

MODEL DA5

DO-ALL SERIES V BACK PRESSURE REGULATOR Spring Operated: 1/2" – 4"



MODEL DA5

APPLICATIONS

"DO-ALL" concept allows application of all types of clean fluids. Designed primarily as a gaseous service valve, can be applied in liquid service applications where excessive cavitation or flashing is absent. Excellent for atmospheric industrial gases – GN₂, GOX, Ar, He, H₂, CO₂ – as well as a natural gas regulator. Used as a utilities – air, oil, water, steam – regulator. Corrosive and non-corrosive chemical services – gas or liquid – are possible with broad materials range. Special variations available for cryogenic gas or liquid service.

CAUTION

This is not a safety device and must not be substituted for a code approved pressure safety relief valve or rupture disc.

The Model DA5 is a high performance, spring operated, back pressure regulator with top-guided piston-cylinder that provides high flow capacity and high pressure drop capability. Internal trim design allows the same basic unit to cover a broad range of pressure settings. Unique body design allows bi-directional flow, providing a way to take advantage of benefits of both flow directions for each specific application. Performance approaches that of competitive pilot-operated designs in the basic design. Applied primarily in clean gaseous service, but also can be applied as a liquid or steam valve. Truly a "DO-ALL" pressure regulator.

FEATURES

- Versatile:** Five basic materials and multiple trim material combinations to select from.
- Tight Shutoff:** Multiple composition materials provide Classes II, IV or VI inboard leakage rates. Designed as a soft-seated valve.
- Capacity:** Highest in the industry. Allows smaller body sizes than competitors in majority of applications.
- Pressure Drop:** Highest in the industry when coupled with high flow capacity.
- Trim Design:** "DO-ALL" trim design provides FTO or FTC flow direction. Results in high sensitivity and stability. Internals are case-contained within easily removable quick change trim.
- Rangeability:** Basic valve gives outstanding rangeability due to close tolerances, balanced trim, and a broad range of elastomeric diaphragms and soft seats. Can be as high as 500:1.
- Heavy-Duty Guiding:** Heavy top guided to maintain stability and increased diaphragm life.

STANDARD / GENERAL SPECIFICATIONS

Body / Spring Chamber Materials

CI/CI	BRZ/BRZ *	SST/CI
CS/CI	BRZ/CI	SST/CS
CS/CS	HC/CS *	SST/SST
	HC/SST *	

* Through 2" body size only.

CI = Cast Iron CS = Carbon Steel BRZ = Bronze
SST = Stainless Steel HC = Hastelloy C

Body Sizes

1/2", 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2", 3", 4"

End Connections

Female NPT (screwed). Opt-39 Socketweld.
ANSI Flanged: 125#, 150#, 250#, 300#, 600#, 900#,
1500#; integral or Opt-30.
DIN Flanged: PN16, PN25, PN40; integral or Opt-30.
Opt-32 P.E. Extended Pipe Nipples.
Opt-41 Extension Tube Ends.

See Table DAG-6.

Max. Useable Cv

Body Size	Diaphragm		Body Size	Diaphragm	
	Comp.	Metal		Comp.	Metal
1/2"	3.4	2.6	2"	51	10.2
3/4"	6.8	2.6	2-1/2"	77	N/A
1"	12.8	3.0	3"	102	N/A
1-1/4"	19.6	5.1	4"	187	N/A
1-1/2"	26	5.1	-	-	-
	Cv	Cv		Cv	Cv

See Table DAG-8 for Wide Open Cv Limits.
See Tables 3A through 3D and 4A through 4C for Cv vs. Build tables.

Inlet Pressure Range

Operating: 1–495 psig.
See Tables DAG-1A through -1H for design P vs. T limits for pressure containment. See Table 2 for maximum operating pressure to prevent diaphragm rupture.

1/2"–1" 1–450 psig 2" 1–300 psig
1-1/4"–1-1/2" ... 1–400 psig 2-1/2"–4" ... 1–225 psig
(See Table 1)

Pressure Drop Limits

3–495 psid
Function of service fluid, base trim material, and dynamic seal design. See Tables DAG-2 & DAG-3.

Temperature Range

-65 to +425°F
Limited by body/sp.ch. material combinations, and by elastomeric – diaphragm, seat, static seal, dynamic seal – materials. See Tables DAG-1A through -1H and Table DAG-5.

Inboard Leakage

Class II, IV and VI. Function of seat material, dynamic seal design and materials. See Tables DAG-9 and DAG-10.

Optional Constructions

<u>Opt-9:</u> TFE Diaph. Cover	<u>Opt-40:</u> NACE
<u>Opt-25:</u> 1/4" NPT Tap	<u>Opt-41:</u> Ext. Tube Ends
Spring Chmb.	<u>Opt-55:</u> Oxygen Cleaned
<u>Opt-30:</u> Weld-on Flanges	<u>Opt-56:</u> Special Cleaned
<u>Opt-32:</u> Ext. Pipe Nipples	<u>Opt-81:</u> High Outlet Pres.
<u>Opt-39:</u> Socketweld Ends	<u>Opt-85:</u> Pressure Taps
	<u>Opt-95:</u> Epoxy Paint

ABBREVIATIONS

FK = Fluorosilicone	NBR = Buna-N	TFE = Polytetrafluoroethylene
HK = Fluorocarbon Elastomer	RTFE = Brz-fill TFE	V-TFE = Virgin TFE
EPR = Ethylene Propylene	GF-TFE = Glass-fill TFE	CTFE = Chloro TFE
BC = Neoprene		

MATERIAL SPECIFICATIONS

Body

CI – ASTM A126, Grade B.
CS – ASTM A216, Grade WCB.
BRZ – ASTM B62, Alloy 83600,
 (85%-Cu, 5%-Sn, 5%-Pb, 5%-Zn).
SST – ASTM A351, Grade CF3M.
HC – ASTM A494, Gr. CW-12 MW.
 See DAG-1A through DAG-1H for material specs.

Spring Chamber

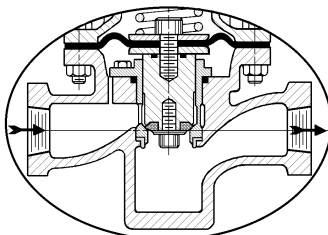
CI – ASTM A126, Gr. B.
CS – ASTM A285, Gr. C, ASTM A106, Gr. B,
 ASTM A108, C1018
BRZ – ASTM B62, Alloy 83600.
SST – ASTM A312, Gr. 316L, ASTM A479,
 Gr. 316L.

Metallic Trim

17-4PH SST, 316L SST, Monel, Hastelloy C.

Diaphragm

Elastomeric – BC, EPR, HK, FK, NBR, HK+TFE,
 Elastomeric TFE.
Metallic – 17-7PH SST, Be-Cu, 302 SST, Hastelloy C.



