

Contents

Product Overview	2
Installation & Operation	2
Configuration & Accessory Guide	3
Part Number Key	4
Operating Specs	4
Dimensions	6

Catco

451 Apache Trail
Terrell, TX 75160
www.catcousa.com

Sales:

888-436-2095
sales@catcousa.com

Technical Support:

888-436-2099
support@catcousa.com

Product Overview

Catco Pipeline Packs are stainless steel enclosures that house one or more catalytic heaters and mount to a pipe. They're often installed upstream of a valve, regulator, or choke to provide equipment with a heated stream of gas and prevent hydrate formation and freeze ups.

There are three main components of a Pipeline Pack:

Enclosure

A stainless steel enclosure protects the catalytic heaters from the elements and directs infrared heat at the pipe. The enclosure mounts onto the pipe with U-bolts.

Catalytic Heater

Pipeline Packs use catalytic heaters as their heat source. A catalytic heater brings fuel and oxygen together in the presence of a heated catalyst. This causes a chemical reaction that produces infrared heat but no flame. The catalyst is not consumed by the reaction. Once operational, a catalytic heater can operate indefinitely if it has a clean source of fuel and sufficient air.

Fuel Gas Manifold

The fuel supply is delivered to a fuel gas regulator which reduces pressure to the proper level for the heater. Stainless steel tubing delivers fuel to each individual heater. A thermostat can be integrated into the manifold to provide temperature control. *n/a for single-heater Pipeline Packs.*

Installation & Operation

Installation & Mounting

Pipeline Packs mount onto a pipe using U-bolts and brackets that are integrated into the enclosure. The 71-044 and 71-045 is held closed using latches. The 71-502, the top half of the enclosure is fixed to the bottom half using bolts. Make sure the unit is in a fixed position so that it can't be tipped over, dislocated, or otherwise compromised.

Consult the complete Installation, Operation, and Maintenance manual for catalytic infrared heaters for complete instructions.

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.

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.

** NOTE: 71-502 Pipeline Packs have four catalytic heaters. Standard configuration from the factory is for the heaters to be wired in pairs. Amperage indicated is for starting one pair of heaters. It's possible to wire all four heaters together after the unit is installed. Contact Catco for more information.*

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 application. 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).

Installing Units in Series

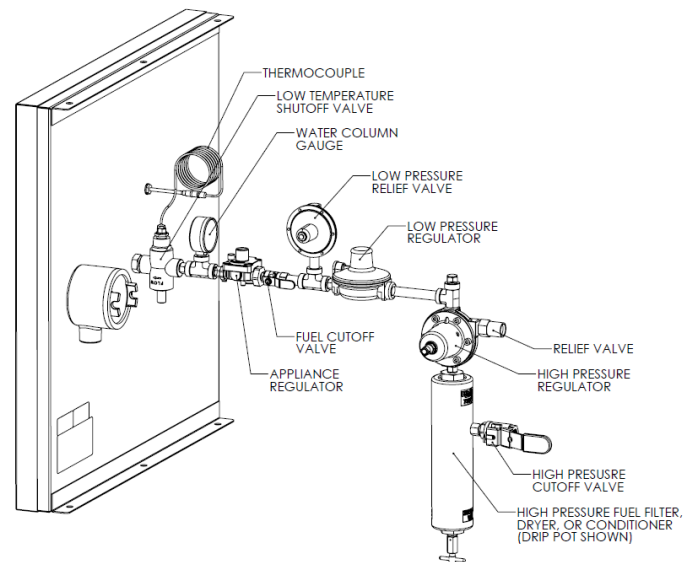
When heat load requirements exceed 24,000 BTU/hr, pipeline packs can be installed in series.

When installing units in series, it's recommended to put the pipeline packs as close together as possible. If the installation requires there to be space between them, insulate the exposed pipe to improve efficiency and minimize heat loss.

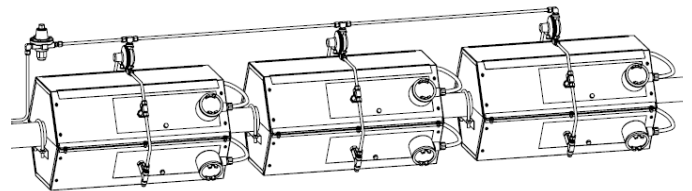
Amperage Requirements During Startup

Model	Heaters	Starting Amps, A*			
		12 V	24 V	120 V	240 V
71-044	Single	8.3	4.2	0.8	0.4
	Dual	16.7	8.4	1.7	0.8
71-045	Single	16.7	4.2	1.9	1.9
	Dual	33.3	8.4	3.8	3.8
71-502	Quad	33.3	8.4	3.8	3.8

