Pressure Reducing Valve with Low Flow By-pass

Model: BC-720-2B-P

The BERMAD BC-720-2B-P is a hydraulically operated, diaphragm actuated pressure reducing control valve that reduces a high upstream pressure to a lower constant downstream pressure, regardless of fluctuating demand or varying upstream pressure. The by-pass handles low flows when the main valve shuts off.

1.0 General Information:

Valve type: diaphragm actuated, double chamber

Valve pattern: Y (oblique) and angle

Available sizes: 1.5"-24"/DN40-600

Maximum working pressure: 300 psi/ 20 bar

End connections:

- Grooved: (OGS) ANSI/AWWA C606 (1.5"-8"/DN40-200)
- Flanged: ANSI B16.5 class #150 & #300 (1.5"-24"/DN40-600)
- Threaded: NPT/BSP (1.5"-2.5"/DN40-65)

Working temperature: water up to 140°F/65°C

2.0 Certificates:

NSF 61

NSF 372

WRAS UK | DVGW Germany | ACS France | GOST Russia | BELGAQUA Belgium | AS 5081 Australia | Watermark Australia | PZH Poland | Bulgarcontrola Bulgaria | SVGW Switzerland | ISO 9001 - 2008

Job/Owner

System No.	
Location	

Engineer

Spec Section	
Paragraph	
Approved	
Date	

Contractor

Submitted by	
Date	

3.0 Construction Materials:

Main valve:

Body, cover and partition:

- Standard: Ductile Iron
- Optional: Stainless Steel 316

Internals: Stainless Steel, Bronze and coated Steel

Bolts, nuts and studs: Stainless Steel 316

Elastomers:

- Diaphragm: EPDM, Nylon fabric-reinforced
- Seal: NBR
- O-Rings: EPDM

Control trim:

- Control accessories: Stainless Steel 316
- Tubing & fittings: Stainless Steel 316

Coating: Epoxy fusion bonded

Low flow by-pass:

Body: DZR low-lead forged brass

Cover: glass reinforced nylon

Control stem: stainless steel 303

Moving parts: DZR low-lead brass

Diaphragm: EPDM

Seals: EPDM

Compensation piston rings: PTFE

Filter: stainless steel 304

Seat: stainless steel 303

Shuttle: PPSG40

4.0 Control Information

Main Pilot setting range:

- Standard: 14.5-145 psi/1-10 bar
- Other: on request

By-pass Pressure setting range: 15-90 psi/1-6 bar

5.0 General Notes:

By-pass size: ½" (main valve size - 1½", 2", 2½" and 3"), ¾" (main valve size - 4", 6" and 8")

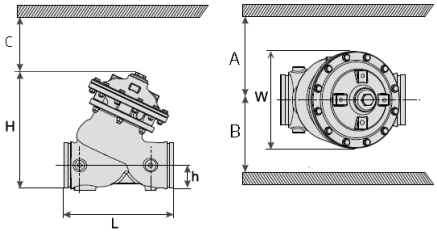
Recommendation: install a pressure relief valve model 73Q at downstream side

6.0 Specify When Ordering:

- Minimum and maximum flow rate (gpm/m^3/h)
- Inlet pressure (psi/bar)
- Outlet pressure - pilot settings (psi/bar)
- Body material: Ductile Iron (standard) or Stainless Steel
- End connections: grooved (standard), flanged or threaded

7.0 Dimensions & Weights:

7.1 Grooved Valves - ANSI/AWWA C606 (Standard)



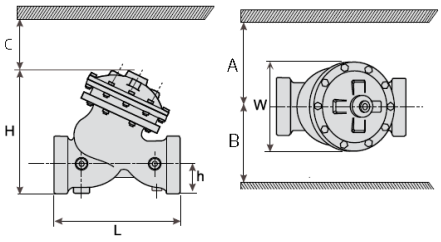
Inch	1½"	2"	2½"	3"	4"	6"	8"
L (inch)	8.07	8.07	8.46	9.84	12.60	16.34	19.69
L (mm)	205	210	215	250	320	415	500
W (inch)	4.80	4.80	4.80	6.02	7.87	11.22	14.17
W (mm)	122	122	122	153	200	285	360
h (inch)	1.30	1.30	1.56	2.36	2.91	3.74	4.92
h (mm)	33	39.5	39.5	60	74	95	125
H (inch)	7.64	7.87	7.91	10.43	12.80	17.36	21.06
H (mm)	194	200	201	265	325	441	535
Weight (lb.)	13	14	14	37	64	128	225
Weight (Kg)	6	6.2	6.5	17	29	58	102

