CCI Thermal Technologies INC.
Heating and Filtration Solutions

Explosion-Proof Gas Catalytic Heaters

Cata-Dyne™
Explosion-Proof Gas Catalytic Heaters
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As a leader in heating and filtration solutions, CCI Thermal Technologies Inc. is committed to ongoing research, product development and above all, excellence in customer service. With facilities across North America, CCI Thermal manufactures seven 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
- **DriQuik™** Infrared Ovens
- **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. CCI Thermal's 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.ccithermal.com to view the broad range of innovative industrial heating products manufactured by CCI Thermal Technologies Inc.

Locations

Edmonton, Alberta

Houston, Texas

Orillia, Ontario

Greensburg, Indiana

Oakville, Ontario

Denver, Colorado
**Caloritech™ Catalog: Section A**
*Elements and Specialty Heaters*
Calvane™ heaters, tubular heaters, bolt heaters, tubular band heaters, mitosis heaters, finned tubular heaters, cartridge heaters, strip and finned strip heaters, hot plate/drum heaters, cast-in heaters, transit heaters.

**Caloritech™ Catalog: Section B**
*Immersion Heaters*
screwplug heaters, domestic immersion heaters, urn heaters, flange heaters, over-the-side heaters, pipe insert heaters, gate and gain heaters.

**Caloritech™ Catalog: Section C**
*Air and Space Heaters*
infrared radiant heaters, panel heaters, convection heaters, commercial and explosion-proof duct heaters, unit heaters, gate and gain heaters.

**Caloritech™ Catalog: Section D**
*Engineered Products*
circulation heaters, heat transfer systems, custom engineered products, panel heaters, control panels, technical data.

**Caloritech™ Catalog: Section E**
*Boilers*
hot water boilers, steam boilers, condensate receiver packages, blow off tanks, packaged circulation heaters, calorifiers.

**Caloritech™ Catalog: Section F**
*Controls*
electronic controls, industrial thermostats, explosion-proof thermostats, thermoswitches, thermocouples and thermowells, x-Max® explosion-proof housings.
Catalogues at a Glance

**Cata-Dyne™ Catalog**
explosion-proof infrared gas catalytic heaters, high temperature industrial infrared heaters, infrared gas catalytic heating systems, accessories.

**Ruffneck™ Catalog**
explosion-proof electric air heaters, heat-exchanger unit heaters, corrosion-resistant washdown unit heaters, convection heaters, thermostat.

**3L Filters™ Catalog**
filters, strainers, separators, dehydrators, fuel monitors, clay treaters, head lifts, closures, pressure vessels, engineered products, nuclear, aviation general industrial products.

**Norseman™ Catalog**
natural convection explosion-proof heaters, forced air explosion-proof heaters, thermostats.

**DriQuik™ Catalog**
long, medium and short wavelength infrared ovens and emitters, dusters, cooling tunnels, control panels.

**Putting Safety First**
CCI Thermal Technologies Inc. has always been committed to the safety and well being of our customers. We are familiar with the safety regulations of heating products in a wide variety of environments and ensure that our products meet or exceed the requirements for their applications. CCI Thermal Technologies Inc. takes great pride in its lines of certified products.

**Visit us at www.cccithermal.com**
Our website offers on-line PDF catalogs, product specifications, installation manuals, and technical documentation 24 hours a day. Additionally, you will find easy access to anyone of our factory representatives, regional sales managers or customer service personnel.

**Quality**
All our business processes are steered by the principles of ISO 9001 and ASME, providing an operational framework that places emphasis on continual improvement and customer satisfaction.
Cata-Dyne™ Explosion-Proof Gas Catalytic Heaters

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.

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.

Customer Care

CCI Thermal’s state of the art, 105,000 square foot, 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.

CCI Thermal 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 CCI Thermal undergoes stringent safety and performance testing in accordance with all applicable Safety Certification standards including CSA, FM and CE/ATEX. 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
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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

Heater Construction

1. Bexel
2. Wire Mesh
3. Catalyst Pad
4. Heating Elements
5. Insulation
6. Baffle Plate
7. Spud Nozzel
8. Orifice Nut
9. Heater Box
10. Thermocouple
11. Safety Shut Off Valve
12. Junction Box

Natural Gas: $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \xrightarrow{\text{Catalyst}} \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \text{Infrared Energy}$

Propane: $\text{C}_3\text{H}_8(\text{g}) + 5\text{O}_2(\text{g}) \xrightarrow{\text{Catalyst}} 3\text{CO}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g}) + \text{Infrared Energy}$
Model Coding

W 1224 _ 1 1 1 1 _ 1 1

**MODEL SERIES**
- W - WX SERIES
- MK - MK SERIES
- H - BX SERIES
- WXS - WXS SERIES

**HEATER SIZE**

**HEATER VOLTAGE**
- 0 - NO ELEMENTS
- 1 - 12 VOLT
- 2 - 115 VOLT
- 3 - 208 VOLT
- 4 - 240 VOLT
- 5 - 480 VOLT
- 6 - 600 VOLT
- 7 - 24 VOLT
- 8 - 280 VOLT
- 9 - 12 VOLT/375W

**BOX BRACKET STYLE**
- 0 - NONE
- 1 - SHORT SIDE
- 2 - LONG SIDE
- 3 - PERMIETER SIDE FLANGE
- 4 - PERMIETER BACK FLANGE
- 5 - FACE TABS
- 6 - FLAT BRACKETS
- 7 - ANGLE SIDE BRACKETS
- 8 - OLD STYLE "L" BRACKETS
- 9 - PERIMETER FLANGE, BACK LOADING

**CERTIFICATION**
- 0 - NONE
- 1 - CSA
- 2 - FM
- 3 - POLISH
- 4 - CE
- 5 - ATEX
- 6 - GOST

**FUEL RATING**
- 1 - NATURAL (7" W.C.)
- 2 - PROPANE (11" W.C.)
- 3 - NATURAL (3.5" W.C.)
- 4 - NATURAL (4.5" W.C.)

**THERMAL SENSOR**
- 0 - NONE
- 1 - THMCPL & SSOV
- 2 - SINGLE POLE THMCPL
- 3 - SNAPSITCH (CLOSE ON RISE)
- 4 - SNAPSITCH (OPEN ON RISE)
- 5 - THERMOSWITCH (CLOSE ON RISE)
- 6 - THERMOSWITCH (OPEN ON RISE)
- 7 - THMCPL & MERTIK VALVE
- 8 - THMCPL & TAMPER RESISTANT SSOV

**CATALYST PAD**
- 1 - WX PAD
- 2 - "G" SERIES (6K)
- 3 - "G" SERIES (8K)
- 4 - BX PAD (6K)
- 5 - BX PAD (7K)

**Note:**

Please call factory for the WXS.
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)
- CE marked and ATEX certified

See TABLE 1 on page 13 for fuel & electrical ratings.
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 Caloritech™ 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 2 on page 13 for fuel & electrical ratings
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

• 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 Caloritech™ tubular element are manufactured in-house

Certifications

• FM, Class I, Division 1, Group D explosion-proof ratings

See TABLE 4 on page 14 for fuel & electrical ratings.
G Series Industrial Catalytic Heater

The Cata-Dyne™ G Series infrared gas catalytic heater 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 (refer to the DriQuik™ catalog)

Features

- all major components produced in our own facilities.
- patented catalyst manufactured in our Edmonton, Alberta facility
- preheat tubular element manufactured in our Orillia, Ontario facility
- 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 (refer to DriQuik™ catalog)
- multiple heater mounting bracket configurations available
- 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 tubular element are manufactured in-house

Certifications

- G Series (high performance hot catalytic heater) certified by Canadian Standards Association (CSA) and Factory Mutual (FM) and (European standards) for non-hazardous area applications

See TABLE 3 on page 14 for fuel & electrical ratings.
### TABLE 1 - Fuel and Electrical Rating Data WX Series - CSA and FM

<table>
<thead>
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<td>Btu/hr (kW)</td>
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<tr>
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### TABLE 2 - MKII Series - CSA and FM

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Fuel and Electrical Rating Data
### TABLE 3 - Fuel and Electrical Rating Data

