



ISO Registered Company

123-TB
02-20



MODEL 123

BACK PRESSURE RELIEF REGULATOR OVERVIEW

The Model 123 is a relief regulator suitable as a back pressure regulator or bypass valve for controlling inlet pressure between 2 and 350 psig (.14 to 24.2 Barg) (525 psig (36.2 Barg) at 50% build-up). The body has an angle configuration with a side inlet and a bottom outlet. Sizes are 1/2", 3/4", 1", 1-1/2" and 2" (DN15, 20, 25, 40 and 50). Available options include cryogenic construction, NACE construction and a large selection of trim, body and diaphragm materials. It is the most adaptable back pressure/relief regulator Cashco manufactures.

FEATURES

- Versatile:** Five body materials & twenty three trim material combinations allow compatibility with most fluids.
- Controlled Compression Composition Seats:** Four composition seat materials are available and all use controlled compression with metal to metal back up for long, trouble free life.
- High Capacity:** A large orifice and diaphragm provide sensitivity with high capacity.

APPLICATIONS

Designed for controlling a wide range of fluids including air, inert gases, cryogenic gas or liquids, sour gas, chemicals, water, fuel oil and steam. See Table 1 for more information.



MODEL 123



LINE SIZES AVAILABLE

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



END CONNECTIONS

NPT, FLANGED, EXTENDED NIPPLES



COMMON APPLICATIONS

AIR, INERT GASES, CRYOGENIC GAS OR LIQUIDS, SOUR GAS, CHEMICALS, WATER, FUEL OIL, STEAM



DESIGN PRESSURE

MAXIMUM PRESSURE DROP:
350 psid (24.14 Bard)

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижегород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (812)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

STANDARD/GENERAL SPECIFICATIONS

Body Sizes: 1/2", 3/4", 1", 1-1/2" and 2" sizes (DN15,20, 25,40 and 50). Includes one side inlet and a bottom outlet, i.e. angle configuration.

End Connections: Standard: NPT female pipe thread.
Alternate: See Opt-30, -31P, -32 or -39 for flanged, extended nipples or socket weld end connections. See Opt -33 for a third body connection.

Body/Spring Chamber Material Combinations: CI/CI, BRZ/CI, BRZ/BRZ, CS/CI, CS/CS, SST/CI, SST/BRZ, SST/CS, SST/SST.
CI – Cast grey iron
BRZ – Cast bronze
CS – Cast carbon steel
SST – Cast stainless steel
All spring chambers furnished with 1/4" (DN8) tapped vent hole. See Table 2 for material specifications.

Operating Temperature: See Tables 2, 3 and 4.

Inlet Pressure: See Tables 2 and 5.

Trim Design: Metal seated or composition seated brass or SST materials. See Figures 1 and 2, and Tables 3 and 4.

Flange Bolting: Standard: Plated Steel
LCC Steel Body material: SST
Cryogenic Construction: SST.

Gaskets: Standard: Graphite/NBR. **NOT SUITABLE FOR OXYGEN SERVICE.**
Alternate Material: See Opt-45, -46G.

Diaphragms: SST, Neoprene (BC), Fluorocarbon Elastomer (FKM), Phosphor Brz., EPDM, TFE Coated SST, Buna-N. (NBR)

Range Springs: Standard: Epoxy coated steel.
LCC Steel Body material : SST
Cryogenic: SST.

| Valve Size | Standard Steel Range Spring | | Cryogenic SST Range Spring | |
|--------------------------|-----------------------------|--------------|----------------------------|--------------|
| | psig | (Barg) | psig | (Barg) |
| 1/2" (DN15) | 2 - 30 | (.14 - 2.1) | 2 - 30 | (.14 - 2.1) |
| | 25 - 50 | (1.7 - 3.4) | 20 - 60 | (1.4 - 4.1) |
| | 40 -100 | (2.8 - 6.9) | 50 -110 | (3.4 - 7.6) |
| | 80 -150 | (5.5 -10.3) | 90 -150 | (6.2 -10.3) |
| | 120 -215 | (8.3 -14.8) | 120 -245 | (8.3 -16.9) |
| | 150 -350 | (10.3 -24.1) | 220 -300 | (15.2 -20.7) |
| 3/4"-1" (DN20-25) | 2 - 20 | (.14 - 1.4) | 2 - 25 | (.14 - 1.7) |
| | 15 - 40 | (1.0 - 2.8) | 20 - 45 | (1.4 - 3.1) |
| | 30 - 80 | (2.1 - 5.5) | 35 -100 | (2.4 - 6.9) |
| | 65 -160 | (4.5 -11.0) | 80 -210 | (5.5 -14.5) |
| | 130 -205 | (9.0 -14.1) | 170 -300 | (11.7 -20.7) |
| 165 -350 | (11.4 -24.1) | | | |
| 1-1/2"-2" (DN40-DN50) | 2 - 15 | (.14 - 1.0) | 2 - 15 | (.14 - 1.0) |
| | 10 - 25 | (.69 - 1.8) | 10 - 30 | (.69 - 2.1) |
| | 20 - 55 | (1.4 - 3.8) | 25 - 55 | (1.7 - 3.8) |
| | 45 -105 | (3.1 - 7.2) | 45 - 95 | (3.1 - 6.6) |
| | 85 -220 | (5.9 -15.1) | 75 -130 | (5.2 - 8.7) |
| | 180 -350 | (12.4 -24.1) | 110 -300 | (7.6 -20.7) |

Capacities: Up to 7 C_v; See Tables 6 and 7 for C_v vs. Set pressure. Use for fluids other than water, air or steam, or when the outlet pressure is other than atmospheric pressure.

See Tables 8, 9 and 10 for water, air or saturated steam, respectively.

Capacities are for 10, 20, 30, 40 and 50% build up over the set pressure. The set pressure is made at approximately 2% of the flow capacity shown in the 20% build up columns. The flow rate is different for each size and set pressure. Example: 100 psig (6.9 Barg) set pressure and a 20% build-up = 120 psig (8.3 Barg) flowing pressure for the capacity listed.

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

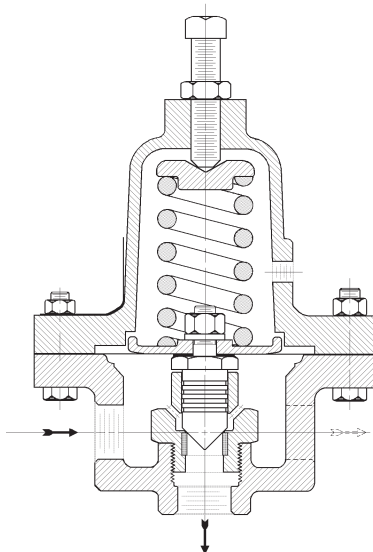


Figure 1: Model 123-33 – Metal Seat Design

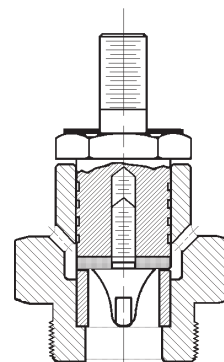


Figure 2: Composition Seat

OPTION SPECIFICATIONS

OPTION-1: CLOSING CAP. Covers the adjusting screw to discourage tampering with the spring setting or for remote venting of the spring chamber. Includes a cast iron or steel spring chamber, a ductile iron closing cap, a gasket for sealing the closing cap to the spring chamber, a sealing lock nut on the adjusting screw and an NPT vent connection in the spring chamber.

OPTION-1+6: DIFFERENTIAL CONSTRUCTION: For differential pressure service. NOT available in body/spring chamber material combinations of BRZ/BRZ, SST/BRZ or SST/SST. Includes closing cap, larger pusher plate, an extra diaphragm gasket (for metal diaphragms), a special grooved adjusting screw, a 1/4" (DN8) NPT female loading pressure connection in spring chamber, and an adjusting screw sealing lock nut. Limited for use on lower range springs indicated below and maximum pressure containment levels indicated in Table 2. (See Model 123-1+6+S Technical Bulletin for alternate design.)

| Body Size inches (DN) | Range Spring psid (Bard) |
|---|---------------------------------------|
| 1/2" | 2-30, 25-50, 40-100, 80-150 |
| (15) | (.14-2.1, 1.7-3.4, 2.7-6.9, 5.5-10.3) |
| 3/4" & 1" | 2-20, 15-40, 30-80, 65-160 |
| (20 & 25) | (.14-1.4, 1.0-2.7, 2.1-5.5, 4.5-11.0) |
| 1-1/2" & 2" | 2-15, 10-25, 20-55, 45-105 |
| (40 & 50) | (.14-1.0, .69-1.7, 1.4-3.8, 3.1-7.2) |
| • Consult factory for sizing and selection of Differential Model 123's. • | |

OPTION-5: CRYOGENIC CONSTRUCTION. For cryogenic service. Available in 1/2", 3/4", 1", 1-1/2" and 2" (DN15, 20, 25, 40, and 50) sizes with NPT end connections. Trim B5 is standard with this construction. All other wetted parts are brass. Non-wetted metal parts are of brass or SST to operate at temperatures from -325° to +150°F (-198° to +66°C). The spring chamber has a 1/4" (DN8) NPT vent connection for purge gas and a 1/8" (3.2mm) diameter drain hole. Mount in horizontal piping with adjusting screw below the piping. Cleaned and packaged for oxygen service per Cashco specification #S-1134.

OPTION-15: STELLITED SEAT SURFACES. Stellite faced seating. Available only on 316 SST metal seat with S1 trim. Includes a stellite faced valve seat pressed into the cylinder plus a stellite faced seat cone screwed into the piston. NOT SUITABLE FOR NACE SERVICE.

OPTION-25P: PLASTIC RAIN PROOF BUG VENT. 1/4" NPT(DN8) for spring chamber vent.

