

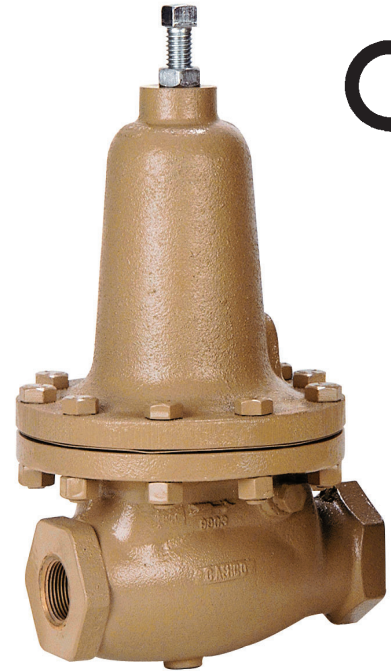


ISO Registered Company



MODEL 1000HP

PROCESS PRESSURE REDUCING REGULATOR



MODEL 1000HP

OVERVIEW

The Model 1000HP is a high capacity, high pressure regulator used to control downstream pressure between 10 and 300 psig (0.69 and 20.7 Barg). Available in sizes from 1/2" through 2" (DN15 through DN50). The unique internal design allows use in a multitude of applications, including process fluids that normal pressure reducing regulators can not match. The most versatile self-contained, pressure reducing regulator available to users.

FEATURES

- Streamlined Flow Path:** Straight-through flow path reduces internal turbulence and resistance to flow, increasing stability and capacity.
- High Inlet Pressures:** Standard construction allows inlet pressures up to 740 psig (51.0 Barg).
- High Outlet Pressures:** Controlled outlet pressure up to 300 psig (20.7 Barg).
- High Pressure Drop:** Standard construction with extended guiding allows pressure drop up to 650 psid (44.8 Bard). This regulator is routinely applied in severe service conditions.
- Flow-to-Open Plug:** Provides unmatched rangeability – far greater than competitive flow-to-close designs. Highly stable at either high or low flow rates.
- Versatility:** Four body materials and nineteen trim material selections allow usage in a multitude of various fluids. Optional constructions extend the capability.
- Protected Diaphragm Zone:** Internal arrangement isolates the diaphragm from direct impingement, negating any flow induced instability at either low or high flow rates. Allows incorporation of dynamic boost from jet section. Uniformly registers pressure on the diaphragm.
- Diaphragm Travel Stops:** Incorporates mechanical stop in spring chamber to limit diaphragm uptravel and in body for downtravel, minimizing potential internal damage from over-travel conditions.

* Refer to technical bulletin 1000HP-DIFF-TB for differential pressure applications. Refer to technical bulletin 1000HP-CRYO-TB for cryogenic reducer applications.

* Refer to technical bulletins 1000LP-BASIC-TB for the low pressure (LP) variation of the Model 1000 products. Refer to technical bulletin 1000HP-SF for the high inlet pressure variation.



LINE SIZES AVAILABLE

1/2" (DN15), 3/4" (DN20), 1" (DN25), 1-1/4" (DN32), 1-1/2" (DN40), AND 2" (DN50)



END CONNECTIONS

NPT, FLANGED, BSPT, BSP, EXTENDED NIPPLES, 14" FACE TO FACE



COMMON APPLICATIONS

STEAM, INDUSTRIAL GASES, SOUR GASES, FUEL OILS, COMPRESSED AIR, CHEMICALS, WATER CONDENSATE



DESIGN PRESSURE

INLET: UP TO 740 psig (51 Barg)
OUTLET: UP TO 300 psig (20.7 Barg)

STANDARD/GENERAL SPECIFICATIONS

Body Sizes: 1/2", 3/4", 1", 1-1/4", 1-1/2" and 2" (DN15, 20, 25, 32, 40 and 50).

End Connections: Standard – NPT female.
 Opt-30: 150# or 300# RF flanged.
 Opt-31: BSPT Tapered Thread.
 Opt-31P: BSPP Parallel Thread.
 Opt-32: Extended plain end nipples.
 Opt-34: 14" Face to Face Flange Dim. (Sizes 1/2"- 1" & 1-1/2" only)

Body/Spring Chamber Material Combinations: Uniform – DI/DI, BRZ/BRZ, CS/CS and SST/SST.
 Combinations – CS/DI, BRZ/DI, SST/DI and SST/CS.

DI = Ductile iron
 CS = Cast carbon steel
 BRZ = Cast bronze
 SST = Cast stainless steel

See Table 5 for material specifications.
NOTE: 1-1/4" (DN32) SST or BRZ bodies not available.

Trim Designs: Metal seated or composition seat (see Figure 1). Metal or composition diaphragms.

"B_" series designations – BRZ, BR, SST; see Table 7 for materials.
 "S_" series designations – SST; See Table 8 for materials.

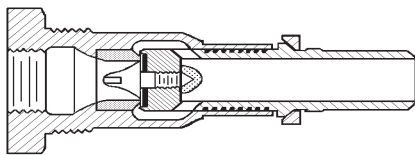


Figure 1: Composition Seat Design

Body/Cylinder Material Combinations: DI/BRZ, DI/SST.
 BRZ/BRZ.
 CS/SST, SST/SST.

Maximum Inlet Pressure: Dependent only on cylinder material and type of end connection (See Table 16):

BRZ – 400 psig (27.6 Barg);
 SST – 740 psig (51.0 Barg);

NOTES: 1. 1000HP is a flow-to-open (FTO) design; this places an upper limitation on inlet pressure for a given outlet pressure setting.
 2. Pressure/temperature ratings are reduced for Opt-37 and -37S due to use of SST bolting.

Temperature Range:

Standard: For body/cylinder/spring chamber construction with:
any BRZ materials –
 -20° to +400°F (-29° to +205°C).
DI, CS (WCB) or SST materials –
 -20° to +450°F (-29° to +232°C)

Optional: For body/cylinder/spring chamber construction with Opt-46G carbon graphite gasket:
CS (WCB) or SST materials –
 -20° to +600°F (-29° to +315°C)

NOTE: Composition trim materials may lower above ranges.

Outlet Pressure Range:

See Table 2 for individual range spring span.

| Body Size | | Full Range | | Number of Range Springs |
|-----------|------|------------|------------|-------------------------|
| in | (DN) | psig | (Barg) | |
| 1/2" | (15) | 10 - 300 | (0.7-20.7) | 5 |
| 3/4" | (20) | | | 6 |
| 1" | (25) | | | 6 |
| 1-1/4" | (32) | 10 - 225 | (0.7-15.5) | 5 |
| 1-1/2" | (40) | | | 4 |
| 2" | (50) | 10 - 150 | (0.7-10.3) | 3 |

NOTES: 1. 1000HP is a flow-to-open (FTO) design; this places a lower limitation on outlet pressure setting for some inlet pressure levels.
 2. Opt-37 and -37S use SST range springs, reducing number of range spring choices available.

Maximum Pressure Drop:

Metal Seat Designs:
 "B_" series trim designations – up to 390 psid (26.9 Bard).
 "S_" series trim designations – up to 650 psid (44.8 Bard).

Composition Seat Designs:
 "B_" series trim designations – up to 390 psid (26.9 Bard).
 "S_" series trim designations – up to 650 psid (44.8 Bard).

Minimum Pressure Drop: Standard: $\Delta P > 5$ psid (0.34 Bard)
Opt-17: $\Delta P \leq 1-5$ psid (0.07-0.34 Bard)
 Minimum = 1 psid (0.07 Bard).

Seat Leakage: Meets ANSI/FCI 70-2.
Metal Seated – Class IV.
Composition Seat – Class VI.

See Tables 9 through 12 for flow capacity expressed in Cv's for full port and 1-step reduced port (Opt-12).

See Table 3 for "Wide Open Cv"; use for sizing of safety relief device.

Range Springs: Standard: Heat treated steel, zinc plated.
Opt-37 and -37S: SST.

Diaphragm Flange Bolting: Standard: High strength, zinc plated, heat treated steel.
Opt-37 and -37S: SST.

Gaskets: Required for metal diaphragm constructions only; not required for composition diaphragm construction.
Standard: Graphite/NBR.
(Not suitable for oxygen service.)
 $T_{max} = 450^{\circ}F$ (232°C)
Opt-45: Alternate TFE gaskets primarily for oxygen service.
 $T_{max} = 400^{\circ}F$ (205°C).
Opt-46G: Alternate carbon graphite gaskets.
 $T_{max} = 600^{\circ}F$ (315°C).

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

OPTION SPECIFICATIONS

Option -1: CLOSING CAP. A removable ductile iron cap discourages tampering with spring setting. Available only with DI or CS spring chamber materials. Includes a gasket for sealing the closing cap to the spring chamber, a sealing lock nut and a 1/4" NPT female vent connection.

Option -1+6: DIFFERENTIAL CONSTRUCTION.
Option -1+8: Refer to Technical Bulletin 1000HP-DIFF-TB for technical information for differential pressure applications.

Option -3: MANUAL ADJUSTOR AND LOCKING LEVER. Use when frequent spring range settings are required. For sizes 1/2", 3/4" and 1" (DN15, 20 and 25) adjusting screw has handwheel fixed to end, and locking nut is replaced by a locking lever that is easily loosened/tightened. For sizes 1-1/4", 1-1/2" and 2" (DN32, 40, 50) handwheel is replaced by T-bar adjustor.

Option -5: BRZ/BR CRYOGENIC CONSTRUCTION. Refer to Technical Bulletin 1000HP-CRYO-TB for technical information for cryogenic applications.

Option -12: REDUCED PORT ORIFICE. Used when high inlet pressure negates use of the standard full port orifice. Also used when oversized piping body is desired to accommodate piping size. Available in metal seated or composition seat materials, in all "B_" or "S_" series trim designations, and in all body sizes except 1-1/4" (DN32). See Tables 10 and 12 for flow capacity in Cv's.

Option -14: INTEGRAL SEAT. Standard pressed-in seat ring-to-cylinder joint is sealed as a path of leakage by brazing or welding. The procedure also serves as a permanent joint for flow conditions where service conditions are "severe", subject to vibration, or thermal cycling.

Seat ring is silver brazed to cylinder for all "B_" series **composition** trim designations, and to 1/2" (DN15) body size cylinders with "S_" series trim designations. For all other body sizes with "S_" series designations the seat ring is welded to the cylinder.

OPTION SPECIFICATIONS

Recommended for all hydrogen or helium applications. Recommended when pressure drop exceeds 300 psid (20.7 Bard). Required when pressure drop exceeds 450 psid (31.0 Bard).

NOTE: Opt-14 is now included whenever Opt-15, stellite seat surfaces is specified.

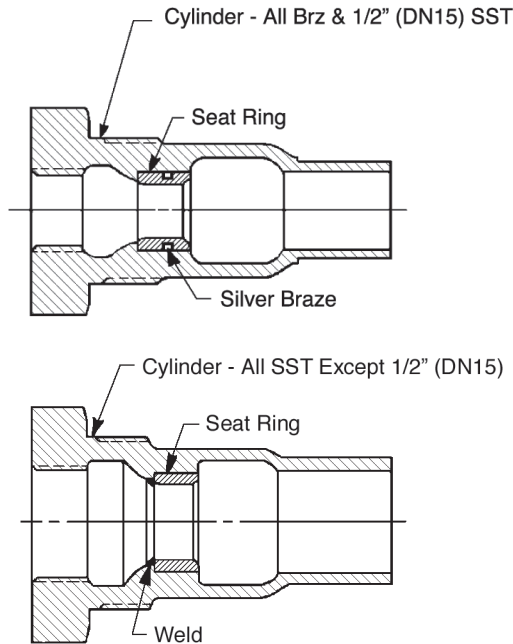


Figure 2:

Opt-14 Integral Seat

Option -15:

STELLITED SEAT SURFACES. Available with metal seated S1 trim only, and with full port orifice or Opt-12 reduced port orifice. Both plug face and seat ring's seat edge are coated with stellite hard surfacing using a flame spray process. Includes integral seat ring Opt-14.

Required for applications when:

1. Liquid flow is flashing and when both outlet pressure $P_2 < 50$ psig (3.5 Barg) and $\Delta P > 50$ psid (3.5 Bard).
2. Steam service when inlet pressure $P_1 > 450$ psig (31.0 Barg).
3. Steam service when $\Delta P > 300$ psid (20.7 Bard).
4. 2-phase flow (liquid + vapor i.e. "wet" steam) at inlet.

Option -17:

PISTON SPRING. Required for applications where pressure drop is less than 5 psid (0.34 Bard). Minimizes plug/cylinder frictional effects. 302 SST material only. Standard with B5 trim. Not available in 2" (DN50) body size with CS cylinder.

Option -20:

PRESSURE LOADED. Former Opt-20 with dome loaded topworks is obsolete. Use 1000HP-1+6 as alternate. See technical bulletin 1000HP-DIFF-TB.

Option -25:

REMOTE VENTING. Use with hazardous or explosive gases where personnel/equipment safety is at issue when a diaphragm leak occurs. 1/4" NPT female connection in spring chamber for piping.

Option -25P:

PLASTIC RAIN PROOF BUG VENT. (For Opt-25).

Option -25S:

SST RAIN PROOF BUG VENT. (For Opt-25).

Option -26:

DRAIN HOLE. 1/4" NPT drain tap with plug in body underside. Recommend use with highly viscous fluids (above 100 centipoise (Cp)) for downstream piping pressure sensing. Plug material similar to body material. Recommended for flashing liquids.

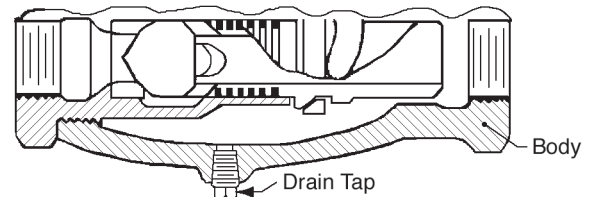


Figure 3:

Opt-26 Drain Hole

Option -27:

VISCOUS LIQUID SERVICE. Incorporates special valve plug with drilled openings near the "jet effect" zone to stabilize operation for fluids with viscosity greater than 100 Cp. Brass or SST metal seated trim ONLY.

Option -30:

FLANGED END CONNECTIONS. CS or SST body materials only. Flange and pipe nipple materials of same general chemistry as body material. Available as 150# RF or 300# RF flange configurations. Pressure \ Temperature ratings for Carbon Steel body per ASME B16.5. Group 1.1 and ASME B16.5 for SST body. Requires lapped joint-type flange on inlet (cylinder) end. Pipe nipples socket welded to body and cylinder. Outlet connection flange is socket

weld-type. See Table 16 for lowered P vs T ratings. No post-weld stress relieving performed. Not available in 1-1/4" (DN32) body size. (Suitable for NACE service with post-weld, stress relief, heat treatment).

Option -31 BSPT END CONNECTIONS. British Standard Tapered Pipe threads per ISO 7/1; used as alternate to NPT.

Option -31P: BSPP END CONNECTIONS. British Standard Parallel Pipe threads per ISO 7/1; used as alternate to NPT ends.

Option -32: EXTENDED P.E. NIPPLES. Schedule 80 plain end pipe nipples used for field butt or socket welding into pipeline. Pipe nipples of same general chemistry as body material. Short-threaded pipe nipples seal welded to body and cylinder. Adds approximately 8 inches (200 mm) to the face-to-face dimension of standard unit. Use for socket weld pipe systems. (Suitable for NACE service with post-weld, stress relief, heat treatment).

Option -34: SPECIAL 14" FACE TO FACE DIMENSION FOR FLANGED END CONNECTIONS. Sizes 1/2" - 1" & 1-1/2" only. See Opt.-30 for standard face to face dimension.

Option -36: SST CRYOGENIC CONSTRUCTION. Refer to technical bulletin 1000HP-CRYO-TB for technical information for cryogenic applications.

Option -37: ALL SST/CLEAN UNIT FOR LIQUIDS AND GASES. Packaged primarily for the food and pharmaceutical industries. NPT and 150# SST RF flanged end connections ONLY. 316 SST body and spring chamber materials ONLY. Use with S6 trim ONLY. T-bar handle, spring chamber internals, and flange bolting of SST materials. All wetted and external castings are electropolished, and the unit is cleaned to Cashco Spec. #S-1576. Includes Opt-26 1/4" NPT tap with SST plug.

Use of SST diaphragm flange bolting limits P vs T ratings to levels below standard unit (see Table 16). Also limits pressure settings to overall range of 10–80 psig (0.7–5.5 Barg) using multiple SST springs.

Option -37S: ALL SST/CLEAN UNIT FOR STEAM. Similar to Option -37, except is equipped with different trim; use with S1 trim ONLY. Includes carbon graphite diaphragm gasket material. Includes Opt-26 1/4" NPT tap with SST plug. Use of SST flange bolting limits P vs T ratings to levels below standard unit (see Table 16). Also limits pressure settings to overall range of 10–80 psig (0.7–5.5 Barg) using multiple SST springs.

Option -40: NACE CONSTRUCTION. Internal wetted portions meet NACE standard MR0175 for application in sour gas service. Exterior of the unit to not be directly exposed to a sour gas environment, buried, insulated or otherwise denied direct atmospheric exposure. CS/CS or SST/CS body/spring chamber materials ONLY. Acceptable ONLY with S40, S40V, S3, or S3N trims. Not available with Opt-14, Opt-15, Opt-17, or Opt-37.

Option -45: TFE/SILICATE-GASKET. Primarily for oxygen service. Limits temperature range to -20° to +400°F (-29° to +205°C). Not required when using a composition diaphragm.

Option -46G: HIGH TEMPERATURE GASKETS. CS (WCB) or SST body/spring chamber materials only with S1 or S2 trim. Utilizes carbon graphite gaskets over standard gaskets. Primarily applied at temperatures over 400°F (205°C) or at customer's request; range of -20° to +600°F (-29° to +315°C). (See Table 8 a.1)

Option -55: SPECIAL CLEANING. BRZ or SST body materials ONLY. Cleaning per Cashco Spec #S-1134 for Oxygen gas Service. **NOTE:** Design Pressure Rating shall not exceed 375 psig (25.8 Barg) when body material is SST and process medium is oxygen.

Option -56: SPECIAL CLEANING. Cleaning per Cashco Spec #S-1542. **NOT suitable for Oxygen Service.**

TECHNICAL SPECIFICATIONS

**TABLE 1
RECOMMENDED PRESSURE DROP VS. TRIM DESIGN/MATERIALS**

NOTE: Consult Factory with Application Details For ΔP 's > 450 psid (31 Bard).

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.

| Fluid | Maximum Inlet Pressure | | Operating Pressure Drop Range | | Seat Design | Basic Trim Materials | Trim Designation Numbers |
|----------------------------|------------------------|--------|-------------------------------|---------------|--|----------------------|---------------------------------------|
| | psig | (Barg) | psid | (Barg) | | | |
| Liquids (Noncavitating) | 400 | (27.6) | 5 - 250 | (0.34 - 17.2) | Soft Seat - All Comp Materials | BRZ/BR | BB, B2, B3, B5, BK |
| | 740 | (51.0) | 5 - 400 | (0.34 - 27.6) | Soft Seat - All Comp Materials | SST | S3, S3N, S6, S7, S9, SB, S40V, S36 |
| | 400 | (27.6) | 5 - 390 | (0.34 - 26.9) | Metal Seated | BRZ/BR/SST | B1 |
| | 740 | (51.0) | 5 - 650 | (0.34 - 44.8) | Metal Seated | SST | S2, S2N, S0, S1, S5, S40 |
| Gas | 400 | (27.6) | 5 - 390 | (0.34 - 26.9) | Soft Seat - All Comp Materials except SST/TFE | BRZ/BR | BB, B2, B3, B5, BK |
| | 740 | (51.0) | 5 - 650 | (0.34 - 44.8) | Soft Seat - SST/TFE ONLY | SST | S3, S9, S36 |
| | | | | | Metal Seated | SST | S2, S2N, S0, S1, S5, S40 |
| Steam | 400* | (27.6) | 5 - 200* | (0.34 - 13.8) | Metal Seated | BRZ/BR/SST | B1 |
| | 450 | (31.0) | 5 - 300 | (0.34 - 20.7) | Metal Seated | SST | S1, S2 |
| | 740 | (51.0) | 5 - 650 | (0.34 - 44.8) | Metal Seated - Opt-15 Stellite | SST | S1 |

* Saturated Only **NOTE:** For ΔP = 1-5 psid (.07 - .34 Bard), use Opt-17 piston spring.

