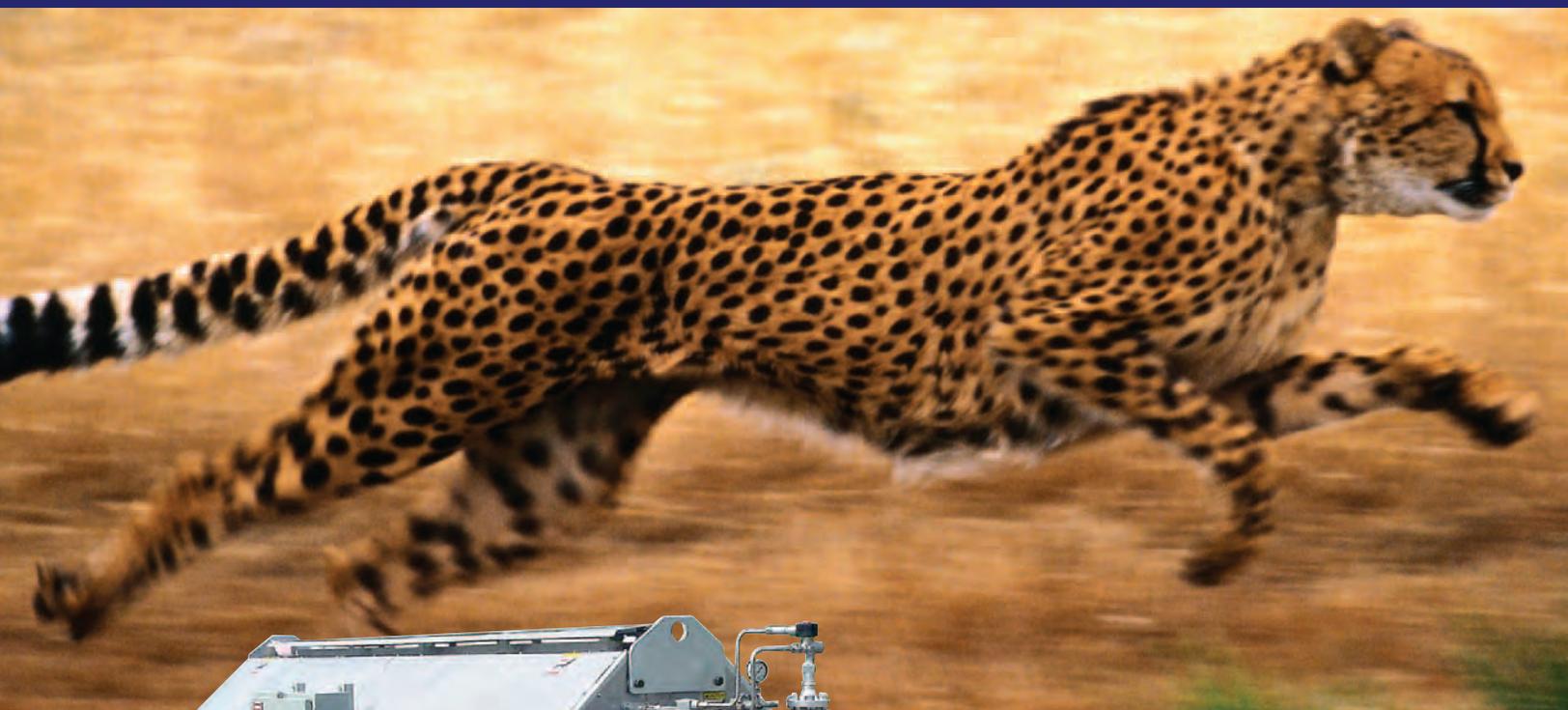




## An Important **Leap Forward** in **Catalytic Heating Technology . . .**

. . . and an exceptionally quiet, efficient alternative to water baths for gas pipeline heating



- All Bruest HotCat systems are custom-manufactured to the application.
- Approved for Class 1, Division 1&2, Group D areas
- "Greenest" technology available, generating virtually no NO<sub>x</sub> or VOCs
- Can be controlled remotely
- Capacities from 50,000 BTU to 2.5 million BTU and larger

**800.835.0557**

**[www.bruestcatalyticheaters.com](http://www.bruestcatalyticheaters.com)**

# New Space-Saving HotCat is the Advanced Catalytic Infrared Alternative to Water Baths. It's *Ideal* Where:

- Precise, Real-time Temperature Control is Needed – *and*
- Space is at a Premium!

## Backed by the Industry's Best Warranty

Everything is provided with the skid-mounted HotCat. And everything is protected for a full year. The heaters are covered by a comprehensive **two-year** warranty.

## Easy, Manual Operation

Like larger HotCat systems, it can be installed close to equipment. Where water baths require 15' of clearance outside the Division 1 perimeter, HotCat can be installed in Class 1, Division 1 or 2, Group D areas *without restriction*.