**Standard Flow Direction
 Composition Diaphragm
 FTC – Flow-to-Close
 Unbalanced at Outlet**

*NOTE: Neither cage static or dynamic
 seals absolutely required.*

Seat

PolyAll, V-TFE, GF-TFE, CTFE

Static Seals (See Fig. DAG-F1)

RTFE, NBR, HK, FK, EPR,
 TFE/SST U-Cup (1/2"-2"), V-TFE (2-1/2"-4")

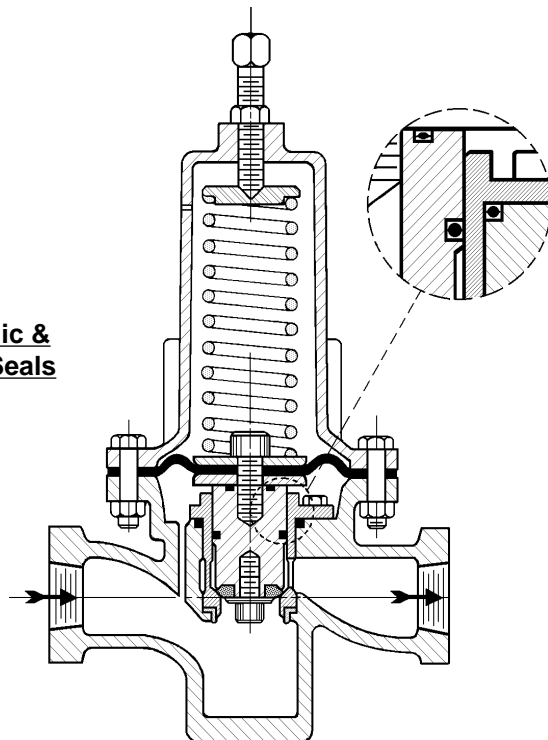
Dynamic Seals (See Fig. DAG-F1)

Cap – TFE + o-ring energizer; o-ring as above.
Wiper – (Not Available.)
PRA – GF-TFE + 316 SST energizer.
U-Cup – TFE + 301/302 SST energizer; TFE +
 Hastelloy C energizer.

Painting

CI & CS: **Std** – Enamel;
Opt-95 – Epoxy coating.
BRZ & SST: Unpainted.

Dynamic & Static Seals



**Reverse Flow Direction
 Composition Diaphragm
 FTO – Flow-to-Open
 Balanced at Outlet**

FIGURE 1 – Model DA5

OPTION SPECIFICATIONS

- OPT-9:** **TFE DIAPHRAGM COVER.** A 0.020 inch thick PTFE diaphragm is added to the selected diaphragm. PTFE diaphragm is exposed to fluid, providing added corrosive resistance. Use with metal or composition diaphragm.
- OPT-25:** **SPRING CHAMBER VENT TAP.** A 1/4" - FPT tap is located on spring chamber to allow for remote venting in case of diaphragm rupture. Primarily used when handling lethal or toxic fluids.
- OPT-30:** **FLANGED END CONNECTIONS.** CS, SST or HC body materials only. 1/2" – 1-1/2" body sizes only (no 1-1/4" HC body). Welded-on flange of same general chemistry as body. Available in ANSI 150# RF, 300# RF, 600# RF, DIN PN40 pressure classes; 900# RF and 1500# RF classes in 1/2" – 1" sizes only.
NOTES: 1. The body P vs. T ratings are the limiting variables for flanged end connections, unless further restricted by ASME B16.5.
2. No post-weld stress relieving performed.
- OPT-32:** **EXTENDED PIPE NIPPLES.** Sch. 160 plain end extension pipe nipples available for CS and SST bodies; for body sizes 1/2" – 2" only.
- OPT-39:** **SOCKETWELD END CONNECTIONS.** Available for CS, SST and HC body materials; for body sizes 1/2" – 2" only (no 1-1/4" HC body).
- OPT-40:** **NACE CONSTRUCTION.** Internal wetted portions meet NACE Std. MR0175-90 Revision; for application in sour gas/crude service. Exterior of unit to not be directly buried, insulated, or otherwise denied direct atmospheric exposure. CS/CS, SST/CS, or SST/SST body/spring chamber materials only. CF3M/316L SST trim materials only. Flange bolting of 316 SST material. Available in all end connections. All welded portions heat treated to stress relieve weldments.
- OPT-41:** **EXTENDED TUBE END CONN.** SST body material only. Body sizes 1/2"–1", 1-1/2" & 2" only. SST extension tubes are welded to body, ending in tube diameters with 0.065 inch wall thickness. NOT FOR HIGH PURITY REQUIREMENTS.
- OPT-55:** **SPECIAL CLEANING - GOX.** BRZ or SST body materials only. Cleaning, assembly and packaging per Cashco Spec No. S-1134, making unit suitable for oxygen service.
- OPT-56:** **SPECIAL CLEANING.** CI, CS or SST body materials only. Cleaning per Cashco Spec. No. S-1542. Higher cleaning level than std. commercial cleaning. NOT suitable for Oxygen Service.
- OPT-81:** **HIGH INLET PRESSURE.** Applies only to body sizes 1/2"–2". Selecting highest available range spring requires special spring chamber construction. Only available as CS or SST spring chamber materials.
- OPT-85:** **PRESSURE TAPS.** Provides inlet and outlet 1/4" - FPT taps with plugs (same basic material as body) on backside of body. Includes second remote sensing vent.
NOTES: 1. Not available for HC body.
2. Not available on 1-1/4" & 1-1/2" CS or SST bodies.
- OPT-95:** **EPOXY PAINTED.** Two-step epoxy coated for severe ambient conditions to minimize external corrosion. Applied to all exposed parts, except those of SST. Procedures and specifications per Cashco Spec. No. S-1547.

APPLICATION & SELECTION

Table XX: Denotes table within this technical bulletin

Table DAG-XX: Denotes table within General Technical Appendix, "DAG-TB", a separate technical reference.

Figure DAG-FX: Denotes figure within General Technical Appendix, "DAG-TB", a separate technical reference.

Following the procedure steps below will give a selection that will technically be correct.

1. **Correct Product.** Applications which have flow varying by a wide range will exhibit deviation in controlled P_1 -Inlet Pressure due to “build or accumulation effect”. They will be limited by range spring upper pressure limits and may be better served with pressure-loaded design.

These devices are not for pressure safety purposes; they are control devices.

2. **Prelim Cv Req'd.** Using a computer sizing program, calculate a Cv Req'd. Evaluate the velocities and estimated noise per Tables DAG-11 or DAG-13 limits.
3. **Diaphragm Type.** Determine by application whether a composition or metal diaphragm is required. Use a composition diaphragm whenever technically qualified, as a valve's Cv Available is much higher than a metal diaphragm in the same body; i.e. select smaller body sizes. TMax for composition diaphragm is 180°–350°F. From 350° < T_1 < 425°F only apply metal diaphragm. Reference Tables DAG-5 and DAG-14.
4. **Body Size.** Using Cv Req'd., go to Capacity Tables 3A through 3D and 4A through 4C for the diaphragm selected and determine the appropriate body size and range spring; always try to use “softest” range spring.
5. **Final Cv Req'd.** Repeat Step 2, previous, with the proper body size and its Cv Max per Table DAG-7.
6. **Metallic Materials.** Using suitable corrosion guides and SEP (Sound Engineering Practice) for the fluid handled, determine a compatible body and trim material. Spring chamber does not have to match body material as it is non-wetted. Select lowest acceptable spring chamber material.

