MODEL BQ

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BACK PRESSURE / RELIEF REGULATOR

The Model BQ is a relief regulator suitable as a back pressure regulator or bypass valve for controlling inlet pressures between 5 and 300 psig (.34 to 20.7 Barg). For 1/4", 3/8" or 1/2" (DN8, 10, and 15) process piping. Available options include cryogenic construction and differential/pressure loaded construction.

FEATURES

Versatile: Four body materials and fifteen trim material combinations allow compatibility with many fluids.

High Capacity: A large orifice and diaphragm provide sensitivity with high capacity.

Tight Shut Off: A composition seat is available in several materials.

APPLICATIONS

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

⚠ CAUTION

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

STANDARD/GENERAL SPECIFICATIONS

Body Sizes: 1/4", 3/8" or 1/2" (DN8, 10, or 15) inlet and flow-thru connections. 1/2" (DN15) outlet bottom connection. NPT female only.

Body/Spring Chamber Material Combinations: CI/CI, BRZ/CI, BRZ/BRZ, CS/SST, SST/SST.

CI = Cast grey iron
CS = Cast carbon steel
BRZ = Cast bronze
SST = Cast stainless steel
See Table 2 for material specifications.

Inlet Pressure: Up to 400 psig (27.5 Barg). (Includes 100 psi (6.9 Barg) pressure build when set at 300 psig (20.7 Barg) under low flow rate.) See Table 2.

Operating Temperature: See Tables 2, 3, and 4.

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

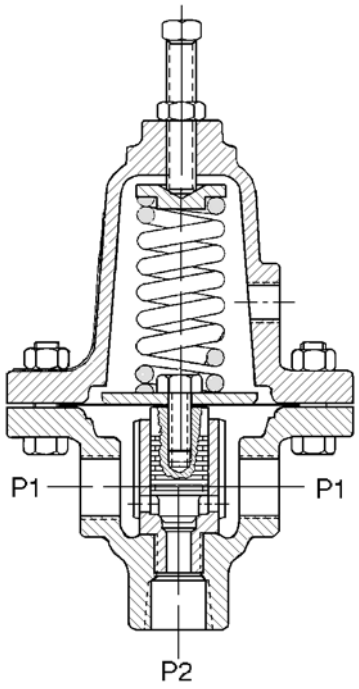


Figure 1: Model BQ – Standard Metal Seat Design

Capacities: Up to 2 $C_{v;}$ see Table 5 for C_v vs. set pressure.
Water Flow - see Table 6.
Compressed Air Flow - see Table 7.

Tables show capacities of 10, 20, 30, 40 and 50% build-up over the set pressure. Set pressures were determined using a flow rate of 2% or less of the 20% build-up capacities. Example: 100 psig (6.89 Barg) set pressure and a 20% build-up = 120 psig (8.27 Barg) flowing pressure for the capacity listed.

Diaphragm: Phosphor Bronze, SST, Neoprene, Fluorocarbon Elastomer, EPDM, TFE coated SST, Elgiloy.

Gasket: Standard: Non-asbestos. **NOT SUITABLE FOR OXYGEN SERVICE.**
Alternate: See Option -45.

Range Springs: Standard: Epoxy Coated Steel.
Cryogenic: SST.

STANDARD		CRYOGENIC	
STEEL RANGE SPRINGS		SST RANGE SPRINGS	
psig	(Barg)	psig	(Barg)
5 - 15	(0.34 - 1.03)	5 - 15	(0.34 - 1.03)
10 - 25	(0.69 - 1.72)	10 - 25	(0.69 - 1.72)
20 - 75	(1.4 - 5.1)	20 - 75	(1.4 - 5.1)
65 - 150	(4.5 - 10.3)	65 - 150	(4.5 - 10.3)
140 - 300	(9.6 - 20.7)	140 - 210	(9.6 - 14.5)

Flange Bolting: Standard: Zinc plated; heat treated steel.
Cryogenic: SST.

Painting: Standard: CI & CS - Enamel per Cashco Spec. #S-1545. SST or BRZ are non-painted.
Alternate: See Option -95.