TABLE 2
RANGE SPRINGS

| Body Size | | Standard - Steel | | SST - Opts. -37 & 37S | |
|-----------|------|------------------|-------------|-----------------------|-----------|
| in. | (DN) | psig | (Barg) | psig | (Barg) |
| 1/2" | (15) | 10-50 | (.7-3.4) | 10-50 | (.7-3.4) |
| | | 40-100 | (2.7-6.9) | 40-80 | (2.7-5.5) |
| | | 80-150 | (5.5-10.3) | N/A | N/A |
| | | 120-190 | (8.3-13.1) | | |
| | | 150-300 | (10.3-20.7) | | |
| 3/4" | (20) | 10-40 | (.7-2.7) | 10-40 | (.7-2.7) |
| | | 30-60 | (2.1-4.1) | 30-60 | (2.1-4.1) |
| | | 50-90 | (3.4-6.2) | 50-80 | (3.4-5.5) |
| | | 70-110 | (4.8-7.6) | N/A | N/A |
| | | 90-170 | (6.2-11.7) | | |
| | | 140-300 | (9.6-20.7) | | |
| 1" | (25) | 10-40 | (.7-2.7) | 10-30 | (.7-2.1) |
| | | 30-60 | (2.1-4.1) | 25-45 | (1.7-3.1) |
| | | 50-70 | (3.4-4.8) | 35-50 | (2.4-3.4) |
| | | 55-80 | (3.8-5.5) | 40-80 | (2.7-5.5) |
| | | 65-130 | (4.5-8.9) | N/A | N/A |
| | | 100-300 | (6.9-20.7) | | |
| 1 1/4" | (32) | 10-40 | (.7-2.7) | N/A | N/A |
| | | 30-50 | (2.1-3.4) | | |
| | | 40-60 | (2.7-4.1) | | |
| | | 50-90 | (3.4-6.2) | | |
| | | 70-225 | (4.8-15.5) | | |
| 1-1/2" | (40) | 10-40 | (.7-2.7) | 10-50 | (.7-3.4) |
| | | 30-75 | (2.1-5.2) | 40-80 | (2.7-5.5) |
| | | 60-100 | (4.1-6.9) | N/A | N/A |
| | | 80-225 | (5.5-15.5) | | |
| 2" | (50) | 10-40 | (.7-2.7) | 10-30 | (.7-2.1) |
| | | 30-60 | (2.1-4.1) | 25-45 | (1.7-3.1) |
| | | 50-150 | (3.4-10.3) | 35-80 | (2.4-5.5) |

TABLE 3
MAXIMUM CAPACITY – Cv
FOR SIZING SAFETY RELIEF DEVICE
(WITH PLUG WIDE OPEN)

| Body Size | | Orifice Size | | | |
|-----------|------|--------------|----|-----------------|-----------------|
| | | Standard | | Opt.-12 Reduced | |
| inch | (DN) | Size | Cv | Size | Cv |
| 1/2" | (15) | 1/2" | 5 | 3/8" | 3 |
| 3/4" | (20) | 3/4" | 9 | 1/2" | 7 |
| 1" | (25) | 7/8" | 9 | 5/8" | 8 |
| 1-1/4" | (32) | 1" | 13 | NA ¹ | NA ¹ |
| 1-1/2" | (40) | 1-1/4" | 17 | 7/8" | 13 |
| 2" | (50) | 1-1/2" | 22 | 1-1/4" | 20 |

- NOTES:**
1. NA = Not Available.
 2. See Footnote 1 of Table 16 for technical information on safety relief valve or rupture disc setpoint pressure.

**TABLE 4
MAXIMUM ALLOWABLE PRESSURE vs. TEMPERATURE;
FOR PRESSURE CONTAINMENT OF
BODY, SPRING CHAMBER AND CYLINDER
(See Table 5 for Material Specifications)**

NOTE: The below ratings may be further "derated" by limitations through the Pressure Equipment Directive (2014/68/EU).

| Materials of Construction ¹ | | Inlet - Cylinder | | | | Outlet - Body & Spring Chamber | | | |
|--|---------------------------------|------------------|--------|--------------------------|----------------------------|--------------------------------|--------|--------------------------|----------------------------|
| | | Pressure | | Temperature | | Pressure | | Temperature | |
| | | psig | (Barg) | °F | (°C) | psig | (Barg) | °F | (°C) |
| DI/DI/BRZ or BRZ/DI/BRZ | | 400 | (27.6) | -20 to +150 | (-29 to +66) | 300 | (20.7) | -20 to +300 | (-29 to +149) |
| | | 385 | (26.5) | +200 | (+94) | 250 | (17.2) | +400 | (+205) |
| | | 365 | (25.2) | +250 | (+121) | | | | |
| | | 335 | (23.1) | +300 | (+149) | | | | |
| | | 300 | (20.7) | +350 | (+177) | | | | |
| | | 250 | (17.2) | +400 | (+205) | | | | |
| BRZ/BRZ/BRZ | | 400 | (27.6) | -20 to +150 | (-29 to +66) | 400 | (27.6) | -20 to +150 | (-29 to +66) |
| | | 385 | (26.5) | +200 | (+94) | 250 | (17.2) | +400 | (+205) |
| | | 365 | (25.2) | +250 | (+121) | | | | |
| | | 335 | (23.1) | +300 | (+149) | | | | |
| | | 300 | (20.7) | +350 | (+177) | | | | |
| | | 250 | (17.2) | +400 | (+205) | | | | |
| DI/DI/SST or CS/DI/SST or SST/DI/SST | | 740 | (51.0) | -20 to +450 | (-29 to +232) | 300 | (20.7) | -20 to +300 | (-29 to +149) |
| | | | | | | 250 | (17.2) | +450 | (+232) |
| CS/CS/SST or SST/CS/SST or SST/SST/SST | Standard Gasket or Option-45 | 740 | (51.0) | -20 to +450 ² | (-29 to +232) ² | 400 | (27.6) | -20 to +450 ² | (-29 to +232) ² |
| CS/CS/SST or SST/CS/SST or SST/SST/SST | Option-46G | 740 | (51.0) | -20 to +600 ³ | (-29 to +315) ³ | 400 | (27.6) | -20 to +600 ³ | (-29 to +315) ³ |

- 1 Pressure vs. temperature ratings in accordance with ASME B31.3.
- 2 Operating Temperature limit for Option-45 is 400F (+205C).
- 3 Requires use of Opt-46G, carbon graphite gasket for temperatures from +450 to +600°F (+232 to +315°C), S1 or S2 Trim only.

**TABLE 5
MATERIAL SPECIFICATIONS OF
BODY, SPRING CHAMBER AND CYLINDER**

| Material | ASTM Specifications |
|----------------------------|--------------------------------|
| BRZ - cast bronze | B62, Alloy 83600 |
| DI - ductile iron | A395 Gr. 60-40-18 |
| CS - cast carbon steel | A216, Gr. WCC (Body) |
| | A216, Gr. WCB (Spring Chamber) |
| SST - cast stainless steel | A351, Gr. CF8M (cast 316 SST) |
| | A479 UNS 31600/03 |

**TABLE 6
APPLICATIONS**

| FLUID | Recommended Construction | Trim Designation No. ¹ |
|---|--|---|
| Air or Inert Gases | Composition Seat & Diaphragm Metal Seat & Composition Diaphragm | BB, B2 , BK, B3, S3N, SB, S40V S2N |
| Liquids | Metal Seat & Diaphragm Composition Seat & Diaphragm | B1, S1 BB, B2 , B3, BK, S3N, SB, S40V |
| Chemicals | Metal Seat & Composition Diaphragm Metal Seat & Diaphragm Composition Seat & Diaphragm Composition Seat & Metal Diaphragm | S5, S40 S0 S3, S6, S40V S9, S36 |
| Sour Gas/Crude | Metal Seat & Composition Diaphragm | S40 |
| Sour Gas/Crude | Composition Seat & Diaphragm | S3, S40V, S3N |
| Fuel Oil | Composition Seat & Diaphragm | BB, SB |
| Hydrocarbon Gas or Liquids | Composition Seat & Diaphragm | BB, S3, S3N, S7, SB, S40V |
| Steam, Saturated or Superheated | Metal Seat & Diaphragm | S2 , B1, S1 |
| Water and Condensate, Low Temperature (32° - 180°F) (0° - 83° C) | Composition Seat & Diaphragm Metal Seat & Composition Diaphragm | BB, B2 , B3, S3 , S3N, SB S2N |
| Water and Condensate High Temperature (180° - 300°) (83° - 149°C) | Metal Seat & Diaphragm | S1 , B1, or S2 |

¹ S1 trim is available with stellite faced plug and valve seat (Opt. -15)..

Note: Trim Designation Nos. in "boldface" are the most commonly used. Cashco, or its representatives, may make recommendations or suggestions as to the suitability of certain trims for specific services. These are trims that have been used successfully in the past in similar applications. However, the user has final responsibility for materials selected.

**TABLE 7
BRASS TRIM MATERIAL COMBINATIONS**

| Part | Brass Trim# | | | | | |
|----------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | B1 | B2 | B3 | B5 | BB | BK |
| Diaphragm | 302 SST | BC | BC | Phos. BRZ | NBR | FKM |
| Cylinder | Brass | Brass | Brass | Brass | Brass | Brass |
| Valve Seat | 316 SST | Brass | Brass | Brass | Brass | Brass |
| Plug | 416 SST | Brass | Brass | Brass | Brass | Brass |
| Seat Disc | None (metal) | NBR | V-TFE | V-TFE | NBR | FKM |
| Seat Disc Screw | None | Brass | Brass | Brass | Brass | Brass |
| Plug Collar | Brass | Brass | Brass | Brass | Brass | Brass |
| Rocker Arm Shaft | Brass | Brass | Brass | Brass | Brass | Brass |
| Rocker Arm | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Pusher Plate Stud | Brass | Brass | Brass | Brass | Brass | Brass |
| Pusher Plate | Bronze | Bronze | Bronze | Bronze | Bronze | Bronze |
| Stud Collar | Brass | Brass | Brass | Brass | Brass | Brass |
| Cotter Pin | Brass | Brass | Brass | Brass | Brass | Brass |
| Nut | Brass | Brass | Brass | Brass | Brass | Brass |
| Temperature Range °F | -20 to +400 | -20 to +200 | -20 to +200 | -20 to +200 | -20 to +250 | -20 to +400 |
| Temperature Range °C | -29 to +205 | -29 to +93 | -29 to +93 | -29 to +93 | -29 to +121 | -29 to +205 |

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.

TABLE 8 a

STAINLESS STEEL TRIM MATERIAL COMBINATIONS

| Part | Metal Seat | | | | | |
|-----------------------|--------------------|----------------------|--------------|--------------|--------------|--------------|
| | S0 | S1 ¹ | S2 | S2N | S5 | S40 * |
| Diaphragm | TFE Coated 302 SST | 302 SST | 302 SST | BC | FKM | BC |
| Cylinder | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Valve Seat | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Plug | 316 SST | 316 SST | 416 SST | 416 SST | 416 SST | 316 SST |
| Seat Disc | None (Metal) | None (Metal) | None (Metal) | None (Metal) | None (Metal) | None (Metal) |
| Set Disc Screw | None | None | None | None | None | None |
| Plug Collar | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Rocker Arm Shaft | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Rocker Arm | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Pusher Plate and Stud | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Stud Collar | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Cotter Pin | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Nut | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Temperature Range °F | -20 to 400 | See Side Table 8 a.1 | | -20 to 200 | -20 to 400 | -20 to 200 |
| Temperature Range °C | -29 to 205 | | | -29 to 93 | -29 to 205 | -29 to 93 |

| Gasket | Temp. Range |
|------------|-------------------------------|
| Standard | -20 to +450 (-29 to +232) |
| Option-45 | -20 to +400 (-29 to + 205) |
| Option-46G | -20 to +600F (-29 to +315) |

¹ Available with Stellite faced plug and valve seat (Opt. -15). Includes a screwed-in seat cone.

* Use for NACE service.

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.

TABLE 8 b

STAINLESS STEEL TRIM MATERIAL COMBINATIONS

| Part | Composition Seat | | | | | | | |
|-----------------------|------------------|-------------|------------|------------|---------|---------|-------------------|---------|
| | S3 * | S3N * | SB | S6 | S7 | S40V * | S9 | S36 |
| Diaphragm | BC | BC | NBR | EPDM | FKM | FKM | TFE Coated 302SST | 302 SST |
| Cylinder | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Valve Seat | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Plug | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Seat Disc | V-TFE | NBR | NBR | EPR | V-TFE | FKM | V-TFE | V-TFE |
| Set Disc Screw | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Plug Collar | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Rocker Arm Shaft | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Rocker Arm | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Pusher Plate and Stud | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M | CF8M |
| Stud Collar | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Cotter Pin | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Nut | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST | 316 SST |
| Temperature Range °F | -20 to 200 | -20 to +250 | -20 to 300 | -20 to 400 | | | | |
| Temperature Range °C | -29 to 93 | -29 to +121 | -29 to 149 | -29 to 205 | | | | |

| | |
|-----------|----------------------------|
| NBR | = Buna-N |
| BC | = Neoprene |
| EPR | = Ethylene Propylene |
| EPDM | = Ethylene Propylene Diene |
| TFE | = Polytetrafluoroethylene |
| FKM | = Fluorocarbon elastomer |
| V-TFE | = Virgin TFE |
| Phos. BRZ | = Phosphor Bronze |

* Use for NACE service.

TABLE 9
Cv – FLOW CAPACITY

FULL PORT – COMPOSITION DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$(F_L = 0.93)$

| COMPOSITION DIAPHRAGM - SIZE - 1/2" (DN15) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|-------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 185 | (12.8) | 185 | (12.8) | 0.71 | 1.30 | 1.89 | 10-50 | (0.7-3.4) |
| 15 | (1.0) | 300 | (20.7) | 300 | (20.7) | 0.77 | 1.39 | 1.98 | 10-50 | (0.7-3.4) |
| 20 | (1.4) | 420 | (29.0) | 420 | (29.0) | 0.84 | 1.48 | 2.08 | 10-50 | (0.7-3.4) |
| 25 | (1.7) | 535 | (36.9) | 425 | (29.3) | 0.90 | 1.57 | 2.17 | 10-50 | (0.7-3.4) |
| 35 | (2.4) | 685 | (47.2) | 435 | (30.0) | 1.03 | 1.74 | 2.35 | 10-50 | (0.7-3.4) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 1.33 | 2.17 | 2.82 | 40-100 | (2.8-6.9) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.58 | 2.52 | 3.43 | 40-100 | (2.8-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 2.07 | 3.35 | 3.50 | 80-150 | (5.5-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.17 | 3.50 | 3.50 | 80-150 | (5.5-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.98 | 3.28 | 3.50 | 120-190 | (8.3-13.1) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.00 | 3.39 | 3.50 | 120-190 | (8.3-13.1) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 2.02 | 3.50 | 3.50 | 150-300 | (10.3-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.05 | 3.50 | 3.50 | 150-300 | (10.3-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 2.09 | 3.50 | 3.50 | 150-300 | (10.3-20.7) |

| COMPOSITION DIAPHRAGM - SIZE - 3/4" (DN20) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 145 | (10.0) | 145 | (10.0) | 1.16 | 2.23 | 2.86 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 230 | (15.9) | 230 | (15.9) | 1.26 | 2.34 | 3.00 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 320 | (22.1) | 320 | (22.1) | 1.37 | 2.44 | 3.15 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 410 | (28.3) | 410 | (28.3) | 1.47 | 2.55 | 3.29 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 540 | (37.2) | 435 | (30.0) | 1.97 | 3.15 | 4.12 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 2.30 | 2.69 | 4.85 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 2.83 | 4.77 | 5.00 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 3.33 | 5.00 | 5.00 | 70-110 | (4.8-7.6) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 3.10 | 5.00 | 5.00 | 90-170 | (6.2-11.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 3.33 | 5.00 | 5.00 | 90-170 | (6.2-11.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.17 | 3.54 | 4.77 | 140-300 | (9.7-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 2.24 | 3.60 | 5.00 | 140-300 | (9.7-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.37 | 3.74 | 5.00 | 140-300 | (9.7-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 2.58 | 3.87 | 5.00 | 140-300 | (9.7-20.7) |

| COMPOSITION DIAPHRAGM - SIZE - 1" (DN25) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 130 | (9.0) | 130 | (9.0) | 1.25 | 2.41 | 3.61 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 205 | (14.1) | 205 | (14.1) | 1.40 | 2.69 | 3.81 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 285 | (19.7) | 285 | (19.7) | 1.55 | 2.96 | 4.01 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 360 | (24.8) | 360 | (24.8) | 1.70 | 3.24 | 4.21 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 485 | (33.4) | 435 | (30.0) | 2.49 | 4.21 | 5.07 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 695 | (47.9) | 450 | (31.0) | 2.90 | 5.00 | 6.00 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 3.67 | 6.00 | 6.00 | 55-80 | (3.8-5.5) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 3.85 | 6.00 | 6.00 | 65-130 | (4.5-9.0) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 3.70 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 3.76 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 3.83 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 3.89 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 4.02 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 4.15 | 6.00 | 6.00 | 100-300 | (6.9-20.7) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 9 (Continued)
Cv – FLOW CAPACITY

FULL PORT – COMPOSITION DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$(F_L = 0.93)$

| COMPOSITION DIAPHRAGM - SIZE - 1-1/4" (DN32) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 105 | (7.2) | 105 | (7.2) | 1.83 | 4.07 | 6.25 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 170 | (11.7) | 170 | (11.7) | 2.11 | 4.55 | 6.69 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 235 | (16.2) | 235 | (16.2) | 2.40 | 5.03 | 7.13 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 300 | (20.7) | 300 | (20.7) | 2.68 | 5.51 | 7.58 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 380 | (26.2) | 380 | (26.2) | 4.10 | 7.70 | 9.00 | 30-50 | (2.1-3.4) |
| 50 | (3.4) | 525 | (36.2) | 450 | (31.0) | 5.30 | 8.83 | 9.00 | 40-60 | (2.7-4.1) |
| 75 | (5.2) | 670 | (46.2) | 475 | (32.8) | 7.70 | 9.00 | 9.00 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 495 | (34.1) | 495 | (34.1) | 8.68 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 125 | (8.6) | 700 | (48.3) | 525 | (36.2) | 8.73 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 8.79 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 8.84 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 8.90 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 8.95 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |

| COMPOSITION DIAPHRAGM - SIZE - 1-1/2" (DN40) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|-------|-------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 110 | (7.6) | 110 | (7.6) | 2.37 | 4.59 | 6.87 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 180 | (12.4) | 180 | (12.4) | 2.75 | 5.20 | 7.38 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 245 | (16.9) | 245 | (16.9) | 3.14 | 5.80 | 7.90 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 315 | (21.7) | 315 | (21.7) | 3.52 | 6.41 | 8.41 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 395 | (27.3) | 395 | (27.3) | 4.40 | 8.80 | 10.00 | 30-75 | (2.1-5.2) |
| 50 | (3.4) | 600 | (41.4) | 450 | (31.0) | 5.50 | 9.05 | 10.55 | 30-75 | (2.1-5.2) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 6.35 | 9.65 | 10.90 | 60-100 | (4.1-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 7.33 | 10.25 | 11.00 | 80-225 | (5.5-15.5) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 7.49 | 10.32 | 11.00 | 80-225 | (5.5-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 7.65 | 10.39 | 11.00 | 80-225 | (5.5-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 7.81 | 10.46 | 11.00 | 80-225 | (5.5-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 7.97 | 10.53 | 11.00 | 80-225 | (5.5-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 8.13 | 10.60 | 11.00 | 80-225 | (5.5-15.5) |

| COMPOSITION DIAPHRAGM - SIZE - 2" (DN50) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|-------|-------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 120 | (8.3) | 120 | (8.3) | 3.60 | 7.27 | 10.30 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 220 | (15.2) | 220 | (15.2) | 3.84 | 7.60 | 10.83 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 315 | (21.7) | 315 | (21.7) | 4.08 | 7.92 | 11.36 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 415 | (28.6) | 415 | (28.6) | 4.32 | 8.25 | 11.89 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 420 | (29.0) | 420 | (29.0) | 7.90 | 11.05 | 12.80 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 690 | (47.6) | 450 | (31.0) | 8.80 | 11.75 | 13.00 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 7.27 | 10.63 | 12.37 | 50-150 | (3.4-10.3) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 7.78 | 10.95 | 12.70 | 50-150 | (3.4-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 8.29 | 11.26 | 12.90 | 50-150 | (3.4-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 8.80 | 11.58 | 13.00 | 50-150 | (3.4-10.3) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 10
Cv – FLOW CAPACITY