Ensure that basic trim material does not exceed the pressure drop limits found in Table DAG-4 or 1500 psid, whichever is smaller.

7. **Inlet P vs. T vs. End Conns.** Ensure that body design pressure and temperature do not exceed the limits given in Tables DAG-1A through DAG-1H for the utilized end connection, and body/spring chamber materials.
8. **Inlet Pressure Limit.** Diaphragms are exposed to P_1 -Inlet Pressure. Though body inlet P vs. T ratings may be quite high (i.e. ANSI 1500#), the diaphragm will NOT withstand such pressure levels without bursting or mechanically “wrinkling” (i.e. metal diaphragm). Ensure that the P_1 Max does not exceed the limits in Table 2 for the diaphragm material selected.
9. **Seat Material.** Best shutoff at seat will be had when using PolyAll, as it is most resilient. Next best shutoff would be V-TFE, which is not resilient. Both GF-TFE and CTFE are “harder”, and will not provide as good seat leakage. See Table DAG-10 for leakage classes.

Using suitable elastomeric chemical resistance guides and SEP for the fluid handled, determine a compatible seat material. Table DAG-14 provides recommendations for some common fluids.

Ensure that the seat can withstand the P_1 -Inlet Pressure and the throttling ΔP -Pressure Drop limits of Table DAG-2,

and the min/max temperature limits of Table DAG-5.

10. **Diaphragm Material.** Using suitable elastomeric or metallic chemical resistance guides and SEP for the fluid handled, determine a compatible diaphragm material. Table DAG-14 provides recommendations for some common fluids.

Ensure that the diaphragm will be acceptable for the application's full temperature range, including all ambient conditions and process “upset” conditions. See Table DAG-5 for temperature limits.

Diaphragms are exposed to P_1 -Inlet Pressure. Though body inlet P vs. T ratings may be quite high (i.e. ANSI 1500#), the diaphragm has upper pressure limits that should not be exceeded. The diaphragm should not be exposed to pressures greater than the limits of Table 1, or it is possible to burst the diaphragm.

Any system with potential pressures greater than the limits of Table 1, should have a safety relief valve or rupture disc included in installation.

11. **Flow Direction.** There are advantages and disadvantages to each flow direction. Following are the primary considerations:

- **Standard Direction.** Flow-to-Close (FTC). No dynamic seal or cage static seal required. Use with unclean fluids. If P_2 -Outlet Pressure varies, this will cause the P_{sp} -Pressure Setpoint or crack-open pressure to vary, as the P_2 pressure pushes on the underneath side of the plug that has significant cross-section area. This design is “unbalanced”. Gives better seat leakage results. Recommended for partially cavitating applications.
- **Reverse Direction.** Flow-to-Open (FTO). Dynamic seal and cage static seal required. Use with clean fluids. This arrangement is “balanced to the outlet” in that P_2 -Outlet Pressure variations do not affect P_{sp} -Pressure Setpoint. Dynamic seal contributes to inboard leakage.

12. **Static Seal Material.** Try to make the static seal material to be “equivalent” of diaphragm material; i.e. EPR diaphragm and EPR o-ring seals, BC diaphragm and NBR o-ring seals, FK diaphragm and FK o-ring seals.

Using suitable elastomeric chemical resistance guide and SEP for the fluid handled, determine a compatible o-ring material. Table DAG-14 provides recommendations for some common fluids.

Ensure that the o-ring static seals will be acceptable for the application's full temperature range, including all ambient temperature conditions and process “upset” conditions. See Table DAG-5.

13. **Dynamic Seal Design & Materials.** Dynamic seal contributes to total inboard leakage together with seat leakage. If P_1 -to- P_2 inlet-to-outlet leakage is critical, reference Table DAG-10 for the inboard leakage rates for the various designs. Reference Fig. DAG-F1 for the various optional seal designs available. Reference Table DAG-3 for maximum ΔP -Pressure Drop and maximum P_1 -Inlet Pressure recommended for each dynamic seal design.

Wiper seals are NOT available for a Model DA5.

14. Sensing. All Fluids – When velocities exceed those “recommended” values from Table DAG-11 and when downstream pipe is two pipe sizes larger than valve body size, then external sensing is recommended.

Liquid – When partial cavitation is present, external sensing is recommended. (**NOTE: Full or Excessive Partial Cavitating applications are not approved; consult factory.**)

15. Installation Orientation. Gas–Steam – Any orientation.

Liquid – Inverted with a customer-supplied, field-installed vent valve at an external sensing connection to bleed-off trapped gas/air.

16. Strainer. Pipeline strainer is recommended before inlet to remove typical pipeline debris from entering valve and damaging internal “soft goods”, primarily the dynamic seal.

TECHNICAL SPECIFICATIONS

**TABLE 1
RANGE SPRINGS**

Body Size in.	Spring Range psig	Body Size in.	Spring Range psig
1/2", 3/4", 1"	1–5 *	2"	1–5 *
	1–10 *		1–10 *
	5–20 **		5–15 **
	10–35		10–30
	20–80		15–50
	30–150		30–90
70–200	50–150	2-1/2", 3", 4"	80–300
100–300	200–450		(Opt-81)√
200–450	(Opt-80)√		1–10 *
1-1/4", 1-1/2"	1–5 *	2-1/2", 3", 4"	5–20 **
	1–10 *		10–40
	5–20 **		10–70
	15–45		40–125
	10–70		50–225
	40–125		
70–200			
100–400			
	(Opt-80)√		

- * Composition diaphragm construction ONLY.
- √ OPT-81 must always include a CS or SST spring chamber.
- ** Metal diaphragm for P_{SP} ≥ 10 psig

**TABLE 2
P₁ MAX – MAXIMUM INLET PRESSURE ***

Diaphragm Material	Standard Diaphragm Construction			
	P ₁ Max – PRESSURE CONTAINMENT and FUNCTIONAL OPERATION – psig *			
	Body Size			
	1/2" – 1"	1-1/4" – 1-1/2"	2"	2-1/2" – 4"
BC, EPR	1200	1000	1000	600
HK (0.05"), FK, NBR, HK+TFE	300	300	300	225
TFE Elastomeric	125	125	125	125
All Metal	1500	1200	1200	N/A

* Maximum setting of pressure safety device – safety relief valve or rupture disc.