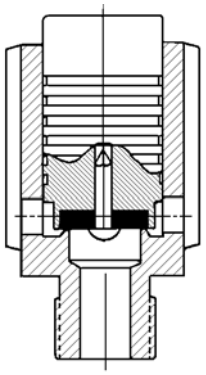


Figure 2: Composition Seat Design

OPTION SPECIFICATIONS

OPTION -1: CLOSING CAP. A removable cast iron cap discourages tampering with spring setting. Available only with CI or SST spring chamber materials. Includes a 1/4" NPT female vent connection.

OPTION -1+6: DIFFERENTIAL CONSTRUCTION. For differential or pressure loaded service; includes features of Opt-1 above plus a gasket for sealing the closing cap to the spring chamber, a thread seal for the lock nut, a pusher plate and a top-side diaphragm gasket (metal diaphragms only).

The pressure loading, plus the spring setting, plus build-up to stroke the plug must not exceed pressures listed in Table 2.

⚠ CAUTION

Option-1+6 contains single diaphragm construction. In the event of diaphragm failure, the process fluid will mix with the loading fluid. Please alert your representative so an alternative product can be selected.

OPTION -5: BRASS/BRONZE CRYOGENIC CONSTRUCTION. BRZ/BRZ Body/spring chamber materials only. Brass adjusting screw, locknut, pressure plate and spring button. SST range spring and flange bolting. Only B0 and B5 trim selections allowed. Non-asbestos diaphragm and piston gaskets. Cleaned and packaged for oxygen service per Cashco Spec. #S-1134. Spring chamber has 1/4" NPT female connection for purge gas plus a 1/8" drilled drain hole. Mount in horizontal piping with the adjusting screw oriented downwards. Applicable temperature range -325°F to +100°F (-198°C to +38°C).

OPTION -25: VENT TAP. Spring chamber vent tapped 1/4" NPT female for remote venting.

OPTION -36: SST CRYOGENIC CONSTRUCTION. Same specifications as Opt-5 except:

a. For SST/SST body/spring chamber materials.
b. S1 and S36 only available trim selections.

OPTION -45: NON-ASBESTOS GASKETS. TFE gaskets as alternate to standard gaskets for oxygen service. Temperature range: -20° to +400°F (-29° to +205°C). Use for O_2 service.

OPTION -55: SPECIAL CLEANING. BRZ or SST body materials only. Cleaned per Cashco Spec. #S-1134. With properly selected materials, cleanliness level suitable for oxygen service. **NOTE:** Design Pressure Rating shall not exceed 290 psig (20.0 Barg) when cleaned per Option-55 for Oxygen Service.

OPTION -56: SPECIAL CLEANING. CI, CS, or SST body materials only. Cleaned per Cashco Spec. #S-1542. Not suitable for oxygen service.

OPTION -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. #S-1547.

APPLICATION AND SELECTION

The following procedure will help determine a suitable selection for an application.

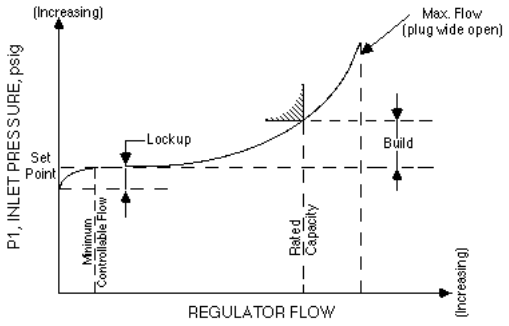
STEP 1. FIVE KNOWNS. The following minimal parameters / information must be available before a selection procedure can begin:

a) Service Fluid - What is it: Liquid or gas? SG (std. cond.).
b) Inlet Pressure - P_1 (upstream pressure). How much can P_1 vary as flow varies?
c) Outlet pressure - P_2 (downstream pressure).
d) Desired capacity - C_v, GPM, SCFH; minimum & maximum.
e) Fluid temp. - T_1, SG (actual).