OPT -12, 1-STEP REDUCED PORT – COMPOSITION DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$(F_L = 0.93)$

| COMPOSITION DIAPHRAGM - SIZE - 1/2" (DN15) - 1-STEP REDUCED PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|-------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 200 | (13.8) | 220 | (15.2) | 0.47 | 1.00 | 1.55 | 10-50 | (0.7-3.4) |
| 15 | (1.0) | 335 | (23.1) | 370 | (25.5) | 0.53 | 1.10 | 1.61 | 10-50 | (0.7-3.4) |
| 20 | (1.4) | 475 | (32.8) | 420 | (29.0) | 0.60 | 1.18 | 1.68 | 10-50 | (0.7-3.4) |
| 25 | (1.7) | 610 | (42.1) | 425 | (29.3) | 0.66 | 1.26 | 1.74 | 10-50 | (0.7-3.4) |
| 35 | (2.4) | 685 | (47.2) | 435 | (30.0) | 0.78 | 1.42 | 1.86 | 10-50 | (0.7-3.4) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 1.06 | 1.79 | 2.22 | 40-100 | (2.8-6.9) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.26 | 2.09 | 2.36 | 40-100 | (2.8-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 1.67 | 2.44 | 2.50 | 80-150 | (5.5-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 1.79 | 2.50 | 2.50 | 80-150 | (5.5-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.74 | 2.48 | 2.50 | 120-190 | (8.3-13.1) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.81 | 2.50 | 2.50 | 120-190 | (8.3-13.1) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.57 | 2.37 | 2.50 | 150-300 | (10.3-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 1.66 | 2.42 | 2.50 | 150-300 | (10.3-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 1.75 | 2.48 | 2.50 | 150-300 | (10.3-20.7) |

| COMPOSITION DIAPHRAGM - SIZE - 3/4" (DN20) - 1-STEP REDUCED PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 175 | (12.1) | 300 | (20.7) | 0.71 | 1.30 | 1.89 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 280 | (19.3) | 415 | (28.6) | 0.77 | 1.39 | 1.98 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 380 | (26.2) | 420 | (29.0) | 0.84 | 1.48 | 2.08 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 480 | (33.1) | 425 | (29.3) | 0.90 | 1.57 | 2.17 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 665 | (45.9) | 435 | (30.0) | 1.03 | 1.74 | 2.35 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 1.33 | 2.17 | 2.82 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.58 | 2.52 | 3.43 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 2.07 | 3.35 | 3.50 | 70-110 | (4.8-7.6) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.17 | 3.50 | 3.50 | 90-170 | (6.2-11.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 2.12 | 3.47 | 3.50 | 140-300 | (9.7-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.00 | 3.39 | 3.50 | 140-300 | (9.7-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 2.02 | 3.50 | 3.50 | 140-300 | (9.7-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.05 | 3.50 | 3.50 | 140-300 | (9.7-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 2.09 | 3.50 | 3.50 | 140-300 | (9.7-20.7) |

| COMPOSITION DIAPHRAGM - SIZE - 1" (DN25) - 1-STEP REDUCED PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 170 | (11.7) | 250 | (17.2) | 0.86 | 1.72 | 2.57 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 270 | (18.6) | 400 | (27.6) | 0.96 | 1.93 | 2.83 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 370 | (25.5) | 420 | (29.0) | 1.07 | 2.15 | 3.09 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 475 | (32.8) | 425 | (29.3) | 1.17 | 2.36 | 3.36 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 635 | (43.8) | 435 | (30.0) | 1.57 | 3.50 | 4.60 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 1.95 | 4.50 | 5.46 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 2.85 | 5.46 | 5.46 | 55-80 | (3.8-5.5) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 2.74 | 5.38 | 5.46 | 65-130 | (4.5-9.0) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.50 | 5.20 | 5.46 | 100-300 | (6.9-20.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 2.58 | 5.38 | 5.46 | 100-300 | (6.9-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.66 | 5.46 | 5.46 | 100-300 | (6.9-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 2.74 | 5.46 | 5.46 | 100-300 | (6.9-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.91 | 5.46 | 5.46 | 100-300 | (6.9-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 3.07 | 5.46 | 5.46 | 100-300 | (6.9-20.7) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 10 (Continued)
Cv – FLOW CAPACITY

OPT -12, 1-STEP REDUCED PORT – COMPOSITION DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
 and on 650 psid (44.8 Bard) for metal seat.

$$(F_L = 0.93)$$

| COMPOSITION DIAPHRAGM - SIZE -1-1/2" (DN40) - 1-STEP REDUCED PORT | | | | | | | | | | |
|---|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | 10% | 20% | 30% | psig | (Barg) |
| 10 | (0.7) | 165 | (11.4) | 225 | (15.5) | 1.25 | 2.41 | 3.61 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 265 | (18.3) | 365 | (25.2) | 1.40 | 2.69 | 3.81 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 360 | (24.8) | 420 | (29.0) | 1.55 | 2.96 | 4.01 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 460 | (31.7) | 425 | (29.3) | 1.70 | 3.24 | 4.21 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 570 | (39.3) | 435 | (30.0) | 2.49 | 4.21 | 5.07 | 30-75 | (2.1-5.2) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 2.90 | 5.00 | 6.00 | 30-75 | (2.1-5.2) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 3.67 | 6.00 | 6.00 | 60-100 | (4.1-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 3.65 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 3.70 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 3.76 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 3.83 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 3.89 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 3.95 | 6.00 | 6.00 | 80-225 | (5.5-15.5) |

| COMPOSITION DIAPHRAGM - SIZE -2" (DN50) - 1-STEP REDUCED PORT | | | | | | | | | | |
|---|--------|--------------------|--------|--------------------|--------|--------------|-------|-------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | 10% | 20% | 30% | psig | (Barg) |
| 10 | (0.7) | 145 | (10.0) | 145 | (10.0) | 2.37 | 4.59 | 6.87 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 245 | (16.9) | 245 | (16.9) | 2.75 | 5.20 | 7.38 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 340 | (23.4) | 340 | (23.4) | 3.14 | 5.80 | 7.90 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 430 | (29.7) | 425 | (29.3) | 3.52 | 6.41 | 8.41 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 460 | (31.7) | 435 | (30.0) | 4.40 | 8.80 | 10.00 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 690 | (47.6) | 450 | (31.0) | 5.50 | 9.05 | 10.55 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 6.35 | 9.65 | 10.90 | 50-150 | (3.4-10.3) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 7.33 | 10.25 | 11.00 | 50-150 | (3.4-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 7.49 | 10.32 | 11.00 | 50-150 | (3.4-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 7.65 | 10.39 | 11.00 | 50-150 | (3.4-10.3) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 11
Cv – FLOW CAPACITY

FULL PORT – METAL DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$(F_L = 0.93)$

| METAL DIAPHRAGM - SIZE - 1/2" (DN15) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|-------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 215 | (14.8) | 215 | (14.8) | 0.42 | 0.81 | 1.18 | 10-50 | (0.7-3.4) |
| 15 | (1.0) | 335 | (23.1) | 335 | (23.1) | 0.47 | 0.89 | 1.27 | 10-50 | (0.7-3.4) |
| 20 | (1.4) | 450 | (31.0) | 420 | (29.0) | 0.53 | 0.98 | 1.37 | 10-50 | (0.7-3.4) |
| 25 | (1.7) | 570 | (39.3) | 425 | (29.3) | 0.58 | 1.04 | 1.45 | 10-50 | (0.7-3.4) |
| 35 | (2.4) | 685 | (47.2) | 435 | (30.0) | 0.67 | 1.18 | 1.62 | 10-50 | (0.7-3.4) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 0.88 | 1.52 | 2.01 | 40-100 | (2.8-6.9) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.03 | 1.78 | 2.34 | 40-100 | (2.8-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 1.59 | 2.58 | 3.50 | 80-150 | (5.5-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 1.72 | 2.69 | 3.50 | 80-150 | (5.5-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.64 | 2.66 | 3.40 | 120-190 | (8.3-13.1) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.72 | 2.80 | 3.50 | 120-190 | (8.3-13.1) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.58 | 2.64 | 3.50 | 150-300 | (10.3-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 1.67 | 2.72 | 3.50 | 150-300 | (10.3-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 1.77 | 2.88 | 3.50 | 150-300 | (10.3-20.7) |

| METAL DIAPHRAGM - SIZE - 3/4" (DN20) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 160 | (11.0) | 160 | (11.0) | 0.70 | 1.36 | 2.07 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 250 | (17.2) | 250 | (17.2) | 0.76 | 1.50 | 2.20 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 340 | (23.4) | 340 | (23.4) | 0.82 | 1.65 | 2.34 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 425 | (29.3) | 425 | (29.3) | 0.88 | 1.77 | 2.44 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 580 | (40.0) | 435 | (30.0) | 1.00 | 2.01 | 2.65 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 1.33 | 2.66 | 3.47 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.93 | 3.32 | 4.43 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 2.56 | 4.18 | 5.00 | 70-110 | (4.8-7.6) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.43 | 4.00 | 5.00 | 90-170 | (6.2-11.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 2.57 | 4.18 | 5.00 | 90-170 | (6.2-11.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.72 | 3.07 | 4.14 | 140-300 | (9.7-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.80 | 3.13 | 4.20 | 140-300 | (9.7-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.00 | 3.38 | 4.67 | 140-300 | (9.7-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 2.18 | 3.63 | 5.00 | 140-300 | (9.7-20.7) |

| METAL DIAPHRAGM - SIZE - 1" (DN25) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 145 | (10.0) | 145 | (10.0) | 0.78 | 1.55 | 2.42 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 220 | (15.2) | 220 | (15.2) | 0.87 | 2.10 | 2.67 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 300 | (20.7) | 300 | (20.7) | 0.96 | 1.92 | 2.93 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 375 | (25.9) | 375 | (25.9) | 1.04 | 2.13 | 3.13 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 515 | (35.5) | 435 | (30.0) | 1.21 | 2.54 | 3.53 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 1.67 | 3.47 | 4.62 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 2.25 | 4.79 | 6.00 | 55-80 | (3.8-5.5) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 3.03 | 5.20 | 6.00 | 65-130 | (4.5-9.0) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.80 | 4.93 | 6.00 | 100-300 | (6.9-20.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 2.88 | 5.02 | 6.00 | 100-300 | (6.9-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.95 | 5.11 | 6.00 | 100-300 | (6.9-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 3.03 | 5.20 | 6.00 | 100-300 | (6.9-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 3.18 | 5.32 | 6.00 | 100-300 | (6.9-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 3.33 | 5.45 | 6.00 | 100-300 | (6.9-20.7) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 11 (Continued)
Cv – FLOW CAPACITY

FULL PORT – METAL DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
 and on 650 psid (44.8 Bard) for metal seat.

$$(F_L = 0.93)$$

| METAL DIAPHRAGM - SIZE -1-1/4" (DN32) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 115 | (7.9) | 115 | (7.9) | 1.30 | 2.80 | 4.40 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 180 | (12.4) | 180 | (12.4) | 1.47 | 3.18 | 4.87 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 240 | (16.6) | 240 | (16.6) | 1.64 | 3.55 | 5.34 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 300 | (20.7) | 300 | (20.7) | 1.81 | 3.93 | 5.81 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 370 | (25.5) | 370 | (25.5) | 2.35 | 6.13 | 8.30 | 30-50 | (2.1-3.4) |
| 50 | (3.4) | 500 | (34.5) | 450 | (31.0) | 4.55 | 8.60 | 9.00 | 40-60 | (2.8-4.1) |
| 75 | (5.2) | 670 | (46.2) | 475 | (32.8) | 5.30 | 8.92 | 9.00 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 740 | (51.0) | 495 | (34.1) | 6.80 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 6.90 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 6.99 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 7.09 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 7.19 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 7.38 | 9.00 | 9.00 | 70-225 | (4.8-15.5) |

| METAL DIAPHRAGM - SIZE -1-1/2" (DN40) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|------|-------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 115 | (7.9) | 115 | (7.9) | 1.75 | 3.27 | 4.82 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 190 | (13.1) | 190 | (13.1) | 2.04 | 3.79 | 5.42 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 260 | (17.9) | 260 | (17.9) | 2.33 | 4.30 | 6.01 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 330 | (22.8) | 330 | (22.8) | 2.62 | 4.82 | 6.61 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 435 | (30.0) | 435 | (30.0) | 3.75 | 6.53 | 8.70 | 30-75 | (2.1-5.2) |
| 50 | (3.4) | 635 | (43.8) | 450 | (31.0) | 4.15 | 7.15 | 9.10 | 30-75 | (2.8-5.2) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 5.30 | 8.75 | 10.30 | 60-100 | (4.1-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 6.10 | 9.40 | 10.75 | 80-225 | (5.5-15.5) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 6.23 | 9.49 | 10.78 | 80-225 | (5.5-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 6.37 | 9.58 | 10.80 | 80-225 | (5.5-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 6.50 | 9.68 | 10.83 | 80-225 | (5.5-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 6.63 | 9.77 | 10.85 | 80-225 | (5.5-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 6.90 | 9.95 | 10.90 | 80-225 | (5.5-15.5) |

| METAL DIAPHRAGM - SIZE -2" (DN50) - FULL PORT | | | | | | | | | | |
|--|--------|--------------------|--------|--------------------|--------|--------------|-------|-------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 165 | (11.4) | 165 | (11.4) | 2.10 | 4.27 | 6.55 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 270 | (18.6) | 270 | (18.6) | 2.26 | 4.58 | 6.90 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 370 | (25.5) | 370 | (25.5) | 2.42 | 4.90 | 7.25 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 470 | (32.4) | 425 | (29.3) | 2.59 | 5.21 | 7.60 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 500 | (34.5) | 435 | (30.0) | 5.55 | 9.60 | 11.30 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 6.85 | 10.35 | 12.00 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 5.87 | 9.70 | 11.40 | 50-150 | (3.4-10.3) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 6.48 | 10.03 | 11.73 | 50-150 | (3.4-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 7.09 | 10.37 | 12.07 | 50-150 | (3.4-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 7.70 | 10.70 | 12.40 | 50-150 | (3.4-10.3) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 12
Cv – FLOW CAPACITY

OPT -12, 1-STEP REDUCED PORT – METAL DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$(F_L = 0.93)$

| METAL DIAPHRAGM - SIZE - 1/2" (DN15) - 1 -STEP REDUCED PORT | | | | | | | | | | |
|---|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|-------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 270 | (18.6) | 300 | (20.7) | 0.23 | 0.57 | 0.87 | 10-50 | (0.7-3.4) |
| 15 | (1.0) | 405 | (27.9) | 415 | (28.6) | 0.27 | 0.59 | 0.95 | 10-50 | (0.7-3.4) |
| 20 | (1.4) | 540 | (37.2) | 420 | (29.0) | 0.31 | 0.61 | 1.03 | 10-50 | (0.7-3.4) |
| 25 | (1.7) | 670 | (46.2) | 425 | (29.3) | 0.36 | 0.63 | 1.12 | 10-50 | (0.7-3.4) |
| 35 | (2.4) | 685 | (47.2) | 435 | (30.0) | 0.44 | 0.66 | 1.28 | 10-50 | (0.7-3.4) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 0.63 | 1.21 | 1.67 | 40-100 | (2.8-6.9) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 0.83 | 1.52 | 2.03 | 40-100 | (2.8-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 1.24 | 2.10 | 2.45 | 80-150 | (5.5-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 1.32 | 2.18 | 2.52 | 80-150 | (5.5-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.29 | 2.17 | 2.52 | 120-190 | (8.3-13.1) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.36 | 2.22 | 2.52 | 120-190 | (8.3-13.1) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.28 | 2.13 | 2.52 | 150-300 | (10.3-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 1.37 | 2.21 | 2.52 | 150-300 | (10.3-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 1.45 | 2.29 | 2.52 | 150-300 | (10.3-20.7) |

| METAL DIAPHRAGM - SIZE - 3/4" (DN20) - 1 -STEP REDUCED PORT | | | | | | | | | | |
|---|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 190 | (13.1) | 325 | (22.4) | 0.42 | 0.81 | 1.18 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 295 | (20.3) | 415 | (28.6) | 0.47 | 0.89 | 1.27 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 395 | (27.2) | 420 | (29.0) | 0.53 | 0.98 | 1.37 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 500 | (34.5) | 425 | (29.3) | 0.58 | 1.04 | 1.45 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 685 | (47.2) | 435 | (30.0) | 0.67 | 1.18 | 1.62 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 0.88 | 1.52 | 2.01 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.03 | 1.78 | 2.34 | 50-90 | (3.4-6.2) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 1.59 | 2.58 | 3.50 | 70-110 | (4.8-7.6) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 1.72 | 2.69 | 3.50 | 90-170 | (6.2-11.7) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.40 | 2.48 | 3.45 | 140-300 | (9.7-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.49 | 2.56 | 3.50 | 140-300 | (9.7-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.58 | 2.64 | 3.50 | 140-300 | (9.7-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 1.67 | 2.72 | 3.50 | 140-300 | (9.7-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 1.77 | 2.88 | 3.50 | 140-300 | (9.7-20.7) |

| METAL DIAPHRAGM - SIZE - 1" (DN25) - 1 -STEP REDUCED PORT | | | | | | | | | | |
|---|--------|--------------------|--------|--------------------|--------|--------------|------|------|--------------|------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | 10% | 20% | 30% | psig | (Barg) |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | | | | | |
| 10 | (0.7) | 190 | (13.1) | 280 | (19.3) | 0.51 | 1.05 | 1.55 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 290 | (20.0) | 415 | (28.6) | 0.57 | 1.17 | 1.74 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 395 | (27.2) | 420 | (29.0) | 0.63 | 1.29 | 1.93 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 495 | (34.1) | 425 | (29.3) | 0.68 | 1.29 | 1.93 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 675 | (46.6) | 435 | (30.0) | 0.68 | 1.40 | 2.13 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 0.92 | 1.90 | 3.10 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 1.13 | 2.41 | 4.02 | 55-80 | (3.8-5.5) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 1.75 | 4.08 | 5.46 | 65-130 | (4.5-9.0) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.02 | 4.83 | 5.46 | 65-130 | (4.5-9.0) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 1.88 | 4.28 | 5.46 | 100-300 | (6.9-20.7) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 1.94 | 4.39 | 5.46 | 100-300 | (6.9-20.7) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 1.99 | 4.50 | 5.46 | 100-300 | (6.9-20.7) |
| 250 | (17.2) | 740 | (51.0) | 650 | (44.8) | 2.04 | 4.60 | 5.46 | 100-300 | (6.9-20.7) |
| 300 | (20.7) | 740 | (51.0) | 700 | (48.3) | 2.15 | 4.82 | 5.46 | 100-300 | (6.9-20.7) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 12 (Continued)
Cv – FLOW CAPACITY

OPT -12, 1-STEP REDUCED PORT – METAL DIAPHRAGM

Based on 400 psid (27.6 Bard) max pressure drop limit for composition seat,
and on 650 psid (44.8 Bard) for metal seat.

