



**THE BRUEST[®]
CATALYTIC HEATERS**

Safe, Efficient, Flameless

 **BRUEST**
CATALYTIC HEATERS

www.bruestcatalytic heaters.com

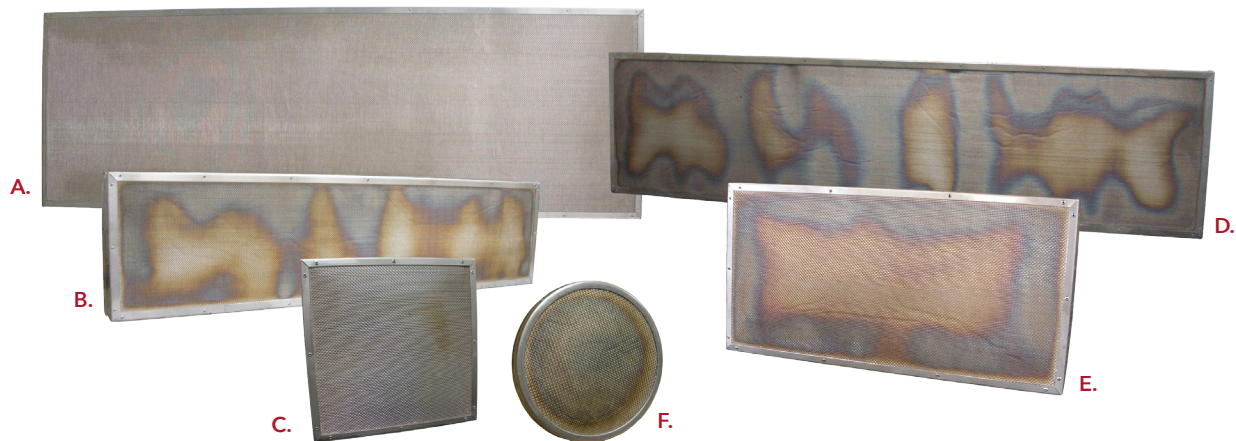


Bruest Catalytic Heaters are designed for safety, efficiency, and ease of use in mind. The heaters are offered in multiple sizes, BTU ratings, and configurations to meet varying application requirements. All Bruest Catalytic Heaters are available for installation in Class 1 Division 1 or 2 Group D locations.

■ TECHNOLOGY OVERVIEW

Catalytic Heaters differ from conventional heating with the introduction of the catalyst. Normal ignition temperature of natural gas in air is approximately 1260°F. In the presence of a catalyst, the reaction occurs with sufficient velocity to begin a chain reaction at 225°F. Thus, if natural gas is brought into contact with the catalyst at 225°F or hotter, in the presence of oxygen, it will be oxidized into carbon dioxide, water vapor, and catalytic heat in the form of infrared light. As long as natural gas and oxygen is supplied, the catalytic reaction will continue without flame with similar amount of heat as if the gas has been burned.