**TABLE 3A
FULL PORT FLOW CAPACITY – Cv
COMPOSITION DIAPHRAGM
F_L = 0.90**

Pressure Setpoint Psp psig	Cv Capacity @ % Build															Range Spring psig
	BODY SIZE 1/2" (DN15)					BODY SIZE - 3/4" (DN20)					BODY SIZE - 1" (DN25)					
	10%	20%	30%	40%	50%	10%	20%	30%	40%	50%	10%	20%	30%	40%	50%	
1	0.92	1.22	1.43	1.62	1.80	1.15	1.75	2.38	2.97	3.53	1.28	2.34	3.40	4.40	5.34	1-5
3	2.67	2.77	2.91	3.03	3.16	3.44	3.95	4.85	5.70	6.50	3.83	5.27	6.93	8.49	9.95	
5	3.40	-	-	-	-	4.97	-	-	-	-	5.53	-	-	-	-	
1	0.44	0.60	0.69	0.78	0.86	0.56	0.86	1.15	1.42	1.67	0.60	1.11	1.72	2.29	2.83	1-10
5	2.64	2.59	2.81	3.00	3.19	3.27	3.66	4.59	5.47	6.30	3.66	5.10	6.67	8.15	9.54	
10	3.40	-	-	-	-	4.76	-	-	-	-	5.23	-	-	-	-	
5	1.84	2.14	2.19	2.24	2.29	2.30	3.06	3.66	4.23	4.76	2.55	4.08	5.23	6.31	7.32	5-20
10	2.91	3.40	-	-	-	3.64	4.94	6.07	6.80	-	4.04	6.59	8.67	10.6	12.5	
15	3.40	-	-	-	-	4.40	6.80	-	-	-	4.89	9.10	11.3	12.8	-	
20	3.40	-	-	-	-	6.39	-	-	-	-	7.10	-	-	-	-	
10	0.88	1.25	1.52	1.78	2.02	1.11	1.79	2.53	3.24	3.90	1.23	2.38	3.61	4.77	5.86	10-35
20	1.96	2.68	3.05	3.40	-	2.45	3.83	5.09	6.28	6.80	2.72	5.10	7.27	9.30	11.2	
30	3.18	3.40	-	-	-	3.98	5.87	6.80	-	-	4.42	7.82	-	-	-	
35	3.40	-	-	-	-	4.59	-	-	-	-	5.10	-	-	-	-	
20	0.67	0.99	1.16	1.33	1.49	0.84	1.40	1.94	2.44	2.91	0.94	1.87	2.76	3.60	4.39	20-80
40	1.13	1.83	2.32	2.78	3.22	1.42	2.62	3.87	5.04	6.15	1.57	3.49	5.53	7.44	9.25	
60	2.39	3.24	3.40	-	-	2.98	4.62	6.07	6.80	-	3.32	6.16	8.67	11.0	-	
80	3.33	-	-	-	-	4.17	-	-	-	-	4.63	-	-	-	-	
30	0.61	0.89	1.07	1.24	1.40	0.77	1.28	1.79	2.26	2.72	0.85	1.70	2.55	3.35	4.10	30-150
50	1.07	1.56	1.79	1.99	2.19	1.34	2.24	2.98	3.67	4.32	1.49	2.98	4.25	5.45	6.58	
75	1.84	2.46	2.75	3.02	3.27	2.30	3.51	4.58	5.59	6.53	2.55	4.68	6.55	8.30	9.96	
100	2.33	3.13	3.39	3.40	-	2.91	4.46	5.65	6.77	6.80	3.23	5.95	8.08	10.1	12.0	
125	3.06	3.40	-	-	-	3.83	5.58	-	-	-	4.25	7.44	-	-	-	
150	3.37	-	-	-	-	4.21	-	-	-	-	4.68	-	-	-	-	
70	0.46	1.00	1.39	1.76	2.11	0.58	1.44	2.32	3.15	3.93	0.64	1.91	3.32	4.63	5.87	70-200
100	1.47	2.12	2.41	2.69	2.96	1.84	3.03	4.02	4.96	5.83	2.04	4.04	5.74	7.34	8.84	
125	1.99	2.72	3.03	3.33	3.40	2.49	3.89	5.06	6.15	6.80	2.76	5.19	7.23	9.14	10.9	
150	2.33	3.21	3.32	3.40	-	2.91	4.59	5.53	6.42	6.80	3.23	6.12	7.91	9.58	11.2	
175	2.85	3.40	-	-	-	3.56	5.68	-	-	-	3.95	7.57	-	-	-	
200	3.40	-	-	-	-	4.28	-	-	-	-	4.76	-	-	-	-	
100	0.49	0.67	0.71	0.75	0.79	0.61	0.96	1.19	1.41	1.61	0.68	1.28	1.70	2.10	2.48	100-300
150	0.80	0.99	1.02	1.05	1.08	0.99	1.40	1.70	1.98	2.24	1.11	1.87	2.42	2.94	3.43	
200	1.07	1.03	1.30	1.56	1.80	1.34	1.47	2.18	2.84	3.46	1.49	1.96	3.10	4.18	5.20	
250	1.41	1.43	-	-	-	1.76	2.04	-	-	-	1.96	2.72	-	-	-	
300	1.84	-	-	-	-	2.30	-	-	-	-	2.55	-	-	-	-	
200	1.51	2.16	2.49	2.80	3.10	3.03	4.33	4.97	5.58	6.15	4.32	7.23	9.01	10.7	12.3	
300	2.09	2.77	2.81	2.84	2.87	4.19	5.55	5.61	5.67	5.72	5.98	9.27	10.2	11.1	11.9	200-450 (Opt-80)
400	2.79	3.06	-	-	-	5.57	6.12	6.66	-	-	7.99	10.2	-	-	-	
450	2.91	-	-	-	-	5.81	-	-	-	-	8.33	-	-	-	-	

