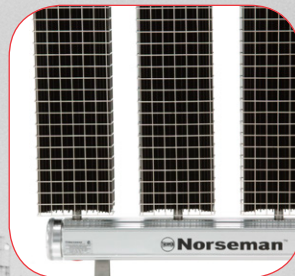
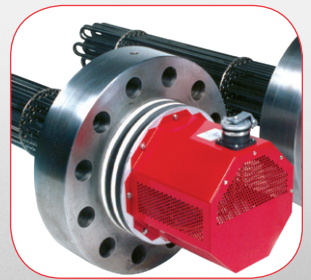


# Leaders in Heating & Filtration Solutions

*for the Natural Gas Industry*

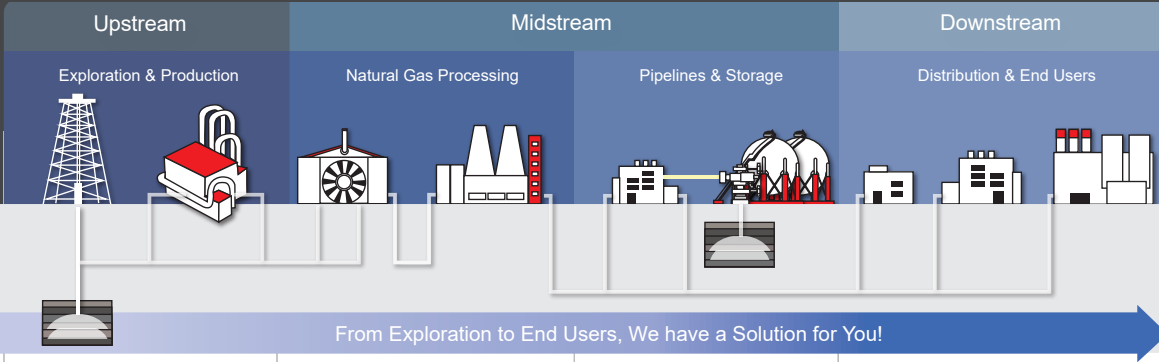


# From the Wellhead to the Burner Tip, We have You Covered.

Thermon Heating Systems is the world leader in providing advanced heating and filtration solutions for the natural gas industry. Our broad range of products supply upstream drilling and production, midstream processing and transportation, downstream distribution, and ultimately the end user.

Our industry leading Cata-Dyne™, Ruffneck™ and Norseman™ explosion-proof space heaters provide unmatched efficiency and durability in the harshest environments where safe, reliable heating is a critical need. Caloritech™ and 3L Filters™ provide world class industrial heating and filtration solutions to meet virtually any project challenge.

From *tried and true* standard products to leading edge customized solutions, only Thermon Heating Systems has the skill, expertise and proven experience to be the leader in the most demanding and diverse industries. From the wellhead to the burner tip we have you covered with the world's most complete heating and filtration solutions.

	Upstream	Midstream		Downstream
	Exploration & Production	Natural Gas Processing	Pipelines & Storage	Distribution & End Users
				
<b>Cata-Dyne™</b> Explosion-Proof Gas Catalytic Heaters	✓	✓	✓	✓
<b>Ruffneck™</b> Heaters for the Harshest Environments	✓	✓	✓	✓
<b>Norseman™</b> Electric Explosion-Proof Heaters	✓	✓	✓	✓
<b>Caloritech™</b> Engineered Electric Heat	✓	✓	✓	✓
<b>3L Filters™</b> Engineered Filtration Systems	✓	✓	✓	✓

# Contents



## **Cata-Dyne™** 6–8

Explosion-Proof Gas Catalytic Heaters

Cata-Dyne™ is the natural gas industry standard in infrared explosion-proof gas catalytic heating, enclosures, pipeline systems and accessories. Customers across the industry rely on Cata-Dyne™ to supply them with safe, reliable, efficient and versatile infrared catalytic heating equipment for a variety of hazardous heating applications. Customized engineered heating systems are available for specialized applications.



## **Ruffneck™** 9–10

Heaters for the Harshest Environments

Ruffneck™ is renowned for its rugged, reliable and versatile heavy-duty explosion-proof heaters and accessories. Ruffneck™ has proud history of supplying quality heating products for the harshest gas industry 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.



## **Norseman™** 11

Electric Explosion-Proof Heaters

Norseman™ is a 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.



## **Caloritech™** 12–13

Engineered Electric Heat

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



## **3L Filters™** 14–18

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 natural gas and liquid filters, strainers, separators, pressure vessels, and engineered systems.