$$(F_L = 0.93)$$

| METAL DIAPHRAGM - SIZE - 1-1/2" (DN40) - 1-STEP REDUCED PORT | | | | | | | | | | |
|---|---------------|---------------------------|---------------|---------------------------|---------------|---------------------|------------|------------|---------------------|---------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | | | | | |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | 10% | 20% | 30% | psig | (Barg) |
| 10 | (0.7) | 185 | (12.8) | 255 | (17.6) | 0.78 | 1.55 | 2.42 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 285 | (19.7) | 395 | (27.2) | 0.87 | 2.10 | 2.67 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 385 | (26.6) | 420 | (29.0) | 0.96 | 1.92 | 2.93 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 385 | (26.6) | 425 | (29.3) | 1.04 | 2.13 | 3.13 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 660 | (45.5) | 435 | (30.0) | 1.21 | 2.54 | 3.53 | 30-75 | (2.1-5.2) |
| 50 | (3.4) | 740 | (51.0) | 450 | (31.0) | 1.67 | 3.47 | 4.62 | 30-75 | (2.1-5.2) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 2.25 | 4.79 | 6.00 | 60-100 | (4.1-6.9) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 2.72 | 4.84 | 6.00 | 80-225 | (5.5-15.5) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 2.80 | 4.93 | 6.00 | 80-225 | (5.5-15.5) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 2.88 | 5.02 | 6.00 | 80-225 | (5.5-15.5) |
| 175 | (12.1) | 740 | (51.0) | 575 | (39.7) | 2.95 | 5.11 | 6.00 | 80-225 | (5.5-15.5) |
| 200 | (13.8) | 740 | (51.0) | 600 | (41.4) | 3.03 | 5.20 | 6.00 | 80-225 | (5.5-15.5) |
| 225 | (15.5) | 740 | (51.0) | 625 | (43.1) | 3.10 | 5.26 | 6.00 | 80-225 | (5.5-15.5) |

| METAL DIAPHRAGM - SIZE - 2" (DN50) - 1-STEP REDUCED PORT | | | | | | | | | | |
|---|---------------|---------------------------|---------------|---------------------------|---------------|---------------------|------------|------------|---------------------|---------------|
| Outlet Pressure | | Max Inlet Pressure | | | | Cv @ % DROOP | | | Range Spring | |
| | | Metal Seated | | Composition Seated | | | | | | |
| psig | (Barg) | psig | (Barg) | psig | (Barg) | 10% | 20% | 30% | psig | (Barg) |
| 10 | (0.7) | 165 | (11.4) | 165 | (11.4) | 1.75 | 3.27 | 4.82 | 10-40 | (0.7-2.8) |
| 15 | (1.0) | 265 | (18.3) | 265 | (18.3) | 2.04 | 3.79 | 5.42 | 10-40 | (0.7-2.8) |
| 20 | (1.4) | 365 | (25.2) | 365 | (25.2) | 2.33 | 4.30 | 6.01 | 10-40 | (0.7-2.8) |
| 25 | (1.7) | 460 | (31.7) | 425 | (29.3) | 2.62 | 4.82 | 6.61 | 10-40 | (0.7-2.8) |
| 35 | (2.4) | 530 | (36.6) | 435 | (30.0) | 3.75 | 6.53 | 8.70 | 30-60 | (2.1-4.1) |
| 50 | (3.4) | 700 | (48.3) | 450 | (31.0) | 4.15 | 7.15 | 9.10 | 30-60 | (2.1-4.1) |
| 75 | (5.2) | 740 | (51.0) | 475 | (32.8) | 5.30 | 8.75 | 10.30 | 50-150 | (3.4-10.3) |
| 100 | (6.9) | 740 | (51.0) | 500 | (34.5) | 6.10 | 9.40 | 10.75 | 50-150 | (3.4-10.3) |
| 125 | (8.6) | 740 | (51.0) | 525 | (36.2) | 6.23 | 9.49 | 10.78 | 50-150 | (3.4-10.3) |
| 150 | (10.3) | 740 | (51.0) | 550 | (37.9) | 6.37 | 9.58 | 10.80 | 50-150 | (3.4-10.3) |

METRIC CONVERSION FACTOR: $C_v \div 1.16 = k_v$

TABLE 13
WATER CAPACITY - GPM
S.G. = 1.0 T = 60°F FL = 0.93

FULL PORT – COMPOSITION DIAPHRAGM & SEAT

| Outlet Pressure P2, psig | Inlet Pressure P1, psig | Pressure Drop psig | GPM @ 1/2" Body Size | | | GPM @ 3/4" Body Size | | | GPM @ 1" Body Size | | | GPM @ 1-1/4" Body Size | | | GPM @ 1-1/2" Body Size | | | GPM @ 2" Body Size | | | |
|--------------------------|-------------------------|--------------------|----------------------|-------|-------|----------------------|-------|-------|--------------------|-------|-------|------------------------|-------|-------|------------------------|-------|-------|--------------------|-------|-------|-------|
| | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | |
| | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | |
| 10 | 25 | 15 | 2.7 | 5.0 | 7.3 | 4.5 | 8.6 | 11.1 | 4.8 | 9.3 | 14.0 | 7.1 | 15.8 | 24.2 | 9.2 | 17.8 | 26.6 | 13.9 | 28.2 | 39.9 | |
| | 50 | 40 | 4.5 | 8.2 | 12.0 | 7.3 | 14.1 | 18.1 | 7.9 | 15.2 | 22.8 | 11.6 | 25.7 | 39.5 | 15.0 | 29.0 | 43.4 | 22.8 | 46.0 | 65.1 | |
| | 75 | 65 | 5.7 | 10.5 | 15.2 | 9.4 | 18.0 | 23.1 | 10.1 | 19.4 | 29.1 | 14.8 | 32.8 | 50.4 | 19.1 | 37.0 | 55.4 | 29.0 | 58.6 | 83.0 | |
| | 100 | 90 | 6.7 | 12.3 | 17.9 | 11.0 | 21.2 | 27.1 | 11.9 | 22.9 | 34.2 | 17.4 | 38.6 | 59.3 | 22.5 | 43.5 | 65.2 | 34.2 | 69.0 | 97.7 | |
| | 125 | 115 | 7.6 | 13.9 | 20.3 | 12.4 | 23.9 | 30.7 | 13.4 | 25.8 | 38.7 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | |
| | 150 | 140 | 8.4 | 15.4 | 22.4 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| | 175 | 165 | 9.1 | 16.7 | 24.3 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| 200 | 190 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | |
| 15 | 25 | 10 | 2.4 | 4.4 | 6.3 | 4.0 | 7.4 | 9.5 | 4.4 | 8.5 | 12.0 | 6.7 | 14.4 | 21.2 | 8.7 | 16.4 | 23.3 | 12.1 | 24.0 | 34.2 | |
| | 50 | 35 | 4.6 | 8.2 | 11.7 | 7.5 | 13.8 | 17.7 | 8.3 | 15.9 | 22.5 | 12.5 | 26.9 | 39.6 | 16.3 | 30.8 | 43.7 | 22.7 | 45.0 | 64.1 | |
| | 75 | 60 | 6.0 | 10.8 | 15.3 | 9.8 | 18.1 | 23.2 | 10.8 | 20.8 | 29.5 | 16.3 | 35.2 | 51.8 | 21.3 | 40.3 | 57.2 | 29.7 | 58.9 | 83.9 | |
| | 100 | 85 | 7.1 | 12.8 | 18.3 | 11.6 | 21.6 | 27.7 | 12.9 | 24.8 | 35.1 | 19.5 | 41.9 | 61.7 | 25.4 | 47.9 | 68.0 | 35.4 | 70.1 | 99.8 | |
| | 125 | 110 | 8.1 | 14.6 | 20.8 | 13.2 | 24.5 | 31.5 | 14.7 | 28.2 | 40.0 | 22.1 | 47.7 | 70.2 | 28.8 | 54.5 | 77.4 | 40.3 | 79.7 | 113.6 | |
| | 150 | 135 | 8.9 | 16.2 | 23.0 | 14.6 | 27.2 | 34.9 | 16.3 | 31.3 | 44.3 | 24.5 | 52.9 | 77.7 | 32.0 | 60.4 | 85.7 | 44.6 | 88.3 | 125.8 | |
| | 175 | 160 | 9.7 | 17.6 | 25.0 | 15.9 | 29.6 | 37.9 | 17.7 | 34.0 | 48.2 | HI P1 | HI P1 | HI P1 | 34.8 | 65.8 | 93.4 | 48.6 | 96.1 | 137.0 | |
| 200 | 185 | 10.5 | 18.9 | 26.9 | 17.1 | 31.8 | 40.8 | 19.0 | 36.6 | 51.8 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 52.2 | 103.4 | 147.3 | | |
| 250 | 235 | CAV | CAV | CAV | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | |
| 20 | 25 | 5 | 1.9 | 3.3 | 4.7 | 3.1 | 5.5 | 7.0 | 3.5 | 6.6 | 9.0 | 5.4 | 11.2 | 15.9 | 7.0 | 13.0 | 17.7 | 9.1 | 17.7 | 25.4 | |
| | 50 | 30 | 4.6 | 8.1 | 11.4 | 7.5 | 13.4 | 17.3 | 8.5 | 16.2 | 22.0 | 13.1 | 27.6 | 39.1 | 17.2 | 31.8 | 43.3 | 22.3 | 43.4 | 62.2 | |
| | 75 | 55 | 6.2 | 11.0 | 15.4 | 10.2 | 18.1 | 23.4 | 11.5 | 22.0 | 29.7 | 17.8 | 37.3 | 52.9 | 23.3 | 43.0 | 58.6 | 30.3 | 58.7 | 84.2 | |
| | 100 | 80 | 7.5 | 13.2 | 18.6 | 12.3 | 21.8 | 28.2 | 13.9 | 26.5 | 35.9 | 21.5 | 45.0 | 63.8 | 28.1 | 51.9 | 70.7 | 36.5 | 70.8 | 101.6 | |
| | 125 | 105 | 8.6 | 15.2 | 21.3 | 14.0 | 25.0 | 32.3 | 15.9 | 30.3 | 41.1 | 24.6 | 51.5 | 73.1 | 32.2 | 59.4 | 81.0 | 41.8 | 81.2 | 116.4 | |
| | 150 | 130 | 9.6 | 16.9 | 23.7 | 15.6 | 27.8 | 35.9 | 17.7 | 33.7 | 45.7 | 27.4 | 57.4 | 81.3 | 35.8 | 66.1 | 90.1 | 46.5 | 90.3 | 129.5 | |
| | 175 | 155 | 10.5 | 18.4 | 25.9 | 17.1 | 30.4 | 39.2 | 19.3 | 36.9 | 49.9 | 29.9 | 62.6 | 88.8 | 39.1 | 72.2 | 98.4 | 50.8 | 98.6 | 141.4 | |
| 200 | 180 | 11.3 | 19.9 | 27.9 | 18.4 | 32.7 | 42.3 | 20.8 | 39.7 | 53.8 | 32.2 | 67.5 | 95.7 | 42.1 | 77.8 | 106.0 | 54.7 | 106.3 | 152.4 | | |
| 250 | 230 | 12.7 | 22.4 | 31.5 | 20.8 | 37.0 | 47.8 | 23.5 | 44.9 | 60.8 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 61.9 | 120.1 | 172.3 | | |
| 25 | 50 | 25 | 4.5 | 7.9 | 10.9 | 7.4 | 12.8 | 16.5 | 8.5 | 16.2 | 21.1 | 13.4 | 27.6 | 37.9 | 17.6 | 32.1 | 42.1 | 21.6 | 41.3 | 59.5 | |
| | 75 | 50 | 6.4 | 11.1 | 15.3 | 10.4 | 18.0 | 23.3 | 12.0 | 22.9 | 29.8 | 19.0 | 39.0 | 53.6 | 24.9 | 45.3 | 59.5 | 30.5 | 58.3 | 84.1 | |
| | 100 | 75 | 7.8 | 13.6 | 18.8 | 12.7 | 22.1 | 28.5 | 14.7 | 28.1 | 36.5 | 23.2 | 47.7 | 65.6 | 30.5 | 55.5 | 72.8 | 37.4 | 71.4 | 103.0 | |
| | 125 | 100 | 9.0 | 15.7 | 21.7 | 14.7 | 25.5 | 32.9 | 17.0 | 32.4 | 42.1 | 26.8 | 55.1 | 75.8 | 35.2 | 64.1 | 84.1 | 43.2 | 82.5 | 118.9 | |
| | 150 | 125 | 10.1 | 17.6 | 24.3 | 16.4 | 28.5 | 36.8 | 19.0 | 36.2 | 47.1 | 30.0 | 61.6 | 84.7 | 39.4 | 71.7 | 94.0 | 48.3 | 92.2 | 132.9 | |
| | 175 | 150 | 11.0 | 19.2 | 26.6 | 18.0 | 31.2 | 40.3 | 20.8 | 39.7 | 51.6 | 32.8 | 67.5 | 92.8 | 43.1 | 78.5 | 103.0 | 52.9 | 101.0 | 145.6 | |
| | 200 | 175 | 11.9 | 20.8 | 28.7 | 19.4 | 33.7 | 43.5 | 22.5 | 42.9 | 55.7 | 35.5 | 72.9 | 100.3 | 46.6 | 84.8 | 111.3 | 57.1 | 109.1 | 157.3 | |
| 250 | 225 | 13.5 | 23.6 | 32.6 | 22.1 | 38.3 | 49.4 | 25.5 | 48.6 | 63.2 | 40.2 | 82.7 | 113.7 | 52.8 | 96.2 | 126.2 | 64.8 | 123.8 | 178.4 | | |
| 35 | 50 | 15 | 4.0 | 6.7 | 9.1 | 7.6 | 12.2 | 16.0 | 9.6 | 16.3 | 19.6 | 15.9 | 29.8 | 34.9 | 17.0 | 34.1 | 38.7 | 30.6 | 42.8 | 49.6 | |
| | 75 | 40 | 6.5 | 11.0 | 14.9 | 12.5 | 19.9 | 26.1 | 15.7 | 26.6 | 32.1 | 25.9 | 48.7 | 56.9 | 27.8 | 55.7 | 63.2 | 50.0 | 69.9 | 81.0 | |
| | 100 | 65 | 8.3 | 14.0 | 18.9 | 15.9 | 25.4 | 33.2 | 20.1 | 33.9 | 40.9 | 33.1 | 62.1 | 72.6 | 35.5 | 70.9 | 80.6 | 63.7 | 89.1 | 103.2 | |
| | 125 | 90 | 9.8 | 16.5 | 22.3 | 18.7 | 29.9 | 39.1 | 23.6 | 39.9 | 48.1 | 38.9 | 73.0 | 85.4 | 41.7 | 83.5 | 94.9 | 74.9 | 104.8 | 121.4 | |
| | 150 | 115 | 11.0 | 18.7 | 25.2 | 21.1 | 33.8 | 44.2 | 26.7 | 45.1 | 54.4 | 44.0 | 82.6 | 96.5 | 47.2 | 94.4 | 107.2 | 84.7 | 118.5 | 137.3 | |
| | 175 | 140 | 12.2 | 20.6 | 27.8 | 23.3 | 37.3 | 48.7 | 29.5 | 49.8 | 60.0 | 48.5 | 91.1 | 106.5 | 52.1 | 104.1 | 118.3 | 93.5 | 130.7 | 151.5 | |
| | 200 | 165 | 13.2 | 22.4 | 30.2 | 25.3 | 40.5 | 52.9 | 32.0 | 54.1 | 65.1 | 52.7 | 98.9 | 115.6 | 56.5 | 113.0 | 128.5 | 101.5 | 141.9 | 164.4 | |
| 250 | 215 | 15.1 | 25.5 | 34.5 | 28.9 | 46.2 | 60.4 | 36.5 | 61.7 | 74.3 | 60.1 | 112.9 | 132.0 | 64.5 | 129.0 | 146.6 | 115.8 | 162.0 | 187.7 | | |
| 50 | 75 | 25 | 6.7 | 10.9 | 14.1 | 11.5 | 13.5 | 24.3 | 14.5 | 25.0 | 30.0 | 26.5 | 44.2 | 45.0 | 27.5 | 45.3 | 52.8 | 44.0 | 58.8 | 65.0 | |
| | 100 | 50 | 9.4 | 15.3 | 19.9 | 16.3 | 19.0 | 34.3 | 20.5 | 35.4 | 42.4 | 37.5 | 62.4 | 63.6 | 38.9 | 64.0 | 74.6 | 62.2 | 83.1 | 91.9 | |
| | 125 | 75 | 11.5 | 18.8 | 24.4 | 19.9 | 23.3 | 42.0 | 25.1 | 43.3 | 52.0 | 45.9 | 76.5 | 77.9 | 47.6 | 78.4 | 91.4 | 76.2 | 101.8 | 112.6 | |
| | 150 | 100 | 13.3 | 21.7 | 28.2 | 23.0 | 26.9 | 48.5 | 29.0 | 50.0 | 60.0 | 53.0 | 88.3 | 90.0 | 55.0 | 90.5 | 105.5 | 88.0 | 117.5 | 130.0 | |
| | 175 | 125 | 14.9 | 24.3 | 31.5 | 25.7 | 30.1 | 54.2 | 32.4 | 55.9 | 67.1 | 59.3 | 98.7 | 100.6 | 61.5 | 101.2 | 118.0 | 98.4 | 131.4 | 145.3 | |
| | 200 | 150 | 16.3 | 26.6 | 34.5 | 28.2 | 32.9 | 59.4 | 35.5 | 61.2 | 73.5 | 64.9 | 108.1 | 110.2 | 67.4 | 110.8 | 129.2 | 107.8 | 143.9 | 159.2 | |
| | 250 | 200 | 18.8 | 30.7 | 39.9 | 32.5 | 38.0 | 68.6 | 41.0 | 70.7 | 84.9 | 75.0 | 124.9 | 127.3 | 77.8 | 128.0 | 149.2 | 124.5 | 166.2 | 183.8 | |
| 75 | 100 | 25 | 7.9 | 12.6 | 17.2 | 14.2 | 23.9 | 25.0 | 18.4 | 30.0 | 30.0 | 38.5 | 45.0 | 45.0 | 31.8 | 48.3 | 54.5 | 36.4 | 53.2 | 61.9 | |
| | 125 | 50 | 11.2 | 17.8 | 24.3 | 20.0 | 33.7 | 35.4 | 26.0 | 42.4 | 42.4 | 54.4 | 63.6 | 63.6 | 44.9 | 68.2 | 77.1 | 51.4 | 75.2 | 87.5 | |
| | 150 | 75 | 13.7 | 21.8 | 29.7 | 24.5 | 41.3 | 43.3 | 31.8 | 52.0 | 52.0 | 66.7 | 77.9 | 77.9 | 55.0 | 83.6 | 94.4 | 63.0 | 92.1 | 107.1 | |
| | 175 | 100 | 15.8 | 25.2 | 34.3 | 28.3 | 47.7 | 50.0 | 36.7 | 60.0 | 60.0 | 77.0 | 90.0 | 90.0 | 63.5 | 96.5 | 109.0 | 72.7 | 106.3 | 123.7 | |
| | 200 | 125 | 17.7 | 28.2 | 38.3 | 31.6 | 53.3 | 55.9 | 41.0 | 67.1 | 67.1 | 86.1 | 100.6 | 100.6 | 71.0 | 107.9 | 121.9 | 81.3 | 118.8 | 138.3 | |
| | 250 | 175 | 20.9 | 33.3 | 45.4 | 37.4 | 63.1 | 66.1 | 48.5 | 79.4 | 79.4 | 101.9 | 119.1 | 119.1 | 84.0 | 127.7 | 144.2 | 96.2 | 140.6 | 163.6 | |
| | 250 | 25 | 10.4 | 16.8 | 17.5 | 16.7 | 25.0 | 25.0 | 19.3 | 30.0 | 30.0 | 43.4 | 45.0 | 45.0 | 36.7 | 51.3 | 55.0 | 38.9 | 54.8 | 63.5 | |
| 100 | 150 | 50 | 14.6 | 23.7 | 24.7 | 23.5 | 35.4 | 35.4 | 27.2 | 42.4 | 42.4 | 61.4 | 63.6 | 63.6 | 51.8 | 72.5 | 77.8 | 55.0 | 77.4 | 89.8 | |
| | 175 | 75 | 17.9 | 29.0 | 30.3 | 28.8 | 43.3 | 43.3 | 33.3 | 52.0 | 52.0 | 75.2 | 77.9 | 77.9 | 63.5 | 88.8 | 95.3 | 67.4 | 94.8 | 110.0 | |
| | 200 | 100 | 20.7 | 33.5 | 35.0 | 33.3 | 50.0 | 50.0 | 38.5 | 60.0 | 60.0 | 86.8 | 90.0 | 90.0 | 73.3 | 102.5 | 110.0 | 77.8 | 109.5 | 127.0 | |
| | 250 | 150 | 25.4 | 41.0 | 42.9 | 40.8 | 61.2 | 61.2 | 47.2 | 73.5 | 73.5 | 106.3 | 110.2 | 110.2 | 89.8 | 125.5 | 134.7 | 95.3 | 134.1 | 155.5 | |
| 125 | 150 | 25 | 10.9 | 17.5 | 17.5 | 15.5 | 25.0 | 25.0 | 18.5 | 30.0 | 30.0 | 43.7 | 45.0 | 45.0 | 37.5 | 51.6 | 55.0 | 41.5 | 56.3 | 64.5 | |
| | 175 | 50 | 15.3 | 24.7 | 24.7 | 21.9 | 35.4 | 35.4 | 26.2 | 42.4 | 42.4 | 61.7 | 63.6 | 63.6 | 53.0 | 73.0 | 77.8 | 58.6 | 79.6 | 91.2 | |
| | 200 | 75 | 18.8 | 30.3 | 30.3 | 26.8 | 43.3 | 43.3 | 32.0 | 52.0 | 52.0 | 75.6 | 77.9 | 77.9 | 64.9 | 89.4 | 95.3 | 71.8 | 97.5 | 111.7 | |
| | 250 | 125 | 24.3 | 39.1 | 39.1 | 34.7 | 55.9 | 55.9 | 41.4 | 67.1 | 67.1 | 97.6 | 100.6 | 100.6 | 83.7 | 115.4 | 123.0 | 92.7 | 125.9 | 144.2 | |
| 150 | 175 | 25 | 10.6 | 17.4 | 17.5 | 1 | | | | | | | | | | | | | | | |

