.C.)

### Catalyst Pad
- X Series Pad
  - 1 - WX Pad
  - 4 - BX Pad (6K)
- 5 - BX Pad (7K)
- 6 - WX Pad (4K) CHS

- G Series Pad
  - 2 - ‘G’ Series (6K)
  - 3 - ‘G’ Series (8K)

*Please call factory for the WXS.
WX Series Explosion-Proof Gas Catalytic Heaters

The Cata-Dyne™ WX Series infrared gas catalytic explosion-proof heaters are the industry standard for hazardous location heating needs. They are available in over twenty, three-inch depth cabinet sizes, with gas, electrical and accessory connections on the back side of the heater. These are the heaters of choice for many of our customers who have come to trust their reliability.

Applications

WX Series heaters are used in many different applications that involve spot or space heating where hazardous materials may be present. These include:

- Comfort heating for industrial buildings and installations
- Freeze protection for equipment or components
- Drying or curing processes

Features

- Heater box constructed of 300 series stainless steel for corrosion protection
- Cata-Dyne™ proprietary explosion-proof catalyst pad
- Standard 3/8" NPT gas connections
- Explosion-proof electrical junction box with standard 3/4" NPT connections
- Cata-Dyne™ heaters are designed to operate on either natural gas or propane
- Cata-Dyne™ heaters do not require electrical power to operate once they have been started
- Our explosion-proof catalytic technology is the most efficient in the industrial heating market
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel
- Internal heater components such as our proprietary catalyst pad and preheat Caloritech™ tubular element are manufactured in-house

Certifications

The WX Series Cata-Dyne™ explosion-proof catalytic heaters are approved for the following:

- Canadian Standards Association (CSA) for use in Class I, Division 1 & 2, Group D hazardous locations
- Factory Mutual (FM) for use in Class I, Division 1, Group D hazardous locations. Temperature code T2C at an ambient temperature of 40°C (104°F)

See Table 1, page 11 for fuel & electrical ratings.
MKII Series Explosion-Proof Gas Catalytic Heaters

Our Cata-Dyne™ MKII Series explosion-proof catalytic heater has sleek side mount controls ideal for customers seeking to reduce costs with easier and quicker heater installation.

Applications

The Cata-Dyne™ MKII Series heaters are used in many different applications that involve spot or space heating where hazardous materials may be present.

These include:
- Comfort heating for industrial buildings and installations
- Freeze protection for equipment or components
- Drying or curing processes

Features

- Heater box constructed of 300 series stainless steel for corrosion protection
- Cata-Dyne™ proprietary explosion-proof catalyst pad.
- Standard 3/8” NPT gas connections
- Cata-Dyne™ heaters are designed to operate on either natural gas or propane
- Cata-Dyne™ heaters do not require electrical power to operate once they have been started
- Our QuikSTART heater technology reaches the catalytic threshold faster, bringing the heater to full operating temperature in half the time
- Shorter thermocouple is nickel plated with an added polymer sleeve to enhance the corrosion protection for a stronger electromagnetic connection to the safety shut-off valve (SSOV)
- All gas control components as well as all electrical connections are side mounted for easy installation and access
- Side mounted rating plate for easy visibility
- Single start up element with the same power and wattage rating as used in the standard WX heaters dual elements
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel
- Internal heater components such as our proprietary catalyst pad and preheat Calortech™ tubular element are manufactured in-house

Certifications

The Cata-Dyne™ MKII Series explosion-proof catalytic heater is approved for the following:

- Canadian Standards Association (CSA) for use in Class I, Division 1 & 2, Group D hazardous locations
- Factory Mutual (FM) for use in Class I, Division 1, Group D hazardous locations. Temperature code T2C at an ambient temperature of 40°C (104°F)

See Table 3, page 11 for fuel & electrical ratings
WXS Series Explosion-Proof Gas Catalytic Heaters

Thinner Space Saving Unit

The Cata-Dyne™ WXS Series “Slim Line” explosion-proof catalytic heater is everything our WX Series heater has become renowned for with the added feature of a more compact 1 ½” (38 mm) thick stainless steel cabinet. This design versatility allows it to be used in both traditional installations and in compact enclosures for valves, regulators and instrumentation.

Applications

Slim Line heaters are used in many different applications that involve spot or space heating where hazardous materials may be present. These include:
- Comfort heating for industrial buildings and installations
- Freeze protection for equipment or components

Features

- Now available in new 8” and 12” round heater sizes
- These units are designed to run on either clean natural gas or propane
- All standard Cata-Dyne™ accessories can be used with the Slim Line models
- 1 ½” (38 mm) thinner than the standard Cata-Dyne™ heater
- Equipped with universal mounting brackets, the heater can easily be mounted into existing facilities or enclosures
- Heater boxes are constructed of 300 series stainless steel for maximum corrosion protection
- Units are fitted with standard 3/8” NPT gas connections
- No power is needed to operate the heaters or their controls once the heater has started and the catalytic reaction has been established
- Our QuikSTART heater technology reaches the catalytic threshold faster bringing the heater to full operating temperature in half the time
- Our explosion-proof catalytic technology is the most efficient in the industrial heating market
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel
- Internal heater components such as our proprietary catalyst pad and preheat Calortech™ tubular element are manufactured in-house

Certifications

- FM, Class I, Division 1, Group D explosion-proof ratings
See Table 5, page 12 for fuel & electrical ratings.
BX Series Catalytic Heaters

‘G’ Series Catalytic Pad - Non-Hazardous Areas

The Cata-Dyne™ BX Series infrared gas catalytic heater with ‘G’ Series catalytic pad is designed for use in non-hazardous heating applications such as infrared drying and curing ovens. It is fitted with a patented high temperature catalyst pad, operates on either natural or propane fuel and is available in a wide variety of cabinet sizes.

Applications

The large surface area of the Cata-Dyne™ heater allows for efficient transfer of infrared heat that can be used in a variety of applications including:

- Facility space heating
- Process heating
- Freeze protection
- Comfort heating for personnel
- Ovens

Features

- Internal heater components such as our proprietary catalyst pad and preheat Caloritech™ tubular element are manufactured in-house
- Multiple Btu input ratings and a variety of standard heater sizes available
- Offered in a variety of preheat voltages
- Natural gas (NG) or propane (LPG) configurations
- Choice of manual control or electronic control options
- Multiple heater mounting bracket configurations available
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel

Certifications

- G Series catalytic pad is certified by Canadian Standards Association (CSA) and Factory Mutual (FM) and (European standards) for non-hazardous area applications. See Table 4, page 12 for fuel & electrical ratings.

‘X’ Series Catalytic Pad - Hazardous Areas

(Only sold in the USA)

BX Series heaters are used in many different applications that involve spot or space heating where hazardous materials may be present.

Applications

- Comfort heating for industrial buildings and installations
- Freeze protection for equipment or components
- Drying or curing processes

Features

- Heater box constructed of 300 series stainless steel for corrosion protection
- Standard 3/8” NPT gas connections
- Explosion-proof electrical junction box with standard 3/4” NPT connections
- Cata-Dyne™ heaters are designed to operate on either natural gas or propane
- Cata-Dyne™ heaters do not require electrical power to operate once they have been started
- Our explosion-proof catalytic technology is the most efficient in the industrial heating market
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel
- Internal heater components such as our proprietary catalyst pad and preheat Caloritech™ tubular element are manufactured in-house

Certifications

- X Series catalytic pad is the industry standard for hazardous location heating needs.
- Factory Mutual (FM) for use in Class I, Division 1, Group D hazardous locations. Temperature code T2C at an ambient temperature of 40°C (104°F). This style heater is only sold in the USA. See Table 2, page 11 for fuel & electrical ratings.
### Table 1 – WX Series Fuel and Electrical Rating Data (CSA and FM)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Natural Gas</th>
<th>Propane</th>
<th>Natural Gas</th>
<th>Propane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Btu/hr</td>
<td>kW</td>
<td>CFH</td>
<td>m³/hr</td>
</tr>
<tr>
<td>W8x6</td>
<td>7,500</td>
<td>2,000</td>
<td>1,250</td>
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</tr>
<tr>
<td>W8x12</td>
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<td>5,000</td>
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<td>5,000</td>
</tr>
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<td>W8x24</td>
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<td>5,000</td>
<td>2,000</td>
<td>5,000</td>
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<tr>
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<td>7,500</td>
<td>2,000</td>
<td>5,000</td>
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<tr>
<td>W8x8</td>
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<td>10,000</td>
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<tr>
<td>W8x66</td>
<td>25,000</td>
<td>15,000</td>
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<tr>
<td>W8x72</td>
<td>30,000</td>
<td>20,000</td>
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</table>

#### Start-Up Amperage

<table>
<thead>
<tr>
<th>12V</th>
<th>208V</th>
<th>240V</th>
<th>380V</th>
<th>480V</th>
<th>600V</th>
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</thead>
<tbody>
<tr>
<td>7.1</td>
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### Table 2 – BX Series Fuel and Electrical Rating Data (FM only) - Available only in the USA

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<thead>
<tr>
<th>Model No.</th>
<th>Natural Gas</th>
<th>Propane</th>
<th>Natural Gas</th>
<th>Propane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Btu/hr</td>
<td>kW</td>
<td>CFH</td>
<td>m³/hr</td>
</tr>
<tr>
<td>H8x6</td>
<td>1,500</td>
<td>0.44</td>
<td>500</td>
<td>0.147</td>
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<tr>
<td>H8x12</td>
<td>3,000</td>
<td>0.879</td>
<td>1,000</td>
<td>2.093</td>
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<tr>
<td>H8x24</td>
<td>6,000</td>
<td>1.758</td>
<td>2,000</td>
<td>5.086</td>
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<tr>
<td>H8x8</td>
<td>2,667</td>
<td>0.782</td>
<td>900</td>
<td>0.264</td>
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<tr>
<td>H10x12</td>
<td>5,000</td>
<td>1.467</td>
<td>1,000</td>
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<tr>
<td>H12x6</td>
<td>12,000</td>
<td>3.517</td>
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<td>H12x24</td>
<td>18,000</td>
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<td>H18x6</td>
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<td>24,000</td>
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#### Start-Up Amperage