		Upstream	Midstream		Downstream	
Our Brands	Heating & Filtration Products	Exploration & Production	Natural Gas Processing	Pipelines & Storage	Distribution & End Users	Page
SPACE, COMFORT & SPOT HEATING						
Cata-Dyne™	WX Infrared Gas Catalytic Heater	✓	✓	✓	✓	6
	MKII Infrared Gas Catalytic Heater (side mount)	✓	✓	✓	✓	6
	WXS Slimline Infrared Gas Catalytic Heater	✓	✓	✓	✓	6
	SCH Super Conductor Enclosure	-	-	-	✓	7
	CHS Heating Package	-	-	-	✓	7
Ruffneck™	FX5 Electric Air Unit Heater	✓	✓	✓	-	9
	FX5 SD Severe Duty Electric Air Unit Heater	✓	-	-	-	9
	HP High Pressure Heat Exchanger Unit Heater	✓	✓	-	-	9
	FR Frost-Resistant Heat Exchanger Unit Heater	✓	-	-	-	9
	CX1 Provector® Convection Heater	✓	✓	✓	-	9
	AH Advanced Horizontal Heat Exchanger Unit Heater	-	✓	✓	-	10
	RGX Heavy-Duty Forced Air Unit Heater	✓	✓	✓	✓	10
	RGE Regular-Duty Forced Air Unit Heater	✓	✓	✓	✓	10
Norseman™	XB Convection Heater	-	✓	✓	✓	11
	XPA Convection Panel Heater	-	✓	✓	✓	11
	XGB Forced Air Unit Heater	✓	✓	✓	✓	11
Caloritech™	CCR1 Corrosion-Resistant Washdown Unit Heater	✓	✓	✓	✓	12
	GX Heavy-Duty Forced Air Unit Heater	✓	✓	✓	✓	12
	GE Regular-Duty Forced Air Unit Heater	✓	✓	✓	✓	12
NATURAL GAS PRESSURE (REGULATION) REDUCTION HEATING						
Cata-Dyne™	LH Line Heater	✓	✓	✓	✓	8
Caloritech™	Gas Circulation Heater	✓	✓	✓	✓	13
ROTATING EQUIPMENT						
Cata-Dyne™	WX Infrared Gas Catalytic Heater	-	✓	✓	✓	6
	MKII Infrared Gas Catalytic Heater (side mount)	-	✓	✓	✓	6
	WXS Slimline Infrared Gas Catalytic Heater	✓	✓	✓	✓	6
Ruffneck™	FX5 Electric Air Unit Heater	-	✓	✓	✓	9
	FX5 SD Severe Duty Electric Air Unit Heater	-	✓	✓	✓	9
	HP High Pressure Heat Exchanger Unit Heater	-	✓	✓	✓	9
	AH Advanced Horizontal Heat Exchanger Unit Heater	-	✓	✓	-	10
	AV Advanced Vertical Heat Exchanger Unit Heater	-	✓	✓	-	10
Caloritech™	CCR1 Corrosion-Resistant Washdown Unit Heater	-	✓	✓	✓	12
	GX Heavy-Duty Forced Air Unit Heater	-	✓	✓	✓	12
	GE Regular-Duty Forced Air Unit Heater	-	✓	✓	✓	12
	Immersion Heaters	✓	✓	✓	✓	12
3L Filters™	GFS Gas Filter Separator	✓	✓	✓	✓	14
	FGCS Fuel Gas Conditioning System	✓	✓	✓	✓	14
	F & FD Lube Oil, Seal Oil & Control Oil Cartridge Filter Housings	✓	✓	✓	✓	15
	Cartridge Filters, Lube Oil Filters	-	✓	✓	✓	15



		Upstream	Midstream		Downstream	
Our Brands	Heating & Filtration Products	Exploration & Production	Natural Gas Processing	Pipelines & Storage	Distribution & End Users	Page
FREEZE PROTECTION						
Cata-Dyne™	HEA Regulator Enclosure	✓	✓	✓	✓	7
	IGP Instrument Gas Preheater	✓	✓	✓	-	7
	LH Line Heater	-	✓	✓	-	8
Caloritech™	PGH Pilot Gas Heater	✓	✓	✓	-	12
CONSTRUCTION						
Cata-Dyne™	SS Sure Seal™ Pipeline Systems	-	-	✓	✓	8
Ruffneck™	FX5 Electric Air Unit Heater	✓	✓	✓	-	9
	HP High Pressure Heat Exchanger Unit Heater	✓	✓	✓	-	9
FILTRATION						
3L Filters™	CS & BS Cone and Basket Strainers	✓	✓	✓	✓	15
	SWC Fulflo® String Wound Filter Cartridge	✓	✓	✓	✓	16
	PB Fulflo® Pleated Bag Series	-	✓	✓	-	16
	Flo-Dri Compressed Gas Scrubbing System	-	✓	✓	✓	16
	NGS1000 Natural Gas Scrubbers	-	✓	✓	✓	16
	FP Fulflo® Flo-Pac® Filter Cartridge	✓	✓	✓	✓	16
	336 Fulflo® 336 Pleated Cartridge	-	✓	✓	-	17
	1401 Fulflo® 1401 Pleated Cartridge	✓	✓	✓	-	17
	PRO Fulflo® Probond™ Filter Cartridge	✓	✓	✓	✓	17
	SSF Stainless Steel Cleanable Filter	✓	✓	✓	-	17
	FPE Fulflo® Flo-Pac® Plus Filter Cartridge	-	✓	✓	-	18
	MXG Fulflo® MaxGuard™ Filter Cartridge	✓	✓	✓	✓	18
	MP Orifice (Metering) Plate Tool	✓	✓	✓	✓	18
	PS Plate Strainer Tool	✓	✓	✓	-	18
ENGINEERED PRODUCTS						
Caloritech™	Oil Bath Heater	✓	✓	✓	✓	13
	Gas Circulation Heater	✓	✓	✓	✓	13
	Heat Transfer Skid	✓	✓	✓	✓	13
	Engineered Systems	✓	✓	✓	✓	13
	Control Panels	✓	✓	✓	✓	13
3L Filters™	GFS Gas Filter Separator	✓	✓	✓	✓	14
	FGCS Fuel Gas Conditioning System	✓	✓	✓	✓	14
	L Dehydrator	✓	✓	✓	✓	14
	FC Single Bag Filters	-	-	✓	✓	14
	BF Multi-Bag Filters	-	-	✓	✓	14
	F & FD Lube Oil, Seal Oil & Control Oil Cartridge Filter Housings	✓	✓	✓	✓	15
	BSF Fabricated Basket Strainers	✓	✓	✓	✓	15
	FW General Industrial Cartridge Filter Housing	✓	✓	✓	✓	15