**G Series CSA and FM**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>Maximum Gas Input</th>
<th>Minimum Gas Input</th>
<th>Maximum Gas Flow</th>
<th>Start-Up Amperage</th>
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<tr>
<td></td>
<td>BTU/hr (kW)</td>
<td>BTU/hr (kW)</td>
<td>CFH</td>
<td>m³/hr</td>
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<td>G6x6</td>
<td>1,500 (0.440)</td>
<td>500 (0.147)</td>
<td>375 (0.110)</td>
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<tr>
<td>G6x12</td>
<td>3,000 (0.879)</td>
<td>1,000 (0.293)</td>
<td>750 (0.220)</td>
<td>3.0</td>
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<tr>
<td>G6x24</td>
<td>6,000 (1.758)</td>
<td>2,000 (0.586)</td>
<td>1,500 (0.440)</td>
<td>6.0</td>
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<td>G8x8</td>
<td>2,667 (0.782)</td>
<td>900 (0.264)</td>
<td>700 (0.205)</td>
<td>2.7</td>
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<tr>
<td>G10x12</td>
<td>5,000 (1.465)</td>
<td>1,700 (0.498)</td>
<td>1,250 (0.366)</td>
<td>5.0</td>
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<tr>
<td>G12x12</td>
<td>6,000 (1.758)</td>
<td>2,000 (0.586)</td>
<td>1,500 (0.440)</td>
<td>6.0</td>
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<tr>
<td>G12x24</td>
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<td>4,000 (1.172)</td>
<td>3,000 (0.879)</td>
<td>12.0</td>
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<td>G12x36</td>
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<td>4,500 (1.319)</td>
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<td>22,500 (6.594)</td>
<td>7,500 (2.198)</td>
<td>5,625 (1.649)</td>
<td>22.5</td>
</tr>
<tr>
<td>G18x36</td>
<td>27,000 (7.913)</td>
<td>9,000 (2.638)</td>
<td>6,750 (1.975)</td>
<td>27.0</td>
</tr>
<tr>
<td>G18x48</td>
<td>36,000 (10.551)</td>
<td>12,000 (3.517)</td>
<td>9,000 (2.638)</td>
<td>36.0</td>
</tr>
<tr>
<td>G18x60</td>
<td>45,000 (13.185)</td>
<td>15,000 (4.396)</td>
<td>11,250 (3.297)</td>
<td>45.0</td>
</tr>
<tr>
<td>G18x72</td>
<td>54,000 (16.562)</td>
<td>18,000 (5.275)</td>
<td>13,500 (3.996)</td>
<td>54.0</td>
</tr>
<tr>
<td>G24x24</td>
<td>24,000 (7.034)</td>
<td>8,000 (2.345)</td>
<td>6,000 (1.758)</td>
<td>24.0</td>
</tr>
<tr>
<td>G24x30</td>
<td>30,000 (8.792)</td>
<td>10,000 (2.931)</td>
<td>7,500 (2.198)</td>
<td>30.0</td>
</tr>
<tr>
<td>G24x36</td>
<td>36,000 (10.551)</td>
<td>12,000 (3.517)</td>
<td>9,000 (2.638)</td>
<td>36.0</td>
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<tr>
<td>G24x48</td>
<td>48,000 (14.067)</td>
<td>16,000 (4.689)</td>
<td>12,000 (3.517)</td>
<td>48.0</td>
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<tr>
<td>G24x60</td>
<td>60,000 (17.584)</td>
<td>20,000 (5.861)</td>
<td>15,000 (4.396)</td>
<td>60.0</td>
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<tr>
<td>G24x72</td>
<td>72,000 (21.101)</td>
<td>24,000 (7.034)</td>
<td>18,000 (5.275)</td>
<td>72.0</td>
</tr>
</tbody>
</table>

### TABLE 4 - WXS Slim Line Series FM Only

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>Maximum Gas Input</th>
<th>Minimum Gas Input</th>
<th>Maximum Gas Flow</th>
<th>Start-Up Amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BTU/hr (kW)</td>
<td>BTU/hr (kW)</td>
<td>CFH</td>
<td>m³/hr</td>
</tr>
<tr>
<td>WX5x6</td>
<td>1,750 (0.513)</td>
<td>583 (0.171)</td>
<td>438 (0.128)</td>
<td>1.8</td>
</tr>
<tr>
<td>WX5x12</td>
<td>3,500 (1.025)</td>
<td>1,167 (0.342)</td>
<td>875 (0.256)</td>
<td>3.5</td>
</tr>
<tr>
<td>WX5x24</td>
<td>7,000 (2.050)</td>
<td>2,333 (0.684)</td>
<td>1,750 (0.513)</td>
<td>7.0</td>
</tr>
<tr>
<td>WX5x8x</td>
<td>3,111 (0.911)</td>
<td>1,037 (0.304)</td>
<td>718 (0.228)</td>
<td>3.1</td>
</tr>
<tr>
<td>WXS10x12</td>
<td>5,833 (1.709)</td>
<td>1,944 (0.570)</td>
<td>1,458 (0.427)</td>
<td>5.8</td>
</tr>
<tr>
<td>WXS12x12</td>
<td>7,000 (2.050)</td>
<td>2,333 (0.684)</td>
<td>1,750 (0.513)</td>
<td>7.0</td>
</tr>
<tr>
<td>WXS12x24</td>
<td>14,000 (4.101)</td>
<td>4,667 (1.368)</td>
<td>3,500 (1.026)</td>
<td>14.0</td>
</tr>
</tbody>
</table>
**Gas Catalytic Heater Request For Quote**

**Client Information:**
Company Name: ____________________________
Address: __________________________________
City, State (Prov): __________________________
Country, Zip (Postal Code): _________________
Contact Name: ______________________________
Phone / Fax: _______________________________
E-mail: ____________________________________

**Proposal Type Required:**
- Budgetary
- Formal Quote
- Other: ____________________________

Required Date for Proposal: _________________
Anticipated Shipping Date for Project: __________

**Project Name:** __________________________
Application Summary: _________________________

**Services:**
- Natural Gas:  
  - 3.5" w.c.
  - 4.5" w.c.
  - 7.0" w.c.
- Propane:  
  - 11" w.c.

Voltage:
- 12V
- 240V
- 380V
- 480V
- 600V

**Heater Selection:**
- WX Series - Rear Mounted Controls:  
  - 6 x 6______
  - 6 x 12______  6 x 24______  8 x 8______ 10 x 12______
  - 12 x 12______ 12 x 24______ 12 x 14______ 12 x 60______
  - 12 x 72______ 18 x 24______ 18 x 36______ 18 x 48______
  - 18 x 60______ 18 x 72______ 24 x 24______ 24 x 30______
  - 24 x 36______ 24 x 48______ 24 x 60______ 24 x 72______

- MKII Series - Side Mounted Controls:  
  - 12 x 12______
  - 12 x 24______ 18 x 24______ 18 x 48______ 24 x 24______
  - 24 x 36*______ 24 x 48°______

**Note:**
* Only Available in 12V.
° Available in 12V and 24V.

- WXS Slim Line Series - Thinner Design:  
  - 6 x 6______  6 x 12______  6 x 24______  8 x 8______
  - 10 x 12______ 12 x 12______ 12 x 24______

**Accessories:**
- Please include quantity in space provided:
- Safety Controls:
  - ASV375 ______  ASV375-NT ______  Mertik*________
- Scrubbers:
  - NGS-4 ______  NGS-12 ______
- Regulators:
  - Low Pressure 912______  High Pressure 130 ______
- 12V Start-up Leads:
  - 25’______  30’______  40’______
- Propane Hoses:
  - 5’______  10’______
- Other:
  - Battery Cable Cabinet ______  Vent Hood ______
  - Wall Mount Bracket ______  Floor Stand ______
  - 45° Wall Mount Bracket ______  Thermostat ______
  - Manual Shut-Off Ball Valve ______  Protection Grill ______
  - Gas Pressure Test Kit ______  POL Adaptor ______

**Note:**
* Includes Thermostat.

To receive your enclosure quote, fax these pages to: (780) 468-5904
Attention: Projects
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>REGULATOR</th>
<th>PIPE SIZE (IN) INLET X OUTLET</th>
<th>NUMBER OF HEATERS</th>
<th>HEATER TYPE</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 X 6 ENCLOSURE</td>
<td></td>
<td>A - APPLIANCE REGULATOR (factory matched to heaters)</td>
<td></td>
</tr>
<tr>
<td>0100/0101</td>
<td>6 X 12 ENCLOSURE</td>
<td></td>
<td>B - SERVICE REGULATOR (low pressure, 250 psig - 11” w.c.)</td>
<td></td>
</tr>
<tr>
<td>0102/0103</td>
<td>6 X 24 ENCLOSURE</td>
<td></td>
<td>B1 - SERVICE REGULATOR (low pressure, 250 psig - 4” w.c.)</td>
<td></td>
</tr>
<tr>
<td>0104/0105</td>
<td>8 X 8 ENCLOSURE</td>
<td></td>
<td>C - SERVICE REGULATOR (high pressure, 6000 psig - 50 psi)</td>
<td></td>
</tr>
<tr>
<td>0106/0107</td>
<td>10 X 12 ENCLOSURE</td>
<td></td>
<td>T - THERMOSTAT [regular, 32°F - 104°F, factory matched to heater(s)]</td>
<td></td>
</tr>
<tr>
<td>0108/0109</td>
<td>12 X 12 ENCLOSURE</td>
<td></td>
<td>T1 - THERMOSTAT</td>
<td></td>
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<tr>
<td>0110/0111</td>
<td></td>
<td></td>
<td>T2 - THERMOSTAT (high temperature, 60°F - 250°F)</td>
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</tr>
<tr>
<td>0600</td>
<td>FISHER 630 BIG JOE</td>
<td></td>
<td>V - RELIEF VALVE (Fisher 289U 5” - 25” w.c.)</td>
<td></td>
</tr>
<tr>
<td>1301</td>
<td>FISHER 1301</td>
<td></td>
<td>V1 - RELIEF VALVE (Fisher H120, 120 psi)</td>
<td></td>
</tr>
<tr>
<td>0232</td>
<td>DE 232</td>
<td></td>
<td>G - PRESSURE GAUGE</td>
<td></td>
</tr>
<tr>
<td>0461</td>
<td>FISHER 461</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6300</td>
<td>FISHER 630</td>
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</tr>
<tr>
<td>0627</td>
<td>FISHER 627</td>
<td></td>
<td></td>
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<tr>
<td>627F</td>
<td>FISHER 627 FLANGED</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>67CF</td>
<td>FISHER 67CF</td>
<td></td>
<td></td>
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<tr>
<td>600D</td>
<td>FISHER 600# D-BODY VALVE</td>
<td></td>
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<tr>
<td>0EZR</td>
<td>EZR ENCLOSURE</td>
<td></td>
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<tr>
<td>4413</td>
<td>TESCOM 44-1300</td>
<td></td>
<td></td>
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<tr>
<td>TESC</td>
<td>TESCOM</td>
<td></td>
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<td></td>
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<tr>
<td>MOON</td>
<td>MOONEY FLOWGRID VALVE</td>
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</table>

