Conoflow

ITT Industries
Engineered for life

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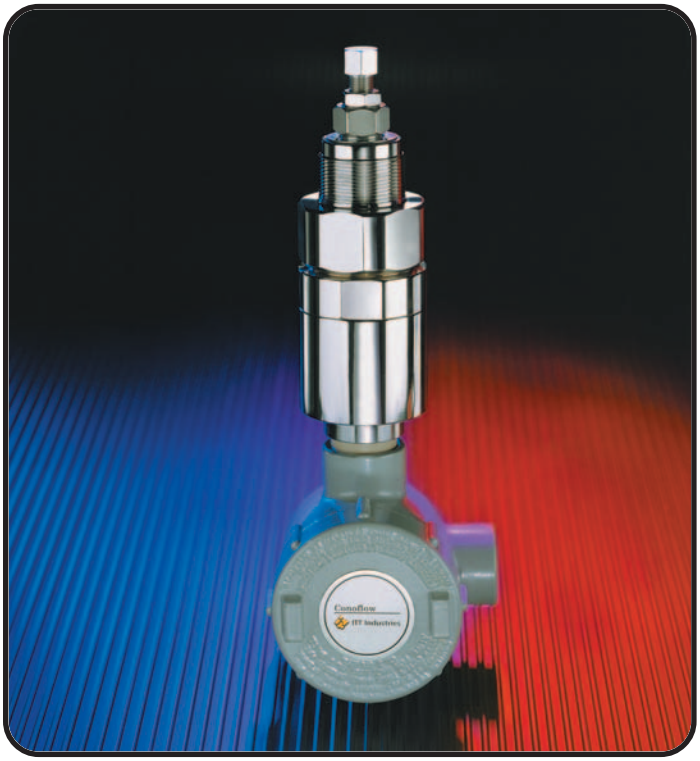


CONOFLOW HIGH-PRESSURE REGULATOR - HP555

Electric Vaporizing

ITT Conoflow's HP555 Regulator is a self-contained, diaphragm sensed, electrically heated vaporizing high pressure regulator. This unit is designed for use in the vaporization and vapor pressure control for sampling of process fluids.

Vaporizing regulators are primarily used as part of a sample conditioning system for an on-line gas chromatograph. The vaporizing regulator keeps the temperature of the gas stream high enough to keep condensable liquids in their gas phase. On-line gas chromatographs are used in fluid fractionation facilities, within the petrochemical industry, for quality control purposes. These units are also used to vaporize liquid hydrocarbons for analysis and for other analytical equipment such as hydrogen sulfide detectors.

This unit incorporates two 150 watt, 120 volt thermostatically controlled heating units. These units are positioned in close proximity to the process flow area in the regulator body. Having the main valve plug (process flow area) close to the heating elements insures that the fluid medium will be maintained in the vapor phase during processing, regardless of the fluid volume. The controlled temperature range can be varied from ambient to approximately 385°F (196°C), at a steady operating state. Temperature may be applied to create a controlled ambient, as well as vaporize liquids and gases. Thermal heat-up from room temperature 72°F (22°C) to 350°F (176°C) can be achieved in less than five minutes. This unit incorporates an electrical cutout for thermal protection. The HP555 Regulator is Factory Mutual approved for use in hazardous locations, and is rated explosion-proof for Class I, Divisions 1 and 2, Groups E, F and G. The unit will operate with temperature code T3. Canadian Standard Association approvals have been applied for.

The HP555 Regulator has a 316L Stainless Steel body, 316 Stainless Steel bonnet and trim. This unit incorporates a Vespel main valve seat for bubble tight shut off and a Hastelloy C diaphragm for excellent pressure control sensitivity. The maximum supply pressure range is 1500 PSIG (10.35 MPa). Control pressure ranges of 4-25 PSIG (0.03 - 0.173 MPa), 4-50 PSIG (0.03 - 0.345 MPa), 5-100 PSIG (0.04 - 0.690 MPa), 6-250 PSIG (0.04 - 1.730 MPa) are available.

This unit incorporates an 1/8" NPT inlet port, having a continuous wire, 25 micron, stainless steel filter, and 1/4" NPT outlet port. The regulator body can be rotated 180° to accommodate positioning of the regulator with respect to the electronic enclosure. The unit can be line or panel mounted.

If your process requires Steam Vaporization of your process medium, request literature on our HP550 Steam Vaporizing, High-Pressure Regulator.