# Cata-Dyne™

## Explosion-Proof Gas Catalytic Heaters

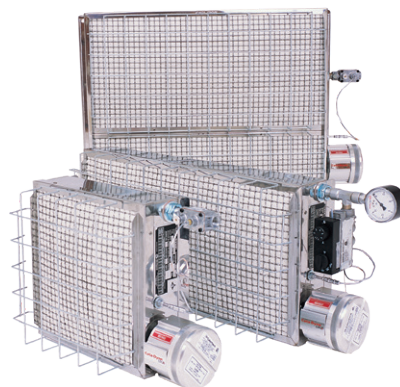
### WX Infrared Gas Catalytic Heater

- The industry standard for space or spot heating applications in hazardous environments, including comfort heating for industrial buildings and installations, freeze protection for equipment and components, and drying or curing processes
- Models range from 1,250 – 60,000 BTU/hr and 12 – 600V
- Available for either natural gas or propane fuel
- CSA, FM and CE/ATEX certified for use in hazardous locations
- EAC marked for Eurasian markets



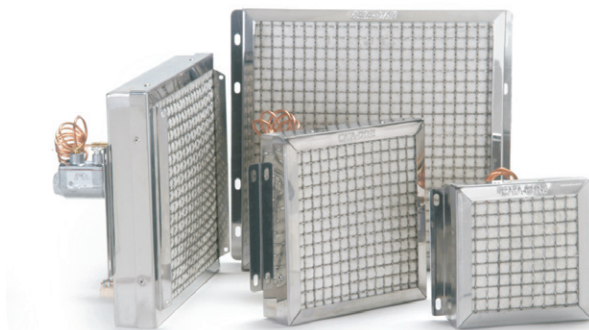
### MKII Infrared Gas Catalytic Heater

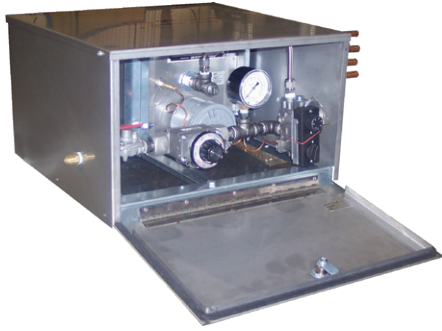
- Like the WX Series, the MKII Series is an industry standard for space or spot heating applications in hazardous environments, including comfort heating for industrial buildings and installations, freeze protection for equipment and components, and drying or curing processes
- Side mounted hardware for lower installation profile
- Models range from 5,000 – 40,000 BTU/hr and 12 – 600V
- Available for either natural gas or propane fuel
- CSA and FM certified for use in hazardous locations
- EAC marked for Eurasian markets



### WXS Slimline Infrared Gas Catalytic Heater

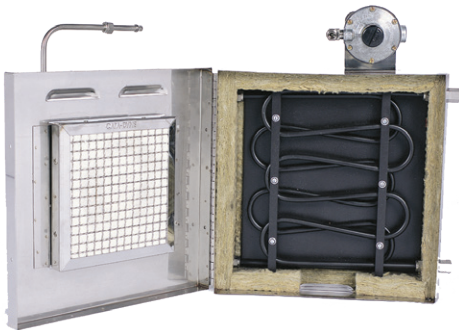
- Offers the same industry standard performance for space or spot heating applications in hazardous environments as the WX Series, with the added convenience of a compact stainless steel cabinet only 1.5" thick, making it ideal for applications with space installation constraints
- 40% greater BTU/unit area than our WX heater
- Faster startup time
- Available for either natural gas or propane fuel
- 6 available cabinet sizes; models range from 1,750 – 14,000 BTU/hr and 12 – 240V
- FM certified for use in hazardous locations
- Available in the USA only





### SCH - Super Conductor Enclosure

- Innovative heat transfer technology using radiant heat from conducting rods to create a moisture-free heat source
- Used for applications such as providing dry penetrating heat for small enclosures that house batteries, radio controls, and other moisture-sensitive equipment
- Heating capacity ranges from 1,000 – 4,000 BTU/hr
- Available for either natural gas or propane fuel
- CSA and FM certified for use in hazardous locations



