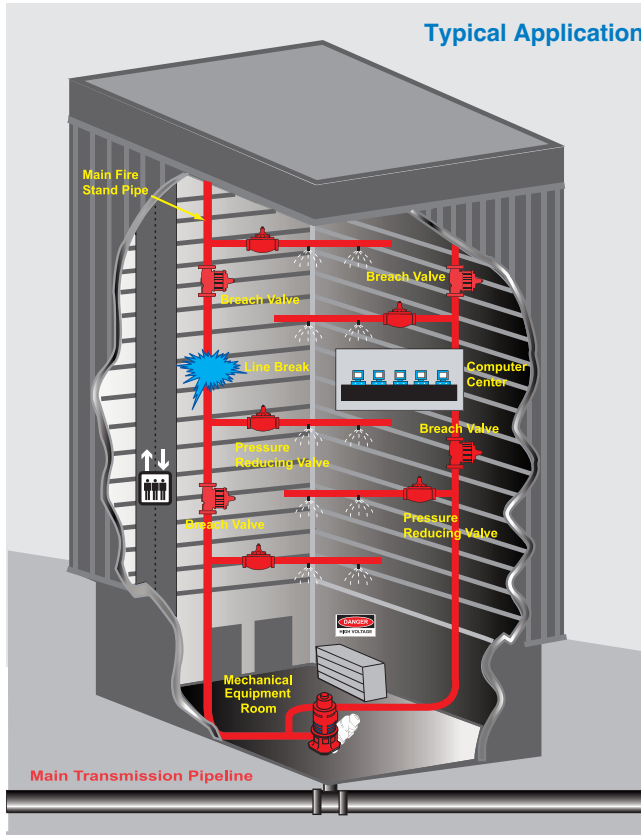


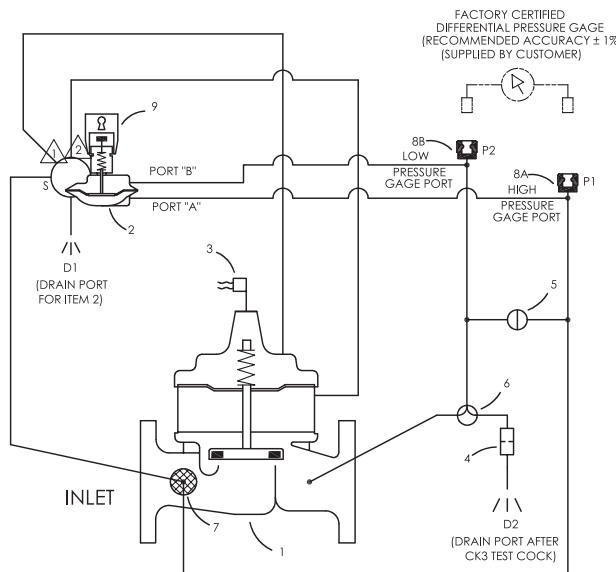
AUTOMATIC BREACH CONTAINMENT VALVE



- Simple Proven Design
- Non-Surge Operation
- Drip-Tight Shut-Off
- No Packing Glands or Stuffing Boxes
- Static System Operational Testing
- Available in a Variety of Materials

The Cla-Val Model 85-09-1/685-09-1 Automatic Breach Containment Valve (ABCV) will isolate portions of distribution piping when catastrophic downstream breach occurs. The ABCV is designed for protecting commercial building water distribution systems, such as fire protection, potable water service, or chill water circulation. Strategically located to isolate portions of water systems, the ABCV prevents significant water losses and resultant damage, and allows limited continued service when distribution systems are damaged or out of service.

During normal conditions the ABCV is fully open allowing normal water flows. When excessive flows occur due to pipe damage or breach, the ABCV closes drip-tight, isolating the breached downstream portion of system. When the ABCV is closed, normal water flow occurs through remaining upstream distribution piping. Once closed, the ABCV will automatically re-open when downstream pressure is restored.



Schematic Diagram

Item	Description
1	100-02 Powertrol (Main Valve)
2	CDH4-A3 Differential Control
3	X105L Limit Switch
4	X58C Restriction
5	CK2 (Isolation Valve) Manual Reset
6	CK3 (Isolation Valve) DP Test
7	X46A Flow Clean Strainer
8	QD Socket, Gage Connection
9	X140 Locking Security Cap

The Cla-Val Model 85-09-1/685-09-1 Automatic Breach Containment Valve is a pilot controlled, hydraulically-operated, diaphragm-actuated, globe pattern valve. The valve consists of a Powertrol main valve and a pre-installed pilot control system. Using line fluid as operating medium, the ABCV is completely self-contained, requiring no additional power to operate. The Powertrol can be supplied with optional fusion bonded epoxy coating for longer service life and lower maintenance costs.