<table>
<thead>
<tr>
<th>12V</th>
<th>208V</th>
<th>240V</th>
<th>380V</th>
<th>480V</th>
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<td>7.1</td>
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</table>

### Table 3 – MKII Series (CSA and FM)

<table>
<thead>
<tr>
<th>No.</th>
<th>Natural Gas</th>
<th>Propane</th>
<th>Natural Gas</th>
<th>Propane</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Btu/hr</td>
<td>kW</td>
<td>CFH</td>
<td>m³/hr</td>
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<tr>
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#### Start-Up Amperage

<table>
<thead>
<tr>
<th>12V</th>
<th>208V</th>
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</tbody>
</table>

**Note:** The tables above provide detailed fuel and electrical rating data for WX and BX series Cata-Dyne™ Explosion-Proof Gas Catalytic Heaters, as well as Start-Up Amperage values for different voltage ranges. The data is available for the USA, with specific models ranging from 1,500 to 72,000 Btu/hr and Start-Up Amperages ranging from 0.44 to 21.101. For MKII Series, the specific data is provided for CSA and FM only.
### Table 4 – G Series Fuel and Electrical Rating Data (CSA and FM - Non-Hazardous)

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<tbody>
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<td>Natural Gas / Propane</td>
<td>Natural Gas / Propane</td>
<td>CFH</td>
<td>m³/hr</td>
</tr>
<tr>
<td></td>
<td>Btu/hr</td>
<td>kW</td>
<td>Btu/hr</td>
<td>kW</td>
</tr>
<tr>
<td>MK12x12</td>
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<td>1,464</td>
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### Table 5 – WXŚ Slim Line Series Fuel and Electrical Rating Data (FM Only)

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<td>Natural Gas / Propane</td>
<td>Natural Gas / Propane</td>
<td>CFH</td>
<td>m³/hr</td>
</tr>
<tr>
<td></td>
<td>Btu/hr</td>
<td>kW</td>
<td>Btu/hr</td>
<td>kW</td>
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<tr>
<td>WXŚ6x12</td>
<td>1,750</td>
<td>0,531</td>
<td>583</td>
<td>0,171</td>
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<tr>
<td>WXŚ6x24</td>
<td>3,500</td>
<td>1,025</td>
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<tr>
<td>WXŚ6x48</td>
<td>7,000</td>
<td>2,050</td>
<td>2,333</td>
<td>0,684</td>
</tr>
<tr>
<td>WXŚ8x8</td>
<td>3,111</td>
<td>0.911</td>
<td>1,037</td>
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<tr>
<td>WXŚ10x12</td>
<td>5,833</td>
<td>1,709</td>
<td>1,944</td>
<td>0,570</td>
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<td>WXŚ12x12</td>
<td>7,000</td>
<td>2,050</td>
<td>2,333</td>
<td>0,684</td>
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<tr>
<td>WXŚ12x24</td>
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<td>4,101</td>
<td>4,667</td>
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</tr>
<tr>
<td>WXŚ12x36</td>
<td>21,000</td>
<td>6,161</td>
<td>7,000</td>
<td>2,051</td>
</tr>
<tr>
<td>WXŚ12x48</td>
<td>28,000</td>
<td>8,201</td>
<td>9,333</td>
<td>2,735</td>
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<tr>
<td>WXŚ24x24</td>
<td>28,000</td>
<td>8,201</td>
<td>9,333</td>
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<td>WXŚ24x36</td>
<td>42,000</td>
<td>12,302</td>
<td>14,000</td>
<td>4,103</td>
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<tr>
<td>WXŚ24x48</td>
<td>56,000</td>
<td>16,402</td>
<td>18,667</td>
<td>5,471</td>
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<tr>
<td>Round 8 in</td>
<td>2,500</td>
<td>0.732</td>
<td>825</td>
<td>0.242</td>
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<tr>
<td>Round 12 in</td>
<td>5,500</td>
<td>1,611</td>
<td>1,825</td>
<td>0,535</td>
</tr>
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</table>
The Regulator Enclosure is specifically designed to provide freeze protection for a wide variety of natural gas pipeline regulators. Enclosures are designed for specific regulators and generic applications.

**Features**

- Enclosure comes fully assembled
- Stainless steel enclosures provide added longevity for the harshest environments
- Cata-Dyne™ heaters are CSA or FM certified, available in both natural gas or propane
- Optional thermostats and regulators are available
- Designed to clamp directly to the pipeline, spring clamps make installation easy
- Custom designed enclosure packages available upon request

**Model Coding**

<table>
<thead>
<tr>
<th>Model Series</th>
<th>600D</th>
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<th>2</th>
<th>Heater Type</th>
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<tr>
<td>HEA - Heater enclosure assembly</td>
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<td></td>
<td></td>
<td>Options</td>
<td></td>
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<td>600D</td>
<td>1x1</td>
<td>2</td>
<td>Heater Type</td>
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<td>HEA - Heater enclosure assembly</td>
<td></td>
<td></td>
<td></td>
<td>Options</td>
<td></td>
</tr>
</tbody>
</table>

**Regulator**

- Model Series: 0100/0101 - 6x6 enclosure
- 0102/0103 - 6x12 enclosure
- 0104/0105 - 6x24 enclosure
- 0106/0107 - 8x8 enclosure
- 0108/0109 - 10x12 enclosure
- 0110/0111 - 12x12 enclosure
- 0600 - Fisher 630 Big Joe
- 1301 - Fisher 1301
- 0232 - De 232
- 0461 - Fisher 461
- 6300 - Fisher 630
- 0627 - Fisher 627
- 627F - Fisher 627 flanged
- 67CF - Fisher 67CF
- 600D - Fisher 600 D-body valve
- 0EZR - EZR enclosure
- 4413 - TESCOM 44-1300
- MOON - Mooney Flow grid valve

**Pipe Size (in.)**

- Universal

**Inlet x Outlet**

- 1224

**Number of Heaters**

- 1

**Heater Type**

- A - Appliance regulator (factory matched to heaters)
- B - Service regulator (low pressure, 250 psig - 11" w.c.)
- B1 - Service regulator (low pressure, 250 psig - 4" w.c.)
- C - Service regulator (high pressure, 6000 psig - 50 psi)
- T - Thermostat [regular, 32°F - 104°F, factory matched to heater(s)]
- T1 - Thermostat
- T2 - Thermostat (high temperature, 60°F - 250°F)
- V - Relief valve (Fisher 289U 5"-25" w.c.)
- V1 - Relief valve (Fisher H120, 120 psi)
- G - Pressure gauge

**Universal**

<table>
<thead>
<tr>
<th>Model Series</th>
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<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
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<td>W - WX Series</td>
<td>H - BX Series</td>
<td>WXS - WXS Series</td>
<td>W</td>
<td>1224</td>
</tr>
<tr>
<td>Thermal Sensor</td>
<td>1 - Thermocouple &amp; safety shut-off valve</td>
<td>2 - H19 Thermocouple</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Rating</td>
<td>1 - Natural Gas (7&quot; W.C.)</td>
<td>2 - Propane (11&quot; W.C.)</td>
<td>3 - Natural Gas (9.5&quot; W.C.)</td>
<td>4 - Natural Gas (4.5&quot; W.C.)</td>
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</tbody>
</table>