It is ideal for use wherever real estate is expensive, for farm taps, and for town border stations.

## "Neighbor-Friendly"

Manual HotCat uses DC or AC start-up, at your option. Then it's "on its own!" The system runs one to 4 heating zones and modulates for high or low settings. Set a base heat and *know* it will be maintained – *no matter what*. Safety feature measures downstream temperature and adds gas as needed. An integral filter assures consistent, quality gas feed.



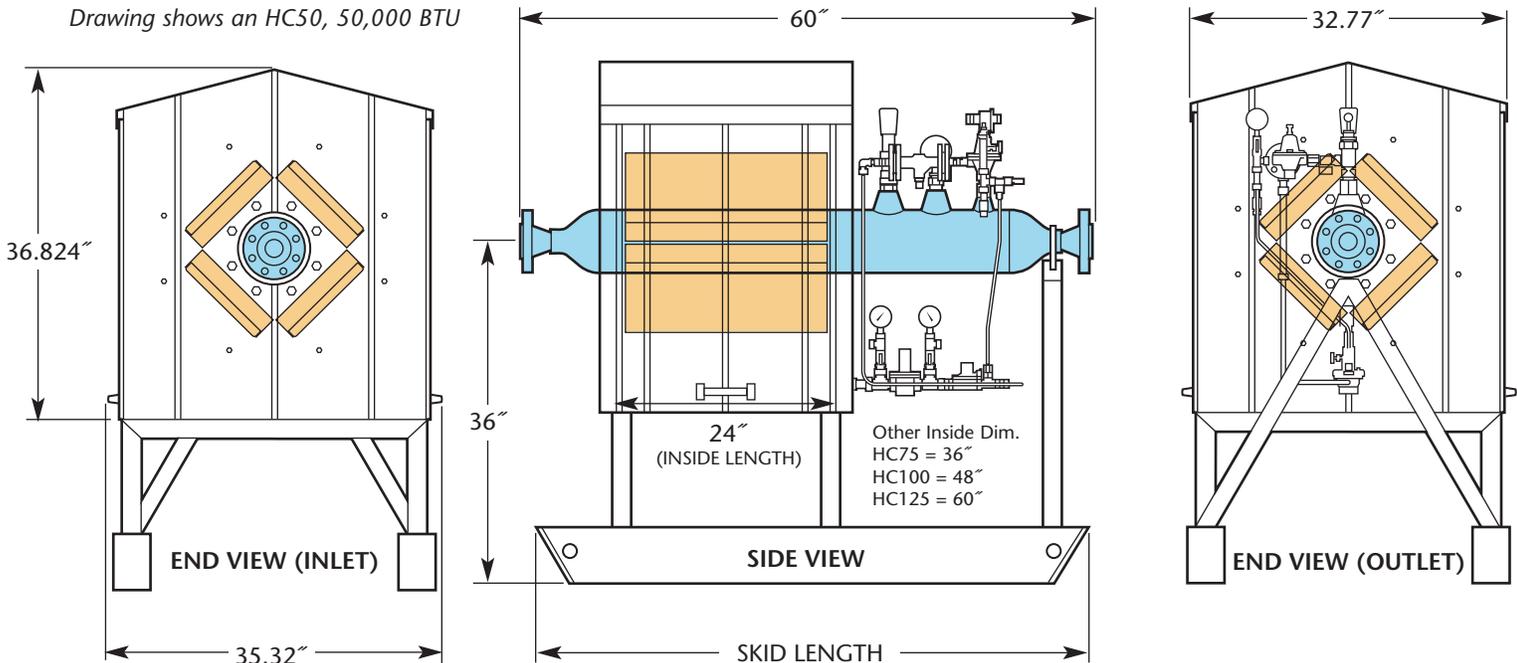
HotCat Skid-mounted Manual 100 installed at Adams Station for Northern Natural Gas.



	SKID LENGTH	TOTAL LENGTH	BTUs
HC50	60"	78"	50,000
HC75	72"	90"	75,000
HC100	84"	102"	100,000
HC125	96"	114"	125,000
HC150	108"	126"	150,000

On all "small space" HotCats, the distance from the bottom of the skid to the center of the flange is 36". Only the tube and cabinet length changes, from 60" long to 120", in 1' increments.

Drawing shows an HC50, 50,000 BTU



# BRUEST HOTCAT

is the *Ultimate* in Lean, Efficient Pipeline Freeze Protection!



## Advanced Design has No Moving Parts

Bruest HotCat consists of multiple catalytic infrared heaters that apply a precise level of heat directly to the custom-engineered heat exchanger. The Bruest heater design employs greater surface area by doubling the pipe diameter in the heat exchanger. This maximizes heat transfer while slowing the flow of gas. This results in highest-possible retention time – and best-possible transfer of heat energy to the gas.

