CONOFLOW HIGH-PRESSURE REGULATOR - HP400

Pressure Reducing - Piston Type

Conoflow's HP400 is a piston-sensing, self-contained pressure reducing regulator. High inlet and outlet pressures allow use of this regulator in component testing, calibration systems, manufacturing processes and other applications that require an economical regulator having reliable and safe operating characteristics.

The brass constructed HP400 Regulator has a maximum supply pressure rating of 3500 PSIG (24.2 MPa). Control setting range for this unit is 20 to 2500 PSIG (0.138 -17.25 MPa). Adjustments within the range are made with a large handwheel furnished with the standard unit. Optional adjustment devices include a wrench style knob with a locking device or a "T" bar handle.

This unit is supplied with 1/4" NPT inlet and outlet connections. Inlet and outlet gauge ports (1/4" NPT) are standard. The regulator is non-relieving with a captured bonnet.

FEATURE SUMMARY

High inlet pressure 3500 PSIG (24.2 MPa)
6000 PSIG (41.40 MPa) inlet pressure available
High outlet pressure 2500 PSIG (17.25 MPa)
Piston sensing for safe and reliable service life
Economical brass construction
Captured bonnet - standard
Mounting nuts available for optional panel mounting
Regulator cleaned to ITT Conoflow Specification (ES8A 01 294)
CGA cylinder connections available

OPTIONS

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

Adjustments:
Handwheel (Large)
Knob (Wrench style - with locking device) - Optional
“T” bar handle - Optional

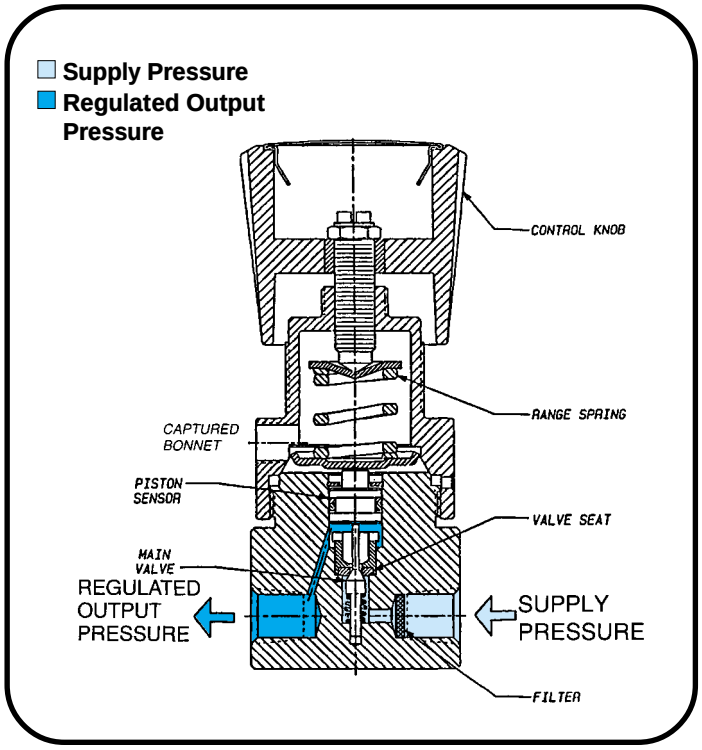
Cylinder Connections:
CGA Cylinder connections are available

HP400 Maintenance Kit:
80400-11, 12, 13, 14, 17 & 18 For all control setting ranges

HP400 Overhaul Kit:
81400-11, 12, 13, 14, 17 & 18 For all control setting ranges

DIMENSIONAL DATA - ADVERTISING DRAWINGS:

HP400-C1: Standard Unit
HP400-C2: “T” Bar Handle
HP400-C3: Wrench knob with locking device



