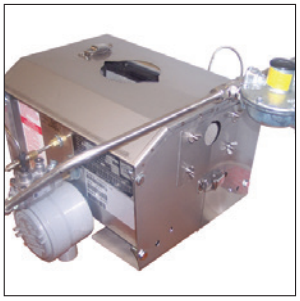
THERMON Cata-Dyne™



Explosion-Proof Gas Catalytic Heaters

a degree above | www.Thermon.com

WORLD LEADER IN INDUSTRIAL PROCESS HEATING SOLUTIONS

Contents

Locations

As a leader in heating and filtration solutions, Thermon is committed to ongoing research, product development and above all, excellence in customer service.

With facilities across North America, Thermon manufactures five of the top brands in industrial heating in addition to a comprehensive line of engineered industrial filtration products including:

Cata-Dyne™
Explosion-Proof Gas Catalytic Heaters
Ruffneck™
Heaters for the Harshest Environments
Caloritech™
Engineered Electric Heat

3L Filters™
Engineered Filtration Systems
Norseman™
Electric Explosion-Proof Heaters
Fastrax™
Track and Switch Heaters

Cata-Dyne™ gas catalytic explosion-proof heaters are available in various models with Btu ratings ranging from 1,000 to 48,000 Btu/hr (0.3 kW to 14.0 kW). In addition, these heaters can be banked together to obtain any Btu (kW) rating desired. Thermon'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.thermon.com to view the broad range of innovative industrial heating products manufactured by Thermon.

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.

Customer Care

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

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

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

Infrared Technology

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

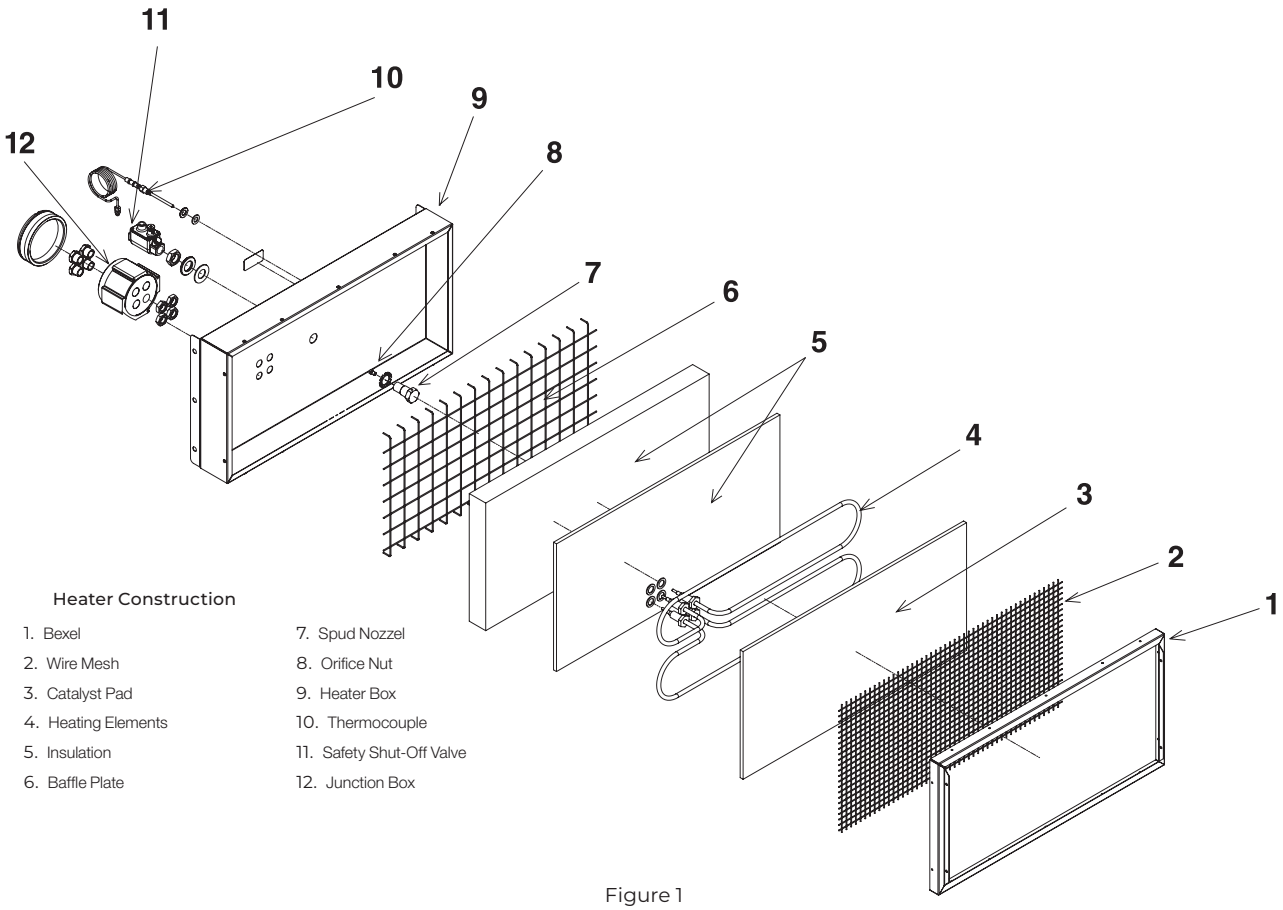
Infrared radiation is a form of electromagnetic energy that is generated by the vibration and rotation of atoms and molecules within all objects with temperatures above absolute zero (0°Kelvin; -273°C; or -459°F).

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

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

How Our Cata-Dyne™ Operates

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



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

Figure 1

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

Natural Gas $CH_{4\,(g)} + 2\,O_{2\,(g)} \xrightarrow{\text{Catalyst}} CO_{2\,(g)} + 2\,H_2O_{(g)} +$ **Infrared Energy**

Propane $C_3H_{8\,(g)} + 5\,O_{2\,(g)} \xrightarrow{\text{Catalyst}} 3\,CO_{2\,(g)} + 4\,H_2O_{(g)} +$ **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

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

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

Catalyst Pad

X Series Pad	G Series Pad
1 - WX Pad	2 - 'G' Series (6K)
4 - BX Pad (6K)	3 - 'G' Series (8K)
5 - BX Pad (7K)	
6 - WX Pad (4K) CHS	

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

Certification

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

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

*Please call factory for the WX

WX Series Explosion-Proof Gas Catalytic Heaters

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

Applications

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

These include:

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

Features

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

Certifications

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

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

See Table 1, page 11 for fuel & electrical ratings.

MKII Series Explosion-Proof Gas Catalytic Heaters

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

Applications

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

These include:

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

Features

- Heater box constructed of 300 series stainless steel for corrosion protection
- Cata-Dyne™ proprietary explosion-proof catalyst pad.
- Standard 3/8" NPT gas connections
- Cata-Dyne™ heaters are designed to operate on either natural gas or propane
- Cata-Dyne™ heaters do not require electrical power to operate once they have been started
- Our QuikSTART heater technology reaches the catalytic threshold faster, bringing the heater to full operating temperature in half the time
- Shorter thermocouple is nickel plated with an added polymer sleeve to enhance the corrosion protection for a stronger electromagnetic connection to the safety shut-off valve (SSOV)
- All gas control components as well as all electrical connections are side mounted for easy installation and access
- Side mounted rating plate for easy visibility
- Single start up element with the same power and wattage rating as used in the standard WX heaters dual elements
- Heater contains no moving parts and is designed to operate indefinitely when supplied with air and clean fuel
- Internal heater components such as our proprietary catalyst pad and preheat 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 3, page 12 for fuel & electrical ratings

WXS Series Explosion-Proof Gas Catalytic Heaters

Thinner Space Saving Unit

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

Applications

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

These include:

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

Features

- 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 5, page 12 for fuel & electrical ratings.

BX Series Catalytic Heaters

‘G’ Series Catalytic Pad - Non-Hazardous Areas

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

Applications

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

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

Features

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

Certifications

- G Series catalytic pad is certified by Canadian Standards Association (CSA) and Factory Mutual (FM) and (European standards) for non-hazardous area applications.

See Table 4, page 12 for fuel & electrical ratings.

Cata-Dyne™

‘X’ Series Catalytic Pad - Hazardous Areas

(Only sold in the USA)

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

Applications

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

Features

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

Certifications

- X Series catalytic pad is the industry standard for hazardous location heating needs.
- Factory Mutual (FM) for use in Class I, Division 1, Group D hazardous locations. Temperature code T2C at an ambient temperature of 40°C (104°F). This style heater is only sold in the USA.

See Table 2, page 11 for fuel & electrical ratings.