**Reference Model Coding**: Page 5
<table>
<thead>
<tr>
<th>Model # *</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA0100-1X1-1__0606</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 10.125 (257), W = 8.375 (213), H = 8.563 (218)</td>
</tr>
<tr>
<td>HEA0101-1X1-2__0606</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 10.125 (257), W = 8.375 (213), H = 8.563 (218)</td>
</tr>
<tr>
<td>HEA0102-1X1-1__0612</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 12.250 (311), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA0103-1X1-2__0612</td>
<td>Enclosure, Universal 1&quot; inlet pipe</td>
<td>L = 12.250 (311), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA0104-1X1-1__0624</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 24.500 (622), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA0105-1X1-1__0624</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 24.500 (622), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA0106-1X1-2__0808</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 12.125 (308), W = 14.125 (359), H = 10.188 (259)</td>
</tr>
<tr>
<td>HEA0107-1X1-2__0808</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 12.125 (308), W = 14.125 (359), H = 10.188 (259)</td>
</tr>
<tr>
<td>HEA0108-1X1-1__1012</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 14.000 (356), W = 16.000 (406), H = 14.000 (356)</td>
</tr>
<tr>
<td>HEA0109-1X1-2__1012</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 14.000 (356), W = 16.000 (406), H = 14.000 (356)</td>
</tr>
<tr>
<td>HEA0110-1X1-1__1212</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 14.000 (356), W = 16.000 (406), H = 14.000 (356)</td>
</tr>
<tr>
<td>HEA0111-1X1-2__1212</td>
<td>Enclosure, Universal 1 and 2&quot; inlet pipe</td>
<td>L = 14.000 (356), W = 16.000 (406), H = 14.000 (356)</td>
</tr>
<tr>
<td>HEA-1301-1X1-1__0606</td>
<td>Enclosure, 1301 Regulator</td>
<td>L = 6.375 (162), W = 9.000 (229), H = 8.375 (213)</td>
</tr>
<tr>
<td>HEA-0232-1X1-1__0606</td>
<td>Enclosure, DE 232 Regulator, Basic</td>
<td>L = 10.125 (257), W = 8.375 (213), H = 8.563 (218)</td>
</tr>
<tr>
<td>HEA-0461-1X1-2__0808</td>
<td>Enclosure, Fisher 461-S Regulator Flanged</td>
<td>L = 17.625 (448), W = 19.183 (487), H = 11.750 (298)</td>
</tr>
<tr>
<td>HEA-0461-3X3-1__0808</td>
<td>Enclosure, Fisher 461-X57 Regulator, High Pressure</td>
<td>L = 8.250 (210), W = 19.183 (487), H = 11.750 (298)</td>
</tr>
<tr>
<td>HEA-0600-1X1-2__0808</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;</td>
<td>L = 12.125 (308), W = 14.125 (359), H = 10.188 (259)</td>
</tr>
<tr>
<td>HEA-0600-1X1-2__0612</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;</td>
<td>L = 12.125 (308), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA-0600-1X1-2__0612</td>
<td>Enclosure, 600 Series Reg, &quot;BIG JOE&quot;, Flanged</td>
<td>L = 12.125 (308), W = 11.000 (279), H = 8.250 (210)</td>
</tr>
<tr>
<td>HEA-0627-1X1-2__0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>L = 12.125 (308), W = 15.188 (386), H = 14.188 (360)</td>
</tr>
<tr>
<td>HEA-0627F-1X1-1__1212</td>
<td>Enclosure, Fisher 627 Regulator Flanged</td>
<td>L = 16.250 (413), W = 20.438 (519), H = 14.063 (357)</td>
</tr>
<tr>
<td>HEA-0627F-1X1-1__0808</td>
<td>Enclosure, Fisher 627 Regulator Flanged</td>
<td>L = 16.250 (413), W = 20.438 (519), H = 14.063 (357)</td>
</tr>
<tr>
<td>HEA-0627-2X2-1__0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>L = 15.063 (383), W = 15.125 (384), H = 13.000 (330)</td>
</tr>
<tr>
<td>HEA-0627-1X1-1__0808</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>L = 15.063 (383), W = 15.125 (384), H = 13.000 (330)</td>
</tr>
<tr>
<td>HEA-0627-2X2-1__1012</td>
<td>Enclosure, Fisher 627 Regulator</td>
<td>L = 12.125 (308), W = 12.833 (326), H = 10.500 (267)</td>
</tr>
<tr>
<td>HEA-67CF-1X1-1__0606</td>
<td>Enclosure, 67CF Regulator</td>
<td>L = 6.438 (164), W = 9.000 (229), H = 8.375 (213)</td>
</tr>
<tr>
<td>HEA-0EZR-2X2-2__1212</td>
<td>Enclosure, Fisher 2&quot; EZR Regulator</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-0EZR-1X1-2__1212</td>
<td>Enclosure, Fisher 1&quot; EZR Regulator</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-0EZR-3X3-2__1212</td>
<td>Enclosure, Fisher 3&quot; EZR Regulator</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-0EZR-4X4-2__1212</td>
<td>Enclosure, Fisher 4&quot; EZR Regulator</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-0EZR-6X6-2__1212</td>
<td>Enclosure, Fisher 6&quot; EZR Valve, CL 600</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-0EZR-8X8-2__1212</td>
<td>Enclosure, Fisher 6&quot; EZR Valve 8&quot; x 6&quot; Pipe Size</td>
<td>L = 20.625 (524), W = 28.125 (714), H = 23.125 (587)</td>
</tr>
<tr>
<td>HEA-TESC-2X2-1__0612</td>
<td>Enclosure, Tescom Regulator</td>
<td>L = 12.000 (305), W = 10.000 (254), H = 7.000 (178)</td>
</tr>
<tr>
<td>HEA-4413-1X1-1__0606</td>
<td>Enclosure, Tescom 44-1300 Reg</td>
<td>L = 11.125 (283), W = 10.313 (262), H = 8.750 (222)</td>
</tr>
</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

**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 6 - Pipe Preheater Enclosures**

<table>
<thead>
<tr>
<th>Model #</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L (in (mm))</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX0624</td>
<td>Enclosure, 2&quot; Pipe Preheater</td>
<td>24.000</td>
</tr>
<tr>
<td>HEA-PP-3X3-2-WX1224</td>
<td>Enclosure, 3&quot; Pipe Preheater</td>
<td>24.000</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1224</td>
<td>Enclosure, 4&quot; Pipe Preheater Peeked Top</td>
<td>25.000</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX12X24</td>
<td>Enclosure, 2&quot; Pipe Preheater</td>
<td>24.000</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1224</td>
<td>Enclosure, 4&quot; Pipe Preheater</td>
<td>16.375</td>
</tr>
<tr>
<td>HEA-PP-1X1-2-WX1224</td>
<td>Enclosure, 1&quot; Pipe Preheater Rectangular</td>
<td>12.625</td>
</tr>
<tr>
<td>HEA-PP-2X2-2-WX0624</td>
<td>Enclosure, 2&quot; Pipe Preheater c/w Dual Gas Trains</td>
<td>24.000</td>
</tr>
<tr>
<td>HEA-PP-4X4-2-WX1248</td>
<td>Enclosure, 4&quot; Pipe Preheater</td>
<td>51.000</td>
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<tr>
<td>HEA-PP-3X3-2-WX1248</td>
<td>Enclosure, 3&quot; Pipe Preheater</td>
<td>51.000</td>
</tr>
<tr>
<td>HEA-PP-1X1-2-WX1248</td>
<td>Enclosure, 1&quot; Pipe Preheater</td>
<td>51.000</td>
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<tr>
<td>HEA-PP-2X2-2-WX1248</td>
<td>Enclosure, 2&quot; Pipe Preheater c/w 12x48</td>
<td>48.000</td>
</tr>
<tr>
<td>HEA-PP-1.5X1.5-WX0624</td>
<td>Enclosure, 1.5&quot; Pipe Preheater, Double 6x24 Heaters</td>
<td>24.000</td>
</tr>
</tbody>
</table>

**Model Coding**

**E**

- MODEL SERIES
  - E - HEATER ENCLOSURE ASSEMBLY

**PP**

- PIPE PREHEATER

**1 X 1**

- PIPE SIZE (IN)
  - INLET X OUTLET

**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

**Note:** Please call factory for the WXS and BX heater.
The Rotary Meter Enclosure is 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 7 - Rotary Meter Enclosures

