Conoflow

ITT Industries
Engineered for life

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CONOFLOW HIGH-PRESSURE REGULATOR - HP550

Pressure Reducing - Vaporizing Series

ITT Conoflow's HP550 Regulator is a self-contained, diaphragm sensed, steam heated vaporizing high pressure regulator. This unit is designed for use in the vaporization and vapor pressure control for sampling of process liquids.

This regulator offers a unique design which extends the main valve plug deep into the steam trap maximizing heat transfer while increasing efficiency. The large steam trap provides ease of maintenance and excellent corrosion resistance as all components in contact with the steam are manufactured of 316L Stainless Steel.

The HP550 Regulator has a 316L Stainless Steel body and 316 Stainless Steel bonnet and trim. This unit incorporates a Vespel main valve seat for bubble tight shut off and an Elgiloy diaphragm for excellent pressure control sensitivity. The maximum supply range is 1500 PSIG (10.35 MPa) with 250 PSIG (1.73 MPa) of maximum steam pressure at 350°F (176°C). 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) and 10-500 PSIG (0.069 - 3.450 MPa) are available.

This unit incorporates an 1/8" NPT inlet port. The outlet port and steam ports (two of them) are 1/4" NPT. An easily adjustable wrench style knob is standard with a "T" bar handle offered as an option. This unit can be panel or line mounted.

For details on the HP555 Electrically Heated Traced Regulator, consult the factory for specifications and dimensional data.

Mounting
Line - All variations (Supplied with plain bonnet.)
Panel - (2 panel mounting nuts) - Optional

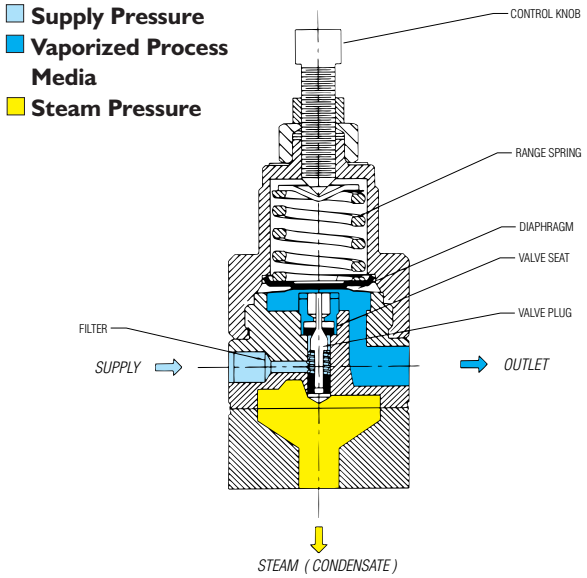
Adjustments
Knob - (Wrench style - with locking device) - Standard
"T" bar handle - Optional

HP550 Control Kit
83550-16 - For control setting range 4-25 PSIG (0.03 - 0.173 MPa)
83551-16 - For control setting range 4-50 PSIG (0.03 - 0.345 MPa)
83552-16 - For control setting range 5-100 PSIG (0.04 - 0.690 MPa)
83553-16 - For control setting range 6-250 PSIG (0.04 - 1.730 MPa)
83554-16 - For control setting range 10-500 PSIG (0.069 - 3.450 MPa)

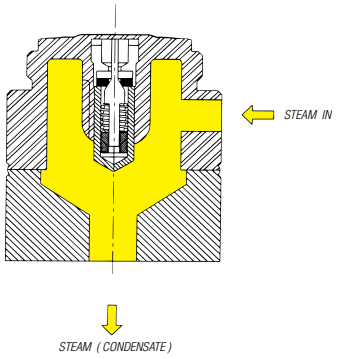
HP550 Maintenance Kit
80550-16 - For all control setting ranges

HP550 Overhaul Kit
81550-16 - For all control setting ranges

Printed USA
1-31-03



HP550 Series, Non-Relieving Diaphragm



HP550 Series, Steam Cavity Ports

PRINCIPLE OF OPERATION

The HP550 is a self-contained, spring loaded, high pressure, vaporizing regulator. Turning the 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 drops 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.

As steam contacts the wall of the regulator steam cavity, heat is transferred through the stainless steel body into the incoming sample fluid. The heat vaporizes the fluid as it flows through the passage from the inlet port and into the main valve cavity. As the pressure of the sample fluid is reduced across the main valve seat, the temperature of the fluid also decreases. For this reason, the steam cavity is designed to heat the diaphragm chamber, the low pressure passage and outlet port to keep the fluid in vapor phase. Steam enters the regulator's steam cavity through the vertically highest steam port. As heat is transferred from the steam, the resulting condensation that forms on the cavity walls is gravity fed and channeled toward the steam outlet port.

