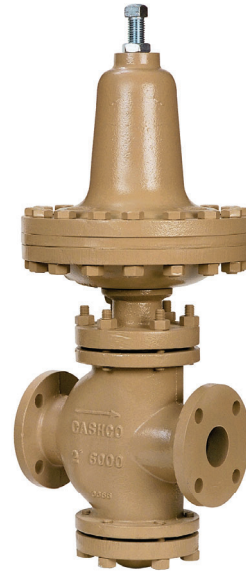


MODEL 8310LP MODEL 8310HP

PRESSURE REDUCING REGULATORS



MODEL 8310HP



MODEL 8310LP

OVERVIEW

The Models 8310LP and 8310HP are high capacity, self-contained pressure reducing regulators with a double-seat design. These units are utilized to control outlet (downstream) pressure between 1 – 200 psig (0.07 – 13.8 Barg). Available in two outlet pressure designs; the Low Pressure, LP design has larger diaphragm for reduced pressures up to 30 psig (2.07 Barg), and the High Pressure design has a smaller diaphragm for reduced pressures up to 200 psig (13.8 Barg).

FEATURES

- High Capacity:** The double ported design provides high flow capacity, the highest capacity regulators Cashco manufactures due to dual ports.
- High Stability:** Outstanding operation resulting from balanced design which minimizes imbalance plug forces, even at very high pressure drops. Diaphragm isolated from fluid velocity effects.
- Heavy Guiding:** Plug is top and bottom guided with hardened stem guides.
- Broad Setpoint Range:** 8310LP: 1 – 30 psig (.07 – 2.07 Barg)
8310HP: 10 – 200 psig (.7 – 13.8 Barg)
- High Pressure Drop Capability:** 8310LP: Up to 200 psid (13.8 Bard).
8310HP: Up to 450 psid (31.0 Bard).

APPLICATIONS

Designed for controlling a wide range of fluids including air, inert gases, chemicals, water, fuel oils and steam. See Table 4 for more information.



LINE SIZES AVAILABLE

1-1/2" (DN40), 2" (DN50), 2-1/2" (DN65), 3" (DN80), 4" (DN100)



END CONNECTIONS

NPT, FLANGED, FLAT FACED, RAISED FACED, 14" FACE TO FACE,



COMMON APPLICATIONS

AIR, INERT GASES, CHEMICALS, WATER, FUEL OILS, STEAM



DESIGN PRESSURE

INLET: UP TO 650 psig (44.8 Barg)
OUTLET: UP TO 200 psig (13.8 Barg)

STANDARD GENERAL SPECIFICATIONS

Variations: LP – “Low Pressure” variation, larger diaphragm area.
HP – “High Pressure” variation, smaller diaphragm area.

Body Sizes: 1-1/2", 2", 2-1/2", 3" and 4"
(DN40, 50, 65, 80, 100)
(Complies with ASME B16.4 and B16.34)

End Connections: NPT – 1-1/2" and 2" (DN40, 50) sizes only.
Opt-30: Integral Flanged:
CI with 125 lb. FF, CS with 150 lb. RF
CI with 250 lb. RF, CS with 300 lb. RF
Flanges – all sizes.
Opt-34: 14" Face to Face Flange Dim. (CS - Sizes 1-1/2" & 2" only)

(Complies with ASME B16.4 and B16.34)

Body / Spring Chamber Material Combinations:
8310HP: CI/DI, CS/CS
8310LP: CI/CI, CS/CS
CI = Cast Iron
DI = Ductile Iron.
CS = Cast Carbon Steel.

Inlet Pressure: 8310LP: Up to 200 psig (13.8 Barg).
8310HP: Up to 650 psig (44.8 Barg).

Outlet Pressure: 8310LP: 1–30 psig (.07–2.07 Barg).
8310HP: 10–145 psig (.7–10 Barg).
8310HP-80: 130 – 200 psig (9.0 – 13.8 Barg).

External Sensing: 3/8" NPT steel needle valve for down-stream sensing connection.

Inlet Temperature: -20° to +450°F.
(-29° to +233°C.)

Gaskets: Standard:
Gaskets – Graphite/ NBR,
O-ring – TFE.

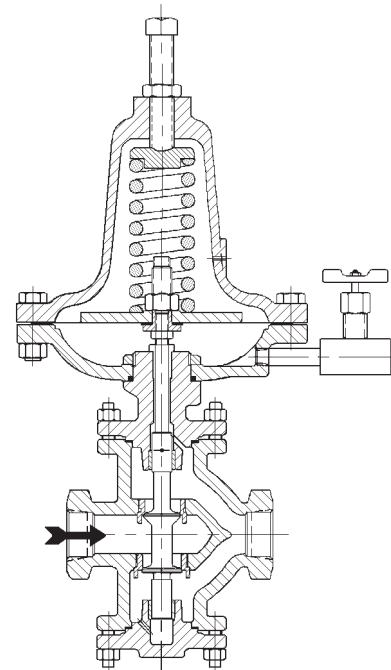
Seat Leakage: FCI 70-2

Trim Design: 316 SST, metal or composition seat, balanced, double seated. Eight material combination choices.

Capacities: Up to 100 Cv.

Painting: Standard: All non-corrosion resistant portions to be painted with corrosion resistant epoxy paint per Cashco Spec #S-1606.

NOTE: Refer to “OPTION SPECIFICATIONS” for alternative designs, and to the “TECHNICAL SPECIFICATIONS” tables for a more complete description of the above specifications.



Model 8310HP

OPTION SPECIFICATIONS

This section indicates special variations which are available to the standard Model 8310 products. Multiple options may be selected; i.e. 8310HP -3+15, which is the standard 8310HP product plus Opt. -3 and Opt. -15 together. Care must be exhibited to not develop conflicting combinations; i.e. 8310HP-3+20.

- Option -1:** CLOSING CAP. Use to prevent tampering with the set point pressure. Available on all spring chamber materials. Consists of a ductile iron closing cap, a sealing gasket, a sealing lock nut on the adjusting screw, and a 1/4" NPT female tapped spring chamber vent hole.
- Option -1+6
And Option -1+8:** DIFFERENTIAL CONSTRUCTION – SINGLE DIAPHRAGM, AND DIFFERENTIAL CONSTRUCTION – DOUBLE DIAPHRAGM. Refer to Technical Bulletin 8310-DIFF-TB for 8310HP's utilized in differential pressure service.
- Option -3:** T-BAR AND LOCKING LEVER. All sizes. Utilized for frequent setpoint changes to range spring.
- Option -15:** STELLITED SEATS. Stellite seating surfaces on metal seating portions of plug and on both seat rings. See Table 3 for maximum allowable pressure drops.
- Option -20:** AIR PRESSURE LOADED. No range spring. Incorporates a cast iron or cast steel loading chamber. Use when the outlet pressure is frequently changed. This construction offers the regulators maximum capacity with minimum proportional band "droop" when compared to standard units with a range spring. See Table 1 for capacities. For 10 – 100 psig (.7 – 6.9 Barg) control pressures. **ONLY AVAILABLE ON 8310HP VARIATION; NOT AVAILABLE ON 8310LP.**
- Option -30:** INTEGRAL FLANGED END CONNECTIONS. Available with 125# FF and 250# RF flanges for cast iron body material or with 150# RF or 300# RF flanges for cast steel body material.
- Option -34:** SPECIAL 14" FACE TO FACE DIMENSION FOR FLANGED END CONNECTIONS. CS body material, sizes 1-1/2" & 2" with 150# or 300# RF flanges only. See Opt.-30 for standard face to face dimension.
- Option -56:** SPECIAL CLEANING. Cleaned per Cashco Specification #S-1542. Utilize when cleanliness level better than normal is required. **NOT** for Oxygen Service.
- Option -80:** HIGH OUTLET PRESSURE CONSTRUCTION. Utilized for 130 – 200 psig (9.0 – 13.8 Barg) outlet pressure spring range. **ONLY AVAILABLE WITH HP VARIATION.** Special construction includes a diaphragm ring to reduce effective diaphragm area and serve as a travel stop in case of over-pressurization.