Table 1 – WX Series Fuel and Electrical Rating Data (CSA and FM)

Model No.	Max. Gas Input		Min. Gas Input				Max. Gas Flow				Start-Up Amperage						
	Natural Gas / Propane		Natural Gas		Propane		CFH		m^3/hr								
	Btu/hr	kW	Btu/hr	kW	Btu/hr	kW	Natural Gas	Propane	Natural Gas	Propane	12V	120V	208V	240V	380V	480V	600V
W6x6	1,250	0.366	500	0.147	375	0.110	1.25	0.5	0.0354	0.0142	7.1	0.7	–	0.4	–	–	–
W6x12	2,500	0.733	1,000	0.293	750	0.220	2.5	1.0	0.0708	0.0283	7.1	0.7	–	0.4	–	–	–
W6x24	5,000	1.465	2,000	0.586	1,500	0.440	5.0	2.0	0.1416	0.0566	15.0	2.1	1.2	1.0	–	–	–
W6x60	12,500	3.663	5,000	1.465	3,750	1.099	12.5	5.0	0.3540	0.1416	–	–	–	–	–	1.3	-
W8x8	2,222	0.651	900	0.264	700	0.205	2.2	0.9	0.0629	0.0252	7.1	0.7	-	0.4	–	–	–
W10x12	4,167	1.221	1,700	0.498	1,250	0.366	4.2	1.7	0.1180	0.0472	15.0	2.1	1.2	1.0	–	–	–
W12x12	5,000	1.465	2,000	0.586	1,500	0.440	5.0	2.0	0.1416	0.0566	15.0	2.1	1.2	1.0	–	–	–
W12X24	10,000	2.931	4,000	1.172	3,000	0.879	10.0	4.0	0.2832	0.1133	30.0	4.2	2.4	2.1	–	1.5	0.9
W12x36	15,000	4.396	6,000	1.758	4,500	1.319	15.0	6.0	0.4248	0.1699	30.0	5.0	2.9	2.5	1.6	1.3	1.0
W12x48	20,000	5.861	8,000	2.345	6,000	1.758	20.0	8.0	0.5663	0.2265	30.0	6.7	3.9	3.3	2.1	1.7	1.3
W12x60	25,000	7.327	10,000	2.931	7,500	2.198	25.0	10.0	0.7079	0.2832	–	10.4	6.0	5.2	3.3	2.6	2.1
W12x72	30,000	8.792	12,000	3.517	9,000	2.638	30.0	12.0	0.8495	0.3398	–	12.1	7.0	6.0	3.8	3.0	2.4
W18x24	15,000	4.396	6,000	1.758	4,500	1.319	15.0	6.0	0.4248	0.1699	30.0	4.2	2.4	2.1	–	1.5	–
W18x30	18,750	5.495	7,500	2.198	5,625	1.649	18.75	7.5	0.5309	0.2124	–	–	–	–	–	1.5	–
W18x36	22,500	6.594	9,000	2.638	6,750	1.978	22.5	9.0	0.6371	0.2549	–	10.0	5.8	5.0	3.2	2.5	2.0
W18x48	30,000	8.792	12,000	3.517	9,000	2.638	30.0	12.0	0.8495	0.3398	–	13.3	7.7	6.7	4.2	3.3	2.7
W18x60	37,500	10.990	15,000	4.396	11,250	3.297	37.5	15.0	1.0619	0.4248	–	20.8	12.0	10.4	6.6	5.2	4.2
W18x72	45,000	13.188	18,000	5.275	13,500	3.956	45.0	18.0	1.2743	0.5097	–	24.2	14.0	12.1	7.6	6.0	4.8
W24x24	20,000	5.861	8,000	2.345	6,000	1.758	20.0	8.0	0.5663	0.2265	30.0	4.2	2.4	2.1	–	1.5	–
W24x30	25,000	7.327	10,000	2.931	7,500	2.198	25.0	10.0	0.7079	0.2832	30.0	4.2	2.4	2.1	–	1.5	–
W24x36	30,000	8.792	12,000	3.517	9,000	2.638	30.0	12.0	0.8495	0.3398	–	10.0	5.8	5.0	3.2	2.5	2.0
W24x48	40,000	11.723	16,000	4.689	12,000	3.517	40.0	16.0	1.1327	0.4531	–	13.3	7.7	6.7	4.2	3.3	2.7
W24x60	50,000	14.654	20,000	5.861	15,000	4.396	50.0	20.0	1.4159	0.5663	–	20.8	12.0	10.4	6.6	5.2	4.2
W24x72	60,000	17.584	24,000	(7.034)	18,000	5.275	60.0	24.0	1.6990	0.6796	–	24.2	14.0	12.1	7.6	6.0	4.8

Table 2 – BX Series Fuel and Electrical Rating Data (FM only) - Available only in the USA

Model No.	Max. Gas Input		Min. Gas Input				Max. Gas Flow				Start-Up Amperage						
	Natural Gas/ Propane		Natural Gas		Propane		CFH		m^3/hr								
	Btu/hr	kW	Btu/hr	kW	Btu/hr	kW	Natural Gas	Propane	Natural Gas	Propane	12V	120V	208V	240V	380V	480V	600V
H6x6	1,500	0.44	500	0.147	375	0.11	1.5	0.6	0.0425	0.017	7.1	0.7	–	0.4	–	–	–
H6x12	3,000	0.879	1,000	0.293	750	0.22	3	1.2	0.085	0.034	7.1	0.7	–	0.4	–	–	–
H6x24	6,000	1.758	2,000	0.586	1,500	0.44	6	2.4	0.1699	0.068	15	2.1	1.2	1	–	–	–
H8x8	2,667	0.782	900	0.264	700	0.205	2.7	1.1	0.0755	0.0302	7.1	0.7	–	0.4	–	–	–
H10x12	5,000	1.465	1,700	0.498	1,250	0.366	5	2	0.1416	0.0566	15	2.1	1.2	1	–	–	–
H12x12	6,000	1.758	2,000	0.586	1,500	0.44	6	2.4	0.1699	0.068	15	2.1	1.2	1	–	–	–
H12X24	12,000	3.517	4,000	1.172	3,000	0.879	12	4.8	0.3398	0.1359	30	4.2	2.4	2.1	–	1.5	0.9
H12x36	18,000	5.275	6,000	1.758	4,500	1.319	18	7.2	0.5097	0.2039	–	5	2.9	2.5	1.6	1.3	1
H12x48	24,000	7.034	8,000	2.345	6,000	1.758	24	9.6	0.6796	0.2718	30	6.7	3.9	3.3	2.1	1.7	1.3
H12x60	30,000	8.792	10,000	2.931	7,500	2.198	30	12	0.8495	0.3398	–	10.4	6	5.2	3.3	2.6	2.1
H12x72	36,000	10.551	12,000	3.517	9,000	2.638	36	14.4	1.0194	0.4078	–	12.1	7	6	3.8	3	2.4
H18x24	18,000	5.275	6,000	1.758	4,500	1.319	18	7.2	0.5097	0.2039	30	4.2	2.4	2.1	–	1.5	–
H18x30	22,500	6.594	7,500	2.198	5,625	1.649	22.5	9	0.6371	0.2549	–	–	–	–	–	1.5	–
H18x36	27,000	7.913	9,000	2.638	6,750	1.978	27	10.8	0.7646	0.3058	–	10	5.8	5	3.2	2.5	2
H18x48	36,000	10.551	12,000	3.517	9,000	2.638	36	14.4	1.0194	0.4078	–	13.3	7.7	6.7	4.2	3.3	2.7
H18x60	45,000	13.188	15,000	4.396	11,250	3.297	45	18	1.2743	0.5097	-	20.8	12	10.4	6.6	5.2	4.2
H18x72	54,000	15.826	18,000	5.275	13,500	3.956	54	21.6	1.5291	0.6116	-	24.2	14	12.1	7.6	6	4.8
H24x24	24,000	7.034	8,000	2.345	6,000	1.758	24	9.6	0.6796	0.2718	30	4.2	2.4	2.1	-	1.5	-
H24x30	30,000	8.792	10,000	2.931	7,500	2.198	30	12	0.8495	0.3398	30	4.2	2.4	2.1	-	1.5	-
H24x36	36,000	10.551	12,000	3.517	9,000	2.638	36	14.4	1.0194	0.4078	-	10	5.8	5	3.2	2.5	2
H24x48	48,000	14.067	16,000	4.689	12,000	3.517	48	19.2	1.3592	0.5437	-	13.3	7.7	6.7	4.2	3.3	2.7
H24x60	60,000	17.584	20,000	5.861	15,000	4.396	60	24	1.699	0.6796	-	20.8	12	10.4	6.6	5.2	4.2
H24x72	72,000	21.101	24,000	7.034	18,000	5.275	72	28.8	2.0388	0.8155	-	24.2	14	12.1	7.6	6	4.8

Table 3 – MKII Series (CSA and FM)

Model No.	Max. Gas Input		Min. Gas Input				Max. Gas Flow				Start-Up Amperage	
	Natural Gas / Propane		Natural Gas		Propane		CFH		m3/hr		12V	120V
	Btu/hr	kW	Btu/hr	kW	Btu/hr	kW	Natural Gas	Propane	Natural Gas	Propane		
MK12x12	5,000	1.464	2,000	0.586	1,500	0.440	5.0	2.0	0.1416	0.0566	15.0	2.1
MK12x24	10,000	2.929	4,000	1.172	3,000	0.879	10.0	4.0	0.2832	0.1133	30.0	4.2
MK18x24	15,000	4.393	6,000	1.758	4,500	1.319	15.0	6.0	0.4248	0.1699	30.0	4.2
MK18x48	30,000	8.787	12,000	3.517	9,000	2.638	30.0	12.0	0.8495	0.3398	–	13.3
MK24x24	20,000	5.858	8,000	2.345	6,000	1.758	20.0	8.0	0.5663	0.2265	30.0	4.2
MK24x48	40,000	11.716	16,000	4.689	12,000	3.517	40.0	16.0	1.1327	0.4531	–	13.3

Table 4 – G Series Fuel and Electrical Rating Data (CSA and FM - Non-Hazardous)

