

### Non-Slam Check Valve - Lift Type

#### Model: BC-70N-P

The BERMAD BC-70N-P Check Valve is a non-slam, lift type, non return valve that opens to allow flow in the required direction and smoothly closes drip tight to prevent back flow.

#### 1.0 General Information:

Check valve type: spring loaded, lift type

Valve pattern: Y (oblique) and angle

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

Maximum working pressure: 250 or 400 psi/16 or 25 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

Others:



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	

#### Contractor

Submitted by	
Date	

#### Engineer

Spec Section	
Paragraph	
Approved	
Date	

### 3.0 Construction Materials:

Body and cover:

- Standard: Ductile Iron
- Optional: Stainless Steel 316

Internals: Stainless Steel, Bronze, coated Steel and PVDF

Bolts, nuts and studs: Stainless Steel 316

Elastomers:

- Seal: NBR
- O-Rings: EPDM

Coating: Epoxy fusion bonded

### 4.0 Control Information

Optional: Closed valve signal: SPDT (with N.C. and N.O. terminals)

### 5.0 General Notes:

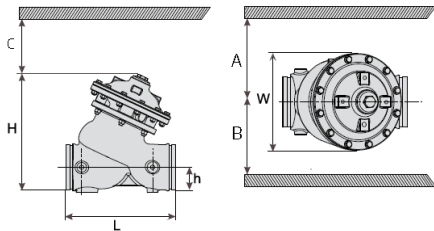
N/A

### 6.0 Specify When Ordering:

- Maximum flow rate (gpm/m<sup>3</sup>/h)
- Inlet pressure (psi/bar)
- Body material: Ductile Iron (standard) or Stainless Steel
- End connections: grooved (standard), flanged or threaded
- Optional closed valve signal: yes/no

### 7.0 Dimensions & Weights:

#### 7.1 Grooved Valves - ANSI/AWWA C606 (Standard)



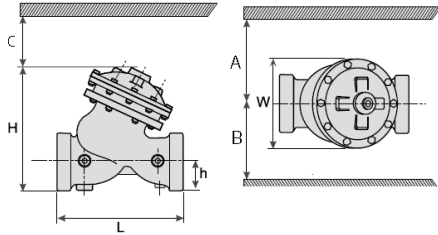
Inch	1½"	2"	2½"	3"	4"	6"	8"
L (inch)	8.07	8.07	8.46	9.84	12.60	16.34	19.69
L (mm)	205	210	215	250	320	415	500
W (inch)	4.80	4.80	4.80	6.02	7.87	11.22	14.17
W (mm)	122	122	122	153	200	285	360
h (inch)	1.30	1.30	1.56	2.36	2.91	3.74	4.92
h (mm)	33	39.5	39.5	60	74	95	125
H (inch)	7.64	7.87	7.91	10.43	12.80	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

$C = H/2$        $A, B = W \times 2$

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

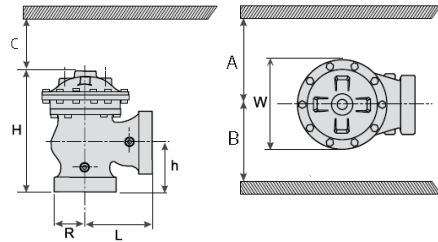
### 7.2 Threaded Valves - NPT, BSP



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

$C = H/2$        $A, B = W \times 2$

### 7.3 Threaded Valves, Angle - NPT, BSP



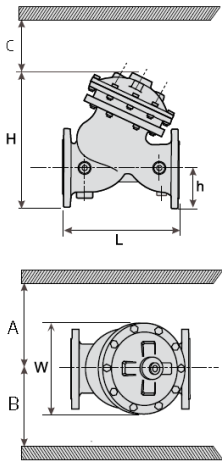
Inch	2"	2½"	3"
L (inch)	4.77	5.52	6.26
L (mm)	121	140	159
W (inch)	4.81	4.81	6.42
W (mm)	122	122	163
R (inch)	1.58	1.89	2.17
R (mm)	40	48	55
h (inch)	3.27	4.02	4.53
h (mm)	83	102	115
H (inch)	8.87	9.53	11.58
H (mm)	225	242	294
Weight (lb.)	12	15	33
Weight (kg)	5.5	7	15

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**Notes:**

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### 7.4 Flanged Valves



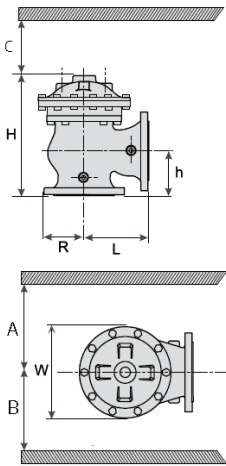
	Inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
ANSI 150# & PN 10/16	L (inch)	8.08	8.27	8.75	9.85	12.61	16.35	19.70	23.84	28.57	28.88	39.01	39.40	43.34	57.13
	L (mm)	205	210	222	250	320	415	500	605	725	733	990	1,000	1,100	1,450
	W (inch)	6.11	6.50	7.01	7.88	8.79	12.61	15.37	18.91	21.67	21.67	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	