STEP 2. INLET PRESSURE. Ensure that the actual design inlet pressure and temperature limits do not exceed the limits established in Table 2. Both body and spring chamber must comply. Consider level of pressure build to be added (see Step 3).

STEP 3. PRESSURE BUILD. Once setpoint is reached and valve opens, all self-contained back pressure/relief regulators "build" from a setpoint pressure level as the flow rate increases.

This deviation in setpoint is described as "% build". Build is expressed on increasing flow, starting from a minimum flow level.



The "% build" must be known to enter the capacity tables. The acceptable level of setpoint deviation should be known for the min-to-max flow variation.

A regulator may have a setpoint 10% below the lower stated range spring level. (Tags will show the standard ranges.) A setpoint above the higher range spring level is not recommended. Setpoint at the upper limit of a range spring is acceptable. If final setpoint is questionable and expected near the upper limit, the next higher range spring should be utilized. Best performance will be obtained when the lowest range spring is utilized.

STEP 4. DIAPHRAGM MATERIAL. Select the diaphragm first considering its temperature limits. See Tables 3 and 4.

Composition diaphragms will give approximately an extra 25% in capacity over a metal diaphragm at equal levels of build.

Systems subject to pulsating inlet pressures should be provided with metal diaphragms.

Refer to Table 1 as a guide for diaphragm recommended for various services.

STEP 5. GASKET MATERIAL. Considering the fluid, determine the compatibility of the gasket material from the two choices offered. (NOTE: Composition diaphragms do not require gasket selection.)

STEP 6. CAPACITY. The five knowns of Step 1 allow proper sizing of the regulator. (Specific Gravity tables are required.) With P_1, P_2, % build, flow rate (C_v, GPM, SCFH or #/HR), and diaphragm type per Step 4 enter the capacity tables and confirm Model BQ capability.

Refer to Tables 5 through 7 for capacities.

STEP 7. TRIM MATERIAL. Combining diaphragm material choice of Step 4 and the use of Tables 3 and 4 allows proper selection of "Trim Designation Numbers" for materials and temperatures. See Table 1 for type of service.

A composition seat will initially provide bubble-tight shutoff in clean service and without downstream over-pressurization. See Figure 2. Minute leakage should be expected with metal seated designs.

TECHNICAL SPECIFICATIONS

TABLE 1
APPLICATIONS

FLUID	RECOMMENDED CONSTRUCTION	TRIM DESIGNATION NUMBER
Air or Inert Gases	Composition Seat and Diaphragm	B2 or B3
Chemical	Metal Seat and Diaphragm	S0,S1, or S40M
	Metal Seat and Composition Diaphragm	S40
	Composition Seat and Metal Diaphragm	S9 or S36
	Composition Seat and Diaphragm	S3 or S40T
Cryogenic Gas or Liquids	TFE Seat and Metal Diaphragm	B5 or S36
	Metal Seat and Diahragm	B0 or S1
Fuel Oil ‡	Composition Seat and Diaphragm	B2,B3, B4, or S3
Hydrocarbon Gas or Liquids ‡	Composition Seat and Diaphragm	B2, B3, B4, S3 or S3N
Steam, All Pressures, Saturated or Superheated	Metal Seat and Diaphragm	B0 or S1
Water and Condensate Low Temperature 32-180°F (0-83°C)	Composition Seat and Diaphragm	B2, B3, S3 or S3N
Water and Condensate High Temperature180-300°F(83-149°C)	Composition Seat and Diaphragm	B6
	Metal Seat and Diaphragm	B0 or S1

NOTE 1: Trim Designation Nos. in "boldface" are the most commonly used. Cashco, or its representatives may make recommendations or suggestions as to the suitability of certain trims for specific services. These are trims that have been used successfully in the past in similar applications. However, the user has final responsibility for materials selected.

NOTE 2: Cashco, Inc. does not recommend metal seated trim on any service where the flow will be dead ended down stream of the pressure reducing regulator.