The custom pilot control senses pressure differential across valve, and is factory-preset to shift at differential corresponding to specified breach flow. The control smoothly closes Powertrol hydraulically. The pilot control has locking cap to protect calibrated settings. Supplied valve position electric switch assembly provides remote confirmation or alarm signal that ABCV is fully closed. Two quick-connect ports allow verification of differential pressure setting and conducting operational ABCV testing when water system is static. Test Kit consisting of differential gauge and hose connections is available option. The ABCV operates most efficiently when installed in horizontal pipe with Powertrol cover and internal-stem oriented vertically up.

Model 85-09-1 (Uses Basic Valve Model 100-02)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class				
		Flanged			Grooved	Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class	End‡ Details
ASTM A536	Ductile Iron	B16.42	250	400	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400	400
UNS 87850	Bronze	B16.24	225	400	400	400

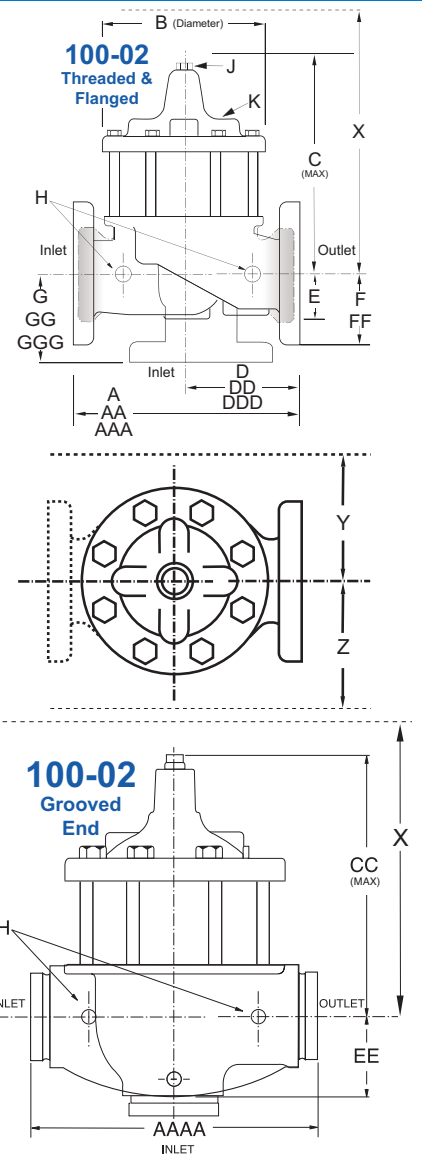
Note: * ANSI standards are for flange dimensions only.
 Flanged valves are available faced but not drilled.
 ‡ End Details machined to ANSI B2.1 specifications.

Valves for higher pressure are available; consult factory for details

Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	2-1/2" - 8"	2-1/2" - 8"	2-1/2" - 8"
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		
For material options not listed, consult factory. Cla-Val manufactures valves in more than 50 different alloys.			

Dimensions (In inches)



Model 85-09-1 Dimensions (In Inches)

Valve Size (Inches)	2½	3	4	6	8
A Threaded	11.00	12.50	—	—	—
AA 150 ANSI	11.00	12.00	15.00	20.00	25.38
AAA 300 ANSI	11.62	13.25	15.62	21.00	26.38
AAAA Grooved End	11.00	12.50	15.00	20.00	25.38
B Dia.	8.00	9.12	11.50	15.75	20.00
C Max.	10.31	11.19	14.25	18.44	21.81
CC Max. Grooved End	9.63	10.25	13.50	17.18	20.43
D Threaded	5.50	6.25	—	—	—
DD 150 ANSI	5.50	6.00	7.50	10.00	12.69
DDD 300 ANSI	5.88	6.38	7.88	10.50	13.25
DDDD Grooved End	—	6.00	7.50	—	—
E	1.69	2.06	3.19	4.31	5.31
EE Grooved End	2.88	3.12	4.25	6.00	7.56
F 150 ANSI	3.50	3.75	4.50	5.50	6.75
FF 300 ANSI	3.75	4.13	5.00	6.25	7.50
G Threaded	4.00	4.50	—	—	—
GG 150 ANSI	4.00	4.00	5.00	6.00	8.00
GGG 300 ANSI	4.31	4.38	5.31	6.50	8.50
GGGG Grooved End	—	4.25	5.00	—	—
H NPT Body Tapping	.50	.50	.75	.75	1
J NPT Cover Center Plug	.50	.50	.75	.75	1
K NPT Cover Tapping	.50	.50	.75	.75	1
Stem Travel	0.7	0.8	1.1	1.7	2.3
Approx. Ship Wt. Lbs.	65	95	190	320	650