Pressures vary in a nearly 1:1 ratio; i.e. 50 psig (3.4 Barg) loading pressure gives nearly a 50 psig (3.4 Barg) outlet pressure.

**TABLE 1
8310HP-20 AIR PRESSURE LOADED
Cv's FOR COMPOSITION & METAL DIAPHRAGMS**

| Valve Size | | Comp. Diaph. Cv | Metal Diaph. Cv |
|------------|-------|--------------------|--------------------|
| in | (DN) | | |
| 1-1/2" | (40) | 26 | 25 |
| 2" | (50) | 40 | 35 |
| 2-1/2" | (65) | 55 | 44 |
| 3" | (80) | 78 | 54 |
| 4" | (100) | 100 | 74 |

TECHNICAL SPECIFICATIONS

TABLE 2
DESIGN PRESSURE-TEMPERATURE MATERIAL LIMITS
 Lower temperature limits will always measure -20 °F (-29 °C)

| MATERIAL SPECIFICATIONS | | END CONN. | INLET | | | | OUTLET PRESSURE | | TEMPERATURE LIMITS OF TRIMS °F (°C) | | | | | | | |
|------------------------------------|----------------------------------|-------------------|-------------------|------------|-------------|--------|-----------------|----------------|-------------------------------------|----------------|-----------------------|-------|--------------|-------|-------|------|
| | | | PRESSURE | | TEMPERATURE | | | | METAL DIAPHRAGM | | COMPOSITION DIAPHRAGM | | | | | |
| DESCRIPTION ABBREV. (BODY/SP.CH.) | ASTM NO. | | psig | (Barg) | °F | (°C) | psig | (Barg) | S1, 36, 3R TRIM | | S5, S7, S7R TRIM | | S40, S3 TRIM | | | |
| | | | | | | | | °F | (°C) | °F | (°C) | °F | (°C) | | | |
| MODEL 8310LP | | | | | | | | | | | | | | | | |
| Cast Iron (CI/CI) | A126 Class B | 125# Flgd. | 200 | (13.8) | 150 | (66) | 30 | (2.1) | 450 | (232) | 400 | (205) | 180 | (83) | | |
| | | | 190 | (13.1) | 200 | (94) | | | | | | | | | | |
| | | | 175 | (12.1) | 250 | (121) | | | | | | | | | | |
| | | | 165 | (11.4) | 300 | (149) | | | | | | | | | | |
| | | | 140 | (9.7) | 400 | (204) | | | | | | | | | | |
| | | | 125 | (8.6) | 450 | (232) | | | | | | | | | | |
| | | 250# Flgd. or NPT | 200 | (13.8) | 450 | (232) | | | | | | | | | | |
| Cast Carbon Steel (CS/CS) | A216 Grade WCB | 150# Flgd. | 200 | (13.8) | 400 | (205) | 30 | (2.1) | 450 | (232) | 400 | (205) | 180 | (83) | | |
| | | | 185 | (12.8) | 450 | (232) | | | | | | | | | | |
| | | | 300# Flgd. or NPT | 200 | (13.8) | 450 | | | | | | | | | (232) | |
| MODEL 8310HP | | | | | | | | | | | | | | | | |
| Cast Iron/ Ductile Iron (CI/DI) | A126 Class B /A395, GR. 60-40-18 | 125# Flgd. | 200 | (13.8) | 150 | (66) | 200 | (13.8) | 150 | (66) | 150 | (66) | 150 | (66) | | |
| | | | 190 | (13.1) | 200 | (94) | 190 | (13.1) | 200 | (94) | 200 | (94) | | | | |
| | | | 175 | (12.1) | 250 | (121) | 175 | (12.1) | 250 | (121) | 250 | (121) | | | | |
| | | | 165 | (11.4) | 300 | (149) | 165 | (11.4) | 300 | (149) | 300 | (149) | 180 | (83) | | |
| | | | 140 | (9.7) | 400 | (204) | 140 | (9.7) | 400 | (205) | | | | | | |
| | | | 125 | (8.6) | 450 | (232) | 125 | (8.6) & Lower | 450 | (232) | 400 | (205) | | | | |
| | | | | 250# Flgd. | 375 | (25.9) | 300 | (149) | 200 | (13.8) & Lower | 450 | (232) | 400 | (205) | 180 | (83) |
| | | 335 | (23.1) | | 350 | (177) | | | | | | | | | | |
| | | 290 | (20.0) | | 400 | (204) | | | | | | | | | | |
| | | 250 | (17.2) | | 450 | (232) | | | | | | | | | | |
| | | | | NPT | 400 | (27.6) | 150 | (66) | 200 | (13.8) & Lower | 450 | (232) | 400 | (205) | 180 | (83) |
| | | 400 | (27.6) | | 200 | (94) | | | | | | | | | | |
| | | 400 | (27.6) | | 250 | (121) | | | | | | | | | | |
| | | 375 | (25.9) | | 300 | (149) | | | | | | | | | | |
| | | 335 | (23.1) | | 350 | (177) | | | | | | | | | | |
| | | 290 | (20.0) | | 400 | (204) | | | | | | | | | | |
| | | 250 | (17.2) | | 450 | (232) | | | | | | | | | | |
| | | | | 150# Flgd. | 285 | (19.6) | 100 | (38) | 200 | (13.8) & Lower | 400 | (205) | 400 | (205) | 180 | (83) |
| 260 | (17.9) | 200 | (94) | | | | | | | | | | | | | |
| 230 | (15.9) | 300 | (149) | | | | | | | | | | | | | |
| 200 | (13.8) | 400 | (204) | | | | | | | | | | | | | |
| 185 | (12.8) | 450 | (232) | | | | | | | | | | | | | |
| | | 300# Flgd. or NPT | 650 | (44.8) | 300 | (149) | 200 | (13.8) & Lower | 450 | (232) | 400 | (205) | 180 | (83) | | |
| 635 | (43.8) | | 400 | (204) | | | | | | | | | | | | |
| 615 | (41.4) | | 450 | (232) | | | | | | | | | | | | |

NOTE: See Table 7 for allowable over pressure limits.