OPTION-25S: SST RAIN PROOF BUG VENT. 1/4" NPT(DN8) for spring chamber vent.

OPTION-30: FLANGED END CONNECTIONS. 150# or 300# raised face flanges available on all sizes. Schedule 80 pipe nipples. The raised face flange is welded to the nipple using a socket weld connection. Steel bodies have steel nipples and flanges. 316 SST bodies have 316 SST nipples and flanges. See Tables 2, 3, and 4 for maximum operating temperatures and pressures. With 150# flanges, the flange pressure rating is the pressure limiting factor. For 300# flanges, the body rating is the pressure limiting factor. Standard is two flanges; with Opt-30+33, a third flange is available.

OPTION-31P: BSP END CONNECTIONS. British Standard Parallel Pipe threads per ISO 7/1; used as an 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. Use for socket weld pipe systems. Available on all sizes of CS and 316 SST bodies.

OPTION-33: THIRD BODY CONNECTION. This option eliminates a pipe tee when the Model 123 is installed in the pump outlet piping. The bottom connection handles the discharge fluid. NPT and Opt -30, -32 and -39 can be furnished on the third body connection.

OPTION-36: SST CRYOGENIC CONSTRUCTION. Same specifications as Opt.-5 except:
 a. For SST/SST body/spring chamber materials with S1 and S36 trim only.
 b. Opt-30 flanged ends available.

OPTION-39: SOCKET WELD END CONNECTIONS. Available on all sizes of CS and 316 SST bodies.

OPTION-40: NACE CONSTRUCTION: Internal wetted portions meet NACE standard MR0175 for application in sour gas service. Exterior of the unit not to be directly exposed to a sour gas environ-

ment, buried, insulated or otherwise denied direct atmospheric exposure. CS/CS body/spring chamber materials ONLY. Acceptable ONLY with S40, S40T and S40V trim. (Alternate LCC body/spring chamber material with S40B and S40C only trim.) Opt-30 and -32 require post-weld stress relieving by heat treating.

OPTION-40SST: SST NACE CONSTRUCTION. Same as Opt.-40, except uses SST/SST or SST/CS body/spring chamber construction.

OPTION-45: TFE GASKETS. Primarily for oxygen service. Utilizes TFE/Silicate diaphragm gaskets and closing cap (Opt-1) gaskets. 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 or SST body/spring chamber materials, S1 or S2 Trim only. Standard diaphragm and pusher plate gasket for units with metal diaphragms replaced with carbon graphite gaskets. Operating temperature -20° to +600° F (-29° to +315°C).

OPTION-55: SPECIAL CLEANING: BRZ or SST body materials only. Cleaning per Cashco Spec. #S-1134 for oxygen 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: All body materials. Cleaning per Cashco Spec. #S-1542. Not suitable for oxygen service.

TECHNICAL SPECIFICATIONS

| TABLE 1- Applications | | |
|--|--------------------------------------|-----------------------------|
| Fluid | Recommended Construction | Trim Designation Number |
| Air or Inert Gases | Composition Seat and Diaphragm | B2, B3, B4, BB, S3, S3N, SB |
| | Metal Seat and Composition Diaphragm | S2N |
| Chemicals | Metal Seat and Diaphragm | S0, S1, S2 |
| | Metal Seat and Composition Diaphragm | S2N, S5, S40 |
| | Composition Seat and Diaphragm | S3, S3N, SB, S40T, S40V |
| | Composition Seat and Metal Diaphragm | S9, S36 |
| Sour Gas | Metal Seat and Composition Diaphragm | S40 |
| | Composition Seat and Diaphragm | S40T, S40V |
| Cryogenic Gas or Liquids | Metal Seat and Diaphragm | S1 |
| | Composition Seat and Metal Diaphragm | B5 or S36 |
| Fuel Oil [‡] | Composition Seat and Diaphragm | BB, B4, B7, S3, S3N, SB |
| Hydrocarbon Gas or Liquids [‡] | Composition Seat and Diaphragm | BB, B4, B7, S3, S3N, SB |
| Saturated Steam, Low Pressures up to 50 psig (3.4 Barg) | Metal Seat and Diaphragm | B1, S1, S2 |
| | Composition Seat and Diaphragm | B6 |
| | Composition Seat and Metal Diaphragm | B5, S36 |
| Saturated Steam, Pressures up to 100 psig (6.8 Barg), 50 psid | Metal Seat and Diaphragm | B1, S1, S2 |
| | Composition Seat and Metal Diaphragm | B5, S36 |
| Steam Pressures above 100 psig (6.9 Barg) Saturated or Superheated | Metal Seat and Diaphragm | S1 or S2 |
| Water and Condensate, Low Temperature 32-180°F (0-83°C) | Metal Seat and Composition Diaphragm | S2N |
| | Composition Seat and Diaphragm | BB, B2, B3, S3, S3N, SB |
| Water and Condensate, High Temperature 180-300°F (83-149°C) | Metal Seat and Diaphragm | B1, S1, S2 |
| | Composition Seat and Diaphragm | B6 |

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

**TABLE 2
BODY AND SPRING CHAMBER
MAXIMUM PRESSURE WITH TEMPERATURE RATINGS**

| Material Specifications (Body / Spring Chamber) | | Inlet | | | |
|--|--------------------------------------|-------------------|----------------------------|---|--|
| Description (Abbr.) | ASTM No. | Pressure | | Temperature | |
| | | psig | (barg) | °F | (°C) |
| CI/CI | A126, Class B | 300 ** 250 | (20.7) (17.2) | -20 to +400 -20 to +450 | (-29 to +205) (-29 to +232) |
| BRZ/CI | B62 Alloy C83600/ A126, Class B | 300 ** | (20.7) | -20 to +350 | (-29 to +177) |
| BRZ/BRZ * | B62, Alloy C83600 | 400 300 250 | (27.6) (20.7) (17.2) | -20 to +200 -20 to +350 -20 to +400 | (-29 to +93) (-29 to +177) (-29 to +205) |
| CS/CI | A216, Gr. WCB/ A126, Class B | 300 ** 250 | (20.7) (17.2) | -20 to +400 -20 to +450 | (-29 to +205) (-29 to +232) |
| CS/CS *** | A216, Gr. WCB/ A216, Gr. WCB | 525 | (36.1) | -20 to +450 | (-29 to +232) |
| SST/CI | A351, Gr. CF8M/ A126, Class B | 300 ** 250 | (20.7) (17.2) | -20 to +400 -20 to +450 | (-29 to +205) (-29 to +232) |
| SST/BRZ | A351, Gr. CF8M/ B62, Alloy C83600 | 400 300 250 | (27.6) (20.7) (17.2) | -20 to +200 -20 to +350 -20 to +400 | (-29 to +93) (-29 to +177) (-29 to +205) |
| SST/CS | A351, Gr. CF8M/ A216, Gr. WCB | 525 | (36.1) | -20 to +450 | (-29 to +232) |
| SST/SST * | A351, Gr. CF8M/ A351, Gr. CF8M | | | | |

* For operating temperatures between -325 to +150F (-198 to +66°C), specify Opt -5 with trim B5 or Opt-36 with trim S1 or S36.

** For Opt-1+6 with Cast Iron Spring Chamber - Max. Inlet Pressure Rating is de-rated to 250 psig (17.2 Barg).

*** Alternate "CS" material - LCC -Steel - ASTM A352 Gr. LCC - minimum temperature -50 °F (-46 °C) with S1 or S36 Trim.

**TABLE 3
BRASS TRIM MATERIAL COMBINATIONS**

| Brass Trim Designations | | | | | | | | |
|-------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
| Part | Metal Seat | Composition Seat | | | | | | |
| | B1 | B2 | B3 | B4 | *B5 | B6 | B7 | BB |
| Diaphragm | 302 SST | BC | BC | FKM | Phosphor Brz | EPDM | FKM | NBR |
| Cylinder | Brass | Brass | Brass | Brass | Brass | Brass | Brass | Brass |
| Valve Seat | 316 SST | Brass | Brass | Brass | Brass | Brass | Brass | Brass |
| Plug | 416 SST | Brass | Brass | Brass | Brass | Brass | Brass | Brass |
| Seat Disc | None (metal) | NBR | TFE | TFE | TFE | EPR | FKM | NBR |
| Seat Disc Screw | None | Brass | Brass | Brass | Brass | Brass | Brass | Brass |
| Temperature °F (°C) | -20 to +400 (-29 to 205) | -20 to +180 (-29 to +83) | -20 to 180 (-29 to +83) | -20 to +300 (-29 to 205) | -20 to +200 (-29 to +93) | -20 to +300 (-29 to +149) | -20 to +300 (-29 to 149) | -20 to +180 (-29 to +83) |

* For operating temperatures between -325° and +150°F (-198 and +66°C), specify Opt-5 and trim designation B5.

BC = Neoprene; NBR = Buna-N; FKM = Fluorocarbon elastomer; EPR = Ethylene Propylene; EPDM = Ethylene Propylene Diene; TFE = Polytetrafluoroethylene

TABLE 4 (a)
STAINLESS STEEL TRIM MATERIAL COMBINATIONS – METAL SEAT

| Stainless Steel Trim Designations - Metal Seat | | | | | | | |
|--|---------------------------|--------------|--------------|--------------------------|---------------------------|--------------------------|--------------------------|
| Part | S0 | *S1 | S2 | S2N | S5 | S40 (NACE) | S40B (NACE) |
| Diaphragm | TFE Coated 302SST | 302SST | 302SST | BC | FKM | BC | BC ** |
| Cylinder | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Valve Seat | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Plug | 316SST | 316SST | 416SST | 416SST | 416SST | 316SST | 316SST |
| Seat Disc | None (metal) | None (metal) | None (metal) | None (metal) | None (metal) | None (metal) | None (metal) |
| Seat Disc Screw | None | None | None | None | None | None | None |
| Temperature °F (°C) | -20 to +450 (-29 to +232) | | | -20 to +180 (-29 to +83) | -20 to +300 (-29 to +149) | -20 to +180 (-29 to +83) | -50 to +200 (-46 to +93) |

* Available with stellited plug and valve seat (see Opt-15). Includes a screwed in seat cone.
 *For Operating temperatures between -325° and +150°F (-198 and +66°C), specify Opt-36, S1trim.
 ** Special BC Material for Low Temperature.