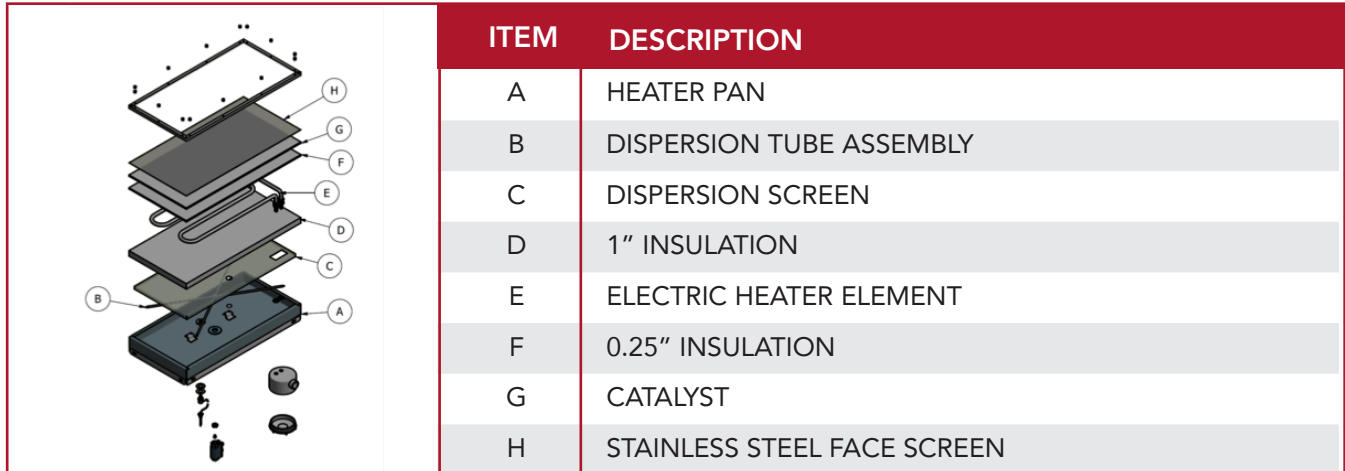
Catalytic heat, as a radiant energy source, will flood the area with heat energy much like a light bulb floods the area around it with light. The intensity of the heat energy varies with the square of the distance and travels any distance without loss as long as it does not contact matter which absorbs it. The flameless heat, at a temperature lower than the ignition temperature of natural gas, makes Bruest's Catalytic Heaters well suited for natural gas and gas equipment heating applications.



Family of Bruest Catalytic Heaters: (A) 24 x 72, (B) 12 x 48, (C) 12 x 12, (D) 18 x 72, (E) 12 x 36, (F) R8

■ OPERATIONAL CONCEPT

The catalytic heater is first heated by the enclosed electric heating element (ITEM E). Typical warmup time is about 15 to 20 minutes. Once the catalytic pad has been warmed up, gas can be introduced via the safety valve (not labeled), if so equipped, to begin the catalytic heating process. Gas enters the heater via the dispersion tube assembly (ITEM B) and is dispersed by the dispersion screen (ITEM C). The gas diffuses through the insulation (ITEM D) to come in contact with the catalyst (ITEM G) to begin the catalytic conversion process.



NOT LABELED: Safety Valve, Thermocouple, Explosion Proof Junction Box

The thermocouple is used to control the safety valve. If the catalytic pad falls below safe operating temperature, the safety valve will shut off the gas to the heater to prevent excessive emission of unburned natural gas. The explosion proof junction box is an optional item used to house the electric cable to the heater.

HEATER SPECIFICATION

Heater Size	BTUH	CU FT/HR		Height		Width		Depth		Weight Lbs
		NG	LP	IN	MM	IN	MM	IN	MM	
6X6	1500	1.5	0.6	6.12	155.4	6.12	155.4	6.0	152.4	8
R8	2500	2.5	1.0	8.12	206.2	8.12	206.2	5.5	139.7	6
8X8	2660	2.7	1.1	8.12	206.2	8.12	206.2	6.0	152.4	8
6X12	3000	3.0	1.2	6.12	155.4	12.12	307.8	6.0	152.4	8
R12	5000	5.0	2.0	12.12	307.8	12.12	307.8	6.0	152.4	8
10X12	5000	5.0	2.0	10.12	257.0	12.12	307.8	6.0	152.4	11
12X12	6000	6.0	2.4	12.12	307.8	12.12	307.8	6.0	152.4	12
6X24	6000	6.0	2.4	6.12	155.4	24.12	612.6	6.5	165.1	12
12X24	12000	12.0	4.8	12.12	307.8	24.12	612.6	6.5	165.1	17
12X36	18000	18.0	7.2	12.12	307.8	36.12	917.4	6.5	165.1	23
12X48	24000	24.0	9.6	12.12	307.8	48.12	1222.2	6.5	165.1	38
12X60	30000	30.0	12.0	12.12	307.8	60.12	1527.0	6.5	165.1	42
12X72	36000	36.0	14.4	12.10	307.3	77.25	1962.2	6.5	165.1	46
18X36	28000	28.0	11.2	18.12	460.2	36.12	917.4	6.5	165.1	40
18X48	37000	37.0	14.8	18.12	460.2	48.12	1222.2	6.5	165.1	50
18X60	45000	45.0	18.3	18.12	460.2	60.12	1527.0	6.5	165.1	55
24X48	50000	50.0	20.0	24.12	612.6	48.12	1222.2	6.5	165.1	62
24X60	60000	60.0	24.4	24.12	612.6	60.12	1527.0	6.5	165.1	68
24X72	72000	72.0	28.8	24.12	612.6	77.25	1962.2	6.5	165.1	89