**Certification**

- 0 - None
- 1 - CSA
- 2 - FM

**Box Bracket Style**

- 0 - Special
- 1 - Short side
- 2 - Long side

**Note**: Please call factory for other voltages and heater sizes.
### Table 6 – Regulator Enclosures

<table>
<thead>
<tr>
<th>Model No.*</th>
<th>Description</th>
<th>L</th>
<th>W</th>
<th>H</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>in</td>
<td>mm</td>
<td>in</td>
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<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
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<td>257</td>
<td>8.375</td>
</tr>
<tr>
<td>HEA0101-1X1-2-___0606</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>10.125</td>
<td>257</td>
<td>8.375</td>
</tr>
<tr>
<td>HEA0102-1X1-1-___0612</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>12.250</td>
<td>311</td>
<td>11.000</td>
</tr>
<tr>
<td>HEA0103-1X1-2-___0612</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>12.250</td>
<td>311</td>
<td>11.000</td>
</tr>
<tr>
<td>HEA0104-1X1-1-___0624</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
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<td>622</td>
<td>11.000</td>
</tr>
<tr>
<td>HEA0105-1X1-1-___0624</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>24.500</td>
<td>622</td>
<td>11.000</td>
</tr>
<tr>
<td>HEA0106-1X1-2-___0808</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
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<td>308</td>
<td>14.125</td>
</tr>
<tr>
<td>HEA0107-1X1-2-___0808</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>12.125</td>
<td>308</td>
<td>14.125</td>
</tr>
<tr>
<td>HEA0109-1X1-2-___1012</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
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<td>356</td>
<td>16.000</td>
</tr>
<tr>
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<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>14.000</td>
<td>356</td>
<td>16.000</td>
</tr>
<tr>
<td>HEA0110-1X1-1-___1212</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>14.000</td>
<td>356</td>
<td>16.000</td>
</tr>
<tr>
<td>HEA0111-1X1-2-___1212</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>14.000</td>
<td>356</td>
<td>16.000</td>
</tr>
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<td>HEA-1301-1X1-1-___0606</td>
<td>Enclosure, 1301 Regulator</td>
<td>6.375</td>
<td>162</td>
<td>9.000</td>
</tr>
<tr>
<td>HEA-0232-1X1-1-___0606</td>
<td>Enclosure, DE 232 Regulator, Basic</td>
<td>10.125</td>
<td>257</td>
<td>8.375</td>
</tr>
<tr>
<td>HEA-0481-1X1-2-___0808</td>
<td>Enclosure, Fisher 461-S Regulator Flanged</td>
<td>17.625</td>
<td>448</td>
<td>19.183</td>
</tr>
<tr>
<td>HEA-0461-3X3-1-___0808</td>
<td>Enclosure, Fisher 461-X57 Regulator, High Pressure</td>
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<td>210</td>
<td>19.183</td>
</tr>
<tr>
<td>HEA-0600-1X1-2-___0808</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;</td>
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<td>308</td>
<td>14.125</td>
</tr>
<tr>
<td>HEA-0600-1X1-2-___0612</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;</td>
<td>12.250</td>
<td>311</td>
<td>11.000</td>
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<tr>
<td>HEA-0600-1X1-2-___0612</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;, Flanged</td>
<td>12.250</td>
<td>311</td>
<td>11.000</td>
</tr>
<tr>
<td>HEA-0600-1X1-2-___1212</td>
<td>Enclosure, Fisher 630 Regulator</td>
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<td>15.188</td>
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<tr>
<td>HEA-0627-1X1-2-___0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>12.125</td>
<td>308</td>
<td>12.500</td>
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<tr>
<td>HEA-0627-1X1-1-___1212</td>
<td>Enclosure, Fisher 627 Regulator Flanged</td>
<td>16.250</td>
<td>413</td>
<td>20.438</td>
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<tr>
<td>HEA-0627-1X1-1-___0808</td>
<td>Enclosure, Fisher 627 Regulator Flanged</td>
<td>16.250</td>
<td>413</td>
<td>20.438</td>
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<tr>
<td>HEA-0627-2X2-1-___0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>15.063</td>
<td>383</td>
<td>15.125</td>
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<tr>
<td>HEA-0627-1X1-1-___0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
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<td>15.125</td>
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<tr>
<td>HEA-0627-2X2-1-___1012</td>
<td>Enclosure, Fisher 627 Regulator</td>
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<td>12.833</td>
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<td>HEA-67CF-1X1-1-___0606</td>
<td>Enclosure, 67CF Regulator</td>
<td>6.438</td>
<td>164</td>
<td>9.000</td>
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<tr>
<td>HEA-600D-3X3-2-___1012</td>
<td>Enclosure, Similar to 600D Fisher D-Body Valve</td>
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<td>549</td>
<td>15.625</td>
</tr>
<tr>
<td>HEA-02EZ-2X2-___1212</td>
<td>Enclosure, Fisher 2&quot; EZR Regulator</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
</tr>
<tr>
<td>HEA-02EZ-1X1-2-___1212</td>
<td>Enclosure, Fisher 1&quot; EZR Regulator</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
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<tr>
<td>HEA-02EZ-3X3-2-___1212</td>
<td>Enclosure, Fisher 3&quot; EZR Regulator</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
</tr>
<tr>
<td>HEA-02EZ-4X4-2-___1212</td>
<td>Enclosure, Fisher 4&quot; EZR Regulator</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
</tr>
<tr>
<td>HEA-02EZ-6X6-2-___1212</td>
<td>Enclosure, Fisher 6&quot; EZR Valve, CL 600</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
</tr>
<tr>
<td>HEA-02EZ-8X8-2-___1212</td>
<td>Enclosure, Fisher 6&quot; EZR Valve 8&quot; x 6&quot; Pipe Size</td>
<td>20.625</td>
<td>524</td>
<td>28.125</td>
</tr>
<tr>
<td>HEA-TESC-2X2-1-___0612</td>
<td>Enclosure, Tescom Regulator</td>
<td>12.000</td>
<td>305</td>
<td>10.000</td>
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<tr>
<td>HEA-4413-1X1-1-___0606</td>
<td>Enclosure, Tescom 44-1300 Reg</td>
<td>11.125</td>
<td>283</td>
<td>10.313</td>
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</tbody>
</table>

*Note: "_" = WX, BX or WXS*
The Pipe Preheater Enclosure is designed to heat gas upstream of valves, chokes, orifice fittings and regulators. Commonly installed in locations where the valves, chokes, orifice fittings and regulators are not easily accessible.

Features

- Enclosure comes fully assembled
- Stainless steel enclosures provide added longevity for the harshest environments
- Cata-Dyne™ heaters are CSA or FM certified, available in both natural gas or propane
- Optional thermostats and regulators are available
- Designed to clamp directly to the pipeline, spring clamps make installation easy
- Custom designed enclosure packages available upon request

### Table 7 – Pipe Preheater Enclosures

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-PP-2X2-2-WX0624</td>
<td>Enclosure, 2&quot; Pipe Preheater</td>
<td>L 24.000 in, 610 mm  W 12.000 in, 305 mm  H 9.000 in, 229 mm</td>
</tr>
<tr>
<td>HEA-PP-3X3-2-WX1224</td>
<td>Enclosure, 3&quot; Pipe Preheater</td>
<td>L 24.000 in, 610 mm  W 20.000 in, 508 mm  H 15.500 in, 394 mm</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1224</td>
<td>Enclosure, 4&quot; Pipe Preheater Peaked Top</td>
<td>L 25.000 in, 635 mm  W 12.000 in, 305 mm  H 15.000 in, 381 mm</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX12X24</td>
<td>Enclosure, 2&quot; Pipe Preheater</td>
<td>L 24.000 in, 610 mm  W 20.000 in, 508 mm  H 16.000 in, 406 mm</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX0612</td>
<td>Enclosure, 2&quot; Pipe Preheater</td>
<td>L 16.375 in, 416 mm  W 9.250 in, 235 mm  H 12.250 in, 311 mm</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1224</td>
<td>Enclosure, 4&quot; Pipe Preheater</td>
<td>L 12.625 in, 321 mm  W 20.000 in, 508 mm  H 36.0625 in, 916 mm</td>
</tr>
<tr>
<td>HEA-PP-1X1-2-WX1224</td>
<td>Enclosure, 1&quot; Pipe Preheater Rectangular</td>
<td>L 36.000 in, 914 mm  W 9.14 in, 235 mm  H 13.000 in, 330 mm</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX0624</td>
<td>Enclosure, 2&quot; Pipe Preheater c/w Dual Gas Trains</td>
<td>L 24.000 in, 610 mm  W 13.000 in, 330 mm  H 9.000 in, 229 mm</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1248</td>
<td>Enclosure, 4&quot; Pipe Preheater</td>
<td>L 51.000 in, 1294 mm  W 20.000 in, 508 mm  H 20.000 in, 508 mm</td>
</tr>
<tr>
<td>HEA-PP-3X3-2-WX1248</td>
<td>Enclosure, 3&quot; Pipe Preheater</td>
<td>L 51.000 in, 1294 mm  W 21.000 in, 533 mm  H 15.000 in, 381 mm</td>
</tr>
<tr>
<td>HEA-PP-4X1-1-WX1224</td>
<td>Enclosure, 1&quot; Pipe Preheater</td>
<td>L 51.000 in, 1294 mm  W 21.000 in, 533 mm  H 15.000 in, 381 mm</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX1248</td>
<td>Enclosure, 2&quot; Pipe Preheater c/w 12x48</td>
<td>L 48.000 in, 1219 mm  W 28.000 in, 711 mm  H 15.000 in, 381 mm</td>
</tr>
<tr>
<td>HEA-PP-1.5X1.5-WX0624</td>
<td>Enclosure, 1.5&quot; Pipe Preheater, Double 6x24 Heaters</td>
<td>L 24.000 in, 610 mm  W 12.000 in, 305 mm  H 9.000 in, 229 mm</td>
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### Model Coding

<table>
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<th>Heater Type</th>
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<td>H</td>
<td>WX</td>
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<td>WXS</td>
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<td>0</td>
<td>Special</td>
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<td>2</td>
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<td>FM</td>
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<td>Long side</td>
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<table>
<thead>
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<th>Fuel Rating</th>
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<th>Natural Gas (7&quot;) W.C.</th>
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<tr>
<td>2</td>
<td>Propane (11&quot;) W.C.</td>
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</tr>
<tr>
<td>3</td>
<td>Natural Gas (3.5&quot;) W.C.</td>
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</tr>
<tr>
<td>4</td>
<td>Natural Gas (4.5&quot;) W.C.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Thermal Sensor</th>
<th>1</th>
<th>Thermocouple &amp; safety shut-off valve</th>
</tr>
</thead>
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<tr>
<td>2</td>
<td>H19 Thermocouple</td>
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</tr>
<tr>
<td>2</td>
<td>Long side</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure gauge</th>
<th>0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G</td>
<td></td>
</tr>
</tbody>
</table>

Note: Please call factory for other voltages and heater sizes.
Rotary Meter Enclosures are designed to prevent freezing of wet gas and creation of hydrates that can cause meters to fail or provide inaccurate readings.