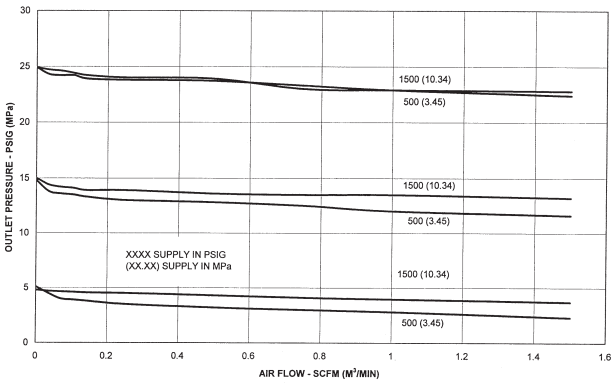
SPECIFICATIONS

Maximum Supply Pressure: 1500 PSIG (10.35 MPa)
Maximum Operating Steam Pressure: 250 PSIG (1.7 MPa)
Proof Pressure: 150% maximum operating
Burst Pressure: 400% maximum operating
Control Setting Ranges:
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)
10-500 PSIG (0.069 - 3.450 MPa)
Maximum Steam Temperature: -15°F (-26°C) to 350°F (176°C)
Operating and Fluid Temperature Range: 350°F (176°C)
Flow Capacity: C_V0.16
Orifice Diameter: 0.110"
Leak Rate: Bubble tight
Ports: 1/8" NPT inlet port
1/4" NPT outlet port and 2 - steam ports
Weight (Without gauges): 2.1 lbs.

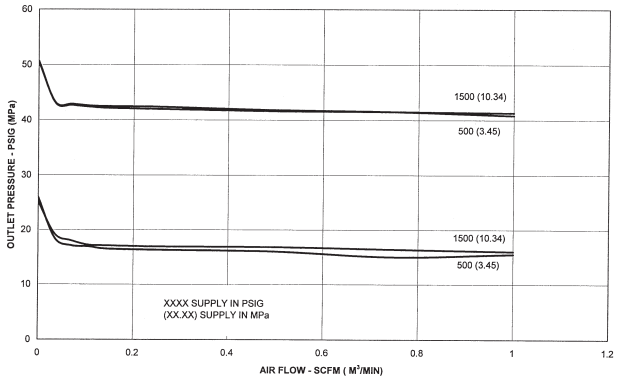
MATERIALS OF CONSTRUCTION

Body and Bowl: 316L Stainless Steel
Bonnet and Trim: 316 Stainless Steel
Main Valve Seat: Vespel
Diaphragm: Elgiloy
Filter: 316 Stainless Steel (25 Micron)