**TABLE 3
MAXIMUM ALLOWABLE PRESSURE DROPS**

| Fluid | Max. Recommended Operating Pressure Drop | | | | | | Option Number | Trim Designation Number |
|-----------------------|------------------------------------------|--------|--------------------------------|--------|--------------------------------|--------|------------------|-------------------------|
| | Model 8310LP | | Model 8310HP | | | | | |
| | All Fluid Qualities | | Clean Fluid Industrial Quality | | Unclean Fluid Pipeline Quality | | | |
| | psid | (Bard) | psid | (Bard) | psid | (Bard) | | |
| Non-Cavitating Liquid | 150 | (10.3) | 200 | (13.8) | 100 | (6.9) | None | All |
| | 150 | (10.3) | 300 | (20.7) | 150 | (10.3) | Stellited Opt-15 | |
| Cavitating Liquids | Consult Factory | | Consult Factory | | N/R | | Stellited Opt-15 | S1 Only |
| Gas | 200 | (13.8) | 450 | (31.0) | 150 | (10.3) | None | All |
| | 200 | (13.8) | 450 | (31.0) | 300 | (20.7) | Stellited Opt-15 | |
| Steam | 150 | (10.3) | 150 | (10.3) | N/R | | None | S1, S36R |
| | 200 | (13.8) | 300 | (20.7) | 150 | (10.3) | Stellited Opt-15 | |

N/R: Not Recommended

**TABLE 4
APPLICATIONS**

| Fluid | Recommended Construction | Trim Designation Number |
|----------------------------------|------------------------------------|-------------------------|
| Air or Industrial Gases | Composition Seat & Diaphragm | S3, S7 |
| Chemicals | Metal Seat & Composition Diaphragm | S5, S40 |
| | Metal Seat & Diaphragm | S1 |
| | Composition Seat & Diaphragm | S3 |
| | Composition Seat & Metal Diaphragm | S36, S36R |
| Hydrocarbon Gas or Liquids † | Metal Seat & Composition Diaphragm | S5, S40 |
| | Metal Seat & Diaphragm | S1 |
| | Composition Seat & Diaphragm | S3, S7, SR |
| Water and Condensate | Metal Seat & Composition Diaphragm | S40 |
| | Metal Seat & Diaphragm | S1 |
| | Composition Seat & Diaphragm | S3 |
| Steam – Saturated or Superheated | Metal Seat & Diaphragm | S1 |

† In accordance with ASME B31.3 "process piping", do not use Cast Iron Body for hydrocarbon or flammable fluid service with inlet pressures greater than 150 Psig (10.3 Barg) or temperatures greater than 300° F (149° C).

**TABLE 5a
STAINLESS STEEL TRIM MATERIAL COMBINATIONS**

| Part | SST Trim Designation Number | | |
|-------------------------|-----------------------------|-------------------|-------------------|
| | Metal Diaphragm | | |
| | S1 | S36 | S36R |
| Diaphragm | 302 SST | 302 SST | 302 SST |
| Plug | 316 SST | 316 SST | 316 SST |
| Seat Rings | 316 SST | 316 SST | 316 SST |
| Seat Disc | 316 SST *** | TFE | Rulon LR |
| Stem | 316 SST | 316 SST | 316 SST |
| Belleville Washer | 300 Series SST | 300 Series SST | 300 Series SST |
| Stem Guides | Hardened 440C SST | Hardened 440C SST | Hardened 440C SST |
| Bonnet Plug | ** | ** | ** |
| Pusher Plate | 303 SST | 303 SST | 303 SST |
| Pusher Plate Nut | Steel | Steel | Steel |
| Diaphragm Casing O-Ring | TFE | TFE | TFE |
| Stem Bushing | 303 SST | 303 SST | 303 SST |
| Bonnet Nut | Steel | Steel | Steel |
| Needle Valve | Steel | Steel | Steel |
| Pipe Nipple | Steel | Steel | Steel |

** Same as body material.

*** 316 SST seat disc is intergral to the plug.

NOTE: Cashco, Inc. does not recommend metal seated trim on any service where the flow will be dead ended down stream of the pressure reducing regulator. Use composition seat for dead end service.

**TABLE 5b
STAINLESS STEEL TRIM MATERIAL COMBINATIONS**

| Part | SST Trim Designation Number | | | | |
|-------------------------|-----------------------------|-------------------|------------------------|------------------------|------------------------|
| | Composition Diaphragm | | | | |
| | S3 | S40 | S5 | S7 | S7R |
| Diaphragm | Neoprene | Neoprene | Fluorocarbon Elastomer | Fluorocarbon Elastomer | Fluorocarbon Elastomer |
| Plug | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Seat Rings | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Seat Disc | TFE | 316 SST *** | 316 SST *** | TFE | Rulon LR |
| Stem | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Belleville Washer | 300 Series SST | 300 Series SST | 300 Series SST | 300 Series SST | 300 Series SST |
| Stem Guides | Hardened 440C SST | Hardened 440C SST | Hardened 440C SST | Hardened 440C SST | Hardened 440C SST |
| Bonnet Plug | ** | ** | ** | ** | ** |
| Pusher Plate | 303 SST | 303 SST | 303 SST | 303 SST | 303 SST |
| Pusher Plate Nut | Steel | Steel | Steel | Steel | Steel |
| Diaphragm Casing O-Ring | TFE | TFE | TFE | TFE | TFE |
| Stem Bushing | 303 SST | 303 SST | 303 SST | 303 SST | 303 SST |
| Bonnet Nut | Steel | Steel | Steel | Steel | Steel |
| Needle Valve | Steel | Steel | Steel | Steel | Steel |
| Pipe Nipple | Steel | Steel | Steel | Steel | Steel |

** Same as body material.

*** 316 SST seat disc are intergral to the plug.

NOTE: Cashco, Inc. does not recommend metal seated trim on any service where the flow will be dead ended down stream of the pressure reducing regulator. Use composition seat for dead end service.

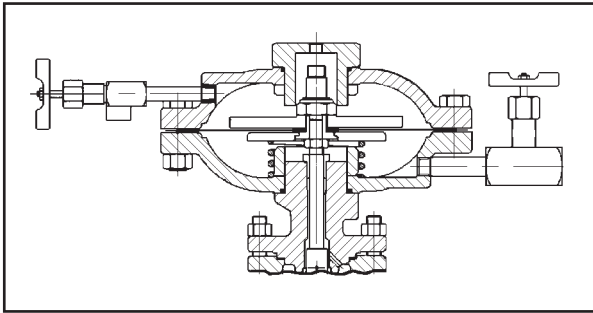


Figure 1
Opt.-20
Air Pressure Loaded

TABLE 6
STEEL RANGE SPRINGS
METAL OR COMPOSITION DIAPHRAGMS
ALL SIZES

| Construction | Range Spring | | |
|--------------|----------------|-----------|--------------------|
| | "LP" Variation | | "HP" Variation |
| Standard | 1-4 * | (.07-.27) | 10-40 (.69-2.8) |
| | 3-10 | (.21-.69) | 30-100 (2.1-6.9) |
| | 8-30 | (.55-2.1) | 75-145 (5.2-10.0) |
| Option -80 | N/A | | 130-200 (9.0-13.8) |