TABLE 4 (b)
STAINLESS STEEL TRIM MATERIAL COMBINATIONS – COMPOSITION SEAT

| Stainless Steel Trim Designations - Composition Seat | | | | | | | | |
|--|--------------------------|--------|---------------------------|--------|---------------------------|-------------|--------------------------|--------------------------|
| Part | S3 | S3N | S9 | *S36 | S40T (NACE) | S40V (NACE) | S40C (NACE) | SB |
| Diaphragm | BC | BC | TFE Coated 302SST | 302SST | FKM | FKM | BC ** | NBR |
| Cylinder | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Valve Seat | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Plug | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Seat Disc | TFE | NBR | TFE | TFE | TFE | FKM | TFE | NBR |
| Seat Disc Screw | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST | 316SST |
| Temperature °F (°C) | -20 to +180 (-29 to +83) | | -20 to +400 (-29 to +205) | | -20 to +300 (-29 to +149) | | -50 to +200 (-46 to +93) | -20 to +180 (-29 to +83) |

* For operating temperatures between -325° and +150°F (-198 and +66°C), specify Opt-36, S36 trim.
 ** Special BC Material for Low Temperature.

BC = Neoprene; NBR = Buna-N; FKM = Fluorocarbon elastomer; EPDM = Ethylene Propylene-Diene; EPR = Ethylene Propylene; TFE = Polytetrafluoroethylene

TABLE 5
MAXIMUM ALLOWABLE PRESSURE DROPS

| Fluid | Pressure Drop ¹ | | Seat Material | Trim Material | Trim Designation No. |
|--------|----------------------------|---------|---------------|---------------|--------------------------|
| | psid | (Bard) | | | |
| Liquid | 350 | (24.14) | Stellite | SST | S1 |
| | 350 | (24.14) | Comp | SST | S9 or S36 |
| | 350 | (24.14) | Comp | SST - COMP | S3, S3N, SB, S40T,V or C |
| | 250 | (17.25) | Metal | BR | B1 |
| | 250 | (17.25) | Comp | BR - Comp | B2, B3, B4, B6, B7 or BB |
| Gases | 350 | (24.14) | Metal | BR or SST | B1, S0, S1 or S2 |
| | | | Metal | SST - Comp | S2N, S5 or S40 or S40B |
| | | | Comp | SST | S9 or S36 |
| | | | Comp | SST -Comp | S3, S3N, SB,S40T,V or C |
| | | | Comp | BR - Comp | B2, B3, B4, B6, B7 or BB |
| Steam | 350 | (24.14) | Stellite | SST | S1 |
| | 300 | (20.7) | Metal | SST | S1 or S2 |
| | 200 | (13.8) | Metal | BR | B1 |
| | 50 | (3.45) | Comp | BR - Comp | B6 |

¹ Maximum pressure drops are with the plug on the seat; i.e. no flow

**TABLE 6
CAPACITY TABLES - Cv — METAL DIAPHRAGM**

| Set Point (Inlet) Pressure P ₁ | | 1/2" (DN15) Body | | | | | 3/4" (DN20) Body | | | | | 1" (DN25) Body | | | | | 1-1/2" (DN40) Body | | | | | 2" (DN50) Body | | | | |
|---|--------|------------------|------|------|------|------|------------------|------|------|------|------|----------------|------|------|------|------|--------------------|------|------|------|------|----------------|------|------|------|------|
| | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | |
| psig | (Barg) | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% |
| 5 | (.34) | 0.22 | 0.44 | 0.67 | 0.89 | 1.11 | 0.50 | 1.00 | 1.44 | 1.77 | 2.05 | 0.50 | 1.00 | 1.44 | 1.77 | 2.05 | 1.50 | 2.89 | 3.57 | 3.92 | 4.28 | 1.74 | 3.32 | 4.11 | 4.59 | 4.90 |
| 10 | (.69) | 0.37 | 0.76 | 1.14 | 1.52 | 1.90 | 0.72 | 1.45 | 2.05 | 2.56 | 3.07 | 0.72 | 1.45 | 2.05 | 2.56 | 3.07 | 1.55 | 2.94 | 3.84 | 4.38 | 4.40 | 1.78 | 3.36 | 4.47 | 5.10 | 5.15 |
| 15 | (1.0) | 0.41 | 0.84 | 1.26 | 1.67 | 2.09 | 0.80 | 1.64 | 2.38 | 2.95 | 3.54 | 0.80 | 1.64 | 2.38 | 2.95 | 3.54 | 1.60 | 3.02 | 4.00 | 4.40 | 4.40 | 1.81 | 3.44 | 4.66 | 5.15 | 5.15 |
| 25 | (1.7) | 0.49 | 0.98 | 1.50 | 2.00 | 2.14 | 0.77 | 1.57 | 2.31 | 2.84 | 3.34 | 0.77 | 1.57 | 2.31 | 2.84 | 3.34 | 1.71 | 3.18 | 4.21 | 4.40 | 4.40 | 1.94 | 3.62 | 4.90 | 5.15 | 5.15 |
| 35 | (2.4) | 0.54 | 1.09 | 1.63 | 2.14 | 2.14 | 0.80 | 1.79 | 2.61 | 3.18 | 3.78 | 0.80 | 1.79 | 2.61 | 3.18 | 3.78 | 0.93 | 1.78 | 2.70 | 3.48 | 4.20 | 1.04 | 2.10 | 2.85 | 4.10 | 4.93 |
| 50 | (3.4) | 0.67 | 1.32 | 1.98 | 2.14 | 2.14 | 0.72 | 1.43 | 2.15 | 2.84 | 3.38 | 0.72 | 1.43 | 2.15 | 2.84 | 3.38 | 1.15 | 2.25 | 3.36 | 4.28 | 4.40 | 1.33 | 2.62 | 3.95 | 5.00 | 5.15 |
| 75 | (5.2) | 0.59 | 1.19 | 1.78 | 2.14 | 2.14 | 1.07 | 2.15 | 3.04 | 3.38 | 3.38 | 1.07 | 2.15 | 3.04 | 3.38 | 3.38 | 1.28 | 2.44 | 3.56 | 4.40 | 4.40 | 1.42 | 2.80 | 4.17 | 5.15 | 5.15 |
| 100 | (6.9) | 0.74 | 1.45 | 2.14 | 2.14 | 2.14 | 0.69 | 1.25 | 1.88 | 2.52 | 3.38 | 0.69 | 1.25 | 1.88 | 2.52 | 3.38 | 1.40 | 2.65 | 3.83 | 4.40 | 4.40 | 1.56 | 3.05 | 4.47 | 5.15 | 5.15 |
| 150 | (10.3) | 0.59 | 1.19 | 1.78 | 2.14 | 2.14 | 0.88 | 1.76 | 2.66 | 3.38 | 3.10 | 0.88 | 1.76 | 2.66 | 3.38 | 3.10 | 1.28 | 2.52 | 3.64 | 4.40 | 4.40 | 1.48 | 2.90 | 4.14 | 5.15 | 5.15 |
| 200 | (13.8) | 0.74 | 1.45 | 2.14 | 2.14 | 2.14 | 0.98 | 1.90 | 2.81 | 3.38 | 3.38 | 0.98 | 1.90 | 2.81 | 3.38 | 3.38 | 1.69 | 3.26 | 4.40 | 4.40 | 4.40 | 1.95 | 3.2 | 5.15 | 5.15 | 5.15 |
| 300 | (20.7) | 0.81 | 1.62 | 2.14 | 2.14 | 2.14 | 1.11 | 2.15 | 3.33 | 3.38 | 3.38 | 1.11 | 2.15 | 3.33 | 3.38 | 3.38 | 1.62 | 3.14 | 4.40 | 4.40 | 4.40 | 1.77 | 3.61 | 5.15 | 5.15 | 5.15 |
| 350 | (24.1) | 0.85 | 1.70 | 2.14 | 2.14 | 2.14 | 1.27 | 2.55 | 3.38 | 3.38 | 3.38 | 1.27 | 2.55 | 3.38 | 3.38 | 3.38 | 1.80 | 3.50 | 4.40 | 4.40 | 4.40 | 2.08 | 4.00 | 5.15 | 5.15 | 5.15 |