DESIGN FEATURES:

Fast
Heats 3 times faster than other vaporizing regulators

Reliable
Maintains a constant temperature at higher output pressures/volumes

Compact
25% smaller than any other

Easily Maintained
Most repairs can be made with common hand tools

Electrical Cutout
For thermal protection

HP555 Control Kit
83556-16 - For control setting range 4-25 PSIG (0.03 - 0.173 MPa)
83556-16 - For control setting range 4-50 PSIG (0.03 - 0.345 MPa)
83557-16 - For control setting range 5-100 PSIG (0.04 - 0.690 MPa)
83558-16 - For control setting range 6-250 PSIG (0.04 - 1.730 MPa)

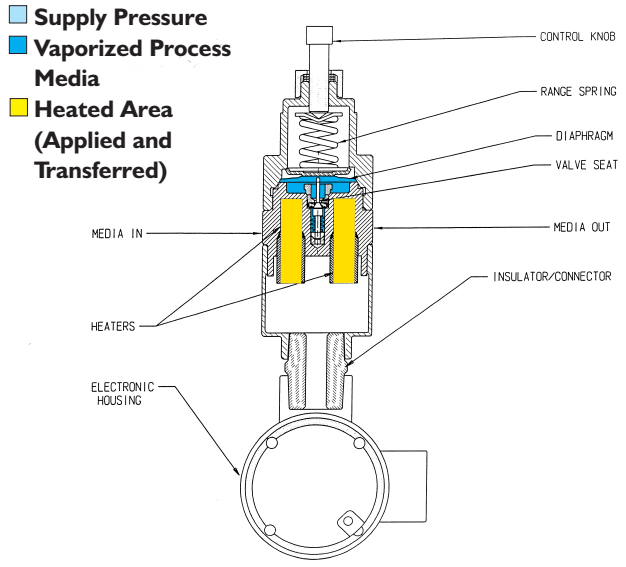
HP555 Maintenance Kit
80555-16 - For all control setting ranges

HP555 Overhaul Kit
81555-16 - For all control setting ranges

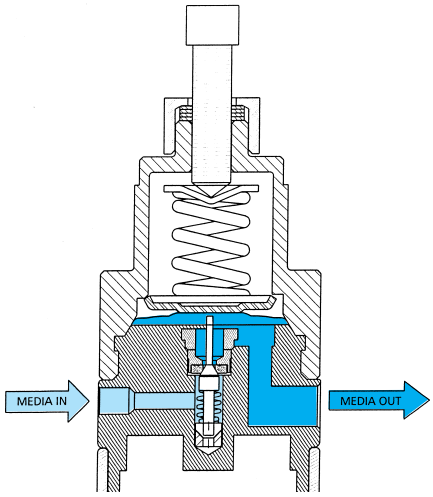
Mounting
Line – All variations – Standard
Panel – (2 panel mounting nuts) – Optional

Adjustments
Knob (Wrench style – with locking device) – Standard

Printed USA
1-31-03



HP555 Series, Electrical View



HP555 Series, Mechanical View

PRINCIPLE OF OPERATION

The HP555 is a self-contained, spring loaded, high pressure, electrically heated vaporizing regulator. Turning the process control knob clockwise will increase the force on the range spring and, in turn, the outlet set pressure will increase. Conversely, turning the control knob counterclockwise will decrease the outlet set pressure. In equilibrium, the force exerted by the range spring is balanced by the outlet pressure.

An unbalance between the outlet pressure and the set pressure causes a corresponding reaction in the diaphragm and main valve. If the outlet pressure rises above the set pressure, the metal diaphragm will lift, allowing the main valve to seat. If the outlet pressure falls below the set pressure, the range spring will push the diaphragm down, unseating the main valve, allowing supply pressure to flow through the main valve to the downstream port increasing the outlet pressure.

At equilibrium, the main valve plug assumes a position, which supplies the required flow while maintaining the outlet pressure.

Heat is applied by electronically controlled heaters located in close proximity to the process flow area in the regulator body. This insures that the fluid medium will be maintained in the vapor phase during processing, regardless of the fluid volume. The controlled temperature range can be varied from ambient to approximately 385°F (196°C), at a steady operating state. Temperature may be applied to create a controlled ambient, as well as vaporize liquids and gases. Thermal heat-up from room temperature 72°F (220°C) to 350°F (176°C) can be achieved in less than five minutes.

SPECIFICATIONS

CHARACTERISTICS:

Power Requirements: 120 VAC
Heater Wattage: 2 – 150 Watt Heaters
Maximum Supply Pressure: 1500 PSIG (10.35 MPa)
Outer Pressure Ranges: A = 4-25 PSIG 0.03-0.173 MPa)
B = 4-50 PSIG 0.03-0.345 MPa)
C = 5-100 PSIG 0.04-0.690 MPa)
E = 6-250 PSIG 0.04-0.1730MPa)
Proof Pressure: 150% of maximum operating
Burst Pressure: 400% of maximum operating
Flow Capacity: C_V0.16
Orifice Diameter: 0.110"
Ambient Operating Temperature: -15°F to 150°F (-26°C to +65°C)
Maximum Leak Rate: Bubble Tight
Ports: 1/8" NPT Inlet Port
1/4" NPT Outlet Port
Weight: 3.1 lbs.