Custom-engineered to the application, in capacities from 50,000 BTU to 2.5 million BTU and larger, Bruest HotCat is a stand-alone system that's also self-contained. The pre-plumbed fuel gas manifold that feeds the Bruest Catalytic heaters is built into the unit, as are serpentine or U-tubes. Both are ASME stamped, and certifications are provided.

High-performance filtration is applied to the manifold, so supply gas is free of contaminants.

Electrical components are factory-installed and ready for hook-up.

## Peace & Quiet

The dull roar of fire tubes from a water bath is commonly described by operators – and neighbors – as resembling a freight train. (Unfortunately, the “train” doesn’t move, and the noise is continual.) Water baths are never helpful to good community relations, and can’t be installed at all in some locations.

Bruest catalytic heaters are unique in providing quiet operation; regardless of operational mode, they are noiseless, and are ideal for sites such as town border stations.

## Maximum Operational Efficiency

The Bruest HotCat provides direct infrared heating, and is engineered to deliver heat energy with maximum efficiency to keep operation costs low.

Bruest flameless, catalytic infrared heaters are engineered for long service life; many of our catalytic systems have been in continuous service in the natural gas industry for more than two decades without the need for overhaul or major repair.



HC850 Automated U-Tube



HC350 Manual U-Tube



HC288 Straight Tube

All Bruest HotCat system designs are protected by US and Canadian patents.





## Installation Flexibility

- Water baths require 15' of clearance outside the Division 1 perimeter. In contrast, the Bruest HotCat can be installed in Class 1, Division 1 or 2 Group D areas without restriction.
- Simple "**Flange and Go**" design allows quick, efficient installation.

## Remote Control Saves Time, Labor

### **But is it affordable?**

With the Bruest HotCat, the answer is a resounding "yes." HotCat's design allows real-time start-up and control right from your command center. Systems are engineered with 8 zones for greatest operational efficiency.

Facing a "Nor'easter?" Perilous driving, and plowing through snow banks is yesterday's problem. With Bruest HotCat, as demand increases on the pipeline, operators can respond immediately, directing the precise amount of heat needed, precisely where it's needed. And because the heat is direct, pipeline heating is fast and efficient. When the demand changes, downward adjustments are also made, quickly reducing energy consumption, saving time, labor and dollars, and improving overall safety.

The Bruest HotCat monitors gas inlet temperature to provide positive, immediate control of gas outlet temperatures, without the costly instrument configurations that have been required in the past.

## Bruest HotCat: the Safe, Efficient, Environmental Alternative

**Reduced energy consumption is just the beginning! . . .**

Bruest HotCat does not have the cost, or hazard, of an open flame, and is suitable for Class 1, Division 1 or 2, Group D applications.

**The system generates virtually no NO<sub>x</sub> or VOCs** – one reason it has been honored by USEPA with the agency's prestigious Pollution Prevention Award. To win, a project must prevent the generation of waste and environmental releases and conserve natural resources.

Because there are no fluids, stacks, or containment rings, there are no maintenance issues from rust corrosion, and no chemical odors to contend with.

The framing and exterior of the Bruest HotCat are stainless steel and virtually maintenance-free. The heaters are also stainless steel. The result is a long, trouble-free service life.

Ethylene glycol\* is a common chemical in industry, but in a residential environment, it creates risks – to people, pets and property – that many utilities would prefer to avoid. Bruest HotCat provides a proven alternative, with a low capital cost for customers, neighbors, corporate management, and their insurance companies.

\*Ethylene glycol is toxic by ingestion and inhalation; lethal dose is 100 cc. It causes initial central nervous system stimulation followed by depression; it later causes kidney damage which can cause death.. It is regulated by the EPA as an air toxic on the Hazardous Air Pollutant List, and as a volatile organic compound. It is regulated under the Clean Air Act; Comprehensive Environmental Response, Compensation, and Liability Act; and the Toxic Substances Control Act.

Under Section 313 of the Emergency Planning and Community Right to Know Act, releases of more than one pound of ethylene glycol into the air, water, and land must be reported annually and entered into the Toxic Release Inventory (TRI).