Metric Conversion Factor: Cv / 1.16 = kv

**TABLE 7
CAPACITY TABLES - Cv — COMPOSITION DIAPHRAGM**

| Set Point (Inlet) Pressure P ₁ | | 1/2" (DN15) Body | | | | | 3/4" (DN20) Body | | | | | 1" (DN25) Body | | | | | 1-1/2" (DN40) Body | | | | | 2" (DN50) Body | | | | |
|---|--------|------------------|------|------|------|------|------------------|------|------|------|------|----------------|------|------|------|------|--------------------|------|------|------|------|----------------|------|------|------|------|
| | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | |
| psig | (Barg) | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% |
| 5 | (.34) | 0.37 | 0.73 | 1.12 | 1.48 | 1.85 | 0.83 | 1.67 | 2.40 | 2.95 | 3.42 | 0.83 | 1.67 | 2.40 | 2.95 | 3.42 | 2.50 | 4.82 | 5.95 | 6.53 | 6.70 | 2.90 | 5.53 | 6.85 | 7.00 | 7.00 |
| 10 | (.69) | 0.62 | 1.27 | 1.90 | 2.53 | 3.04 | 1.20 | 2.42 | 3.42 | 4.27 | 5.10 | 1.20 | 2.42 | 3.42 | 4.27 | 5.10 | 2.58 | 4.90 | 6.40 | 6.70 | 6.70 | 2.97 | 5.60 | 7.00 | 7.00 | 7.00 |
| 15 | (1.0) | 0.68 | 1.40 | 2.10 | 2.78 | 3.04 | 1.33 | 2.73 | 3.97 | 4.92 | 5.10 | 1.33 | 2.73 | 3.97 | 4.92 | 5.10 | 2.67 | 5.00 | 6.67 | 6.70 | 6.70 | 3.02 | 5.73 | 7.00 | 7.00 | 7.00 |
| 25 | (1.7) | 0.82 | 1.63 | 2.50 | 3.04 | 3.04 | 1.28 | 2.62 | 3.85 | 4.73 | 5.10 | 1.28 | 2.62 | 3.85 | 4.73 | 5.10 | 2.85 | 5.30 | 6.70 | 6.70 | 6.70 | 3.23 | 6.03 | 7.00 | 7.00 | 7.00 |
| 35 | (2.4) | 0.90 | 1.82 | 2.72 | 3.04 | 3.04 | 1.33 | 2.98 | 4.35 | 5.10 | 5.10 | 1.33 | 2.98 | 4.35 | 5.10 | 5.10 | 1.55 | 2.97 | 4.50 | 5.80 | 6.70 | 1.73 | 3.50 | 4.75 | 7.00 | 7.00 |
| 50 | (3.4) | 1.12 | 2.20 | 3.04 | 3.04 | 3.04 | 1.20 | 2.38 | 3.58 | 4.73 | 5.10 | 1.20 | 2.38 | 3.58 | 4.73 | 5.10 | 1.92 | 3.75 | 5.60 | 6.70 | 6.70 | 2.22 | 4.37 | 6.58 | 7.00 | 7.00 |
| 75 | (5.2) | 0.98 | 1.98 | 2.97 | 3.04 | 3.04 | 1.78 | 3.58 | 5.07 | 5.10 | 5.10 | 1.78 | 3.58 | 5.07 | 5.10 | 5.10 | 2.13 | 4.07 | 5.93 | 6.70 | 6.70 | 2.37 | 4.67 | 6.95 | 7.00 | 7.00 |
| 100 | (6.9) | 1.23 | 2.42 | 3.04 | 3.04 | 3.04 | 0.99 | 1.79 | 2.69 | 3.60 | 4.43 | 0.99 | 1.79 | 2.69 | 3.60 | 4.43 | 2.00 | 3.79 | 5.47 | 6.70 | 6.70 | 2.23 | 4.36 | 6.39 | 7.00 | 7.00 |
| 150 | (10.3) | 0.84 | 1.70 | 2.54 | 3.04 | 3.04 | 1.26 | 2.51 | 3.80 | 4.96 | 5.10 | 1.26 | 2.51 | 3.80 | 4.96 | 5.10 | 1.83 | 3.60 | 5.20 | 5.63 | 6.70 | 2.11 | 4.14 | 5.91 | 7.00 | 7.00 |
| 200 | (13.8) | 1.06 | 2.07 | 3.04 | 3.04 | 3.04 | 1.40 | 2.71 | 4.01 | 5.10 | 5.10 | 1.40 | 2.71 | 4.01 | 5.10 | 5.10 | 2.41 | 4.66 | 6.47 | 6.70 | 6.70 | 2.79 | 5.31 | 7.00 | 7.00 | 7.00 |
| 300 | (20.7) | 1.16 | 2.31 | 3.04 | 3.04 | 3.04 | 1.59 | 3.07 | 4.75 | 5.10 | 5.10 | 1.59 | 3.07 | 4.75 | 5.10 | 5.10 | 2.31 | 4.49 | 6.36 | 6.70 | 6.70 | 2.53 | 5.16 | 7.00 | 7.00 | 7.00 |
| 350 | (24.1) | 1.21 | 2.43 | 3.04 | 3.04 | 3.04 | 1.81 | 3.64 | 5.10 | 5.10 | 5.10 | 1.81 | 3.64 | 5.10 | 5.10 | 5.10 | 2.57 | 5.00 | 6.70 | 6.70 | 6.70 | 2.97 | 5.71 | 7.00 | 7.00 | 7.00 |