TABLE 3B
FULL PORT FLOW CAPACITY – Cv
COMPOSITION DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity @ % Build										Range Spring psig
	BODY SIZE 1-1/4" (DN32)					BODY SIZE 1-1/2" (DN40)					
	10	20	30	40	50	10	20	30	40	50	
1	1.78	2.91	3.83	4.69	5.50	1.87	3.23	4.51	5.70	6.83	1-5
3	4.04	6.89	9.61	12.2	14.6	4.25	7.65	11.3	14.7	18.0	
5	6.62	-	-	-	-	6.97	-	-	-	-	
1	0.86	1.42	1.85	2.26	2.64	0.88	1.55	2.18	2.78	3.35	1-10
5	3.91	6.67	9.27	11.7	14.0	4.12	7.40	11.0	14.3	17.5	
10	6.16	-	-	-	-	6.72	-	-	-	-	
5	2.26	4.05	5.59	7.04	8.40	2.38	4.51	6.59	8.55	10.4	5-20
10	4.85	8.67	11.5	14.1	16.6	5.10	9.69	13.5	17.1	20.5	
15	9.10	15.1	18.4	19.6	-	9.61	16.8	22.8	26.0	-	
20	13.26	-	-	-	-	14.0	-	-	-	-	15-45
15	3.79	6.89	9.10	11.2	13.1	4.00	7.65	10.7	13.6	16.3	
25	6.30	11.1	14.9	18.4	19.6	6.63	12.4	17.5	22.3	26.0	
35	8.76	15.2	19.6	19.6	-	9.27	16.9	23.4	26.0	-	10-70
45	12.07	-	-	-	-	12.8	-	-	-	-	
10	1.33	1.91	3.18	4.37	5.49	1.40	2.13	3.74	5.26	6.69	
30	3.63	6.35	8.67	10.9	12.9	3.83	7.06	10.2	13.2	15.9	40-125
50	6.26	10.7	14.0	17.1	19.6	6.59	12.0	16.6	20.9	24.9	
70	7.59	-	-	-	-	7.99	-	-	-	-	
40	2.18	4.36	5.99	7.53	8.97	2.30	4.85	7.06	9.13	11.1	70-200
50	3.23	5.66	7.58	9.39	11.1	3.40	6.29	8.93	11.4	13.7	
75	4.44	7.73	10.5	13.0	15.4	4.68	8.59	12.3	15.8	19.1	
100	5.85	9.95	13.1	16.0	18.8	6.16	11.1	15.5	19.5	23.4	100-400 (Opt-81)
125	7.27	-	-	-	-	7.65	-	-	-	-	
70	2.42	4.85	6.86	8.75	10.5	2.55	5.40	8.08	10.6	13.0	
100	3.95	5.66	8.50	11.2	13.7	4.17	6.29	10.0	13.5	16.9	100-400 (Opt-81)
125	4.56	8.42	11.7	14.8	17.8	4.80	9.35	13.9	18.1	22.1	
150	5.33	9.27	14.5	19.3	19.6	5.61	10.4	17.1	23.4	26.0	
175	6.05	11.3	-	-	-	6.38	12.6	-	-	-	100-400 (Opt-81)
200	7.43	-	-	-	-	7.82	-	-	-	-	
100	1.90	3.60	4.98	6.28	7.51	2.00	4.00	5.87	7.62	9.28	
200	4.04	6.81	10.5	14.0	17.3	4.25	7.57	12.4	17.0	21.2	100-400 (Opt-81)
300	5.85	11.1	15.6	19.6	-	6.16	12.3	18.4	24.2	26.0	
400	8.15	-	-	-	-	8.59	-	-	-	-	

TABLE 3C
FULL PORT FLOW CAPACITY – Cv
COMPOSITION DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity & % Build					Range Spring psig
	BODY SIZE 2" (DN50)					
	10%	20%	30%	40%	50%	
1	4.25	10.6	14.9	18.9	22.6	1-5
3	14.5	27.6	40.3	51	-	
5	23.4	-	-	-	-	
1	2.02	5.20	7.27	9.21	11.0	1-10
5	13.9	25.7	38.3	50	51	
10	22.1	-	-	-	-	
5	7.23	12.8	18.3	23.5	28.4	5-15
10	12.3	24.7	37.0	48.6	51.0	
15	20.1	-	-	-	-	
10	4.17	8.50	12.8	16.7	20.5	10-30
20	10.0	17.0	27.7	37.8	47.2	
30	17.0	-	-	-	-	
15	2.55	5.95	9.35	12.5	15.6	15-50
25	5.10	9.78	14.6	19.2	23.5	
35	7.40	15.1	22.5	29.5	36.0	
50	10.6	-	-	-	-	30-90
30	3.40	5.87	8.93	11.8	14.5	
60	6.97	12.8	18.7	24.3	29.6	
90	10.2	-	-	-	-	50-150
50	3.19	6.80	10.2	13.4	16.4	
75	5.10	11.8	15.2	18.4	21.4	
100	6.97	13.9	20.4	26.6	32.3	80-300 (Opt-81)
125	8.08	17.0	25.5	33.5	41.0	
150	10.6	-	-	-	-	
80	2.21	5.10	7.65	10.0	12.3	80-300 (Opt-81)
100	3.19	6.38	9.61	12.6	15.5	
200	6.80	12.8	19.1	25.1	30.8	
300	9.95	-	-	-	-	

TABLE 3D
FULL PORT FLOW CAPACITY – Cv
COMPOSITION DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity @ % Build															Range Spring psig
	BODY SIZE 2-1/2" (DN65)					BODY SIZE 3" (DN80)					BODY SIZE 4" (DN100)					
	10%	20%	30%	40%	50%	10%	20%	30%	40%	50%	10%	20%	30%	40%	50%	
1	4.12	6.33	8.46	10.5	12.3	5.95	11.1	17.0	22.6	27.9	12.8	19.1	25.5	31.5	37.1	1-10
3	8.46	16.0	24.9	33.3	41.2	12.8	24.2	34.0	43.2	52	17.0	34.0	51	67	82	
5	18.0	35.3	52	68	77	24.7	45.1	63	80	95	29.8	60	89	117	144	
10	31.9	-	-	-	-	53	-	-	-	-	64	-	-	-	-	
5	14.9	24.7	34.0	42.8	51	11.5	20.7	29.8	38.3	46.3	25.5	42.5	61	79	95	5-20
10	25.5	41.7	53	63	73	23.0	41.7	58	73	87	40.8	78	102	124	145	
15	36.1	57	71	77	-	38.3	65	87	102	-	64	106	136	164	187	
20	48.5	-	-	-	-	55	-	-	-	-	85	-	-	-	-	
10	14.9	27.6	40.4	52	64	11.9	21.3	30.3	38.9	46.9	21.3	40.8	57	72	86	10-40
20	26.4	46.8	60	73	77	29.4	51	68	84	99	43.4	86	116	144	170	
30	36.8	61	77	-	-	44.2	74	96	102	-	60	108	145	179	187	
40	51	-	-	-	-	57	-	-	-	-	89	-	-	-	-	
10	5.10	9.35	15.0	20.2	25.2	4.25	9.78	15.3	20.5	25.4	6.80	14.5	22	29	36	10-70
30	14.9	27.9	40.0	51	62	12.8	23.4	35.7	47.3	58	23.4	45.1	66	86	105	
50	24.5	44.2	60	76	77	23.8	45.1	61	76	91	41.2	80	112	143	171	
70	34.0	-	-	-	-	41.9	-	-	-	-	57	-	-	-	-	
40	6.38	15.7	23.0	29.7	36.1	10.2	20.4	29.8	38.5	46.8	21.3	36.1	48	60	71	40-125
50	10.6	21.3	31.5	41.0	50	14.5	27.6	39.1	49.9	60.0	25.1	40.8	57	72	86	
75	17.0	32.3	44.2	55	66	23.4	42.5	60	77	93	34.0	57	78	98	117	
100	22.4	42.5	58	72	77	30.6	55	77	96	102	40.8	71	97	122	145	
125	29.8	-	-	-	-	36.1	-	-	-	-	48.5	-	-	-	-	
50	8.29	17.0	25.2	32.8	40.0	11.6	22.1	31.3	39.9	48.0	20.1	32.6	46	58	70	50-225
100	18.7	35.3	47.6	59	70	25.3	45.9	64	81	96	33.8	59	81	102	121	
150	29.8	56	77	-	-	40.6	73	99	102	-	53	94	129	163	187	
225	39.6	-	-	-	-	48.5	-	-	-	-	65	-	-	-	-	

