

MODEL C-PRV

PRESSURE REDUCING REGULATOR

OVERVIEW

The Model C-PRV* is a 316L SST self-contained pressure reducing regulator designed for liquid or gaseous fluids utilized in sanitary biotechnological process piping systems. The unit is capable of controlling outlet pressure between 2-125 psig (0.14 - 8.6 Barg) with a maximum inlet pressure of 175 psig (12.1 Barg).

FEATURES

Clean-in-Place (CIP):	Patented lock-open feature on the spring chamber area allows the regulator to be cleaned with 50 psig (3.4 Barg) cleaning solution.
Steam-in-Place (SIP):	The combination of materials allows for steam-in-place up to 20 psig (1.4 Barg) of saturated steam.
Self-Draining:	Angle style body with bottom inlet and side outlet.
Readily Accessible:	Unit can be easily and quickly disassembled in line for inspection and manual cleaning without the use of tools.
Surface Finish:	Interior of body mechanically polished and electro-polished per ASME BPE (SF4). Exterior surfaces are electro-polished.
Wetted Materials Construction:	All metallic wetted parts of 316L SST. All diaphragms and some plug/stem selections are of non-metallic materials. Unit is cleaned to Cashco Spec. #S-1576.
Dual Guided Plug:	Combines a "winged" guide design directly above the seat and a "non-wetted" guide above the diaphragm.
3A Construction:	Selection of the metallic plug/stem constructions meets 3A Sanitary Standards, Authorization No. 782.



APPLICATIONS

Used in pharmaceutical industry in production of many health care products for both human and animal consumption. Widely applied for processed food production — candy, beverages, nutritional supplements and artificial sweeteners. May also be used in cosmetics production and specialty chemicals.

Would be found supporting fermenters, batching tanks, cookers, dryers, sterilizers SIP systems, autoclaves, WFI systems and other similar equipment.

* Patented



MODEL C-PRV



LINE SIZES AVAILABLE

1" (DN25), 1-1/2" (DN40), 2" (DN50), 3" (DN80)



END CONNECTIONS

SANITARY "TRI-CLAMP"



COMMON APPLICATIONS

PHARMACEUTICAL INDUSTRY,
PROCESSED FOOD PRODUCTION,
COSMETIC PRODUCTION, SPECIALTY
CHEMICALS



DESIGN PRESSURE

INLET: UP TO 175 psig (12.1 Barg)
OUTLET: UP TO 150 psig (10.3 Barg)

SPECIFICATIONS

Body Connections: Sanitary "Tri-Clamp®" designed to seal against weld-type clamp liners per ISO 2852. (Lower inlet, side outlet connection.)

Body Size and Material: **1", 1-1/2", 2" and 3" (DN25, 40, 50 and 80) sizes.** Wrought Barstock; ASTM A479, Type 316L SST.

1" (DN25) size only. ASTM A351, Gr. CF3M; Investment Cast 316L SST. Includes reduced orifice as standard construction. See capacity specifications.

Surface Finish: Interior of body mechanically polished and electro-polished per ASME BPE SF4. Exterior surfaces are electro-polished.

Spring Chamber: ASTM A351, Gr. CF8M; Cast 316 SST. Electro-polished.

Diaphragm Clamp: 304 SST Tri-Clamp® 1-piece design with thumbscrew fastener.
Alternate: See Opt.-80

Body Design Pressure Rating: Inlet and Outlet - **See Table 1a-1b.**

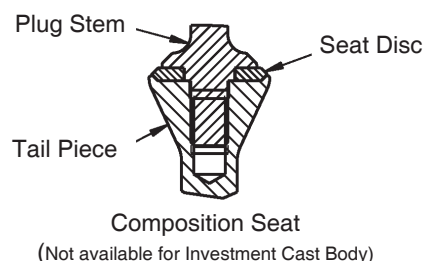
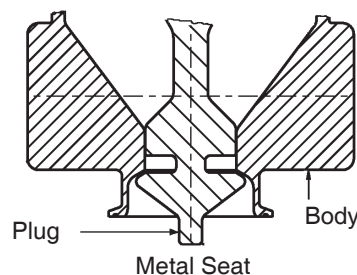
Operating Temperature: **See Table 1a-1b.**

Range Springs: SST Material.
NOTE: Contact the factory for settings below 2 psig (.14 Barg).

Maximum Allowable Pressure Drop: Pressure Drop is function of range spring and setpoint pressure utilized;
See Table 3.

Max. Allowable Pressure Drop	Spring Range
60 psid (4.1 Bard)	2-15 psig (.14 - 1.0)
90 psid (6.2 Bard)	10-30 psig (.69 - 2.1)
125 psid (8.6 Bard)	20-75 psig (1.4 - 5.2)
125 psid (8.6 Bard)	60-125 (4.1 - 8.6)

Wetted Trim Materials: 316L SST. **See Table 2.**



Maximum CIP Conditions ALL Trims: Maximum Cleaning Fluid: Pressure = 50 psig (3.4 Barg); Temperature = 300°F (149°C).

Maximum SIP Conditions LE/LV/LC/LF Trims: Maximum Steaming Fluid: Saturated; Recommended Pressure at 20 psig (1.4 Barg); Acceptable Pressure to 30 psig (2.1 Barg), but with reduced elastomer life.

Continuous Steam Service GG/GH/GR Trims: **See Table 1b.**

Up to 27 Cv. **See Table 3 for Cv Capacity vs. Droop.**

Maximum Cv with Plug Locked Wide Open (Use for Relief Valve Sizing and Initial Flow into an evacuated chamber.)

Body Size		Body Configuration (Port)	Cv
inch	(DN)		
1"	(25)	Investment Cast (Reduced)	3.2
1"	(25)	* (Full)	6.0
1-1/2"	(40)	* (Reduced)	9.5
1-1/2"	(40)	* (Full)	14.0
2"	(50)	* (Full)	20.0
3"	(80)	* (Full)	27.0
* Barstock			

Capacity:
Non-Wetted Trim Materials: Castings - CF8M (316 SST)
Barstock - 18-8 SST
All cast parts electro-polished.

Special Cleaning: All units are cleaned per Cashco Spec. #S-1576.

OPTION SPECIFICATIONS

Option -4: TEE HANDLE. SST material.
Utilize for frequent setpoint changes.