Metric Conversion Factor: Cv / 1.16 = kv

TABLE 8
WATER CAPACITY - GPM S.G. = 1.0 T = 60°F F_L = 0.945
All Sizes - COMPOSITION DIAPHRAGM ONLY

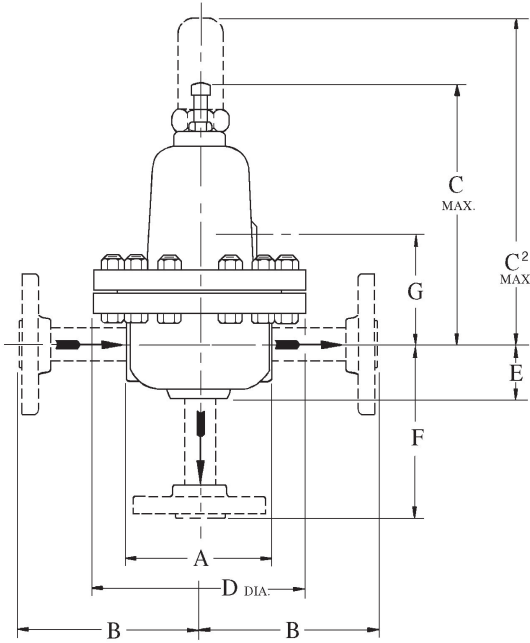
| Outlet Pressure (psig) | Set Point Pressure (psig) | 1 1/2" (DN151) Body | | | | | | | | | | 3/4" (DN20) Body | | | | | | | | | | 1" (DN25) Body | | | | | | | | | | 1-1/2" (DN40) Body | | | | | | | | | | 2" (DN50) Body | | | | | | | | | |
|------------------------|---------------------------|---------------------|------|------|------|------|---------|------|------|------|------|------------------|------|------|------|------|---------|-------|-------|-------|------|----------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|--------------------|-------|-------|-------|-------|---------|-------|-------|-------|--|----------------|--|--|--|--|--|--|--|--|--|
| | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | | | | | |
| | | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | | | | | | | | | | | | | | | |
| 0 | 5 | 0.9 | 1.8 | 2.9 | 3.9 | 5.1 | 1.9 | 4.1 | 6.1 | 7.8 | 9.4 | 5.9 | 11.8 | 15.2 | 17.3 | 18.3 | 6.8 | 13.5 | 17.5 | 18.5 | 19.2 | 5.0 | 10.7 | 14.4 | 16.4 | 17.8 | 19.2 | 20.0 | 20.8 | 21.6 | 22.8 | 24.2 | 25.9 | 27.8 | 29.9 | 32.3 | 35.0 | | | | | | | | | | | | | | |
| | 10 | 2.1 | 4.4 | 6.9 | 9.5 | 11.8 | 4.0 | 8.4 | 12.3 | 16.0 | 19.8 | 8.0 | 16.0 | 22.5 | 24.2 | 25.9 | 10.0 | 20.0 | 28.5 | 30.0 | 31.0 | 10.0 | 20.0 | 28.5 | 30.0 | 31.0 | 32.3 | 33.5 | 34.7 | 36.0 | 37.4 | 38.8 | 40.2 | 41.6 | 43.0 | 44.4 | 45.8 | 47.2 | | | | | | | | | | | | | |
| | 15 | 2.8 | 5.9 | 9.3 | 12.7 | 14.4 | 5.4 | 11.6 | 17.5 | 22.5 | 24.2 | 10.8 | 21.2 | 29.5 | 30.7 | 31.8 | 12.3 | 24.3 | 30.9 | 32.1 | 33.2 | 12.3 | 24.3 | 30.9 | 32.1 | 33.2 | 34.5 | 35.7 | 36.9 | 38.1 | 39.3 | 40.5 | 41.7 | 42.9 | 44.1 | 45.3 | 46.5 | 47.7 | | | | | | | | | | | | | |
| | 25 | 4.3 | 8.9 | 14.3 | 17.8 | 17.8 | 14.4 | 21.9 | 27.8 | 29.9 | 27.8 | 14.9 | 29.9 | 38.2 | 39.3 | 39.3 | 16.9 | 33.9 | 39.9 | 41.1 | 41.1 | 16.9 | 33.9 | 39.9 | 41.1 | 41.1 | 42.4 | 43.6 | 44.8 | 46.0 | 47.2 | 48.4 | 49.6 | 50.8 | 52.0 | 53.2 | 54.4 | 55.6 | | | | | | | | | | | | | |
| | 35 | 5.6 | 11.8 | 17.9 | 20.0 | 20.0 | 8.3 | 19.3 | 28.6 | 33.5 | 33.5 | 8.3 | 19.3 | 28.6 | 33.5 | 33.5 | 10.7 | 21.4 | 28.6 | 30.0 | 30.0 | 10.7 | 21.4 | 28.6 | 30.0 | 30.0 | 31.3 | 32.5 | 33.7 | 34.9 | 36.1 | 37.3 | 38.5 | 39.7 | 40.9 | 42.1 | 43.3 | 44.5 | 45.7 | | | | | | | | | | | | |
| | 50 | 8.3 | 16.5 | 22.8 | 22.8 | 22.8 | 8.9 | 17.9 | 26.9 | 35.5 | 38.3 | 8.9 | 17.9 | 26.9 | 35.5 | 38.3 | 13.2 | 26.4 | 35.5 | 38.3 | 38.3 | 13.2 | 26.4 | 35.5 | 38.3 | 38.3 | 39.6 | 40.8 | 42.0 | 43.2 | 44.4 | 45.6 | 46.8 | 48.0 | 49.2 | 50.4 | 51.6 | 52.8 | 54.0 | | | | | | | | | | | | |
| | 75 | 8.7 | 17.5 | 26.3 | 26.9 | 26.9 | 15.7 | 31.7 | 44.8 | 45.1 | 45.1 | 15.7 | 31.7 | 44.8 | 45.1 | 45.1 | 18.8 | 37.6 | 49.4 | 50.8 | 50.8 | 18.8 | 37.6 | 49.4 | 50.8 | 50.8 | 52.1 | 53.3 | 54.5 | 55.7 | 56.9 | 58.1 | 59.3 | 60.5 | 61.7 | 62.9 | 64.1 | 65.3 | 66.5 | | | | | | | | | | | | |
| | 100 | 12.3 | 24.2 | 30.4 | 30.4 | 30.4 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 20.0 | 37.9 | 54.7 | 54.7 | 20.0 | 37.9 | 54.7 | 54.7 | 54.7 | 54.7 | 56.0 | 57.2 | 58.4 | 59.6 | 60.8 | 62.0 | 63.2 | 64.4 | 65.6 | 66.8 | 68.0 | 69.2 | 70.4 | 71.6 | | | | | | | | | | | |
| | 200 | 14.5 | 28.3 | 41.6 | 41.6 | 41.6 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 21.9 | 43.2 | 62.3 | 62.3 | 21.9 | 43.2 | 62.3 | 62.3 | 62.3 | 62.3 | 63.6 | 64.8 | 66.0 | 67.2 | 68.4 | 69.6 | 70.8 | 72.0 | 73.2 | 74.4 | 75.6 | 76.8 | 78.0 | 79.2 | | | | | | | | | | | |
| | 300 | 19.2 | 38.3 | 50.4 | 50.4 | 50.4 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 33.0 | 63.8 | 88.6 | 88.6 | 33.0 | 63.8 | 88.6 | 88.6 | 88.6 | 88.6 | 90.0 | 91.2 | 92.4 | 93.6 | 94.8 | 96.0 | 97.2 | 98.4 | 99.6 | 100.8 | 102.0 | 103.2 | 104.4 | 105.6 | | | | | | | | | | | |
| 350 | 21.6 | 43.4 | 54.3 | 54.3 | 54.3 | 32.3 | 65.0 | 91.0 | 91.0 | 91.0 | 32.3 | 65.0 | 91.0 | 91.0 | 91.0 | 45.9 | 89.2 | 119.6 | 119.6 | 45.9 | 89.2 | 119.6 | 119.6 | 119.6 | 119.6 | 121.0 | 122.2 | 123.4 | 124.6 | 125.8 | 127.0 | 128.2 | 129.4 | 130.6 | 131.8 | 133.0 | 134.2 | 135.4 | | | | | | | | | | | | | |
| 2.5 | 10 | 1.2 | 2.7 | 4.5 | 6.5 | 8.3 | 2.2 | 5.1 | 8.0 | 10.9 | 14.0 | 2.2 | 5.1 | 8.0 | 10.9 | 14.0 | 4.8 | 10.4 | 15.0 | 17.1 | 18.3 | 5.6 | 11.9 | 16.4 | 17.8 | 19.2 | 20.6 | 22.0 | 23.4 | 24.8 | 26.2 | 27.6 | 29.0 | 30.4 | 31.8 | 33.2 | 34.6 | 36.0 | | | | | | | | | | | | | |
| | 15 | 2.0 | 4.5 | 7.3 | 10.2 | 11.8 | 4.0 | 8.8 | 13.8 | 18.1 | 19.8 | 4.0 | 8.8 | 13.8 | 18.1 | 19.8 | 8.0 | 16.2 | 23.1 | 24.6 | 25.9 | 9.1 | 18.6 | 24.2 | 25.7 | 27.1 | 28.5 | 29.9 | 31.3 | 32.7 | 34.1 | 35.5 | 36.9 | 38.3 | 39.7 | 41.1 | 42.5 | 43.9 | 45.3 | | | | | | | | | | | | |
