

CONOFLOW HIGH PRESSURE REGULATOR - HP300

Pressure Reducing - Piston Type



The Conoflow HP300 High Pressure Regulator is designed to accurately control supply pressures up to 10,000 PSIG (69 MPa). This piston sensing, self-relieving regulator allows pressure setting reduction in a closed system by relieving downstream pressure through the regulator.

For hazardous media applications a non-relieving piston is offered. Where non-corrosive media are present, the HP300 Regulator is offered in both brass and stainless steel constructions. N.A.C.E. models are rated for a maximum supply pressure up to 6,000 PSIG (41.4 MPa). Each unit is supplied with 1/4" inlet, outlet and two gauge ports. CGA cylinder connections are also available.

The HP300 Regulator provides excellent sensitivity through six control setting ranges: 8-500, 9-800, 10-1500, 15-2500, 25-4000, and 30-6000 PSIG (0.06-3.45, 0.062-5.52, 0.069-10.35, 0.104-17.25, 0.173-27.60, and 0.207-41.40 MPa). All of these regulated pressure ranges can be obtained from one regulator simply by interchanging range/sensor kits. Adjustment within each range is made by a large handwheel (standard) or by an optional "T" bar handle.

Designed for reliability with minimum maintenance, this unit is commonly used for instrument calibration, for corrosive gases, airline charging systems, cylinder gas regulation, process sampling systems, cylinder filling stations and other applications where rugged construction and accurate control of high pressure is required.

FEATURE SUMMARY

- 10,000 PSIG (69 MPa) supply pressure
- Stainless steel or brass construction
- N.A.C.E. construction available
- Multiple control setting ranges from 500 to 6,000 PSIG (3.45 TO 41.4 MPa)
- Control range can be field changed
- Standard unit is supplied with plain bonnet for line mounting
- Panel mounting available by ordering panel mounting bracket
- Regulator cleaned to ITT Conoflow Specification (ES8A 01 294)
- CGA cylinder connections available

The HP300 Regulator (as Qualified below) has been approved by the Railroad Commission of Texas to be in compliance with the Regulators for Compressed Natural Gas.

- HP300 Regulator - Brass Construction
- No Buna "N" Elastomers
- Non-Relieving Models Only
- 4000 PSIG Output Control Range

DIMENSIONAL DATA - ADVERTISING DRAWINGS:

- HP300: Standard unit
- HP300-C2: "T" bar handle

OPTIONS

MOUNTING:

- Line - All variations (Supplied with plain bonnet)
- Panel - Panel mounting bracket

ADJUSTMENTS:

- Handwheel (Large)
- "T" bar handle - Optional

GAUGES:

- 2" and 2-1/2" diameters
- Brass, steel and stainless steel construction

CYLINDER CONNECTIONS:

- CGA connections are available

HP300 CONTROL KIT:

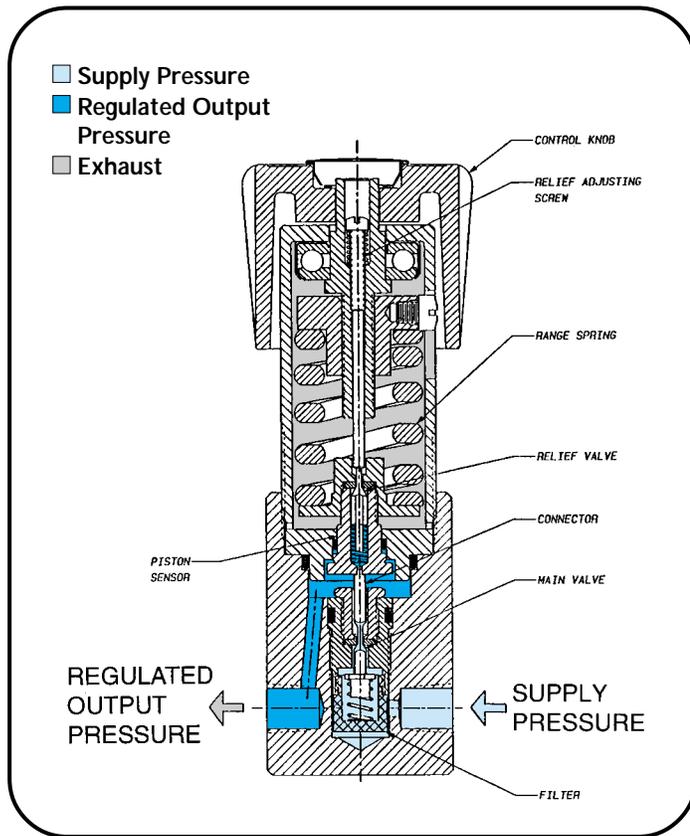
- 83300-11 thru 18 For control setting range 8-500 PSIG (0.06-3.45 MPa)
- 83301-11 thru 18 For control setting range 9-800 PSIG (0.062-5.52 MPa)
- 83302-11 thru 18 For control setting range 10-1500 PSIG (0.069-10.35 MPa)
- 83303-11 thru 18 For control setting range 15-2500 PSIG (0.104-17.25 MPa)
- 83304-11 thru 18 For control setting range 25-4000 PSIG (0.173-27.60 MPa)
- 83305-11 thru 18 For control setting range 30-6000 PSIG (0.207-41.40 MPa)