Option -80: TRI-CLAMP - 2 PIECE BOLTED.
SST bolts and fastener designed for higher pressure and temperature ratings. Required for Use with "GG/GH/GR" Trim. (See Table 1b.) (Wrenches required for disassembly.)

TECHNICAL SPECIFICATIONS

TABLE 1a
MAXIMUM INLET & OUTLET PRESSURE VS. TEMPERATURE RATINGS
With LE / LV / LF TRIMS

Body & Port Size	Max. Inlet		Max. Outlet		Temperature Range	
1 PIECE THUMBSCREW CLAMP (Standard)						
1" Reduced & Full Port, 1-1/2" Reduced Port	psig	(Barg)	psig	(Barg)	°F	°C
	175	(12.1)	150	(10.3)	+40 to +300	(+4 to +149)
1-1/2" Full Port, 2", 3"	175	(12.1)	150	(10.3)	+40 to +70	(+4 to +21)
			75	(5.2)	+40 to +300	(+4 to +149)
2 PIECE BOLTED CLAMP - Opt -80 on Lower Spring Ranges, - Standard on 60-125 psig spring range.						
1" Reduced & Full Port, 1-1/2" Reduced Port 1-1/2" Full Port, 2", 3"	175	(12.1)	150	(10.3)	+40 to +300	(+4 to +149)

TABLE 1b
MAXIMUM INLET & OUTLET PRESSURE VS. TEMPERATURE RATINGS
for CONTINUOUS STEAM SERVICE
With GG / GH / GR TRIM

Body & Port Size	Max. Inlet		Max. Outlet		Temperature Range	
2 PIECE BOLTED CLAMP - OPT-80 - Standard all spring ranges						
1" Reduced & Full Port, 1-1/2" Reduced Port 1-1/2" Full Port, 2", 3"	psig	(Barg)	psig	(Barg)	°F	°C
	125	(8.6)	80	(5.5)	+40 to +353	(+4 to +178)

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

TABLE 2 Trim Material Combinations			
Part	Metal Seat Trim Designation Nos. *		
	LE	LV	GG
Diaphragm**	EPDM	FKM	Gylon
Diaphragm Gasket	N/A	N/A	TFE/AL-Silicate
Stem & Plug	316L SST		
Part	Composition Seat Trim Designation Nos.		
	LF ***	GH ***	GR ***
Diaphragm **	EPDM	Gylon	Gylon
Diaphragm Gasket	N/A	N/A	TFE/AL- Sili- cate
Seat **	TFE	TFE	Rulon 641
Guide / Tail Piece	316L SST		
GG, GH & GR trim may be used on continuous steam service. See Opt-80			
* 3A Approved			
** Materials conform with FDA Code of Federal Regulations Title 21, Part 177.			
*** Not Available in 1" Reduced Port			

TECHNICAL SPECIFICATIONS
TABLE 3
CAPACITY - Cv (F_L = 0.85)

2-15 psig range spring											
		1" (DN25) Reduced Port Rated Cv 3.2			1" (DN25) Full Port Rated Cv 6			1-1/2" (DN40) Reduced Port Rated Cv 9.5			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	10%	Droop 20%	30%	10%	Droop 20%	30%	10%	Droop 20%	30%	
65	5	0.75	1.07	1.38	0.64	1.12	1.60	0.92	1.42	1.91	60
70	10	1.00	1.62	2.27	1.11	2.06	2.98	1.42	2.42	3.44	60
75	15	1.24	2.19	3.12	1.58	2.95	4.30	1.91	3.44	4.97	60
		1- 1/2" (DN40) Full Port Rated Cv 14			2" (DN50) Full Port Rated Cv 20			3" (DN80) Full Port Rated Cv 27			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	10%	Droop 20%	30%	10%	Droop 20%	30%	10%	Droop 20%	30%	
65	5	1.53	2.64	3.78	2.32	3.99	5.66	2.80	4.82	6.87	60
70	10	2.63	4.90	7.14	3.98	7.34	10.76	4.83	8.92	13.04	60
75	15	3.77	7.11	10.74	5.62	10.74	15.95	6.87	13.05	19.33	60
10-30 psig range spring											
		1" (DN25) Reduced Port Rated Cv 3.2			1" (DN25) Full Port Rated Cv 6			1-1/2" (DN40) Reduced Port Rated Cv 9.5			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	10%	Droop 20%	30%	10%	Droop 20%	30%	10%	Droop 20%	30%	
100	10	0.78	1.42	2.09	1.12	2.10	3.06	1.09	1.75	2.42	90
105	15	1.09	2.07	3.07	1.60	3.03	4.43	1.42	2.42	3.45	90
110	20	1.39	2.71	3.12	2.07	3.93	5.85	1.75	3.01	4.48	90
115	25	1.70	3.04	3.12	2.52	4.82	5.85	2.09	3.79	5.49	90
120	30	2.01	3.04	3.12	2.95	5.70	5.85	2.42	4.46	6.49	90
		1- 1/2" (DN40) Full Port Rated Cv 14			2" (DN50) Full Port Rated Cv 20			3" (DN80) Full Port Rated Cv 27			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	10%	Droop 20%	30%	10%	Droop 20%	30%	10%	Droop 20%	30%	
100	10	1.81	3.21	4.65	2.74	4.83	6.95	3.32	5.86	8.44	90
105	15	2.51	4.64	6.74	3.77	6.93	10.14	4.59	8.44	12.32	90
110	20	3.21	6.03	8.87	4.80	9.05	13.38	5.86	11.02	16.24	90
115	25	3.92	7.40	11.26	5.84	11.20	16.65	7.15	13.61	20.20	90
120	30	4.61	8.82	13.65	6.89	13.35	19.50	8.44	16.24	24.19	90