| | 25 | 3.7 | 7.7 | 12.5 | 15.9 | 16.7 | 7.4 | 17.5 | 26.8 | 32.9 | 34.8 | 7.4 | 17.5 | 26.8 | 32.9 | 34.8 | 12.4 | 24.8 | 37.9 | 37.9 | 12.4 | 24.8 | 37.9 | 37.9 | 37.9 | 37.9 | 39.3 | 40.7 | 42.1 | 43.5 | 44.9 | 46.3 | 47.7 | 49.1 | 50.5 | 51.9 | 53.3 | 54.7 | 56.1 | | | | | | | | | | | | |
| | 35 | 5.0 | 10.7 | 16.8 | 19.6 | 20.0 | 7.4 | 17.5 | 26.8 | 32.9 | 33.5 | 7.4 | 17.5 | 26.8 | 32.9 | 33.5 | 15.4 | 31.3 | 45.1 | 45.1 | 15.4 | 31.3 | 45.1 | 45.1 | 45.1 | 45.1 | 46.5 | 47.9 | 49.3 | 50.7 | 52.1 | 53.5 | 54.9 | 56.3 | 57.7 | 59.1 | 60.5 | 61.9 | 63.3 | 64.7 | | | | | | | | | | | |
| | 50 | 7.7 | 15.9 | 22.8 | 22.8 | 22.8 | 8.3 | 17.2 | 26.9 | 35.5 | 38.3 | 8.3 | 17.2 | 26.9 | 35.5 | 38.3 | 18.4 | 36.0 | 52.4 | 52.4 | 18.4 | 36.0 | 52.4 | 52.4 | 52.4 | 52.4 | 53.8 | 55.2 | 56.6 | 58.0 | 59.4 | 60.8 | 62.2 | 63.6 | 65.0 | 66.4 | 67.8 | 69.2 | 70.6 | 72.0 | | | | | | | | | | | |
| | 75 | 8.5 | 17.5 | 26.3 | 26.9 | 26.9 | 15.4 | 31.7 | 44.8 | 45.1 | 45.1 | 15.4 | 31.7 | 44.8 | 45.1 | 45.1 | 20.0 | 37.9 | 54.7 | 54.7 | 20.0 | 37.9 | 54.7 | 54.7 | 54.7 | 54.7 | 56.1 | 57.5 | 58.9 | 60.3 | 61.7 | 63.1 | 64.5 | 65.9 | 67.3 | 68.7 | 70.1 | 71.5 | 72.9 | 74.3 | | | | | | | | | | | |
| | 100 | 12.3 | 24.2 | 30.4 | 30.4 | 30.4 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 21.9 | 43.2 | 62.3 | 62.3 | 21.9 | 43.2 | 62.3 | 62.3 | 62.3 | 62.3 | 63.7 | 65.1 | 66.5 | 67.9 | 69.3 | 70.7 | 72.1 | 73.5 | 74.9 | 76.3 | 77.7 | 79.1 | 80.5 | 81.9 | | | | | | | | | | | |
| | 200 | 14.5 | 28.3 | 41.6 | 41.6 | 41.6 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 21.9 | 43.2 | 62.3 | 62.3 | 21.9 | 43.2 | 62.3 | 62.3 | 62.3 | 62.3 | 63.7 | 65.1 | 66.5 | 67.9 | 69.3 | 70.7 | 72.1 | 73.5 | 74.9 | 76.3 | 77.7 | 79.1 | 80.5 | 81.9 | | | | | | | | | | | |
| | 300 | 19.2 | 38.3 | 50.4 | 50.4 | 50.4 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 33.0 | 63.8 | 88.6 | 88.6 | 33.0 | 63.8 | 88.6 | 88.6 | 88.6 | 88.6 | 90.0 | 91.4 | 92.8 | 94.2 | 95.6 | 97.0 | 98.4 | 99.8 | 101.2 | 102.6 | 104.0 | 105.4 | 106.8 | 108.2 | | | | | | | | | | | |
| | 350 | 21.6 | 43.4 | 54.3 | 54.3 | 54.3 | 32.3 | 65.0 | 91.0 | 91.0 | 91.0 | 32.3 | 65.0 | 91.0 | 91.0 | 91.0 | 45.9 | 89.2 | 119.6 | 119.6 | 45.9 | 89.2 | 119.6 | 119.6 | 119.6 | 119.6 | 121.0 | 122.4 | 123.8 | 125.2 | 126.6 | 128.0 | 129.4 | 130.8 | 132.2 | 133.6 | 135.0 | 136.4 | 137.8 | 139.2 | | | | | | | | | | | |
| 5 | 10 | 1.2 | 2.7 | 4.5 | 6.5 | 8.3 | 2.2 | 5.1 | 8.0 | 10.9 | 14.0 | 2.2 | 5.1 | 8.0 | 10.9 | 14.0 | 4.8 | 10.4 | 15.0 | 17.1 | 18.3 | 5.6 | 11.9 | 16.4 | 17.8 | 19.2 | 20.6 | 22.0 | 23.4 | 24.8 | 26.2 | 27.6 | 29.0 | 30.4 | 31.8 | 33.2 | 34.6 | 36.0 | | | | | | | | | | | | | |
| | 15 | 2.0 | 4.5 | 7.3 | 10.2 | 11.8 | 4.0 | 8.8 | 13.8 | 18.1 | 19.8 | 4.0 | 8.8 | 13.8 | 18.1 | 19.8 | 8.0 | 16.2 | 23.1 | 24.6 | 25.9 | 9.1 | 18.6 | 24.2 | 25.7 | 27.1 | 28.5 | 29.9 | 31.3 | 32.7 | 34.1 | 35.5 | 36.9 | 38.3 | 39.7 | 41.1 | 42.5 | 43.9 | 45.3 | 46.7 | | | | | | | | | | | |
| | 25 | 3.7 | 7.7 | 12.5 | 15.9 | 16.7 | 7.4 | 17.5 | 26.8 | 32.9 | 34.8 | 7.4 | 17.5 | 26.8 | 32.9 | 34.8 | 12.4 | 24.8 | 37.9 | 37.9 | 12.4 | 24.8 | 37.9 | 37.9 | 37.9 | 37.9 | 39.3 | 40.7 | 42.1 | 43.5 | 44.9 | 46.3 | 47.7 | 49.1 | 50.5 | 51.9 | 53.3 | 54.7 | 56.1 | 57.5 | | | | | | | | | | | |
| | 35 | 5.0 | 10.7 | 16.8 | 19.6 | 20.0 | 7.4 | 17.5 | 26.8 | 32.9 | 33.5 | 7.4 | 17.5 | 26.8 | 32.9 | 33.5 | 15.4 | 31.3 | 45.1 | 45.1 | 15.4 | 31.3 | 45.1 | 45.1 | 45.1 | 45.1 | 46.5 | 47.9 | 49.3 | 50.7 | 52.1 | 53.5 | 54.9 | 56.3 | 57.7 | 59.1 | 60.5 | 61.9 | 63.3 | 64.7 | | | | | | | | | | | |
| | 50 | 7.7 | 15.9 | 22.8 | 22.8 | 22.8 | 8.3 | 17.2 | 26.9 | 35.5 | 38.3 | 8.3 | 17.2 | 26.9 | 35.5 | 38.3 | 18.4 | 36.0 | 52.4 | 52.4 | 18.4 | 36.0 | 52.4 | 52.4 | 52.4 | 52.4 | 53.8 | 55.2 | 56.6 | 58.0 | 59.4 | 60.8 | 62.2 | 63.6 | 65.0 | 66.4 | 67.8 | 69.2 | 70.6 | 72.0 | | | | | | | | | | | |
| | 75 | 8.5 | 17.5 | 26.3 | 26.9 | 26.9 | 15.4 | 31.7 | 44.8 | 45.1 | 45.1 | 15.4 | 31.7 | 44.8 | 45.1 | 45.1 | 20.0 | 37.9 | 54.7 | 54.7 | 20.0 | 37.9 | 54.7 | 54.7 | 54.7 | 54.7 | 56.1 | 57.5 | 58.9 | 60.3 | 61.7 | 63.1 | 64.5 | 65.9 | 67.3 | 68.7 | 70.1 | 71.5 | 72.9 | 74.3 | | | | | | | | | | | |
| | 100 | 12.3 | 24.2 | 30.4 | 30.4 | 30.4 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 9.9 | 17.9 | 26.9 | 36.0 | 44.3 | 21.9 | 43.2 | 62.3 | 62.3 | 21.9 | 43.2 | 62.3 | 62.3 | 62.3 | 62.3 | 63.7 | 65.1 | 66.5 | 67.9 | 69.3 | 70.7 | 72.1 | 73.5 | 74.9 | 76.3 | 77.7 | 79.1 | 80.5 | 81.9 | | | | | | | | | | | |
| | 200 | 14.5 | 28.3 | 41.6 | 41.6 | 41.6 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 15.1 | 30.1 | 45.6 | 59.5 | 61.1 | 21.9 | 43.2 | 62.3 | 62.3 | 21.9 | 43.2 | 62.3 | 62.3 | 62.3 | 62.3 | 63.7 | 65.1 | 66.5 | 67.9 | 69.3 | 70.7 | 72.1 | 73.5 | 74.9 | 76.3 | 77.7 | 79.1 | 80.5 | 81.9 | | | | | | | | | | | |
| | 300 | 19.2 | 38.3 | 50.4 | 50.4 | 50.4 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 26.4 | 50.4 | 78.8 | 84.6 | 84.6 | 33. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE 9
AIR CAPACITY - SCFH S.G. = 1.0 T = 60°F F_L = 0.945