C = H/2 A, B = Wx2

Notes:

- Clearances A & B are based on the use of both sides of the valve for control accessories. In cases where both sides are not used, the clearance of the unused side should be equal to W
- Dimensions & Weights tables refer to basic valves
- Envelope dimensions vary according to valve model
- Control loop and control accessories adds approximately 5 lbs./2.3 kg to the weight of a basic valve

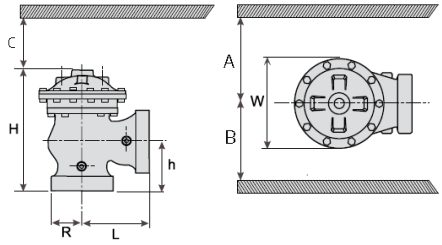
7.2 Threaded Valves - NPT, BSP



Inch	1½"	2"	2½"	3"
L (inch)	6.11	6.11	8.35	9.85
L (mm)	155	155	212	250
W (inch)	4.81	4.81	4.81	6.42
W (mm)	122	122	122	163
h (inch)	1.58	1.58	1.89	2.21
H (mm)	40	40	48	56
H (inch)	7.92	7.96	8.23	10.40
H (mm)	201	202	209	264
Weight (lb.)	12	12	18	37
Weight (Kg)	5.5	5.5	8	17

C = H/2 A, B = Wx2

7.3 Threaded Valves, Angle - NPT, BSP



Inch	2"	2½"	3"
L (inch)	4.77	5.52	6.26
L (mm)	121	140	159
W (inch)	4.81	4.81	6.42
W (mm)	122	122	163
R ((inch)	1.58	1.89	2.17
R (mm)	40	48	55
h (inch)	3.27	4.02	4.53
h (mm)	83	102	115
H (inch)	8.87	9.53	11.58
H (mm)	225	242	294
Weight (lb.)	12	15	33
Weight (kg)	5.5	7	15

C = H/2 A, B = Wx2

Notes:

- Clearances A & B are based on the use of both sides of the valve for control accessories. In cases where both sides are not used, the clearance of the unused side should be equal to W
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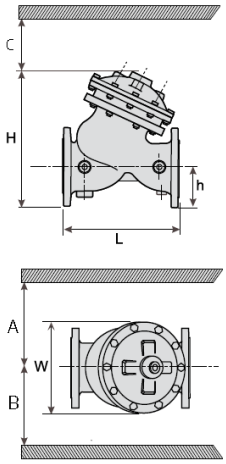
7.4 Flanged Valves



	Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
ANSI 150# & PN 10/16	L (inch)	8.08	8.27	8.75	9.85	12.61	16.35	19.70	23.84	28.57	28.88	39.01	39.40	43.34	57.13
	L (mm)	205	210	222	250	320	415	500	605	725	733	990	1,000	1,100	1,450
	W (inch)	6.11	6.50	7.01	7.88	8.79	12.61	15.37	18.91	21.67	21.67	29.16	29.16	29.16	33.29
	W (mm)	155	165	178	200	223	320	390	480	550	550	740	740	740	845
	h (inch)	3.07	3.27	3.74	3.94	4.53	5.63	6.78	8.04	9.53	10.56	11.82	12.57	13.91	18.52
	h (mm)	78	83	95	100	115	143	172	204	242	268	300	319	358	470
	H (inch)	9.42	9.61	10.12	12.02	14.42	19.38	23.01	28.53	33.10	34.12	43.66	44.40	45.98	50.39
	H (mm)	239	244	457	305	366	492	584	724	840	866	1,108	1,127	1,167	1,279
	Weight (lb.)	20	23	29	49	82	165	276	478	816	840	1,865	2,083	2,121	2,844
	Weight (Kg)	9.1	10.6	13	22	37	75	125	217	370	381	846	945	962	1,290
ANSI 300# & PN 25	L (inch)	8.08	8.27	8.75	10.40	13.99	17.06	20.65	25.10	30.02	30.22	40.35	40.58	44.76	59.10
	L (mm)	205	210	222	264	355	433	524	637	762	767	1,024	1,030	1,136	1,500
	W (inch)	6.11	6.50	7.29	8.16	9.85	12.61	15.37	18.91	21.67	22.46	29.16	29.16	29.55	33.29
	W (mm)	155	165	185	207	250	320	390	480	550	570	740	740	750	845
	h (inch)	3.07	3.27	3.74	4.14	5.00	6.26	7.53	8.79	10.28	11.62	12.81	14.07	15.33	18.52
	h (mm)	78	83	95	105	127	159	191	223	261	295	325	357	389	470
	H (inch)	9.42	9.61	10.13	12.38	14.88	20.02	23.72	29.23	33.84	35.18	44.64	45.90	47.16	50.39
	H (mm)	239	244	257	314	278	508	602	742	859	893	1,133	1,165	1,197	1,279
	Weight (lb.)	22	27	33	55	95	187	322	540	904	957	1,984	2,132	2,174	3,289
	Weight (Kg)	10	12.2	15	25	43	85	146	245	410	434	900	967	986	1,492