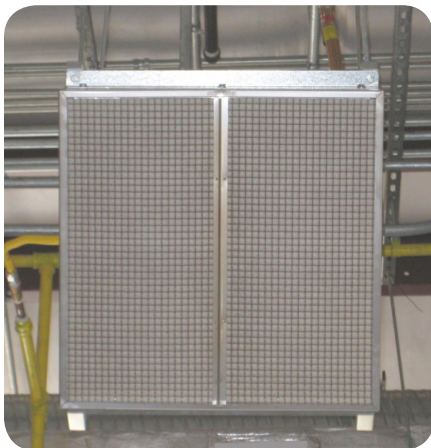
### IGP - Instrument Gas Preheater

- The preferred solution for providing the gas industry with freeze protection for instrument supply gas, pilot actuated regulators and related applications, including freeze prevention at metering sites or gas chromatographs, valves, pilots and other low flow
- Heat capacity ranges from 1,700 – 5,000 BTU/hr
- Available for either natural gas or propane fuel
- CSA and FM certified for use in hazardous locations



### HEA - Regulator Enclosure

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



### CHS Cata-Dyne™ Heating Package

- Automated space and spot heating for applications where flammable gases, vapors or liquids may be present
- Equipped with Cata-Dyne™ explosion-proof infrared heaters, this system comes standard or custom designed to meet any unique application
- Cata-Dyne™ infrared heaters are controlled remotely with an integrated explosion-proof control panel
- Applications include comfort heating for industrial buildings, CNG or propane vehicle maintenance facilities, and freeze protection for equipment and components



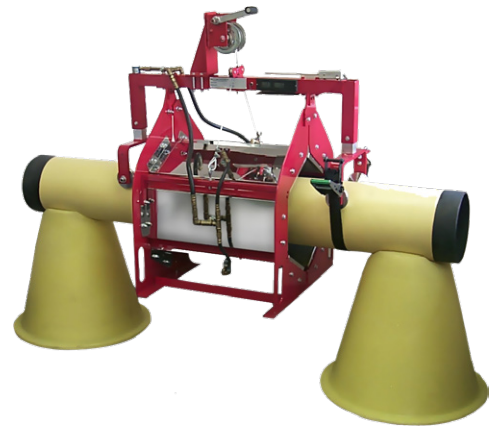
## LH Line Heater

- Prevents equipment freezing and possible hydrate formation during pressure reduction at natural gas regulating sites
- Available in five standard sizes, ranging from 40,000 – 160,000 BTU/hr
- Custom engineered units for non-standard applications are available
- The heart of each LH Series line heater is the industry standard Cata-Dyne™ WX Gas Catalytic Heater. The Cata-Dyne™ WX brings its trademark quality, durability and performance efficiency to provide the most consistently reliable radiant heat source available.
- Designed for use in Class I, Division 2, Group D hazardous locations



## SS Sure Seal™ Pipeline System

- A unique infrared heating system consisting of propane fired Cata-Dyne™ heaters (the hottest catalytic gas heater on the market) mounted in a clamshell frame configuration to provide a safe and fast method of applying heat to the construction and maintenance of pipeline systems of various sizes (greater than 2" diameter)
- The large surface area of the Cata-Dyne™ heaters allows for efficient transfer of infrared heat that can be utilized in a variety of pipeline applications
- Suitable for preformed wrap around sleeves
- Ideal for both preheat and shrink sleeve processes
- Available for pipeline applications up to 48" in diameter



SureSeal™ Pipeline System



# Ruffneck™

Heaters for the Harshest Environments



## FX5 Explosion-Proof Electric Air Unit Heater

- Designed for the harshest industrial environments including dry indoor industrial applications, drilling rigs, plant and process buildings
- Models range from 3 – 35 kW and 208 – 600V
- UL certified for the following hazardous location classifications: Class I, Divisions 1 & 2, Groups C & D; Class II, Divisions 1 & 2, Groups E, F & G; Class I, Zones 1 & 2, Groups IIA & IIB; Temperature Code T3B 165°C (329°F)



## FX5 SD Severe Duty Electric Air Unit Heater

- Built for severe duty applications that can lead to accelerated wear of electrical components and damage to the heater core, including locations with fluctuating power quality, temporary power generation, high vibration, dirty or corrosive atmospheres, or extended maintenance intervals
- Models range from 3 – 35 kW and 208 – 600V
- UL certified for the following hazardous location classifications: Class I, Divisions 1 & 2, Groups C & D; Class II, Divisions 1 & 2, Groups E, F & G; Class I, Zones 1 & 2, Group IIA & IIB; Temperature Code T3B 165°C (329°F)



## HP High Pressure Heat Exchanger Unit Heater

- Extra heavy-duty to meet the most demanding service and long life requirements for rugged industrial applications, such as space heating and liquid cooling
- Models range from 115 – 575V; explosion-proof or general purpose
- UL and CSA certified motors available
- All models are CRN registered
- EAC marked for Eurasian markets



## FR Frost-Resistant Heat Exchanger Unit Heater

- Specifically designed for steam applications that may be subject to freezing conditions, and of particular value for outdoor applications
- Models range from 115 – 575V; explosion-proof or general purpose
- UL and CSA certified motors
- All models are CRN registered
- EAC marked for Eurasian markets

### CX1 Provector® Convection Heater

- Designed and manufactured specifically for demanding requirements and harsh operating conditions such as those in the gas well drilling industry
- Models range from 0.75 – 7.6 kW and 120 – 600V
- UL C/US certified for Groups A, B, C, D, IIA, IIB and IIC; IP55 moisture ingress protection available