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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	

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- Dimensions & Weights tables refer to basic valves
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### 8.0 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

### 8.1 Differential Pressure Calculation (for fully open valve)

Valve flow coefficient, Kv or Cv 
$$Kv(Cv) = Q \sqrt{\frac{Gf}{\Delta P}}$$

Where:

Kv = Valve flow coefficient (flow in m<sup>3</sup>/h at 1bar ΔP)

Cv = Valve flow coefficient (flow in gpm at 1psi ΔP)

$$(Cv = 1.155 Kv)$$

Q = Flow rate (m<sup>3</sup>/h ; gpm)

ΔP = Differential pressure (bar ; psi)

Gf = Liquid specific gravity (Water = 1.0)

Practical formulas for water:

$$Q = Kv \sqrt{\Delta P} \quad \Delta P = \left( \frac{Q}{Kv} \right)^2$$

Flow resistance or Head loss coefficient, 
$$K = \Delta H \frac{2g}{V^2}$$

Where:

K = Flow resistance or Head loss coefficient (dimensionless)

ΔH = Head loss (m ; feet)

V = Nominal size flow velocity (m/sec ; feet/sec.)

g = Acceleration of gravity (9.81 m/sec<sup>2</sup> ; 32.18 feet/sec<sup>2</sup>)

Practical formula:

$$\Delta H = K \frac{V^2}{2g}$$

#### Equivalent Pipe Length - Leq

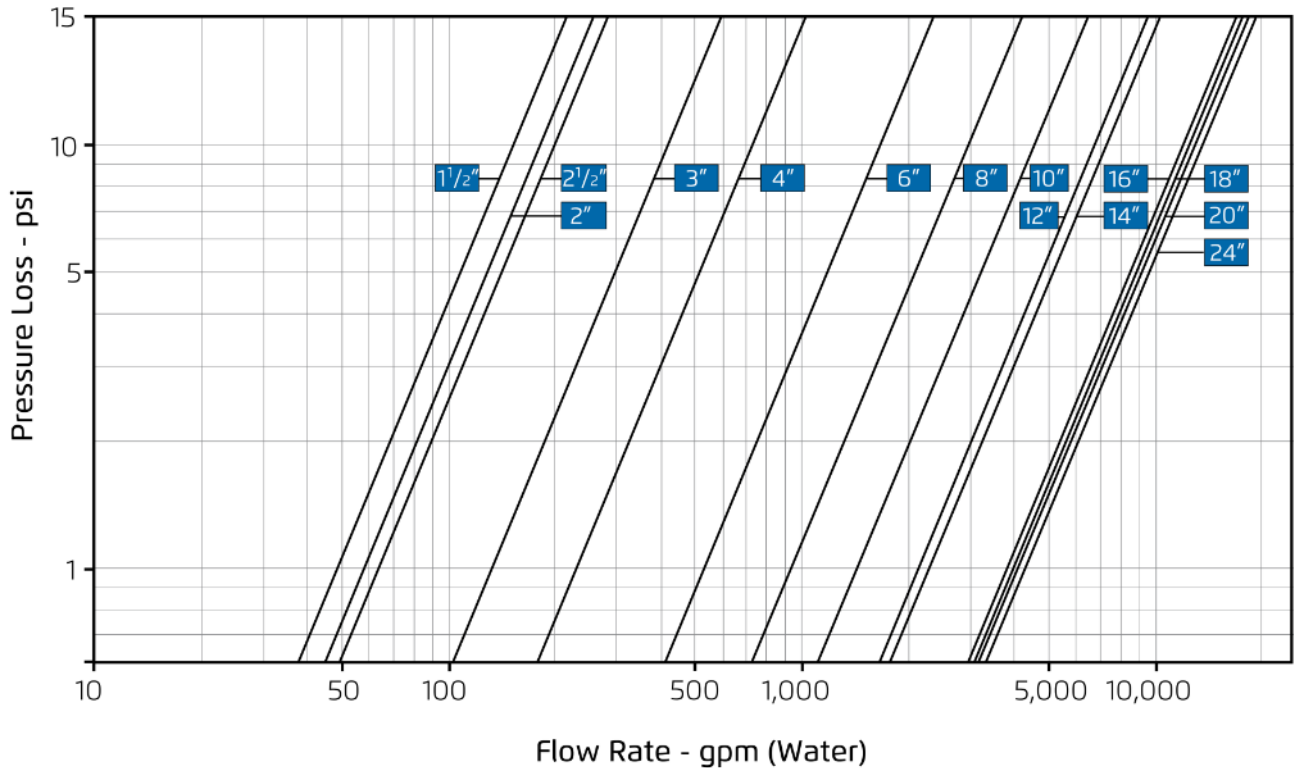
In order to simplify system head loss calculation, add the Leq value to the pipe length of the relevant size

**Note:**

The Leq values given are for general consideration only.

Actual Leq may vary somewhat with each of the valve sizes.

**8.2 Flow Chart (US/Imperial units)**



**8.3 Flow Chart (SI/Metric units)**