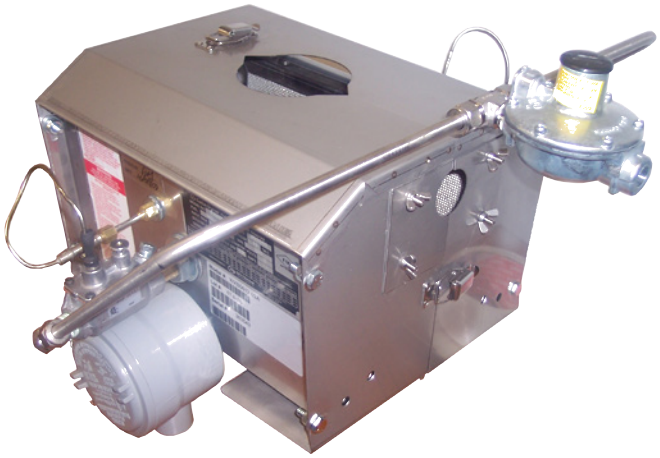
Model No.	Max. Gas Input		Min. Gas Input				Max. Gas Flow				Start-Up Amperage						
	Natural Gas / Propane		Natural Gas		Propane		CFH		m^3/hr		12V	120V	208V	240V	380V	480V	600V
	Btu/hr	kW	Btu/hr	kW	Btu/hr	kW	Natural Gas	Propane	Natural Gas	Propane							
H6x6	1,500	0.440	500	0.147	375	0.110	1.5	0.6	0.0425	0.0170	7.1	0.7	–	0.4	–	–	–
H6x12	3,000	0.879	1,000	0.293	750	0.220	3.0	1.2	0.0850	0.0340	7.1	0.7	–	0.4	–	–	–
H6x24	6,000	1.758	2,000	0.586	1,500	0.440	6.0	2.4	0.1699	0.0680	15.0	2.1	1.2	1.0	–	–	–
H8x8	2,667	0.782	900	0.264	700	0.205	2.7	1.1	0.0755	0.0302	7.1	0.7	–	0.4	–	–	–
H10x12	5,000	1.465	1,700	0.498	1,250	0.366	5.0	2.0	0.1416	0.0566	15.0	2.1	1.2	1.0	–	–	–
H12x12	6,000	1.758	2,000	0.586	1,500	0.440	6.0	2.4	0.1699	0.0680	15.0	2.1	1.2	1.0	–	–	–
H12X24	12,000	3.517	4,000	1.172	3,000	0.879	12.0	4.8	0.3398	0.1359	30.0	4.2	2.4	2.1	–	1.5	0.9
H12x36	18,000	5.275	6,000	1.758	4,500	1.319	18.0	7.2	0.5097	0.2039	–	5.0	2.9	2.5	1.6	1.3	1.0
H12x48	24,000	7.034	8,000	2.345	6,000	1.758	24.0	9.6	0.6796	0.2718	30.0	6.7	3.9	3.3	2.1	1.7	1.3
H12x60	30,000	8.792	10,000	2.931	7,500	2.198	30.0	12.0	0.8495	0.3398	–	10.4	6.0	5.2	3.3	2.6	2.1
H12x72	36,000	10.551	12,000	3.517	9,000	2.638	36.0	14.4	1.0194	0.4078	–	12.1	7.0	6.0	3.8	3.0	2.4
H18x24	18,000	5.275	6,000	1.758	4,500	1.319	18.0	7.2	0.5097	0.2039	30.0	4.2	2.4	2.1	–	1.5	–
H18x30	22,500	6.594	7,500	2.198	5,625	1.649	22.5	9.0	0.6371	0.2549	–	–	–	–	–	1.5	–
H18x36	27,000	7.913	9,000	2.638	6,750	1.978	27.0	10.8	0.7646	0.3058	–	10.0	5.8	5.0	3.2	2.5	2.0
H18x48	36,000	10.551	12,000	3.517	9,000	2.638	36.0	14.4	1.0194	0.4078	–	13.3	7.7	6.7	4.2	3.3	2.7
H18x60	45,000	13.188	15,000	4.396	11,250	3.297	45.0	18.0	1.2743	0.5097	–	20.8	12.0	10.4	6.6	5.2	4.2
H18x72	54,000	15.826	18,000	5.275	13,500	3.956	54.0	21.6	1.5291	0.6116	–	24.2	14.0	12.1	7.6	6.0	4.8
H24x24	24,000	7.034	8,000	2.345	6,000	1.758	24.0	9.6	0.6796	0.2718	30.0	4.2	2.4	2.1	–	1.5	–
H24x30	30,000	8.792	10,000	2.931	7,500	2.198	30.0	12.0	0.8495	0.3398	30.0	4.2	2.4	2.1	–	1.5	–
H24x36	36,000	10.551	12,000	3.517	9,000	2.638	36.0	14.4	1.0194	0.4078	–	10.0	5.8	5.0	3.2	2.5	2.0
H24x48	48,000	14.067	16,000	4.689	12,000	3.517	48.0	19.2	1.3592	0.5437	–	13.3	7.7	6.7	4.2	3.3	2.7
H24x60	60,000	17.584	20,000	5.861	15,000	4.396	60.0	24.0	1.6990	0.6796	–	20.8	12.0	10.4	6.6	5.2	4.2
H24x72	72,000	21.101	24,000	7.034	18,000	5.275	72.0	28.8	2.0388	0.8155	–	24.2	14.0	12.1	7.6	6.0	4.8

Table 5 – WXS Slim Line Series Fuel and Electrical Rating Data (FM Only)

Model No.	Max. Gas Input		Min. Gas Input				Max. Gas Flow				Start-Up Amperage		
	Natural Gas / Propane		Natural Gas		Propane		CFH		m3/hr		12V	120V	240V
	Btu/hr	kW	Btu/hr	kW	Btu/hr	kW	Natural Gas	Propane	Natural Gas	Propane			
WXS6x6	1,750	0.513	583	0.171	438	0.128	1.8	0.7	0.0496	0.0198	7.1	0.7	0.4
WXS6x12	3,500	1.025	1,167	0.342	875	0.256	3.5	1.4	0.0991	0.0396	7.1	0.7	0.4
WXS6x24	7,000	2.050	2,333	0.684	1,750	0.513	7.0	2.8	0.1982	0.0793	15.0	2.1	1.0
WXS8x8	3,111	0.911	1,037	0.304	778	0.228	3.1	1.2	0.0881	0.0352	7.1	0.7	0.4
WXS10x12	5,833	1.709	1,944	0.570	1,458	0.427	5.8	2.3	0.1652	0.0661	15.0	2.1	1.0
WXS12x12	7,000	2.050	2,333	0.684	1,750	0.513	7.0	2.8	0.1982	0.0793	15.0	2.1	1.0
WXS12x24	14,000	4.101	4,667	1.368	3,500	1.026	14.0	5.6	0.3964	0.1586	30.0	4.2	2.0
WXS12x36	21,000	6.151	7,000	2.051	5,250	1.539	21.0	8.4	0.5947	0.2379	30.0	5.0	2.5
WXS12x48	28,000	8.201	9,333	2.735	7,000	2.051	28.0	11.2	0.7929	0.3172	30.0	6.7	3.3
WXS24x24	28,000	8.201	9,333	2.735	7,000	2.051	28.0	11.2	0.7929	0.3172	30.0	4.2	2.0
WXS24x36	42,000	12.302	14,000	4.103	10,500	3.077	42.0	16.8	1.1893	0.4757	-	10.0	5.0
WXS24x48	56,000	16.402	18,667	5.471	14,000	4.103	56.0	22.4	1.5858	0.6343	-	13.3	6.7

Regulator Enclosures

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

HEA | 600D | 1x1 | 2 | Heater Type | A

Model Series
HEA - Heater enclosure assembly

Regulator

Pipe Size (in.)
Inlet x Outlet

Number of Heaters

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

W | 1224 | 1 | 1 | 1 | 1 | 1 | 1

Model Series
W - WX Series
H - BX Series
WXS - WXS Series

Heater Size

Heater Voltage
1 - 12V
2 - 120V

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

Catalyst Pad
1 - WX
2 - BX/WXS

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

Certification
0 - None
1 - CSA
2 - FM

Box Bracket Style
1 - Short side
2 - Long side

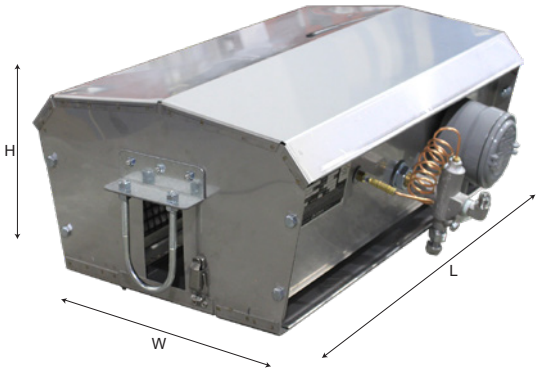
Note: Please call factory for other voltages and heater sizes.

