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### Catco

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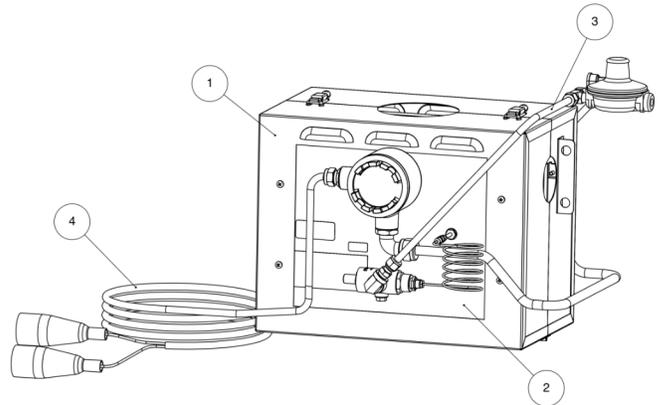
## Product Overview

Catco heated enclosure packages position one or more catalytic heaters directly on to a piece of equipment that might otherwise freeze. The stainless steel enclosure provides weather protection for the heaters and directs infrared heat at the equipment. The enclosure also serves as the mounting mechanism, often with U-bolts and integrated brackets.

Catco heaters only require electricity during the startup phase, which is usually less than 30 minutes. The electricity can be provided via jumper cables connected to a vehicle or a permanent power supply. Once operational, they can run indefinitely as long as clean, dry fuel is available.

These characteristics make them particularly well suited for use in hazardous areas and remote locations. Catco catalytic heaters can be configured with certification by FM or CSA for use in Class I, Division 1 & 2, Group D areas.

1. The enclosure protects the catalytic heater from the elements and directs infrared heat at the valve body. The enclosure mounts around the valve using U-bolts.
2. One or two catalytic heaters direct safe, flameless, infrared heat toward the equipment that is at risk of freezing. Once started, heaters only require clean, dry fuel to operate indefinitely.
3. The fuel supply is delivered to a fuel gas regulator which reduces pressure to the proper level for the heater. Dual-heater units have a manifold that delivers fuel to each individual heater.
4. Electrical power for startup can be hardwired or delivered via starting cables. Dual-heater units have a jumper so both units can be preheated with a single electrical input.



## Available Models

### Most Popular Models

Model	Designed to fit
71-015	Big/Little Joe Regulators; 1" or 2" NPT; Fisher, Belgas, BMD, Norriseal, others
71-067	Control valves; 1" to 4" flanged; Kimray, Fisher, BMD, Norriseal, others
71-050	Control valves; 1" NPT, thru or angle body; Kimray, Fisher, BMD, Norriseal, others
71-035	Control valves; 2" NPT, thru or angle body; Kimray, Fisher, BMD, Norriseal, others
71-019	Little Joe Regulators; 1" or 2" NPT; Fisher, Belgas, BMD, Norriseal, others
71-083	Chokes; 1" to 2" flanged; Merla or similar
71-096	High pressure instrumentation regulators; Fisher 1301, Belgas P39, BMD RG40, or similar
71-231	Control valves; 2" NPT; Fisher D4 or similar
71-175	Little Joe regulators; 2" flanged, 150-600 RF; Fisher 627 or similar
71-242	Chokes; 2" NPT or flanged; Taylor MDI or similar
71-076	Mooney Flowgrid pilot operated regulator
71-207	2" Fisher EZR pilot operated regulator
71-429	Two-stage high pressure instrumentation regulator w/ gauges; Tescom or similar

### Additional & Custom Models

Catco has hundreds of models available for a wide variety of valves, regulators, chokes, and other natural gas processing equipment. If a pre-designed enclosures aren't right for your application, Catco specializes in custom designs to create a heated enclosure package to meet the needs of any installation. Contact Catco for more information.

## Installation & Operation

### Installation & Mounting

#### Physical Installation

Catco heated enclosure packages mount directly around a valve, regulator, choke, or other piece of equipment. Typically it's secured to the pipe with U-bolts that are secured to the enclosure's integrated mounting brackets. The top of the enclosure has two latches that close the unit around the equipment. The bottom is either configured with a hinge or latches.

To install the unit, secure one half to the pipe using the U-bolts, then latch the unit closed. The catalytic heaters inside the enclosure should be alongside the equipment (not on top of it or below it).

#### Electrical Setup

The only electrical component of the heater is the heating element(s) that preheat the catalyst bed during the start-up phase of operation (typically no more than 30 minutes). The element terminals are in the junction box in the back of the heater.

Elements have no polarity, so positive and negative leads can be placed in either location. Detailed wiring information can be found in each model's spec sheet.

If connecting power via starting cables, make sure the connection to the battery is made outside the boundary of any hazardous location.

Hardwired connections should only be made by personnel familiar with all relevant local codes and requirements.

For more information, see the complete *Installation, Operation, and Maintenance Manual for Catalytic Infrared Heaters* or the relevant product bulletin for the assembly.

#### Fuel Gas Setup Best Practices

##### Cut to heater input pressure as close to the unit as possible.

The heater operates on relatively low pressure (4.5 inches w.c. is only 0.16 psig). Even the pressure drop from a few inches can have a significant impact on heater performance. The thermostat (if used) and final cut pressure regulator should be placed directly upstream of the heater orifice.