Recommended Piping Arrangement

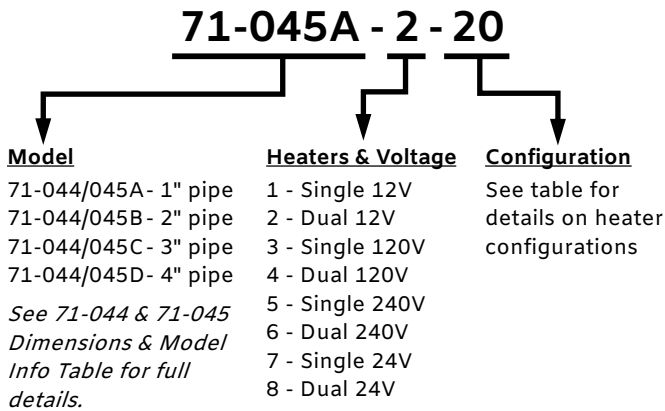


71-502 Pipeline Packs in Series

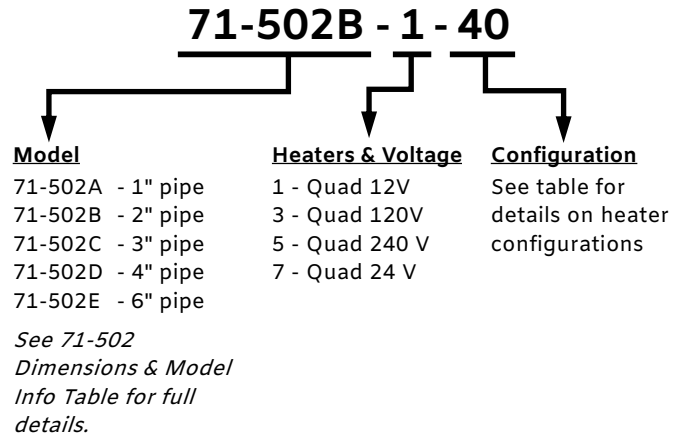


Part Number Key

71-044 & 71-045



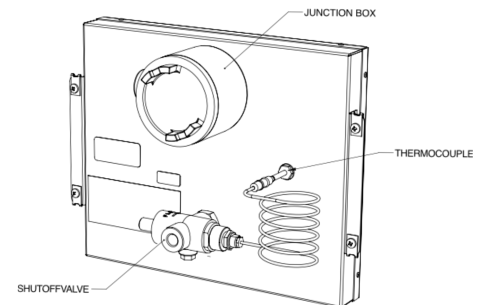
71-502



Heater Configurations

Pipeline Packs are available with heaters of the following configurations:

Configuration	Hazardous Location Listing	Junction Box		Shutoff Valve and Thermocouple
		Plain	EP	
-10		•		
-20			•	
-30	FM, Class I Division 2 Group D T2A	•		•
-40	FM, Class I Division 1 Group D T2A		•	•
-50	CSA, Class I Division 1 Group D T2C		•	•



Operating Specs

Model	Heaters	Rating, BTU/hr (kW)	Fuel Consumption, SCFH (m3/hr)	Approximate Weight, lbs (kg)
71-044	Single	3000 (0.88)	3.0 (0.08)	15 (6.80)
	Dual	6000 (1.76)	6.0 (0.17)	23 (10.43)
71-045	Single	6000 (1.76)	6.0 (0.17)	30 (13.61)
	Dual	12,000 (3.52)	12.0 (0.34)	40 (18.14)
71-502	Quad	24,000 (7.03)	24.0 (0.68)	75 (34.02)

Configuration & Accessory Guide

Single or Dual Heaters

(71-044 and 71-045 only)

Single

The unit has one catalytic heater. This is the most popular choice for light and medium duty applications.

Dual

The unit has two catalytic heaters, one on each side of the enclosure. Dual-heater enclosure packages use a single fuel gas regulator to feed both heaters. Dual-heater enclosures also use an electrical jumper to connect both heaters, so a single electrical input will preheat both heaters.

Temperature Control

Thermostat

A thermostat uses a temperature probe and valve to sense the temperature of the gas in the pipe and modulate the heater BTU output. When the temperature of the gas, air, or other fluid reaches the thermostat's set point, the fuel input to the heater is reduced. With lower heat input into the pipe, the temperature will decrease.

Turndown Valve

A turndown valve operates the same as the thermostat, but manually. A ball valve is modified to have a bypass so that when it's in the closed position, heater output is reduced by half.

Fuel Gas Accessories

Low pressure regulators

A 912 style regulator cuts pressure down to heater inlet pressure. *All Pipeline Packs include a low pressure regulator.*

High pressure regulators

For high inlet pressures or when it's preferred to reduce pressure in two stages. *When purchased with a Pipeline Pack, high pressure regulators are shipped as loose accessories.*

Relief Valves

For use with high pressure regulators to provide overpressure protection for the low pressure regulator. *When purchased with a Pipeline Pack, relief valves are sold as loose accessories.*

Gauges

Catco offers water column gauges to monitor heater inlet pressure. This is particularly useful for installation and troubleshooting. *When purchased with a Pipeline Pack, gauges are sold as loose accessories.*

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. *When purchased with a Pipeline Pack, drip pots are sold as loose accessories.*

Accessory Product Specs

Equipment Type	Catco Part Number	Description
Thermostat	40-037	3/8" NPT; set point range 32-230° F; specify BTU rating of heater when ordering
Turndown Valve	30-030	1/4" NPT; Specify BTU rating when ordering
Low Pressure Regulator	50-005	Zinc; 1/4 NPT; max inlet 250 psig, outlet 3-7 inches wc
High Pressure Regulator	50-035	Brass; 1/4" NPT; max inlet 5500 psig, outlet range 0-75 psig; three outlets
	50-040	Brass; 1/4" NPT; max inlet 5500 psig, outlet range 0-75 psig; two outlets
	50-037	Stainless steel; 1/4" NPT; max inlet 5500 psig, outlet range 0-225 psig; three outlets
	50-036	Brass; 1/4" NPT; max inlet 5500 psig, max outlet 550 psig; two outlets; T-handle
Gauge	35-073	0-15 inches w.c.; 1/4" NPT; back mount
	35-076	0-15 inches w.c.; 1/4" NPT; bottom mount
Drip Pot	30-070	Max inlet 2000 psig
	30-071	Max inlet 6000 psig