TABLE 4A
FULL PORT FLOW CAPACITY – Cv
METAL DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity @ % Build									Range Spring psig
	BODY SIZE 1/2" DN(15)			BODY SIZE 3/4" (DN20)			BODY SIZE 1" (DN25)			
	2.5%	5.0%	10.0%	2.5%	5.0%	10.0%	2.5%	5.0%	10.0%	
5	0.30	0.60	1.19	0.30	0.60	1.23	0.34	0.64	1.28	5–20
10	0.60	1.23	2.47	0.60	1.23	2.51	0.64	1.28	2.55	
15	1.15	2.21	2.60	1.15	2.21	2.60	1.19	2.25	3.00	
20	1.53	2.60	-	1.53	2.55	-	1.57	2.98	-	
10	0.21	0.38	0.94	0.21	0.38	0.98	0.26	0.43	1.02	10–35
20	0.55	1.02	2.13	0.55	1.02	2.17	0.60	1.06	2.21	
30	0.98	1.87	-	0.98	1.87	-	1.02	1.91	-	
35	1.11	-	-	1.11	-	-	1.15	-	-	
20	0.13	0.30	0.60	0.13	0.30	0.64	0.17	0.34	0.68	20–80
40	0.38	0.77	1.53	0.38	0.77	1.57	0.43	0.81	1.62	
60	0.64	1.40	2.60	0.64	1.40	2.60	0.68	1.45	2.89	
80	1.06	-	-	1.06	-	-	1.11	-	-	
30	0.13	0.30	0.55	0.13	0.30	0.60	0.17	0.34	0.64	30–150
50	0.26	0.55	1.06	0.26	0.55	1.11	0.30	0.60	1.15	
75	0.47	0.98	1.83	0.47	0.98	1.87	0.51	1.02	1.91	
100	0.60	1.19	2.38	0.60	1.19	2.47	0.60	1.23	2.55	
125	0.98	1.91	2.60	0.98	1.91	2.60	1.02	1.96	3.00	
150	1.15	-	-	1.15	-	-	1.19	-	-	
70	0.13	0.21	0.43	0.13	0.21	0.43	0.13	0.21	0.43	70–200
100	0.34	0.77	1.53	0.34	0.77	1.57	0.38	0.81	1.62	
125	0.55	1.11	2.13	0.55	1.11	2.17	0.60	1.15	2.25	
150	0.68	1.40	2.42	0.68	1.40	2.47	0.72	1.40	2.72	
175	0.77	1.53	2.60	0.77	1.53	2.60	0.81	1.57	3.00	
200	0.98	-	-	0.98	-	-	1.02	-	-	
100	0.21	0.43	0.81	0.21	0.43	0.81	0.21	0.43	0.81	100–300
150	0.38	0.68	1.28	0.38	0.68	1.32	0.43	0.72	1.36	
200	0.47	0.89	1.57	0.47	0.89	1.62	0.51	0.94	1.70	
250	0.64	1.15	2.00	0.64	1.15	2.08	0.68	1.19	2.17	
300	0.72	-	-	0.72	-	-	0.77	-	-	
200	0.81	1.87	2.60	0.81	1.87	2.60	0.85	1.91	3.00	
300	1.45	2.60	-	1.45	2.55	-	1.49	2.98	-	200–450 (Opt-81)
400	2.25	2.60	-	2.30	2.55	-	2.34	2.98	-	
450	2.60	-	-	2.60	-	-	3.00	-	-	

TABLE 4B
FULL PORT FLOW CAPACITY – Cv
METAL DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity @ % Build						Range Spring psig
	BODY SIZE 1-1/4" (DN32)			BODY SIZE 1-1/2" (DN40)			
	2.5%	5.0%	10.0%	2.5%	5.0%	10.0%	
5	0.55	1.02	2.04	0.60	1.06	2.13	5–20
10	1.23	2.47	4.34	1.28	2.55	4.51	
15	2.34	4.68	5.10	2.38	4.76	5.10	
20	3.91	-	-	4.00	-	-	
15	0.81	1.62	3.02	0.85	1.70	3.19	15–45
25	1.40	2.72	4.97	1.45	2.89	5.10	
35	1.91	3.74	5.10	1.96	3.91	5.10	
45	2.89	-	-	2.98	-	-	
10	0.30	0.60	1.11	0.30	0.60	1.15	10–70
30	0.81	1.57	3.02	0.85	1.66	3.19	
50	1.62	3.15	5.10	1.66	3.27	5.10	
70	2.30	-	-	2.38	-	-	
40	0.55	1.06	2.04	0.55	1.11	2.21	14–125
50	0.72	1.40	2.59	0.72	1.45	2.76	
75	1.06	2.13	4.08	1.11	2.21	4.25	
100	1.40	2.85	4.93	1.49	2.98	5.10	
125	1.83	-	-	1.91	-	-	70–200
70	0.55	1.06	1.96	0.55	1.11	2.13	
100	0.94	1.70	3.23	0.94	1.79	3.40	
125	1.06	2.00	3.78	1.11	2.08	3.95	
150	1.19	2.25	4.38	1.23	2.38	4.59	
175	1.40	2.72	4.97	1.49	2.85	5.10	
200	1.79	-	-	1.87	-	-	100–400 (Opt-81)
100	0.55	0.98	1.66	0.55	1.02	1.70	
200	1.06	2.00	3.78	1.11	2.08	3.95	
300	1.45	2.81	4.97	1.53	2.89	5.10	
400	2.13	-	-	2.21	-	-	

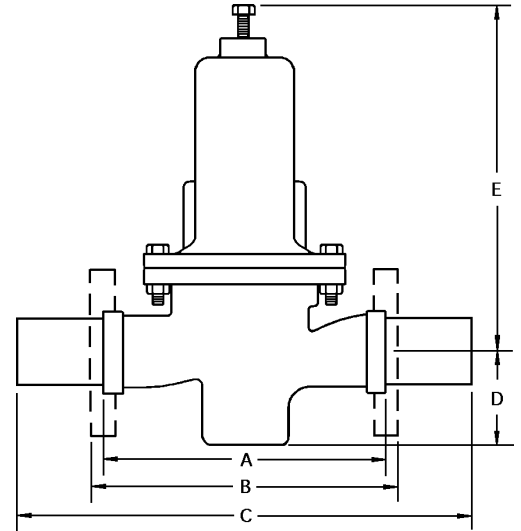
TABLE 4C
FULL PORT FLOW CAPACITY – Cv
METAL DIAPHRAGM
 $F_L = 0.90$