### AH Advanced Horizontal Heat Exchanger Unit Heater

- Designed for rugged industrial applications and can be used with a variety of heat transfer fluids such as steam, circulating hot water, and glycol heating systems or in liquid cooling applications
- Models range from 6,000 – 1,200,000 BTU/hr and 115 – 440V
- UL and CSA certified motors; explosion-proof or general purpose
- All models are CRN registered



### AV Advanced Vertical Heat Exchanger Unit Heater

- Designed for rugged industrial applications such as steam, circulating hot water, or glycol heating systems, in addition to a wide range of other heating fluids and can be used for both space heating and liquid cooling applications
- Models range from 6,000 – 1,200,000 BTU/hr and 115 – 440V
- Maximum operating pressure and temperature rating of 450 psi and 650°F
- UL and CSA certified motors; explosion-proof or general purpose
- All models are CRN registered



### RGE Regular-Duty Forced Air Unit Heater

- Designed for use in regular-duty industrial and commercial space heating applications
- Models range from 2 – 40 kW and 208 – 600V
- CSA C/US certified
- CE/ATEX



### RGX Heavy-Duty Forced Air Unit Heater

- Specifically engineered for heavy-duty use in industrial environments
- Models range from 15 – 50 kW and 208 – 600V
- UL and CSA certified
- CE/ATEX



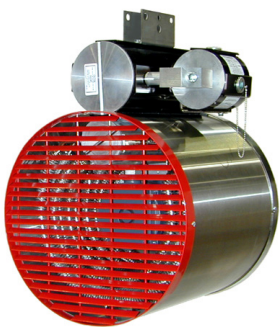
# Norseman™

## Electric Explosion-Proof Heaters



### XB Explosion-Proof Natural Convection Heater

- Designed for heating applications where explosive substances may be present, such as control cabinets and small enclosures
- Safe and reliable heater offers state-of-the-art design, featuring Thermon Heating Systems' unique copper-free aluminum extruded converter and patented **x-Max**® terminal housing
- A range of voltages available, from 120 – 600V, depending on heater configuration
- A range of wattages available, from 475 – 5000 W, depending on heater configuration
- CSA C/US certified
- CE/ATEX
- EAC marked for Eurasian markets



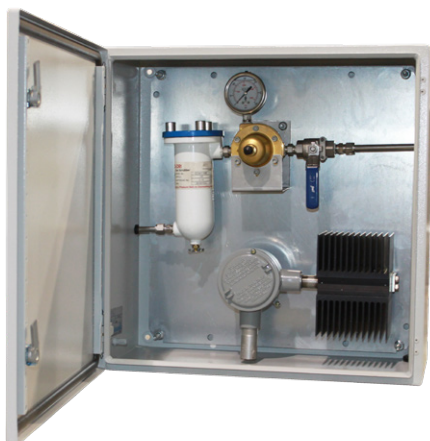
### XGB Explosion-Proof Forced Air Unit Heater

- Designed for heating industrial spaces where explosive atmospheres may exist
- Two sizes available; small cabinet units rated up to 10 kW and large cabinet units rated up to 35 kW
- CSA certified for Class 1, Division 1 & 2, Groups C & D and Class II, Division 1 & 2, Groups E, F & G hazardous locations
- EAC marked for Eurasian markets



### XPA Explosion-Proof Panel Heater

- Designed specifically for freeze protection of control enclosures in locations where explosive atmospheres may exist
- Available in 50 – 700 W and 120V, 208V and 240V configurations
- Suitable for both 50 Hz and 60 Hz
- CSA C/US certified for Class I, Division 1 & 2, Groups A, B, C & D hazardous locations
- EAC marked for Eurasian markets



XPAS panel heater mounted in a control panel

# Caloritech™

## Engineered Electric Heat

### CCR1 Triton™ Washdown Unit Heater

- NEMA 4X corrosion-resistant washdown heater, suitable for non-hazardous locations and applications using water pressure of less than 70 psi
- Available in a range of wattages, from 3 – 39 kW
- UL listed for Coast Guard and marine applications



### GE Regular-Duty Forced Air Unit Heater

- Designed for use in regular-duty industrial and commercial space heating applications
- Models range from 2 – 40 kW output
- Available in a range of voltages from 208 – 600V
- CSA C/US certified
- CE/ATEX certified for global markets
- EAC marked for Eurasian markets



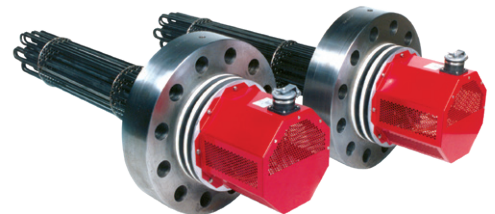
### GX Heavy Duty Forced Air Unit Heaters

- Specifically engineered for heavy-duty use in industrial environments
- Available in 15 – 50 kW units (optional 10 kW unit); 40 and 50 kW units incorporate split loads (50%) for remotely controlled energy management systems
- CSA C/US certified
- CE/ATEX certified for global markets
- EAC marked for Eurasian markets



### Immersion Heaters

- Immersion heaters are mainly used for process heating in both hazardous and non-hazardous areas such as in tanks, pressure vessels, and pipe assemblies
- Process fluids include water, heavy and light hydrocarbons, acids, polymers, salts and gases
- Available in 500 W – 2.5 MW depending on the element length and voltages of 120V, 208V, 220V, 380V, 400V, 415V, 600V, 660V, 690V
- High quality replacements for the most commonly used heater types