**TABLE 3 (Cont.):
CAPACITY - Cv (F_L = 0.85)**

20-75 psig range spring											
		1" (DN25) Reduced Port Rated Cv 3.2			1" (DN25) Full Port Rated Cv 6			1-1/2" (DN40) Reduced Port Rated Cv 9.5			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	Droop			Droop			Droop			
		10%	20%	30%	10%	20%	30%	10%	20%	30%	
150	25	0.85	1.57	2.32	1.25	2.33	3.39	1.60	2.79	4.05	125
160	35	1.14	2.15	3.12	1.68	3.16	4.62	2.07	3.79	5.51	125
170	45	1.40	2.73	3.12	2.09	3.95	5.85	2.55	4.76	6.94	125
175	55	1.68	3.04	3.12	2.49	4.76	5.85	3.03	5.70	8.40	125
175	65	1.95	3.04	3.12	2.88	5.63	5.85	3.51	6.64	9.26	125
175	75	2.22	3.04	3.12	3.26	5.70	5.85	3.99	7.56	9.26	125
		1- 1/2" (DN40) Full Port Rated Cv 14			2" (DN50) Full Port Rated Cv 20			3" (DN80) Full Port Rated Cv 27			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	Droop			Droop			Droop			
		10%	20%	30%	10%	20%	30%	10%	20%	30%	
150	25	2.47	4.57	6.66	3.74	6.84	9.99	4.52	8.30	12.11	125
160	35	3.30	6.23	9.19	4.96	9.34	13.81	6.01	11.33	16.73	125
170	45	4.14	7.85	12.06	6.18	11.88	17.68	7.54	14.40	21.41	125
175	55	4.95	9.59	13.65	7.42	14.42	19.50	9.06	17.52	26.14	125
175	65	5.77	11.50	13.65	8.66	16.99	19.50	10.58	20.63	26.33	125
175	75	6.56	13.30	13.65	9.91	19.00	19.50	12.10	23.75	26.33	125
60-125 psig range spring											
		1" (DN25) Reduced Port Rated Cv 3.2			1" (DN25) Full Port Rated Cv 6			1-1/2" (DN40) Reduced Port Rated Cv 9.5			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	Droop			Droop			Droop			
		10%	20%	30%	10%	20%	30%	10%	20%	30%	
175	60	1.13	2.14	3.12	1.67	3.14	4.60	2.27	4.19	6.10	125
175	70	1.29	2.47	3.12	1.91	3.60	5.36	2.58	4.82	7.03	125
175	80	1.44	2.82	3.12	2.15	4.06	5.85	2.89	5.43	7.97	125
175	90	1.60	3.04	3.12	2.38	4.53	5.85	3.21	6.04	8.98	125
175	100	1.76	3.04	3.12	2.62	5.02	5.85	3.53	6.65	9.26	125
175	110	1.92	3.04	3.12	2.84	5.54	5.85	3.84	7.24	9.26	125
175	120	2.08	3.04	3.12	3.06	5.70	5.85	4.14	7.87	9.26	125
		1- 1/2" (DN40) Full Port Rated Cv 14			2" (DN50) Full Port Rated Cv 20			3" (DN80) Full Port Rated Cv 27			ΔP Max
Max Inlet Pressure psig	Outlet Pressure P2, psig	Droop			Droop			Droop			
		10%	20%	30%	10%	20%	30%	10%	20%	30%	
175	60	4.39	8.37	12.97	6.56	12.61	18.81	7.98	15.29	22.74	125
175	70	5.04	9.79	13.65	7.54	14.65	19.50	9.18	17.77	26.33	125
175	80	5.69	11.31	13.65	8.53	16.70	19.50	10.39	20.25	26.33	125
175	90	6.33	12.90	13.65	9.52	18.77	19.50	11.61	22.74	26.33	125
175	100	6.96	13.30	13.65	10.53	19.00	19.50	12.83	25.26	26.33	125
175	110	7.59	13.30	13.65	11.53	19.00	19.50	14.05	25.65	26.33	125
175	120	8.23	13.30	13.65	12.54	19.00	19.50	15.29	25.65	26.33	125

TABLE 4a
RECOMMENDED WATER CAPACITY – GPM AT THE MAXIMUM VELOCITY
S.G. = 1.0 T = 60° F F_L = 0.85

Recommended flow rate (gpm) limitation to ensure that the fluid velocity through the valve body is not excessive.		
Regulator Size	Maximum Velocity (fps)	Maximum flow rate (gpm)
1"	20	25
1-1/2" Reduced Port	20	50
1-1/2" Full Port	25	75
2"	25	125
3"	30	300

TABLE 4b
WATER CAPACITY – GPM
S.G. = 1.0 T = 60° F F_L = 0.85

Qmax is maximum flow in gpm at the given inlet pressure and outlet setpoint.													
2-15 psig range spring													
P2	P1	1" (DN25) Reduced Port Rated Cv 3.2			Qmax	1" (DN25) Full Port Rated Cv 6			Qmax	1-1/2" (DN40) Reduced Port Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
5	40	4	6	8	17	4	7	10	32	5	8	12	51
5	50	5	7	9	19	4	8	11	36	6	10	13	57
5	70	6	8	11	23	5	9	12	38	7	11	15	67
10	25	4	7	10	12	4	8	13	23	6	10	15	37
10	40	6	9	13	17	6	12	17	32	8	14	20	51
10	50	6	11	15	19	7	13	20	36	9	16	23	57
10	70	8	13	18	23	9	16	23	38	11	19	27	67
15	25	4	8	12	10	5	11	16	19	6	12	19	30
15	40	6	12	17	16	8	16	23	30	10	18	27	48
15	50	7	13	19	19	10	18	27	36	12	21	31	56
15	70	9	17	23	23	12	22	33	38	14	26	38	67
P2	P1	1-1/2" (DN40) Full Port Rated Cv 14			Qmax	2" (DN50) Full Port Rated Cv 20			Qmax	3" (DN80) Full Port Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
5	25	7	12	18	59	10	18	26	85	13	22	32	114
5	40	9	16	23	75	14	24	34	107	17	29	41	145
5	50	10	18	26	84	16	27	39	120	19	33	47	162
5	70	12	21	30	99	18	31	44	142	22	38	54	192
10	25	11	20	30	54	16	30	46	78	19	37	55	105
10	40	15	28	41	75	22	42	62	107	27	50	75	145
10	50	17	32	47	84	25	48	71	120	31	58	86	162
10	70	21	38	56	99	31	57	84	142	38	70	102	192
15	25	13	26	41	44	19	39	61	63	23	47	74	85
15	40	19	38	58	70	29	57	87	100	35	69	105	135
15	50	23	44	67	83	34	66	100	118	41	80	121	160
15	70	28	54	83	99	42	82	123	142	52	99	149	192
10-30 psig range spring													
P2	P1	1" (DN25) Reduced Port Rated Cv 3.2			Qmax	1" (DN25) Full Port Rated Cv 6			Qmax	1-1/2" (DN40) Reduced Port Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
10	25	3	6	9	12	4	9	13	23	4	7	10	37
10	50	5	9	14	19	7	14	20	36	7	11	16	57
10	70	6	11	16	23	9	16	24	38	8	14	19	67
10	90	7	12	18	26	10	18	27	38	9	15	21	77
15	25	4	7	12	10	5	11	17	19	5	9	13	30
15	50	7	13	19	19	10	19	28	36	9	15	22	56
15	70	8	16	23	23	12	23	34	38	11	18	27	67
15	100	10	19	28	27	15	28	40	38	13	22	31	81
20	100	13	25	27	27	19	36	51	38	16	28	41	81
25	50	9	16	17	16	13	26	33	30	11	21	31	48
25	70	12	21	23	22	17	34	42	38	14	27	40	64
25	100	15	27	27	27	22	38	51	38	18	34	50	81
30	50	10	14	16	14	14	27	31	27	12	23	35	43
30	70	13	20	21	20	19	38	41	38	16	30	45	60
30	100	17	27	27	27	25	38	51	38	21	39	58	80