‡ 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 Psig (Barg)	Temperature °F °C
CI/CI	A126, Class B	400 (27.5) 300 (20.6) 250 (17.2)	-20 to +275 (-29 to +135) -20 to +400 (-29 to +205) -20 to +450 (-29 to +232)
BRZ/CI	B62 Alloy C83600/ A126, Class B	400 (27.5) 300 (20.6) 250 (17.2)	-20 to +150 (-29 to +66) -20 to +350 (-29 to +177) -20 to +400 (-29 to +205)
BRZ/BRZ	B62, Alloy C83600		
CS/SST	A216, Gr. WCB/ A351, Gr. CF8M	400 (27.5)	-20 to +600 (-29 to +315)
SST/SST	A351, Gr. CF8M		

NOTE 1: For operating temperatures between -325 to +100F (-198 to +38°C), specify Opt-5 with trim B0 or B5, or Opt-36 with trim S1 or S36.

NOTE 2: The Design Pressure Rating shall not exceed 290 psig (20.0 Barg) when body/topworks are constructed of SST and cleaned with Option-55 for Oxygen Service.

TABLE 3
BRASS TRIM MATERIAL COMBINATIONS

PART	BRASS TRIM DESIGNATION NUMBER						
	BO*	B1	B2	B3	B4	B5*	B6
Cylinder	Brass	Brass	Brass	Brass	Brass	Brass	Brass
Piston	Brass	Brass	Brass	Brass	Brass	Brass	Brass
Seat Disc	None (Metal)	None (Metal)	Buna-N	TFE	TFE	TFE	EPR
Pin	None	None	Brass	Brass	Brass	Brass	Brass
Diaphragm	Phos. Brz.	302 SST	Neoprene	Neoprene	FC Elast. **	Phos. Brz.	EPDM
Temperature Range °F (°C)	-20 to +400	-20 to +400	-20 to +180	-20 to +180	-20 to +400	-20 to +400	-20 to +300
	(-29 to +205)	(-29 to +205)	(-29 to +83)	(-29 to +83)	(-29 to +205)	(-29 to +205)	(-29 to +149)

* For operating temperatures between -325 to +100F (-198 to +38°C), specify Opt-5 and trim B0 or B5.
** FC Elast. = Fluorocarbon Elastomer.

TABLE 4
STAINLESS STEEL TRIM MATERIAL COMBINATIONS

PART	STAINLESS STEEL TRIM DESIGNATION NUMBER								
	SO	S1*	S3	S3N	S9	S36*	S40	S40M	S40T
Cylinder	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST
Piston	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST	316 SST
Seat Disc	None (Metal)	None (Metal)	TFE	Buna-N	TFE	TFE	None (Metal)	None (Metal)	TFE
Pin	None	None	316 SST	316 SST	316	316	None	None	316 SST
Diaphragm	TFE coated 302 SST	302 SST	302 SST	Neoprene	Neoprene	TFE coated 302 SST	Neoprene	Elgiloy	Fluorocarbon Elastomer
Temperature	-20 – +400	-20 – +400	-20 – +180	-20 – +180	-20 – +400	-20 – +400	-20 – +180	-20 – +400	-20 – +400
Range °F (°C)	(-29 – +205)	(-29 to +205)	(-29 – +315)	(-29 to +83)	(-29 to +205)	(-29 to +205)	(-29 – +83)	(-29 – +315)	(-29 – +205)

* For operating temperatures between -325 to +100F (-198 to +38°C), specify Opt-36 and trim S1 or S36.

TABLE 5
C_v FOR SET PRESSURES PLUS PRESSURE BUILD
(F_L = 0.945)