All Sizes - COMPOSITION DIAPHRAGM ONLY

| Outlet Pressure (psig) | 1/2" (DN15) Body | | | | | | | | | | 3/4" (DN20) Body | | | | | | | | | | 1" (DN25) Body | | | | | | | | | | 1-1/2" (DN40) Body | | | | | | | | | | 2" (DN50) Body | | | | | | | | | |
|------------------------|------------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|------------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|---------|--------|--------|--------|--------|--------------------|--------|--------|--------|--------|---------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--|--|--|--|--|
| | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | % Build | | | | | | | | | |
| | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | 10% | 20% | 30% | 40% | 50% | | | | | | | | | | |
| 5 | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | | | | | |
| | 270 | 540 | 850 | 1140 | 1460 | 600 | 1230 | 1810 | 2280 | 2710 | 600 | 1230 | 1810 | 2280 | 2710 | 1800 | 3560 | 4490 | 5050 | 5300 | 1800 | 3560 | 4490 | 5050 | 5300 | 4900 | 9900 | 12600 | 14100 | 14600 | 4900 | 9900 | 12600 | 14100 | 14600 | 11600 | 23200 | 29600 | 33200 | 34300 | 11600 | 23200 | 29600 | 33200 | 34300 | | | | | |
| | 570 | 1210 | 1880 | 2590 | 3220 | 1100 | 2300 | 3380 | 4370 | 5400 | 1100 | 2300 | 3380 | 4370 | 5400 | 2360 | 4660 | 6020 | 6830 | 7090 | 2360 | 4660 | 6020 | 6830 | 7090 | 6320 | 12600 | 16300 | 18100 | 18700 | 6320 | 12600 | 16300 | 18100 | 18700 | 17430 | 34800 | 45100 | 50500 | 52200 | 17430 | 34800 | 45100 | 50500 | 52200 | | | | | |
| | 15 | 760 | 1630 | 2560 | 3540 | 1480 | 3180 | 4840 | 6260 | 7760 | 1480 | 3180 | 4840 | 6260 | 7760 | 3930 | 7860 | 10300 | 12100 | 12500 | 3930 | 7860 | 10300 | 12100 | 12500 | 10900 | 21800 | 28700 | 32600 | 33600 | 10900 | 21800 | 28700 | 32600 | 33600 | 29300 | 58600 | 77000 | 85500 | 88500 | 29300 | 58600 | 77000 | 85500 | 88500 | | | | | |
| | 25 | 1230 | 2600 | 4210 | 5380 | 1930 | 4170 | 6480 | 8380 | 10400 | 1930 | 4170 | 6480 | 8380 | 10400 | 4290 | 8580 | 11200 | 13900 | 14400 | 4290 | 8580 | 11200 | 13900 | 14400 | 11700 | 23400 | 30900 | 35600 | 36600 | 11700 | 23400 | 30900 | 35600 | 36600 | 31100 | 62200 | 81400 | 91200 | 94200 | 31100 | 62200 | 81400 | 91200 | 94200 | | | | | |
| | 35 | 1710 | 3680 | 5840 | 6900 | 2520 | 6020 | 9330 | 11580 | 12220 | 2520 | 6020 | 9330 | 11580 | 12220 | 5600 | 11200 | 14700 | 18400 | 18900 | 5600 | 11200 | 14700 | 18400 | 18900 | 15100 | 30200 | 39600 | 45300 | 46300 | 15100 | 30200 | 39600 | 45300 | 46300 | 38300 | 76600 | 100000 | 114000 | 117000 | 38300 | 76600 | 100000 | 114000 | 117000 | | | | | |
| | 50 | 2780 | 5860 | 8840 | 10700 | 4030 | 9070 | 14280 | 18310 | 20200 | 4030 | 9070 | 14280 | 18310 | 20200 | 8900 | 17800 | 23700 | 29600 | 30600 | 8900 | 17800 | 23700 | 29600 | 30600 | 23600 | 47200 | 61600 | 74300 | 76200 | 23600 | 47200 | 61600 | 74300 | 76200 | 58600 | 117000 | 153000 | 179000 | 184000 | 58600 | 117000 | 153000 | 179000 | 184000 | | | | | |
| | 75 | 3400 | 7390 | 11180 | 13700 | 6170 | 13370 | 20280 | 26100 | 28000 | 6170 | 13370 | 20280 | 26100 | 28000 | 13300 | 27000 | 35400 | 44100 | 45100 | 13300 | 27000 | 35400 | 44100 | 45100 | 35400 | 70800 | 92400 | 112000 | 115000 | 35400 | 70800 | 92400 | 112000 | 115000 | 88500 | 177000 | 230000 | 283000 | 293000 | 88500 | 177000 | 230000 | 283000 | 293000 | | | | | |
| | 100 | 5470 | 11630 | 17460 | 21400 | 8600 | 18100 | 27100 | 34400 | 37400 | 8600 | 18100 | 27100 | 34400 | 37400 | 17400 | 34800 | 46400 | 58000 | 59000 | 17400 | 34800 | 46400 | 58000 | 59000 | 46400 | 92800 | 123000 | 153000 | 156000 | 46400 | 92800 | 123000 | 153000 | 156000 | 115000 | 230000 | 303000 | 377000 | 387000 | 115000 | 230000 | 303000 | 377000 | 387000 | | | | | |
| | 150 | 5390 | 11500 | 17300 | 21200 | 8080 | 17200 | 25800 | 32900 | 35900 | 8080 | 17200 | 25800 | 32900 | 35900 | 16160 | 32300 | 42600 | 53200 | 54200 | 16160 | 32300 | 42600 | 53200 | 54200 | 42600 | 85200 | 112000 | 140000 | 143000 | 42600 | 85200 | 112000 | 140000 | 143000 | 105000 | 210000 | 276000 | 342000 | 352000 | 105000 | 210000 | 276000 | 342000 | 352000 | | | | | |
| 200 | 8880 | 18800 | 28000 | 34000 | 11720 | 24600 | 36900 | 46200 | 49200 | 11720 | 24600 | 36900 | 46200 | 49200 | 23400 | 46800 | 62400 | 77000 | 78000 | 23400 | 46800 | 62400 | 77000 | 78000 | 62400 | 124800 | 166000 | 207000 | 210000 | 62400 | 124800 | 166000 | 207000 | 210000 | 155000 | 310000 | 408000 | 504000 | 514000 | 155000 | 310000 | 408000 | 504000 | 514000 | | | | | | |
| 300 | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | | | | | | |
| 350 | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | | | | | | |
| 5 | 250 | 510 | 790 | 1070 | 560 | 1160 | 1700 | 2140 | 2540 | 560 | 1160 | 1700 | 2140 | 2540 | 1120 | 2240 | 3360 | 4200 | 4400 | 1120 | 2240 | 3360 | 4200 | 4400 | 2800 | 5600 | 8400 | 10500 | 10800 | 2800 | 5600 | 8400 | 10500 | 10800 | 7000 | 14000 | 21000 | 26200 | 27000 | 7000 | 14000 | 21000 | 26200 | 27000 | | | | | | |
| 10 | 570 | 1210 | 1870 | 2580 | 1100 | 2300 | 3370 | 4360 | 5390 | 1100 | 2300 | 3370 | 4360 | 5390 | 2200 | 4400 | 6600 | 8300 | 8600 | 2200 | 4400 | 6600 | 8300 | 8600 | 5500 | 11000 | 16500 | 20700 | 21400 | 5500 | 11000 | 16500 | 20700 | 21400 | 13700 | 27400 | 41100 | 51400 | 52800 | 13700 | 27400 | 41100 | 51400 | 52800 | | | | | | |
| 15 | 760 | 1630 | 2560 | 3540 | 1480 | 3180 | 4840 | 6260 | 7760 | 1480 | 3180 | 4840 | 6260 | 7760 | 2960 | 5920 | 8880 | 11100 | 11500 | 2960 | 5920 | 8880 | 11100 | 11500 | 7400 | 14800 | 22200 | 27700 | 28400 | 7400 | 14800 | 22200 | 27700 | 28400 | 18500 | 37000 | 55500 | 69400 | 71600 | 18500 | 37000 | 55500 | 69400 | 71600 | | | | | | |
| 25 | 1230 | 2600 | 4210 | 5380 | 1930 | 4170 | 6480 | 8380 | 10400 | 1930 | 4170 | 6480 | 8380 | 10400 | 3860 | 7720 | 11580 | 14400 | 14800 | 3860 | 7720 | 11580 | 14400 | 14800 | 9700 | 19400 | 29100 | 36000 | 36600 | 9700 | 19400 | 29100 | 36000 | 36600 | 24200 | 48400 | 72600 | 90000 | 92200 | 24200 | 48400 | 72600 | 90000 | 92200 | | | | | | |
| 35 | 1710 | 3680 | 5840 | 6900 | 2520 | 6020 | 9330 | 11580 | 12220 | 2520 | 6020 | 9330 | 11580 | 12220 | 5040 | 10080 | 15120 | 18900 | 19400 | 5040 | 10080 | 15120 | 18900 | 19400 | 12600 | 25200 | 37800 | 47200 | 48800 | 12600 | 25200 | 37800 | 47200 | 48800 | 31500 | 63000 | 94500 | 118000 | 121600 | 31500 | 63000 | 94500 | 118000 | 121600 | | | | | | |
| 50 | 2780 | 5860 | 8840 | 10700 | 4030 | 9070 | 14280 | 18310 | 20200 | 4030 | 9070 | 14280 | 18310 | 20200 | 8060 | 16120 | 24180 | 30200 | 30400 | 8060 | 16120 | 24180 | 30200 | 30400 | 20100 | 40200 | 60300 | 75500 | 76800 | 20100 | 40200 | 60300 | 75500 | 76800 | 50500 | 101000 | 151500 | 188000 | 193600 | 50500 | 101000 | 151500 | 188000 | 193600 | | | | | | |
| 75 | 3400 | 7390 | 11180 | 13700 | 6170 | 13370 | 20280 | 26100 | 28000 | 6170 | 13370 | 20280 | 26100 | 28000 | 12340 | 24680 | 36020 | 44100 | 45000 | 12340 | 24680 | 36020 | 44100 | 45000 | 30800 | 61600 | 92400 | 115000 | 117000 | 30800 | 61600 | 92400 | 115000 | 117000 | 77000 | 154000 | 231000 | 287000 | 294000 | 77000 | 154000 | 231000 | 287000 | 294000 | | | | | | |
| 100 | 5470 | 11630 | 17460 | 21400 | 8600 | 18100 | 27100 | 34400 | 37400 | 8600 | 18100 | 27100 | 34400 | 37400 | 17200 | 34400 | 51600 | 64000 | 65800 | 17200 | 34400 | 51600 | 64000 | 65800 | 43000 | 86000 | 129000 | 160000 | 161600 | 43000 | 86000 | 129000 | 160000 | 161600 | 107000 | 214000 | 321000 | 400000 | 403600 | 107000 | 214000 | 321000 | 400000 | 403600 | | | | | | |
| 150 | 5390 | 11500 | 17300 | 21200 | 8080 | 17200 | 25800 | 32900 | 35900 | 8080 | 17200 | 25800 | 32900 | 35900 | 16160 | 32300 | 48400 | 59500 | 60800 | 16160 | 32300 | 48400 | 59500 | 60800 | 40400 | 80800 | 121200 | 151000 | 151600 | 40400 | 80800 | 121200 | 151000 | 151600 | 101000 | 202000 | 303000 | 377000 | 383200 | 101000 | 202000 | 303000 | 377000 | 383200 | | | | | | |
| 200 | 8880 | 18800 | 28000 | 34000 | 11720 | 24600 | 36900 | 46200 | 49200 | 11720 | 24600 | 36900 | 46200 | 49200 | 23400 | 46800 | 69600 | 86000 | 87400 | 23400 | 46800 | 69600 | 86000 | 87400 | 69600 | 139200 | 208000 | 255000 | 256800 | 69600 | 139200 | 208000 | 255000 | 256800 | 174000 | 348000 | 516000 | 640000 | 653600 | 174000 | 348000 | 516000 | 640000 | 653600 | | | | | | |
| 300 | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | | | | | | |
| 350 | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | SONIC | | | | | | |
| 5 | 250 | 510 | 790 | 1070 | 560 | 1160 | 1700 | 2140 | 2540 | 560 | 1160 | 1700 | 2140 | 2540 | 1120 | 2240 | 3360 | 4200 | 4400 | 1120 | 2240 | 3360 | 4200 | 4400 | 2800 | 5600 | 8400 | 10500 | 10800 | 2800 | 5600 | 8400 | 10500 | 10800 | 7000 | 14000 | 21000 | 26200 | 27000 | 7000 | 14000 | 21000 | 26200 | 27000 | | | | | | |
| 10 | 570 | 1210 | 1870 | 2580 | 1100 | 2300 | 3370 | 4360 | 5390 | 1100 | 2300 | 3370 | 4360 | 5390 | 2200 | 4400 | 6600 | 8300 | 8600 | 2200 | 4400 | 6600 | 8300 | 8600 | 5500 | 11000 | 16500 | 20700 | 21400 | 5500 | 11000 | 16500 | 20700 | 21400 | 13700 | 27400 | 41100 | 51400 | | | | | | | | | | | | |

DIMENSIONS AND WEIGHTS



| Regulator Size (inch) | ENGLISH (in) | | | | | | | | | | Shipping Weight lbs. ⁴ |
|-----------------------|--------------|------|----------------|------|----------------|------|------|------|----------------|------|-----------------------------------|
| | A | B | B ¹ | C | C ² | D | E | F | F ³ | G | |
| 1/2 | 4.32 | 5.16 | 8.16 | 9.00 | 9.59 | 6.00 | 1.88 | 4.88 | 7.88 | 2.50 | 20 |
| 3/4 | 5.00 | 6.19 | 8.50 | 9.75 | 10.28 | 7.38 | 1.75 | 5.56 | 7.75 | 3.50 | 30 |
| 1 | 5.00 | 6.19 | 8.50 | 9.75 | 10.28 | 7.38 | 1.75 | 5.56 | 7.75 | 3.50 | 30 |
| 1-1/2 | 6.24 | 6.88 | 9.12 | 9.87 | 10.78 | 8.50 | 2.19 | 5.94 | 8.19 | 3.88 | 38 |
| 2 | 6.00 | 7.19 | 9.00 | 9.75 | 10.85 | 8.50 | 2.19 | 6.38 | 8.19 | 4.31 | 48 |

| Regulator Size DN | METRIC (mm) | | | | | | | | | | Shipping Weight kgs. ⁴ |
|-------------------|-------------|-----|----------------|-----|----------------|-----|----|-----|----------------|-----|-----------------------------------|
| | A | B | B ¹ | C | C ² | D | E | F | F ³ | G | |
| 15 | 110 | 131 | 207 | 229 | 243 | 152 | 48 | 124 | 200 | 63 | 9.1 |
| 20 | 128 | 157 | 216 | 248 | 261 | 187 | 44 | 141 | 197 | 89 | 13.6 |
| 25 | 128 | 157 | 216 | 248 | 261 | 187 | 44 | 141 | 197 | 89 | 13.6 |
| 40 | 158 | 175 | 232 | 250 | 273 | 216 | 56 | 151 | 208 | 98 | 17.2 |
| 50 | 152 | 183 | 229 | 247 | 275 | 216 | 56 | 162 | 208 | 109 | 21.2 |

- ¹ CL of body to extended P.E. nipple (not shown), Opt-32
² CL of body to top of Closing Cap, Opt-1
³ CL of body to end of extended P.E. nipple (not shown), Opt.-32
⁴ Weights do not include flanges.