### PGH Pilot Gas Heater

- Designed to heat the pilot tube gas stream of an automatic pressure reducing valve
- Combines a high efficiency aluminum casting with a digital temperature controller to maintain the pilot tube gas stream temperature, regardless of the gas flow rate
- The precise temperature control of this heater prevents damage to valve seals caused by freezing of entrained moisture, while maintaining a temperature low enough to prevent damage caused by overheating
- Available in 250 – 500 W and 120V, 208V, 240V and 480V







### Oil Bath Heater

- Used primary in indirect heating applications where the process fluid needs to be isolated from the heating source or media
- Based on a helicoil coil immersed in an oil bath that is heated by an electric immersion heater
- Typical applications include high pressure gas (above 3000 psi) and applications with low gas flow rates
- Certified to CSA C/US, CE/ATEX, IECEx, and B31.3 (on coil)
- EAC marked for Eurasian markets



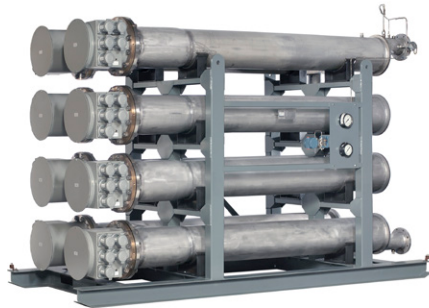
### Gas Circulation Heaters

- For use in liquid and gas applications
- Available in horizontal or vertical orientations
- Available in vessel sizes up to 50"
- Carbon steel or custom alloy materials
- Available in wattages up to 5000 kW and voltages from 110V to 690V
- Certified to CSA C/US, IECEx, and CE/ATEX
- EAC marked for Eurasian markets
- ASME Section VIII, Division 1 or Division 2



### Heat Transfer Skid

- Custom designed, skid mounted unit provides process heat utilizing electric heaters to heat water, glycol, oil or heat transfer mediums
- Custom designs can incorporate water or steam boilers, super heaters and filtration equipment
- Available in wattages up to 5000 kW and voltages from 110 – 690V
- Carbon steel or custom alloy materials
- PLC or hard-wired controls
- Certified to CSA C/US, IECEx, and CE/ATEX
- EAC marked for Eurasian markets
- ASME Section VIII, Division 1



### Engineered Systems

- Customized heating, filtration, and process solutions in a turnkey package
- Complete switch gear and control packages
- Design registration
- ASME Section VIII pressure vessels with design pressures up to 5000 psig
- Certified to CSA C/US, IECEx, and CE/ATEX
- EAC marked for Eurasian markets
- ASME rated interconnecting piping
- Available on-site start-up and commissioning assistance



### Control Panels

- Custom built to meet various environmental requirements, including dust, oil, and water, as well as corrosive or hazardous locations
- Certified to CSA C/US, IECEx, and CE/ATEX
- EAC marked for Eurasian markets

# 3L Filters™

## Engineered Filtration Systems

### GFS Gas Filter Separator

- Removes moisture, liquid mists, aerosol, and contaminants from hydrocarbon gases using a three-stage design
- Horizontal or vertical configurations
- Designed to ASME Section VIII, Division 1 specifications
- Single, duplex or multiplex arrangement; skid package configuration with controls and heating equipment available
- Design pressures available up to 3000 psig
- -20°F/+150°F (-29°C/+66°C) standard design temperature



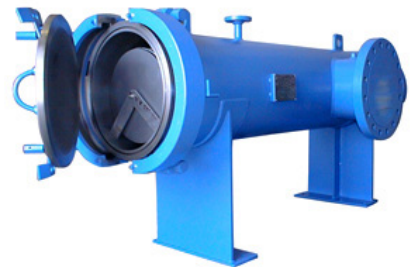
### FGCS Fuel Gas Conditioning System

- Removes small amounts of moisture, liquid mist, and particulate contaminants from fuel gases
- Capabilities of gas preheating, pressure reduction, and gas metering
- Designed to deliver gas pressure, temperature, and degree of purity to meet custom specifications
- Approved for use in Class 1, Division 1, Group D hazardous locations



### L Dehydrator

- Provides gross water removal from liquid hydrocarbon fuels such as aviation fuel, kerosene, gasoline, diesel and liquid propane to an efficiency of 99%
- Employs a variety of replaceable coalescent filter packs to trap particle contamination and coalesce water from fuel
- Designed to ASME Section VIII, Division 1 specifications
- 150 psig standard design pressure; custom design pressures up to 3000 psig
- -20°F/+150°F (-29°C/+66°C) standard design temperature



### FC Single Bag Filter Housing

- Provides effective, economical filtration of liquids
- Available in a wide range of materials and micron ratings to remove particulate matter down to 1 micron
- Designed to ASME Section VIII, Division 1 specifications
- Single, duplex, or multiplex arrangement
- 150 psig standard design pressure; custom design pressures up to 3000 psig
- -20°F/+150°F (-29°C/+66°C) standard design temperature



### BF Multi-Bag Filter Housing

- Provides economical bulk filtration for liquids
- Sized from 3 to 24 bags and accommodates replaceable filter bags to remove particulates down to 1 micron
- Designed to ASME Section VIII, Division 1 specifications
- Single, duplex or multiplex arrangement
- 150 psig standard design pressure; custom design pressures up to 3000 psig
- -20°F/+150°F (-29°C/+66°C) standard design temperature