C = H/2 A, B = Wx2

Notes:

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- Envelope dimensions vary according to valve model
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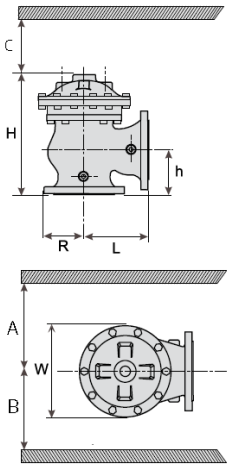
7.5 Flanged Valves, Angle



	Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"
ANSI 150# & PN 10/16	L (inch)	4.89	4.89	5.87	5.99	7.49	8.87	10.44	12.61	15.60	15.76	17.73	17.73
	L (mm)	124	124	149	152	190	225	265	320	396	400	450	450
	W (inch)	6.11	6.11	7.01	7.88	8.75	12.61	15.37	18.91	21.67	21.67	29.16	29.16
	W (mm)	155	155	178	200	222	320	390	480	550	550	740	740
	R (inch)	3.07	3.27	3.74	3.94	4.53	5.63	6.78	8.04	9.77	10.40	11.78	12.61
	R (mm)	78	83	95	100	115	143	172	204	248	264	299	320
	h (inch)	3.35	3.35	4.29	4.02	5.00	5.99	8.00	8.63	10.76	10.99	14.54	14.58
	h (mm)	85	85	109	102	127	152	203	219	273	279	369	370
	H (inch)	8.94	8.94	9.89	11.07	13.47	17.38	21.47	24.94	30.61	30.77	42.63	42.63
	H (mm)	227	227	251	281	342	441	545	633	777	781	1,082	1,082
	Weight (lb.)	21	22	27	44	77	157	260	452	772	816	1,764	1,808
	Weight (Kg)	9.5	10	12	21.5	35	71	118	205	350	370	800	820
ANSI 300# & PN 25	L (inch)	4.89	4.89	5.87	6.26	7.88	9.22	10.91	13.24	16.35	16.51	18.40	18.40
	L (mm)	124	124	149	159	200	234	277	336	415	419	467	467
	W (inch)	6.50	6.50	7.29	8.16	9.85	12.61	15.37	18.91	21.67	21.67	29.16	29.16
	W (mm)	165	165	185	207	250	320	390	480	550	550	740	740
	R (inch)	3.07	3.35	3.74	4.14	5.00	6.26	7.53	8.79	10.28	11.54	12.81	14.11
	R (mm)	78	85	95	105	127	159	191	223	261	293	325	358
	h (inch)	3.35	3.35	4.29	4.29	5.32	6.50	8.51	9.30	11.58	11.78	15.21	15.21
	h (mm)	85	85	109	109	135	165	216	236	294	299	386	386
	H (inch)	8.94	8.94	9.89	11.31	13.79	17.89	21.99	25.57	31.36	31.56	43.30	43.30
	H (mm)	227	227	251	287	350	454	558	649	796	801	1,099	1,099
	Weight (lb.)	24	25	30	51	90	187	304	514	860	937	1,885	1,918
	Weight (Kg)	11	11.5	13.5	23	41	81	138	233	390	425	855	870

C = H/2 A, B = Wx2

Notes:

- Clearances A & B are based on the use of both sides of the valve for control accessories. In cases where both sides are not used, the clearance of the unused side should be equal to W
- Dimensions & Weights tables refer to basic valves
- Envelope dimensions vary according to valve model
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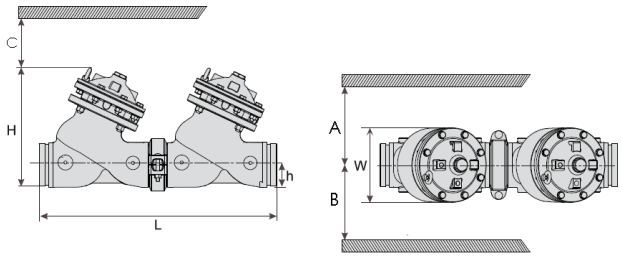
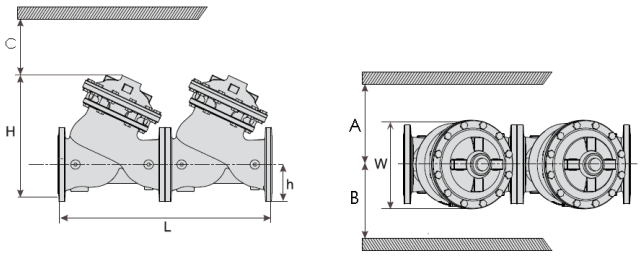
7.6 Grooved Dual Combo Valves 72S-H - ANSI/AWWA C606 (Standard)



Inch	1½"	2"	2½"	3"	4"	6"	8"
L (inch)	16.14	16.14	16.92	19.68	25.20	32.68	39.38
L (mm)	410	420	430	500	640	830	1,000
W (inch)	4.80	4.80	4.80	6.02	7.87	11.22	15.35
W (mm)	122	122	122	153	200	285	360
h (inch)	1.30	1.30	1.56	2.36	2.91	3.74	4.92
h (mm)	33	33	39.5	60	74	95	125
H (inch)	7.64	7.87	7.91	10.43	12.80	17.36	21.06
H (mm)	194	200	201	265	325	441	535
Weight (lb.)	26	28	28	74	128	256	450
Weight (Kg)	12	12.4	13	34	58	116	204

C = H/2 A, B = Wx2

7.7 Flanged, Dual Combo Valves 72S-H—ANSI Class 150, PN 10/16



Inch	1½"	2"	2½"	3"	4"	6"	8"
L (inch)	16.16	16.54	17.50	19.70	25.22	32.70	39.40
L (mm)	410	420	444	500	640	830	1,000
W (inch)	6.11	6.50	7.01	7.88	8.79	12.61	15.37
W (mm)	155	165	178	200	223	320	390
h (inch)	3.07	3.27	3.74	3.94	4.53	5.63	6.78
h (mm)	78	83	95	100	115	143	172
H (inch)	9.42	9.61	10.12	12.02	14.42	19.38	23.01
H (mm)	239	244	257	305	366	492	584
Weight (lb.)	40	46	58	98	164	330	552
Weight (Kg)	18	21	26	44	74	150	250

C = H/2 A, B = Wx2

Notes:

- Clearances A & B are based on the use of both sides of the valve for control accessories. In cases where both sides are not used, the clearance of the unused side should be equal to W
- Dimensions & Weights tables refer to basic valves
- Envelope dimensions vary according to valve model
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8.0 Performance

8.1 Design Flow Rate (based on 10 ft/s)

Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
GPM	55	98	153	220	391	881	1,566	2,447	3,523	Consult Factory				
m³/h	13	22	35	50	89	200	356	556	800	Consult Factory				
l/sec	3.5	6.2	9.6	13.9	24.7	55.6	98.8	154.4	222.3	Consult Factory				

8.2 Design Flow Rate (based on 8 ft/s)

Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
GPM	44	78	122	176	313	705	1,253	1,957	2,819	Consult Factory				
m³/h	10	18	28	40	71	160	285	445	640	Consult Factory				
l/sec	2.8	4.9	7.7	11.1	19.8	44.5	79.0	123.5	177.8	Consult Factory				

8.3 Minimum Flow

Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
GPM	1	1	1	1	1	1	1	1	1	Consult Factory				
m³/h	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	Consult Factory				
l/sec	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	Consult Factory				

8.4 Flow Properties

Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Cv	49	58	64	133	230	530	940	1,440	2,140	2,300	3,820	3,960	4,100	4,100
Kv	42	50	55	115	200	460	815	1,250	1,850	1,990	3,310	3,430	3,550	3,550
K	2.3	3.9	9.2	4.9	3.9	3.7	3.8	3.9	3.7	5.9	3.7	5.5	7.8	11.1
Leq feet	15	35	105	70	77	125	181	233	283	496	356	644	1,019	1,744
Leq meter	4.3	10.3	33.4	21.6	23.0	37.5	53.9	70.0	85.6	159.9	112.7	204.8	323.8	532.0