Features
- Designed to suit many different rotary meter valves
- Enclosure comes fully assembled
- Stainless steel enclosures provide added longevity for the harshest environments
- Cata-Dyne™ heaters are CSA or FM certified, available in both natural gas or propane
- Optional thermostats and regulators are available
- Designed to clamp directly to the pipeline, spring clamps make installation easy
- Custom designed enclosure packages available upon request

Table 8 – Rotary Meter Enclosures

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-RM1M600-2X2-1-WX0808</td>
<td>Enclosure, Roots 1M600 Meter</td>
<td>L 15.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 381</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 368</td>
</tr>
<tr>
<td>HEA-RM1.5M-2X2-1-WX0808</td>
<td>Enclosure, Roots 1.5M Meter</td>
<td>L 10.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 254</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 279</td>
</tr>
<tr>
<td>HEA-RM2M175-2X2-1-WX0808</td>
<td>Enclosure, 2M175 Meter</td>
<td>L 12.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 305</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 305</td>
</tr>
<tr>
<td>HEA-RM3M125-2X2-1-WX0808</td>
<td>Enclosure, 3M125 Meter</td>
<td>L 12.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 305</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 305</td>
</tr>
<tr>
<td>HEA-RM3.6M600-2X2-1-WX0808</td>
<td>Enclosure, Roots 3.6M600 Meter</td>
<td>L 15.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 381</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 406</td>
</tr>
<tr>
<td>HEA-RM3M600-3X3-1-WX0612</td>
<td>Enclosure, Roots 3M600 Meter</td>
<td>L 11.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 279</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 356</td>
</tr>
<tr>
<td>HEA-RM3M600-3X3-1-WX0612</td>
<td>Enclosure, Roots 3M600 Meter</td>
<td>L 11.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 279</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 356</td>
</tr>
<tr>
<td>HEA-RM3M600-3X3-1-WX0612</td>
<td>Enclosure, Roots 3M600 Meter</td>
<td>L 11.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 279</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 356</td>
</tr>
<tr>
<td>HEA-RM5M-3X3-1-WX0612</td>
<td>Enclosure, Roots 5M</td>
<td>L 11.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 279</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 406</td>
</tr>
<tr>
<td>HEA-RM5M-3X3-1-WX0612</td>
<td>Enclosure, Roots 5M</td>
<td>L 11.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 279</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 406</td>
</tr>
<tr>
<td>HEA-RM7M-3X3-1-WX1012</td>
<td>Enclosure, Roots 7M</td>
<td>L 15.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 381</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H 381</td>
</tr>
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</table>

Model Coding

<table>
<thead>
<tr>
<th>W</th>
<th>1224</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Series</td>
<td>H - BX Series</td>
<td>WXS - WXS Series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater Size</td>
<td>W - BX Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater Voltage</td>
<td>1 - 12V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalyst Pad</td>
<td>1 - WX</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>0 - None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Box Bracket Style</td>
<td>0 - Special</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>A - Appliance regulator (factory matched to heaters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B - Service regulator (low pressure, 250 psig - 11&quot; w.c.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1 - Service regulator (low pressure, 250 psig - 4&quot; w.c.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C - Service regulator (high pressure, 6000 psig - 50 psi)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T - Thermostat [regular, 32°F - 104°F, factory matched to heater(s)]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 - Thermostat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2 - Thermostat (high temperature, 60°F - 250°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V - Relief valve (Fisher 289J 5&quot;-25&quot; w.c.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 - Relief valve (Fisher H120, 120 psi)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G - Pressure gauge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Please call factory for other voltages and heater sizes.
The Motor Valve Enclosure heats the critical portions of the motor valve to prevent freezing.

**Features**

- Designed to ensure that all the sensitive portions of the valve are outside of the heated zone
- Enclosure comes fully assembled
- Stainless steel enclosures provide added longevity for the harshest environments
- Cata-Dyne™ heaters are CSA or FM certified, available in both natural gas or propane
- Optional thermostats and regulators are available
- Designed to clamp directly to the pipeline, spring clamps make installation easy
- Custom designed enclosure packages available upon request

**Table 9 – Motor Valve Enclosures**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L (in)</td>
</tr>
<tr>
<td>HEA-MV1-1X1-1-WX10X12</td>
<td>Enclosure, 1&quot; Motor Valve</td>
<td>9.625</td>
</tr>
<tr>
<td>HEA-MV2-2X2-2-WX10X12</td>
<td>Enclosure, 2&quot; Motor Valve</td>
<td>14.000</td>
</tr>
<tr>
<td>HEA-MV1-1X1-2-WX0808</td>
<td>Enclosure, 1&quot; Motor Valve</td>
<td>10.000</td>
</tr>
</tbody>
</table>

**Model Coding**

- **HEA**
  - Model Series
  - HEA - Heater enclosure assembly
  - MV - Motor Valve
- **1x1**
  - Pipe Size (in.)
  - Inlet x Outlet
- **2**
  - Number of Heaters
- **Heater Type**
  - A
    - Options
      - A – Appliance regulator (factory matched to heaters)
      - B – Service regulator (low pressure, 250 psig - 11" w.c.)
      - B1 – Service regulator (low pressure, 250 psig - 4" w.c.)
      - C – Service regulator (high pressure, 6000 psig - 50 psi)
      - T – Thermostat [regular, 32°F - 104°F, factory matched to heater(s)]
      - T1 – Thermostat
      - T2 – Thermostat (high temperature, 60°F - 250°F)
      - V – Relief valve (Fisher 289U 5”-25” w.c.)
      - V1 – Relief valve (Fisher H120, 120 psi)
      - G - Pressure gauge

**Note:** Please call factory for other voltages and heater sizes.

**Figure 3**

Gas Flow
Orifice Fitting Meter Enclosures

The Orifice Fitting Meter Enclosure heats an orifice fitting directly. The enclosure has an easily accessible entry for the orifice fitting adjustment. The assembly is designed to heat natural gas passing through the orifice to prevent icing and the dropout of liquids.

Features

- Designed to heat the orifice fitting directly
- Enclosure comes fully assembled
- Stainless steel enclosures provide added longevity for the harshest environments
- Cata-Dyne™ heaters are CSA or FM certified, available in both natural gas or propane
- Optional thermostats and regulators are available
- Custom designed enclosure packages available upon request
- Designed to clamp directly to the pipeline, spring clamps make installation easy
- Custom designed enclosure packages available upon request

Table 10 – Motor Valve Enclosures

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L</td>
</tr>
<tr>
<td>HEA-OF-2X2-1-WX1012</td>
<td>Orifice Fitting</td>
<td>14</td>
</tr>
<tr>
<td>HEA-OF-3X3-1-WX1012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEA-OF-4X4-1-WX1012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model Coding

HEA

Model Series
HEA - Heater enclosure assembly

OF

Pipe Size (in.) Inlet x Outlet

1x1

Number of Heaters

2

Heater Type
A

Options
A – Appliance regulator (factory matched to heaters)
B – Service regulator (low pressure, 250 psig - 11" w.c.)
B1 – Service regulator (low pressure, 250 psig - 4" w.c.)
C – Service regulator (high pressure, 6000 psig - 50 psi)
T – Thermostat [regular, 32°F - 104°F, factory matched to heater(s)]
T1 – Thermostat
T2 – Thermostat [high temperature, 60°F - 250°F]
V – Relief valve (Fisher 289U 5”-25” w.c.)
V1 – Relief valve (Fisher H120, 120 psi)
G – Pressure gauge

Box Bracket Style
0 - Special
1 - Short side
2 - Long side

Certification
0 - None
1 - CSA
2 - FM

Fuel Rating
1 - Natural Gas (7" W.C.)
2 - Propane (11" W.C.)
3 - Natural Gas (3.5" W.C.)
4 - Natural Gas (4.5" W.C.)

Thermal Sensor
1 - Thermocouple & safety shut-off valve
2 - H19 Thermocouple

Note: Please call factory for other voltages and heater sizes.
The Super Conductor Enclosure’s innovative design transfers heat using heat conducting rods, creating a moisture free heat source. The super conductor provides dry penetrating heat for small enclosures housing batteries, radio controls and other moisture sensitive equipment.

Features

- Designed to keep instrumentation at an operable temperature
- Electrical power is not required to maintain operation after start-up
- Designed to operate for extended periods of time without maintenance
- Cata-Dyne™ heaters are CSA and FM certified, available in both natural gas and propane
- Custom sizes and designs available

Table 12 – Super Conductor Enclosures

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Pipe Qty</th>
<th>Pipe Length</th>
<th>Heater Size</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Pipe Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCH‑4P‑18‑0808</td>
<td>4</td>
<td>18</td>
<td>457</td>
<td>8 x 8</td>
<td>17.30</td>
<td>439</td>
<td>8.50</td>
</tr>
<tr>
<td>SCH‑4P‑24‑0808</td>
<td>24</td>
<td>610</td>
<td>17.21</td>
<td>437</td>
<td>10.40</td>
<td>264</td>
<td>14.50</td>
</tr>
<tr>
<td>SCH‑4P‑33‑1212</td>
<td>33</td>
<td>838</td>
<td>19.00</td>
<td>478</td>
<td>14.75</td>
<td>375</td>
<td>19.50</td>
</tr>
</tbody>
</table>

Model Coding

SCH - Super conductor heater enclosure assembly

4P

18 Pipe Length

Heater Type

W 1224

Model Series

W - WX Series

H - BX Series

WXS - WXS Series

Heater Voltage

1 - 12V

2 - 120V

Catalyst Pad

1 - WX

2 - BX/WXS

Certification

0 - None

1 - CSA

2 - FM

Box Bracket Style

0 - Special

1 - Short side

2 - Long side

Fuel Rating

1 - Natural Gas (7" W.C.)

2 - Propane (11" W.C.)

3 - Natural Gas (3.5" W.C.)

4 - Natural Gas (4.5" W.C.)

Note: Please call factory for other voltages and heater sizes.
Instrument Gas Preheaters

The Instrument Gas Preheater is the preferred solution for the natural gas industry, providing freeze protection for instrument supply gas, pilot actuated regulators and related applications.

Features

- Stainless steel enclosure with both single & dual coil models
- Cata-Dyne™ heaters are CSA and FM certified, available in both natural gas and propane
- Operates for extended periods, without maintenance
- The compact unit helps eliminate the need for a separate facility to keep gas temperatures optimal
- Often used for gas chromatographs, valves, pilots and other low flow instruments
- Custom sizes and designs available

Table 13 – Instrument Gas Preheater

<table>
<thead>
<tr>
<th>Part #</th>
<th>Coils</th>
<th>Heater Size</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>in</td>
<td>in</td>
<td>mm</td>
<td>in</td>
</tr>
<tr>
<td>IGP-01-__0808</td>
<td>Single Pass</td>
<td>8 x 8</td>
<td>6</td>
<td>152</td>
<td>14</td>
</tr>
<tr>
<td>IGP-02-__0808</td>
<td>Double Pass</td>
<td>12 x 12</td>
<td>5</td>
<td>127</td>
<td>18</td>
</tr>
</tbody>
</table>

Model Coding

IGP

Model Series

IGP – Instrument Gas Preheater

02

Heater Type

01 – Single Pass

02 – Double Pass

0808

Model series

W - WX Series

H - BX Series

0808 - 8” 1212 - 12”

1

Heater Voltage

1 - 12V

2 - 240V

1

Catalyst Pad

1 - WX

2 - BX

1

Certification

1 - CSA

2 - FM

1

Box Bracket Style

1 - Short side

1

Fuel Rating

1 - Natural Gas (7” W.C.)