Table 1: Bruest Catalytic Heater Sizes



HEATER STARTUP POWER OPTIONS

Heater Model	Voltage									
	DC			AC						
	12	24	48	120	208	240	380	415	480	575
6X6	12.50	N/A	0.6	1.25	N/A	N/A	N/A	N/A	N/A	N/A
R8	12.50	N/A	1.0	1.25	N/A	N/A	N/A	N/A	N/A	N/A
8X8	12.50	N/A	1.1	1.25	N/A	N/A	N/A	N/A	N/A	N/A
6X12	13.50	6.70	1.2	1.30	N/A	N/A	N/A	N/A	N/A	N/A
R12	15.00	N/A	2.0	1.50	N/A	0.75	N/A	N/A	N/A	N/A
10X12	15.00	7.50	2.0	1.50	N/A	0.75	N/A	N/A	N/A	N/A
6X24	18.75	10.80	2.4	2.08	N/A	1.04	N/A	N/A	N/A	N/A
12x12	15.00	7.50	2.4	1.50	N/A	0.75	N/A	N/A	N/A	N/A
12X24	15.00	10.40	4.8	4.16	2.40	2.08	N/A	N/A	1.04	N/A
12X36	15.00	10.40	7.2	3.13	3.60	3.12	N/A	N/A	1.56	N/A
12X48	N/A	N/A	9.6	8.33	4.80	4.16	2.38	2.60	2.08	1.73
12X60	N/A	N/A	12.0	10.41	6.00	5.20	2.96	3.01	2.60	2.17
12X72	N/A	N/A	14.4	12.50	7.21	6.25	3.55	3.85	3.12	2.60
18X36	N/A	25.00	11.2	10.00	5.76	5.00	N/A	N/A	2.50	N/A
18X48	N/A	N/A	14.8	12.50	7.20	6.24	3.56	3.85	3.32	2.60
18X60	N/A	N/A	18.3	15.82	9.12	7.90	4.47	4.93	3.94	3.30
18X72	N/A	N/A	N/A	19.16	11.04	9.58	5.52	6.02	4.78	4.00
24X24	30.00	20.80	20.0	8.32	4.80	4.16	2.38	2.60	2.08	N/A
24X36	N/A	30.00	N/A	12.50	7.20	6.24	N/A	N/A	3.12	N/A
24X48	N/A	N/A	24.4	16.66	9.60	8.32	4.76	5.20	4.16	3.46
24X60	N/A	N/A	N/A	20.82	12.00	10.40	5.92	6.02	5.20	4.34
24X72	N/A	N/A	28.8	25.00	14.42	12.50	7.10	7.78	6.24	5.20

Table 2: Startup voltage and current draw

HEATER OPTIONS

All heaters are available for use in General Wiring, Class 1 Division 2, or Class 1 Division 1 Group D locations. Other options include:

- Fuel Gas Input - Natural Gas or LPG
- Thermostatic Control
- Explosion Proof Junction Box
- Startup Power Cable in 16 Foot, 25 Foot, or 50 foot lengths
- Fuel gas regulation
- Wall mounting brackets for building heat
- Heater Stands