TABLE 4b (cont.):
WATER CAPACITY – GPM
S.G. = 1.0 T = 60° F F_L = 0.85

Qmax is maximum flow in gpm at the given inlet pressure and outlet setpoint.

10-30 psig range spring													
P2	P1	1-1/2" (DN40) Full Port Rated Cv 14			Qmax	2" (DN50) Full Port Rated Cv 20			Qmax	3" (DN80) Full Port Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
10	25	7	13	20	54	11	20	29	78	13	24	36	105
10	50	12	21	30	84	18	31	46	120	21	38	55	162
10	70	14	25	36	99	21	38	54	142	26	46	66	192
10	90	16	28	40	113	24	42	60	161	29	51	73	217
15	25	8	17	26	44	13	25	39	63	16	30	47	85
15	50	15	29	42	83	23	43	64	118	28	52	77	160
15	70	19	35	52	99	28	53	78	142	34	64	95	192
15	100	23	42	61	116	34	63	92	170	42	77	112	229
20	50	18	35	53	77	27	53	80	110	33	64	97	148
20	70	23	44	66	99	35	67	100	141	42	81	122	191
20	100	29	55	81	116	43	82	122	170	53	100	148	229
25	50	21	41	64	70	31	61	95	100	38	75	115	135
25	70	27	52	82	94	40	79	121	134	49	96	146	181
25	100	35	66	102	116	51	100	151	170	63	122	184	229
30	50	22	45	74	63	33	68	105	89	40	83	130	121
30	70	30	60	96	89	45	91	137	127	55	110	169	171
30	100	39	77	119	116	59	116	170	167	72	142	215	226
20-75 psig range spring													
P2	P1	1" (DN25) Reduced Port Rated Cv 3.2			Qmax	1" (DN25) Full Port Rated Cv 6			Qmax	1-1/2" (DN40) Reduced Port Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
25	50	4	9	13	16	7	13	19	30	8	15	23	48
25	70	6	11	17	22	9	16	25	40	11	20	29	64
25	100	8	14	21	27	11	21	31	51	14	25	37	81
25	130	9	16	24	31	13	24	35	58	16	29	41	92
35	50	5	10	16	12	7	15	23	23	9	18	28	37
35	70	7	14	21	19	10	20	31	36	13	25	37	56
35	100	9	18	27	26	14	27	40	48	17	32	48	77
35	130	11	22	31	31	17	32	47	58	21	38	56	92
45	70	8	16	19	16	11	23	36	30	14	28	43	48
45	100	11	22	26	24	16	32	48	45	20	38	57	71
45	130	13	26	31	30	20	38	58	55	24	46	69	88
45	150	15	29	33	33	22	42	64	62	27	51	76	97
55	70	8	16	16	12	11	24	32	23	14	29	47	37
55	100	12	23	24	22	18	36	46	40	22	43	66	64
55	130	15	28	30	28	22	44	56	52	27	53	80	82
55	150	17	31	33	31	25	49	62	59	30	59	89	93
65	100	13	21	22	19	19	39	42	36	23	46	68	56
65	130	16	27	28	26	24	50	53	48	30	59	85	77
65	150	19	30	31	30	28	56	60	55	34	66	95	88
75	100	13	19	19	16	19	36	37	30	23	48	63	48
75	130	18	25	26	24	26	48	50	45	32	63	82	71
75	150	20	29	30	28	30	54	57	52	36	72	91	82

TABLE 4b (cont.):
WATER CAPACITY – GPM
S.G. = 1.0 T = 60° F F_L = 0.85

Qmax is maximum flow in gpm at the given inlet pressure and outlet setpoint.