TABLE 14
COMPRESSED AIR CAPACITY – SCFH
S.G. = 1.0 T = 60°F F_L = 0.93

FULL PORT – COMPOSITION DIAPHRAGM & SEAT

| Outlet Pressure P2, psig | Inlet Pressure P1, psig | Pressure Drop psi | SCFH @ 1/2" Body Size | | | SCFH @ 3/4" Body Size | | | SCFH @ 1" Body Size | | | SCFH @ 1-1/4" Body Size | | | SCFH @ 1-1/2" Body Size | | | SCFH @ 2" Body Size | | | | | | |
|-----------------------------|----------------------------|----------------------|-----------------------|-------|-------|-----------------------|-------|-------|---------------------|-------|-------|-------------------------|-------|--------|-------------------------|--------|--------|---------------------|--------|--------|--------|-----|-----|--|
| | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | | | | |
| | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | |
| 10 | 25 | 15 | 800 | 1500 | 2200 | 1400 | 2600 | 3300 | 1500 | 2800 | 4200 | 2100 | 4800 | 7300 | 2800 | 5400 | 8000 | 4200 | 8500 | 12000 | | | | |
| | 50 | 40 | 1500 | 2700 | 3900 | 2400 | 4600 | 5900 | 2600 | 5000 | 7400 | 3800 | 8400 | 12900 | 4900 | 9400 | 14100 | 7400 | 15000 | 21200 | | | | |
| | 75 | 65 | 2000 | 3700 | 5400 | 3300 | 6400 | 8200 | 3600 | 6900 | 10300 | 5200 | 11600 | 17800 | 6800 | 13100 | 19600 | 10300 | 20800 | 29400 | | | | |
| | 100 | 90 | 2600 | 4700 | 6900 | 4200 | 8100 | 10400 | 4600 | 8800 | 13200 | 6700 | 14900 | 22800 | 8700 | 16800 | 25100 | 13100 | 26600 | 37600 | | | | |
| | 150 | 140 | 3700 | 6800 | 9900 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 18900 | 38100 | 54000 | | | |
| | 200 | 190 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 24600 | 49700 | 70500 | | | |
| 15 | 25 | 10 | 800 | 1400 | 2000 | 1300 | 2400 | 3100 | 1400 | 2800 | 3900 | 2200 | 4700 | 6900 | 2800 | 5400 | 7600 | 4000 | 7800 | 11200 | | | | |
| | 50 | 35 | 1600 | 2800 | 4000 | 2600 | 4800 | 6100 | 2900 | 5500 | 7800 | 4300 | 9300 | 13600 | 5600 | 10600 | 15100 | 7800 | 15500 | 22100 | | | | |
| | 75 | 60 | 2200 | 4000 | 5700 | 3600 | 6700 | 8600 | 4000 | 7700 | 10900 | 6000 | 13000 | 19100 | 7900 | 14800 | 21100 | 11000 | 21700 | 30900 | | | | |
| | 100 | 85 | 2800 | 5100 | 7200 | 4600 | 8500 | 11000 | 5100 | 9800 | 13900 | 7700 | 16600 | 24400 | 10000 | 19000 | 27000 | 14000 | 27800 | 39600 | | | | |
| | 150 | 135 | 4000 | 7300 | 10400 | 6600 | 12300 | 15700 | 7300 | 14100 | 20000 | 11100 | 23900 | 35100 | 14400 | 27300 | 38700 | 20100 | 39900 | 56800 | | | | |
| | 200 | 185 | 5300 | 9500 | 13500 | 8600 | 16000 | 20500 | 9600 | 18400 | 26100 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 26300 | 52000 | 74100 | | | |
| | 250 | 235 | 6500 | 11700 | 16700 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 32400 | 64100 | 91400 | | | |
| | 300 | 285 | 7700 | 14000 | SONIC | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 38600 | 76300 | 108700 | | | |
| 20 | 350 | 335 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 44700 | 88500 | 126100 | | | | |
| | 25 | 5 | 700 | 1200 | 1600 | 1100 | 1900 | 2500 | 1200 | 2300 | 3100 | 1900 | 3900 | 5600 | 2500 | 4600 | 6200 | 3200 | 6200 | 8900 | | | | |
| | 50 | 30 | 1700 | 3000 | 4100 | 2700 | 4900 | 6300 | 3100 | 5900 | 8000 | 4800 | 10000 | 14200 | 6300 | 11600 | 15800 | 8100 | 15800 | 22700 | | | | |
| | 75 | 55 | 2400 | 4200 | 5900 | 3900 | 7000 | 9000 | 4400 | 8400 | 11400 | 6800 | 14300 | 20300 | 9000 | 16500 | 22500 | 11600 | 22600 | 32400 | | | | |
| | 100 | 80 | 3100 | 5400 | 7600 | 5000 | 8900 | 11500 | 5700 | 10800 | 14600 | 8800 | 18400 | 26000 | 11500 | 21200 | 28900 | 14900 | 28900 | 41500 | | | | |
| | 150 | 130 | 4400 | 7800 | 10900 | 7200 | 12800 | 16500 | 8100 | 15500 | 21000 | 12600 | 26400 | 37400 | 16500 | 30400 | 41400 | 21400 | 41600 | 59600 | | | | |
| | 200 | 180 | 5700 | 10100 | 14200 | 9400 | 16700 | 21600 | 10600 | 20300 | 27400 | 16400 | 34400 | 48800 | 21500 | 39700 | 54100 | 27900 | 54200 | 77700 | | | | |
| | 250 | 230 | 7100 | 12500 | 17600 | 11600 | 20600 | 26600 | 13100 | 25000 | 33800 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 34400 | 66900 | 95900 | | | |
| | 300 | 280 | 8400 | 14900 | SONIC | 13800 | 24500 | 31600 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 41000 | 79500 | 114100 | | | |
| | 350 | 330 | 9800 | 17200 | SONIC | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 47500 | 92200 | 132200 | | | |
| | 400 | 380 | 11100 | 19600 | SONIC | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 54000 | 104900 | 150400 | | | |
| | 500 | 480 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP | HI DP | | | |
| 25 | 50 | 25 | 1700 | 3000 | 4200 | 2800 | 4900 | 6300 | 3300 | 6200 | 8100 | 5100 | 10600 | 14500 | 6700 | 12300 | 16100 | 8300 | 15800 | 22800 | | | | |
| | 75 | 50 | 2600 | 4500 | 6200 | 4200 | 7200 | 9300 | 4800 | 9200 | 11900 | 7600 | 15600 | 21500 | 10000 | 18200 | 23900 | 12300 | 23400 | 33700 | | | | |
| | 100 | 75 | 3300 | 5700 | 7900 | 5400 | 9300 | 12000 | 6200 | 11800 | 15400 | 9800 | 20100 | 27700 | 12900 | 23400 | 30700 | 15800 | 30100 | 43400 | | | | |
| | 150 | 125 | 4700 | 8200 | 11400 | 7700 | 13400 | 17300 | 8900 | 17000 | 22100 | 14100 | 28900 | 39800 | 18500 | 33600 | 44100 | 22700 | 43300 | 62400 | | | | |
| | 200 | 175 | 6200 | 10700 | 14800 | 10100 | 17400 | 22500 | 11600 | 22200 | 28800 | 18300 | 37700 | 51900 | 24100 | 43900 | 57500 | 29600 | 56500 | 81400 | | | | |
| | 250 | 225 | 7600 | 13300 | 18300 | 12400 | 21500 | 27800 | 14300 | 27300 | 35500 | 22600 | 46500 | 64000 | 29700 | 54100 | 71000 | 36500 | 69600 | 100400 | | | | |
| | 300 | 275 | 9000 | 15800 | 21800 | 14800 | 25600 | 33000 | 17100 | 32500 | 42300 | 26900 | 55300 | 76100 | 35300 | 64400 | 84400 | 43400 | 82800 | 119400 | | | | |
| | 350 | 325 | 10500 | 18300 | SONIC | 17100 | 29700 | 38300 | 19800 | 37700 | 49000 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 50300 | 96000 | 138400 | | | |
| | 400 | 375 | 11900 | 20800 | SONIC | 19500 | 33800 | SONIC | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 57200 | 109200 | 157400 | | | |
| | 500 | 475 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP | HI DP | | | |
| 35 | 50 | 15 | 1700 | 2800 | 3800 | 3200 | 5100 | 6700 | 4100 | 6900 | 8300 | 6700 | 12600 | 14700 | 7200 | 14400 | 16300 | 12900 | 18100 | 20900 | | | | |
| | 75 | 40 | 2800 | 4800 | 6400 | 5400 | 8600 | 11300 | 6800 | 11600 | 13900 | 11300 | 21100 | 24700 | 12100 | 24100 | 27400 | 21700 | 30300 | 35100 | | | | |
| | 100 | 65 | 3700 | 6300 | 8500 | 7200 | 11400 | 15000 | 9000 | 15300 | 18400 | 14900 | 28000 | 32700 | 16000 | 32000 | 36300 | 28700 | 40100 | 46500 | | | | |
| | 150 | 115 | 5400 | 9100 | 12300 | 10300 | 16500 | 21600 | 13100 | 22100 | 26600 | 21500 | 40400 | 47200 | 23100 | 46200 | 52500 | 41400 | 58000 | 67200 | | | | |
| | 200 | 165 | 7000 | 11900 | 16100 | 13500 | 21600 | 28200 | 17000 | 28800 | 34700 | 28100 | 52700 | 61600 | 30100 | 60200 | 68400 | 54100 | 75600 | 87600 | | | | |
| | 250 | 215 | 8700 | 14700 | 19800 | 16600 | 26600 | 34800 | 21000 | 35500 | 42800 | 34600 | 65000 | 76000 | 37100 | 74300 | 84400 | 66700 | 93300 | 108000 | | | | |
| | 300 | 265 | 10300 | 17500 | 23600 | 19800 | 31600 | 41400 | 25000 | 42300 | 50900 | 41200 | 77300 | 90400 | 44200 | 88400 | 100400 | 79300 | 110900 | 128500 | | | | |
| | 350 | 315 | 12000 | 20300 | 27400 | 22900 | 36700 | 48000 | 29000 | 49000 | 59000 | 47700 | 89600 | 104800 | 51200 | 102400 | 116400 | 92000 | 128600 | 149000 | | | | |
| | 400 | 365 | 13600 | 23000 | SONIC | 26100 | 41700 | SONIC | 33000 | 55700 | 67100 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 104600 | 146300 | 169500 | | | |
| | 500 | 465 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP | HI DP | | | |
| 50 | 75 | 25 | 3200 | 5200 | 6800 | 5600 | 6500 | 11700 | 7000 | 12100 | 14500 | 12800 | 21300 | 21700 | 13300 | 21900 | 25500 | 21300 | 28400 | 31400 | | | | |
| | 100 | 50 | 4600 | 7600 | 9900 | 8000 | 9400 | 16900 | 10100 | 17500 | 21000 | 18500 | 30900 | 31500 | 19200 | 31600 | 36900 | 30800 | 41100 | 45400 | | | | |
| | 150 | 100 | 7000 | 11400 | 14800 | 12100 | 14100 | 25400 | 15200 | 26200 | 31400 | 27800 | 46300 | 47200 | 28800 | 47400 | 55300 | 46100 | 61600 | 68100 | | | | |
| | 200 | 150 | 9100 | 14800 | 19300 | 15700 | 18400 | 33200 | 19800 | 34200 | 41100 | 36300 | 60400 | 61600 | 37600 | 61900 | 72200 | 60200 | 80400 | 89000 | | | | |
| | 250 | 200 | 11200 | 18300 | 23800 | 19400 | 22700 | 40900 | 24500 | 42200 | 50600 | 44700 | 74500 | 76000 | 46400 | 76400 | 89000 | 74300 | 99200 | 109700 | | | | |
| | 300 | 250 | 13400 | 21800 | 28300 | 23100 | 270 | | | | | | | | | | | | | | | | | |

TABLE 14 (Continued)
COMPRESSED AIR CAPACITY – SCFH
S.G. = 1.0 T = 60°F F_L = 0.93

FULL PORT – COMPOSITION DIAPHRAGM & SEAT

| Outlet Pressure P2 psig | Inlet Pressure P1, psig | Pressure Drop psi | SCFH @ 1/2" Body Size | | | SCFH @ 3/4" Body Size | | | SCFH @ 1" Body Size | | | SCFH @ 1-1/4" Body Size | | | SCFH @ 1-1/2" Body Size | | | SCFH @ 2" Body Size | | |
|-------------------------|-------------------------|-------------------|-----------------------|-------|-------|-----------------------|-------|-------|---------------------|--------|--------|-------------------------|--------|--------|-------------------------|--------|--------|---------------------|--------|--------|
| | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 100 | 150 | 50 | 9400 | 15300 | 16000 | 15200 | 22800 | 22800 | 17600 | 27400 | 27400 | 39600 | 41100 | 41100 | 33400 | 46800 | 50200 | 35500 | 50000 | 58000 |
| | 200 | 100 | 13700 | 22200 | 23200 | 22100 | 33200 | 33200 | 25500 | 39800 | 39800 | 57600 | 59700 | 59700 | 48600 | 68000 | 73000 | 51600 | 72600 | 84200 |
| | 250 | 150 | 17400 | 28100 | 29400 | 28000 | 42000 | 42000 | 32300 | 50400 | 50400 | 72900 | 75600 | 75600 | 61600 | 86100 | 92400 | 65300 | 92000 | 106600 |
| | 300 | 200 | 20800 | 33600 | 35100 | 33400 | 50200 | 50200 | 38700 | 60200 | 60200 | 87100 | 90400 | 90400 | 73600 | 102900 | 110400 | 78100 | 109900 | 127500 |
| | 350 | 250 | 24100 | 39000 | 40700 | 38800 | 58200 | 58200 | 44800 | 69800 | 69800 | 101000 | 104800 | 104800 | 85300 | 119300 | 128100 | 90600 | 127500 | 147800 |
| | 400 | 300 | 27400 | 44400 | 46300 | 44100 | 66200 | 66200 | 51000 | 79400 | 79400 | 114900 | 119200 | 119200 | 97100 | 135700 | 145600 | 103000 | 145000 | 168200 |
| | 500 | 400 | 34000 | 55100 | 57500 | 54700 | 82200 | 82200 | 63300 | 98600 | 98600 | HI P1 | HI P1 | HI P1 | 120500 | 168500 | 180800 | 127900 | 180000 | 208800 |
| | 600 | 500 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP | HI DP |
| 125 | 150 | 25 | 7700 | 12400 | 12400 | 10900 | 17600 | 17600 | 13100 | 21200 | 21200 | 30800 | 31800 | 31800 | 26400 | 36400 | 38800 | 29300 | 39700 | 45500 |
| | 200 | 75 | 13500 | 21700 | 21700 | 19200 | 31000 | 31000 | 23000 | 37200 | 37200 | 54200 | 55800 | 55800 | 46500 | 64000 | 68200 | 51400 | 69900 | 80000 |
| | 250 | 125 | 17800 | 28700 | 28700 | 25400 | 41000 | 41000 | 30300 | 49200 | 49200 | 71600 | 73800 | 73800 | 61400 | 84600 | 90200 | 68000 | 92300 | 105800 |
| | 300 | 175 | 21600 | 34900 | 34900 | 30900 | 49900 | 49900 | 36900 | 59800 | 59800 | 87100 | 89800 | 89800 | 74700 | 102900 | 109700 | 82700 | 112300 | 128600 |
| | 350 | 225 | 25200 | 40700 | 40700 | 36100 | 58200 | 58200 | 43100 | 69800 | 69800 | 101600 | 104700 | 104700 | 87100 | 120100 | 128000 | 96500 | 131000 | 150100 |
| | 400 | 275 | 28700 | 46300 | 46300 | 41000 | 66200 | 66200 | 49000 | 79400 | 79400 | 115600 | 119200 | 119200 | 99200 | 136600 | 145600 | 109800 | 149100 | 170800 |
| | 500 | 375 | 35700 | 57500 | 57500 | 51000 | 82200 | 82200 | 60800 | 98600 | 98600 | 143500 | 147900 | 147900 | 123100 | 169600 | 180800 | 136300 | 185100 | 212000 |
| | 600 | 475 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP | HI DP |
| 150 | 200 | 50 | 11500 | 18900 | 19000 | 18100 | 27200 | 27200 | 20500 | 32600 | 32600 | 47800 | 49000 | 49000 | 41600 | 56500 | 59800 | 47900 | 63000 | 70700 |
| | 250 | 100 | 16600 | 27100 | 27300 | 26000 | 39100 | 39100 | 29400 | 46900 | 46900 | 68700 | 70300 | 70300 | 59800 | 81200 | 85900 | 68800 | 90500 | 101600 |
| | 300 | 150 | 20700 | 33900 | 34200 | 32500 | 48900 | 48900 | 36700 | 58600 | 58600 | 85900 | 87900 | 87900 | 74700 | 101500 | 107500 | 86000 | 113100 | 127000 |
| | 350 | 200 | 24500 | 40100 | 40400 | 38500 | 57700 | 57700 | 43400 | 69300 | 69300 | 101500 | 103900 | 103900 | 88300 | 120000 | 127000 | 101600 | 133700 | 150100 |
| | 400 | 250 | 28000 | 45900 | 46300 | 44000 | 66100 | 66100 | 49700 | 79300 | 79300 | 116200 | 119000 | 119000 | 101200 | 137400 | 145500 | 116400 | 153100 | 171900 |
| | 500 | 350 | 34800 | 57000 | 57500 | 54700 | 82200 | 82200 | 61800 | 98600 | 98600 | 144500 | 147900 | 147900 | 125700 | 170800 | 180800 | 144600 | 190300 | 213700 |
| | | 600 | 450 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI DP | HI DP |
| 175 | 200 | 25 | 8200 | 13900 | 14400 | 89000 | 14600 | 19600 | 15800 | 24700 | 24700 | 36400 | 37000 | 37000 | 32100 | 43000 | 45200 | HI P2 | HI P2 | HI P2 |
| | 250 | 75 | 14400 | 24300 | 25100 | 15600 | 25400 | 34300 | 27500 | 43100 | 43100 | 63500 | 64600 | 64600 | 56100 | 75100 | 79000 | HI P2 | HI P2 | HI P2 |
| | 300 | 125 | 18800 | 31900 | 32900 | 20400 | 33300 | 44900 | 36000 | 56500 | 56500 | 83200 | 84700 | 84700 | 73500 | 98400 | 103500 | HI P2 | HI P2 | HI P2 |
| | 350 | 175 | 22700 | 38400 | 39700 | 24600 | 40100 | 54100 | 43400 | 68000 | 68000 | 100300 | 102100 | 102100 | 88600 | 118600 | 124800 | HI P2 | HI P2 | HI P2 |
| | 400 | 225 | 26200 | 44500 | 45900 | 28500 | 46400 | 62600 | 50200 | 78700 | 78700 | 116000 | 118100 | 118100 | 102500 | 137200 | 144300 | HI P2 | HI P2 | HI P2 |
| | 500 | 325 | 32900 | 55700 | 57500 | 35700 | 58200 | 78400 | 63000 | 98600 | 98600 | 145300 | 147900 | 147900 | 128400 | 171900 | 180800 | HI P2 | HI P2 | HI P2 |
| | | 600 | 425 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P2 | HI P2 |
| 200 | 250 | 50 | 12500 | 21700 | 21700 | 13900 | 22300 | 31000 | 24100 | 37200 | 37200 | 55200 | 55800 | 55800 | 49400 | 65300 | 68200 | HI P2 | HI P2 | HI P2 |
| | 300 | 100 | 17900 | 31000 | 31000 | 19800 | 31900 | 44300 | 34400 | 53100 | 53100 | 78800 | 79700 | 79700 | 70600 | 93200 | 97400 | HI P2 | HI P2 | HI P2 |
| | 350 | 150 | 22200 | 38500 | 38500 | 24600 | 39600 | 55000 | 42800 | 66000 | 66000 | 97900 | 99000 | 99000 | 87700 | 115800 | 121000 | HI P2 | HI P2 | HI P2 |
| | 400 | 200 | 26100 | 45200 | 45200 | 28900 | 46500 | 64600 | 50200 | 77500 | 77500 | 114900 | 116200 | 116200 | 102900 | 135900 | 142000 | HI P2 | HI P2 | HI P2 |
| | 500 | 300 | 33100 | 57400 | 57400 | 36700 | 59000 | 81900 | 63700 | 98300 | 98300 | 145800 | 147500 | 147500 | 130600 | 172600 | 180300 | HI P2 | HI P2 | HI P2 |
| | 600 | 400 | 39700 | 68700 | 68700 | 44000 | 70700 | 98200 | 76400 | 117800 | 117800 | 174800 | 176700 | 176700 | 156500 | 206800 | 216000 | HI P2 | HI P2 | HI P2 |
| | | 500 | 500 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| 250 | 300 | 50 | 14100 | 24100 | 24100 | 16300 | 25700 | 34400 | 27700 | 41300 | 41300 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 350 | 100 | 20100 | 34300 | 34300 | 23200 | 36600 | 49000 | 39400 | 58800 | 58800 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 400 | 150 | 24800 | 42400 | 42400 | 28700 | 45300 | 60600 | 48700 | 72700 | 72700 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 500 | 250 | 32900 | 56200 | 56200 | 38000 | 60000 | 80200 | 64500 | 96300 | 96300 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 600 | 350 | 40100 | 68400 | 68400 | 46300 | 73100 | 97700 | 78600 | 117300 | 117300 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| 300 | 350 | 50 | 15700 | 26300 | 26300 | 19400 | 29000 | 37500 | 31100 | 45000 | 45000 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 400 | 100 | 22300 | 37300 | 37300 | 27500 | 41300 | 53300 | 44200 | 64000 | 64000 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 500 | 200 | 32000 | 53600 | 53600 | 39500 | 59300 | 76600 | 63600 | 91900 | 91900 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 600 | 300 | 40100 | 67100 | 67100 | 49500 | 74200 | 95900 | 79600 | 115100 | 115100 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |

Metric Conversion Factors: psi ÷ 14.5 = Bar; SCFH ÷ 35.31 = Sm³/Hr; SCFH ÷ 37.32 = Nm³/Hr

- NOTES:** 1. Where "HI P1" is indicated, the inlet pressure exceeds the limit established in Table 9.
2. Where "HI P2" is indicated, the maximum outlet pressure is exceeded.

TABLE 15
SATURATED STEAM CAPACITY - LBS/HR
T = Sat. F_L = 0.93

FULL PORT – METAL DIAPHRAGM & SEAT

| Outlet Pressure P2, psig | Inlet Pressure P1, psig | Pressure Drop psi | LBS/HR @ 1/2" BODY SIZE | | | LBS/HR @ 3/4" BODY SIZE | | | LBS/HR @ 1" BODY SIZE | | | LBS/HR @ 1-1/4" BODY SIZE | | | LBS/HR @ 1-1/2" BODY SIZE | | | LBS/HR @ 2" BODY SIZE | | | |
|--------------------------|-------------------------|-------------------|-------------------------|-------|-------|-------------------------|-------|-------|-----------------------|-------|-------|---------------------------|-------|-------|---------------------------|-------|-------|-----------------------|-------|-------|-------|
| | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | |
| | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% |
| 10 | 25 | 15 | 26 | 50 | 73 | 43 | 84 | 128 | 48 | 96 | 149 | 80 | 173 | 272 | 108 | 202 | 298 | 130 | 264 | 404 | |
| | 50 | 40 | 46 | 88 | 128 | 76 | 147 | 224 | 84 | 168 | 262 | 141 | 303 | 476 | 190 | 354 | 522 | 227 | 462 | 709 | |
| | 75 | 65 | 65 | 125 | 181 | 108 | 209 | 318 | 120 | 238 | 372 | 200 | 431 | 677 | 269 | 503 | 741 | 323 | 657 | 1007 | |
| | 100 | 90 | 83 | 159 | 232 | 138 | 268 | 407 | 154 | 305 | 476 | 256 | 551 | 866 | 344 | 644 | 949 | 413 | 840 | 1289 | |
| | 125 | 115 | 100 | 193 | 281 | 167 | 324 | 494 | 186 | 370 | 577 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 501 | 1018 | 1562 | |
| | 150 | 140 | 118 | 227 | 330 | 196 | 381 | 579 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 588 | 1195 | 1832 | |
| | 175 | 165 | 135 | 260 | 379 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| | 200 | 190 | 153 | 294 | 428 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| 250 | 240 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | |
| 15 | 25 | 10 | 26 | 48 | 69 | 41 | 81 | 119 | 47 | 114 | 145 | 80 | 172 | 264 | 111 | 205 | 294 | 123 | 248 | 374 | |
| | 50 | 35 | 50 | 95 | 136 | 81 | 160 | 235 | 93 | 224 | 285 | 157 | 339 | 520 | 218 | 405 | 579 | 241 | 489 | 737 | |
| | 75 | 60 | 70 | 133 | 189 | 113 | 224 | 328 | 130 | 313 | 398 | 219 | 474 | 726 | 304 | 565 | 808 | 337 | 683 | 1029 | |
| | 100 | 85 | 93 | 175 | 250 | 150 | 295 | 433 | 171 | 413 | 526 | 289 | 626 | 959 | 402 | 746 | 1067 | 445 | 901 | 1358 | |
| | 125 | 110 | 112 | 212 | 303 | 181 | 358 | 525 | 208 | 501 | 637 | 351 | 758 | 1161 | 487 | 904 | 1293 | 539 | 1092 | 1646 | |
| | 150 | 135 | 132 | 249 | 355 | 213 | 420 | 616 | 243 | 588 | 747 | 411 | 890 | 1362 | 571 | 1060 | 1516 | 632 | 1281 | 1930 | |
| | 175 | 160 | 151 | 286 | 408 | 244 | 482 | 707 | 280 | 675 | 858 | 473 | 1022 | 1565 | 656 | 1218 | 1742 | 726 | 1472 | 2218 | |
| | 200 | 185 | 171 | 323 | 461 | 276 | 545 | 799 | 316 | 762 | 969 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 821 | 1663 | 2505 | |
| | 250 | 235 | 210 | 397 | 566 | 339 | 669 | 981 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 1008 | 2043 | 3077 | |
| | 300 | 285 | 249 | 471 | 672 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| 350 | 335 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | |
| 20 | 25 | 5 | 22 | 40 | 56 | 34 | 68 | 96 | 39 | 79 | 120 | 67 | 146 | 219 | 96 | 176 | 247 | 99 | 201 | 297 | |
| | 50 | 30 | 55 | 102 | 142 | 85 | 171 | 243 | 100 | 200 | 304 | 170 | 369 | 555 | 242 | 447 | 624 | 251 | 509 | 753 | |
| | 75 | 55 | 79 | 146 | 204 | 122 | 245 | 348 | 143 | 285 | 435 | 244 | 527 | 793 | 346 | 639 | 893 | 360 | 728 | 1077 | |
| | 100 | 80 | 102 | 188 | 263 | 157 | 317 | 449 | 184 | 368 | 562 | 315 | 681 | 1024 | 447 | 825 | 1153 | 464 | 940 | 1391 | |
| | 125 | 105 | 126 | 234 | 327 | 196 | 394 | 558 | 229 | 458 | 699 | 391 | 847 | 1274 | 556 | 1026 | 1433 | 577 | 1169 | 1729 | |
| | 150 | 130 | 148 | 274 | 383 | 229 | 462 | 655 | 269 | 537 | 820 | 459 | 993 | 1494 | 652 | 1203 | 1681 | 677 | 1371 | 2028 | |
| | 175 | 155 | 170 | 315 | 440 | 264 | 530 | 752 | 309 | 617 | 942 | 527 | 1141 | 1716 | 749 | 1382 | 1932 | 778 | 1575 | 2330 | |
| | 200 | 180 | 192 | 356 | 497 | 298 | 599 | 850 | 349 | 697 | 1064 | 595 | 1289 | 1939 | 846 | 1561 | 2182 | 879 | 1779 | 2632 | |
| | 250 | 230 | 236 | 437 | 611 | 366 | 736 | 1044 | 428 | 856 | 1307 | HI P1 | HI P1 | HI P1 | 1039 | 1918 | 2680 | 1079 | 2185 | 3233 | |
| | 300 | 280 | 281 | 519 | 725 | 434 | 873 | 1239 | 508 | 1016 | 1551 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 1281 | 2594 | 3837 | |
| | 350 | 330 | 325 | 600 | 839 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 1482 | 3002 | 4441 |
| | 400 | 380 | 369 | 683 | 954 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 |
| 25 | 50 | 25 | 58 | 103 | 144 | 88 | 176 | 243 | 103 | 212 | 311 | 180 | 391 | 578 | 261 | 479 | 657 | 258 | 518 | 756 | |
| | 75 | 50 | 85 | 153 | 213 | 130 | 261 | 359 | 153 | 314 | 461 | 266 | 578 | 855 | 386 | 709 | 973 | 381 | 767 | 1118 | |
| | 100 | 75 | 110 | 197 | 275 | 167 | 336 | 463 | 197 | 404 | 593 | 343 | 745 | 1102 | 497 | 914 | 1253 | 491 | 988 | 1441 | |
| | 125 | 100 | 137 | 245 | 341 | 207 | 417 | 575 | 245 | 502 | 737 | 426 | 925 | 1368 | 617 | 1135 | 1556 | 610 | 1227 | 1790 | |
| | 150 | 125 | 162 | 291 | 406 | 246 | 495 | 683 | 291 | 596 | 876 | 506 | 1099 | 1625 | 733 | 1348 | 1849 | 725 | 1458 | 2126 | |
| | 175 | 150 | 186 | 334 | 466 | 283 | 569 | 784 | 334 | 685 | 1006 | 582 | 1263 | 1867 | 842 | 1549 | 2125 | 833 | 1675 | 2443 | |
| | 200 | 175 | 211 | 378 | 526 | 320 | 643 | 886 | 378 | 773 | 1136 | 657 | 1427 | 2109 | 951 | 1750 | 2400 | 940 | 1892 | 2759 | |
| | 250 | 225 | 259 | 464 | 647 | 393 | 789 | 1088 | 464 | 950 | 1396 | 807 | 1753 | 2591 | 1169 | 2150 | 2948 | 1155 | 2324 | 3389 | |
| | 300 | 275 | 307 | 550 | 768 | 466 | 937 | 1291 | 550 | 1127 | 1657 | 958 | 2080 | 3075 | 1387 | 2551 | 3499 | 1371 | 2758 | 4023 | |
| | 350 | 325 | 355 | 637 | 888 | 539 | 1084 | 1495 | 637 | 1305 | 1917 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 1587 | 3192 | 4656 |
| 400 | 375 | 404 | 725 | 1010 | 613 | 1233 | 1700 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | HI P1 | 1804 | 3630 | 5295 | |
| 35 | 50 | 15 | 56 | 99 | 136 | 84 | 169 | 223 | 102 | 214 | 297 | 198 | 516 | 699 | 316 | 550 | 733 | 467 | 808 | 952 | |
| | 75 | 40 | 95 | 167 | 229 | 142 | 284 | 375 | 171 | 359 | 499 | 332 | 867 | 1174 | 531 | 924 | 1231 | 785 | 1358 | 1599 | |
| | 100 | 65 | 126 | 221 | 304 | 188 | 377 | 497 | 227 | 476 | 662 | 441 | 1150 | 1556 | 703 | 1225 | 1631 | 1041 | 1800 | 2119 | |
| | 125 | 90 | 154 | 271 | 372 | 230 | 462 | 608 | 278 | 583 | 810 | 540 | 1407 | 1906 | 861 | 1499 | 1997 | 1274 | 2204 | 2594 | |
| | 150 | 115 | 183 | 322 | 442 | 273 | 548 | 723 | 330 | 693 | 963 | 641 | 1672 | 2264 | 1023 | 1781 | 2373 | 1514 | 2619 | 3083 | |
| | 175 | 140 | 215 | 379 | 521 | 321 | 646 | 852 | 389 | 816 | 1135 | 755 | 1970 | 2668 | 1205 | 2099 | 2796 | 1784 | 3086 | 3632 | |
| | 200 | 165 | 243 | 428 | 588 | 363 | 730 | 962 | 439 | 922 | 1282 | 853 | 2226 | 3013 | 1362 | 2371 | 3159 | 2015 | 3485 | 4103 | |
| | 250 | 215 | 299 | 526 | 723 | 446 | 896 | 1182 | 540 | 1133 | 1574 | 1048 | 2734 | 3702 | 1672 | 2912 | 3880 | 2475 | 4281 | 5040 | |
| | 300 | 265 | 355 | 625 | 857 | 529 | 1064 | 1403 | 640 | 1344 | 1868 | 1244 | 3245 | 4393 | 1985 | 3456 | 4605 | 2938 | 5081 | 5981 | |
| | 350 | 215 | 410 | 723 | 992 | 613 | 1231 | 1623 | 741 | 1556 | 2162 | 1440 | 3755 | 5084 | 2297 | 4000 | 5329 | 3400 | 5881 | 6922 | |
| 400 | 365 | 467 | 822 | 1129 | 697 | 1400 | 1846 | 843 | 1770 | 2459 | HI P1 | HI P1 | HI P1 | 2612 | 4549 | 6061 | 3866 | 6688 | 7872 | | |