HP300 MAINTENANCE KIT:

- 80300-11 thru 18 For control setting range 8-500 PSIG (0.06-3.45 MPa), 9-800 PSIG (0.062-5.52 MPa) and 10-1500 PSIG (0.069-10.35 MPa)
- 80301-11 thru 18 For control setting range 15-2500 PSIG (0.104-17.25 MPa)
- 80302-11 thru 18 For control setting range 25-4000 PSIG (0.173-27.60 MPa) and 30-6000 PSIG (0.207-41.40 MPa)

HP300 OVERHAUL KIT:

- 81300-11 thru 18 For control setting range 8-500 PSIG (0.06-3.45 MPa), 9-800 PSIG (0.062-5.52 MPa) and 10-1500 PSIG (0.069-10.35 MPa)
- 81301-11 thru 18 For control setting range 15-2500 PSIG (0.104-17.25 MPa)
- 81302-11 thru 18 For control setting range 25-4000 PSIG (0.173-27.60 MPa) and 30-6000 PSIG (0.207-41.40 MPa)



HP300 Series - Relieving Piston

SPECIFICATIONS

Maximum Supply Pressure:

Stainless Steel: 10,000 PSIG (69 MPa)
 Brass/N.A.C.E.: 6,000 PSIG (41.4 MPa)

Control Setting Ranges:

8 - 500 PSIG (0.060 - 3.45 MPa)
 9 - 800 PSIG (0.062 - 5.52 MPa)
 10 - 1500 PSIG (0.069 - 10.35 MPa)
 15 - 2500 PSIG (0.104 - 17.25 MPa)
 25 - 4000 PSIG (0.173 - 27.60 MPa)
 30 - 6000 PSIG (0.207 - 41.40 MPa)

Proof Pressure: 150% maximum operating

Burst Pressure: 400% maximum operating

Flow Capacity: C_v - 0.14 (See Flow Graph)
 Orifice Diameter: 0.110"

Supply Pressure Effect:

2.2 PSIG (0.015 MPa) increase for a 100 PSIG (0.690 MPa) supply decrease

Operating and Fluid Temperature Range:

-40°F to +165°F (-40°C to +74°C)

Leakage: Bubble tight (In Board and Main Valve)

Maximum Operating Torque: 55 in.-lbs. (63.2 Kg-cm)

Ports: 1/4" NPTF supply, outlet and two gauge ports (60°)

Weight (Without gauges): 4.6 lbs. (2.12 Kg)

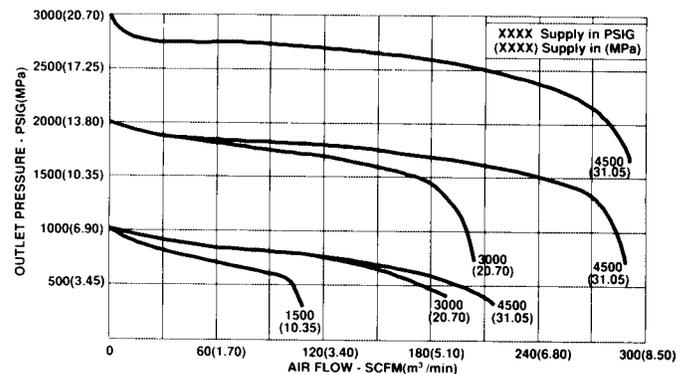
PRINCIPLE OF OPERATION

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 on the sensor and valve. If the outlet pressure rises above the set pressure, the piston sensor will lift allowing the main valve to seat. This action causes the relief valve to open relieving the excess pressure to atmosphere until equilibrium is reached.

If the outlet pressure falls below the set pressure, the range spring will push the sensor down and unseat the main valve. This allows supply pressure to flow through the main valve to the downstream port increasing the set pressure. At equilibrium, the valve plug assumes a position which supplies the required flow while maintaining the outlet pressure at the set pressure.

FLOW CHART



Body: Brass/303SS/N.A.C.E. 316SS

Bonnet: Brass/Plated Brass

Main Valve Seat: Vespel (Kel-F optional)

Relief Valve Seat: Kel-F

Sensor and Trim: 300 Series Stainless Steel

Seals: Buna N/Teflon (Viton optional)

Filter: Bronze (20 micron) - Brass Models
 316L SS (20 micron) - Stainless Steel Models

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. Cleaning for service above 3500 PSIG (24.20 MPa) may be performed to the user's specifications at an additional cost through an outside source.