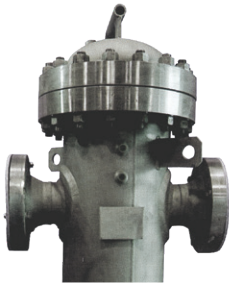
### F & FD Lube Oil, Seal Oil & Control Oil Cartridge Filter Housings

- Provides continuous particulate filtration for both critical and non-critical lube, seal and control oil applications
- Many standard F & FD systems conform to API 614 requirements for system components, including the filters and transfer valves, as well as the required controls and instrumentation
- Designed to ASME Section VIII, Division 1 specifications
- 150 psig @ 150°F (66°C) standard design pressure; custom design pressures up to 3000 psig
- -20°F/+200°F (-29°C/+93°C) standard design temperature; higher design temperatures available



### F & FD Lube Oil, Seal Oil & Control Oil Cartridge Filters

- Aluminum cartridge hardware
- Standard cartridge lengths of 18" (457 mm) and 36" (914 mm)
- Quick access cartridge replacement
- Custom cartridge configurations, sizes and filter media available



### BSF Fabricated Basket Strainers

- Removes gross particles from a liquid stream
- Often used as a pre-filter placed before finishing filtration equipment
- Designed to ASME Section VIII, Division 1 specifications
- Single, duplex or multiplex arrangement
- 150 psig standard design pressure; custom design pressures up to 3000 psig
- -20°F/+200°F (-29°C/+93°C) standard design temperature



### FW General Industrial Cartridge Filter Housing

- Removes particulates from liquid streams, often as a pre-filter ahead of finer particle separation equipment
- Standard design is based upon a single or double open-ended cartridge, but can be adapted to many filter cartridge designs, configurations, and sizes
- 150 psig standard design pressure; custom design pressures up to 3000 psig
- -20°F/+150°F (-29°C/+66°C) standard design temperature; higher design temperatures available
- Designed to ASME Section VIII, Division 1 specifications



### CS & BS Cone and Basket Strainers

- Protects fluid and gas handling equipment by removing debris during system start-up
- Available in 316 stainless steel or carbon steel; media available in a selection of four perforated styles and five mesh styles
- Custom builds available upon request

## SWC Fulflo® String Wound Filter Cartridge

- Wide range of fibers and core materials
- Roving is wound onto a center core for strength
- Diagonal pattern of the media forms a tight, interlocking weave
- Nominal removal ratings from 1µm to 100µm are available
- FDA grade polypropylene (DOE only) certified to ANSI/NSF61 standard for contact with drinking water components



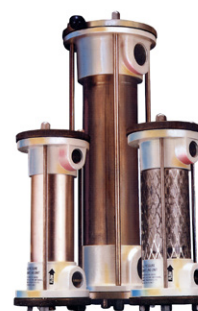
## PB Fulflo® Pleated Bag Series

- Available in several polypropylene formats: Poly-Mate Plus, Poly-Mate, Claripor, and Glass-Mate media
- Designed to fit within existing bag filter vessels without any hardware changes and incorporates an easy-to-grasp integrated handle for quick removal
- Several media types are available for a wide variety of applications



## Flo-Dri Compressed Gas Scrubbing System

- Designed for gas conditioning of fuel gas from natural gas wells at the point of use to remove aerosols, contaminants, H<sub>2</sub>S, moisture, oil, and solids
- Various sizes available for flow rates from 1 to 150 SCFM
- Working pressures up to 250 psig
- Designed and built in accordance with ASME standards; CRN for types G-10 and G-25



## NGS1000 Natural Gas Scrubber

- Designed to remove contaminants found in fuel gas from natural gas wells, thereby reducing or eliminating instrument and heater failure caused by the presence of such contaminants
- Flow rates to 10 SCFM or 25 SCFM
- 250 psig standard design pressure; particulate removal down to 0.5 micron
- Maximum operating temperature of 93°C (200°F); minimum operating temperature of -40°C (-40°F)
- Designed to ASME Section VIII, Division 1 specifications; CRN registered

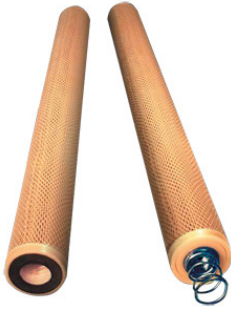


## FP Fulflo® Flo-Pac® Filter Cartridge

- The perfect choice for many industrial filtration requirements
- Contains premium grade, phenolic impregnated, cellulosic filter media
- Designed for critical filtration applications providing long service life, high flow rate, and low pressure drop
- Available in 0.5 µm, 1 µm, 5 µm, 10 µm, 20 µm, 30 µm, and 60 µm pore sizes (95% removal; β = 20)
- High strength spiral core withstands pressure surges to 100 psid
- Suitable for operating temperatures to 250°F (121°C)