MATERIALS OF CONSTRUCTION

Body: 316L Stainless Steel
Connector: 303 Stainless Steel
Bonnet: 316 Stainless Steel
Main Valve Seat: Vespel
Diaphragm and Trim: Hastelloy C / 316SS
Filter: 316 Stainless Steel (25 Micron)

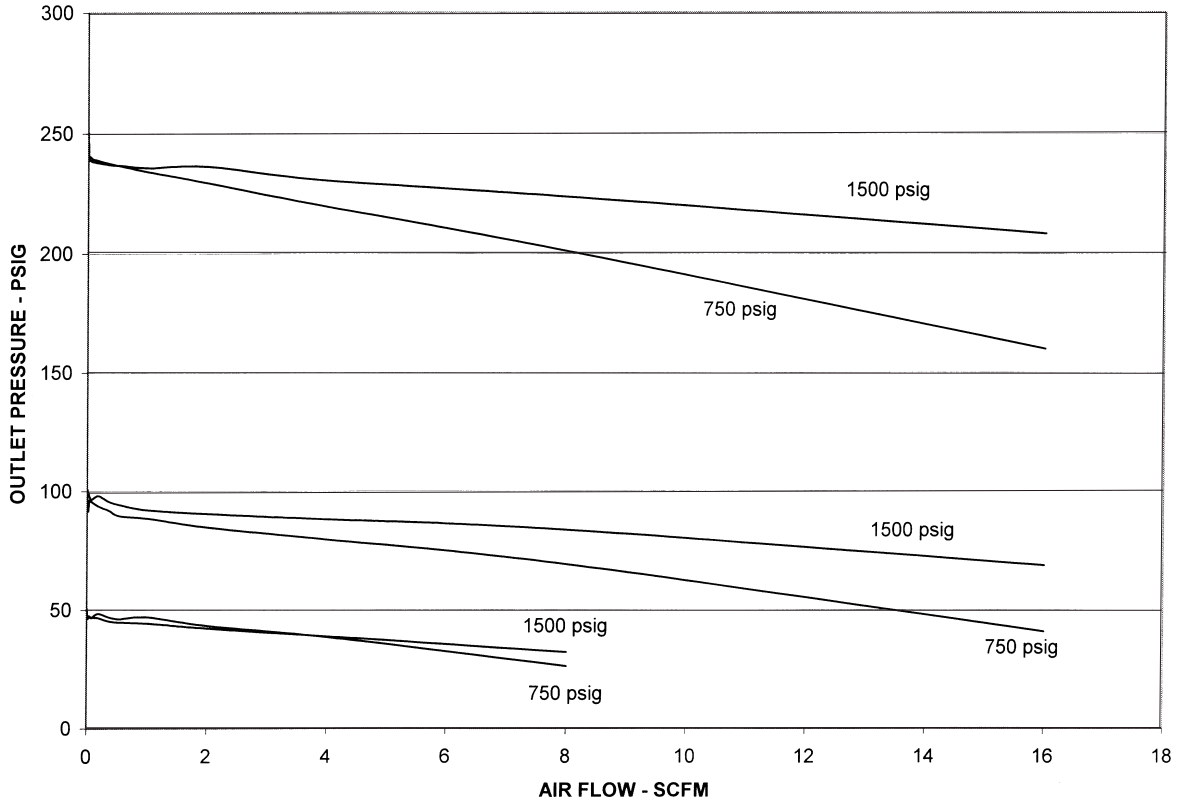
CONTROL ENGINEERING DATA

Control Engineering Data is intended to provide a single source from which one can determine, in detail, the full scope of the product line. In addition to materials of construction and mounting options, it also provides all necessary data, regarding accessory options. Control Engineering Data also provides means of communicating, by way of a code number, which is fully descriptive of the product selection.