* Composition Diaphragm Only

N/A: Not Applicable

TABLE 7
OVER-PRESSURE LIMITS – SAFETY RELIEF VALVE
SIZING & SETPOINT

| Variation | Range Spring | | Diaphragm Material | * Emergency Over-Pressure (Rise over Setpoint) | | Maximum Cv with Valve Plug Wide Open Body Size - in / (mm) | | | | |
|-----------|--------------|------------|--------------------|------------------------------------------------|--------|---------------------------------------------------------------|-----------|---------------|-----------|------------|
| | psig | (Barg) | | psig | (Barg) | 1-1/2" (DN40) | 2" (DN50) | 2-1/2" (DN65) | 3" (DN80) | 4" (DN100) |
| LP | 1-4 | (.07-.27) | All | 20 | (1.4) | 27 | 40 | 55 | 76 | 100 |
| | 3-10 | (.21-.69) | | | | | | | | |
| | 8-30 | (.55-2.1) | | | | | | | | |
| HP | 10-40 | (.69-2.8) | All | 35 | (2.4) | 27 | 40 | 55 | 76 | 100 |
| | 30-100 | (2.1-6.9) | | | | | | | | |
| | 75-145 | (5.2-10.0) | All | 45 | (3.1) | | | | | |
| | 130-200 | (9.0-13.8) | | | | | | | | |

* Exceeding the "Emergency Over-Pressure" level may cause mechanical damage to internal parts of the valve.

LP VARIATION

TABLE 8
8310LP
CAPACITY TABLES – Cv – METAL DIAPHRAGM

| Set Point (Outlet) Pressure, P ₂ | | 1-1/2" (DN40) Body | | | 2" (DN50) Body | | | 2-1/2" (DN65) Body | | | 3" (DN80) Body | | | 4" (DN100) Body | | |
|---------------------------------------------|--------|--------------------|------|------|----------------|------|------|--------------------|------|------|----------------|------|------|-----------------|------|------|
| | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| psig | (Barg) | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 5 | (.34) | 8.5 | 15.1 | 22.5 | 10.2 | 19.7 | 29.9 | 12.0 | 22.9 | 37.5 | 13.9 | 26.1 | 43.1 | 19.0 | 36.1 | 59.8 |
| *10 | (.69) | 2.9 | 5.6 | 10.0 | 3.3 | 6.7 | 12.0 | 3.9 | 7.5 | 13.2 | 4.6 | 8.7 | 16.0 | 6.3 | 12.0 | 21.7 |
| 15 | (1.0) | 4.2 | 8.2 | 12.5 | 4.8 | 10.0 | 16.0 | 5.5 | 11.5 | 18.0 | 6.8 | 13.2 | 21.0 | 8.1 | 17.9 | 28.5 |
| 20 | (1.4) | 6.1 | 11.5 | 16.1 | 7.1 | 14.1 | 21.9 | 8.1 | 16.5 | 25.5 | 9.5 | 19.0 | 29.0 | 13.1 | 26.4 | 40.7 |
| 25 | (1.7) | 8.1 | 14.7 | 21.7 | 9.8 | 18.7 | 30.1 | 11.6 | 22.0 | 36.0 | 13.2 | 25.0 | 42.4 | 18.0 | 30.0 | 57.5 |
| 30 | (2.1) | 10.9 | 18.2 | 23.5 | 13.2 | 25.1 | 32.6 | 15.5 | 29.2 | 41.0 | 17.9 | 33.5 | 46.8 | 24.5 | 45.9 | 65.0 |

* Utilizes 8 - 30 psig (.55 - 2.1 Barg) range spring

TABLE 9
8310LP
CAPACITY TABLES – Cv – COMPOSITION DIAPHRAGM

| Set Point (Outlet) Pressure, P ₂ | | 1-1/2" (DN40) Body | | | 2" (DN50) Body | | | 2-1/2" (DN65) Body | | | 3" (DN80) Body | | | 4" (DN100) Body | | |
|---------------------------------------------|--------|--------------------|------|------|----------------|------|------|--------------------|------|------|----------------|------|------|-----------------|------|------|
| | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| psig | (Barg) | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 2 | (.14) | 16.8 | 25.7 | 26.2 | 22.0 | 35.9 | 39.3 | 25.3 | 46.2 | 52.8 | 29.0 | 58.4 | 73.2 | 40.5 | 81.2 | 99.0 |
| 5 | (.34) | 14.0 | 23.6 | 26.2 | 18.0 | 32.9 | 38.0 | 21.1 | 41.2 | 50.0 | 24.0 | 47.7 | 67.0 | 33.1 | 66.5 | 94.4 |
| *10 | (.69) | 5.5 | 10.8 | 15.5 | 6.3 | 13.0 | 20.0 | 7.8 | 15.3 | 22.7 | 8.8 | 27.4 | 26.4 | 12.2 | 23.9 | 36.5 |
| 15 | (1.0) | 7.5 | 14.0 | 20.0 | 8.9 | 18.0 | 37.3 | 10.5 | 21.2 | 32.3 | 12.2 | 24.2 | 36.8 | 16.9 | 33.2 | 50.7 |
| 20 | (1.4) | 10.0 | 17.8 | 23.7 | 12.2 | 23.8 | 33.1 | 13.8 | 27.8 | 41.9 | 16.2 | 32.2 | 48.8 | 22.2 | 44.3 | 67.9 |
| 25 | (1.7) | 13.3 | 22.3 | 26.2 | 16.9 | 31.2 | 37.2 | 19.7 | 37.8 | 48.3 | 22.5 | 43.7 | 53.7 | 31.2 | 60.3 | 90.5 |
| 30 | (2.1) | 17.5 | 25.8 | 26.2 | 23.5 | 36.5 | 39.3 | 27.2 | 47.3 | 53.6 | 31.7 | 61.3 | 75.0 | 43.3 | 86.1 | 99.8 |