<table>
<thead>
<tr>
<th>Model #</th>
<th>Description</th>
<th>L (in)</th>
<th>W (in)</th>
<th>H (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-RM1M600-2X2-1-WX0808</td>
<td>Enclosure, Roots 1M600 Meter</td>
<td>15.00 (381)</td>
<td>14.50 (368)</td>
<td>15.00 (381)</td>
</tr>
<tr>
<td>HEA-RM1.5M-2X2-1-WX0808</td>
<td>Enclosure, Roots 1.5M Meter</td>
<td>10.00 (254)</td>
<td>11.00 (279)</td>
<td>10.00 (254)</td>
</tr>
<tr>
<td>HEA-RM2M175-2X2-1-WX0808</td>
<td>Enclosure, 2M175 Meter</td>
<td>12.00 (305)</td>
<td>12.00 (305)</td>
<td>10.00 (254)</td>
</tr>
<tr>
<td>HEA-RM3M125-2X2-1-WX0808</td>
<td>Enclosure, 3M125 Meter</td>
<td>12.00 (305)</td>
<td>12.00 (305)</td>
<td>10.00 (254)</td>
</tr>
<tr>
<td>HEA-RM3.6M600-2X2-1-WX0808</td>
<td>Enclosure, Roots 3.6M600 Meter</td>
<td>15.00 (381)</td>
<td>16.00 (406)</td>
<td>14.00 (356)</td>
</tr>
<tr>
<td>HEA-RM1.5M-3X3-1-WX0612</td>
<td>Enclosure, Roots 1.5M Meter</td>
<td>14.00 (356)</td>
<td>10.00 (254)</td>
<td>10.00 (254)</td>
</tr>
<tr>
<td>HEA-RM1M600-3X3-1-WX0612</td>
<td>Enclosure, Roots 1M600 Meter</td>
<td>16.00 (406)</td>
<td>14.00 (356)</td>
<td>14.00 (356)</td>
</tr>
<tr>
<td>HEA-RM3M125-2X2-1-WX0612</td>
<td>Enclosure, Roots 3M125 Meter</td>
<td>11.00 (279)</td>
<td>16.00 (406)</td>
<td>15.00 (381)</td>
</tr>
<tr>
<td>HEA-RM3M600-3X3-1-WX0612</td>
<td>Enclosure, Roots 3M600 Meter</td>
<td>15.00 (381)</td>
<td>15.00 (381)</td>
<td>14.00 (356)</td>
</tr>
<tr>
<td>HEA-RM5M-3X3-1-WX0808</td>
<td>Enclosure, Roots 5M</td>
<td>11.00 (279)</td>
<td>16.00 (406)</td>
<td>11.00 (279)</td>
</tr>
<tr>
<td>HEA-RM5M-3X3-1-WX0612</td>
<td>Enclosure, Roots 5M</td>
<td>11.00 (279)</td>
<td>16.00 (406)</td>
<td>11.00 (279)</td>
</tr>
<tr>
<td>HEA-RM7M-3X3-1-WX1012</td>
<td>Enclosure, Roots 7M</td>
<td>15.00 (381)</td>
<td>15.00 (381)</td>
<td>16.00 (406)</td>
</tr>
</tbody>
</table>

### Model Coding

- **E** - HEATER ENCLOSURE ASSEMBLY
- **RM** - ROTARY METER
- **1X1**
- **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

**Note:** Please call factory for the WXS and BX heaters.
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 8 - Motor Valve Enclosures

<table>
<thead>
<tr>
<th>Model #</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-MV1-1X1-1-WX10X12</td>
<td>Enclosure, 1&quot; Motor Valve</td>
<td>9.625 (244) x 12.000 (305) x 14.125 (359)</td>
</tr>
<tr>
<td>HEA-MV2-2X2-2-WX10X12</td>
<td>Enclosure, 2&quot; Motor Valve</td>
<td>14.000 (356) x 9.500 (241) x 12.000 (305)</td>
</tr>
<tr>
<td>HEA-MV1-1X1-2-WX0808</td>
<td>Enclosure, 1&quot; Motor Valve</td>
<td>10.000 (254) x 8.000 (203) x 10.563 (268)</td>
</tr>
</tbody>
</table>

### Model Coding

- **E** - HEATER ENCLOSEMENT ASSEMBLY
- **MV** - MOTOR VALVE
- **1** - PIPE SIZE (IN) INLET X OUTLET
- **X** - NUMBER OF HEATERS
- **1** - REFERENCE MODEL CODING FROM PAGE 5
- **2** - 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

**Note:** Please call factory for the WXS and BX heaters.
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 9 - Orifice Fitting Meter Enclosures**

<table>
<thead>
<tr>
<th>Model #</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-OF-2X2-1-WX1012</td>
<td>Orifice Fitting</td>
<td>14 (356) x 16 (406) x 14 (356)</td>
</tr>
<tr>
<td>HEA-OF-3X3-1-WX1012</td>
<td>Orifice Fitting</td>
<td>14 (356) x 16 (406) x 14 (356)</td>
</tr>
<tr>
<td>HEA-OF-4X4-1-WX1012</td>
<td>Orifice Fitting</td>
<td>14 (356) x 16 (406) x 14 (356)</td>
</tr>
</tbody>
</table>

**Model Coding**

- **E** - MODEL SERIES
- **OF** - ORIFICE FITTINGS
- **1** - PIPE SIZE (IN) INLET X OUTLET
- **1** - NUMBER OF HEATERS
- **2** - REFERENCE MODEL CODING FROM PAGE 5
- **HEATER TYPE**
  - **A** - 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**

Please call factory for the WXS and BX heaters.
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 10 - Product Dimensions & Data**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Pipe Dimensions</th>
<th>Wt.</th>
<th>Approx. Propane Consump.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diameter</td>
<td>L</td>
<td>W</td>
</tr>
<tr>
<td>SS2-4/24</td>
<td>2 - 4</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>(51 - 102)</td>
<td>(1016)</td>
<td>(762)</td>
</tr>
<tr>
<td>SS6-8/24</td>
<td>6 - 8</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>(152 - 203)</td>
<td>(1016)</td>
<td>(813)</td>
</tr>
<tr>
<td>SS10-12/24</td>
<td>10 - 12</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>(254 - 305)</td>
<td>(1016)</td>
<td>(864)</td>
</tr>
<tr>
<td>SS16-18/24</td>
<td>16 - 18</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>(406 - 457)</td>
<td>(1016)</td>
<td>(1016)</td>
</tr>
<tr>
<td>SS20-24/36</td>
<td>20 - 24</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>(508 - 610)</td>
<td>(1321)</td>
<td>(1321)</td>
</tr>
</tbody>
</table>
Super Conductor

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 11 - Super Conductor Enclosures**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Pipe Qty</th>
<th>Pipe Length (mm)</th>
<th>Heater Size</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Pipe Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCH-4P-18-0808</td>
<td>4</td>
<td>18 (457)</td>
<td>8 x 8</td>
<td>17.30 (439)</td>
<td>17.20 (437)</td>
<td>10.40 (264)</td>
<td>8.50 (216)</td>
</tr>
<tr>
<td>SCH-4P-24-0808</td>
<td>4</td>
<td>24 (610)</td>
<td>8 x 8</td>
<td>17.30 (439)</td>
<td>17.20 (437)</td>
<td>10.40 (264)</td>
<td>14.50 (368)</td>
</tr>
<tr>
<td>SCH-4P-33-1212</td>
<td>4</td>
<td>33 (838)</td>
<td>12 x 12</td>
<td>17.30 (439)</td>
<td>19.00 (478)</td>
<td>14.75 (375)</td>
<td>19.50 (495)</td>
</tr>
</tbody>
</table>

**Model Coding**

```
MODEL SERIES
SCH - SUPER CONDUCTOR HEATER ENCLOSURE ASSEMBLY

HEATER TYPE
PIC PIPE LENGTH

REFERENCE MODEL CODING
FROM PAGE 5
```

Enclosure Heating

CCI Thermal Technologies Inc.
The Instrument Gas Enclosure 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 12 - Instrument Gas Enclosures**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Coils</th>
<th>Heater* Size in</th>
<th>Length in (mm)</th>
<th>Width in (mm)</th>
<th>Height in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGP-SP-WX0808</td>
<td>Single Pass</td>
<td>8 x 8</td>
<td>6 (152)</td>
<td>14 (356)</td>
<td>14 (356)</td>
</tr>
<tr>
<td>IGP-DP-WX0808</td>
<td>Double Pass</td>
<td>8 x 8</td>
<td>6 (152)</td>
<td>14 (356)</td>
<td>18 (457)</td>
</tr>
<tr>
<td>IGP-SP-WX1212</td>
<td>Double Pass</td>
<td>12 x 12</td>
<td>5 (127)</td>
<td>18 (457)</td>
<td>18 (457)</td>
</tr>
<tr>
<td>IGP-DP-WX1212</td>
<td>Single Pass</td>
<td>12 x 12</td>
<td>5 (127)</td>
<td>18 (457)</td>
<td>18 (457)</td>
</tr>
</tbody>
</table>

**Model Coding**

- **E-IGP** 02
- 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)
  - 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: Only available with Cata-Dyne™ WX series heater.*
Enclosure Request For Quote Form