SETPOINT PRESSURE psig	METAL DIAPHRAGM					COMPOSITION DIAPHRAGM				
	PRESSURE BUILD-UP OVER SET PRESSURE					PRESSURE BUILD-UP OVER SET PRESSURE				
	10%	20%	30%	40%	50%	10%	20%	30%	40%	50%
5	0.45	0.49	0.58	0.64	0.70	0.98	1.81	2.00	2.00	2.00
10	0.46	0.50	0.60	0.71	0.75	1.20	1.94	2.00	2.00	2.00
15	0.47	0.57	0.64	0.77	0.90	1.43	2.00	2.00	2.00	2.00
25	0.45	0.63	0.85	1.03	1.23	1.43	2.00	2.00	2.00	2.00
35	0.47	0.57	0.64	0.77	0.90	0.71	1.41	1.86	2.00	2.00
50	0.48	0.58	0.75	0.90	1.08	0.98	1.79	2.00	2.00	2.00
75	0.50	0.70	0.92	1.20	1.40	1.43	2.00	2.00	2.00	2.00
100	0.50	0.68	0.90	1.15	1.36	1.13	1.79	2.00	2.00	2.00
150	0.52	0.95	1.43	1.73	1.81	1.43	2.00	2.00	2.00	2.00
200	0.50	0.70	0.92	1.20	1.40	0.45	0.98	1.46	1.80	1.95
300	0.52	0.95	1.43	1.73	1.81	0.75	1.50	1.91	NR	NR

TABLE 6
WATER CAPACITY IN GPM
S.G. = 1.0 T = 60° F_L = 0.945
All Sizes - Composition Diaphragm Only

OUTLET PRESSURE (psig)	SETPOINT PRESSURE (psig)	ALL BODY SIZES				
		% BUILD				
		10%	20%	30%	40%	50%
ATM	5	2.3	4.4	5.1	5.3	5.5
	10	4	6.7	7.2	7.5	7.8
	15	5.8	8.5	8.8	9.2	9.5
	25	7.5	HI VEL	HI VEL	CAV	CAV
	30	4.4	9.1	CAV	CAV	CAV
	50	7.3	CAV	CAV	CAV	CAV
	75	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	100	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	150	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	200	6.7	HI VEL	HI VEL	HI VEL	HI VEL
	300	HI VEL	HI VEL	HI VEL	HI P1	HI P1
5	10	2.9	5.1	5.7	6.0	6.3
	15	4.9	7.2	7.6	8.0	8.4
	25	6.8	10	10.5	HI VEL	HI VEL
	35	4.1	8.6	HI VEL	CAV	CAV
	50	6.9	HI VEL	CAV	CAV	CAV
	75	HI VEL	HI VEL	7410	HI VEL	HI VEL
	100	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	150	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	200	6.6	HI VEL	HI VEL	HI VEL	HI VEL
	300	HI VEL	HI VEL	HI VEL	HI P1	HI P1
10	15	3.7	5.7	6.2	6.6	7.1
	25	6.0	8.9	9.5	10.0	10.5
	35	3.8	8.0	HI VEL	HI VEL	HI VEL
	50	6.6	HI VEL	HI VEL	CAV	CAV
	75	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	100	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	150	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	200	6.5	HI VEL	HI VEL	HI VEL	HI VEL
	300	HI VEL	HI VEL	HI VEL	HI P1	HI P1
15	25	5.1	7.8	8.4	8.9	9.5
	35	3.4	7.3	10.3	HI VEL	HI VEL
	50	6.2	HI VEL	HI VEL	HI VEL	CAV
	75	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	100	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	150	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	200	6.4	HI VEL	HI VEL	HI VEL	HI VEL
	300	HI VEL	HI VEL	HI VEL	HI P1	HI P1
25	35	2.6	5.8	8.4	9.8	10.5
	50	5.4	10.6	HI VEL	HI VEL	HI VEL
	75	10.8	HI VEL	HI VEL	CAV	CAV
	100	10.4	HI VEL	CAV	CAV	CAV
	150	HI VEL	HI VEL	HI VEL	HI VEL	HI VEL
	200	6.3	HI VEL	HI VEL	HI VEL	HI VEL
	300	HI VEL	HI VEL	HI VEL	HI P1	HI P1

NOTE: Where "HI VEL" is indicated, the flow has reached or exceeded the velocities to the right based on Schedule 40 pipe.

Where "HI P1" is indicated, the pressure build exceeds established limits in Technical Bulletin.