Table 6 – Regulator Enclosures

Model No.*	Description	Dimensions					
		L		W		H	
		in	mm	in	mm	in (mm)	mm
HEA0100-1X1-1-___0606	Enclosure, Universal 1 and 2" inlet pipe	10.125	257	8.375	213	8.563	218
HEA0101-1X1-2-___0606	Enclosure, Universal 1 and 2" inlet pipe	10.125	257	8.375	213	8.563	218
HEA0102-1X1-1-___0612	Enclosure, Universal 1 and 2" inlet pipe	12.250	311	11.000	279	8.250	210
HEA0103-1X1-2-___0612	Enclosure, Universal 1 and 2" inlet pipe	12.250	311	11.000	279	8.250	210
HEA0104-1X1-1-___0624	Enclosure, Universal 1 and 2" inlet pipe	24.500	622	11.000	279	8.250	210
HEA0105-1X1-1-___0624	Enclosure, Universal 1 and 2" inlet pipe	24.500	622	11.000	279	8.250	210
HEA0106-1X1-2-___0808	Enclosure, Universal 1 and 2" inlet pipe	12.125	308	14.125	359	10.188	259
HEA0107-1X1-2-___0808	Enclosure, Universal 1 and 2" inlet pipe	12.125	308	14.125	359	10.188	259
HEA0108-1X1-1-___1012	Enclosure, Universal 1 and 2" inlet pipe	14.000	356	16.000	406	14.000	356
HEA0109-1X1-2-___1012	Enclosure, Universal 1 and 2" inlet pipe	14.000	356	16.000	406	14.000	356
HEA0110-1X1-1-___1212	Enclosure, Universal 1 and 2" inlet pipe	14.000	356	16.000	406	14.000	356
HEA0111-1X1-2-___1212	Enclosure, Universal 1 and 2" inlet pipe	14.000	356	16.000	406	14.000	356
HEA-1301-1X1-1-___0606	Enclosure, 1301 Regulator	6.375	162	9.000	229	8.375	213
HEA-0232-1X1-1-___0606	Enclosure, DE 232 Regulator, Basic	10.125	257	8.375	213	8.563	218
HEA-0461-1X1-2-___0808	Enclosure, Fisher 461-S Regulator Flanged	17.625	448	19.183	487	11.750	298
HEA-0461-3X3-1-___0808	Enclosure, Fisher 461-X57 Regulator, High Pressure	8.250	210	19.183	487	10.313	262
HEA-0600-1X1-2-___0808	Enclosure, 600 Series Reg, "BIG JOE"	12.125	308	14.125	359	10.188	259
HEA-0600-1X1-2-___0612	Enclosure, 600 Series Reg, "BIG JOE"	12.250	311	11.000	279	8.250	210
HEA-0600-1X1-2-___0612	Enclosure, 600 Series Reg, "BIG JOE", Flanged	12.250	311	11.000	279	8.250	210
HEA-0600-1X1-2-___1212	Enclosure, Fisher 630 Regulator	12.125	308	15.188	386	14.188	360
HEA-0627-1X1-2-___0808	Enclosure, Fisher 627 Regulator	12.125	308	12.500	318	7.500	191
HEA-627F-1X1-1-___1212	Enclosure, Fisher 627 Regulator Flanged	16.250	413	20.438	519	14.063	357
HEA-627F-1X1-1-___0808	Enclosure, Fisher 627 Regulator Flanged	16.250	413	20.438	519	14.063	357
HEA-0627-2X2-1-___0808	Enclosure, Fisher 627 Regulator	15.063	383	15.125	384	13.000	330
HEA-0627-1X1-1-___0808	Enclosure, Fisher 627 Regulator	15.063	383	15.125	384	13.000	330
HEA-0627-2X2-1-___1012	Enclosure, Fisher 627 Regulator	12.125	308	12.833	326	10.500	267
HEA-67CF-1X1-1-___0606	Enclosure, 67CF Regulator	6.438	164	9.000	229	8.375	213
HEA-600D-3X3-2-___1012	Enclosure, Similar to 600# Fisher D-Body Valve	21.625	549	15.625	397	12.500	318
HEA-0EZR-2X2-2-___1212	Enclosure, Fisher 2" EZR Regulator	20.625	524	28.125	714	23.125	587
HEA-0EZR-1X1-2-___1212	Enclosure, Fisher 1" EZR Regulator	20.625	524	28.125	714	23.125	587
HEA-0EZR-3X3-2-___1212	Enclosure, Fisher 3" EZR Regulator	20.625	524	28.125	714	23.125	587
HEA-0EZR-4X4-2-___1212	Enclosure, Fisher 4" EZR Regulator	20.625	524	28.125	714	23.125	587
HEA-0EZR-6X6-2-___1212	Enclosure, Fisher 6" EZR Valve, CL 600	20.625	524	28.125	714	23.125	587
HEA-0EZR-8X8-2-___1212	Enclosure, Fisher 6" EZR Valve 8" x 6" Pipe Size	20.625	524	28.125	714	23.125	587
HEA-MOON-2X2-2-___1212	Enclosure, Mooney Flowgrid Valve	14.750	375	14.125	359	14.125	359
HEA-TESC-2X2-1-___0612	Enclosure, Tescom Regulator	12.000	305	10.000	254	7.000	178
HEA-4413-1X1-1-___0606	Enclosure, Tescom 44-1300 Reg	11.125	283	10.313	262	8.750	222

*Note: "_" = WX, BX or WXS

Pipe Preheater Enclosures



The Pipe Preheater Enclosure is designed to heat gas upstream of valves, chokes, orifice fittings and regulators. Commonly installed in locations where the valves, chokes, orifice fittings and regulators are not easily accessible.

Features

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

Table 7 – Pipe Preheater Enclosures

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

Model Coding

HEA PP 1x1 2 Heater Type A

Model Series
HEA - Heater enclosure assembly

Pipe Preheater
PP

Pipe Size (in.)
Inlet x Outlet

Number of Heaters

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

Heater Type

W 1224 1 1 1 1 1 1

Model Series
W - WX Series
H - BX Series
WXS - WXS Series

Heater Size

Heater Voltage
1 - 12V
2 - 120V

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

Catalyst Pad
1 - WX
2 - BX/WXS

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

Certification
0 - None
1 - CSA
2 - FM

Box Bracket Style
1 - Short side
2 - Long side

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

Rotary Meter Enclosures

Rotary Meter Enclosures are designed to prevent freezing of wet gas and creation of hydrates that can cause meters to fail or provide inaccurate readings.

Features

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

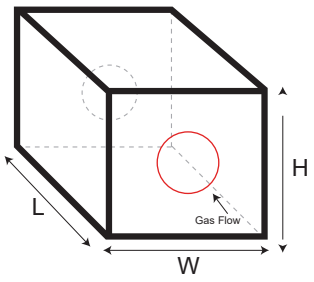


Figure 2

Table 8 – Rotary Meter Enclosures

Model No.	Description	Dimensions					
		L		W		H	
		in	mm	in	mm	in	mm
HEA-RM1M600-2X2-1-WX0808	Enclosure, Roots 1M600 Meter	15.00	381	14.50	368	15.00	381
HEA-RM1.5M-2X2-1-WX0808	Enclosure, Roots 1.5M Meter	10.00	254	11.00	279	10.00	254
HEA-RM2M175-2X2-1-WX0808	Enclosure, 2M175 Meter	12.00	305	12.00	305	10.00	254
HEA-RM3M125-2X2-1-WX0808	Enclosure, 3M125 Meter	12.00	305	12.00	305	10.00	254
HEA-RM3.6M600-2X2-1-WX0808	Enclosure, Roots 3.6M600 Meter	15.00	381	16.00	406	14.00	356
HEA-RM1.5M-3X3-1-WX0612	Enclosure, Roots 1.5M Meter	14.00	356	10.00	254	10.00	254
HEA-RM1M600-3X3-1-WX0612	Enclosure, Roots 1M600 Meter	16.00	406	14.00	356	14.00	356
HEA-RM3M125-2X2-1-WX0612	Enclosure, Roots 3M125 Meter	11.00	279	16.00	406	15.00	381
HEA-RM3M600-3X3-1-WX0612	Enclosure, Roots 3M600 Meter	15.00	381	15.00	381	14.00	356
HEA-RM5M-3X3-1-WX0808	Enclosure, Roots 5M	11.00	279	16.00	406	11.00	279
HEA-RM5M-3X3-1-WX0612	Enclosure, Roots 5M	11.00	279	16.00	406	11.00	279
HEA-RM7M-3X3-1-WX1012	Enclosure, Roots 7M	15.00	381	15.00	381	16.00	406

Model Coding

HEA | RM2M175 | 1x1 | 2 | Heater Type | A

Model Series
HEA - Heater enclosure assembly

Rotary Meter
RM1M600 - Roots meter, 1M600
RM1.5M - Roots meter, 1.5M
RM1.5M125 - Roots meter, 1.5M125
RM2M175 - Roots meter, 2M175
RM3M125 - Roots meter, 3M125
RM3M600 - Roots meter, 3M600
RM3.6M600 - Roots meter, 3.6M600
RM5M - Roots meter, 5M
RM7M - Roots meter, 7M

Pipe Size (in.) Inlet x Outlet

Number of Heaters

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

W | 1224 | 1 | 1 | 1 | 1 | 1 | 1

Model Series
W - WX Series
H - BX Series
WXS - WXS Series

Heater Size

Heater Voltage
1 - 12V
2 - 120V

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

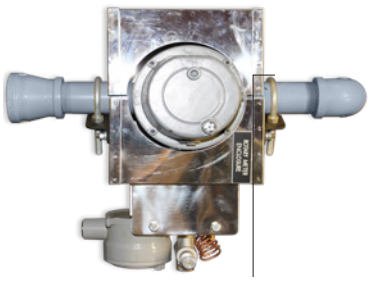
Catalyst Pad
1 - WX
2 - BX/WXS

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

Certification
0 - None
1 - CSA
2 - FM

Box Bracket Style
1 - Short side
2 - Long side

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



Motor Valve Enclosures

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

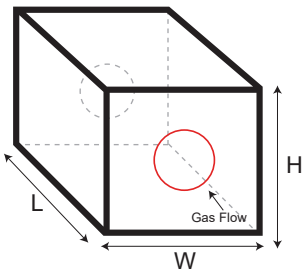


Figure 3

Table 9 – Motor Valve Enclosures

Model No.	Description	Dimensions					
		L		W		H	
		in	mm	in	mm	in	mm
HEA-MV1-1X1-1-WX10X12	Enclosure, 1" Motor Valve	9.625	244	12.000	305	14.125	359
HEA-MV2-2X2-2-WX10X12	Enclosure, 2" Motor Valve	14.000	356	9.500	241	12.000	305
HEA-MV1-1X1-2-WX0808	Enclosure, 1" Motor Valve	10.000	254	8.000	203	10.563	268

Model Coding

HEA MV 1x1 2 Heater Type A

Model Series
HEA - Heater enclosure assembly

Motor Valve
MV

Pipe Size (in.)
Inlet x Outlet

Number of Heaters

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

W 1224 1 1 1 1 1 1

Model Series
W - WX Series
H - BX Series
WXS - WXS Series

Heater Size

Heater Voltage
1 - 12V
2 - 120V

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

Catalyst Pad
1 - WX
2 - BX/WXS

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

Certification
0 - None
1 - CSA
2 - FM

Box Bracket Style
1 - Short side
2 - Long side

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

Orifice Fitting Meter Enclosures

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

Features

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

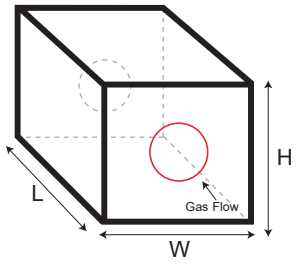


Figure 4

Table 10 – Motor Valve Enclosures

Model No.	Description	Dimensions					
		L		W		H	
		in	mm	in	mm	in	mm
HEA-OF-2X2-1-WX1012	Orifice Fitting	14	356	16	406	14	356
HEA-OF-3X3-1-WX1012							
HEA-OF-4X4-1-WX1012							