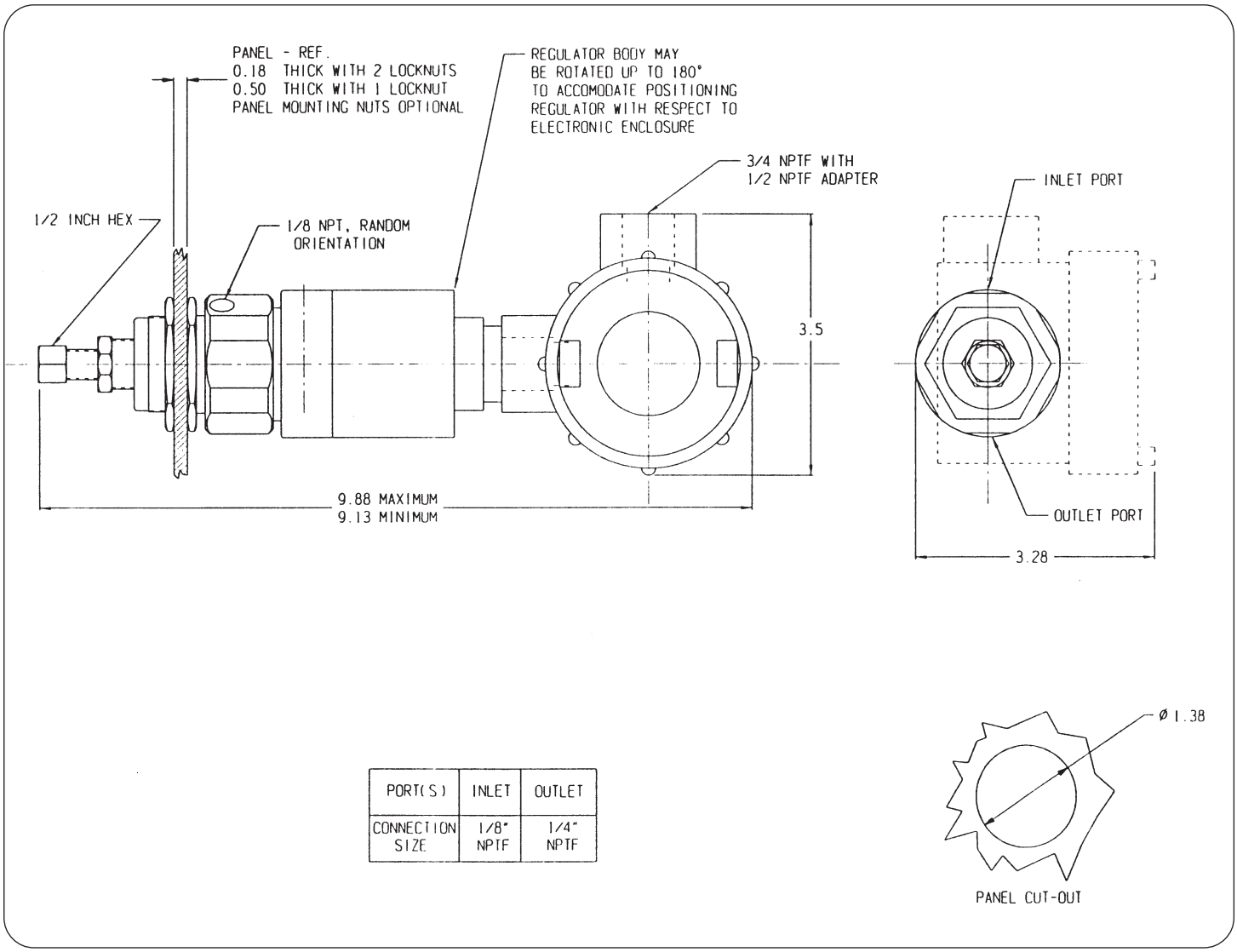
Note 1. All Catalog Numbers as received must contain fifteen (15) characters.

1-5 Model	HP555 Pressure Reducing Regulator Vaporizing / Electrically-Heated (120VAC – with 2 – 150 Watt Heaters)
6 Materials of Construction	**Body / Bonnet / Trim / Connector** L = 316LSS / 316SS / 316LSS / 303SS
7-8 Elastomer & Diaphragm	**Diaphragm/ Main Valve Seat** 16 = Hastelloy C / Vespel
9 Relieving Option	N = Non-Relieving / Captured Bonnet
10-11 Inlet/Outlet/Ports	**Inlet / Outlet Ports (No Gauge Ports)** N1 = 18" NPT Inlet - 1/4" NPT Outlet
12 Mounting	S = Line Mounting (Standard) P = Panel Mounting (2-nut) (Optional)
13 Cleaning	A = Regulators are cleaned to ITT Conoflow Specification ES8A 01 294
14 Adjustment Selection	K = Wrench Knob with locking device
15 Control Setting Ranges	A = 4-25 PSIG (0.03 - 0.173 MPa) B = 4-50 PSIG (0.03 - 0.345 MPa) C = 5-100 PSIG (0.04 - 0.690 MPa) E = 6-250 PSIG (0.04 - 1.730 MPa)

FLOW CHART



DIMENSIONAL DATA – ADVERTISING DRAWING:



PORT(S)	INLET	OUTLET
CONNECTION SIZE	1/8" NPTF	1/4" NPTF

For Certified Dimensional Drawing, Refer to HP555-C1.