Enclosure Type:
- Regulator
- Pipe Preheater
- Rotary Meter
- Motor Valve
- Orifice Fitting
- Super Conductor
- Instrument Gas Preheater
- Other With Description: _______________________

Device To Be Enclosed:
Type or Manufacturer/Size/Model: _______________________

Temperature:
Gas Inlet Before Device: __________ °F/°C
Temp. Limit of Enclosed Device: ______ °F/°C
Gas Outlet After Device: __________ °F/°C

Piping:
Diameter Inlet: ______________________ inches
Diameter Outlet: ______________________ inches
Design Temperature: __________ °F/°C
Design Pressure: ______________________ psig

Pressure:
Gas Inlet Before Regulator or Enclosure: ______ psig
Gas Outlet After Regulator or Enclosure: ______ psig

Gas Flow:
Maximum: ______________________ SCFM
Minimum: ______________________ SCFM

Type of Fluid Being Heated:
- Natural Gas
- LPG
- Other

Electrical/Controls:
Supply Power: ______________________ volt

Hazardous Area Classification:
Class: ____ Div: ____ , Group: ____

Outside Physical Dimensions Restrictions:
<table>
<thead>
<tr>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>L:</td>
<td></td>
</tr>
<tr>
<td>W:</td>
<td></td>
</tr>
<tr>
<td>H:</td>
<td></td>
</tr>
</tbody>
</table>

Dimension Size:

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 - 250°F (15°C - 121°C)
- Temperature Controller
  32°F - 110°F (0°C - 43°C)
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.

<table>
<thead>
<tr>
<th>Scrubbing System</th>
<th>Model Number</th>
<th>PSIG</th>
<th>Number of Cartridges</th>
<th>Overall Length in (mm)</th>
<th>Overall Diameter in (mm)</th>
<th>Port to Port in (mm)</th>
<th>Pipe Size NPT</th>
<th>Bed Cubic in³</th>
<th>Cartridge Media Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>FLODRI-G10A</td>
<td>150</td>
<td>1</td>
<td>8.50 (216)</td>
<td>4.00 (102)</td>
<td>5.00 (1270)</td>
<td>1/4&quot;</td>
<td>12.56</td>
<td>FLODRI-10AA</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G25A</td>
<td>250</td>
<td>2</td>
<td>12.88 (327)</td>
<td>5.12 (130)</td>
<td>8.13 (206)</td>
<td>3/4&quot;</td>
<td>30.78</td>
<td>FLODRI-25AA</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G60A</td>
<td>250</td>
<td>3</td>
<td>18.25 (464)</td>
<td>6.25 (159)</td>
<td>12.38 (314)</td>
<td>1&quot;</td>
<td>84.47</td>
<td>FLODRI-60AA</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G100A</td>
<td>250</td>
<td>4</td>
<td>23.31 (592)</td>
<td>7.75 (197)</td>
<td>17.00 (432)</td>
<td>1 1/2&quot;</td>
<td>199.06</td>
<td>FLODRI-100A</td>
</tr>
<tr>
<td></td>
<td>FLODRI-G150A</td>
<td>250</td>
<td>2</td>
<td>26.00 (660)</td>
<td>9.25 (241)</td>
<td>18.19 (462)</td>
<td>2&quot;</td>
<td>376.52</td>
<td>FLODRI-150A</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>FLODRI-M10A</td>
<td>150</td>
<td>1</td>
<td>8.50 (216)</td>
<td>4.00 (102)</td>
<td>5.00 (1270)</td>
<td>1/4&quot;</td>
<td>12.56</td>
<td>FLODRI-10R</td>
</tr>
<tr>
<td></td>
<td>FLODRI-M25V</td>
<td>125</td>
<td>2</td>
<td>12.88 (327)</td>
<td>5.12 (133)</td>
<td>8.13 (206)</td>
<td>3/4&quot;</td>
<td>30.78</td>
<td>FLODRI-25R</td>
</tr>
<tr>
<td></td>
<td>FLODRI-M25A</td>
<td>250</td>
<td>2</td>
<td>12.88 (327)</td>
<td>5.12 (133)</td>
<td>8.13 (206)</td>
<td>3/4&quot;</td>
<td>30.78</td>
<td>FLODRI-25MS</td>
</tr>
<tr>
<td></td>
<td>FLODRI-M60A</td>
<td>250</td>
<td>3</td>
<td>18.25 (464)</td>
<td>6.25 (159)</td>
<td>12.38 (314)</td>
<td>1&quot;</td>
<td>84.47</td>
<td>FLODRI-60AA</td>
</tr>
<tr>
<td></td>
<td>FLODRI-M100A</td>
<td>250</td>
<td>4</td>
<td>23.31 (592)</td>
<td>7.75 (197)</td>
<td>17.00 (432)</td>
<td>1 1/2&quot;</td>
<td>199.06</td>
<td>FLODRI-100A</td>
</tr>
<tr>
<td></td>
<td>FLODRI-M150A</td>
<td>250</td>
<td>2</td>
<td>26.00 (660)</td>
<td>9.25 (241)</td>
<td>18.19 (462)</td>
<td>2&quot;</td>
<td>376.52</td>
<td>FLODRI-150R</td>
</tr>
</tbody>
</table>

Model Coding
FLODRI - G 10 A

- SCRUBBING SYSTEM
  G - NATURAL GAS
  M - COMPRESSED AIR*

- PIPE SIZE
  10 - 1/4"  25 - 3/4"  60 - 1"  100 - 1 1/2"  150 - 2"

- BARREL MATERIAL
  A - ALUMINUM
  V - ACRYLIC

Note:
*Compressed air scrubbing system includes air filter cartridges.
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.

**Standard 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.

**Replacement Cartridge Model Coding**

<table>
<thead>
<tr>
<th>Model Coding</th>
<th>Pipe Size</th>
<th>Overall Diameter</th>
<th>Overall Length</th>
<th>Port to Port</th>
<th>Bed Cubic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G-10/M-10</strong></td>
<td>1/4”</td>
<td>4.00 (102)</td>
<td>8.50 (216)</td>
<td>5.00 (1270)</td>
<td>12.56</td>
</tr>
<tr>
<td><strong>G-25</strong></td>
<td>3/4”</td>
<td>13.00 (330)</td>
<td>12.88 (327)</td>
<td>8.13 (206)</td>
<td>30.78</td>
</tr>
<tr>
<td><strong>G-60/M-60</strong></td>
<td>1”</td>
<td>15.00 (381)</td>
<td>18.25 (464)</td>
<td>12.38 (314)</td>
<td>84.47</td>
</tr>
<tr>
<td><strong>G-100/M-100</strong></td>
<td>1 1/2”</td>
<td>17.00 (432)</td>
<td>23.31 (592)</td>
<td>17.00 (432)</td>
<td>199.06</td>
</tr>
<tr>
<td><strong>G-150/M-150</strong></td>
<td>2”</td>
<td>20.00 (508)</td>
<td>26.00 (660)</td>
<td>18.19 (462)</td>
<td>376.52</td>
</tr>
<tr>
<td><strong>M-25</strong></td>
<td>3/4”</td>
<td>13.00 (330)</td>
<td>12.88 (327)</td>
<td>8.13 (206)</td>
<td>30.78</td>
</tr>
<tr>
<td><strong>M-60</strong></td>
<td>1”</td>
<td>15.00 (381)</td>
<td>18.25 (464)</td>
<td>12.38 (314)</td>
<td>84.47</td>
</tr>
<tr>
<td><strong>M-100</strong></td>
<td>1 1/2”</td>
<td>17.00 (432)</td>
<td>23.31 (592)</td>
<td>17.00 (432)</td>
<td>199.06</td>
</tr>
<tr>
<td><strong>M-150</strong></td>
<td>2”</td>
<td>20.00 (508)</td>
<td>26.00 (660)</td>
<td>18.19 (462)</td>
<td>376.52</td>
</tr>
</tbody>
</table>

**Note:**

To order specify model number and cartridge media part number.

**G-10/M-10**
- 150 psig maximum allowable pressure
- 1/4” NPT pipe size

**G-25**
- 250 psig maximum allowable pressure
- 3/4” 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

**G-150/M-150**
- 250 psig maximum allowable pressure
- 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>Cartridge Media</th>
<th>FLO-DRI - 10 AA</th>
<th>FLO-DRI - 10 AC</th>
<th>FLO-DRI - 10 MS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AA</strong></td>
<td>AA - MOISTURE REMOVAL</td>
<td>AC - ODOR REMOVAL</td>
<td>MS - H₂S &amp; MOISTURE REMOVAL</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>R - MOISTURE REMOVAL, AIR PURIFIER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

To order specify model number and cartridge media part number.
The Cata-Dyne™ NGS 1000 Natural Gas Scrubber is designed to remove contaminants and extend the life of your Cata-Dyne™ infrared heater. These infrared heaters, as with all other gas appliances, are designed to work on clean natural gas or propane. Fuel gas from natural gas wells may contain some form of contamination or particulates that can interfere with the operation of an infrared heater. Using an Cata-Dyne™ NGS 1000, reduces the risk of costly repairs and downtime.