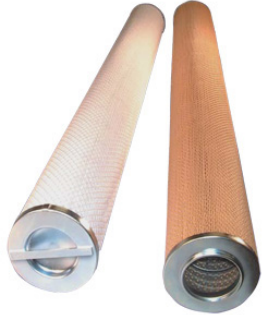






### 336 Fulflo® 336 Pleated Cartridge

- Provides highly efficient removal of solid contaminants from a variety of applications
- Manufactured from premium grade phenolic impregnated cellulose and polypropylene blown media.
- Available in 3  $\mu$ , 10  $\mu$ , 12  $\mu$ , 22  $\mu$ , and 100  $\mu$  pore sizes. (99.98% removal;  $\beta = 5000$ )
- Retrofits housings that use 3" OD x 36" long SOE cartridges with a spring



### 1401 Fulflo® 1401 Pleated Cartridge

- Designed to replace similar competitive cartridges in high pressure water injection & disposal, gas streams and fluid processing
- Available in cellulosic and polypropylene media
- Available in absolute ratings of 2.5, 6, 10, 12, 22, and 100 microns (99.98%,  $\beta = 5000$ )
- Retrofits into compatible housings that use 1401 style cartridges



### PRO Fulflo® Probond™ Filter Cartridge

- Features a unique, proprietary two-stage filtration design to maximize particle retention and service life in viscous fluid filtration applications
- Available in eight differentiated removal ratings of 2  $\mu$ m, 5  $\mu$ m, 10  $\mu$ m, 25  $\mu$ m, 50  $\mu$ m, 75  $\mu$ m, 125  $\mu$ m and 150  $\mu$ m pore sizes to meet a wide range of performance requirements
- Withstands pressure surges up to 150 psid across the cartridge (depending on fluid temperature)



### SSF Stainless Steel Cleanable Filter

- Provides effective filtration for gases and fluids in high temperature and flow rate applications
- Available in flat wrap or pleated format, and offer flexibility in particle removal ratings, size choices, and end cap configurations
- 20 standard particle removal ratings from 2 to 800 microns; various nominal particle size removal options

## FPE Fulflo® Flo-Pac® Plus Filter Cartridge

- Manufactured with premium grade, phenolic impregnated cellulosic filter media for long service life, high flow rate, and low pressure drop
- Available in a variety of sizes and configurations to fit most industrial vessels
- Available in 0.5µm, 1 µm, 5 µm, 10 µm, 20 µm, 30 µm, and 60 µm pore sizes (95% removal;  $\beta = 20$ )
- Suitable for operating temperatures to 250°F (121°C)



## MXG Fulflo® MaxGuard™ Filter Cartridge

- Provides a cost effective alternative to bag media or standard 21/2" cartridges for high flow applications
- Each MaxGuard™ cartridge has a 6" nominal outside diameter and can handle flows up to 90 gpm to significantly reduce the number of cartridges required for large flow applications
- Available in polypropylene, cellulose, and Nomex™ media



## MP Orifice (Metering) Plate Tool

- Used to alter the rate of fluid flow in a pipe
- Fluid flows through a pipe at a certain velocity and pressure, when the fluid reaches the orifice plate, it converges and is forced through the small hole of the plate, thereby altering the flow rate
- Custom builds, available upon request



## PS Plate Strainer Tool

- Used to protect fluid and gas handling equipment by removing debris during start-up
- Easily installed or placed between large flange faces without modifying the surrounding pipe work
- Easily removed
- Custom builds, available upon request



Applicable Symbols	Manufacturing Location	Description/Product Class	Products Covered
	Edmonton	Certificate of Authentication Permit	Ruffneck™ Products
	Edmonton/ Oakville/Orrillia	Explosion-Proof & General Purpose Electric and Gas Heaters, Thermostats, Junction Boxes, Elements, Control Panels, Boilers, Elements, and Infrared Paint Dryers	Various
	Edmonton/ Oakville/Orrillia	Explosion-Proof & General Purpose Electric Heaters, Thermostats, Junction Boxes, Elements, Control Panels, Boilers, and Elements	Various
	Edmonton	Explosion-Proof & General Purpose Gas Heaters, and Junction Boxes	Cata-Dyne™ Products
	Edmonton	Explosion-Proof & General Purpose Electric and Gas Heaters	Various
	Edmonton/ Oakville/Orrillia	Quality Management System	All Products
	Edmonton/ Oakville	Quality Assurance Notification	Electric Heater Products
	Edmonton/ Oakville	Quality Assurance Notification	Electric Heater Products
	Oakville	Heating Boilers except Cast Iron	Hot Water Boilers and Pressure Vessels
	Oakville	Manufacture and Assembly of Power Boilers	Steam Boilers and Pressure Vessels
	Oakville	Manufacture of Pressure Vessels	Pressure Vessels (Other than Hot Water & Steam)
	Oakville	Manufacture of Pressure Vessels	Pressure Vessels up to 10,000 psi
	Oakville	Manufacture of Boilers and Pressure Vessels to ASME Code - H, S & U Stamps	Pressure Vessels & Boilers
	Oakville	Manufacture of Boilers & Pressure Vessels to ASME Boiler & Pressure Vessel Code, Sections I, IV and VIII, Division 1, and CSA Std. No. B-51 Boiler, Pressure Vessel and Pressure Piping Code	Pressure Vessels & Boilers
	Oakville	Special Equipment Licensing Office (SELO) Approval for Import of Boilers and Pressure Vessels to The Peoples Republic of China	Boilers - Level B (Only for Electric Boilers)

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