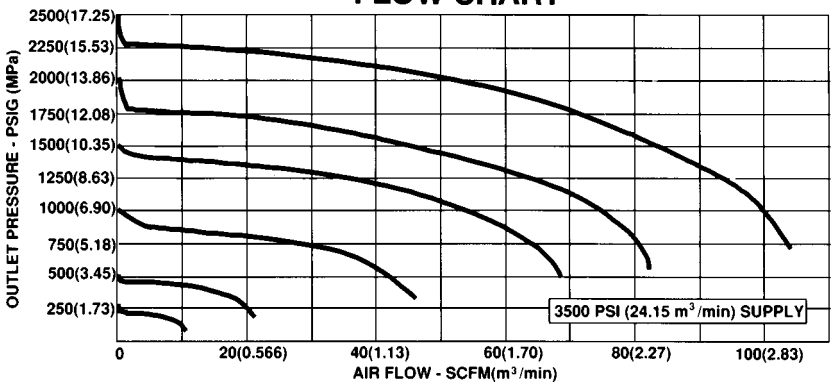
HP400 Series - Non-Relieving Piston

PRINCIPLE OF OPERATION

Turning the control knob clockwise will increase the force on the range spring and, in turn, the outlet set pressure. Conversely, turning the control knob counter-clockwise will decrease the force on the range spring and 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 piston sensor and valve. If the outlet pressure rises above the set pressure, the piston sensor will lift allowing the main valve to seat. If the outlet pressure falls below the set pressure, the range spring will push the piston down and unseat the valve. At equilibrium, the valve plug assumes a position which supplies the required flow while maintaining the outlet pressure at the set pressure.

FLOW CHART



SPECIFICATIONS

Maximum Supply Pressure: 3500 PSIG (24.2 MPa)
6000 PSIG (41.40 MPa) available, refer to Control Engineering Data.
Control Setting Range: 20 - 2500 PSIG (0.138 - 17.25 MPa)
Proof Pressure: 150% maximum operating
Burst Pressure: 400% maximum operating
Flow Capacity: C_v - 0.06 (See Flow Graph)
Orifice Diameter: 0.110"
Supply Pressure Effect: 3.6 PSIG (0.025 MPa) increase for a 100 PSIG (0.690 MPa) supply decrease
Operating and Fluid Temperature Range:
-15°F to +165°F (-26°C to +74°C)
Leakage: Bubble tight (In Board and Main Valve)
Maximum Operating Torque: 30 in-lbs. (34.5 Kg-cm)
Ports: 1/4" NPTF supply, outlet and two gauge ports (80°)
Weight (Without gauges): 2.25 lbs. (1.02 Kg)

MATERIALS OF CONSTRUCTION

Body/Bonnet: Brass
Main Valve Seat: Kel-F (Vespel optional)
Sensor and Trim: 300 Series Stainless Steel
Seals: Teflon/Viton (Buna N optional)
Filter: 316 SS Screen (120 Mesh)

OXYGEN SERVICE

Specification of materials in regulators used for oxygen service is the **user's responsibility.** Cleaning for oxygen service **(Per ES8A 01 297)** to 3500 PSIG (24.20 MPa) is supplied by ITT Conoflow at no additional cost. Special cleaning may be performed to the user's specifications at an additional cost through an outside source.

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 diaphragm 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

HP400 = Pressure Reducing Regulator - Piston Type (Low Flow)
NOTE: 1. For a maximum inlet pressure rating of 6000 PSIG (41.40 MPa), refer to positions (7-8) Elastomers.

6 Materials of Construction

Body/Bonnet/Trim
B = Brass/Brass/300 Stainless Steel
NOTE: 1. Maximum supply pressure must not exceed the maximum pressure rating of the supply connection and supply gauge connection.