20-75 psig range spring													
P2	P1	1-1/2" (DN40) Full Port Rated Cv 14			Qmax	2" (DN50) Full Port Rated Cv 20			Qmax	3" (DN80) Full Port Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
25	50	13	25	38	70	20	37	57	100	24	45	69	135
25	70	17	32	48	94	26	48	72	134	31	59	88	181
25	100	22	41	60	119	33	61	91	170	40	74	110	229
25	130	25	47	68	136	38	70	102	194	46	85	124	261
35	50	14	29	46	54	21	44	70	78	26	53	84	105
35	70	21	40	62	83	31	61	93	118	37	73	113	160
35	100	27	53	80	113	41	79	120	161	50	96	145	218
35	130	33	63	94	136	49	94	141	194	60	114	171	261
45	70	22	46	75	70	34	69	110	100	41	84	133	135
45	100	32	63	100	104	48	95	146	148	58	115	177	200
45	130	39	76	120	129	58	115	175	184	71	140	212	249
45	150	43	84	131	144	65	127	192	205	79	154	233	277
55	70	22	49	77	54	34	74	109	78	41	89	147	105
55	100	35	72	107	94	53	108	153	134	64	131	205	181
55	130	44	89	131	121	67	134	187	173	81	162	250	234
55	150	50	99	144	137	74	148	206	195	91	180	276	263
65	100	37	80	99	83	56	118	142	118	68	143	194	160
65	130	49	102	125	113	73	150	179	161	89	182	242	218
65	150	55	114	140	129	83	168	199	184	101	204	269	249
75	100	37	84	89	70	57	120	127	100	69	150	175	135
75	130	52	111	118	104	78	159	168	148	96	199	229	200
75	150	60	126	133	121	90	180	190	173	110	225	259	234
60-125 psig range spring													
P2	P1	1" (DN25) Reduced Port Rated Cv 3.2			Qmax	1" (DN25) Full Port Rated Cv 6			Qmax	1-1/2" (DN40) Reduced Port Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
60	100	8	15	24	20	11	23	35	38	15	30	46	60
60	130	10	19	29	27	15	28	43	50	20	38	57	80
60	150	11	22	32	30	16	32	48	57	22	42	63	90
70	100	8	16	22	18	12	24	38	33	16	32	50	52
70	130	11	21	28	25	16	31	48	47	21	41	63	74
70	150	12	24	31	29	18	35	54	54	24	47	71	85
80	100	8	17	20	14	11	24	39	27	15	33	53	43
80	130	11	23	26	23	16	33	50	42	22	44	69	67
80	150	13	26	30	27	19	38	57	50	26	50	77	80
90	130	11	23	24	20	17	34	48	38	22	46	73	60
90	150	13	27	28	25	20	40	55	47	27	53	84	74
100	130	11	21	22	18	17	35	44	33	22	47	72	52
100	150	14	25	26	23	20	42	51	42	27	56	83	67
120	130	10	18	17	10	14	33	35	19	19	46	59	30
120	150	13	22	22	18	20	42	44	33	27	58	73	52
P2	P1	1-1/2" (DN40) Full Port Rated Cv 14			Qmax	2" (DN50) Full Port Rated Cv 20			Qmax	3" (DN80) Full Port Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
60	100	30	60	99	89	44	91	143	127	54	110	173	171
60	130	38	76	122	117	57	114	176	167	70	138	213	226
60	150	43	84	135	133	64	127	195	190	78	154	236	256
70	130	41	84	123	108	62	126	176	155	75	153	237	209
70	150	47	95	137	125	70	142	196	179	86	172	265	242
80	100	30	68	88	63	45	100	125	89	55	121	174	121
80	130	43	92	117	99	65	136	166	141	79	165	226	191
80	150	50	105	132	117	75	155	189	167	92	188	255	226
90	130	44	98	108	89	67	143	154	127	81	173	212	171
90	150	53	114	125	108	79	166	178	155	96	201	244	209
100	130	44	94	98	77	67	134	140	110	81	179	194	148
100	150	54	111	117	99	82	159	166	141	99	211	228	191
120	130	39	78	76	44	59	111	108	63	72	150	151	85
120	150	53	98	98	77	81	140	140	110	99	188	194	148

TABLE 5
NITROGEN CAPACITY – SCFH
S.G. = 0.987 T = 60° F F_L = 0.85

Qmax is maximum flow in scfh at the given inlet pressure and outlet setpoint.													
2-15 psig range spring													
P2	P1	Size 1 inch-Rated Cv 3.2			Qmax	Size 1 inch-Rated Cv 6			Qmax	Size 1.5 inch-Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
5	25	933	1326	1717	3988	797	1388	1988	7477	1138	1760	2384	11838
5	40	1297	1840	2378	5668	1109	1926	2752	10628	1583	2441	3300	16827
5	50	1534	2176	2813	6991	1311	2278	3255	13108	1872	2888	3904	20755
5	70	2008	2850	3683	9617	1717	2983	4263	18031	2452	3782	5112	28549
10	25	1188	1955	2769	3775	1325	2480	3627	7079	1686	2913	4195	11208
10	40	1718	2795	3919	5545	1916	3545	5134	10396	2437	4164	5938	16461
10	50	2036	3308	4636	6593	2270	4196	6074	12361	2888	4928	7024	19572
10	70	2665	4332	6071	9239	2973	5494	7953	17324	3782	6453	9198	27429
15	25	294	3437	3631	3345	1722	3340	5009	6272	2087	3886	5789	9931
15	40	458	5191	5353	5416	2678	5044	7385	10154	3246	5868	8535	16078
15	50	550	6198	6364	6552	3214	6023	8779	12285	3896	7007	10145	19451
15	70	721	8119	8333	8846	4217	7889	11495	16586	5112	9179	13284	26262
P2	P1	Size 1.5 inch-Rated Cv 14			Qmax	Size 2 inch-Rated Cv 20			Qmax	Size 3 inch-Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
5	25	1891	3276	4711	17446	2876	4964	7053	24923	3467	5996	8550	33646
5	40	2629	4545	6523	24798	3998	6886	9764	35426	4821	8317	11836	47825
5	50	3110	5376	7716	30586	4730	8146	11550	43694	5703	9839	14002	58987
5	70	4073	7040	10103	42073	6193	10667	15124	60104	7467	12884	18335	81140
10	25	3136	5911	8701	16517	4733	8847	13107	23595	5745	10753	15889	31854
10	40	4534	8449	12316	24258	6842	12646	18552	34655	8305	15370	22490	46784
10	50	5372	10000	14569	28842	8108	14967	21946	41203	9841	18191	26605	55624
10	70	7035	13095	19077	40422	10616	19598	28737	57746	12886	23820	34837	77957
15	25	4108	8042	12496	14635	6129	12143	18558	20908	7487	14748	22494	28225
15	40	6390	12145	18423	23694	9534	18340	27361	33848	11646	22274	33164	45695
15	50	7671	14502	21900	28665	11445	21899	32524	40950	13980	26597	39422	55282
15	70	10063	18997	28676	38701	15015	28687	42588	55287	18340	34840	51620	74638
10-30 psig range spring													
P2	P1	Size 1 inch-Rated Cv 3.2			Qmax	Size 1 inch-Rated Cv 6			Qmax	Size 1.5 inch-Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
10	25	925	1711	2543	3775	1336	2532	3724	7079	1293	2112	2950	11208
10	50	1585	2894	4259	6593	2288	4283	6235	12361	2215	3573	4940	19572
10	70	2075	3790	5577	9239	2997	5609	8164	17324	2900	4679	6469	27429
10	90	2566	4686	6895	11865	3705	6934	10095	22247	3586	5785	7998	35225
15	25	1189	2336	3568	3345	1749	3426	5154	6272	1547	2738	4019	9931
15	50	2221	4212	6254	6552	3265	6178	9034	12285	2889	4938	7043	19451
15	70	2914	5518	8189	8846	4284	8092	11829	16586	3790	6469	9222	26262
15	100	3947	7474	11092	12803	5803	10962	16023	24006	5134	8762	12492	38009
20	50	2804	5480	6347	6423	4166	7949	11900	12042	3524	6276	9119	19067
20	70	3723	7227	8333	8626	5531	10483	15624	16174	4679	8277	11973	25610
20	100	5043	9790	11287	12421	7492	14200	21164	23289	6338	11211	16218	36874
25	50	3337	6059	6288	6189	4946	9599	11791	11603	4092	7556	11057	18372
25	70	4530	8117	8333	8566	6715	12859	15624	16060	5556	10122	14652	25429
25	100	6150	10998	11287	12026	9117	17423	21164	22549	7543	13715	19847	35703
30	50	3780	5898	6184	5826	5567	11059	11595	10924	4560	8657	12857	17297
30	70	5301	8084	8326	8436	7806	15158	15611	15817	6395	11866	17311	25043
30	100	7257	10998	11287	11696	10687	20621	21164	21929	8755	16142	23468	34721