2 - Propane (11” W.C.)

3 - Natural Gas (3.5” W.C.)

4 - Natural Gas (4.5” W.C.)

A

Options

A – Appliance regulator (factory matched to heaters)

B – Service regulator (low pressure, 250 psig - 11” w.c.)

B1 – Service regulator (low pressure, 250 psig - 4” w.c.)

C – Service regulator (high pressure, 6000 psig - 50 psi)

M – Wall mount bracket (not applicable to HEA)

M1 – Pipe mount bracket (2” pipe size, U-Bolt mount)

T – Thermostat [regular, 32°F - 104°F, factory matched to heater(s)]

T1 – Thermostat

T2 – Thermostat (high temperature, 60°F - 250°F)

V – Relief valve (Fisher 289U 5”-25” w.c.)

V1 – Relief valve (Fisher H120, 120 psi)

Note: Please call factory for other voltages and heater sizes.
## Enclosure Request for Quote Form

### Enclosure Type
- [ ] Regulator
- [ ] Pipe Preheater
- [ ] Rotary Meter
- [ ] Motor Valve
- [ ] Orifice Fitting
- [ ] Super Conductor
- [ ] Instrument Gas Preheater
- [ ] Other (please specify):

### Device to Be Enclosed
**Type of manufacturer, size, model:**

### Temperature
- **Gas inlet before device:** [ ] °F [ ] °C
- **Temperature limit of enclosed device:** [ ] °F [ ] °C
- **Gas outlet after device:** [ ] °F [ ] °C

### Piping
- **Diameter:** Inlet (in) [ ] [ ] Outlet (in) [ ]
- **Design temperature:** [ ] °F [ ] °C
- **Design pressure (psig):** [ ]

### Pressure
- **Gas inlet before regulator or enclosure (psig):** [ ]
- **Gas outlet after regulator of enclosure (psig):** [ ]

### Gas Flow
- **Maximum:** [ ] SCFM
- **Minimum:** [ ] SCFM

### Type of Gas Being Heated
- [ ] Natural Gas
- [ ] Super Conductor
- [ ] Other (please specify):

### Electrical/Controls
- **Supply Power:** [ ] V

### Hazardous Physical Dimensions Restrictions
- **Maximum:** [ ] [ ] [ ] L [ ] [ ] W [ ] [ ] H
- **Minimum:** [ ] [ ] [ ] L [ ] [ ] W [ ] [ ] H

### Dimension Size:

![Diagram of dimensions](Diagram.png)

### Other Field Restrictions (please specify):

- **Available Drawings/Sketches:** [ ] Yes (please attach) [ ] No
- **Available Photos:** [ ] Yes (please attach) [ ] No

### Options
- [ ] Manual Shut-off Ball Valve
- Filter: [ ] H2S [ ] Water [ ] Oil [ ] Particles
- [ ] Filter Bypass Line

### Thermostat Control
- [ ] High temperature controller: 60°F to 250°F (15°C to 121°C)
- [ ] Temperature controller: 32°F to 110°F (0°C to 43°C)

*Please provide complete contact information when submitting request for quote.*
Sure Seal™ Pipeline Systems

The Cata-Dyne™ Sure Seal™ pipeline system is a unique infrared heating system consisting of a number of Cata-Dyne™ heaters mounted in a clamshell frame configuration to provide a safe and fast method of applying heat to the construction and maintenance of various sizes of pipeline systems.

Applications

Large surface area of the Cata-Dyne™ heater allows for efficient transfer of infrared heat that can be utilized in a variety of pipeline applications:

- Suitable for preformed or wrap around sleeves
- Ideal for both preheat and shrink sleeve processes
- Can be used for baking to remove hydrogen induced cracking
- Appropriate for a variety of manufacturers’ sleeves
- Can be used in windy or poor weather

Features

- Utilizes the Cata-Dyne™ heater for high temperature applications
- Models available for 2” (51 mm) diameter or greater pipelines
- Requires no water, electricity or compressed air to operate
- Faster than tiger torch methods and uses less propane
- Portable and easily operated by one person, depending on pipeline sizes
- Custom built equipment and other options are available upon special request
- Utilizes the hottest catalytic gas heater on the market

Table 11 – Sure Seal™ Pipeline Systems Dimensions & Data

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Diameter</th>
<th>Pipe Dimensions</th>
<th>Weight</th>
<th>Approx. Propane Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>W</td>
<td>H</td>
<td>lbs kg</td>
</tr>
<tr>
<td>2 to 4</td>
<td>in / mm</td>
<td>in / mm</td>
<td>in / mm</td>
<td>lbs kg</td>
</tr>
<tr>
<td>SS2-4/24</td>
<td>51 to 102</td>
<td>30 762</td>
<td>15 381</td>
<td>78 35</td>
</tr>
<tr>
<td>6 to 8</td>
<td>152 to 203</td>
<td>32 813</td>
<td>19 486</td>
<td>85 39</td>
</tr>
<tr>
<td>SS10-12/24</td>
<td>254 to 305</td>
<td>34 864</td>
<td>23 584</td>
<td>94 42</td>
</tr>
<tr>
<td>SS16-18/24</td>
<td>406 to 457</td>
<td>40 1016</td>
<td>28 714</td>
<td>122 55</td>
</tr>
<tr>
<td>SS20-24/36</td>
<td>508 to 610</td>
<td>52 1321</td>
<td>52 1321</td>
<td>40 1016</td>
</tr>
</tbody>
</table>
FLO-DRI Series Compressed Gas Scrubbing Systems

The FLO-DRI gas scrubber removes gas contaminants including H₂S, moisture, hydrocarbon, aerosols and particulate solids at point of use. All FLO-DRI filters are engineered for low cost and long life, featuring easy cartridge change out, low pressure drop and low maintenance.

Applications

FLO-DRI gas scrubbers employ various media cartridges to remove moisture oil, H₂S and particulate down to 0.5 micron in size, providing clean, dry gas for critical applications.

Features

- Removes particulate down to 0.5 microns in size
- O-ring closure seal
- Working pressures up to 250 psig
- Variable flow rates with low pressure drop
- Drain cock
- Patented "quick change" filters
- Variety of filtration media available, including activated carbon, activated aluminum and molecular sieve

Table 14 – FLO-DRI Compressed Gas Scrubbing System

<table>
<thead>
<tr>
<th>Scrubbing System</th>
<th>Model No.</th>
<th>PSIG</th>
<th>No. of Cartridges</th>
<th>Overall Length</th>
<th>Overall Diameter</th>
<th>Port to Port</th>
<th>Pipe Size</th>
<th>Bed Cubic</th>
<th>Cartridge Media Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>FLODRI-G10A</td>
<td>150</td>
<td>1</td>
<td>8.50</td>
<td>216</td>
<td>4.00</td>
<td>102</td>
<td>5.00</td>
<td>1270</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G25A</td>
<td>250</td>
<td>2</td>
<td>12.88</td>
<td>327</td>
<td>5.12</td>
<td>130</td>
<td>8.13</td>
<td>206</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G60A</td>
<td>250</td>
<td>3</td>
<td>18.25</td>
<td>464</td>
<td>6.25</td>
<td>159</td>
<td>12.38</td>
<td>314</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G100A</td>
<td>250</td>
<td>4</td>
<td>23.31</td>
<td>592</td>
<td>7.75</td>
<td>197</td>
<td>17.00</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G150A</td>
<td>250</td>
<td>2</td>
<td>26.00</td>
<td>660</td>
<td>9.25</td>
<td>241</td>
<td>18.19</td>
<td>462</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>FLODRI-M10A</td>
<td>150</td>
<td>1</td>
<td>8.50</td>
<td>216</td>
<td>4.00</td>
<td>102</td>
<td>5.00</td>
<td>1270</td>
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<tr>
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<td>FLODRI-M25V</td>
<td>125</td>
<td>2</td>
<td>12.88</td>
<td>327</td>
<td>5.12</td>
<td>133</td>
<td>8.13</td>
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<tr>
<td></td>
<td>FLODRI-M25A</td>
<td>250</td>
<td>2</td>
<td>12.88</td>
<td>327</td>
<td>5.12</td>
<td>133</td>
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<td></td>
<td>FLODRI-M60A</td>
<td>250</td>
<td>3</td>
<td>18.25</td>
<td>464</td>
<td>6.25</td>
<td>159</td>
<td>12.38</td>
<td>314</td>
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<tr>
<td></td>
<td>FLODRI-M100A</td>
<td>250</td>
<td>4</td>
<td>23.31</td>
<td>592</td>
<td>7.75</td>
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<td>17.00</td>
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</tr>
<tr>
<td></td>
<td>FLODRI-M150A</td>
<td>250</td>
<td>2</td>
<td>26.00</td>
<td>660</td>
<td>9.25</td>
<td>241</td>
<td>18.19</td>
<td>462</td>
</tr>
</tbody>
</table>

Model Coding

<table>
<thead>
<tr>
<th>FLODRI</th>
<th>G</th>
<th>10</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Series</td>
<td>Scrubbing System</td>
<td>Pipe Size</td>
<td>Barrel Material</td>
</tr>
<tr>
<td>FLO-DRI</td>
<td>G – Natural Gas</td>
<td>10 - 1/4&quot;</td>
<td>A - Aluminum</td>
</tr>
<tr>
<td></td>
<td>M – Compressed Air*</td>
<td>25 - 3/4&quot;</td>
<td>V - Acrylic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 - 1&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 - 1 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 - 2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