7-8 Elastomers

	Main Valve Seat(s)	Backup Rings	O-Ring(s)
11 =	Kel-FTeflon	Buna-N	
12 =	Vespel	Teflon	Buna-N (See Note 1)
13 =	Kel-FBuna-N	Buna-N	
14 =	Vespel	Buna-N	Buna-N
17 =	Vespel	Teflon	Viton (See Note 1)
18 =	Kel-FTeflon	Viton (Standard)	

NOTES:
1. The use of a Vespel main valve seat increases the maximum inlet pressure rating to 6000 PSIG (41.40 MPa)

9 Relieving Options

R = Non-relieving, captured bonnet

10-11 Inlet/Outlet/ Gauge Ports

Inlet/Outlet/ 2-Gauge Ports (80 Degrees)
Gauge Port Configuration = Inlet (High) Outlet (Low)
NPT Connections
81 = 1/4"
NOTE: 1. All gauge port connections are 1/4" NPT.

12 Mounting Options

P = Panel Mounting (2-nut) (Optional)
S = Plain bonnet (no threads) - Standard

13 Cleaning Options

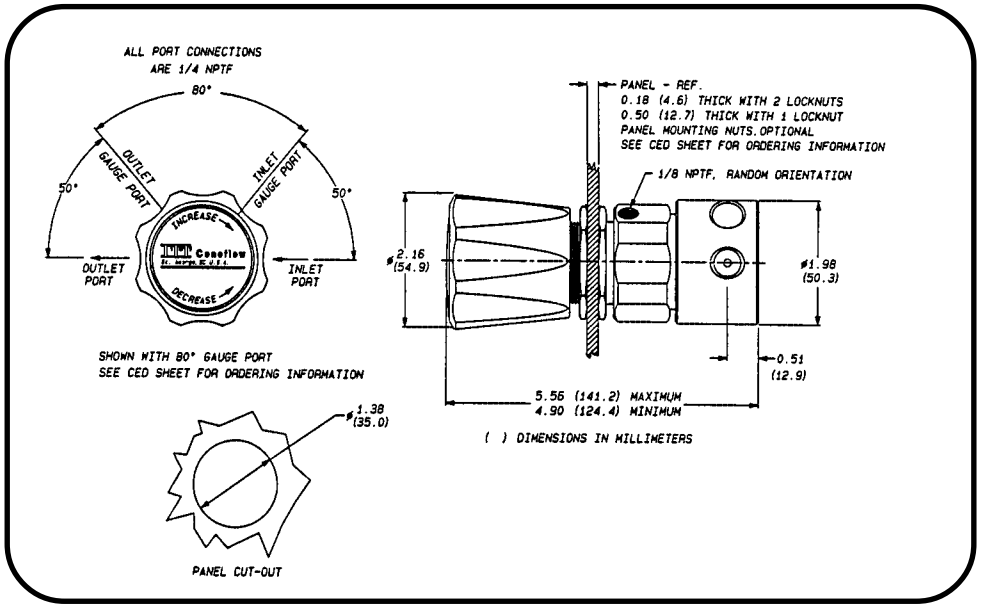
A = Regulator is cleaned to ITT Conoflow Specification ES8A 01 294.
B = **OXYGEN CLEANING.**
Specification of materials in regulators used for oxygen service is the **user's responsibility.** Cleaning for oxygen service **(Per ES8A 01 297)** to 3500 PSIG (24.20 MPa) is supplied by ITT Conoflow at no additional cost.
C = **CUSTOMER SPECIFIED CLEANING**
Customer to specify the desired level of cleanliness. ITT Conoflow will advise cost prior to performing cleaning operation. Specification of materials is the **USER'S RESPONSIBILITY.**