* Utilizes 8 - 30 psig (.55 - 2.1 Barg) range spring

HP VARIATION

TABLE 10
8310HP
CAPACITY TABLES – Cv – METAL DIAPHRAGM

| Set Point (Outlet) Pressure, P ₂ | | 1-1/2" (DN40) Body | | | 2" (DN50) Body | | | 2-1/2" (DN65) Body | | | 3" (DN80) Body | | | 4" (DN100) Body | | |
|---------------------------------------------|--------|--------------------|------|------|----------------|------|------|--------------------|------|------|----------------|------|------|-----------------|------|------|
| | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| psig | (Barg) | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 10 | (.69) | 2.0 | 4.2 | 7.5 | 2.6 | 6.3 | 9.0 | 3.0 | 6.8 | 10.5 | 4.0 | 7.5 | 12.0 | 5.0 | 11.0 | 16.7 |
| 15 | (1.0) | 3.0 | 8.0 | 12.0 | 4.0 | 9.2 | 14.5 | 5.0 | 11.2 | 16.5 | 6.0 | 12.5 | 19.0 | 8.5 | 17.5 | 23.5 |
| 25 | (1.7) | 7.5 | 14.0 | 19.0 | 8.7 | 18.0 | 26.5 | 10.0 | 21.0 | 31.3 | 11.7 | 23.7 | 36.5 | 18.5 | 32.5 | 48.0 |
| 35 | (2.4) | 11.5 | 19.7 | 25.2 | 14.0 | 27.5 | 35.7 | 16.5 | 32.3 | 45.7 | 18.7 | 37.2 | 55.7 | 26.5 | 51.5 | 78.7 |
| 50 | (3.4) | 6.2 | 11.7 | 16.7 | 7.3 | 14.8 | 22.0 | 8.0 | 16.8 | 25.2 | 9.5 | 19.0 | 28.7 | 13.0 | 26.8 | 39.5 |
| 75 | (5.2) | 8.5 | 15.5 | 21.0 | 10.0 | 20.3 | 29.0 | 11.2 | 23.5 | 35.0 | 13.0 | 27.0 | 40.5 | 18.0 | 36.5 | 55.7 |
| 100 | (6.9) | 8.7 | 18.0 | 21.2 | 10.5 | 21.0 | 29.5 | 12.0 | 23.8 | 36.0 | 13.7 | 27.2 | 41.3 | 18.7 | 37.5 | 56.5 |
| 140 | (9.7) | 10.8 | 18.5 | 24.0 | 12.5 | 25.0 | 33.5 | 15.0 | 28.8 | 43.0 | 17.0 | 32.5 | 51.3 | 23.5 | 44.7 | 71.0 |
| 150 | (10.3) | 11.4 | 19.5 | 25.0 | 13.8 | 27.1 | 35.5 | 16.2 | 31.9 | 45.0 | 18.5 | 36.3 | 55.5 | 25.0 | 50.7 | 76.5 |
| 200 | (13.8) | 14.0 | 23.5 | 26.0 | 18.7 | 33.4 | 38.5 | 21.2 | 41.3 | 50.2 | 24.4 | 48.5 | 67.5 | 33.7 | 67.5 | 95.0 |

TABLE 11
8310HP
CAPACITY TABLES – Cv – COMPOSITION DIAPHRAGM

| Set Point (Outlet) Pressure, P ₂ | | 1-1/2" (DN40) Body | | | 2" (DN50) Body | | | 2-1/2" (DN65) Body | | | 3" (DN80) Body | | | 4" (DN100) Body | | |
|---------------------------------------------|--------|--------------------|------|------|----------------|------|------|--------------------|------|------|----------------|------|------|-----------------|------|-------|
| | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| psig | (Barg) | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 10 | (.69) | 6.0 | 11.2 | 16.2 | 7.0 | 14.0 | 21.5 | 8.0 | 16.2 | 24.8 | 9.2 | 18.7 | 28.7 | 13.0 | 26.2 | 39.1 |
| 15 | (1.0) | 7.5 | 13.8 | 19.5 | 9.1 | 18.7 | 27.2 | 11.2 | 21.2 | 32.1 | 12.5 | 24.1 | 36.5 | 17.0 | 33.5 | 50.8 |
| 25 | (1.7) | 10.5 | 19.0 | 25.0 | 13.0 | 26.3 | 34.8 | 15.0 | 31.0 | 44.3 | 17.6 | 35.5 | 53.5 | 24.0 | 48.8 | 73.7 |
| 35 | (2.4) | 16.0 | 25.4 | 26.2 | 21.4 | 35.7 | 39.0 | 24.5 | 45.7 | 52.4 | 28.1 | 56.5 | 72.2 | 38.8 | 78.7 | 98.2 |
| 50 | (3.4) | 10.5 | 18.7 | 24.5 | 13.0 | 26.1 | 34.2 | 15.0 | 30.0 | 43.7 | 17.4 | 34.8 | 52.1 | 24.0 | 47.5 | 72.2 |
| 75 | (5.2) | 15.2 | 24.7 | 26.2 | 20.2 | 34.7 | 38.7 | 22.9 | 43.7 | 51.2 | 26.5 | 52.8 | 70.0 | 36.7 | 72.8 | 97.5 |
| 100 | (6.9) | 12.1 | 21.3 | 26.0 | 15.7 | 29.4 | 36.9 | 17.7 | 36.0 | 47.5 | 20.4 | 41.2 | 61.3 | 28.0 | 57.0 | 86.0 |
| 140 | (9.7) | 16.5 | 26.0 | 26.0 | 22.4 | 38.0 | 37.0 | 26.0 | 50.0 | 52.5 | 30.0 | 67.0 | 72.0 | 41.5 | 95.0 | 97.0 |
| 150 | (10.3) | 17.8 | 26.2 | 26.2 | 24.4 | 37.0 | 39.3 | 28.0 | 37.9 | 53.8 | 32.4 | 62.5 | 75.2 | 44.2 | 88.5 | 100.0 |
| 200 | (13.8) | 21.2 | 26.2 | 26.2 | 29.1 | 38.8 | 39.5 | 35.1 | 51.5 | 55.0 | 40.2 | 70.8 | 78.0 | 55.1 | 97.5 | 100.0 |