Model Coding

HEA OF 1x1 2 Heater Type A

Model Series
HEA - Heater enclosure assembly

Orifice Fittings
OF

Pipe Size (in.)
Inlet x Outlet

Number of Heaters

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

W 1224 1 1 1 1 1 1

Model Series
W - WX Series
H - BX Series
WXS - WXS Series

Heater Size

Heater Voltage
1 - 12V
2 - 120V

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

Catalyst Pad
1 - WX
2 - BX/WXS

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

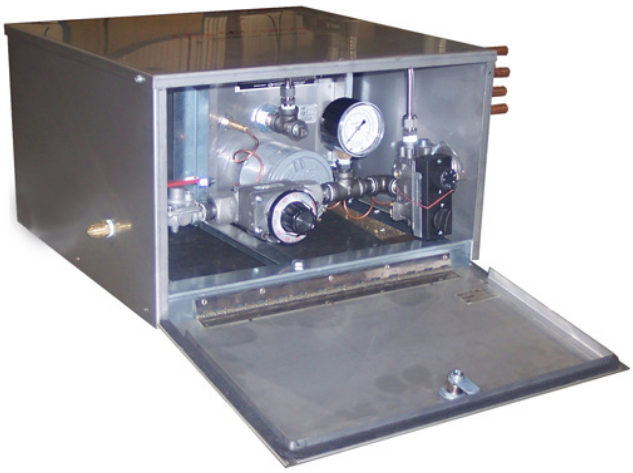
Certification
0 - None
1 - CSA
2 - FM

Box Bracket Style
1 - Short side
2 - Long side

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

Super Conductors

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

Part No.	Pipe Qty	Pipe Length		Heater Size	Length		Width		Height		Pipe Length	
		in	mm	in	in	mm	in	mm	in	mm	in	mm
SCH-4P-18-0808	4	18	457	8 x 8	17.30	439	17.20	437	10.40	264	8.50	216
SCH-4P-24-0808		24	610	8 x 8			17.2	437	10.40	264	14.50	368
SCH-4P-33-1212		33	838	12 x 12			19.00	478	14.75	375	19.50	495

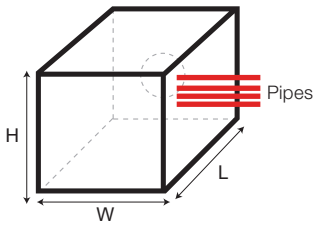


Figure 6

Model Coding

SCH — Model Series
SCH - Super conductor heater enclosure assembly

4P — Number of Heat Pipes

18 — Pipe Length

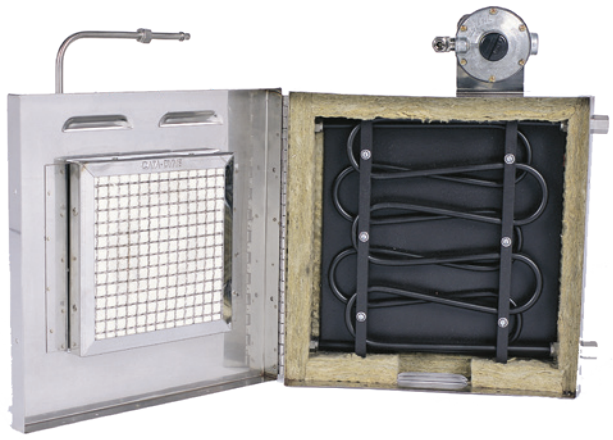
Heater Type

W	1224	1	1	1	1	1	1
Model Series W - WX Series H - BX Series WXS - WXS Series	Heater Size	Heater Voltage 1 - 12V 2 - 120V	Thermal Sensor 1 - Thermocouple & safety shut-off valve 9 - H19 & Thermocouple	Catalyst Pad 1 - WX 2 - BX/WXS	Fuel Rating 1 - Natural Gas (7" W.C.) 2 - Propane (11" W.C.) 3 - Natural Gas (3.5" W.C.) 4 - Natural Gas (4.5" W.C.)	Certification 0 - None 1 - CSA 2 - FM	Box Bracket Style 1 - Short side 2 - Long side

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

Instrument Gas Preheaters

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



Features

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

Table 12 – Instrument Gas Preheater

Part #	Coils	Heater Size	Length		Width		Height	
		in	in	mm	in	mm	in	mm
IGP-01-__0808	Single Pass	8 x 8	6	152	14	356	14	356
IGP-02-__0808	Double Pass						18	457
IGP-01-__1212	Single Pass	12 x 12	5	127	18	457	18	457
IGP-02-__1212	Double Pass						18	457

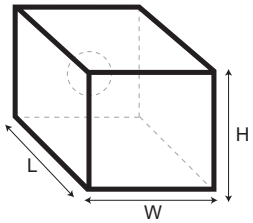


Figure 7

Model Coding

IGP — Model Series
IGP – Instrument Gas Preheater

02 — 01 – Single Pass, 02 – Double Pass

Heater Type

W 0808 1 1 1 1 1 1

- W — Model series: W - WX Series, H - BX Series
- 0808 — 0808 - 8", 1212 - 12"
- 1 — Heater Voltage: 1 - 12V, 2 - 120V, 4 - 240V
- 1 — Thermal Sensor
- 1 — Catalyst Pad: 1 - WX, 2 - BX
- 1 — Fuel Rating: 1 - Natural Gas (7" W.C.), 2 - Propane (11" W.C.), 3 - Natural Gas (3.5" W.C.), 4 - Natural Gas (4.5" W.C.)
- 1 — Certification: 1 - CSA, 2 - FM
- 1 — Box Bracket Style: 1 - Short side

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

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)

Enclosure Request for Quote Form

Enclosure Type

- ☐ Regulator
- ☐ Pipe Preheater
- ☐ Rotary Meter
- ☐ Motor Valve
- ☐ Orifice Fitting
- ☐ Super Conductor
- ☐ Instrument Gas Preheater

Other (please specify):

Device to be Enclosed

Type of manufacturer, size, model:

Temperature

Gas inlet before device: ☐ °F ☐ °C

Temperature limit of enclosed device: ☐ °F ☐ °C

Gas outlet after device: ☐ °F ☐ °C

Piping

Diameter: Inlet (in) Outlet (in)

Design temperature: ☐ °F ☐ °C

Design pressure (psig):

Pressure

Gas inlet before regulator or enclosure (psig):

Gas outlet after regulator of enclosure (psig):

Gas Flow

Maximum: SCFM Minimum: SCFM

Type of Gas Being Heated

- ☐ Natural Gas
- ☐ Super Conductor

Other (please specify):

Electrical/Controls

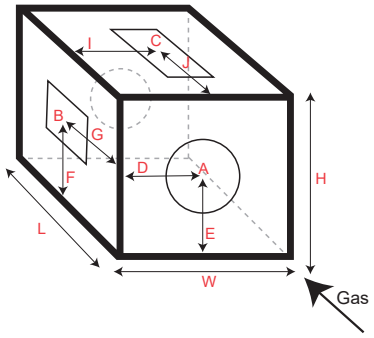
Supply Power: V

Hazardous Physical Dimensions Restrictions

Maximum: L W H

Minimum: L W H

Dimension Size:



A E I

B F J

C G

D H

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: ☐ H_2S ☐ Water ☐ Oil ☐ Particles

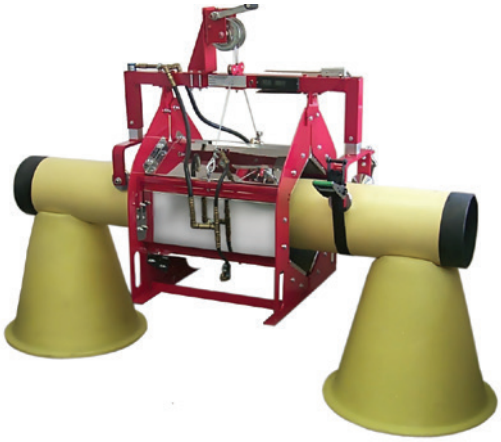
- ☐ Filter Bypass Line

Thermostat Control

- ☐ High temperature controller: 60°F to 250°F (15°C to 121°C)
- ☐ Temperature controller: 32°F to 110°F (0°C to 43°C)

*Please provide complete contact information when submitting request for quote.