*Compressed air scrubbing systems includes air filter cartridges.
G-10/M-10
- 150 psig maximum allowable pressure
- 1/4" NPT pipe size

G-100/M-100
- 250 psig maximum allowable pressure
- 1 1/2" NPT pipe size

G-25
- 250 psig maximum allowable pressure
- 3/4" NPT pipe size

G-150/M-150
- 250 psig maximum allowable pressure
- 2" NPT pipe size

G-60/M-60
- 250 psig maximum allowable pressure
- 1" NPT pipe size

G-100/M-100
- 250 psig maximum allowable pressure
- 1 1/2" NPT pipe size

M-25
- 125 psig maximum allowable pressure
- 3/4" NPT pipe size
- For compressed air applications

Replacement Cartridge Model Coding

<table>
<thead>
<tr>
<th>FLO-DRI</th>
<th>10</th>
<th>AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Series</td>
<td>Pipe Size</td>
<td>Natural Gas Cartridge Media</td>
</tr>
<tr>
<td>FLO-DRI</td>
<td>10 - 1/4&quot;</td>
<td>AA - Moisture Removal</td>
</tr>
<tr>
<td>25 - 3/4&quot;</td>
<td>AC - Odor Removal</td>
<td></td>
</tr>
<tr>
<td>60 - 1&quot;</td>
<td>MS - H2S &amp; Moisture Removal</td>
<td></td>
</tr>
<tr>
<td>100 - 1 1/2&quot;</td>
<td>Compressed Air Cartridge Media</td>
<td></td>
</tr>
<tr>
<td>150 - 2&quot;</td>
<td>R - Moisture Removal, Air Purifier</td>
<td></td>
</tr>
</tbody>
</table>

Note: To order specify model number and cartridge media part number.
The Cata-Dyne™ LH Line Heater prevents equipment freezing and possible hydrate formation during pressure reduction at natural gas regulating sites. The LH Line Heater heats the gas stream using infrared radiant heat transfer, eliminating the use of burners, glycol fluid and high maintenance heat exchange systems. It is also used to condition fuel gas for natural gas fired turbines or engines, and for heating gas and diluent streams in a variety of process applications. Custom engineered units for nonstandard applications are available.

The Cata-Dyne™ LH Line Heater’s use of direct infrared heat transfer eliminates the need for traditional gas fired glycol bath systems. The elimination of glycol based heat transfer systems results in a more environmentally favourable installation. High field maintenance and operating costs are all eliminated by the Cata-Dyne™ LH Line Heater.

Applications

Cata-Dyne™ Line Heaters are used for a variety of applications in the oil & gas, pipeline, midstream, gas distribution, and power generation industries. Common applications include:

- Heating high pressure natural gas prior to pressure reduction to prevent equipment freezing and the formation of hydrates.
- Conditioning fuel gas for natural gas fired turbines and engines.
- Heating of gas and diluent streams in a variety of process applications.

Features

- Infrared radiant energy provided by the silent Cata-Dyne™ WX Gas Catalytic Heater is NOx free providing the cleanest and quietest heating system available.
- The flanged multi-pass coil heat exchanger is designed and built to the ASME B31.3 Code for Process Piping with Canadian Registration Number.
- Enclosures feature galvanized steel structures with stainless-steel cladding, limiting corrosion and maintenance.
- Control options from manual stop/start with and without temperature control to remote start/stop and automated feedback pneumatic or electric temperature control.
- Automatic units feature engineered control panels with PLC control systems.
- Infrared heat is accurately controlled to meet process temperature requirements while economizing operating costs.
- Standard high temperature shutdowns, optional low flow shutdowns available.
- Fuel gas system designed and built in accordance with CSA/Can – B149.1 and NFPA 54.
- Electrical system designed and built in accordance with CSA/Can – C22.2 and NEC (NFPA 70).
- Catalytic heaters conform to ANSI Z83.20a-2010/ CSA 2.34a-2010 standard for Gas-Fired Low Intensity Heaters and are CSA and FM certified for use in Class I, Division 1 or 2, Group D hazardous locations.

Table 15 – Line Heaters

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Heater Input (Btu/hr)</th>
<th>External Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH-40</td>
<td>10,000-40,000</td>
<td>56 x 48 x 84</td>
</tr>
<tr>
<td>LH-60</td>
<td>15,000-60,000</td>
<td>78 x 68 x 90</td>
</tr>
<tr>
<td>LH-80</td>
<td>20,000-80,000</td>
<td>(1420 x 1219 x 2130)</td>
</tr>
<tr>
<td>LH-100</td>
<td>25,000-100,000</td>
<td>78 x 68 x 90</td>
</tr>
<tr>
<td>LH-160</td>
<td>40,000-160,000</td>
<td>(1980 x 1725 x 2286)</td>
</tr>
</tbody>
</table>

Hybrid Capabilities

Only Thermon Heating Systems, Inc. offers the optional Catalytic/Electric Hybrid Line Heater. A secondary electric gas circulation heater is used to augment the capabilities of the base catalytic line heater. The hybrid design provides enhanced responsiveness to gas flow transients and deeper turn-down capabilities.

Note:

1. Custom designs and Btu ratings are available upon request.
2. Heater output between minimum and maximum values is manually selected on manual and sequential models.
3. Automatic zone control is only available with the automatic model.
Model Coding

LH

Model Series
LH – Line Heater

40

Start-up Type
M - Manual
S - Sequential
A - Automatic
(engined option)

NT

Start-up Voltage
(VAC)
12, 120, 208, 240,
480, 600

1

Flange Rating
600 - 600 ANSI
900 - 900 ANSI

600

Heater Input
40 - 40,000 Btu/hr
60 - 60,000 Btu/hr
80 - 80,000 Btu/hr
100 - 100,000 Btu/hr
160 - 160,000 Btu/hr

Temperature Control
NT - Fixed heat output, outlet
temperature not controlled

T* - Variable heat output, low/high,
outlet temperature controlled.

*Variable control from 40% to 100% of heater output.

Flange Size
1 - 1"
2 - 2"
3 - 3"

*Custom LH-160 and above

Figure 8 – Cata-Dyne™ Line Heater
Figure 9 – Cata-Dyne™ Custom Engineered Line Heater
The heart of each Micro Line Heater is the standard Cata-Dyne™ WX Heater. The Cata-Dyne™ WX Heater is the first and only explosion-proof catalytic heater in North America to conform to the new ANSI Z83.20b-2011/CSA 2.34b-2011 standard for Gas-Fired Low Intensity Heaters.

The Cata-Dyne™ Micro Line Heater prevents equipment freezing and possible hydrate formation during pressure reduction at natural gas regulating sites. The Micro Line Heater heats the gas stream using infrared radiant heat transfer, eliminating the use of burners, glycol fluid and high maintenance heat exchange systems. Custom engineered units for nonstandard applications are available.

The Cata-Dyne™ Micro Line Heater’s use of direct infrared heat transfer eliminates the need for traditional gas fired glycol bath systems. The elimination of glycol based heat transfer systems results in a more environmentally favourable installation. High field maintenance and operating costs are all eliminated by the Cata-Dyne™ Micro Line Heater.

### Features
- Allows for installation in existing facility by mounting onto 1” and 2” piping reducing installation costs
- Certified for use in Class I, Division 1 & 2, Group D locations
- Conforms to CSA B149.3
- Meets the new ANSI Z83.20a-2010/CSA 2.34a-2010.
  Sizes available from 10,000 to 40,000 Btu
- Handles between 40 to 130 MCF/D of Natural Gas
- With pressure reductions as high as 1200 psi down to 50 psi without freeze-offs
- Simple thermostat controls allowing for easy adjustment

### Benefits
- Ideal for lower flow conditions where Glycol Water Bath systems are excessive
- Approximately $\frac{1}{4}$ of the cost of standard glycol water bath system
- No glycol
- Simple start-up allows for system to be shut-down and started as required during low/zero flow conditions
- Reduced maintenance
Standard Micro Line Heater Sizes

Figure 11 – 6” x 24” Single Coil

Figure 12 – 12” x 24” Double Coil

Figure 13 – 24” x 24” Quad Coil
The Cata-Dyne™ CHS Series Heating Package is the industry standard for space and spot heating applications where flammable gases, vapours or liquids may be present. Equipped with explosion-proof infrared heaters, this package comes standard or custom designed to meet any unique application.

The Cata-Dyne™ infrared heaters are controlled either manually or with an integrated hazardous locations control panel.

Applications

Comfort heating for industrial buildings, CNG, LNG or propane vehicle maintenance facilities and freeze protection for equipment and components.