NOTE: See Next Page

Metric Conversion Factors: psi ÷ 14.5 = Bar; LBS/HR X 0.4536 = KG/HR

TABLE 15 (Continued)
STEAM CAPACITY - LBS/HR
T = Sat. F_L = 0.93

FULL PORT – METAL DIAPHRAGM & SEAT

| Outlet Pressure P2 psig | Inlet Pressure P1, psig | Pressure Drop psi | LBS/HR @ 1/2" BODY SIZE | | | LBS/HR @ 3/4" BODY SIZE | | | LBS/HR @ 1" BODY SIZE | | | LBS/HR @ 1-1/4" BODY SIZE | | | LBS/HR @ 1-1/2" BODY SIZE | | | LBS/HR @ 2" BODY SIZE | | |
|----------------------------|----------------------------|----------------------|----------------------------|------|------|----------------------------|------|------|--------------------------|------|------|------------------------------|-------|-------|------------------------------|-------|-------|--------------------------|-------|-------|
| | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | | Droop | | |
| | | | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% | 10% | 20% | 30% |
| 50 | 75 | 25 | 109 | 188 | 248 | 164 | 329 | 429 | 206 | 429 | 571 | 562 | 1062 | 1112 | 513 | 883 | 1124 | 846 | 1278 | 1482 |
| | 100 | 50 | 158 | 272 | 360 | 238 | 476 | 621 | 299 | 621 | 827 | 814 | 1539 | 1611 | 743 | 1280 | 1629 | 1226 | 1852 | 2148 |
| | 125 | 75 | 199 | 343 | 454 | 300 | 600 | 783 | 377 | 783 | 1042 | 1027 | 1940 | 2031 | 936 | 1613 | 2053 | 1545 | 2335 | 2707 |
| | 150 | 100 | 236 | 408 | 539 | 357 | 714 | 931 | 448 | 931 | 1240 | 1221 | 2308 | 2415 | 1114 | 1919 | 2442 | 1838 | 2778 | 3220 |
| | 175 | 125 | 273 | 471 | 622 | 412 | 824 | 1075 | 517 | 1075 | 1431 | 1409 | 2663 | 2787 | 1285 | 2214 | 2818 | 2121 | 3205 | 3716 |
| | 200 | 150 | 312 | 538 | 712 | 471 | 942 | 1229 | 591 | 1229 | 1636 | 1611 | 3046 | 3187 | 1470 | 2532 | 3223 | 2426 | 3665 | 4250 |
| | 250 | 200 | 393 | 678 | 896 | 593 | 1186 | 1548 | 745 | 1548 | 2060 | 2029 | 3835 | 4014 | 1851 | 3189 | 4058 | 3055 | 4616 | 5352 |
| | 300 | 250 | 466 | 805 | 1064 | 704 | 1408 | 1837 | 884 | 1837 | 2445 | 2408 | 4552 | 4764 | 2197 | 3784 | 4816 | 3626 | 5478 | 6351 |
| | 350 | 300 | 539 | 931 | 1231 | 815 | 1630 | 2126 | 1023 | 2126 | 2830 | 2787 | 5268 | 5513 | 2542 | 4380 | 5574 | 4196 | 6340 | 7351 |
| 400 | 350 | 613 | 1059 | 1400 | 927 | 1853 | 2417 | 1163 | 2417 | 3219 | 3170 | 5991 | 6270 | 2891 | 4981 | 6340 | 4772 | 7210 | 8360 | |
| 75 | 100 | 25 | 148 | 256 | 336 | 277 | 477 | 636 | 323 | 688 | 862 | 761 | 1281 | 1293 | 761 | 1257 | 1480 | 843 | 1394 | 1638 |
| | 125 | 50 | 212 | 367 | 482 | 398 | 684 | 913 | 464 | 987 | 1236 | 1092 | 1838 | 1854 | 1092 | 1803 | 2122 | 1209 | 1998 | 2349 |
| | 150 | 75 | 265 | 457 | 601 | 496 | 853 | 1138 | 578 | 1230 | 1541 | 1361 | 2291 | 2312 | 1361 | 2291 | 2646 | 1508 | 2492 | 2928 |
| | 175 | 100 | 312 | 540 | 710 | 585 | 1007 | 1343 | 682 | 1453 | 1819 | 1607 | 2705 | 2729 | 1607 | 2653 | 3123 | 1780 | 2941 | 3457 |
| | 200 | 125 | 357 | 618 | 812 | 670 | 1152 | 1537 | 781 | 1662 | 2082 | 1839 | 3095 | 3123 | 1839 | 3036 | 3574 | 2037 | 3365 | 3955 |
| | 250 | 175 | 443 | 765 | 1006 | 829 | 1427 | 1904 | 967 | 2058 | 2578 | 2277 | 3833 | 3867 | 2277 | 3760 | 4426 | 2522 | 4168 | 4899 |
| | 300 | 225 | 538 | 930 | 1222 | 1008 | 1734 | 2314 | 1175 | 2502 | 3134 | 2768 | 4658 | 4700 | 2768 | 4570 | 5379 | 3066 | 5066 | 5954 |
| | 350 | 275 | 631 | 1090 | 1433 | 1182 | 2034 | 2714 | 1378 | 2934 | 3676 | 3247 | 5464 | 5513 | 3247 | 5360 | 6310 | 3596 | 5942 | 6983 |
| | 400 | 325 | 718 | 1240 | 1630 | 1345 | 2313 | 3086 | 1568 | 3337 | 4180 | 3692 | 6214 | 6270 | 3692 | 6096 | 7176 | 4089 | 6758 | 7942 |
| 100 | 125 | 25 | 256 | 416 | 564 | 412 | 673 | 805 | 488 | 838 | 967 | 1095 | 1450 | 1450 | 983 | 1514 | 1732 | 1044 | 1616 | 1890 |
| | 150 | 50 | 365 | 593 | 804 | 588 | 960 | 1149 | 696 | 1195 | 1378 | 1562 | 2068 | 2068 | 1401 | 2159 | 2470 | 1489 | 2304 | 2695 |
| | 175 | 75 | 454 | 736 | 999 | 731 | 1193 | 1427 | 865 | 1484 | 1712 | 1940 | 2568 | 2568 | 1741 | 2682 | 3068 | 1849 | 2862 | 3347 |
| | 200 | 100 | 533 | 864 | 1172 | 858 | 1400 | 1675 | 1015 | 1742 | 2010 | 2278 | 3015 | 3015 | 2043 | 3149 | 3601 | 2171 | 3360 | 3929 |
| | 250 | 150 | 676 | 1096 | 1487 | 1088 | 1776 | 2125 | 1288 | 2210 | 2549 | 2889 | 3824 | 3824 | 2592 | 3994 | 4568 | 2753 | 4262 | 4984 |
| | 300 | 200 | 810 | 1314 | 1782 | 1304 | 2129 | 2546 | 1543 | 2648 | 3055 | 3463 | 4583 | 4583 | 3106 | 4787 | 5474 | 3300 | 5108 | 5973 |
| | 350 | 250 | 941 | 1527 | 2072 | 1515 | 2474 | 2959 | 1793 | 3078 | 3551 | 4025 | 5327 | 5327 | 3610 | 5563 | 6362 | 3835 | 5936 | 6942 |
| | 400 | 300 | 1099 | 1784 | 2420 | 1770 | 2890 | 3457 | 2095 | 3596 | 4149 | 4702 | 6223 | 6223 | 4218 | 6500 | 7433 | 4481 | 6935 | 8111 |
| | 150 | 25 | 304 | 475 | 618 | 429 | 706 | 883 | 494 | 871 | 1059 | 1218 | 1589 | 1589 | 1100 | 1676 | 1903 | 1252 | 1831 | 2131 |
| 125 | 175 | 50 | 433 | 677 | 880 | 611 | 1006 | 1258 | 704 | 1240 | 1509 | 1736 | 2264 | 2264 | 1567 | 2387 | 2712 | 1784 | 2609 | 3036 |
| | 200 | 75 | 536 | 838 | 1090 | 757 | 1246 | 1557 | 872 | 1535 | 1869 | 2149 | 2803 | 2803 | 1940 | 2955 | 3357 | 2208 | 3229 | 3759 |
| | 250 | 125 | 710 | 1110 | 1444 | 1003 | 1650 | 2063 | 1155 | 2034 | 2476 | 2847 | 3713 | 3713 | 2871 | 3916 | 4448 | 2925 | 4279 | 4980 |
| | 300 | 175 | 865 | 1353 | 1761 | 1223 | 2012 | 2516 | 1409 | 2480 | 3019 | 3471 | 4528 | 4528 | 3134 | 4775 | 5424 | 3567 | 5217 | 6073 |
| | 350 | 225 | 1012 | 1583 | 2059 | 1430 | 2353 | 2942 | 1647 | 2900 | 3530 | 4059 | 5295 | 5295 | 3665 | 5583 | 6342 | 4171 | 6101 | 7101 |
| | 400 | 275 | 1155 | 1806 | 2350 | 1631 | 2685 | 3356 | 1880 | 3309 | 4028 | 4632 | 6042 | 6042 | 4182 | 6370 | 7236 | 4759 | 6961 | 8102 |
| 150 | 175 | 25 | 313 | 508 | 649 | 491 | 798 | 955 | 550 | 959 | 1146 | 1335 | 1719 | 1719 | 1217 | 1830 | 2063 | 1471 | 2044 | 2369 |
| | 200 | 50 | 446 | 723 | 924 | 698 | 1136 | 1358 | 783 | 1364 | 1630 | 1899 | 2445 | 2445 | 1731 | 2603 | 2934 | 2092 | 2907 | 3369 |
| | 250 | 100 | 642 | 1041 | 1330 | 1005 | 1635 | 1956 | 1127 | 1964 | 2347 | 2734 | 3520 | 3520 | 2492 | 3747 | 4224 | 3012 | 4185 | 4850 |
| | 300 | 150 | 805 | 1305 | 1668 | 1261 | 2051 | 2453 | 1413 | 2463 | 2943 | 3429 | 4415 | 4415 | 3125 | 4700 | 5298 | 3777 | 5249 | 6083 |
| | 350 | 200 | 953 | 1546 | 1976 | 1494 | 2430 | 2906 | 1674 | 2918 | 3487 | 4063 | 5231 | 5231 | 3702 | 5568 | 6277 | 4475 | 6219 | 7207 |
| | 400 | 250 | 1095 | 1777 | 2271 | 1717 | 2792 | 3339 | 1924 | 3353 | 4007 | 4669 | 6011 | 6011 | 4254 | 6398 | 7213 | 5143 | 7146 | 8282 |
| 175 | 200 | 25 | 352 | 572 | 716 | 352 | 628 | 846 | 603 | 1045 | 1227 | 1449 | 1840 | 1840 | 1329 | 1979 | 2214 | HI P2 | HI P2 | HI P2 |
| | 250 | 75 | 616 | 1002 | 1253 | 616 | 1099 | 1482 | 1056 | 1829 | 2147 | 2537 | 3221 | 3221 | 2326 | 3464 | 3876 | HI P2 | HI P2 | HI P2 |
| | 300 | 125 | 809 | 1317 | 1647 | 809 | 1444 | 1948 | 1388 | 2404 | 2823 | 3336 | 4234 | 4234 | 3058 | 4554 | 5095 | HI P2 | HI P2 | HI P2 |
| | 350 | 175 | 978 | 1592 | 1990 | 978 | 1745 | 2354 | 1677 | 2905 | 3411 | 4031 | 5117 | 5117 | 3695 | 5503 | 6157 | HI P2 | HI P2 | HI P2 |
| | 400 | 225 | 1135 | 1848 | 2310 | 1135 | 2026 | 2733 | 1947 | 3373 | 3960 | 4680 | 5940 | 5940 | 4290 | 6389 | 7148 | HI P2 | HI P2 | HI P2 |
| 200 | 250 | 50 | 486 | 813 | 1078 | 554 | 964 | 1293 | 933 | 1601 | 1847 | 2213 | 2771 | 2771 | 2041 | 3008 | 3340 | HI P2 | HI P2 | HI P2 |
| | 300 | 100 | 697 | 1164 | 1544 | 794 | 1380 | 1852 | 1336 | 2293 | 2646 | 3171 | 3969 | 3969 | 2924 | 4309 | 4785 | HI P2 | HI P2 | HI P2 |
| | 350 | 150 | 868 | 1450 | 1923 | 989 | 1719 | 2307 | 1665 | 2857 | 3296 | 3950 | 4944 | 4944 | 3642 | 5367 | 5960 | HI P2 | HI P2 | HI P2 |
| | 400 | 200 | 1023 | 1709 | 2265 | 1165 | 2026 | 2718 | 1961 | 3365 | 3883 | 4653 | 5825 | 5824 | 4291 | 6323 | 7022 | HI P2 | HI P2 | HI P2 |
| 250 | 300 | 50 | 569 | 926 | 1192 | 681 | 1151 | 1590 | 1083 | 1811 | 2043 | 2948 | 3595 | 3595 | 2756 | 3975 | 4354 | HI P2 | HI P2 | HI P2 |
| | 350 | 100 | 812 | 1322 | 1701 | 972 | 1643 | 2270 | 1546 | 2586 | 2917 | 3856 | 4702 | 4702 | 3605 | 5199 | 5695 | HI P2 | HI P2 | HI P2 |
| | 400 | 150 | 1008 | 1642 | 2113 | 1207 | 2040 | 2819 | 1920 | 3211 | 3622 | 4640 | 5658 | 5658 | 4338 | 6255 | 6853 | HI P2 | HI P2 | HI P2 |
| 300 | 350 | 50 | 655 | 1066 | 1296 | 807 | 1344 | 1851 | 1233 | 2018 | 2222 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |
| | 400 | 100 | 935 | 1521 | 1848 | 1151 | 1917 | 2640 | 1759 | 2878 | 3168 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 | HI P2 |

NOTE: 1. Where "HI P1" is indicated, the inlet pressure exceeds the limit established in Table 11.

Metric Conversion Factors: psi ÷ 14.5 = Bar; LBS/HR X 0.4536 = KG/HR

**TABLE 16
CONSOLIDATED PRESSURE vs. TEMPERATURE MATERIALS OPERATING LIMITS,
INCLUDING TRIM AND OPTION LIMITS**

| Materials Body/Sprg. Chamber/Cyl | End Conn. Option No. | Trim Design. No. | Inlet Pressure | | Outlet Pressure ¹ | | Inlet & Outlet Temperature Rg | | Limiting Portion | | |
|---|--|---|--|--------|------------------------------|---------------|--|----------------------------------|---|---------------------|-----------------------|
| | | | psig | (Barg) | psig | (Barg) | °F | (°C) | | | |
| DI / DI / BRZ BRZ / DI / BRZ BRZ / BRZ / BRZ ³ | Std. - NPT Opt-31, Opt-45, Opt-46G | B2, B3 | 400 | (27.6) | 300 | (20.7) | -20 to +150 | (-29 to +66) | BRZ, Mech. Internals | | |
| | | | 390 | (26.9) | 300 | (20.7) | +200 | (+93) | BRZ, BC | | |
| | | BB | 400 | (27.6) | 300 | (20.7) | -20 to +150 | (-29 to +66) | BRZ, Mech. Internals | | |
| | | | 400 | (27.6) | 300 | (20.7) | +250 | (+121) | BRZ, NBR | | |
| | | B1 | 400 | (27.6) | 300 | (20.7) | -20 to +150 | (-29 to +66) | BRZ, Mech. Internals | | |
| | | | 385 | (26.6) | 300 | (20.7) | +200 | (+94) | BRZ | | |
| | | | 365 | (25.2) | 300 | (20.7) | +250 | (+121) | | | |
| | | | 335 | (23.1) | 300 | (20.7) | +300 | (+149) | | | |
| | | | 300 | (20.7) | 300 | (20.7) | +350 | (+177) | | | |
| | | 250 | (17.2) | 250 | (17.2) | +400 | (+205) | BRZ, V-TFE | | | |
| | | B5 | 400 | (27.6) | 300 | (20.7) | -20 to +150 | (-29 to +66) | BRZ, Mech. Internals, Phos. Bronze | | |
| | | | 385 | (26.6) | 300 | (20.7) | +200 | (+94) | BC | | |
| DI / DI / SST CS / DI / SST SST / DI / SST | Std. - NPT Opt-31, Opt-32, Opt-45 | S2N, S3, S3N, S40 | 740 | (51.0) | 300 | (20.7) | -20 to +200 | (-29 to +93) | Mech. Internals | | |
| | | | 740 | (51.0) | 300 | (20.7) | -20 to +250 | (-29 to +121) | NBR | | |
| | | S6, S7 | 740 | (51.0) | 300 | (20.7) | 300 | (20.7) | -20 to +250 | (-29 to +121) | Mech. Internals |
| | | | | | 300 | (20.7) | +268 | (+131) | DI, Mech. Internals | | |
| | | | | | 300 | (20.7) | +275 | (+135) | DI | | |
| | | | | | 300 | (20.7) | +300 | (+149) | DI, EPDM/EPR | | |
| | | S0, S1, S2, S5, S9, S36 | 740 | (51.0) | 300 | (20.7) | 300 | (20.7) | -20 to +250 | (-29 to +121) | Mech. Internals |
| | | | | | 300 | (20.7) | +268 | (+131) | DI, Mech. Internals | | |
| | | | | | 300 | (20.7) | +275 | (+135) | DI | | |
| | | | | | 300 | (20.7) | +300 | (+149) | | | |
| | 300 | | | | (20.7) | +350 | (+177) | | | | |
| | S1, S2 | 740 | (51.0) | 270 | (18.6) | 270 | (18.6) | -20 to +425 | (-29 to +219) | DI, V-TFE, FKM | |
| | | | | 250 | (17.2) | 250 | (17.2) | +450 | (+232) | DI, Std. Gasket | |
| | CS / CS / SST SST / CS / SST SST / SST / SST | Std. - NPT, Opt-31, Opt-32, Opt-45 | S2N, S3, S3N, S40 | 740 | (51.0) | 400 | (27.6) | -20 to +200 | (-29 to +93) | BC, Mech. Internals | |
| | | | | 740 | (51.0) | 400 | (27.6) | -20 to +250 | (-29 to +121) | NBR | |
| S6 | | | 740 | (51.0) | 400 | (27.6) | -20 to +300 | (-29 to +149) | EPDM/EPR, Mech. Internals | | |
| S0, S5 S9, S36 | | | 740 | (51.0) | 400 | (27.6) | -20 to +400 | (-29 to +205) | V-TFE, FKM, Mech. Internals | | |
| S1, S2 | | 740 | (51.0) | 400 | (27.6) | -20 to +450 | (-29 to +232) | Mech. Internals, Std. Gaskets | | | |
| S1, S2 | 740 | (51.0) | 400 | (27.6) | -20 to +600 | (-29 to +315) | Mech. Internals, Carbon Graphite Gasket | | | | |
| CS / DI / SST CS / CS / SST | Opt-30, 150# Flg., Opt-45 | S2N, S3, S3N, S40 | 285 | (19.7) | 285 | (19.7) | -20 to +100 | (-29 to +38) | 150# Flg. | | |
| | | | 265 | (18.3) | 265 | (18.3) | +200 | (+93) | 150# Flg., BC | | |
| | | SB | 285 | (19.7) | 285 | (19.7) | -20 to +100 | (-29 to +38) | 150# Flg. | | |
| | | | 245 | (16.9) | 265 | (18.3) | +250 | (+121) | 150# Flg., NBR | | |
| | | S6, S7 | 285 | 19.7 | 285 | (19.7) | 285 | (19.7) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | | | 260 | (17.9) | 260 | (17.9) | +200 | (+94) | 150# Flg., EPDM/EPR |
| | | | | | 230 | (15.9) | 230 | (15.9) | +300 | (+149) | |
| | | S0, S5, S9, S36 | 285 | 19.7 | 285 | (19.7) | 285 | (19.7) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | | | 260 | (17.9) | 260 | (17.9) | +200 | (+94) | |
| | | | | | 230 | (15.9) | 230 | (15.9) | +300 | (+149) | V-TFE, FKM, 150# Flg. |
| | | | | | 200 | (13.8) | 200 | (13.8) | +400 | (+205) | |
| | | S1, S2 | 285 | 19.7 | 285 | (19.7) | 285 | (19.7) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | | | 260 | (17.9) | 260 | (17.9) | +200 | (+94) | |
| | | | | | 230 | (15.9) | 230 | (15.9) | +300 | (+149) | TFE Gasket, 150# Flg. |
| | | | | | 200 | (13.8) | 200 | (13.8) | +400 | (+205) | |
| | | S1, S2 | 185 | (12.8) | 185 | (12.8) | -20 to +450 | (-29 to +232) | Std. Gasket, 150# Flg., DI | | |
| | | CS / CS / SST | Opt-30, 150# Flg., & Opt-46G (Req'd) | S1, S2 | 170 | (11.7) | 170 | (11.7) | -20 to +500 | (-29 to +260) | 150# Flg. |
| 140 | (9.7) | | | | 140 | (9.7) | +600 | (315) | Carbon Graphite Gasket, 150# Flg., Mech. Internals | | |

1 Indicated outlet pressure limits are those to contain overpressure conditions; such overpressure may cause diaphragm damage. It is recommended that pressure safety devices – safety relief valve or rupture disc – have their setpoint relief pressures at 110% of the UVRS (UVRS = “Upper Value of Range Spring”). Example: For a 90–170 psig (6.2–11.7 Barg) range spring, the safety device should be set to relieve at 110% x 170 psig = 187 psig (12.9 Barg). See NOTE 2 below for 300 psig (20.7 barg) outlet pressure limit with Ductile Iron Spring Chamber.

2 Outlet Pressure Limit for CS/DI/SST and SST/DI/SST is 300psig (20.7 barg).
Outlet Pressure Limit for CS/CS/SST and SST/SST/SST is 400psig (27.6 barg).

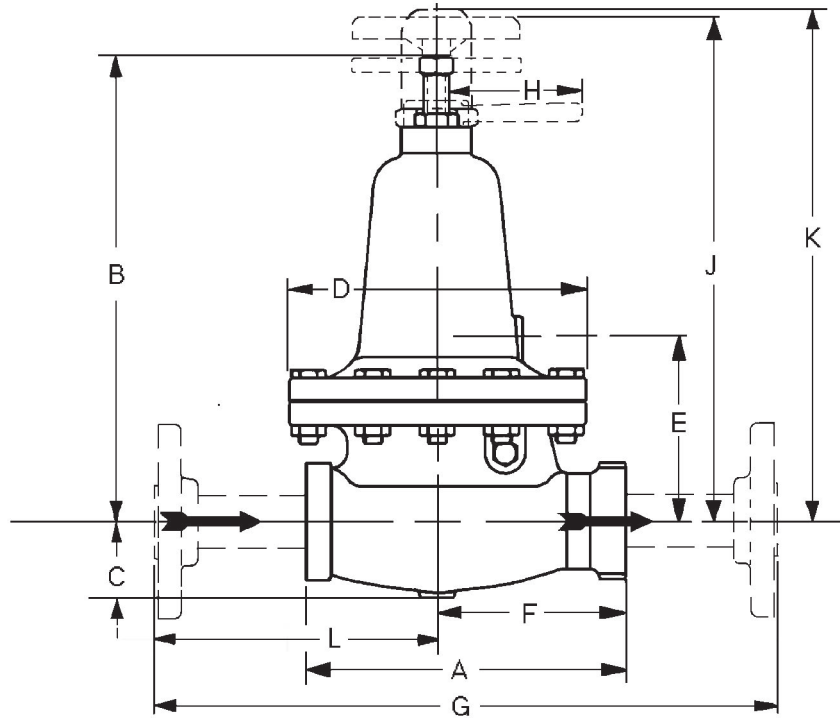
3 Outlet Pressure Limit for BRZ/BRZ/BRZ is equal to inlet pressure limit.