METRIC CONVERSION FACTORS: Cv ÷ 1.16 = kv

TABLE 15
MODEL 8310 - "LP VARIATION"
AIR CAPACITY - SCFH
S.G. = 1.0 T = 60°F F_L = 0.88

All Sizes - **Composition Diaphragm Only**

| Set Point Pressure - P2 | | Inlet Pressure | | 1-1/2" (DN40) Body | | | 2" (DN50) Body | | | 2-1/2" (DN65) Body | | | 3" (DN80) Body | | | 4" (DN100) Body | | |
|-------------------------|--------|----------------|--------|--------------------|--------|--------|----------------|--------|--------|--------------------|--------|--------|----------------|--------|--------|-----------------|--------|--------|
| psig | (Barg) | psig | (Barg) | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| | | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 2 | (1.4) | 25 | (1.7) | 21400 | 32700 | 33400 | 28000 | 45700 | 50000 | 32200 | 58800 | 67200 | 36900 | 74300 | 93200 | 51600 | 103400 | 126000 |
| | | 50 | (3.4) | 34900 | 53300 | 54400 | 45600 | 74500 | 81500 | 52500 | 95900 | 109500 | 60200 | 121200 | 151900 | 84000 | 168500 | 205400 |
| | | 75 | (5.2) | 48300 | SONIC | SONIC | 63300 | 103300 | SONIC | 72800 | 132900 | 151900 | 83400 | 168000 | 210600 | 116500 | 233600 | 284800 |
| | | 100 | (6.9) | 61800 | SONIC | SONIC | 80900 | SONIC | SONIC | 93100 | SONIC | SONIC | 106700 | 214800 | SONIC | 149000 | 298700 | 364100 |
| | | 125 | (8.6) | SONIC | SONIC | SONIC | 98600 | SONIC | SONIC | 113300 | SONIC | SONIC | 129900 | SONIC | SONIC | 181400 | 363800 | SONIC |
| 150 | (10.3) | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | 133600 | SONIC | SONIC | 153200 | SONIC | SONIC | 213900 | SONIC | SONIC | | |
| 5 | (3.4) | 25 | (1.7) | 17800 | 30000 | 33400 | 22900 | 41900 | 48400 | 26900 | 52500 | 63700 | 30600 | 60700 | 85300 | 42100 | 84700 | 120200 |
| | | 50 | (3.4) | 29000 | 49000 | 54400 | 37300 | 68300 | 78800 | 43800 | 85500 | 103700 | 49800 | 99000 | 139000 | 68700 | 138000 | 195900 |
| | | 75 | (5.2) | 40300 | 67900 | 75400 | 51800 | 94600 | 109300 | 60700 | 118500 | 143800 | 69000 | 137200 | 192700 | 95200 | 191300 | 271500 |
| | | 100 | (6.9) | 51500 | SONIC | SONIC | 66200 | 121000 | SONIC | 77600 | 151500 | SONIC | 88300 | 175400 | 246400 | 121700 | 244600 | 347200 |
| | | 125 | (8.6) | 62700 | SONIC | SONIC | 80600 | SONIC | SONIC | 94500 | SONIC | SONIC | 107500 | 213700 | SONIC | 148300 | 297900 | 422900 |
| 150 | (10.3) | 73900 | SONIC | SONIC | 95100 | SONIC | SONIC | 111400 | SONIC | SONIC | 126800 | 251900 | SONIC | 174800 | 351200 | SONIC | | |
| 10 | (6.9) | 25 | (1.7) | 7000 | 13700 | 19700 | 8000 | 16500 | 25400 | 9900 | 19400 | 28800 | 11200 | 34800 | 33500 | 15500 | 30400 | 46400 |
| | | 50 | (3.4) | 11400 | 22400 | 32200 | 13100 | 27000 | 41500 | 16200 | 31700 | 47100 | 18300 | 56800 | 54800 | 25300 | 49600 | 75700 |
| | | 75 | (5.2) | 15800 | 31100 | 44600 | 18100 | 37400 | 57500 | 22400 | 44000 | 65300 | 25300 | 78800 | 75900 | 35100 | 68700 | 105000 |
| | | 100 | (6.9) | 20200 | 39700 | 57000 | 23200 | 47800 | 73600 | 28700 | 56300 | 83500 | 32400 | 100800 | 97100 | 44900 | 87900 | 134300 |
| | | 125 | (8.6) | 24600 | 48400 | 69400 | 28200 | 58200 | 89600 | 34900 | 68500 | 101700 | 39400 | 122700 | 118300 | 54700 | 107100 | 163500 |
| 150 | (10.3) | 29000 | 57000 | 81900 | 33300 | 68700 | 105600 | 41200 | 80800 | 119900 | 46500 | 144700 | 139400 | 64400 | 126200 | 192800 | | |
| 15 | (1.0) | 25 | (1.7) | 8900 | 16700 | 23800 | 10600 | 21400 | 44400 | 12500 | 25200 | 38500 | 14500 | 28800 | 43800 | 20100 | 39500 | 60400 |
| | | 50 | (3.4) | 15600 | 29000 | 41500 | 18500 | 37300 | 77400 | 21800 | 44000 | 67000 | 25300 | 50200 | 76400 | 35100 | 68900 | 105200 |
| | | 75 | (5.2) | 21600 | 40300 | 57500 | 25600 | 51800 | 107300 | 30200 | 61000 | 92900 | 35100 | 69600 | 105900 | 48600 | 95500 | 145800 |
| | | 100 | (6.9) | 27600 | 51500 | 73600 | 32700 | 66200 | 137200 | 38600 | 78000 | 118800 | 44900 | 89000 | 135400 | 62200 | 122100 | 186500 |
| | | 125 | (8.6) | 33600 | 62700 | 89600 | 39900 | 80600 | 167100 | 47000 | 95000 | 144700 | 54700 | 108400 | 164900 | 75700 | 148700 | 227100 |
| 150 | (10.3) | 39600 | 73900 | 105600 | 47000 | 95100 | SONIC | 55500 | 112000 | 170600 | 64400 | 127800 | 194400 | 89300 | 175300 | 267800 | | |
| 20 | (1.4) | 25 | (1.7) | 9500 | 26400 | 22500 | 11600 | 22600 | 31500 | 13100 | 26400 | 39800 | 15400 | 30600 | 46400 | 21100 | 42100 | 64500 |
| | | 50 | (3.4) | 20700 | 57500 | 49100 | 25300 | 49300 | 68500 | 28600 | 57500 | 86700 | 33500 | 66700 | 101000 | 46000 | 91700 | 140600 |
| | | 75 | (5.2) | 28800 | 80000 | 68200 | 35100 | 68500 | 95200 | 39700 | 80000 | 120500 | 46600 | 92600 | 140400 | 63900 | 127400 | 195300 |
| | | 100 | (6.9) | 36800 | 102300 | 87200 | 44900 | 87500 | 121700 | 50800 | 102300 | 154100 | 59600 | 118400 | 179500 | 81700 | 162900 | 249700 |
| | | 125 | (8.6) | 44800 | 124500 | 106200 | 54700 | 106600 | 148300 | 61800 | 124500 | 187700 | 72600 | 144300 | 218600 | 99500 | 198500 | 304200 |
| 150 | (10.3) | 52800 | SONIC | 125200 | 64400 | 125700 | 174800 | 72900 | 146800 | 221300 | 85600 | 170100 | 257700 | 117300 | 234000 | 358600 | | |
| 25 | (1.7) | 50 | (3.4) | 27000 | 45300 | 53200 | 34300 | 63300 | 75500 | 40000 | 76700 | 98000 | 45700 | 88700 | 109000 | 63300 | 122400 | 183700 |
| | | 75 | (5.2) | 38300 | 64100 | 75400 | 48600 | 89700 | 107000 | 56700 | 108700 | 138900 | 64700 | 125700 | 154500 | 89700 | 173500 | 260300 |
| | | 100 | (6.9) | 48900 | 82000 | 96400 | 62200 | 114800 | 136800 | 72500 | 139000 | 177700 | 82800 | 160700 | 197500 | 114800 | 221800 | 332900 |
| | | 125 | (8.6) | 59600 | 99900 | 117400 | 75700 | 139800 | 166700 | 88300 | 169300 | 216400 | 100800 | 195800 | 240600 | 139800 | 270100 | 405400 |
| | | 150 | (10.3) | 70200 | 117800 | 138400 | 89300 | 164800 | 196500 | 104000 | 199600 | 255100 | 118800 | 230800 | 283600 | 164800 | 318500 | 478000 |
| 30 | (2.1) | 50 | (3.4) | 34000 | 50100 | 50800 | 45600 | 70800 | 76300 | 52800 | 91800 | 104000 | 61500 | 118900 | 145500 | 84000 | 167100 | 193600 |
| | | 75 | (5.2) | 50200 | 74000 | 75200 | 67400 | 104700 | 112800 | 78100 | 135700 | 153800 | 91000 | 175900 | 215200 | 124300 | 247100 | 286400 |
| | | 100 | (6.9) | 64400 | 94900 | 96400 | 86400 | 134300 | 144600 | 100000 | 174000 | 197200 | 116600 | 225500 | 275900 | 159300 | 316700 | 367100 |
| | | 125 | (8.6) | 78400 | 115600 | 117400 | 105300 | 163500 | 176100 | 121900 | 211900 | 240100 | 142000 | 274600 | 336000 | 194000 | 385700 | 447100 |
| | | 150 | (10.3) | 92400 | 136300 | 138400 | 124100 | 192800 | 207600 | 143700 | 249800 | 283100 | 167400 | 323800 | 396100 | 228700 | 454700 | 527100 |