**Applications**
- engineered specifically for industrial applications with gas supply lines to equipment such as Cata-Dyne™ WX, MKII & WXS heaters and gas appliances
- this natural gas scrubbing system is used to remove contaminants found in fuel gas from natural gas wells
- interchangeable with existing applications

**Standard Features**
- housing and cover material - extruded, heat treated, machined and anodized 6000 series aluminum
- maximum operating pressure is 250 psi
- operating temperature is -40°C to 93°C (-40°F to 200°F)
- flow rate range from 10 SCFM to 25 SCFM
- inlet and outlet ports available in 1/4” NPT or 3/4” NPT
- drain cock
- standard stainless steel universal mounting kit
- filtration media is available for moisture, sour gas, odor and oil contaminants
- cartridge filter change-out indicator plugs available
- removes particulate down to 0.5 micron in size
- variety of filtration media available, including activated carbon, activated aluminum and molecular sieve
- SAE/ORB O-ring design

**Certifications**
- certification for pressure vessels CRN #0H6573.213
- designed to ASME Section VIII Div.1

**TABLE 13 - Scrubber Selection for Cata-Dyne™ Heaters**

<table>
<thead>
<tr>
<th>Gas Flow cu. ft/hr</th>
<th>Heater Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size (in)</td>
</tr>
<tr>
<td>1.8</td>
<td>8 x 8</td>
</tr>
<tr>
<td>4.0</td>
<td>12 x 12</td>
</tr>
<tr>
<td>8.0</td>
<td>12 x 24</td>
</tr>
<tr>
<td>12.0</td>
<td>18 x 24</td>
</tr>
<tr>
<td>16.0</td>
<td>24 x 24</td>
</tr>
<tr>
<td>20.0</td>
<td>24 x 30</td>
</tr>
<tr>
<td>24.0</td>
<td>24 x 36</td>
</tr>
</tbody>
</table>

**Note:** When ordering please specify the operating fuel, pressure and flow rate.

**TABLE 14 - Cartridge Change Schedule in Days**

- **Example 1:** Sour Gas H₂S (10 ppm) Moisture (50 ppm)
  - COF = 70 days x 10 ppm / 25 ppm = 28 days.
  - The FLODRI-10MS scrubber cartridge should be changed once every 28 days.
- **Example 2:** Moisture in Gas Supply
  - COF = 55 days x 50 ppm / 25 ppm = 110 days.
  - The FLODRI-10MS scrubber cartridge should be changed once every 110 days.

**Note:** The above table shows cartridge change-out frequencies in days for each model heater and gas scrubbing system. To determine the cartridge change-out frequency in days for other H₂S or moisture concentrations, use the formulas provided in the examples as outlined in the Change-Out Frequency Calculation Examples.
Designed to ASME Section VIII Div.1 certification for pressure vessels CRN #0H6573.213

Certifications

- SAE/ORB O-ring design
- Removes particulate down to 0.5 micron in size
- Cartridge filter change-out indicator plugs available
- Filtration media is available for moisture, sour gas, odor
- Standard stainless steel universal mounting kit
- Drain cock
- Inlet and outlet ports available in 1/4” NPT or 3/4” NPT
- Flow rate range from 10 SCFM to 25 SCFM
- Operating temperature is -40°C to 93°C (-40°F to 200°F)
- Maximum operating pressure is 250 psi

Housing and cover material - extruded, heat treated, carbon, activated aluminum and molecular sieve and oil contaminants

Machined and anodized 6000 series aluminum

This natural gas scrubbing system is existing applications

Fuel gas from natural gas wells used to remove contaminants found in gas appliances equipment such as Cata-Dyne™ WX, applications with gas supply lines to

NGS 1000 Natural Gas Scrubbing System

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NGS-4</td>
<td>Right</td>
<td>9 (229)</td>
<td>3 1/4</td>
<td>4 7/8</td>
<td>4 1/2</td>
<td>1 7/16</td>
<td>5 1/4</td>
<td>2 1/2</td>
<td>1/4&quot;</td>
<td>FLODRI-10MS</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 1/4</td>
<td>4 7/8</td>
<td>4 1/2</td>
<td>1 7/16</td>
<td>5 1/4</td>
<td>2 1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGS-12</td>
<td>Left</td>
<td>12 3/4</td>
<td>4</td>
<td>8 1/8</td>
<td>5 1/4</td>
<td>3 1/16</td>
<td>6</td>
<td>3 1/4</td>
<td>3/4&quot;</td>
<td>FLODRI-25MS</td>
<td>22.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 3/4</td>
<td>4</td>
<td>8 1/8</td>
<td>5 1/4</td>
<td>3 1/16</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example 1: Sour Gas H₂S

Change-out Frequency = # DAYS x \[ \frac{10 \text{ ppm H}_2\text{S in Gas Supply}}{25 \text{ ppm H}_2\text{S in Gas Supply}} \]

Your installation has a Cata-Dyne™ heater, model WX 12 x 24, 10,000 Btu/hr (2.928 kW/hr) natural gas using a model FLODRI-10MS cartridge.

- The concentration of H₂S in your gas supply is 25 ppm.
- The change-out frequency for 10 ppm is 70 days (derived from Cartridge Change Schedule Table).
- COF = 70 days x 10 ppm / 25 ppm = 28 days.
- The FLODRI-10MS scrubber cartridge should be changed once every 28 days.

Example 2: Moisture

Change-out Frequency = # DAYS x \[ \frac{50 \text{ ppm Moisture in Gas Supply}}{25 \text{ ppm Moisture in Gas Supply}} \]

Your installation has a Cata-Dyne™ heater, model WX 12 x 24, 10,000 Btu/hr (2.928 kW/hr) natural gas using a model FLODRI-10MS cartridge.

- The concentration of moisture in your gas supply is 25 ppm.
- The change-out frequency for 50 ppm is 55 days (derived from Cartridge Change Schedule Table).
- COF = 55 days x 50 ppm / 25 ppm = 110 days.
- The FLODRI-10MS scrubber cartridge should be changed once every 110 days.

Table 15 - Dimensions, Information & Replacement Cartridge Part Numbers

NGS 1000 Gas Scrubbing System

Non-technical field

CCI Thermal Technologies Inc.
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 non-standard 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 favorable 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.
- 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 Z83.20b-2011/CSA 2.34b-2011 standard for Gas-Fired Low Intensity Heaters and are CSA and FM certified for use in Class 1, Division 1 or 2, Group D hazardous locations.

### TABLE 16 - Cata-Dyne™ Line Heater Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Heater Input (Btu/hr)</th>
<th>External Dimensions (in (mm))</th>
<th>Length x Width x Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td></td>
</tr>
<tr>
<td>LH-40</td>
<td>10,000</td>
<td>40,000</td>
<td>56 x 48 x 84 (1420 x 1219 x 2130)</td>
</tr>
<tr>
<td>LH-60</td>
<td>15,000</td>
<td>60,000</td>
<td></td>
</tr>
<tr>
<td>LH-80</td>
<td>20,000</td>
<td>80,000</td>
<td></td>
</tr>
<tr>
<td>LH-100</td>
<td>25,000</td>
<td>100,000</td>
<td>78 x 68 x 90 (1980 x 1725 x 2286)</td>
</tr>
<tr>
<td>LH-160</td>
<td>40,000</td>
<td>160,000</td>
<td></td>
</tr>
</tbody>
</table>

### Hybrid Capabilities
Only CCI Thermal 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

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Model</th>
<th>Start-up Type</th>
<th>Temp. Control</th>
<th>Start-up Voltage</th>
<th>Flange Size</th>
<th>Flange Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td>40</td>
<td>M</td>
<td>NT</td>
<td>12</td>
<td>1</td>
<td>600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Model</th>
<th>Type</th>
<th>Control</th>
<th>Start-up Voltage</th>
<th>Flange Size</th>
<th>Flange Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>40</td>
<td>M</td>
<td>NT</td>
<td>12 VDC</td>
<td>1 in</td>
<td>600 ANSI</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>M</td>
<td>NT</td>
<td>120 VAC</td>
<td>2 in</td>
<td>600 ANSI</td>
</tr>
<tr>
<td>80</td>
<td>80</td>
<td>M</td>
<td>NT</td>
<td>208 VAC</td>
<td>3 in</td>
<td>900 ANSI</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>M</td>
<td>NT</td>
<td>240 VAC</td>
<td>4 in</td>
<td>900 ANSI</td>
</tr>
<tr>
<td>160</td>
<td>160</td>
<td>M</td>
<td>NT</td>
<td>480 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XXX</td>
<td>XXX</td>
<td>M</td>
<td>NT</td>
<td>600 VAC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cata-Dyne™ LH Line Heater**

- **Type**: Manual
- **Control**: Fixed heat output, outlet temperature not controlled
- **Start-up Voltage**: 12 VDC
- **Flange Size**: 1 in
- **Flange Rating**: 600 ANSI

Variable control from 60% to 100% of heater output.