Control Panel Features

- Single switch "ON"/"OFF"/"STANDBY" control
- -18°C to 38°C (0°F to 100°F) thermostat
- Interlock terminals for integration with ancillary equipment
- Custom options available
- CSA C/US certified for Class I, Division 2, Group D, or optional UL certification for Class I, Division 1, Group D, IEC Ex
- Expandable to 6 zones
- Touch screen option for CSA Class 1, Division 2
- Exhaust fan control

Control Panel Benefits

- Single point control of multiple heaters
- Floor level access to all control functions
- Interlock terminals for remote "Enable" & "Standby"
- Self diagnostic fault indication
- Optional remote thermostat for each zone

Heater Features

- Proprietary Cata-Dyne™ catalyst pad
- Corrosion resistant 300 series stainless-steel construction
- Natural gas or propane operation
- Electric start available in 120V to 600V
- Individual heater models range from 8,000 to 48,000 Btu/hr
- CSA certified for use in Class I, Division 1 & 2, Group D hazardous locations
- Certified to ANSI Z83.20a-2010/CSA 2.34a-2010
- NFPA30A Compliant

Heater Benefits

- No moving parts and designed to operate indefinitely when supplied with clean fuel and adequate ventilation
- Heaters can be strategically positioned to optimize heat distribution
### Table 16 – Control Panel Capacities - Heaters/Controllers Per Zone

<table>
<thead>
<tr>
<th>Size</th>
<th>Btu/hr Rating</th>
<th>120V</th>
<th>208V</th>
<th>240V</th>
<th>480V</th>
<th>600V</th>
</tr>
</thead>
<tbody>
<tr>
<td>12x24</td>
<td>8000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>550</td>
</tr>
<tr>
<td>12x36</td>
<td>12000</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>12x48</td>
<td>16000</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>12x60</td>
<td>20000</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
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<tr>
<td>12x72</td>
<td>24000</td>
<td>1450</td>
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<td>1450</td>
</tr>
<tr>
<td>18x24</td>
<td>12000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>-</td>
</tr>
<tr>
<td>18x36</td>
<td>18000</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>18x48</td>
<td>24000</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
</tr>
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<td>2500</td>
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<td>2500</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>18x72</td>
<td>36000</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
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<td>24x24</td>
<td>16000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>-</td>
</tr>
<tr>
<td>24x30</td>
<td>20000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>-</td>
</tr>
<tr>
<td>24x36</td>
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<td>1200</td>
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<td>1200</td>
<td>1200</td>
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<td>2500</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>24x72</td>
<td>48000</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
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</table>

<table>
<thead>
<tr>
<th>Preheat Wattage</th>
<th>Max. Number of Heaters (Max. Current)</th>
<th>1Ø</th>
<th>3Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Ø</td>
<td>208 V AC</td>
<td>48 H (200 A)</td>
<td>48 H (115 A)</td>
</tr>
<tr>
<td></td>
<td>240 V AC</td>
<td>48 H (120 A)</td>
<td>48 H (138 A)</td>
</tr>
<tr>
<td></td>
<td>480 V AC</td>
<td>48 H (80.0 A)</td>
<td>48 H (66.7 A)</td>
</tr>
<tr>
<td></td>
<td>600 V AC</td>
<td>48 H (69.4 A)</td>
<td>48 H (57.8 A)</td>
</tr>
<tr>
<td></td>
<td>12Ø 208 V AC</td>
<td>48 H (80.0 A)</td>
<td>48 H (66.7 A)</td>
</tr>
<tr>
<td></td>
<td>12Ø 240 V AC</td>
<td>48 H (69.4 A)</td>
<td>48 H (57.8 A)</td>
</tr>
<tr>
<td></td>
<td>12Ø 480 V AC</td>
<td>48 H (57.8 A)</td>
<td>48 H (40.5 A)</td>
</tr>
<tr>
<td></td>
<td>12Ø 600 V AC</td>
<td>48 H (25.4 A)</td>
<td>48 H (27.7 A)</td>
</tr>
</tbody>
</table>

### Diagrams

**Figure 14** – Typical for 6 Stages (Hazardous Location Control Panel)

**Figure 15** – Typical for 1 Stage Unit (Hazardous Location Control Panel)
In many typical oil & gas applications that are classified as Class I hazardous locations, the Cata-Dyne™ heater must be installed in accordance with CSA and FM codes and regulations. As a result, the Cata-Dyne™ product line is supported with essential accessories required to ensure the safe and efficient operation of the units.

### Safety Shut-Off Valves

- The safety shut-off valve works in conjunction with the thermocouple to monitor the catalytic reaction ensuring it is well established before fuel supply remains on unattended
- Designed to automatically shut off the gas supply to the heater if the thermocouple senses that the catalyst pad has dropped below the activation temperature
- Two styles are available to suit your heating application needs

**ASV375 - Safety Shut-Off Valves**

- 3/8" NPT connections and a maximum inlet pressure of 1/2 psi
- Designed with a pilot test port located at the base of the valve that can be used to measure operating pressure

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve - ASV375</td>
<td>Safety Shut-Off Valve &amp; Thermostat</td>
</tr>
</tbody>
</table>

**ASV375NT - Safety Shut-Off Valves**

- The ASV375NT valve includes an additional tamper-resistant design discouraging mechanical attempts to fix the valve open and override its safety feature
- 3/8" NPT connections and a maximum inlet pressure of 1/2 psi

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve - ASV375NT</td>
<td>Tamper-Proof Safety Shut-Off Valve</td>
</tr>
</tbody>
</table>

### Mertik Combination Gas Controls/Valves

- Designed as a non-electric combination of the safety shut-off valve and a thermostat control
- Includes a tamper-resistant thermocouple connection that cannot be mechanically fixed open

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-GV33</td>
<td>Combination Gas Control/Valve</td>
</tr>
</tbody>
</table>

### Thermostatic Temperature

- Certifications
  - Mertik - CSA approved and CE certified
  - ASV375 and ASV375NT - CSA approved
Control Valve

- This valve is designed with a bulb and capillary assembly that automatically regulates fuel flow to a Cata-Dyne™ heater from 100% when heat is required to approximately 30% when the thermostat is satisfied.
- This unit is used to control building temperature for spot and space heating applications.
- The sensing bulb is filled with a temperature sensitive liquid. Changes in the temperature at the bulb expand and contract the liquid on temperature rise and fall causing the internal mechanism to modulate the flow of fuel.
- Temperature control range of 0°C to 44°C (32°F to 110°F).
- Maximum inlet pressure of 1/2 psi.
- Each unit has a connection size of 3/8” NPT female and a capillary length of 5 ft (1.5 m).
- No electrical power is required to operate this unit.
- Controls are factory set to specific Btu and fuel ratings for specific heater types and sizes. Contact factory for the appropriate thermostat control valve.
- Certifications:
  - CSA approved.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-TC</td>
<td>0°C to 44°C (32°F to 110°F)</td>
</tr>
</tbody>
</table>

Manual Shut-Off Ball Valve

- The ball valve is installed upstream of all auxiliary heater controls to manually shut-off the fuel supply to the Cata-Dyne™ heater, see installation instructions for correct configuration for each fuel type.
- A 3/8” NPT shut-off ball valve, with female NPT inlet and outlets in forged brass which increases the strength of the body.
- Supplied with all manually controlled Cata-Dyne™ heaters.
- The hard chrome-plated ball has Teflon seats and an anti-corrosion Dacromet treated handle.
- Certifications:
  - CSA approved and UL listed.

Thermocouples

- The Type K Thermocouple is a probe made from two dissimilar metals that monitors the temperature of both the electrical start-up element and the underside of the catalyst pad inside the Cata-Dyne™ heater.
- Certifications:
  - Thermocouples are CSA approved.
Gas Pressure Regulators

- All regulators are designed to ensure there is a precise control of gas or propane flow
- The regulators are part of the piping system connecting to the Cata-Dyne™ units, see installation and operating instructions for precise configuration
- The following three types of regulators are available: Appliance Regulators, Service or Low Pressure Regulators and High Pressure Regulators

Standard Appliance Regulator (AC-R-ES404-7)

- The appliance regulator is used for controlling the manifold pressure on all natural gas Cata-Dyne™ heaters and is supplied with all CSA certified models
- It is a spring type, nonadjustable appliance regulator with a maximum inlet pressure ½ psig
- Available pressure outlet settings are: 3.5", 4.5" and 7.0" w.c.
- Maximum flow capacity: 65,000 Btu/hr
- Certifications
  - Appliance regulators are CSA approved

Standard Service or Low Pressure Regulator (AC-R-2511)

- Used as an appliance regulator for all model sizes of Cata-Dyne™ heaters operating on LPG, and serves as a natural gas low pressure line regulator when used in conjunction with the ES-404 gas appliance regulator
- Self-operated, spring loaded device that is field adjustable
- It has a maximum inlet pressure of 250 psig and is factory set at 11" w.c. or 4.5" w.c. outlet pressure, with a connection size of 1/4" NPT inlet by 3/8" NPT outlet
- For gas applications with inlet gas less than 25 PSI use service regulator AC-R-HSR or AC-R-325
- Ambient temperature range: -40°C to 55°C (-40°F to 130°F) or -29°C to 70°C (-20°F to 160°F) (Fisher regulator only)
- 1/8" NPT screwed vent connection is provided
- Certifications
  - Low pressure regulators are CSA approved

Table 17 – Other Service Regulators Available

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-R-325-3</td>
<td>Low Pressure Regulator 5 psig - 11&quot; wc (2.7 kPa)</td>
</tr>
<tr>
<td>AC-R-325-US</td>
<td>Low Pressure Regulator - CSA Approved 5 psig - 4-12&quot; wc (1.0 to 3.0 kPa)</td>
</tr>
<tr>
<td>AC-R-HSR-11</td>
<td>Low Pressure Regulator 125 psig - 11&quot; wc (1.1 kPa)</td>
</tr>
<tr>
<td>AC-R-HSR-5</td>
<td>Low Pressure Regulator 125 psig - 4.5&quot; wc (1.1 kPa)</td>
</tr>
</tbody>
</table>

High Pressure Regulator (AC-R-1301F)

- Maximum pressure of 6,000 psig inlet pressure and is factory set at 50 psig outlet pressure
- Connection size is 1/4" NPT (one inlet and two outlets)
- Certifications
  - High pressure regulators are UL listed
Battery Cables/Electric Start Up Leads

- Are used for starting a 12V Cata-Dyne™ heater from a battery or other power supply
- Each set of cables comes with heavy duty spring loaded serrated jaw clamps at one end and closed loop terminal ends the other
- A strain relief connector is attached at the terminal end to enable the user to seal the connection between the cable and the junction box
- Lengths are available in 25 ft (7.6 m), 30 ft (9.14 m), and 40 ft (12.19 m)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-LEAD-25</td>
<td>25 ft. Lead</td>
</tr>
<tr>
<td>AC-LEAD-30</td>
<td>30 ft. Lead</td>
</tr>
<tr>
<td>AC-LEAD-40</td>
<td>40 ft. Lead</td>
</tr>
</tbody>
</table>

Battery Cable Cabinet

- This mountable storage cabinet is a convenient solution for storing battery start-up leads, offering protection from adverse weather conditions
- Each cabinet is manufactured from heavy duty 20-gauge stainless steel, and can be used with all lengths of battery cables from 25 ft to 40 ft (7.6 m to 12.2 m)
- The units are lockable and easy to install

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-BATBOX</td>
<td>Battery Cable Cabinet</td>
</tr>
</tbody>
</table>

Fuel Gas Hose

- Versatile braided rubber fuel hose
- These hoses have a 350 psi maximum working pressure, and are available in lengths of 5, 10, 15 and 20 ft (7.6 m to 12.2 m). Other custom sizes are available
- The connection size at each end is 3/8” NPT male
- Certifications
  - CSA approved Type 1 natural and propane gas hose

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-HOSE-10</td>
<td>10 ft. Hose</td>
</tr>
<tr>
<td>AC-HOSE</td>
<td>15 ft. Hose</td>
</tr>
<tr>
<td>IN-P-H-3/8 x 20 ft.</td>
<td>20 ft. Hose</td>
</tr>
<tr>
<td>IN-P-H-3/8 x 25 ft.</td>
<td>25 ft. Hose</td>
</tr>
<tr>
<td>IN-P-H-3/8 x 30 ft.</td>
<td>30 ft. Hose</td>
</tr>
</tbody>
</table>
Protection Grilles

Two types of protection grills are available to protect personnel and objects from coming into direct contact with the face of the Cata-Dyne™ heater.