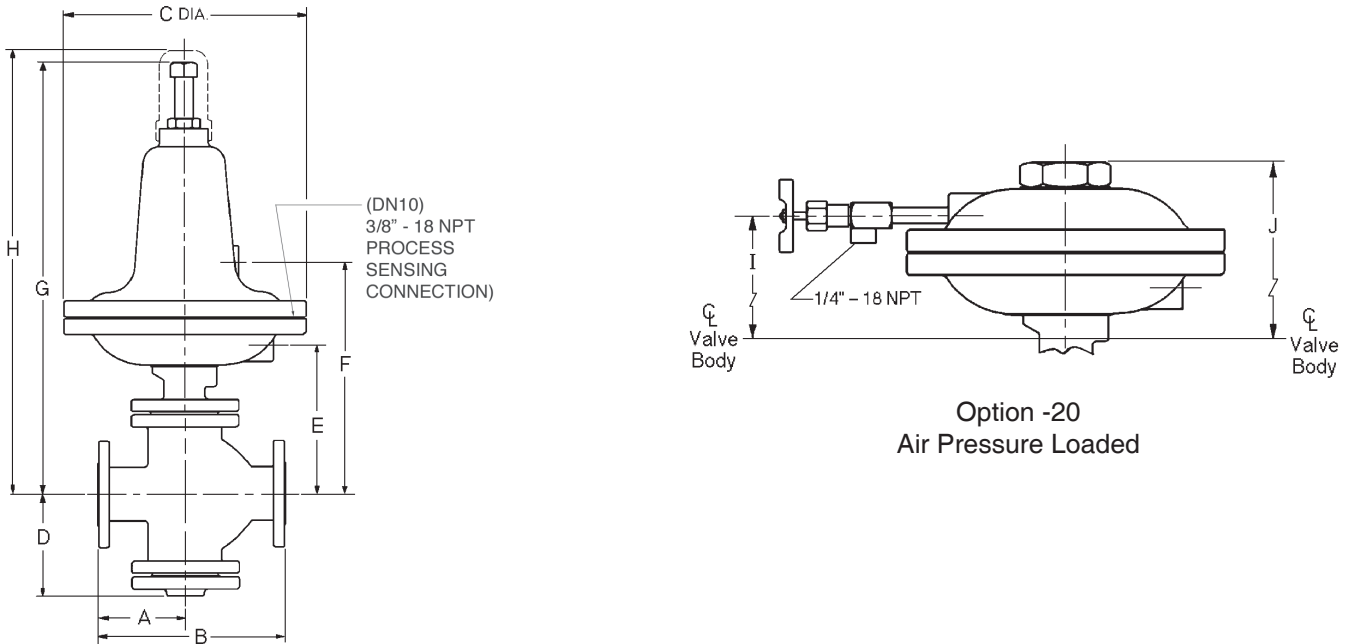
NOTE: Where "SONIC" is indicated within the above capacity tables, outlet velocity with Schedule 40 pipe has reached sonic velocity of 1118 fps. Additional flow cannot be obtained, and pipeline velocity is in excess of customary pipe velocity design limits. Flow will be approximately the last indicated value in the column above "SONIC".

METRIC CONVERSION FACTORS: SCFH ÷ 35.31 = Sm³/HR
 SCFH ÷ 37.32 = Nm³/HR

DIMENSIONS AND WEIGHTS – ENGLISH UNITS

| Size Inches | End Conn | Dimensions - inches | | | | | | | | | | | Approximate Ship Weight lbs. | |
|-------------|----------------|---------------------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|------------------------------|------|
| | | A | B | C | | D | E | F | G | H | I | J | "LP" | "HP" |
| | | | | "LP" | "HP" | | | | | | | | | |
| 1-1/2" * | NPT | 3.69 | 8.00 | 14.00 | 11.25 | 4.75 | 6.89 | 11.12 | 20.25 | 20.50 | 8.00 | 9.81 | 121 | 100 |
| | 125/150# Flgd. | 4.06 | 8.75 | | | | | | | | | | 127 | 106 |
| | 250/300# Flgd. | 4.31 | 9.25 | | | | | | | | | | 135 | 114 |
| 2" ** | NPT | 4.25 | 9.26 | 14.00 | 11.25 | 6.38 | 8.44 | 12.69 | 21.50 | 22.00 | 10.94 | 12.75 | 161 | 140 |
| | 125/150# Flgd. | 4.62 | 10.00 | | | | | | | | | | 173 | 152 |
| | 250/300# Flgd. | 4.88 | 10.50 | | | | | | | | | | 177 | 156 |
| 2-1/2" | 125/150# Flgd. | 5.06 | 10.88 | 14.00 | 11.25 | 6.38 | 8.44 | 12.69 | 21.50 | 22.00 | 10.94 | 12.75 | 201 | 180 |
| | 250/300# Flgd. | 5.38 | 11.50 | | | | | | | | | | 206 | 185 |
| 3" | 125/150# Flgd. | 5.50 | 11.75 | 14.00 | 11.25 | 7.69 | 9.74 | 14.00 | 22.75 | 23.50 | 11.25 | 13.06 | 226 | 205 |
| | 250/300# Flgd. | 5.88 | 12.50 | | | | | | | | | | 234 | 213 |
| 4" | 125/150# Flgd. | 6.56 | 13.88 | 14.00 | 11.25 | 7.69 | 9.74 | 14.00 | 22.75 | 23.50 | 11.25 | 13.06 | 251 | 230 |
| | 250/300# Flgd. | 6.88 | 14.50 | | | | | | | | | | 269 | 248 |

* 1-1/2" Size CS body material with Opt-34: "A" dim. = 7.31" & "B" dim = 14.00"
 ** 2" Size CS body material with Opt-34: "A" dim. = 7.38" & "B" dim = 14.00"



DIMENSIONS AND WEIGHTS – METRIC UNITS

| Size (DN) | End Conn | Dimensions (mm) | | | | | | | | | | | Approximate Ship Weight (kg) | |
|-----------|----------------|-----------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|------------------------------|--------|
| | | A | B | C | | D | E | F | G | H | I | J | "LP" | "HP" |
| | | | | "LP" | "HP" | | | | | | | | | |
| (40) * | NPT | 94 | 203 | 356 | 286 | 121 | 175 | 283 | 514 | 521 | 203 | 249 | 54.88 | 45.35 |
| | 125/150# Flgd. | 103 | 222 | | | | | | | | | | 57.60 | 48.07 |
| | 250/300# Flgd. | 110 | 235 | | | | | | | | | | 61.23 | 51.70 |
| (50) ** | NPT | 108 | 235 | 356 | 286 | 162 | 214 | 322 | 546 | 559 | 278 | 324 | 73.02 | 63.49 |
| | 125/150# Flgd. | 117 | 254 | | | | | | | | | | 78.46 | 58.94 |
| | 250/300# Flgd. | 124 | 267 | | | | | | | | | | 80.27 | 70.75 |
| (65) | 125/150# Flgd. | 129 | 276 | 356 | 286 | 162 | 214 | 322 | 546 | 559 | 278 | 324 | 91.16 | 81.63 |
| | 250/300# Flgd. | 137 | 292 | | | | | | | | | | 93.42 | 83.90 |
| (80) | 125/150# Flgd. | 140 | 298 | 356 | 286 | 195 | 247 | 356 | 578 | 597 | 286 | 332 | 102.50 | 92.97 |
| | 250/300# Flgd. | 149 | 318 | | | | | | | | | | 106.12 | 96.60 |
| (100) | 125/150# Flgd. | 167 | 352 | 356 | 286 | 195 | 247 | 356 | 578 | 597 | 286 | 332 | 113.83 | 104.31 |
| | 250/300# Flgd. | 175 | 368 | | | | | | | | | | 122.00 | 112.47 |

* DN40 Size CS body material with Opt-34: "A" dim. = 185mm & "B" dim = 356mm.
 ** DN50 Size CS body material with Opt-34: "A" dim. = 187mm & "B" dim = 356mm.