Cryogenic OPT-5 or -36 BRZ or SST Body Mat'l OR For LCC Body Mat'l to -50°F(-46°C)

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



| POSITION 3 - SIZE | | |
|-------------------|------|------|
| Size | (DN) | CODE |
| 1/2" | (15) | 4 |
| 3/4" | (20) | 5 |
| 1" | (25) | 6 |
| 1-1/2" | (40) | 8 |
| 2" | (50) | 9 |

| POSITION 5 - BODY & SPRING CHAMBER MATERIALS | | |
|--|--------|------|
| Body/Sp.Ch. | Option | CODE |
| BRZ/BRZ | -5 * | 3 |
| SST/SST | -36 * | A |
| CS/CS (LCC) | ** | D |

* Cleaned per Spec #S-1134 (Opt. -55).
 ** Minimum temperature -50 °F (-46 °C).

| POSITION 6 & 7 - TRIM DESIGNATION NO. | | | |
|---------------------------------------|------|---|------|
| Brass Trim (For Brass Body) | | Stainless Steel Trim (For SST & LCC Body) | |
| Desig. | CODE | Desig. | CODE |
| B5 | B5 | S1 | S1 |
| | | S36 | 36 |
| | | S40B * | 4B |
| | | S40C * | 4C |

* NACE Trim use w/ CS Body down to -50° F (-46° C).

| POSITION 10 - END CONNECTIONS | |
|-------------------------------|------|
| Description | CODE |
| NPT Screwed | 1 |
| OPT-30 - 150 LB RF Flg * (2) | 6 |
| OPT-30 - 300 LB RF Flg * (2) | 7 |

* SST or LCC Body Material ONLY.
 (Nipples & Flanges same Material as Body)

| POSITION 11 - RANGE SPRING | | | |
|----------------------------|------------|-------------|------|
| SST Range Spring | | | |
| Size | Range | | CODE |
| | psig | (Barg) | |
| 1/2" (DN15) | 2-30 | (.14-2.1) | 3 |
| | 20-60 | (1.4-4.1) | 6 |
| | 50-110 | (3.4-7.6) | A |
| | 90-150 | (6.2-10.3) | C |
| | 120-245 | (8.3-16.9) | E |
| 3/4" & 1" (DN20) (DN25) | 2-25 | (.14-1.7) | 2 |
| | 20-45 | (1.4-3.1) | 5 |
| | 35-100 | (2.4-6.9) | 9 |
| | 80-210 | (5.5-14.5) | D |
| | 170-300 | (11.7-20.7) | G |
| 1 1/2" & 2" (DN40) (DN50) | 2-15 | (.14-1.0) | 1 |
| | 10-30 | (.69-2.1) | 4 |
| | 25-55 | (1.7-3.8) | 7 |
| | 45-95 | (3.1-6.6) | 8 |
| | 75-130 | (5.2-9.0) | B |
| 110-300 | (7.6-20.6) | F | |

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

| POSITION 16 - CERTIFICATE OPTIONS | | |
|---|--------|------|
| Description | Option | CODE |
| No Option | — | 0 |
| NACE Const: CS/CS/XX Per MR0175, S40B, S40C * | -40 | J |

* Not Available for OPT-5 or -36.

*** For information on ATEX see pages 8 & 9 on the IOM.**

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

| | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-----------|----------|--------|--------|--------|--------|--------|----------|--------|----------|----------|
| POS 1 | POS 2 | POS 3 | POS 5 | POS 6 & 7 | 7 | POS 10 | POS 11 | POS 12 | POS 13 | POS 14 | 0 | POS 16 | 0 | C |
|-------|-------|-------|-------|-----------|----------|--------|--------|--------|--------|--------|----------|--------|----------|----------|

| POSITION 1 - MODEL | |
|--------------------|---|
| CODE | Description |
| 8 | MODEL "123" BACK PRESSURE RELIEF |
| 9 | MODEL "123-1+6" Differential BACK PRESS. W/ CLOSING CAP |

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

* Refer to Tech bulletin for temperature limits.
 ** Not available with Option -1+6. Comp. Diaphragm does not require gaskets.
 *** Only Available with CS(WCB) or SST Body & Sprng Chamber, S1 or S2 Trim.

| POSITION 3 - SIZES | | |
|--------------------|------|----------|
| Size | | CODE |
| inch | (DN) | |
| 1/2" | (15) | 4 |
| 3/4" | (20) | 5 |
| 1" | (25) | 6 |
| 1-1/2" | (40) | 8 |
| 2" | (50) | 9 |

| POSITION 5 - BODY & SPRING CHAMBER MATERIALS | |
|--|----------|
| Body/Sp. Ch. | CODE |
| CI/CI | 1 |
| BRZ/CI | 2 |
| BRZ/BRZ * | 3 |
| CS/CI | 4 |
| CS/CS (WCB) | 5 |
| SST/CI | 7 |
| SST/BRZ * | 8 |
| SST/CS | 9 |
| SST/SST * | A |

* Not available w/ 1+6 variation.

| POSITION 6 & 7 - TRIM DESIGNATION NUMBERS | | | | |
|---|----------------|---------|----------------------|------------|
| Brass Trim | | | Stainless Steel Trim | |
| Desig. | Body Material | | Desig. | Body Mat'l |
| | CI OR BRZ CODE | CS CODE | | |
| B1 | B1 | B1 | S0 | S0 |
| B2 | B2 | B2 | S1 | S1 |
| B3 | B3 | -- | S2 | S2 |
| B4 | B4 | -- | S2N | SN |
| B5 | B5 | -- | S3 | S3 |
| B6 | B6 | -- | S3N | SC |
| B7 | B7 | -- | S5 | S5 |
| BB | BB | BB | S9 | S9 |
| | | | S36 | 36 |
| | | | S40 | 40 |
| | | | S40T | 4T |
| | | | S40V | 4V |
| | | | SB | SB |

| POSITION 10 - END CONNECTIONS | |
|--|----------|
| Description | CODE |
| NPT Screwed | 1 |
| OPT-30 - 150 LB RF Flgs (2) * | 6 |
| OPT-30 - 300 LB RF Flgs (2) * | 7 |
| OPT-31P - BSPP Screwed Parallel Pipe Thread | P |
| OPT-32 - SCH. 80 PE EXT. Nipples (2) * | E |
| OPT-33 - Third Body CONN (NPT) | 4 |
| OPT-39 - Socket Weld (2 CONN) | 2 |
| OPT-30 +33 - 150 LB RF Flgs (3 CONN) * | C |
| OPT-30 +33 - 300 LB RF Flgs (3 CONN) * | D |
| OPT-32 +33 - SCH. 80 PE EXT. Nipples(3 CONN) * | F |
| OPT-39 +33 - Socket Weld (3 CONN) | G |

* Nipples & Flanges of same material as body. Flanges not available with CI body.

| POSITION 11 - RANGE SPRINGS | | | |
|------------------------------------|------------|-------------|----------|
| Range Spring - STD & "1+6" Option | | | |
| SIZE | Range | | CODE |
| | psig | (Barg) | |
| 1/2" (DN15) | 2-30 * | (.14-2.1) | 3 |
| | 25-50 * | (1.7-3.4) | 6 |
| | 40-100 * | (2.8-6.9) | 9 |
| | 80-150 * | (5.5-10.3) | C |
| | 120-215 | (8.3-14.8) | F |
| 3/4" & 1" (DN20) (DN25) | 150-350 ** | (10.3-24.1) | G |
| | 2-20 * | (.14-1.4) | 2 |
| | 15-40 * | (1.0-2.8) | 5 |
| | 30-80 * | (2.1-5.5) | 8 |
| | 65-160 * | (4.5-11.0) | B |
| 1-1/2" & 2" (DN40) (DN50) | 130-205 | (9.0-14.1) | E |
| | 165-350 ** | (11.4-24.1) | H |
| | 2-15 * | (.14-1.0) | 1 |
| | 10-25 * | (.69-1.7) | 4 |
| | 20-55 * | (1.4-3.8) | 7 |
| | 45-105 * | (3.1-7.2) | A |
| | 85-220 | (5.9-15.1) | D |
| | 180-350 ** | (12.4-24.1) | J |

* Range springs for use with Opt-1+6.
 ** Not available for any body-spring chamber material combinations with CI. Must select BRZ, CS or SST spring chamber material from Position 5.

| POSITION 13 - FEATURE OPTIONS | | |
|--|--------|----------|
| Description | Option | CODE |
| No Option | -- | 0 |
| DI Closing Cap CI or CS Spring Chamber. (Included with "1+6" Variation). | -1 | 1 |

| POSITION 14 - SPRING CHAMBER OPTIONS | | |
|--------------------------------------|--------|----------|
| Description | Option | CODE |
| No Option | -- | 0 |
| Plastic Rain-proof Bug Vent. | -25P | P |
| SST Rain-proof Bug Vent. | -25S | H |

| POSITION 16 - CERTIFICATE OPTIONS | | |
|---|--------|----------|
| Description | Option | CODE |
| No Option | -- | 0 |
| NACE Construction: CS/CS/XX Per MR0175, S40, S40T, or S40V Trims (NOT Available with "1+6" Variation). | -40 | J |
| NACE Construction: SS/SS/XX OR SS/CS/XX Per MR0175, S40, S40T, or S40V Trims. (NOT Available with "1+6" Variation). | -40SST | K |
| Special Cleaning: Per Cashco Spec #S-1134. BRZ or SST body/sp.ch. mat'ls only. Suitable for oxygen service. (Not Available w/ "1+6" Variation). | -55 | M |
| Special Cleaning: Per Cashco Spec #S-1542. | -56 | N |

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

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