Strap-On Grilles

- Comes with four straps on all corners so the grille can be bolted to the heater box
- Can be bolted to a variety of standard Cata-Dyne™ heaters
- The bolting hardware is included in the purchase

Note: Cannot be used with MKII units. Not available for all sizes.

Snap-On Grilles

- These snap on to the bezel of the Cata-Dyne™ heater
- Available in a variety of sizes
- They do not require any additional hardware or tools to install
- MKII units accept this style only

Note: Can only be used with units manufactured after September 1, 2002.

Gas Pressure Test Kit

- Pressure gauge and PVC tube used to accurately test and measure the gas pressure going into a Cata-Dyne™ heater by connecting the tube end to the gas test port of the Safety Shut-Off Valve
- Portable kit, ideal for all heater sizes
- Eliminates the need to fit test ports on pipelines used for heater operation
- Includes a 15" w.c. (3.7 kPa) pressure gauge, a 6 ft (1.8 m) PVC tube and the connection to the SSOV
- Compatible with both natural gas and propane heaters

POL Adapters

- Propane fitting adapter used as a straight adapter that reduces a propane cylinder adapter to 1/4" NPT
- Full flow brass fitting with a 7/8" (22 mm) hex nut
Stratafan™

Stratafan™ produces up to 150 cfm of air flow promoting uniform distribution of heat within enclosed areas, reducing temperature stratification and ventilation dead spots. This thermoelectric fan is self powered by a thermoelectric generator and has a cast aluminum housing.

- Certifications
  - CSA certified for Class I, Divisions 1 & 2, Group D Hazardous locations; certified to temperature code T3C

Vent Hood Assembly

- A light weight galvanized steel construction venting system for use with the Cata-Dyne™ heater to vent the by-products of reaction (carbon dioxide and water vapour) outside the building
- Each assembly consists of 1 exhaust hood, 1 length of vent pipe 30” (762 mm), 1 elbow, 1 flashing, and 1 snowcap
- Assemblies available for both standard Cata-Dyne™ heaters and MKII models (12” and 24”)
- The above parts can be ordered individually

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in</td>
</tr>
<tr>
<td>AC-VHASSY-6</td>
<td>6</td>
</tr>
<tr>
<td>AC-VHASSY-8</td>
<td>8</td>
</tr>
<tr>
<td>AC-VHASSY-12</td>
<td>12</td>
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<tr>
<td>AC-VHASSY-24</td>
<td>24</td>
</tr>
<tr>
<td>AC-VHASSY-36</td>
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</tr>
<tr>
<td>AC-VHASSY-48</td>
<td>48</td>
</tr>
<tr>
<td>AC-MKII-VHASSY-12</td>
<td>MKII - 12</td>
</tr>
<tr>
<td>AC-MKII-VHASSY-24</td>
<td>MKII - 24</td>
</tr>
</tbody>
</table>
Wall Mounting Brackets

- Optional stainless steel or mild steel constructed mounting brackets and hardware
- Standard wall brackets can mount Cata-Dyne™ heaters 7.5" (190 mm) away from the wall to allow access to the back of the heater
- MKII model bracket sizes are half the length of our standard wall mounting brackets allowing the heater to be installed closer to the wall
- Brackets for large units over 8,000 Btu/hr (2.3 kW) are manufactured from heavy gauge mild steel flat bar

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Heater Size (in)</th>
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</thead>
<tbody>
<tr>
<td>AC-WBRK-06</td>
<td>8x8</td>
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<tr>
<td>AC-WBRK-06</td>
<td>6x24</td>
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<tr>
<td>AC-WBRK-12</td>
<td>12x12</td>
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<tr>
<td>AC-WBRK-12</td>
<td>12x24</td>
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<tr>
<td>AC-WBRK-12</td>
<td>12x36</td>
</tr>
<tr>
<td>AC-WBRK-12</td>
<td>12x48</td>
</tr>
<tr>
<td>AC-WBRK-12</td>
<td>12x60</td>
</tr>
<tr>
<td>AC-WBRK-12</td>
<td>12x72</td>
</tr>
<tr>
<td>AC-WBRK-1824</td>
<td>18x24</td>
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<tr>
<td>AC-WBRK-1836</td>
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<td>AC-WBRK-1848</td>
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<td>AC-WBRK-1860</td>
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<tr>
<td>AC-WBRK-1872</td>
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<td>AC-WBRK-2424</td>
<td>24x24</td>
</tr>
<tr>
<td>AC-WBRK-2430</td>
<td>24x30</td>
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<tr>
<td>AC-WBRK-2436</td>
<td>24x36</td>
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<tr>
<td>AC-WBRK-2448</td>
<td>24x48</td>
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<tr>
<td>AC-WBRK-2460</td>
<td>24x60</td>
</tr>
<tr>
<td>AC-WBRK-2472</td>
<td>24x72</td>
</tr>
</tbody>
</table>

45° Wall Mount Brackets

- Specialized mounting angle brackets used to simplify the installation of all 18” and 24” Cata-Dyne™ heaters
- Manufactured from mild rolled steel with a zinc plated finish

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description - Mounting Angle Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-WBRK-1824-45</td>
<td>18 x 24, Short Side</td>
</tr>
<tr>
<td>AC-WBRK-1836-45</td>
<td>18 x 36, Long Side</td>
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<tr>
<td>AC-WBRK-1848-45</td>
<td>18 x 48, Long Side</td>
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<tr>
<td>AC-WBRK-1860-45</td>
<td>18 x 60, Long Side</td>
</tr>
<tr>
<td>AC-WBRK-1872-45</td>
<td>18 x 72, Long Side</td>
</tr>
<tr>
<td>AC-WBRK-2424-45</td>
<td>24 x 24, Long Side</td>
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<tr>
<td>AC-WBRK-2436-45</td>
<td>24 x 36, Long Side</td>
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<tr>
<td>AC-WBRK-2448-45</td>
<td>24 x 48, Long Side</td>
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<tr>
<td>AC-WBRK-2460-45</td>
<td>24 x 60, Long Side</td>
</tr>
<tr>
<td>AC-WBRK-2472-45</td>
<td>24 x 72, Long Side</td>
</tr>
</tbody>
</table>
Floor Stands

- 12-gauge galvanized steel construction and hardware
- Allows the heater to be placed closer to an object than the wall mounting system
- Floor stands are adjustable, allowing the unit to be moved to the optimum height for the required heating application

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-FSS-8</td>
<td>8x8</td>
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<tr>
<td>AC-FSS-24</td>
<td>6x24</td>
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<tr>
<td>AC-FSS-12</td>
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<tr>
<td>AC-FSS-24</td>
<td>12x24</td>
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<tr>
<td></td>
<td>12x36</td>
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<td></td>
<td>24x60</td>
</tr>
<tr>
<td></td>
<td>24x72</td>
</tr>
</tbody>
</table>
Conversion Data

1000 Btu/hr = 0.2929 kW or 292.9 W
1000 Btu = 1.054 MJ
3,412 Btu/hr = 1.0 kW

1 psi = 27.91 inches w.c.
1 psi = 6.895 kPa
1 inch w.c. = 0.247 kPa

1 standard cubic foot NAT Gas = 1000 Btu
1 standard cubic foot LPG = 2,500 Btu
1 standard cubic meter NAT Gas = 37 MJ
1 standard cubic meter LPG = 88 MJ

1 pound LPG = 21,560 Btu
1 kilogram LPG = 50.1 MJ

3.5 inches w.c. = 8.7 mbar = 0.87 kPa = 0.126 psi
4 inches w.c. = 9.9 mbar = 0.99 kPa = 0.144 psi
7 inches w.c. = 17.3 mbar = 1.73 kPa = 0.251 psi
11 inches w.c. = 27.2 mbar = 2.72 kPa = 0.394 psi

°C = (°F - 32) x (5/9)
°F = (9/5 x °C) + 32

1 ft = 0.3048 m
1 ft² = 0.09290304 m²
1 ft³ = 0.02831685 m³
1 in = 2.54 cm
1 in² = 6.4516 cm²
1 in³ = 16.38706 cm³
1 psi = 27.91 in. w.c.
1 in. w.c. = 0.247 kPa
1 cfm = 0.028312 m³/hr

Inverse Square Law

Intensity of infrared energy is inversely proportional to the square of the distance from the source of energy.

For infrared energy, this translates to: \( I = \frac{P}{4\pi r^2} \)

Where:
- \( I \) = intensity of infrared at the heated object
- \( P \) = total power emitted from IR source
- \( r \) = the distance from the source to the heated object
As a leader in advanced heating and filtration solutions with facilities across North America, Thermon Heating Systems 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.

**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.

**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.

**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.

**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.

Visit www.thermon.com for detailed product information.