**30-Day Operation**

**Performance**

**Summaries are**

**Available to**

**Qualified Inquirers,**

**Upon Request.**



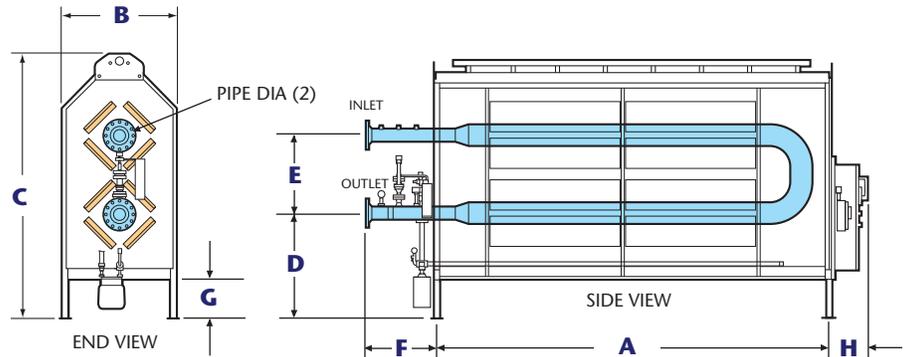
Performance and Protection for Critical Gas Lines

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# Bruest Systems are Custom-Manufactured to the Application in Capacities from 50,000 BTU to 2.5 Million BTU and Larger.

## U-Tube HotCat Model



HotCat	A	B	C	D	E	F	G	H	PIPE DIA
HC-2000	279"	56-5/8"	122"	48"	48"	33"	18"	18-1/2"	6" / 10"
HC-1400	225"	56-5/8"	122"	48"	48"	33"	18"	18-1/2"	6" / 10"
HC-1200	225"	50-5/8"	106"	48"	36"	33"	18"	18-1/2"	6" / 10"
HC-850	180"	50-5/8"	122"	48"	36"	33"	18"	18-1/2"	6" / 10"
HC-500	130"	50-5/8"	122"	48"	36"	33"	18"	18-1/2"	4" / 8"
HC-350	121"	38-5/8"	106"	42"	36"	33"	18"	18-1/2"	4" / 8"

*Dimensions are approximate and subject to change.*

## HotCat Systems are Supplied with 2 Levels of Automation

### Level 1 Automation is Bruest's Basic Automatic Control Option.

It uses a Control Microsystems PLC, with an unlimited number of PID controllers for feedback control, and an operator interface that is more compact than the one used in the fully automated system. This automation option uses a manually-controlled thermostatic gas valve as the primary temperature control, and adds and takes away heaters when the manual controls require assistance to maintain the discharge temperature within the operator-specified window.

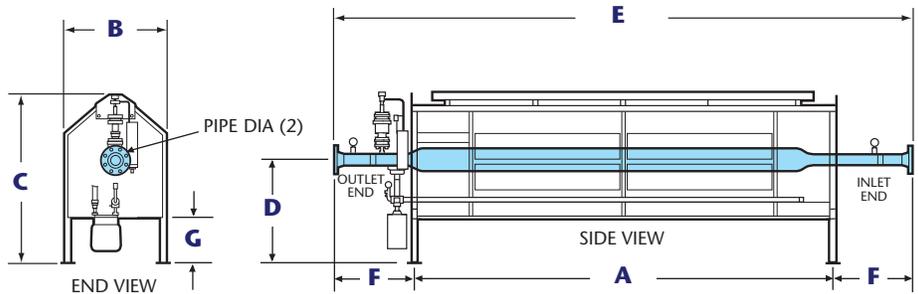
### Level 2 Automation is Based on an Allen-Bradley FlexLogix PLC and Allen-Bradley 600 Panel View Plus Modular Graphic Terminal.

This distributed approach to control reduces field wiring and maximizes performance, because the controller and I/O are close to the heater. FlexLogix achieves distributed control without compromises such as reduced processing power and programming capability. These compromises are common with traditional distributed control solutions.

FlexLogix also uses compact, DIN-mounted Flex I/O system modules, which have been field-proven in thousands of industrial applications. This control configuration is fully automated, with all process controls resident in the PLC.

*Bruest components for both automation options are widely used in SCADA systems worldwide, particularly utility applications where robust performance and accurate data acquisition is essential.*

## Straight Tube HotCat Model



HotCat	A	B	C	D	E	F	G	H	PIPE DIA
HC-850	234"	56-5/8"	89-3/8"	48"	300"	33"	18"	N/A	6" / 10"
HC-520	270"	50-5/8"	68-3/4"	42"	336"	33"	18"	N/A	4" / 8"
HC-350	196"	38-5/8"	68-3/4"	42"	262"	33"	18"	N/A	4" / 8"
HC-288	172"	38-5/8"	68-3/4"	42"	238"	33"	18"	N/A	4" / 8"

*Dimensions are approximate and subject to change.*





**Bruest HotCat is the most efficient technology available for long-term freeze protection of natural gas lines. The technology is also applicable for the heating of:**

- high pressure gas from wellheads and distribution stations
- natural gas at gate stations
- high pressure gas from oilfields
- viscous oils, in order to reduce pump pressures and improve pumping efficiencies
- light hydrocarbons



HC50



HC75



HC100



HC125



HC100 Automated



HC125 Automated



**Performance and Protection for Critical Gas Lines**  
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