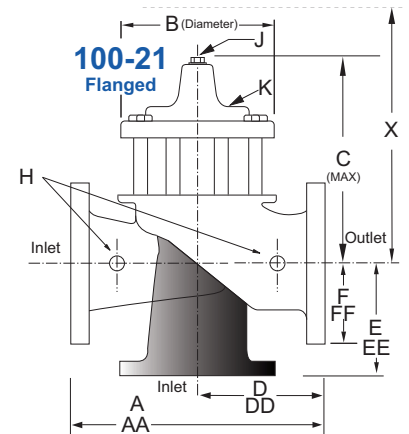
Model 685-09-1 (Uses Main Valve Model 100-21)

Dimensions
(In inches)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
UNS 87850	Bronze	B16.24	225	400

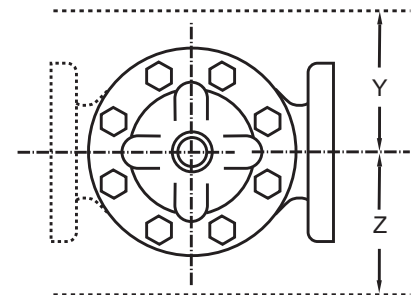
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details



Materials

Component	Standard Material Combinations		
	Ductile Iron	Cast Steel	Bronze
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3" - 8"	3" - 8"	3" - 8"
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.



Model 685-09-1 Dimensions (In Inches)

Valve Size (Inches)	3	4	6	8	10
A 150 ANSI	10.25	13.88	17.75	21.38	26.00
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38
B Dia.	6.62	9.12	11.50	15.75	20.00
C Max.	9.25	11.75	15.25	20.25	23.75
D 150 ANSI	—	6.94	8.88	10.69	—
DD 300 ANSI	—	7.25	9.38	11.19	—
E 150 ANSI	—	5.50	6.75	7.25	—
EE 300 ANSI	—	5.81	7.25	7.75	—
F 150 ANSI	3.25	4.50	5.50	6.75	8.00
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75
H NPT Body Tapping	.375	.50	.75	.75	1
J NPT Cover Center Plug	.50	.50	.75	.75	1
K NPT Cover Tapping	.375	.50	.75	.75	1
Stem Travel	0.6	0.8	1.1	1.7	2.3
Approx. Ship Wt. Lbs.	70	135	230	480	785

85-09-1 Valve Selection	100-02 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes					
	Inches	2½	3	4	6	8
	mm	65	80	100	150	200
Main Valve 100-02	Pattern	G, A	G, A	G, A	G, A	G, A
	End Detail	T, F, Gr*	T, F, Gr	F, Gr	F, Gr*	F, Gr*
Suggested Flow (gpm)	Maximum	300	460	800	1800	3100
	Max. Intermittent	670	1000	1800	4000	7000
Suggested Flow (Liters/Sec)	Maximum	19	29	50	113	195
	Max. Intermittent	42	63	113	252	441
100-02 Series is the full internal port Powertrol.						*Globe Grooved Only

685-09-1 Valve Selection	100-21 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes				
	Inches	3	4	6	8
	mm	80	100	150	200
Main Valve 100-21	Pattern	G	G, A	G, A	G, A
	End Detail	F	F	F	F
Suggested Flow (gpm)	Maximum	260	580	1025	2300
Suggested Flow (Liters/Sec)	Maximum	16	37	65	145
100-21 Series is the reduced internal port size version of the 100-02 Series.					

We recommend providing adequate space around valve for maintenance work

Pilot System Specifications

Temperature Range

Water to 180°F Max

Materials

Standard Pilot System Materials

Pilot Control: Low Lead Bronze
Trim: Stainless Steel Type 303

Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials

Pilot Systems are available with optional Aluminum, Stainless Steel or Monel materials at additional cost.

When Ordering, Please Specify

1. Catalog No. 85-09-1 or No. 685-09-1
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded, Flanged or Grooved End
6. Trim Material
7. Desired Options
8. When Vertically Installed

Note: For main valve option descriptions, refer to 100-02 (61-02) or 100-21 (661-02) Technical Data Sheets.



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