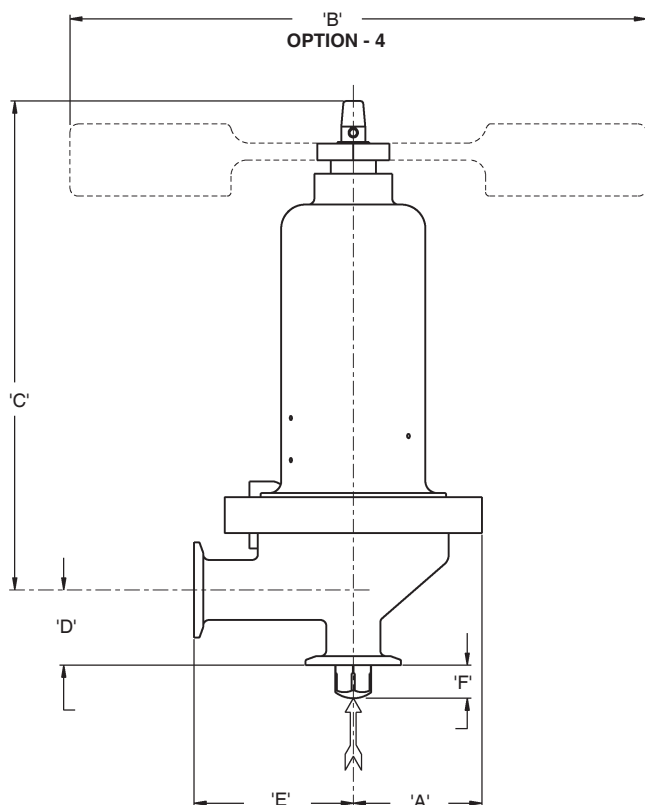
TABLE 5 (cont.):
NITROGEN CAPACITY – SCFH
S.G. = 0.987 T = 60° F F_L = 0.85

Qmax is maximum flow in scfh at the given inlet pressure and outlet setpoint.													
10-30 psig range spring													
P2	P1	Size 1.5 inch-Rated Cv 14			Qmax	Size 2 inch-Rated Cv 20			Qmax	Size 3 inch-Rated Cv 27			Qmax
		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%	
10	25	2153	3874	5658	16517	3265	5825	8465	23595	3949	7059	10277	31854
10	50	3688	6553	9474	28842	5593	9855	14173	41203	6763	11942	17208	55624
10	70	4829	8581	12406	40422	7323	12905	18559	57746	8856	15637	22533	77957
10	90	5970	10610	15338	51910	9054	15956	22946	74158	10950	19334	27860	100113
15	25	2731	5242	7847	14635	4115	7836	11802	20908	5003	9540	14333	28225
15	50	5100	9454	13753	28665	7683	14131	20684	40950	9342	17204	25120	55282
15	70	6690	12384	18009	38701	10079	18511	27084	55287	12256	22536	32893	74638
15	100	9062	16775	24394	56013	13653	25074	36687	80019	16602	30526	44556	108026
20	50	6455	12212	18035	28099	9662	18328	27214	40141	11782	22308	33037	54190
20	70	8570	16105	23679	37740	12828	24170	35729	53915	15643	29418	43376	72785
20	100	11609	21815	32075	54341	17376	32740	48398	77630	21189	39849	58755	104800
25	50	7694	14754	22697	27075	11456	22326	33562	38678	14035	27129	40719	52215
25	70	10446	19763	30075	37474	15555	29907	44473	53535	19056	36341	53957	72272
25	100	14181	26778	40739	52615	21117	40522	60242	75165	25870	49241	73089	101473
30	50	8689	17108	27055	25490	12989	25905	38650	36415	15903	31512	47947	49160
30	70	12184	23450	36426	36906	18214	35507	52036	52723	22299	43192	64555	71176
30	100	16681	31901	49382	51168	24937	48304	70546	73098	30530	58759	87516	98682
20-75 psig range spring													
P2	P1	Size 1 inch-Rated Cv 3.2			Qmax	Size 1 inch-Rated Cv 6			Qmax	Size 1.5 inch-Rated Cv 9.5			Qmax
		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%	
25	50	1672	3131	4682	6189	2444	4648	6839	11603	3136	5565	8153	18372
25	70	2270	4195	6204	8566	3318	6226	9062	16060	4258	7455	10803	25429
25	100	3082	5683	8404	12026	4504	8437	12275	22549	5781	10101	14634	35703
25	130	3890	7172	10605	15990	5684	10647	15490	29981	7296	12747	18467	47470
35	50	2009	4012	6027	5298	2967	5880	8923	9934	3664	7051	10635	15728
35	70	2953	5676	8290	8228	4360	8319	12273	15427	5385	9976	14627	24426
35	100	4106	7793	11287	11665	6063	11421	16710	21871	7488	13697	19916	34630
35	130	5182	9834	14244	15209	7652	14413	21088	28518	9450	17285	25133	45153
45	70	3446	6931	8117	7523	5130	10040	15219	14105	6256	12079	18062	22333
45	150	7297	14183	16215	17064	10862	20545	30404	31995	13248	24718	36084	50659
55	70	3679	7201	7786	6268	5469	11266	14599	11753	6638	13505	20972	18608
55	100	5877	10829	11228	11019	8736	16941	21052	20660	10604	20307	30242	32712
55	130	7636	13877	14244	14608	11351	21710	26708	27391	13778	26023	38368	43369
55	150	8716	15800	16215	16778	12957	24718	30404	31459	15727	29629	43678	49810
65	100	6550	10550	11071	10297	9669	19532	20759	19306	11798	23034	32867	30568
65	130	8784	13811	14236	14303	12966	25569	26693	26817	15821	30153	42262	42461
65	150	10112	15797	16215	16624	14927	29246	30404	31170	18213	34489	48137	49353
75	100	6951	10110	10805	9192	10216	18957	20259	17234	12496	25149	32075	27288
75	130	9783	13648	14167	13803	14379	25591	26564	25881	17587	33950	42057	40977
75	150	11397	15739	16212	16324	16752	29510	30397	30607	20490	39150	48126	48461
		Size 1.5 inch-Rated Cv 14			Qmax	Size 2 inch-Rated Cv 20			Qmax	Size 3 inch-Rated Cv 27			Qmax
		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%		Q @ 10%	Q @ 20%	Q @ 30%	
25	50	4840	9115	13417	27075	7331	13632	20133	38678	8879	16548	24406	52215
25	70	6571	12210	17779	37474	9953	18260	26678	53535	12056	22166	32340	72272
25	100	8921	16544	24083	52615	13512	24742	36137	75165	16367	30034	43807	101473
25	130	11258	20878	30392	69556	17052	31223	45604	99937	20654	37902	55282	134914
35	50	5849	11597	17756	23178	8772	17397	26677	33112	10645	21109	32322	44701
35	70	8595	16408	24421	35996	12890	24613	36691	51423	15643	29865	44455	69421
35	100	11952	22528	33251	51033	17924	33793	49957	72905	21751	41003	60528	98421
35	130	15084	28429	41961	66541	22622	42645	63044	95059	27452	51744	76384	128329
45	70	10159	19940	31372	32912	15173	30161	46000	47018	18503	36574	55685	63474
45	100	14849	28332	43622	50119	22179	42853	63963	71599	27047	51965	77430	96659
45	130	18896	35843	55054	64523	28223	54214	80725	92175	34419	65742	97722	124436
45	150	21511	40804	62674	74655	32129	61717	91898	106651	39182	74840	111247	143978