For special cleaning requirements, the customer must supply specifications for desired level of cleanliness. Cost will be advised prior to performing the cleaning operation.

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. Catalog numbers as received must contain fifteen (15) characters.

1-5
Model HP300= Pressure Regulator-Piston Type

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Materials of Construction

Body/Bonnet/Trim

- B = Brass/Brass/300 Stainless Steel
- S = 303 Stainless Steel/Nickel Plated Brass/300 Stainless Steel
- R = N.A.C.E. 316SS/Nickel Plated Brass/316 Stainless Steel - See Note 1

NOTES:

1. National Association of Corrosion Engineers.
2. 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)	Vent Valve Seat	Backup	O-Ring(s)	Notes
11 = Vespel	Kel-F	Buna-N/Teflon	Buna-N	(Standard)
12 = Kel-F	Kel-F	Buna-N/Teflon	Buna-N	2
13 = Vespel	Kel-F	Viton/Teflon	Viton	---
14 = Kel-F	Kel-F	Viton/Teflon	Viton	2
15 = Vespel	---	Buna-N/Teflon	Buna-N	1
16 = Kel-F	---	Buna-N/Teflon	Buna-N	1 and 2
17 = Vespel	---	Viton/Teflon	Viton	1
18 = Kel-F	---	Viton/Teflon	Viton	1 and 2

NOTES:

1. These options are offered for non-relieving units.
2. These options cannot be used for 10,000 PSIG (69.00 MPa) applications. Use Vespel main valve seats for applications above 6000 PSIG (41.40 MPa)

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Relieving Options

- N = Non-relieving (Optional)
- V = Relieve to atmosphere

10-11
Inlet/Outlet

Inlet/Outlet/ 2-Gauge Ports (60 Degrees)
Gauge Port Configuration = Inlet (High) Outlet (Low)
 NPT Connections
 61 = 1/4"

12
Mounting Options

- P = Bracket Mount
- S = Port Pipe Mounting (Standard)

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Cleaning Options

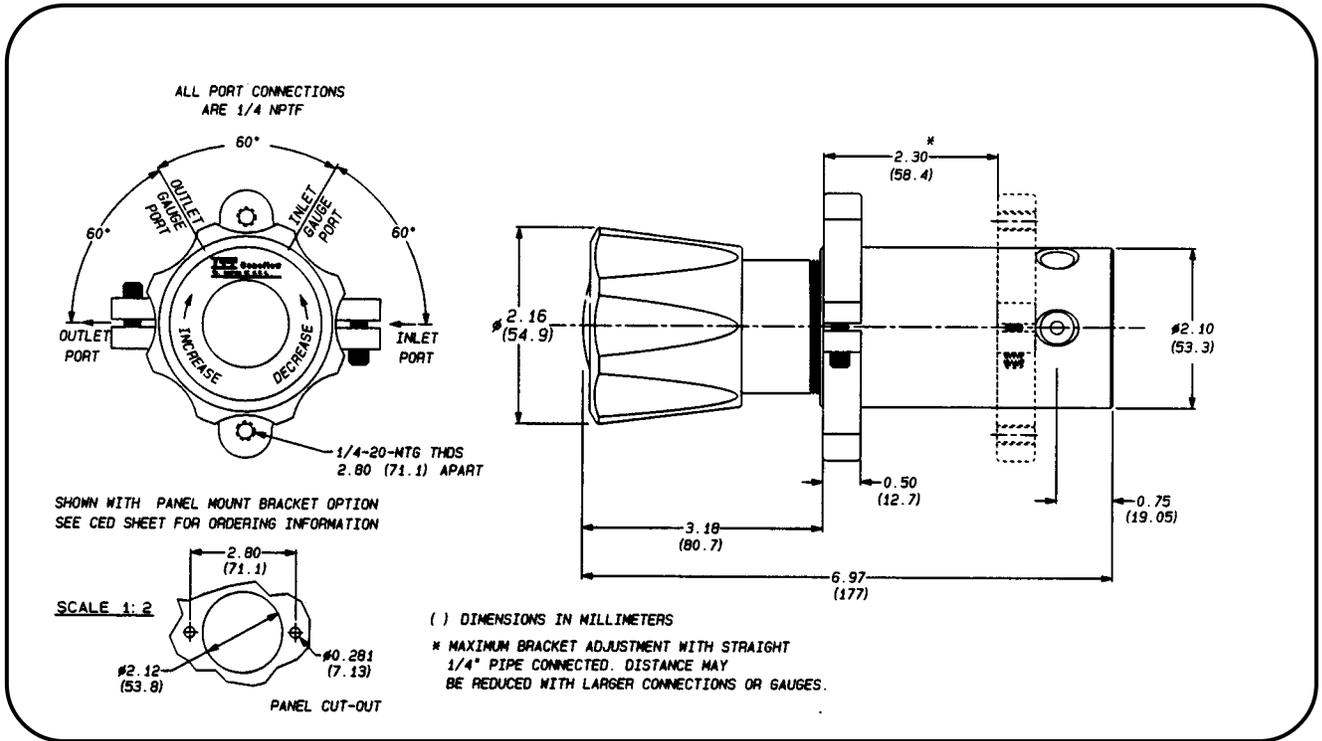
- A = Regulator is cleaned to ITT Conoflow Specification ES8A 01 294.
- B = **OXYGEN CLEANING.**
 Specification of materials in regulators used for oxygen service is the **user's responsibility.** Cleaning for oxygen service (**Per ES8A 01 297**) to 3500 PSIG (24.20 MPa) is supplied by ITT Conoflow at 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.**