Pressure Setpoint Psp psig	Cv Capacity @ % Build			Range Spring psig
	BODY SIZE 2" (DN50)			
	2.5%	5.0%	10.0%	
5	2.13	4.25	6.38	5–15
10	3.83	7.65	10.20	
15	4.25	-	-	
10	0.94	1.79	3.40	10–30
20	2.13	4.25	8.50	
30	3.91	-	-	
15	0.55	1.06	2.13	15–50
25	1.06	2.13	4.25	
35	1.62	3.19	6.38	
50	2.55	-	-	
30	0.72	1.40	2.64	30–90
60	1.45	2.76	5.53	
90	2.13	-	-	
50	0.68	1.32	2.64	
75	1.06	2.13	4.25	
100	1.49	2.98	5.95	
125	1.91	3.83	7.52	
150	2.47	-	-	
80	0.49	0.96	1.91	80–300 (Opt-81)
100	0.64	1.28	2.55	
200	1.49	2.85	5.65	
300	2.13	-	-	

**TABLE 5
DIMENSIONS AND WEIGHTS - English Units**

Dimen.	End Conn.	Body Mat'l	Body Size					
			1/2", 3/4" & 1"	1-1/4" & 1-1/2"	2"	2-1/2"	3"	4"
A	NPT	CI, BRZ	6.00	9.88	9.88	X	X	X
		CS, SST, HC	8.25	9.88	9.88			
	OPT-39 SW	CS, SST, HC	8.13	9.75	9.75			
B	125# FF	CI	X			10.88	11.75	13.88
	250# RF	CI	X			11.50	12.50	14.50
	150# FF	BRZ	9.63	11.50	11.50	10.88	11.75	13.88
	300# FF	BRZ	9.63	11.50	11.50	11.50	12.50	14.50
	150# RF	CS, SST, HC *	10.75	12.38	10.00	10.88	11.75	13.88
	300# RF	CS, SST, HC *	10.75	12.38	10.50	11.50	12.50	14.50
	600# RF	CS, SST	10.75	12.38	11.25	12.25	13.25	15.50
	1500# RF	CS, SST	11.50	—	14.5	X		
C	Opt-32 EXT NIPS	CS, SST	14.0	15.75	15.75	X		
D	All	All	2.56	3.69	4.00	5.25	5.75	7.00
E	All	All	12.38	14.25	16.00	26.50	27.25	27.75
E (Opt-81)	All	All √	12.38	14.25	16.00	—	—	—
			DN15, 20, 25	DN32, 40	DN50	DN65	DN80	DN100
B	DIN PN 16/25/40	CS, SST, HC*	*	*	*	—	—	—
	DIN PN25	CS, SST	X					
	PN40	CS, SST	X					
	Approx. Weight	w/Flanges	All	30	45	55	—	—
	w/Flanges	All	35	55	68	100	175	190

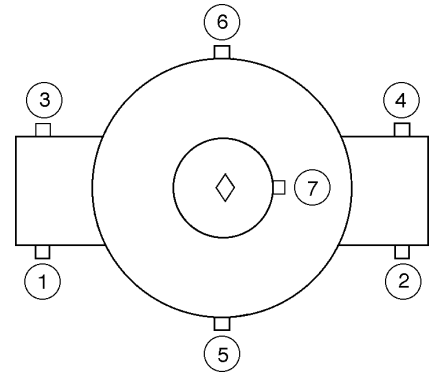
*Hastelloy-C body material available in sizes 1", 1-1/2", & 2" ONLY.
√ Spring Chamber of CS or SST ONLY, regardless of body material.



DIMENSIONS AND WEIGHTS - METRIC UNITS

Dimen.	End Conn.	Body Mat'l	Body Size					
			DN15, DN20 & DN25	DN32 & DN40	DN50	DN65	DN80	DN100
A	NPT	CI, BRZ	152	251	251	X	X	X
		CS, SST, HC	210	251	251			
	OPT-39 SW	CS, SST, HC	207	248	248			
B	PN20 FF	CI	X			276	298	353
	PN50 RF	CI	X			292	318	368
	PN20 FF	BRZ	245	292	292	276	298	353
	PN50 FF	BRZ	245	292	292	295	318	368
	PN20 RF	CS, SST, HC *	273	314	254	276	298	353
	PN50 RF	CS, SST, HC *	273	314	267	292	318	368
	PN110 RF	CS, SST	273	314	286	311	337	394
	PN260 RF	CS, SST	292	—	368	X		
C	Opt-32 EXT NIPS	CS, SST	356	400	400	X		
D	All	All	65	94	102	133	146	178
E	All	All	314	362	406	673	692	705
E (Opt-81)	All	All √	314	362	406	—	—	—
			DN15, 20, 25	DN32, 40	DN50	DN65	DN80	DN100
B	DIN PN 16/25/40	CS, SST, HC*	*	*	*	—	—	—
	DIN PN25	CS, SST	X					
	PN40	CS, SST	X					
	Approx. Weight	w/Flanges	All	13.6	20.5	25.0	—	—
	w/Flanges	All	15.9	25.0	30.9	45.5	79.6	86.4

* Hastelloy-C body material available in sizes DN 25, 40, 50 ONLY.
√ Spring Chamber of CS or SST ONLY, regardless of body material.



PRESSURE TAP LOCATIONS							
Body Mat'l.	①	②	③	④	⑤	⑥	⑦
CI	Std	Std	Opt-85	Opt-85	Std	Opt-85	Opt-25
BRZ	Std	Std	Std	Opt-85	Std	Opt-85	Opt-25
CS *	Std	Std	Opt-85	Opt-85	Std	Opt-85	Opt-25
SST *	Std	Std	Opt-85	Opt-85	Std	Opt-85	Opt-25
HC	N/A	N/A	N/A	N/A	√	N/A	Opt-25

* N/A on body sizes 1-1/4" and 1-1/2".
√ Coded as "external".

PRODUCT CODE

11-14-00

* For GOX service; PolyAll seat NOT ALLOWED in SST body; Allowed in BRZ body only with Code "M" or "T" trim materials.

DIAPH MAT'L	SEAT				SERVICE GUIDE	SEAT			DIAPH √ MAT'L
	POLYALL	GF-TFE	V-TFE	CTFE		POLYALL	GF-TFE	V-TFE	
	CODE	CODE	CODE	CODE		CODE	CODE	CODE	
BC	D	E	F	G	← WOG →	T	U	V	17-7PH
EPR	G	H	I	J		Y	Z	1	Be-Cu
NBR	F	9	-	-	← OXYGEN PROCESS CHEMICAL →	T	U	V	17-7PH SST
FK	J *	K	L	M		6	7	8	HC
HK .050	M	N	P	Q	STEAM - psig	-	3	-	302SST
HK+TFE	Q	R	S	T	P ₁ MAX≤125 psig	-	U	-	17-7PH SST
ELAST.TFE	-	B	C	@	STEAM - psig	-	-	-	-
					P ₁ MAX≤150 psig				

√ Minimum P₂ = 10 psig for metal diaphragm.