Sure Seal™ Pipeline Systems



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

Applications

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

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

Features

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

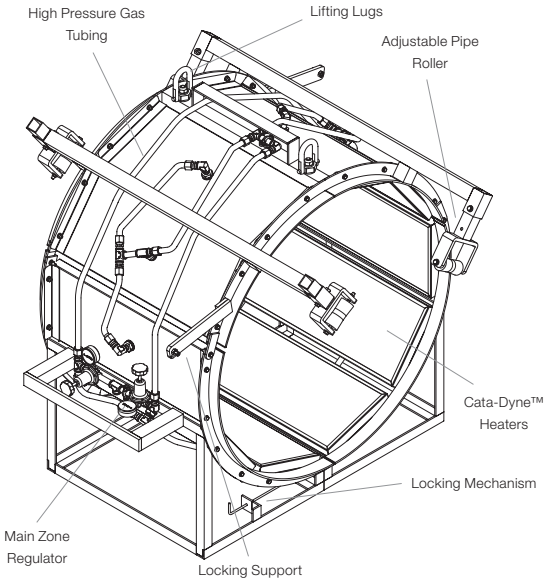


Figure 5

Table 13 – Sure Seal™ Pipeline Systems Dimensions & Data

Part No.	Pipe Dimensions								Weight		Approx. Propane Consumption
	Diameter		L		W		H				
	in	mm	in	mm	in	mm	in	mm	lbs	kg	lb/hr
SS2-4/24	2 to 4	51 to 102	40	1016	30	762	15	381	78	35	2.2
SS6-8/24	6 to 8	152 to 203			32	813	19	486	85	39	2.2
SS10-12/24	10 to 12	254 to 305			34	864	23	584	94	42	2.2
SS16-18/24	16 to 18	406 to 457			40	1016	28	714	122	55	3.8
SS20-24/36	20 to 24	508 to 610	52	1321	52	1321	40	1016	205	93	5.5

FLO-DRI Series Compressed Gas Scrubbing Systems

The FLO-DRI gas scrubber removes gas contaminants including H_2S, 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, H_2S and particulate down to 0.5 micron in size, providing clean, dry gas for critical applications.

Features

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

Table 14 – FLO-DRI Compressed Gas Scrubbing System

Scrubbing System	Model No.	PSIG	No. of Cartridges	Overall Length		Overall Diameter		Port to Port		Pipe Size	Bed Cubic	Cartridge Media Part No.
				in	mm	in	mm	in	mm	NPT	in²	
Natural Gas	FLODRI-G10A	150	1	8.50	216	4.00	102	5.00	1270	1/4"	12.56	FLODRI-10AA
												FLODRI-10AC
												FLODRI-10MS
	FLODRI-G25A	250	2	12.88	327	5.12	130	8.13	206	3/4"	30.78	FLODRI-25AA
												FLODRI-25AC
												FLODRI-25MS
	FLODRI-G60A	250	3	18.25	464	6.25	159	12.38	314	1"	84.47	FLODRI-60AA
												FLODRI-60AC
												FLODRI-60MS
	FLODRI-G100A	250	4	23.31	592	7.75	197	17.00	432	1 1/2"	199.06	FLODRI-100A
												FLODRI-100AC
												FLODRI-100MS
	FLODRI-G150A	250	2	26.00	660	9.25	241	18.19	462	2"	376.52	FLODRI-150AA
												FLODRI-150AC
												FLODRI-150MS
Compressed Air	FLODRI-M10A	150	1	8.50	216	4.00	102	5.00	1270	1/4"	12.56	FLODRI-10R
	FLODRI-M25V	125	2	12.88	327	5.12	133	8.13	206	3/4"	30.78	FLODRI-25R
	FLODRI-M25A	250	2	12.88	327	5.12	133	8.13	206	3/4"	30.78	
	FLODRI-M60A	250	3	18.25	464	6.25	159	12.38	314	1"	84.47	FLODRI-60R
	FLODRI-M100A	250	4	23.31	592	7.75	197	17.00	432	1 1/2"	199.06	FLODRI-100R
	FLODRI-M150A	250	2	26.00	660	9.25	241	18.19	462	2"	376.52	FLODRI-150R

Model Coding

FLODRI	G	10	A
Model Series FLO-DRI	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

*Compressed air scrubbing systems includes air filter cartridges.

G-10/M-10

- 150 psig maximum allowable pressure
- 1/4" NPT pipe size

G-100/M-100

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

G-25

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

G-150/M-150

- 250 psig maximum allowable pressure
- 2" NPT pipe size

G-60/M-60

- 250 psig maximum allowable pressure
- 1" NPT pipe size

M-25

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

Replacement Cartridge Model Coding

FLODRI	10	AA
Model Series	Pipe Size	Natural Gas Cartridge Media
FLO-DRI	10 - 1/4"	AA - Moisture Removal
	25 - 3/4"	AC - Odor Removal
	60 - 1"	MS - H_2S & Moisture Removal
	100 - 1 1/2"	Compressed Air Cartridge Media
	150 - 2"	R - Moisture Removal, Air Purifier

Note: To order specify model number and cartridge media part number.

LH Series Natural Gas Line Heaters

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

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

Applications

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

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

Features

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

Table 15 – Line Heaters

Model No.	Heater Input (Btu/hr)		External Dimensions in (mm)
	Min.	Max.	Length x Width x Height
LH-40	10,000	40,000	56 x 48 x 84 (1420 x 1219 x 2130)
LH-60	15,000	60,000	
LH-80	20,000	80,000	
LH-100	25,000	100,000	78 x 68 x 90 (1980 x 1725 x 2286)
LH-160	40,000	160,000	

Hybrid Capabilities

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

Note:

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

Model Coding

LH	40	M	NT	12	1	600
Model Series LH – Line Heater	Heater Input 40 - 40,000 Btu/hr 60 - 60,000 Btu/hr 80 - 80,000 Btu/hr 100 - 100,000 Btu/hr 160 - 160,000 Btu/hr	Start-up Type M - Manual S - Sequential A - Automatic (engineered option)	Temperature Control NT - Fixed heat output, outlet temperature not controlled T* - Variable heat output, low/high, outlet temperature controlled. *Variable control from 40% to 100% of heater output.	Start-up Voltage (Vac) 12, 120, 208, 240, 480, 600	Flange Size 1 - 1" 2 - 2" 3 - 3"	Flange Rating 600 - 600 ANSI 900 - 900 ANSI