MODEL 8310LP PRODUCT CODER

An "X" in POS 12 followed by a 5-digit control number overrides remaining selections.



| POSITION 3 - SIZE | | |
|-------------------|-------|------|
| Size | | CODE |
| in | (DN) | |
| 1-1/2" | (40) | 8 |
| 2" | (50) | 9 |
| 2-1/2" * | (65) | A |
| 3" * | (80) | B |
| 4" * | (100) | C |
| * Flanged Only. | | |

| POSITION 5 - BODY / SPRING CHAMBER MATERIAL | |
|---------------------------------------------|------|
| Body / Sp. Ch. | CODE |
| CI/CI | 1 |
| CS/CS | 5 |

NOTE: See TB Table 2 for material limitations of Design Pressure Ratings.

| POSITION 6 & 7 - TRIM | |
|-----------------------|------|
| Desig. | CODE |
| S1 | S1 |
| S5 | S5 |
| S40 | 40 |
| S36 | 36 |
| S36R | 3R |
| S7 | S7 |
| S7R | SR |
| S3 | S3 |

| POSITION 10 - END CONNECTIONS | |
|----------------------------------------------------------------------------|------|
| Description | CODE |
| NPT - Screwed | 1 |
| -30 Opt. Integral Flanged | |
| 125 LB Flgs CI Only | 3 |
| 150 LB Flgs CS Only | 6 |
| 250 LB Flgs CI Only | 5 |
| 300 LB Flgs CS Only | 7 |
| -34 Opt. - 150 LB RF Flgs. 14" F to F Dimension (Sizes 1-1/2" & 2" only) * | V |
| -34 Opt. - 300 LB RF Flgs. 14" F to F Dimension (Sizes 1-1/2" & 2" only) * | W |
| * CS body material only. Nipples & flanges of same material as body. | |

| POSITION 11 - RANGE SPRINGS | | |
|-------------------------------|-----------|------|
| Steel Range Spring | | CODE |
| psig | (Barg) | |
| 1 - 4 * | (.07-.27) | 5 |
| 3 - 10 | (.21-.69) | 6 |
| 8 - 30 | (.55-2.1) | 7 |
| * Composition Diaphragm Only. | | |

| POSITION 12 - TRIM VARIATIONS | | |
|----------------------------------------------------------------------|--------|------|
| Description | Option | CODE |
| No Special Trim Variation | -- | 0 |
| Stellited Seat Surface - S1 and S5 Trim Only. | -15 | A |
| For Special Construction Contact Cashco for Special Product Code. | SPQ | X |

| POSITION 13 - FEATURE OPTIONS | | |
|-------------------------------|--------|------|
| Description | Option | CODE |
| No Option | - | 0 |
| Closing Cap. | -1 | 1 |
| T-Bar & Locking Lever. | -3 | 3 |

| POSITION 16 - CERTIFICATE OPTIONS | | |
|--------------------------------------------|--------|------|
| Description | Option | CODE |
| No Option | - | 0 |
| Special Cleaning: Per Cashco Spec #S-1542. | -56 | N |

*** For information on ATEX see pages 9 & 10 on the IOM.**

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MODEL 8310HP PRODUCT CODER

07/20/21

An "X" in POS 12 followed by a 5-digit control number overrides remaining selections.



| POSITION 3 - SIZE | | |
|-------------------|-------|------|
| Size | | CODE |
| in | (DN) | |
| 1-1/2" | (40) | 8 |
| 2" | (50) | 9 |
| 2-1/2" * | (65) | A |
| 3" * | (80) | B |
| 4" * | (100) | C |
| * Flanged Only. | | |

| POSITION 5 - BODY / SPRING CHAMBER MATERIAL | |
|---------------------------------------------|------|
| Body / Sp. Ch. | CODE |
| CI/DI | 1 |
| CS/CS | 5 |

NOTE: See TB Table 1 for material limitations of Design Pressure Ratings.

| POSITION 6 & 7 - TRIM | |
|-----------------------|------|
| Desig. | CODE |
| S1 | S1 |
| S5 | S5 |
| S40 | 40 |
| S36 | 36 |
| S36R | 3R |
| S7 | S7 |
| S7R | SR |
| S3 | S3 |

| POSITION 10 - END CONNECTIONS | |
|----------------------------------------------------------------------------|------|
| Description | CODE |
| NPT - Screwed | 1 |
| -30 Opt. Integral Flanged | |
| 125 LB Flgs CI Only | 3 |
| 150 LB Flgs CS Only | 6 |
| 250 LB Flgs CI Only | 5 |
| 300 LB Flgs CS Only | 7 |
| -34 Opt. - 150 LB RF Flgs. 14" F to F Dimension (Sizes 1-1/2" & 2" only) * | V |
| -34 Opt. - 300 LB RF Flgs. 14" F to F Dimension (Sizes 1-1/2" & 2" only) * | W |
| * CS body material only. Nipples & flanges of same material as body. | |

| POSITION 11 - RANGE SPRINGS | | |
|----------------------------------------------------------|------------|------|
| Steel Range Spring | | CODE |
| psig | (Barg) | |
| 10 - 40 | (.69-2.8) | 1 |
| 30 - 100 | (2.1-6.9) | 8 |
| 75 - 145 | (5.2-10.0) | 9 |
| 130 - 200 * | (9.0-13.8) | B |
| Option-20 Dome Loaded | | A |
| * Includes Opt-80 for High Outlet pressure construction. | | |

| POSITION 12 - TRIM VARIATIONS | | |
|-------------------------------------------------------------------|--------|------|
| Description | Option | CODE |
| No Special Trim Variation | -- | 0 |
| Stellited Seat Surface - S1 and S5 Trim Only. | -15 | A |
| For Special Construction Contact Cashco for Special Product Code. | SPQ | X |

| POSITION 13 - FEATURE OPTIONS | | |
|-------------------------------|--------|------|
| Description | Option | CODE |
| No Option | - | 0 |
| Closing Cap. | -1 | 1 |
| T-Bar & Locking Lever. | -3 | 3 |

*** For information on ATEX see pages 9 & 10 on the IOM.**

| POSITION 16 - CERTIFICATE OPTIONS | | |
|--------------------------------------------|--------|------|
| Description | Option | CODE |
| No Option | - | 0 |
| Special Cleaning: Per Cashco Spec #S-1542. | -56 | N |

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