BC = Neoprene
EPR = Ethylene Propylene
NBR = Buna-N
FK = Fluorosilicone
HK = Fluorocarbon Elast.
V-TFE = Virgin TFE
CTFE = ChloroTFE
GF-TFE = Glass-fill TFE
RTFE = Brz-fill TFE
PRA = GF-TFE + 316L SST (Piston Ring Assy.)
TFE = Polytetrafluoroethylene
Polyall = Polyurethane

TABLE 3A

METALLIC TRIM MATERIALS	
PLUG / CAGE / PISTON	CODE
17-4 PH SST	P
Monel	M
316L SST	S
Hastelloy C *	H
17-4PH SST/Monel/17-4PH SST	T

* Sizes 1/2" - 2", Except NO 1-1/4"

TABLE 2

BODY / SPRING CHAMBER MATERIALS			
MATERIALS	CODE	MATERIALS	CODE
CI/CI	1	CS/CI	4
CI/CS *	C	CS/CS	5
BRZ/CI - 400 WOG √	2	SST/CI	7
BRZ/BRZ - 500 WOG √	3	SST/CS	9
^ BRZ/BRZ - 700 WOG	B	SST/SST	A
*BRZ/SST - 700 WOG ^	D	HC/CS √√	G
*BRZ/SST - 500 WOG √	R	HC/SST √√	H

* With Opt-80 √ If Flanged ^ Sizes 1/2" - 2"
√√ Sizes 1/2"-2", Except NO 1-1/4"

TABLE 1

BODY SIZE			
SIZE	DIAPHRAGM SUPPORT	SIZE	DIAPHRAGM SUPPORT
	STD		STD
	CODE		CODE
1/2"	4	2"	9
3/4"	5	2-1/2"	A
1"	6	3"	B
1-1/4"	7	4"	C
1-1/2"	8		

Size & Diaph. Const.

Diaph. & Seat Mat'l's.

Seals

Metallic Trim

Body & Spring Chamber Mat'l.

TABLE 4

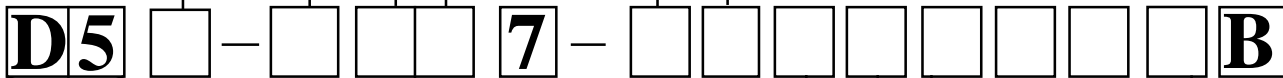
SERVICE GUIDE	STATIC	SEALS			
		DYNAMIC			
		Type "CP" (Cap)	Type "PR" (PRA)	Type "UC" - SST/TFE (U - Cup)	Type "UC" - HC/TFE (U - Cup)
		CODE	CODE	CODE	CODE
WOG	NBR	E	-	-	-
	EPR	T	-	-	-
OXYGEN	FK	N	-	-	-
	HK	H	-	K	L ***
PROCESS	SST/TFE **	-	-	8 √	-
	V-TFE	-	-	W √√	Y ***
STEAM	RTFE	-	A	C	-

* Elastomeric cap seal energizer same as static seal material. **U-cup static seals.
√ Body sizes 1/2" - 2" only. √√ Body sizes 2-1/2" - 4" only.
*** Hastelloy-C body only.

TABLE 5

APPLICABLE BODY		END CONNECTIONS						
SIZES	MATERIALS	END CONN METHODS	END CONN	CODE	END CONN	CODE	END CONN	CODE
1/2"-2"	ALL	-	NPT	1	-	-	√ BSP	P
2-1/2"-4"	CI	Integral	125# FF	2	250# RF	3	-	-
1", 1-1/2"-4"	BRZ	Integral	150# FF	6	300# FF	7	-	-
1/2" - 1-1/2"	CS, SST	OPT-30	150# RF	4	300# RF	5	600# RF	8
2"-4"	CS, SST	Integral						
1/2"-1", 1-1/2"	HC	OPT-30	900# RF	9	1500# RF	F	-	-
2"	HC	Integral						
1/2" - 1"	CS, SST	OPT-30	Ext. Nips.	E	-	-	-	-
1/2"-2"	CI, BRZ, CS, SST	OPT-31						
1/2"-2"	CS, SST	OPT-32	SW	W	-	-	-	-
1/2"-1", 1-1/2", 2"	H-C	OPT-39	Ext. Tube	T	Non-High Purity; Industrial			
1/2"-1", 1-1/2", 2"	SST	OPT-41	PN16 FF	K	PN25 FF	L	PN40 FF	M
DN65-100	BRZ	Integral	PN16 FF	K	PN25 FF	L	PN40 FF	M
DN15-25, 40, 50	CS, SST, H-C	OPT-30	PN16 FF	A	PN25 FF	C	PN40 FF	D
DN65-100	CS, SST	Integral	PN16 RF	A	PN25 RF	C	PN40 RF	G

* Sizes DN15-DN50 PN16, PN25, PN40 pressure classes have identical bolt circles. √ Opt - 31
Valve supplied as PN40 ONLY; will mate w/all three PN's.



MODEL DA5 (Series V) BACK PRESSURE REGULATOR - BPV

TABLE 6

RANGE SPRINGS					
APPLIC. BODY SIZES	PRESSURE RANGE - psig	CODE	APPLIC. BODY SIZES	PRESSURE RANGE - psig	CODE
1/2", 3/4", & 1"	1 - 5 √	1	2"	1 - 5 √	1
	1 - 10 √	S		1 - 10 √	S
	5 - 20	A		5 - 15	M
	10 - 35	B		10 - 30	N
	20 - 80	C		15 - 50	P
	30 - 150	D		30 - 90	Q
	70 - 200	E		50 - 150	R
	100 - 300	F		80 - 300 *	Z
	200 - 450 *	G		1 - 10 √	S
					5 - 20
1-1/4" & 1-1/2"	1 - 5 √	1	2-1/2", 3" & 4"	10 - 40	T
	1 - 10 √	S		10 - 70	J
	5 - 20	A		40 - 125	K
	15 - 45	H		50 - 225	3
	10 - 70	J			
	40 - 125	K			
70 - 200	E				
100 - 400 *	Y				

* Selecting Opt-81 High Inlet Pressure; CS or SST Sp. Ch. ONLY.
√ Composition diaphragm only.

TABLE 7

SENSING & FLOW DIRECTION		
SENSING	FLOW DIRECTION	
	STD	REVERSE
	FTC	FTO
	CODE	CODE
Internal	1	5
External	2	6
Large Internal	4	8

TABLE 8

OPTION	DESCRIPTION	CODE
OPT-9	TFE Diaphragm Cover, 0.020"	2
OPT-25	1/4" Female NPT Sp. Ch. Vent Tap.	E
OPT-40	NACE Construction (Body/Sp. Ch.); CS/CS, SST/CS, SST/SST.	J
OPT-55	Special Cleaning, Oxygen Service (BRZ or SST body ONLY); per Spec. #S-1134.	M
OPT-56	Special Cleaning (All body mat'l's.); per Spec #S-1542.	N
OPT-85	Pressure Taps, Inlet, Outlet, Sensing; 1/4" FPT, Plugs.	T
OPT-95	Epoxy Paint.	W

* Composition diaphragm only.
√ Not available in body sizes 1-1/4" & 1-1/2" with CS, SST.
Not available with HC body in all sizes

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