APPLICATIONS

Bruest Catalytic Heaters are suitable for all heating applications. Typical applications include:



Figure 1: Bruest Enclosure heater for Fisher 627 Regulator

Instrument Heating

- Small Regulators
- Control Instruments
- Small Valves
- Electronic Measurement

Bruest Heating Enclosures allows heat to be directly applied to the instrument when space is limited. The heating enclosures are offered as a clamp on box surrounding the instrument. The compact design allows the heating enclosures to be quickly applied with minimal interruption.



Figure 2: Enclosure Instrument Heater

Anti-Freeze Protection

- Chokes
- Dump Valves
- Level Controllers
- Meters
- Orifice Fittings
- Valves
- Regulators

Bruest Catalytic Heaters also offer larger enclosures for meters and chokes valves. These larger enclosures serve as ovens to help maintain the ambient temperature observed by the temperature sensitive instrument.



Figure 3: Bruest Catalytic Heater used in building heat application

Building Heat

- Compressor Building
- Fire Pump Building
- Meter House
- Pipe Line
- Offshore Platforms
- Flammable Maintenance Storage
- Transit Maintenance Facilities

Bruest Catalytic Heaters are suitable for heating hazardous areas. The heaters can be used to heat up either the equipment or the flooring which will then radiate the heat back into the space. Optional fuel gas manifold assembly allows the heaters to be mounted off the ground with an easy-to-reach gas flow and temperature controller.



Figure 4: Bruest Catalytic Portable Heater on Stand

Portable personnel and space heating applications

Bruest Catalytic Heaters are also suitable for personnel heating. Bruest offers portable heating stands that have been designed to work with Bruest Catalytic heaters. The heaters can be configured to work with LPG. Portable heating stands are available for heaters from 24" to 72" wide. The stand includes the necessary fuel gas manifold with an optional temperature controller. In locations where natural gas is not readily available, the heater stand includes an LPG bottle stand. Appropriate for personnel heating, equipment, and anywhere where temporary heating is required.

MODEL	LENGTH
PH 20	28 1/8"
PH 30	40 1/8"
PH 40	52 1/8"
PH 50	64 1/8"
PH 60	78 1/8"

NOTE: All heater stands have a height of 45 1/8" and a width of 26".