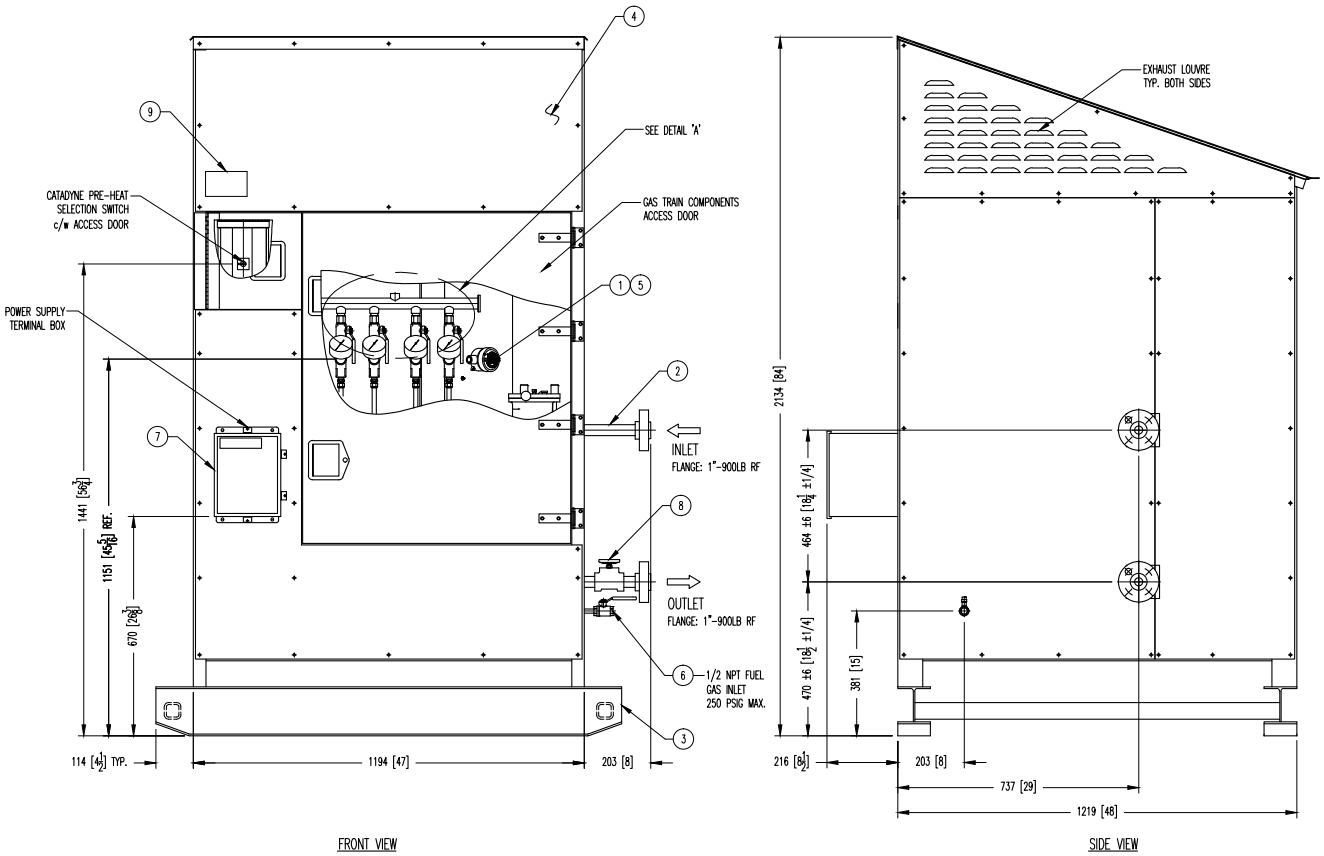


Figure 8 – Cata-Dyne™ Line Heater

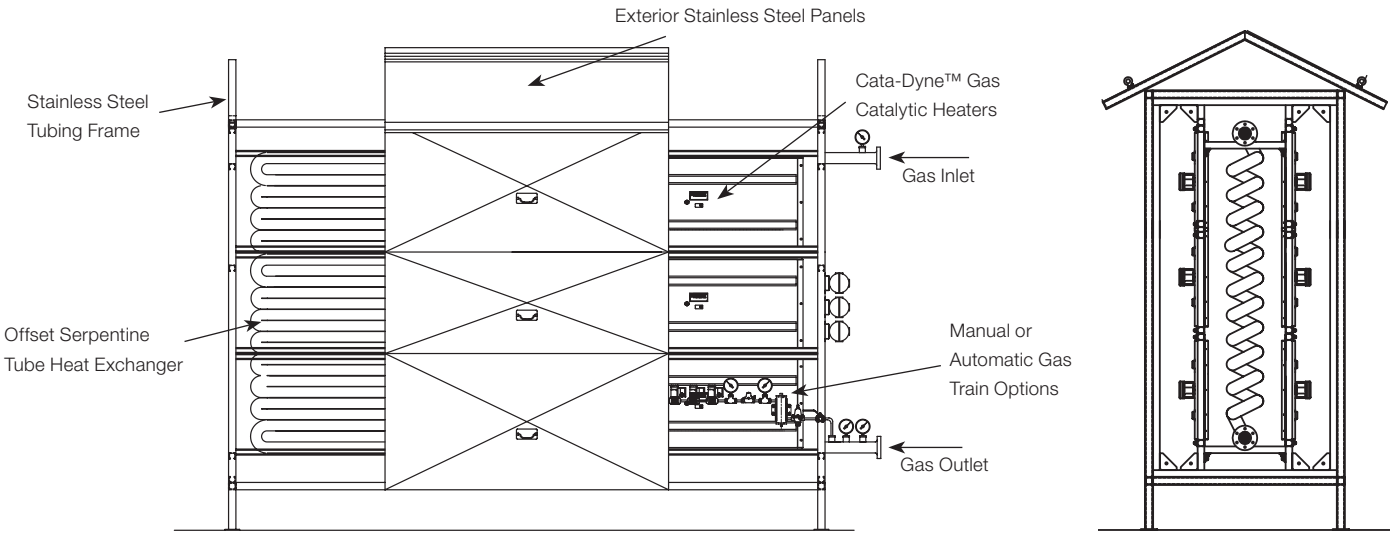


Figure 9 – Cata-Dyne™ Custom Engineered Line Heater

MLH Series
Micro Line Heaters

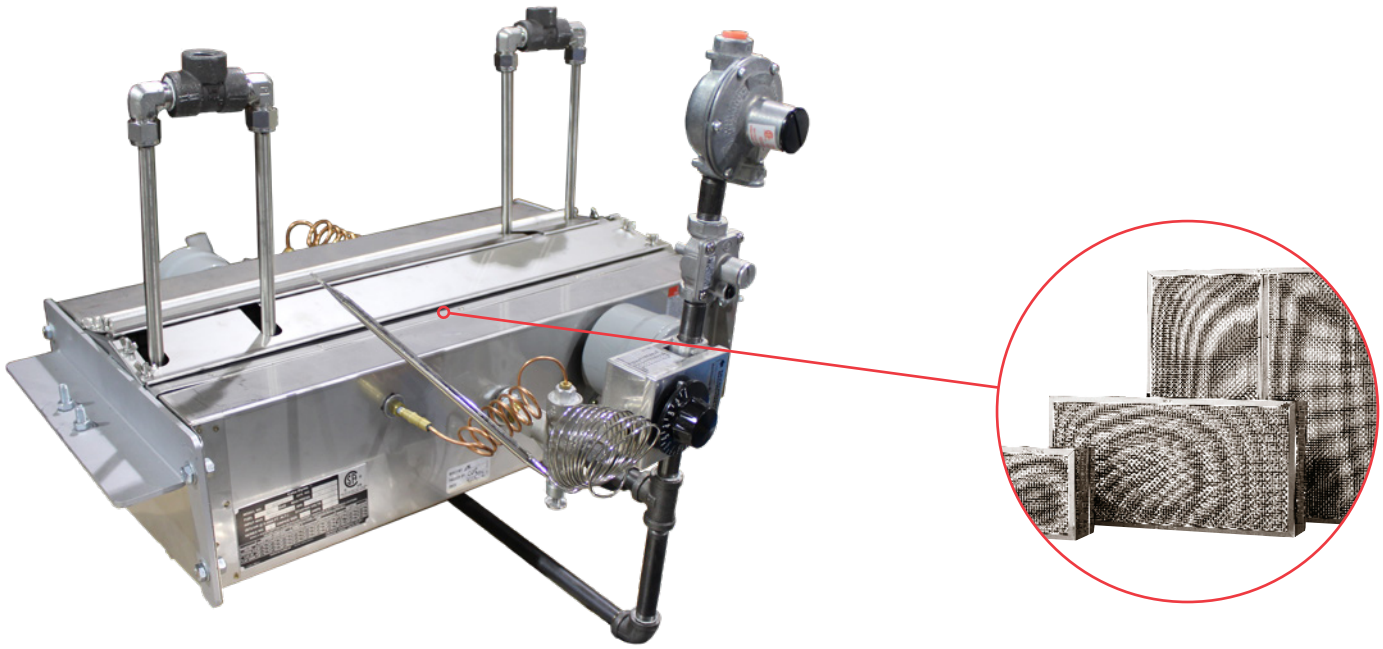


Figure 10

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

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

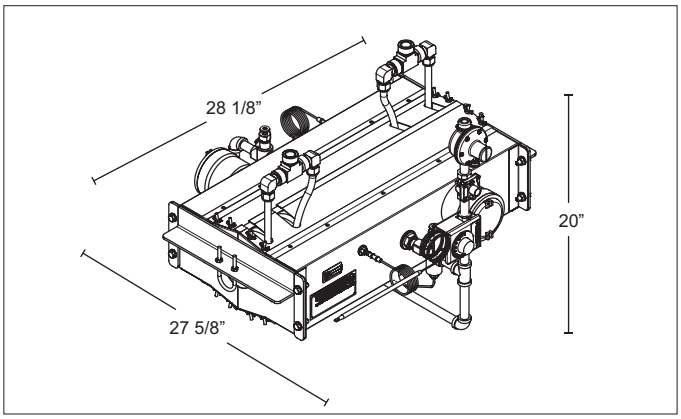
Features

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

Benefits

- Ideal for lower flow conditions where Glycol Water Bath systems are excessive
- Approximately ¼ of the cost of standard glycol water bath system
- No glycol
- Simple start-up allows for system to be shut-down and started as required during low/zero flow conditions
- Reduced maintenance

Standard Micro Line Heater Sizes



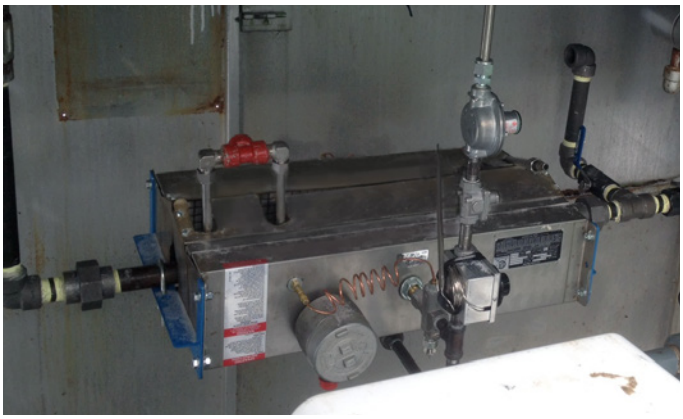


Figure 11 – 6" x 24" Single Coil

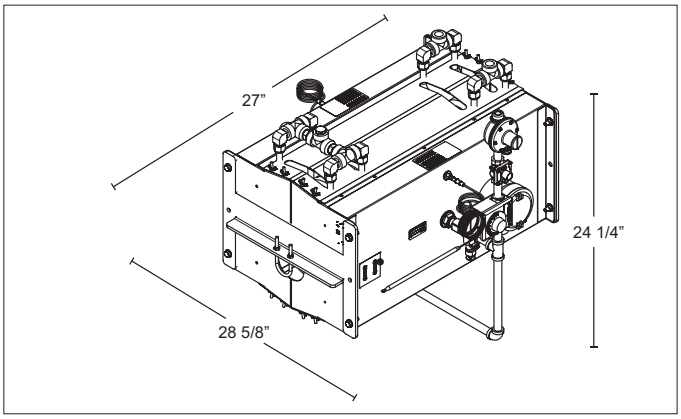


Figure 12 – 12" x 24" Double Coil

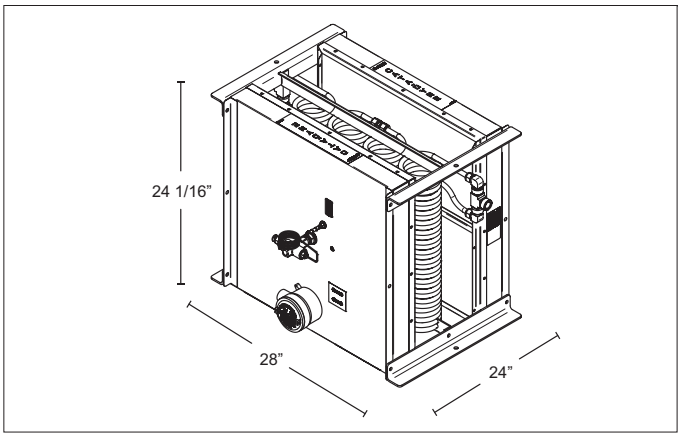


Figure 13 – 24" x 24" Quad Coil

CHS Series
Cata-Dyne™ Heating Package

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

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

Applications

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

Control Panel Features

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

Control Panel Benefits

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

Heater Features

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

Heater Benefits

- No moving parts and designed to operate indefinitely when supplied with clean fuel and adequate ventilation
- Heaters can be strategically positioned to optimize heat distribution