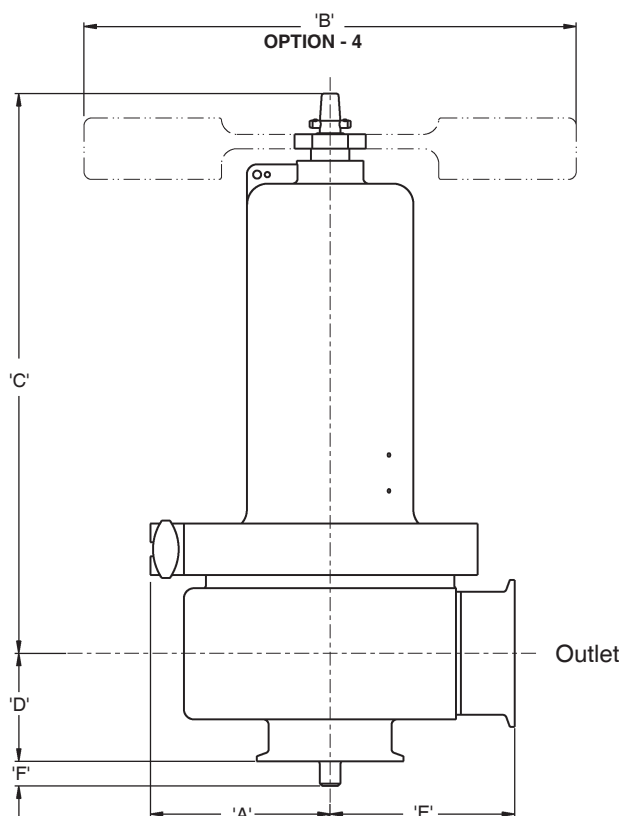
TABLE 5 (cont.):
NITROGEN CAPACITY – SCFH
S.G. = 0.987 T = 60° F F_L = 0.85

Qmax is maximum flow in scfh at the given inlet pressure and outlet setpoint.													
20-75 psig range spring													
		Size 1.5 inch-Rated Cv 14			Qmax	Size 2 inch-Rated Cv 20			Qmax	Size 3 inch-Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
55	70	10867	22724	34064	27423	16273	34152	48663	39176	19870	41495	65228	52887
55	100	17361	34171	49120	48207	25996	51355	70172	68868	31743	62397	94059	92971
55	130	22556	43789	62318	63912	33776	65809	89025	91302	41243	79959	119331	123258
55	150	25747	49857	70942	73405	38553	74929	101346	104864	47077	91040	135846	141566
65	100	19355	39918	48438	45048	29065	58971	69197	64354	35511	71607	93416	86879
65	130	25955	52256	62284	62573	38976	77198	88977	89391	47620	93739	120119	120677
65	150	29879	59770	70942	72731	44868	88299	101346	103901	54820	107219	136817	140267
75	100	20526	44232	47271	40214	31037	63189	67531	57448	37891	78996	91166	77555
75	130	28890	59711	61982	60388	43684	85302	88546	86268	53330	106641	119537	116462
75	150	33658	68857	70926	71416	50893	98368	101323	102022	62132	122975	136786	137730
60-125 psig range spring													
P2	P1	Size 1 inch-Rated Cv 3.2			Qmax	Size 1 inch-Rated Cv 6			Qmax	Size 1.5 inch-Rated Cv 9.5			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
60	100	3887	7545	11162	10698	5748	11060	16440	20059	7818	14766	21838	31760
60	130	5122	9763	14244	14478	7575	14311	20978	27146	10303	19106	27867	42981
60	150	5869	11132	16215	16718	8679	16319	23881	31347	11806	21787	31724	49633
70	100	4190	8425	10953	9801	6231	12273	18803	18377	8409	16404	24672	29097
70	130	5741	11184	14211	14079	8537	16292	24396	26398	11521	21776	32011	41797
70	150	6645	12841	16215	16493	9882	18705	27836	30925	13336	25001	36526	48965
80	100	4295	9098	10625	8440	6411	13119	19922	15825	8622	17538	27131	25057
80	130	6254	12534	14104	13469	9336	18074	26446	25254	12556	24161	36016	39986
80	150	7342	14528	16193	16112	10960	20949	30363	30210	14741	28004	41350	47833
90	130	6667	13194	13917	12598	9927	19652	26094	23622	13354	26232	40037	37401
100	150	8508	15203	15955	14773	12634	25105	29915	27700	17041	33272	47364	43858
120	150	9026	14283	15415	12339	13302	26780	28902	23135	17996	36952	45760	36630
		Size 1.5 inch-Rated Cv 14			Qmax	Size 2 inch-Rated Cv 20			Qmax	Size 3 inch-Rated Cv 27			Qmax
		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%		Q @10%	Q @20%	Q @30%	
60	100	15083	29465	46417	46804	22547	44420	67300	66863	27438	53853	81357	90266
60	130	19877	38125	59232	63340	29713	57478	85880	90486	36159	69683	103817	122156
60	150	22776	43475	67429	73143	34048	65542	97765	104490	41434	79461	118185	141062
70	100	16404	33322	47919	42879	24543	49879	68456	61256	29878	60497	92416	82696
70	130	22476	44234	62173	61596	33627	66213	88819	87994	40938	80309	119906	118792
70	150	26016	50786	70942	72159	38924	76021	101346	103084	47386	92204	136817	139163
80	100	16964	36536	46484	36926	25419	53944	66405	52751	30965	65400	89647	71214
80	130	24704	50333	61706	58926	37017	74316	88152	84180	45095	90099	119005	113643
80	150	29003	58340	70846	70490	43458	86138	101209	100700	52941	104431	136632	135945
90	130	26346	55967	60885	55117	39654	81452	86978	78739	48361	98692	117421	106298
90	150	31552	65705	70475	68031	47489	95625	100679	97187	57917	115864	135916	131203
100	130	27276	55683	59670	49822	41287	79547	85242	71174	50280	105739	115077	96085
100	150	33618	66514	69803	64632	50886	95020	99718	92332	61969	126307	134620	124648
120	150	35765	62487	67439	53981	54478	89267	96341	77116	66437	120510	130061	104107