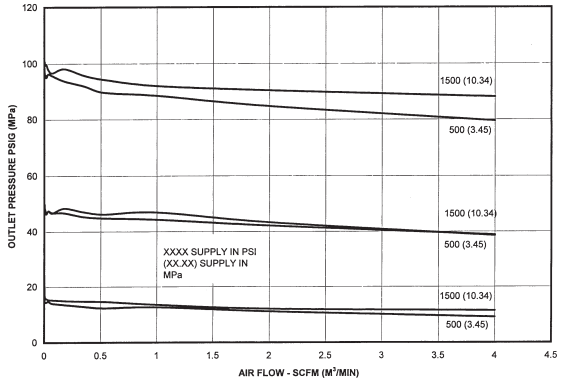
FLOW CHARTS



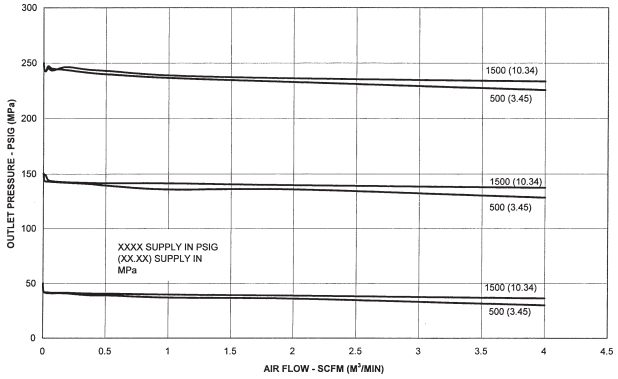
4-25 PSIG



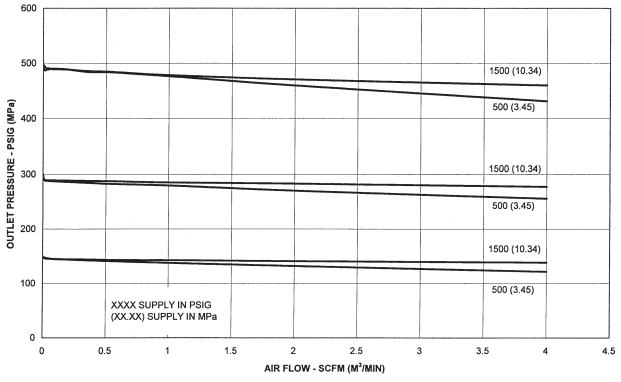
4-50 PSIG



5-100 PSIG



6-250 PSIG



10-500 PSIG

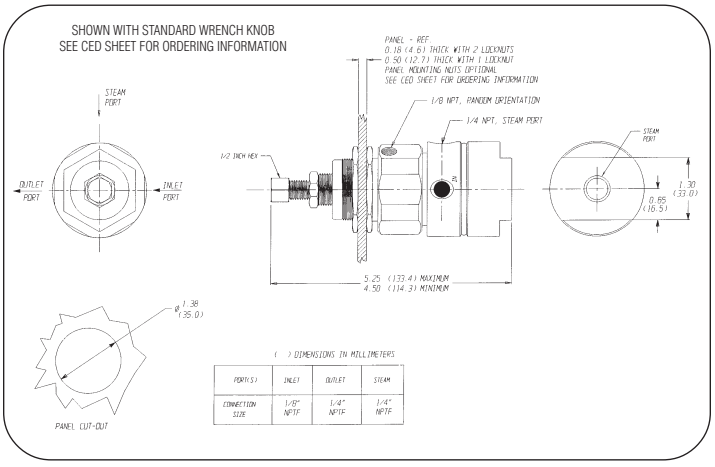
CONTROL ENGINEERING DATA

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, diaphragm and elastomer selection, it also provides all necessary data, regarding adjustment options and range selections. Control Engineering Data also provides a means of communicating by way of a code number which is fully descriptive of the product selection.

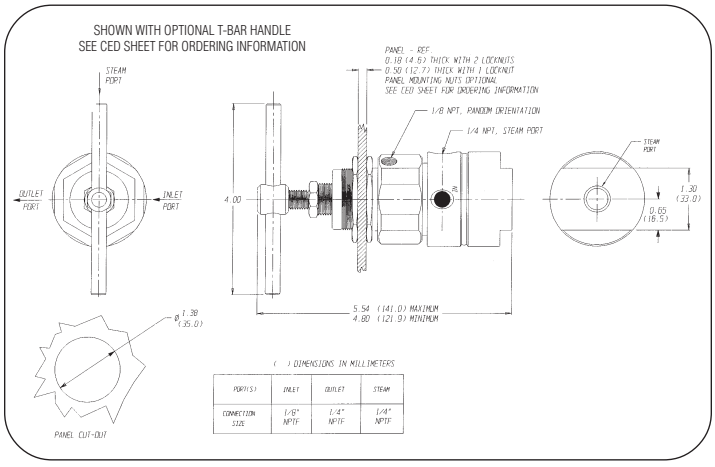
Note 1. All Catalog Numbers as received must contain fifteen (15) characters.

1-5 Model	HP550 Pressure Reducing Regulator Steam Vaporizing Regulator
6 Materials of Construction	**Body/Bonnet/Trim** L = 316LSS/316SS/316SS
7-8 Elastomer & Diaphragm	**Diaphragm/Main Valve Seat** 16 = Elgiloy/Vespel
9 Relieving Option	N = Non-Relieving/Captured Bonnet
10-11 Inlet/Outlet/Ports	**Inlet/Outlet/Steam Ports (No Gauge Ports)** N1 = 1/8" NPT Inlet - 1/4" NPT Outlet 2 - 1/4" NPT Steam Ports
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 (Standard) T = "T" bar handle (Optional)
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) F = 10-500 PSIG (0.069 - 3.450 MPa)

DIMENSIONAL DATA - ADVERTISING DRAWING:



For Certified Dimensional Drawing, Refer to HP550-C3.



For Certified Dimensional Drawing, Refer to HP550-C2.