Table 16 – Control Panel Capacities - Heaters/Controllers Per Zone

Heater		Preheat Wattage					Max. Number of Heaters (Max. Current)						
Size	Btu/hr Rating	120V	208V	240V	480V	600V	120V AC	208V AC	240V AC	208V AC	240V AC	480V AC	600V AC
							1Ø			3Ø			
12x24	8000	500	500	500	700	550	48 H (200 A)	48 H (115 A)	48 H (100 A)	48 H (66.7 A)	48 H (57.8 A)	48 H (40.5 A)	48 H (25.4 A)
12x36	12000	600	600	600	600	600	48 H (240 A)	48 H (138 A)	48 H (120 A)	48 H (80.0 A)	48 H (69.4 A)	48 H (34.7 A)	48 H (27.7 A)
12x48	16000	800	800	800	800	800	42 H (280 A)	48 H (185 A)	48 H (160 A)	48 H (107 A)	48 H (92.5 A)	48 H (46.2 A)	48 H (37.0 A)
12x60	20000	1250	1250	1250	1250	1250	27 H (281 A)	48 H (288 A)	48 H (250 A)	48 H (167 A)	48 H (145 A)	48 H (72.3 A)	48 H (57.8 A)
12x72	24000	1450	1450	1450	1450	1450	23 H (280 A)	39 H (272 A)	47 H (284 A)	48 H (193 A)	48 H (168 A)	48 H (83.8 A)	48 H (67.1 A)
18x24	12000	500	500	500	700	–	48 H (200 A)	48 H (115 A)	48 H (100 A)	48 H (66.7 A)	48 H (57.8 A)	48 H (40.5 A)	N/A
18x36	18000	1200	1200	1200	1200	1200	28 H (280 A)	48 H (277 A)	48 H (240 A)	48 H (160 A)	48 H (139 A)	48 H (69.4 A)	48 H (55.5 A)
18x48	24000	1600	1600	1600	1600	1600	21 H (280 A)	36 H (277 A)	42 H (280 A)	48 H (213 A)	48 H (185 A)	48 H (92.5 A)	48 H (74.0 A)
18x60	30000	2500	2500	2500	2500	2500	13 H (271 A)	24 H (288 A)	27 H (281 A)	39 H (271 A)	45 H (271 A)	48 H (145 A)	48 H (116 A)
18x72	36000	2900	2900	2900	2900	2900	11 H (266 A)	20 H (279 A)	23 H (278 A)	33 H (266 A)	39 H (272 A)	48 H (168 A)	48 H (134 A)
24x24	16000	500	500	500	700	–	48 H (200 A)	48 H (115 A)	48 H (100 A)	48 H (66.7 A)	48 H (57.8 A)	48 H (40.5 A)	N/A
24x30	20000	500	500	500	700	–	48 H (200 A)	48 H (115 A)	48 H (100 A)	48 H (66.7 A)	48 H (57.8 A)	48 H (40.5 A)	N/A
24x36	24000	1200	1200	1200	1200	1200	28 H (280 A)	48 H (277 A)	48 H (240 A)	48 H (160 A)	48 H (139 A)	48 H (69.4 A)	48 H (55.5 A)
24x48	32000	1600	1600	1600	1600	1600	21 H (280 A)	36 H (277 A)	42 H (280 A)	48 H (213 A)	48 H (185 A)	48 H (92.5 A)	48 H (74.0 A)
24x60	40000	2500	2500	2500	2500	2500	13 H (271 A)	24 H (288 A)	27 H (281 A)	39 H (271 A)	45 H (271 A)	48 H (145 A)	48 H (116 A)
24x72	48000	2900	2900	2900	2900	2900	11 H (266 A)	20 H (279 A)	23 H (278 A)	33 H (266 A)	39 H (272 A)	48 H (168 A)	48 H (134 A)

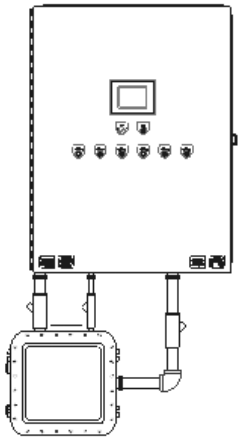


Figure 14 – Typical for 6 Stages (Hazardous Location Control Panel)

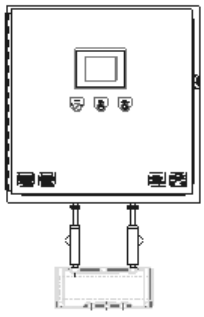


Figure 15 – Typical for 1 Stage Unit (Hazardous Location Control Panel)

Accessories

In many typical oil & gas applications that are classified as Class I hazardous locations, the Cata-Dyne™ heater must be installed in accordance with CSA and FM codes and regulations. As a result, the Cata-Dyne™ product line is supported with essential accessories required to ensure the safe and efficient operation of the units.

Safety Shut-Off Valves

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

ASV375 - Safety Shut-Off Valves

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

Part No.	Description
Valve - ASV375	Safety Shut-Off Valve

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

Part No.	Description
Valve - ASV375NT	Tamper-Proof Safety Shut-Off Valve

- Certifications
  - 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 for specific heater types and sizes. Contact factory for the appropriate thermostat control valve.
- Certifications
  - CSA approved

Part No.	Description
AC-TC	0°C to 44°C (32°F to 110°F)

Manual Shut-Off Ball Valve

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

Thermocouples

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

Gas Pressure Regulators

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

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

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

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

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

Table 17 – Other Service Regulators Available

Part No.	Description
AC-R-325-3	Low Pressure Regulator 5 psig - 11" wc (2.7 kPa)
AC-R-325-US	Low Pressure Regulator - CSA Approved 5 psig - 4-12" wc (1.0 to 3.0 kPa)
AC-R-HSR-11	Low Pressure Regulator 125 psig - 11" wc (1.1 kPa)
AC-R-HSR-5	Low Pressure Regulator 125 psig - 4.5" wc (1.1 kPa)

High Pressure Regulator (AC-R-1301F)

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

Battery Cables/Electric Start Up Leads

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

Part No.	Description
AC-LEAD-25	25 ft. Lead
AC-LEAD-30	30 ft. Lead
AC-LEAD-40	40 ft. Lead

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

Part No.	Description
IN-BATBOX	Battery Cable Cabinet

Fuel Gas Hose

- Versatile braided rubber fuel hose
- These hoses have a 350 psi maximum working pressure, and are available in lengths of 5, 10, 15 and 20 ft (7.6 m to 12.2 m). Other custom sizes are available
- The connection size at each end is 3/8" NPT male
- Certifications
  - CSA approved Type 1 natural and propane gas hose (1/4")

Part No.	Description
AC-HOSE-10	10 ft. Hose
AC-HOSE	15 ft. Hose
IN-P-H-3/8 x 20 ft.	20 ft. Hose
IN-P-H-3/8 x 25 ft.	25 ft. Hose
IN-P-H-3/8 x 30 ft.	30 ft. Hose

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

Part No.	Width	
	in	mm
AC-VHASSY-6	6	152
AC-VHASSY-8	8	203
AC-VHASSY-12	12	305
AC-VHASSY-24	24	610
AC-VHASSY-36	36	914
AC-VHASSY-48	48	1219
AC-MKIIVHASSY-12	MKII - 12	305
AC-MKIIVHASSY-24	MKII - 24	610

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

Part No.	Heater Size (in)
AC-WBRK-08	8x8
AC-WBRK-06	6x24
AC-WBRK-12	12x12
AC-WBRK-12	12x24
AC-WBRK-12	12x36
AC-WBRK-12	12x48
AC-WBRK-12	12x60
AC-WBRK-12	12x72
AC-WBRK-1824	18x24
AC-WBRK-1836	18x36
AC-WBRK-1848	18x48
AC-WBRK-1860	18x60
AC-WBRK-1872	18x72
AC-WBRK-2424	24x24
AC-WBRK-2430	24x30
AC-WBRK-2436	24x36
AC-WBRK-2448	24x48
AC-WBRK-2460	24x60
AC-WBRK-2472	24x72

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

Part No.	Description - Mounting Angle Bracket
AC-WBRK-1824-45	18 x 24, Short Side
AC-WBRK-1836-45	18 x 36, Long Side
AC-WBRK-1848-45	18 x 48, Long Side
AC-WBRK-1860-45	18 x 60, Long Side
AC-WBRK-872-45	18 x 72, Long Side
AC-WBRK-2424-45	24 x 24, Long Side
AC-WBRK-2436-45	24 x 36, Long Side
AC-WBRK-2448-45	24 x 48, Long Side
AC-WBRK-2460-45	24 x 60, Long Side
AC-WBRK-2472-45	24 x 72, Long Side

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

Part No.	Description
AC-FSS-8	8x8
AC-FSS-24	6x24
AC-FSS-12	12x12
AC-FSS-24	12x24
AC-FSL	12x36
	12x48
	12x60
	12x72
	18x24
	18x36
	18x48
	18x60
	18x72
	24x24
	24x30
	24x36
	24x48
	24x60
	24x72

Conversion Data

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

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

1 standard cubic foot NAT Gas = 1000 Btu
1 standard cubic foot LPG = 2,500 Btu

1 standard cubic meter NAT Gas = 37 MJ
1 standard cubic meter LPG = 88 MJ

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

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

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

1 ft = 0.3048 m
1 ft^2 = 0.09290304 m^2
1 ft^3 = 0.02831685 m^3
1 in = 2.54 cm
1 in^2 = 6.4516 cm^2
1 in^3 = 16.38706 cm^3
1 psi = 27.91 in. w.c.
1 in. w.c. = 0.247 kPa

Inverse Square Law

1 cfm = 0.028312 m^3/hr

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

For infrared energy, this translates to: $I=P/4\pi r^2$

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

NOTES

NOTES

NOTES

Cata-Dyne™

Visit www.thermon.com to contact a Thermon representative near you.

HEAD OFFICE: 7171 SOUTHWEST PKWY | BUILDING 300 SUITE 200 | AUSTIN, TX | 78735 | UNITED STATES
CATA-DYNE™: 5918 ROPER ROAD | EDMONTON, AB | T6B 3E1 | CANADA

M20406-001 Rev. 9.12