DIMENSIONS & WEIGHTS



Investment Cast Body



Barstock Body

ENGLISH UNITS -inches								
Regulator Size Inches	Barstock Body							Ship Weight lbs.
	A	B (Opt-4)		C	D	E	F	
		2 - 75 psig	60 - 125 psig					
1", & (1 1/2" Red. Port)	3.75	12.00	16.00	10.63	2.00	3.31	—	25
1 1/2"	5.00	12.00	16.00	13.50	2.60	4.50	—	50
2"	5.00	12.00	16.00	13.50	2.66	4.50	—	50
3"	5.00	12.00	16.00	13.50	2.63	4.50	0.63	50
Investment Cast Body								
1" Red. Port	3.75	12.00	16.00	10.25	1.59	3.31	.69	20
METRIC UNITS - mm								
Regulator Size (DN)	Barstock Body							Ship Weight kg
	A	B (Opt-4)		C	D	E	F	
		2 - 75 psig	60 - 125 psig					
(25), & (40 Red. Port)	95	305	406	270	50	84	—	11.3
(40)	127	305	406	343	66	114	—	22.7
(50)	127	305	406	343	68	114	—	22.7
(80)	127	305	406	343	67	114	16	22.7
Investment Cast Body								
(25) Red. Port	95	305	406	260	40	84	18	9.0

NOTE: Unit must be installed with spring chamber in vertical position to achieve self draining feature.

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MODEL C-PRV PRODUCT CODER

03/29/21

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

CL POS 3 — POS 5 POS 6 & 7 **7** — **1** POS 11 POS 12 POS 13 **00** POS 16 **0D**

POSITION 3 - SIZE			
Port	Size	ASME	ISO 2852
	in (DN)	CODE	CODE
Reduced	1" (25) *	6	M
Full	1" (25) **	F	N
Reduced	1-1/2" (40) **	8	P
Full	1-1/2" (40) **	G	R
Full	2" (50) **	9	S
Full	3" (80) **	B	T
* Must select 316L Investment Cast body from Position 5, Code M.			
** Must select 316L Barstock body from Position 5, Code B.			

POSITION 5 - BODY / SPRING CHAMBER MATERIAL		
SST Body / Spring Chamber	Body Sizes	CODE
316 L Investment Cast / 316 Investment Cast	1" (DN25) Only Reduced Port *	M
316 L Barstock / 316 Investment Cast	All	B
* Must select code 6 or M in Position 3		

POSITION 6 & 7 - SST TRIM DESIGNATION NO.		
METAL SEAT - 3A Approved		
Desig.	Certs Provided	CODE
LE **	'FDA' & 'USP'	LE
LV *	'FDA' Only	LV
GG ** ✓	'FDA' & 'USP'	GG
COMPOSITION SEAT - NOT 3A Approved		
LF ** ‡	FDA' & 'USP'	LF
GH ** ✓ ‡	FDA' & 'USP'	GH
GR ** ✓ ‡	FDA' & 'USP'	GR
* Comply w/ FDA 21 CFR 177.		
** Comply w/ FDA 21 CFR 177. & USP Class VI material classification.		
✓ Includes Opt-80 - 2 pc Tri-Clamp design		
‡ Not Available in 1" Reduced Port Body		

POSITION 11 - SST RANGE SPRING		
psig	(Barg)	CODE
2 - 15	(.14 - 1.0)	4
10 - 30	(.69 - 2.1)	1
20 - 75	(1.4 - 5.2)	2
60 - 125 *	(4.1 - 8.6)	3
* Includes Opt -80		

POSITION 12 - TRIM OPTIONS		
Description	Option	CODE
No Option	---	0
Tri-Clamp 2- piece design with SST bolts. Standard on 60-125 psig spring range.	-80	A
For Special Construction Contact Cashco for Special Product Code.	SPQ	X

POSITION 13 - FEATURE OPTIONS		
Description	Option	CODE
No Option	---	0
Tee - Handle.	-4	4

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

POSITION 16 - CLEANING OPTIONS		
Description	Option	CODE
No Option - Std. Cleaning per Cashco Spec. #S-1576	---	0
Special Cleaning: Per Cashco Spec #S-1134. W/ properly selected mat'ls. Suitable for Oxygen Service.	-55	M

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