- **Type**: Automatic (engineered option)
- **Control**: Variable heat output, low/high, outlet temperature controlled
- **Start-up Voltage**: 12 VDC
- **Flange Size**: 2 in
- **Flange Rating**: 900 ANSI

- **Type**: Sequential
- **Control**: Variable heat output, low/high, outlet temperature controlled
- **Start-up Voltage**: 12 VDC
- **Flange Size**: 3 in
- **Flange Rating**: 900 ANSI

- **Type**: Other
- **Control**: Fixed heat output, outlet temperature not controlled
- **Start-up Voltage**: 12 VDC
- **Flange Size**: 4 in
- **Flange Rating**: 900 ANSI

**Line Heaters**

CCI Thermal Technologies Inc.
Cata-Dyne™ Custom Engineered Line Heater

Exterior Stainless Steel Panels

Cata-Dyne™ Gas Catalytic Heaters

Gas Inlet

Gas Outlet

Stainless Steel Tubing Frame

Offset Serpentine Tube Heat Exchanger

Manual or Automatic Gas Train Options

Line Heaters
LH Line Heater Request For Quote Form

Client Information:
Company Name: ______________________________
Address: ____________________________________
City, State (Prov): ______________________________
Country, Zip (Postal Code): ______________________
Contact Name: ________________________________
Phone / Fax: _________________________________
E-mail: ______________________________________

Proposal Type Required:
☐ Budgetary    ☐ Formal Quote
Other: ________________________________

Required Date for Proposal: ________________
Anticipated Shipping Date for Project: _________
Project Name: ________________________________
Application Summary: _________________________

Piping:
Diameter: ____________________ ☐ in/☐ mm
Flange Rating ANSI/ASME: ________________
Design Temperature: __________ ☐ °F/☐ °C
Design Pressure: _________________ psig (kPag)

Temperature:
Heater Inlet: _________________ ☐ °F/☐ °C
Regulator Temp. Limit: __________ ☐ °F/☐ °C
Temp. After Regulation: _________________ ☐ °F/☐ °C

Pressure: (Maximum 4500 psig/31,026 kPag)
Inlet Pressure: _________________ psig (kPag)

Pressure Reduction:
Stage One: ____________________ psi (kPa)
Stage Two: ______________________ psi (kPa)
Stage Three: ____________________ psi (kPa)

Gas Flow Rate:
Maximum: ____________________ SCFM
Minimum: ____________________ SCFM

Electrical/Controls:
Supply Power: ____________________ volt/phase
☐ Automated System    ☐ Manual System

Area of Classification:
☐ Non-Hazardous
☐ Hazardous:
☐ Indoor    ☐ Outdoor

To receive your quote, fax this page to: 905-829-4430
Attention: Projects
The Cata-Dyne™ CHS Series Heating Package is the industry standard for space and spot heating applications where flammable gases, vapors 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
- Certified for Class I, Division 2, Group D, or optional ULc certification for Class I, Division 1, Group D, IEC Ex, ATEX
- 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 - 48,000 Btu/hr
- CSA certified for use in Class I, Division 1 & 2, Group D hazardous locations
- certified to ANSI Z83.20b-2011/CSA 2.34b-2011
- 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>
<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>
<th>120 vac 1Ø</th>
<th>208 V 1Ø</th>
<th>240 vac 1Ø</th>
<th>208 vac 3Ø</th>
<th>240 vac 3Ø</th>
<th>480 vac 3Ø</th>
<th>600 vac 3Ø</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>
<td>48 H (200 A)</td>
<td>48 H (115 A)</td>
<td>48 H (100 A)</td>
<td>48 H (66.7 A)</td>
<td>48 H (57.8 A)</td>
<td>48 H (40.5 A)</td>
<td>48 H (25.4 A)</td>
</tr>
<tr>
<td>12x36</td>
<td>12000</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>48 H (240 A)</td>
<td>48 H (138 A)</td>
<td>48 H (120 A)</td>
<td>48 H (80.0 A)</td>
<td>48 H (69.4 A)</td>
<td>48 H (34.7 A)</td>
<td>48 H (27.7 A)</td>
</tr>
<tr>
<td>12x48</td>
<td>16000</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>42 H (280 A)</td>
<td>48 H (185 A)</td>
<td>48 H (160 A)</td>
<td>48 H (107 A)</td>
<td>48 H (92.5 A)</td>
<td>48 H (46.2 A)</td>
<td>48 H (37.0 A)</td>
</tr>
<tr>
<td>12x60</td>
<td>20000</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>27 H (281 A)</td>
<td>48 H (288 A)</td>
<td>48 H (250 A)</td>
<td>48 H (167 A)</td>
<td>48 H (145 A)</td>
<td>48 H (72.3 A)</td>
<td>48 H (57.8 A)</td>
</tr>
<tr>
<td>12x72</td>
<td>24000</td>
<td>1450</td>
<td>1450</td>
<td>1450</td>
<td>1450</td>
<td>1450</td>
<td>23 H (280 A)</td>
<td>39 H (272 A)</td>
<td>47 H (284 A)</td>
<td>48 H (193 A)</td>
<td>48 H (168 A)</td>
<td>48 H (83.8 A)</td>
<td>48 H (67.1 A)</td>
</tr>
<tr>
<td>18x24</td>
<td>12000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>~</td>
<td>48 H (200 A)</td>
<td>48 H (115 A)</td>
<td>48 H (100 A)</td>
<td>48 H (66.7 A)</td>
<td>48 H (57.8 A)</td>
<td>48 H (40.5 A)</td>
<td>N/A</td>
</tr>
<tr>
<td>18x36</td>
<td>18000</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>28 H (280 A)</td>
<td>48 H (277 A)</td>
<td>48 H (240 A)</td>
<td>48 H (160 A)</td>
<td>48 H (139 A)</td>
<td>48 H (69.4 A)</td>
<td>48 H (55.5 A)</td>
</tr>
<tr>
<td>18x48</td>
<td>24000</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>21 H (280 A)</td>
<td>36 H (277 A)</td>
<td>42 H (280 A)</td>
<td>48 H (213 A)</td>
<td>48 H (185 A)</td>
<td>48 H (92.5 A)</td>
<td>48 H (74.0 A)</td>
</tr>
<tr>
<td>18x60</td>
<td>30000</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>13 H (271 A)</td>
<td>24 H (288 A)</td>
<td>27 H (281 A)</td>
<td>39 H (271 A)</td>
<td>45 H (271 A)</td>
<td>48 H (145 A)</td>
<td>48 H (116 A)</td>
</tr>
<tr>
<td>18x72</td>
<td>36000</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>11 H (266 A)</td>
<td>20 H (279 A)</td>
<td>23 H (278 A)</td>
<td>33 H (266 A)</td>
<td>39 H (272 A)</td>
<td>48 H (168 A)</td>
<td>48 H (134 A)</td>
</tr>
<tr>
<td>24x24</td>
<td>16000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>~</td>
<td>48 H (200 A)</td>
<td>48 H (115 A)</td>
<td>48 H (100 A)</td>
<td>48 H (66.7 A)</td>
<td>48 H (57.8 A)</td>
<td>48 H (40.5 A)</td>
<td>N/A</td>
</tr>
<tr>
<td>24x30</td>
<td>20000</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>~</td>
<td>48 H (200 A)</td>
<td>48 H (115 A)</td>
<td>48 H (100 A)</td>
<td>48 H (66.7 A)</td>
<td>48 H (57.8 A)</td>
<td>48 H (40.5 A)</td>
<td>N/A</td>
</tr>
<tr>
<td>24x36</td>
<td>24000</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>28 H (280 A)</td>
<td>48 H (277 A)</td>
<td>48 H (240 A)</td>
<td>48 H (160 A)</td>
<td>48 H (139 A)</td>
<td>48 H (69.4 A)</td>
<td>48 H (55.5 A)</td>
</tr>
<tr>
<td>24x48</td>
<td>32000</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>21 H (280 A)</td>
<td>36 H (277 A)</td>
<td>42 H (280 A)</td>
<td>48 H (213 A)</td>
<td>48 H (185 A)</td>
<td>48 H (92.5 A)</td>
<td>48 H (74.0 A)</td>
</tr>
<tr>
<td>24x60</td>
<td>40000</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>13 H (271 A)</td>
<td>24 H (288 A)</td>
<td>27 H (281 A)</td>
<td>39 H (271 A)</td>
<td>45 H (271 A)</td>
<td>48 H (145 A)</td>
<td>48 H (116 A)</td>
</tr>
<tr>
<td>24x72</td>
<td>48000</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>2900</td>
<td>11 H (266 A)</td>
<td>20 H (279 A)</td>
<td>23 H (278 A)</td>
<td>33 H (266 A)</td>
<td>39 H (272 A)</td>
<td>48 H (168 A)</td>
<td>48 H (134 A)</td>
</tr>
</tbody>
</table>

**Hazardous Location Control Panel**

![Figure 1](image1.png)  
Typical for 6 Stages

![Figure 2](image2.png)  
Typical for 1 Stage Unit

**Cata-Dyne™ Heating Package**

CCI Thermal Technologies Inc.
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, FM and ATEX 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 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 18 - ASV375**

<table>
<thead>
<tr>
<th>Part #</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 it’s safety feature
- 3/8" NPT connections and a maximum inlet pressure of 1/2 psi

**TABLE 19 - ASV375NT**

<table>
<thead>
<tr>
<th>Part #</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 20 - Mertik**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-GV33</td>
<td>Combination Gas Control/Valve</td>
</tr>
</tbody>
</table>

### Certifications
- Mertik - CSA approved and CE certified
- ASV375 and ASV375NT - CSA approved

### Thermostatic Temperature 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

**Certifications**
- CSA approved

**TABLE 21 - Temperature Control Valves**

<table>
<thead>
<tr>
<th>Part #</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

Appliance Regulators
• 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” (89 mm), 4.5” (114 mm) and 7.0” (178 mm) w.c.
• maximum flow capacity: 65,000 Btu/hr

Certifications
• appliance regulators are CSA approved

Service or Low Pressure Regulators
• 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
• 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)
• maximum rating for propane: 140,000 Btu/hr (41 kW)
• maximum rating for natural gas: 70,000 Btu/hr (20.5 kW)
• 1/8” NPT screwed vent connection is provide.