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Adjustment Selections

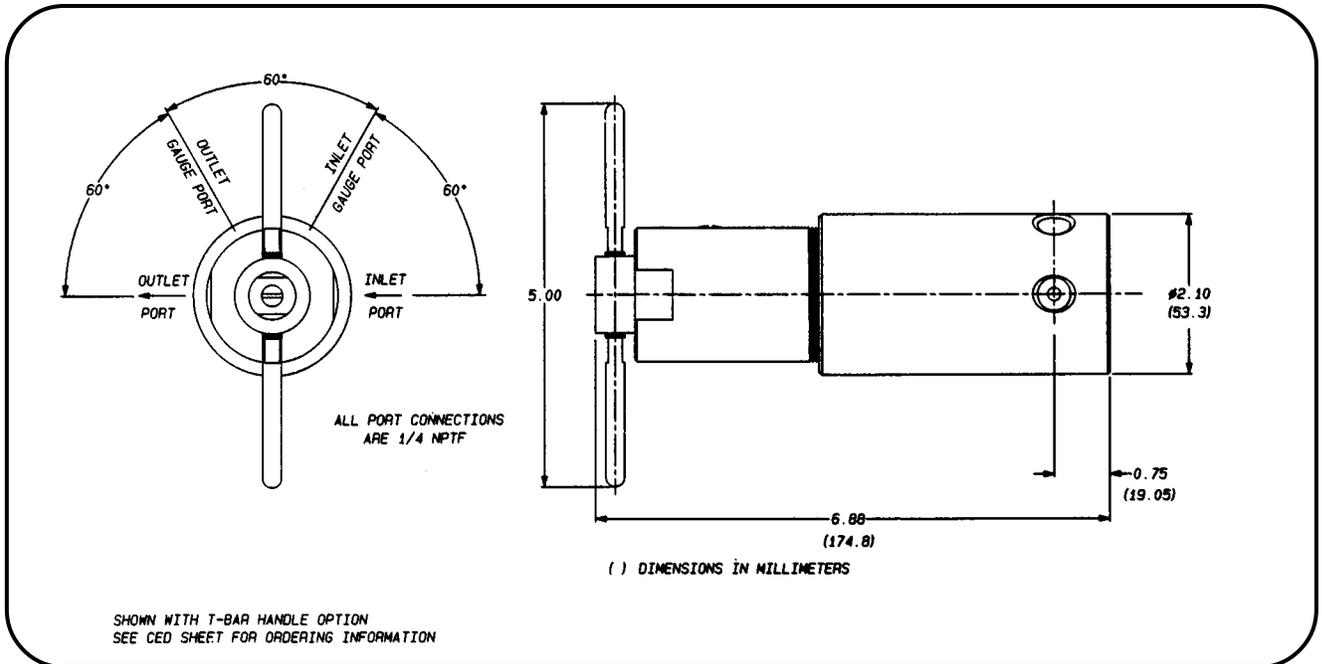
- B = Handwheel (Standard)
- T = "T" bar handle (Optional)

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Control Setting Ranges

- F = 8 - 500 PSIG (0.060 - 3.45 MPa)
- G = 9 - 800 PSIG (0.062 - 5.52 MPa)
- H = 10 - 1500 PSIG (0.069 - 10.35 MPa)
- J = 15 - 2500 PSIG (0.104 - 17.25 MPa)
- K = 25 - 4000 PSIG (0.173 - 27.60 MPa)
- L = 30 - 6000 PSIG (0.207 - 41.40 MPa)



For certified dimensional drawing, refer to HP300-C1.



For certified dimensional drawing, refer to HP300-C2.