14 Adjustment Selections

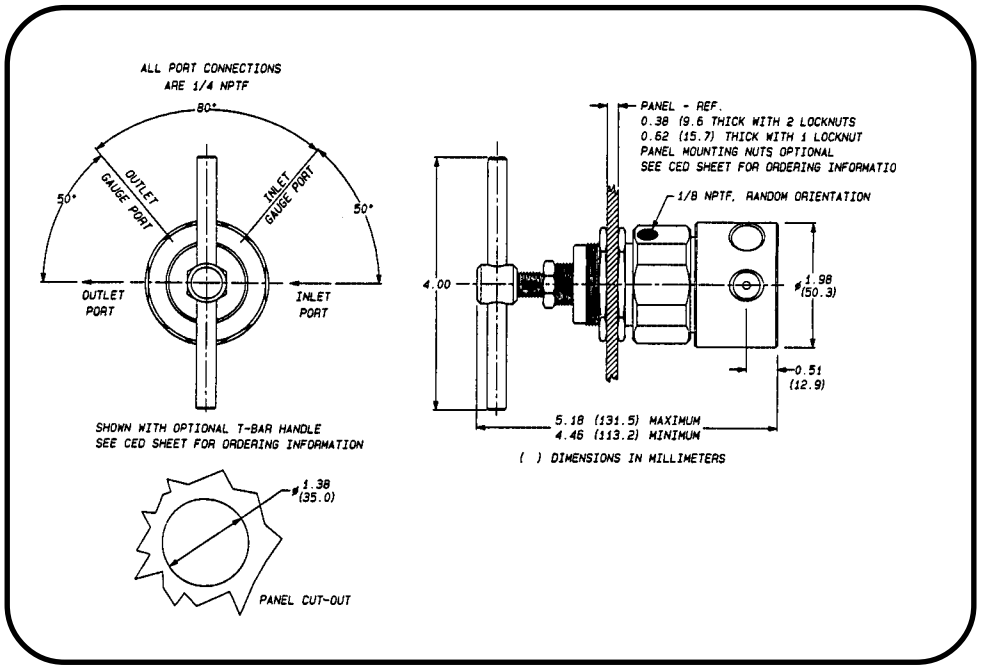
B = Handwheel (Standard)
K = Wrench knob with locking device (Optional)
T = "T" bar handle (Optional)

15 Control Setting Ranges

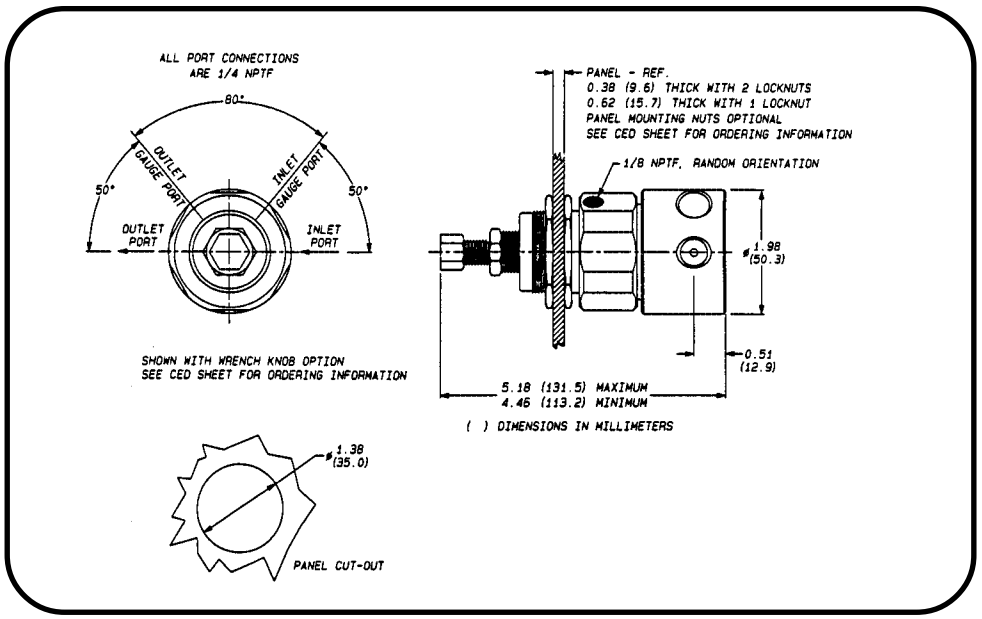
J = 20 - 2500 PSIG (0.138 - 17.25 MPa)



For certified dimensional drawing, refer to HP400-C1.



For certified dimensional drawing, refer to HP400-C2.



For certified dimensional drawing, refer to HP400-C3.