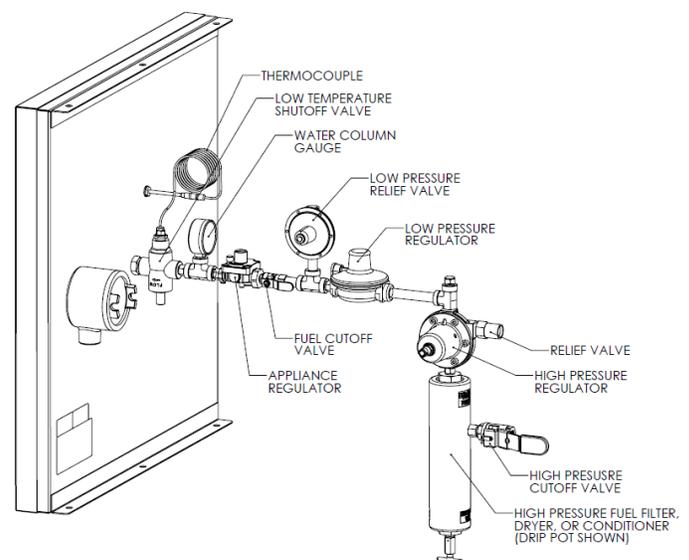
##### Filter and dry fuel gas.

The biggest factor affecting the longevity of a heater is the quality of fuel. Sulfur is especially detrimental to catalytic heaters. Heater fuel gas should be run through a filter or dryer with media suited to your fuel conditions. Contact Catco for recommendations for your application.

##### Use a pressure gauge to monitor fuel pressure.

The most common cause of poor heater performance is improper fuel pressure. Troubleshooting or reinstalling a heater is considerably easier with a pressure gauge directly upstream of the heater orifice. If a gauge isn't installed, there's a 1/8" NPT port on the downstream side of the low temperature shutoff valve (if present).

#### Recommended Piping Arrangement



## Operation

### Start-up

1. Verify the unit has been installed in accordance with the Installation, Operation, and Maintenance Manual and all applicable codes.
2. Make sure the electrical supply matches the voltage specified by the product label and turn on the electrical supply.
3. Wait 15 minutes to allow the catalyst bed to come up to temperature (this may take longer in extremely cold weather).
4. Start gas flow to the heater. If the unit is configured with a shutoff valve and thermocouple, press and release the button on the valve. The plunger on the valve will return to its original position but the valve will be held open internally. This will start the catalytic reaction. If the valve doesn't stay open wait several more minutes and retry.
5. Continue electrical power until the catalytic reaction is fully established. This will be indicated by a rapid rise in face temperature and the emission of hot exhaust gases. Under normal conditions, this phase will take 5-10 minutes.
6. Once the reaction is established, turn off the electrical power. The heater is now in normal operation.

### Normal Operation

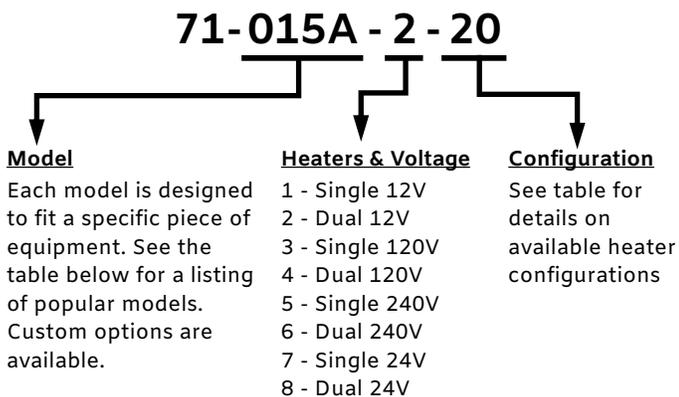
The catalyst material is not consumed or destroyed by the catalytic reaction, and the reaction will continue as long as the heater is provided with a clean fuel supply and adequate combustion air.

### Shut Down

1. Ensure the electrical power is turned off.
2. Turn off the fuel supply.
3. Removing the fuel supply will cause the catalytic reaction to stop. Don't handle the unit until it's sufficiently cooled.

## Product Specifications

### Part Number Structure



### Available Heater Configurations

Config	Hazardous Location Listing		Junction Box		Valve and Thermo-couple
	Class I Div 1 Group D	Class I Div 2 Group D	Plain	EP	
-10			•		
-20				•	
-30		FM	•		•
-40	FM	FM		•	•
-50	CSA	CSA		•	•

## Configuration & Accessory Guide

Catco offers a wide range of accessories to ensure your Catco heaters meet the needs of the installation and engineering requirements. Contact Catco for assistance in choosing the right accessories for your application.

### *Pressure Control*

#### **High-Pressure Regulators**

For inlet pressures greater than 150 psig or when it's preferred to reduce pressure in two stages.

#### **Low-Pressure Regulators**

To reduce fuel pressure from supply pressure to the required inlet pressure of the heater.

#### **Relief Valves**

Provides overpressure protection for the low pressure regulator and the heater itself.

#### **Gauges**

Water column and psi gauges to monitor pressures in the fuel manifold. This is particularly useful for installation and troubleshooting.

### *Fuel Gas Accessories*

#### **Filters**

Aluminum or acrylic body for knocking liquid out of fuel lines.

#### **Drip Pots**

Drip pots remove moisture from the fuel stream, which improves heater performance and longevity. They're often used in conjunction with a high-pressure regulator for high-pressure applications.

### *Temperature Control*

#### **Turndown Valve**

A ball valve is modified with a bypass so that when it's in the closed position, heater output is reduced by half.

### *Starting Cables*

#### **Standard**

Standard cables connect to the terminal posts of the heating element with forks at one end and have battery clips (12V DC) or a standard male plug (120V AC) at the other. The cables connect to the junction box via a fitting.

#### **Explosion-Proof Sealed Connections**

Sealed cable connections use an explosion-proof fitting at the outlet of the heater's explosion-proof junction box and are sealed with a sealing compound. Sealed connections are installed to the explosion proof junction box at the factory.