Where “CAV” is indicated, the flow has reached choked flow, full cavitation.

SIZE	MAX. VEL.
1/4"	10 fps
3/8"	13 fps
1/2"	15 fps

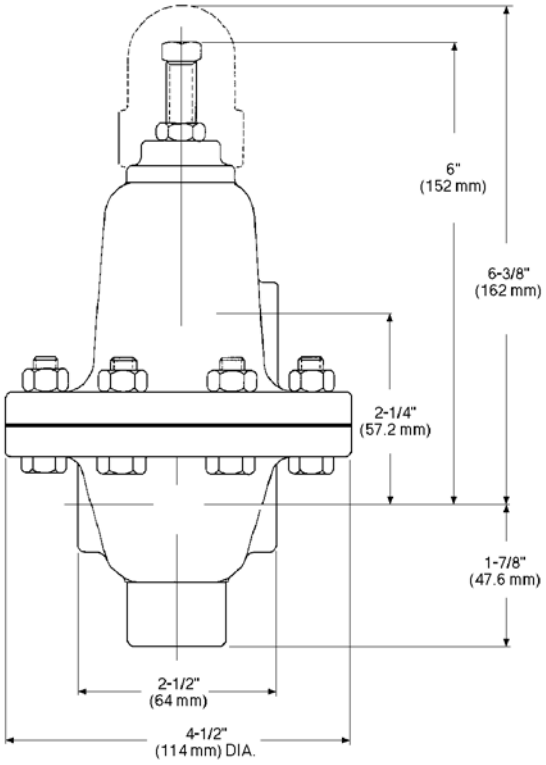
TABLE 7
AIR CAPACITY - SCFH
S.G. = 1.0 T = 60° F_L = 0.945
All Sizes - Composition Diaphragm Only

OUTLET PRESSURE (psig)	SETPOINT PRESSURE (psig)	ALL BODY SIZES				
		% BUILD				
		10%	20%	30%	40%	50%
ATM	5	650	1240	1400	1430	1470
	10	1020	1710	1830	1890	1960
	15	1360	2160	2260	2360	2460
	25	1990	2950	3120	3280	3450
	30	1120	2360	3300	3740	3940
	50	2250	4410	5260	5590	5920
	75	4590	SONIC	SONIC	SONIC	SONIC
	100	4650	SONIC	SONIC	SONIC	SONIC
	150	SONIC	SONIC	SONIC	SONIC	SONIC
	200	3490	SONIC	SONIC	SONIC	SONIC
	300	SONIC	SONIC	SONIC	HI P1	HI P1
5	10	990	1660	1770	1840	1900
	15	1360	2160	2260	2360	2450
	25	1990	2950	3120	3280	3450
	30	1120	2360	3300	3740	3940
	50	2250	4410	5260	5590	5920
	75	4590	6910	7410	7900	8400
	100	4650	7960	SONIC	SONIC	SONIC
	150	8480	SONIC	SONIC	SONIC	SONIC
	200	3490	8240	SONIC	SONIC	SONIC
	300	8530	SONIC	SONIC	HI P1	HI P1
10	15	1190	1890	1980	2060	2150
	25	1980	2930	3100	3260	3420
	30	1120	2360	3300	3740	3940
	50	2250	4410	5260	5590	5920
	75	4590	6910	7410	7900	8400
	100	4650	7960	9550	10210	10870
	150	8480	SONIC	SONIC	SONIC	SONIC
	200	3490	8240	SONIC	SONIC	SONIC
	300	8530	SONIC	SONIC	HI P1	HI P1
15	25	1840	2720	2870	3020	3180
	30	1080	2290	3190	3630	3820
	50	2250	4410	5260	5590	5920
	75	4590	6910	7410	7900	8400
	100	4650	7960	9550	10210	10870
	150	8480	12850	SONIC	SONIC	SONIC
	200	3490	8240	SONIC	SONIC	SONIC
	300	8530	SONIC	SONIC	HI P1	HI P1
25	30	760	1600	2240	2540	2670
	50	2180	4280	5100	5420	5740
	75	4590	6910	7400	7900	8390
	100	4650	7960	9550	10210	10870
	150	8480	12850	13840	14830	15820
	200	3490	8240	13240	17510	SONIC
	300	8530	SONIC	SONIC	HI P1	HI P1

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

Where "HI P1" is indicated, the pressure build exceeds established limits in Technical Bulletin.