Certifications
• low pressure regulators are CSA approved or UL listed (Fisher only)

High Pressure Regulators
• 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

<p>| TABLE 22 - Gas Pressure Regulators |</p>
<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-R-ES404-7</td>
<td>Max Appliance Regulator ½ psig - 7” w.c. (1.7 kPa)</td>
</tr>
<tr>
<td>AC-R-2545</td>
<td>Low Pressure Regulator 250 psig - 4.5” w.c. (1.1 kPa)</td>
</tr>
<tr>
<td>AC-R-1301F</td>
<td>High Pressure Regulator 6000 psig inlet (41 MPa) 50 psig outlet (345 kPa)</td>
</tr>
</tbody>
</table>
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 23 - Start-Up Leads 12V

<table>
<thead>
<tr>
<th>Part #</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 24 - Battery Cable Cabinet

<table>
<thead>
<tr>
<th>Part #</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, 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

Protection Grilles

Two types of protection grilles 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.

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 Sept 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 26 - Vent Hood Assemblies**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-VHASSY-6</td>
<td>6&quot; (152 mm)</td>
</tr>
<tr>
<td>AC-VHASSY-8</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>AC-VHASSY-12</td>
<td>12&quot; (305 mm)</td>
</tr>
<tr>
<td>AC-VHASSY-24</td>
<td>24&quot; (610 mm)</td>
</tr>
<tr>
<td>AC-VHASSY-36</td>
<td>36&quot; (914 mm)</td>
</tr>
<tr>
<td>AC-VHASSY-48</td>
<td>48&quot; (1219 mm)</td>
</tr>
<tr>
<td>AC-MKII-VHASSY-12</td>
<td>MKII - 12&quot; (305 mm)</td>
</tr>
<tr>
<td>AC-MKII-VHASSY-24</td>
<td>MKII - 24&quot; (610 mm)</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 27 - Wall Mount Brackets**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Heater Size (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-WBRK-08</td>
<td>8x8</td>
</tr>
<tr>
<td>AC-WBRK-06</td>
<td>6x24</td>
</tr>
<tr>
<td>AC-WBRK-12</td>
<td>12x12</td>
</tr>
<tr>
<td>AC-WBRK-12</td>
<td>12x24</td>
</tr>
<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>
</tr>
<tr>
<td>AC-WBRK-1836</td>
<td>18x36</td>
</tr>
<tr>
<td>AC-WBRK-1848</td>
<td>18x48</td>
</tr>
<tr>
<td>AC-WBRK-1860</td>
<td>18x60</td>
</tr>
<tr>
<td>AC-WBRK-1872</td>
<td>18x72</td>
</tr>
<tr>
<td>AC-WBRK-2424</td>
<td>24x24</td>
</tr>
<tr>
<td>AC-WBRK-2430</td>
<td>24x30</td>
</tr>
<tr>
<td>AC-WBRK-2436</td>
<td>24x36</td>
</tr>
<tr>
<td>AC-WBRK-2448</td>
<td>24x48</td>
</tr>
<tr>
<td>AC-WBRK-2460</td>
<td>24x60</td>
</tr>
<tr>
<td>AC-WBRK-2472</td>
<td>24x72</td>
</tr>
<tr>
<td>AC-WBRK-MK12</td>
<td>12x12 and 12x24</td>
</tr>
</tbody>
</table>

**Accessories**
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 28 - Wall Mount Brackets - 45°

<table>
<thead>
<tr>
<th>Part #</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>
</tr>
<tr>
<td>AC-WBRK-1848-45</td>
<td>18 x 48, Long Side</td>
</tr>
<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>
</tr>
<tr>
<td>AC-WBRK-2436-45</td>
<td>24 x 36, Long Side</td>
</tr>
<tr>
<td>AC-WBRK-2448-45</td>
<td>24 x 48, Long Side</td>
</tr>
<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 29 - Floor Mount Brackets

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-FSS-8</td>
<td>8x8</td>
</tr>
<tr>
<td>AC-FSS-12</td>
<td>6x24</td>
</tr>
<tr>
<td>AC-FSS-24</td>
<td>12x12</td>
</tr>
<tr>
<td>AC-FSS-12</td>
<td>12x24</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>12x36</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>12x48</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>12x60</td>
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<tr>
<td>AC-FSL</td>
<td>12x72</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>18x24</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>18x36</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>18x48</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>18x60</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>18x72</td>
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<tr>
<td>AC-FSL</td>
<td>24x24</td>
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<tr>
<td>AC-FSL</td>
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<tr>
<td>AC-FSL</td>
<td>24x36</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>24x48</td>
</tr>
<tr>
<td>AC-FSL</td>
<td>24x60</td>
</tr>
<tr>
<td>AC-FSL</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 = 0.126 psi
- 4 inches w.c. = 9.9 mbar = 0.144 psi
- 7 inches w.c. = 17.3 mbar = 0.251 psi
- 11 inches w.c. = 27.2 mbar = 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
PLEASE ADHERE TO INSTRUCTIONS PUBLISHED IN THIS MANUAL.
Failure to do so may be dangerous and may void certain provisions of your warranty.
For further assistance, please call:

24 Hr. Hotline: 1-800-661-8529
(U.S.A. and Canada)
Please have model and serial numbers available before calling.

WARRANTY: Under normal use the Company warrants to the purchaser that defects in material or workmanship will be repaired or replaced without charge for a period of 18 months from date of shipment, or 12 months from the start date of operation, whichever expires first. Any claim for warranty must be reported to the sales office where the product was purchased for authorized repair or replacement within the terms of this warranty.

Subject to State or Provincial law to the contrary, the Company will not be responsible for any expense for installation, removal from service, transportation, or damages of any type whatsoever, including damages arising from lack of use, business interruptions, or incidental or consequential damages.

The Company cannot anticipate or control the conditions of product usage and therefore accepts no responsibility for the safe application and suitability of its products when used alone or in combination with other products. Tests for the safe application and suitability of the products are the sole responsibility of the user.

This warranty will be void if, in the judgment of the Company, the damage, failure or defect is the result of:

- vibration, radiation, erosion, corrosion, process contamination, abnormal process conditions, temperature and pressures, unusual surges or pulsation, fouling, ordinary wear and tear, lack of maintenance, incorrectly applied utilities such as voltage, air, gas, water, and others or any combination of the aforementioned causes not specifically allowed for in the design conditions or
- any act or omission by the Purchaser, its agents, servants or independent contractors which for greater certainty, but not so as to limit the generality of the foregoing, includes physical, chemical or mechanical abuse, accident, improper installation of the product, improper storage and handling of the product, improper application or the misalignment of parts.

No warranty applies to paint finishes except for manufacturing defects apparent within 30 days from the date of installation.

The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product(s).

The Purchaser agrees that all warranty work required after the initial commissioning of the product will be provided only if the Company has been paid by the Purchaser in full accordance with the terms and conditions of the contract.

The Purchaser agrees that the Company makes no warranty or guarantee, express, implied or statutory, (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE) written or oral, of the Article or incidental labour, except as is expressed or contained in the agreement herein.

LIABILITY: Technical data contained in the catalog or on the website is subject to change without notice. The Company reserves the right to make dimensional and other design changes as required. The Purchaser acknowledges the Company shall not be obligated to modify those articles manufactured before the formulation of the changes in design or improvements of the products by the Company.

The Company shall not be liable to compensate or indemnify the Purchaser, end user or any other party against any actions, claims, liabilities, injury, loss, loss of use, loss of business, damages, indirect or consequential damages, demands, penalties, fines, expenses (including legal expenses), costs, obligations and causes of action of any kind arising wholly or partly from negligence or omission of the user or the misuse, incorrect application, unsafe application, incorrect storage and handling, incorrect installation, lack of maintenance, improper maintenance or improper operation of products furnished by the Company.
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 shell” 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 Ovens

DriQuik™ is the market leader in infrared drying ovens and automated pre-finishing systems. DriQuik™ pioneered radiant oven technology in the 1930s and has since been setting the industry standard in infrared radiant heating systems and components for over 75 years.

VISIT WWW.CCITHERMAL.COM FOR DETAILED PRODUCT INFORMATION.

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<th>Orillia, ON</th>
<th>Greensburg, IN</th>
<th>Houston, TX</th>
<th>Denver, CO</th>
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<tbody>
<tr>
<td>Head Office</td>
<td>1-800-661-8529 (780) 466-3178 F 780-468-5904</td>
<td>1-800-410-3131 (905) 829-4422 F 905-829-4430</td>
<td>1-877-325-3473 (705) 325-3473 F 705-325-2106</td>
<td>1-800-473-2402 (812) 663-4141 F 812-663-4202</td>
<td>1-855-219-2101 (281) 506-2310 F 281-506-2316</td>
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<td>1-855-244-3128 (303) 979-7339 F 303-979-7350</td>
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