4 Outlet Pressure Limit for S5 & S7 Trim (FKM) is 300 psig (20.7 barg)

TABLE 16 (Continued)

| Materials Body/Sprg. Chamber/Cyl | End Conn. Option No. | Trim Design. No. | Inlet Pressure | | Outlet Pressure ¹ | | Inlet & Outlet Temperature Rg. | | Limiting Portion |
|--|--|-------------------------------|--|--------|------------------------------|---------------------|--------------------------------|---|--|
| | | | psig | (Barg) | psig | (Barg) | °F | (°C) | |
| SST / DI / SST SST / CS / SST SST / SST / SST | Opt-30 150# Flg., Opt-45 | S2N, S3, S3N, S40 | 275 | (19.0) | 275 | (19.0) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | 245 | (16.9) | 245 | (16.9) | +200 | (+93) | 150# Flg., BC |
| | | SB | 275 | (19.0) | 275 | (19.0) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | 225 | (15.5) | 245 | (16.9) | +250 | (+121) | 150# Flg., NBR |
| | | S6, S7 | 275 | (19.0) | 275 | (19.0) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | 240 | (16.6) | 240 | (16.6) | +200 | (+94) | 150# Flg., EPDM/EPR |
| | | 215 | (14.8) | 215 | (14.8) | +300 | (+149) | | |
| | | S0, S5, S9, S36 | 275 | (19.0) | 275 | (19.0) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | 240 | (16.6) | 240 | (16.6) | +200 | (+94) | |
| | | | 215 | (14.8) | 215 | (14.8) | +300 | (+149) | |
| | | S1, S2 | 195 | (13.4) | 195 | (13.4) | +400 | (+205) | V-TFE, FKM, 150# Flg. |
| | | | 275 | (19.0) | 275 | (19.0) | -20 to +100 | (-29 to +38) | 150# Flg. |
| | | | 240 | (16.6) | 240 | (16.6) | +200 | (+94) | |
| | | | 215 | (14.8) | 215 | (14.8) | +300 | (+149) | |
| | | ** | S1, S2 | 195 | (13.4) | 195 | (13.4) | +400 | (+205) |
| 180 | (12.4) | | | 180 | (12.4) | -20 to +450 | (-29 to +233) | Std. Gasket, 150# Flg., DI | |
| SST / CS / SST SST / SST / SST | Opt-30 150# Flg. & Opt-46G (Req'd) | S1, S2 | 170 | (11.7) | 170 | (11.7) | -20 to +500 | (-29 to +260) | 150# Flg. |
| | | | 140 | (9.7) | 140 | (9.7) | +600 | (+315) | 150# Flg., Carbon Graphite Gskt., Mech. Internals |
| CS / DI / SST ² CS / CS / SST ² | Opt-30 300# Flg., Opt-45 | S2N, S3, S3N, S40 | 740 | (51.0) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 685 | (47.2) | 400 | (27.6) | +200 | (+93) | 300# Flg., Mech. Internals, BC |
| | | SB | 740 | (51.0) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 668 | (46) | 400 | (27.6) | +250 | (+121) | 300# Flg., Mech. Internals, NBR |
| | | S6, S7 | 740 | (51.0) | 400 ⁴ | (27.6) ⁴ | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 675 | (46.6) | 400 ⁴ | (27.6) ⁴ | +200 | (+94) | 300# Flg., Mech. Internals, EPDM/ EPR |
| | | | 655 | (45.2) | 400 ⁴ | (27.6) ⁴ | +300 | (+149) | |
| | | S0, S5, S9, S36 | 635 | (43.8) | 400 ⁴ | (27.6) ⁴ | +400 | (+205) | 300# Flg., Mech. Internals, V-TFE, FKM |
| | | | 740 | (51.0) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Int., TFE Gskt. |
| | | | 675 | (46.6) | 400 | (27.6) | +200 | (+94) | |
| | | 655 | (45.2) | 400 | (27.6) | +300 | (+149) | | |
| | | S1, S2 | 635 | (43.8) | 400 | (27.6) | +400 | (+205) | |
| | | | 615 | (42.4) | 400 | (27.6) | -20 to +450 | (-29 to +232) | 300# Flg., Mech. Internals, Std. Gaskets, CI |
| | | | 600 | (41.4) | 400 | (27.6) | -20 to +500 | (-29 to +260) | 300# Flg., Mech. Internals |
| | | CS / CS / SST | Opt-30, 300# Flg. & Opt- 46G (Req'd) | S1, S2 | 550 | (37.9) | 400 | (27.6) | +600 |
| 600 | (41.4) | | | | 400 | (27.6) | -20 to +500 | (-29 to +260) | |
| SST / DI / SST ² SST / CS / SST SST / SST / SST | Opt-30 300# Flg., Opt-45 | S2N, S3, S3N, S40 | 720 | (49.7) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 640 | (44.1) | 400 | (27.6) | +200 | (+93) | 300# Flg., Mech. Internals, BC |
| | | SB | 720 | (49.7) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 590 | (40.7) | 400 | (27.6) | +250 | (+121) | 300# Flg., Mech. Internals, NBR |
| | | S6, S7 | 720 | (49.7) | 400 ⁴ | (27.6) ⁴ | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 620 | (42.8) | 400 ⁴ | (27.6) ⁴ | +200 | (+94) | 300# Flg., Mech. Internals, EPDM/ EPR |
| | | | 560 | (38.6) | 400 ⁴ | (27.6) ⁴ | +300 | (+149) | |
| | | S0, S5, S9, S36 | 720 | (49.7) | 400 ⁴ | (27.6) ⁴ | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Internals |
| | | | 620 | (42.8) | 400 ⁴ | (27.6) ⁴ | +200 | (+94) | 300# Flg., Mech. Internals, V-TFE, FKM |
| | | | 560 | (38.6) | 400 ⁴ | (27.6) ⁴ | +300 | (+149) | |
| | | S1, S2 | 515 | (35.5) | 400 ⁴ | (27.6) ⁴ | +400 | (+205) | |
| | | | 720 | (49.7) | 400 | (27.6) | -20 to +100 | (-29 to +38) | 300# Flg., Mech. Int., TFE Gskt. |
| | | | 620 | (42.8) | 400 | (27.6) | +200 | (+94) | |
| | | 560 | (38.6) | 400 | (27.6) | +300 | (+149) | | |
| | | Opt-30, 300# Flg., Opt-46G | S1, S2 | 515 | (35.5) | 400 | (27.6) | +400 | (+205) |
| 495 | (34.1) | | | 400 | (27.6) | -20 to +450 | (-29 to +232) | 300# Flg., Mech. Internals, Std. Gaskets, CI | |
| SST / CS / SST | Opt-300, 300# Flg. & Opt-46G (Req'd) | S1, S2 | 480 | (33.1) | 400 | (27.6) | -20 to +500 | (-29 to +260) | 300# Flg., Mech. Internals |
| SST / SST / SST | | | 450 | (31.0) | 400 | (27.6) | +600 | (+315) | 300# Flg., Mech. Internals Carbon graphite Gasket |
| SST / SST / SST | Opt-37 | S6 | 250 | (17.2) | 100 | (6.9) | -20 to +100 | (-29 to +38) | Diaphragm Flg. Bolting |
| SST / SST / SST | Opt-37S | S1 | 100 | (6.9) | 100 | (6.9) | -20 to +350 | (-29 to +177) | Diaphragm Flg. Bolting |

** Opt-30 150# Flg., Opt-46G
1,2,3 & 4 See Previous Page



| Regulator Size (Inch) | DIMENSIONS – ENGLISH (inch) | | | | | | | | | | | | | Approx. Weight - lbs. | |
|---|-----------------------------|-------|------|-------|------|------|----------------|----------------|----------------|------|-------|-------|----------------|-----------------------|------------|
| | A | B | C | D | E | F | G ¹ | G ² | G ³ | H | J | K | L ⁴ | wo/ Flanges | w/ Flanges |
| 1/2" | 5.94 | 10.00 | 1.62 | 5.62 | 3.75 | 3.94 | 10.75 | 11.00 | 13.94 | 3.13 | 11.19 | 11.62 | 5.38 | 18 | 25 |
| 3/4" | 7.12 | 11.25 | 1.75 | 6.56 | 3.81 | 4.00 | 11.88 | 12.25 | 15.12 | 3.13 | 12.25 | 12.81 | 5.62 | 28 | 35 |
| 1" | 7.94 | 11.75 | 2.12 | 7.38 | 4.38 | 4.69 | 13.62 | 14.00 | 15.94 | 3.13 | 12.81 | 13.44 | 6.75 | 37 | 46 |
| 1-1/4" | 8.50 | 12.25 | 2.38 | 8.00 | 4.50 | 5.06 | NA | NA | 16.50 | 4.31 | 13.94 | 14.19 | NA | 48 | N/A |
| 1-1/2" | 9.75 | 15.75 | 2.50 | 9.12 | 6.19 | 5.75 | 15.88 | 16.19 | 17.75 | 4.31 | 16.50 | 17.00 | 7.31 | 77 | 93 |
| 2" | 11.25 | 16.00 | 2.88 | 11.25 | 7.06 | 6.62 | 19.31 | 19.62 | 19.22 | 4.31 | 16.88 | 17.38 | 9.81 | 109 | 131 |
| Regulator Size (DN) | DIMENSIONS – METRIC (mm) | | | | | | | | | | | | | Approx. Weight - kg. | |
| | A | B | C | D | E | F | G ¹ | G ² | G ³ | H | J | K | L ⁴ | wo/ Flanges | w/ Flanges |
| (15) | 151 | 254 | 41 | 143 | 95 | 100 | 273 | 279 | 354 | 79 | 284 | 295 | 137 | 8 | 11 |
| (20) | 181 | 286 | 44 | 167 | 97 | 102 | 302 | 311 | 384 | 79 | 311 | 325 | 143 | 13 | 16 |
| (25) | 202 | 298 | 54 | 187 | 111 | 119 | 346 | 356 | 405 | 79 | 325 | 341 | 171 | 17 | 21 |
| (32) | 216 | 311 | 60 | 203 | 114 | 129 | NA | NA | 419 | 110 | 354 | 360 | NA | 22 | N/A |
| (40) | 248 | 400 | 64 | 232 | 157 | 146 | 403 | 411 | 451 | 110 | 419 | 432 | 186 | 35 | 42 |
| (50) | 286 | 406 | 73 | 286 | 179 | 168 | 490 | 498 | 488 | 110 | 429 | 441 | 249 | 49 | 59 |
| ¹ 150# Flange - Also available with Opt-34, special 14" (356mm) face to face dimension - sizes 1/2" - 1" & 1-1/2" only. ² 300# Flange - Also available with Opt-34, special 14" (356mm) face to face dimension - sizes 1/2" - 1" & 1-1/2" only. ³ P.E. Pipe Nipples. ⁴ "L" dimension for 1-1/2" Size with Opt-34 is 6.13" (156mm). | | | | | | | | | | | | | | | |

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**OPT -37/-37S PRODUCT CODER
FOR THE FOOD AND PHARMACEUTICAL INDUSTRY**

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

B **K** POS 3 — **A** POS 6 & 7 **7** — POS 10 POS 11 POS 12 **0** **0** **0** **0** **0** **A**

| POSITION 3 - SIZE & SERVICE | | | |
|-----------------------------|------|---------|--------|
| Size | | Service | |
| in | (DN) | Gaseous | Liquid |
| | | CODE | CODE |
| 1/2" | (15) | 4 | J |
| 3/4" | (20) | 5 | K |
| 1" | (25) | 6 | L |
| 1-1/2" | (40) | 8 | N |
| 2" | (50) | 9 | P |

| POSITION 6 & 7 - TRIM DESIGNATION NUMBERS | |
|---|------|
| Stainless Steel Trim | |
| Desig. | CODE |
| S1 | S1 |
| S6 | S6 |

| POSITION 10 - END CONNECTIONS | |
|-------------------------------|------|
| Description | CODE |
| NPT - Screwed | 1 |
| -30 Opt. - 150 LB RF Flgs | 6 |

| POSITION 11 - RANGE SPRINGS | | | | | | | |
|-----------------------------|-------------|-----------|------|---------------|-------|-----------|------|
| Size | psig (Barg) | (Barg) | CODE | SIZE | psig | (Barg) | CODE |
| 1/2" (DN15) | 10-50 | (.69-3.4) | 3 | 1-1/2" (DN40) | 10-50 | (.69-3.4) | 3 |
| | 40-80 | (2.8-5.5) | B | | 40-80 | (2.8-5.5) | B |
| 3/4" (DN20) | 10-40 | (.69-2.8) | 2 | 2" (DN50) | 10-30 | (.69-2.1) | 1 |
| | 30-60 | (2.1-4.1) | 6 | | 25-45 | (1.7-3.1) | 5 |
| | 50-80 | (3.4-5.5) | C | | 35-80 | (2.4-5.5) | 9 |
| 1" (DN25) | 10-30 | (.69-2.1) | 1 | | | | |
| | 25-45 | (1.7-3.1) | 5 | | | | |
| | 35-50 | (2.4-3.4) | 8 | | | | |
| | 40-80 | (2.8-5.5) | B | | | | |

| POSITION 12 - TRIM OPTIONS | | |
|---|--------|------|
| Description | Option | CODE |
| No Option | — | 0 |
| For Special Construction Contact Cashco for Special Product Code. | SPQ | X |

*** For information on ATEX see pages 13 & 14 on the IOM.**

MODEL 1000 HP Basic PRODUCT CODER 02/07/20

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

| | | | | | | | | | | | | | | | | |
|---|-------|-------|---|-------|-----------|---|---|--------|--------|--------|--------|--------|--------|--------|---|---|
| B | POS 2 | POS 3 | — | POS 5 | POS 6 & 7 | 7 | — | POS 10 | POS 11 | POS 12 | POS 13 | POS 14 | POS 15 | POS 16 | O | A |
|---|-------|-------|---|-------|-----------|---|---|--------|--------|--------|--------|--------|--------|--------|---|---|

| POSITION 2 - GASKETS * & SERVICE | | |
|---|---------|----------|
| Gaskets - Service | Options | CODE |
| Standard : Graphite / NBR/ - Non-Oxygen | -- | B |
| TFE /- Primarily for Oxygen | -45 | D |
| Carbon-Graphite - High Temp. | -46G ** | G |

* Refer to Tech Bulletin for temperature limits.
Gasket not required when selecting Composition Diaphragm
** Only Available with CS or SST Body & Spring Chamber and S1 or S2 Trim.

| POSITION 3 - SIZE & SERVICE | | | | | |
|-----------------------------|------|---------|--------|---------------------|------|
| Size | | Service | | | |
| | | Gaseous | Liquid | Viscous (-27 Opt) * | |
| In | DN | CODE | CODE | CODE | CODE |
| 1/2 | (15) | 4 | J | R | |
| 3/4 | (20) | 5 | K | S | |
| 1 | (25) | 6 | L | T | |
| 1-1/4 | (32) | 7 | M | U | |
| 1-1/2 | (40) | 8 | N | V | |
| 2 | (50) | 9 | P | W | |

* Metal Seated B1,S0,S1,S2,S2N,S5 or S40Trim Only.

| POSITION 5 - BODY & SPRG CHAMBER MATERIALS | | | |
|--|------|-----------------|------|
| Body/Sp. Ch. | CODE | Body/Sp. Ch. | CODE |
| DI/DI | 1 | CS/CS (WCC/WCB) | 5 |
| BRZ/DI * | 2 | SST/DI * | 7 |
| BRZ/BRZ * | 3 | SST/CS * | 9 |
| CS/DI | 4 | SST/SST * | A |

* Note: SST or BRZ Bodies Not Avail. in 1-1/4" (DN32)

| POSITION 6 & 7 - TRIM DESIGNATION NUMBERS | | | |
|---|------|----------------------|------|
| Brass Trim ** | | Stainless Steel Trim | |
| Desig. | CODE | Desig. | CODE |
| B1 | B1 | S0 * | S0 |
| B2 | B2 | S1 | S1 |
| B3 | B3 | S2 | S2 |
| B5 | B5 | S2N | SN |
| BB | BB | S3 | S3 |
| BK | BK | S3N | SC |
| | | S5 | S5 |
| | | S6 * | S6 |
| | | S7 * | S7 |
| | | S9 * | S9 |
| | | S36 | 36 |
| | | S40 | 40 |
| | | S40V | 4V |
| | | SB | SB |

* Not available for 1-1/4" (DN32) size
** Brass Trims not available with nipple & flange end connections.

| POSITION 10 - END CONNECTIONS | |
|---|------|
| Description | CODE |
| NPT - Screwed | 1 |
| -30 Opt. - 150 LB RF Flgs. * ** (Std) | 6 |
| -30 Opt. - 300 LB RF Flgs. * ** (Std) | 7 |
| -31 Opt. - BSPT Tapered Thread | B |
| -31P Opt. - BSPP Parallel Thread | P |
| -32 Opt. - SCH. 80 PE Ext. Nipples * | E |
| -34 Opt. - 150 LB RF Flgs. 14" F to F Dimension (Sizes 1/2 -1" & 1-1/2" only) * | V |
| -34 Opt. - 300 LB RF Flgs. 14" F to F Dimension (Sizes 1/2 -1" & 1-1/2" only)* | W |

*Nipples & flanges of same material as body. CS or SST bodies. Use SST trim only.
** Not Available in 1-1/4" (DN32)

| POSITION 11 - RANGE SPRINGS | | | | | |
|-----------------------------|-----------|--------|---------------|-----------|-------|
| Size | psig | CODE | Size | psig | CODE |
| 1/2" (DN15) | 10-50 | 1 | 1-1/4" (DN32) | 10-40 | 2 |
| | 40-100 | 4 | | 30-50 | 5 |
| | 80-150 | 7 | | 40-60 | N |
| | 120-190 | B | | 50-90 | 8 |
| | 150-300 * | F | | 70-225 | L |
| 3/4" (DN20) | 10-40 | 2 | 1-1/2" (DN40) | 10-40 | 2 |
| | 30-60 | 3 | | 30-75 | 6 |
| | 50-90 | 8 | | 60-100 | A |
| | 70-110 | C | | 80-225 | M |
| | | 90-170 | G | 2" (DN50) | 10-40 |
| | 140-300 * | J | 30-60 | | 3 |
| 1" (DN25) | 10-40 | 2 | | 50-150 | E |
| | 30-60 | 3 | | | |
| | 50-70 | 9 | | | |
| | 55-80 | D | | | |
| | 65-130 | H | | | |
| | 100-300 * | K | | | |

* With CS 150# Flange Connection max set point up to 285 psig.
With SST 150# Flange Connection max set point up to 275 psig.

| POSITION 12 - TRIM VARIATIONS | | | W/ -17 OPTION | |
|---|----------|------|---------------|------|
| Description | Option | CODE | Option | CODE |
| No Special Trim Variation | -- | 0 | -- | -- |
| Reduced Orifice (One-Step) Not Available on 1-1/4"(DN32) | -12 | A | -12+17 | 1 |
| Integral Seat Surface (Not available with B1 Trim or NACE) | -14 | C | -14+17 | 3 |
| Stellited Seat Surface Integral Seat - S1 Trim Only | -15 * | D | -15+17 * | 4 |
| Reduced Orifice & Integral Seat See above for limitations | -12+14 | E | -12+14+17 | 5 |
| Reduced Orifice & Stellited Seat See above for limitations | -12+15 * | F | -12+15+17 * | 6 |
| Piston Spring Not Available on 2" (DN50)** | -17 | H | -- | -- |
| For Special Construction Contact Cashco for Special Product Code. | SPQ | | X | |

* Includes Opt-14 Integral Seat.
** Standard with B5 Trim. Do Not Code

| POSITION 13 - FEATURE OPTIONS | | |
|---|--------|------|
| | Option | CODE |
| No Option | - | 0 |
| DI Closing Cap for DI or CS Spring Chambers. | -1 | 1 |
| Handwheel & Locking Lever - 1/2"-1"(DN15 - DN25). | -3 | 3 |
| T-Bar & Locking Lever - 1 1/4"-2" (DN32 - DN50). | -3 | 4 |

| POSITION 14 - SPRING CHAMBER OPTIONS | | |
|--|--------|------|
| | Option | CODE |
| No Option | - | 0 |
| 1/4" (DN8) NPT Vent Tap. | -25 | E |
| Plastic Rain-proof Bug Vent (includes Opt-25). | -25P | P |
| SST Rain-proof Bug Vent (includes Opt-25). | -25S | H |

| POSITION 15 - BODY OPTIONS | | |
|---------------------------------------|--------|------|
| | Option | CODE |
| No Option | - | 0 |
| 1/4" (DN8) NPT Drain Hole/Press. Tap. | -26 | F |

| POSITION 16 - CERTIFICATE OPTIONS | | |
|--|--------|------|
| | Option | CODE |
| No Option | - | 0 |
| NACE Const.: CS/CS/XX, All Sizes Except DN32 Per MR0175, S3, S3N, S40, S40V Trim. | -40 | J |
| NACE Const.:SST/CS/XX, SST/SST/XX All Sizes Except DN32 Per MR0175, S3, S3N, S40, S40V Trim. | -40SST | K |
| Special Cleaning: Per Cashco Spec #S-1134. W/ properly selected mat'ls. Suitable for Oxygen Service. BRZ or SST body material. | -55 | M |
| Special Cleaning: Per Cashco Spec #S-1542. | -56 | N |

*** For information on ATEX see pages 13 & 14 on the IOM.**

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