DIMENSIONS AND WEIGHTS



Shipping Weight All Sizes	Lbs.	Kg.
	8	4

NOTES

NOTES

PRODUCT CODE 05/25/04

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TABLE 1 - SERVICE & GASKETS			
* Service	Gaskets	Options	CODE
Basic (Above -20°F)	Std: Non-Asbestos	—	B
	Non-Asbestos TFE	-45	D
Cryogenic (Below -20°F)	Std: Non-Asbestos Si-TFE	-5 & -36**	C

* Refer to Tech Bulletin for complete temperature range
** Cryo. Const. includes Special Cleaning #S-1134 (Opt-55)

TABLE 2 - SIZE		
Size		CODE
Inlet	Outlet	
1/4"	1/2"	2
3/8"	1/2"	3
1/2"	1/2"	4

TABLE 3 - BODY & SP. CHAMBER MATERIALS	
Body/Sp. Ch.	CODE
CI/CI	1
BRZ/CI	2
BRZ/BRZ*	3
CS/SST	6
SST/SST **	A

*Utilize w/cryo Opt-5
**Utilize w/cryo Opt-36

TABLE 4 - TRIM DESIGNATION NO.							
Brass Trim				Stainless Steel Trim			
Desig.	Body Material			Desig.	Body Material		
	BRZ CODE	CI CODE	CS CODE		CI CODE	CS CODE	SST CODE
B0*	B0	B0	B0	S0	S0	S0	S0
B1	B1	B1	B1	S1**	S1	S1	S1
B2	B2	B2	B2	S3	S3	S3	S3
B3	B3	B3	—	S3N	SC	SC	SC
B4	B4	B4	—	S9	S9	S9	S9
B5*	B5	B5	—	S36 **	36	36	36
B6	B6	B6	—	S40	40	40	40
				S40M	—	4M	4M
				S40T	—	4T	4T

* Trim utilized w/cryo Opt-5
** Trim utilized w/cryo Opt-36

TABLE 5 - RANGE SPRING			
Standard		Cryogenic (OPT-5 & -36)	
Steel Range Spring (psig)	CODE	SST Range Spring (psig)	CODE
5-15	1	5-15	A
10-25	2	10-25	B
20-75	3	20-75	C
65-150	4	65-150	D
140-300	5	140-210	F

NPT End Connections

1			—			7	—	1								A

Model BQ Back Pressure Relief Regulator

Product	Hazard Category (See Cashco Spec #7E13)	CODE
European[1]	SEP	S

[1] For product to be placed in service in the EU. Consult factory.

ASSIGNMENT OF "OPTION" CODES

1. When ordering a valve per one of Cashco's special drawings, the code "X" and the 5-digit number following override all other options. Otherwise, proceed with the following.
2. NUMERIC digits assigned first in "ascending" order.
3. ALPHA designations are assigned second (excluding the "X") in "alphabetical" order.
4. Left justify.
5. Add "0" to all unused squares.
6. If insufficient quantity of squares, consult factory for proper code.

TABLE 6 - OPTIONS		
Description	Option	CODE
Special Construction	—	X
CI Closing Cap CI or SST Spring Chamber Only	-1	1
Differential Const. w/Closing Cap CI or SST Closing Cap & Spring Chamber	-1+6	8
1/4" NPT Spring Chamber Vent Tap	-25	E
Special Cleaning: Per Cashco Spec #S-1134. W/properly selected materials, this procedure suitable for oxygen service BRZ or SST body/spring chamber materials only.	-55	M
Special Cleaning: Per Cashco Spec #S-1542. SST,CS & CI body/spring chamber materials only. Not suitable for oxygen service.	-56	N
Epoxy Painted	-95	W

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