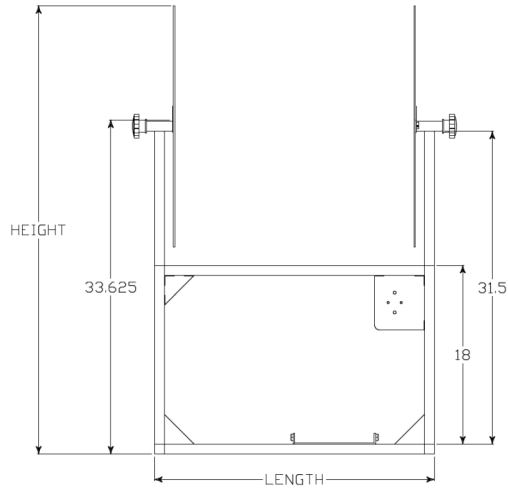


Figure 1: Heater Stand

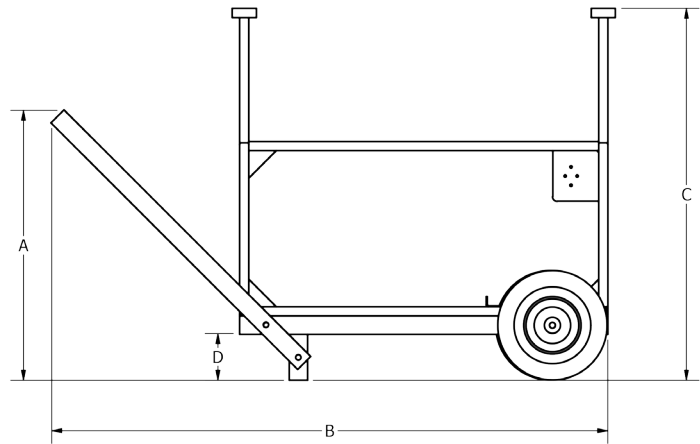


Figure 2: Hand-Truck style heater stand

SPH	20	-	N	L	M	X	
SPH	Standard Portable Heater Frame						
	V	Vertical					
20	Size of Frame				L	Gas Train Size	
	20	24 inch heater				S	SPH 20 only
	30	36 inch heater				L	SPH 30 or larger
	40	48 inch heater					
	50	60 inch heater			M	Temperature Control	
						0	None
N	Fuel Gas Type					M	Mertik Controller
	N	Natural Gas					
	L	LP			X	Custom	

■ HOW TO ORDER

Bruest Catalytic Heaters can be configured for operation with either natural gas or LPG. When ordering please specify fuel gas type.

Included Components:

- Standard Location - none
- Class 1 Division 2 (FM) - thermocouple, safety shut off valve, and junction box (non-rated standard, explosion-proof additional).
- Class 1 Division 1 (CSA) - components listed above PLUS appliance regulator (natural gas only), manual shut off valve, and pressure tap tee and plug.

FM and CSA heaters must ship with the listed components per certifying agency. Listed components will be included for all heaters, whether new applications or replacements.

S	12	36	-	A	B	C	D	E
S	Installation Orientation				B	Safety Valve Selection		
	S	Standard - Horizontal			1	Heater with Baso valve, K14 Thermal couple		
	V	Vertical			6	Factory Assembled Fuel Gas Manifold, ordered separately		
					8	Temperature Controller and Thermocouple, specify Length		
12	Width of Heater				A	TC with 96" lead		
	R0	Round			B	TC with 108" Lead		
	06	6 in						
	12	12 in			C	Safety Valve Selection		
	18	18 in			0	Standard		
	24	24 in						
					D	Preheat Voltage		
36	Length of Heater				0	Nonelectric Start, not safety rated		
	08	8" diameter, R0 only			1	12VDC		
	06	6 in			2	24VDC		
	12	12 in			3	120VAC		
	24	24 in			4	208VAC		
	36	36 in			5	240VAC		
	48	48 in			6	480VAC		
	60	60 in						
	72	72 in			E	Hazardous Location Rating		
					0	No certification		
A	Mount Type				1	Standard location, Certified by FM, with non-XP rated junction box		
	1	Tab Mount - R0 size			2	Class 1 Division 2 Group D, rated by FM, with XP rated junction box		
	2	Industrial Mount			3	Class 1 Division 1 Group D rated, Certified by CSA		
	X	Custom			4	ATEX I		
					5	ATEX II		

Example Models

S1236-21033		V1260-28052	
Standard 12" X 36" heater with industrial mount, with safety valve and thermocouple		12" X 60" heater configured for vertical installation	
120VAC startup voltage		Includes Mertik temperature controller (shipped loose)	
Certified for Class 1 Division 1 Group D location		240VAC startup voltage	
Configured for horizontal installation		Certified for Class 1 Division 2 Group D location	

NOTE: Safety valve selection options 6 and 8 requires separate temperature controller. Option 6 - requires Bruest Fuel Gas Manifold option which includes low pressure fuel gas regulation, shut off valve, pressure gauge, and temperature controller factory assembled. Option 8 - includes the Mertik Controller only, shipped loose for field integration.



Bruest Catalytic Heaters,
Division of Catalytic Industrial Group, Inc.
 713 N. 20th Street, P.O. Box 827
 Independence, KS 67301
 800.835.0557
 Ph: 620.331.0750 | Fax: 620.331.3402
www.bruestcatalyticheaters.com

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