



MODEL **81-01**
681-01

Check Valve



- Simple Proven Design
- No-Slam Operation
- Drip Tight Shut Off
- No Packing Glands or Stuffing Boxes
- Easy to Install & Maintain

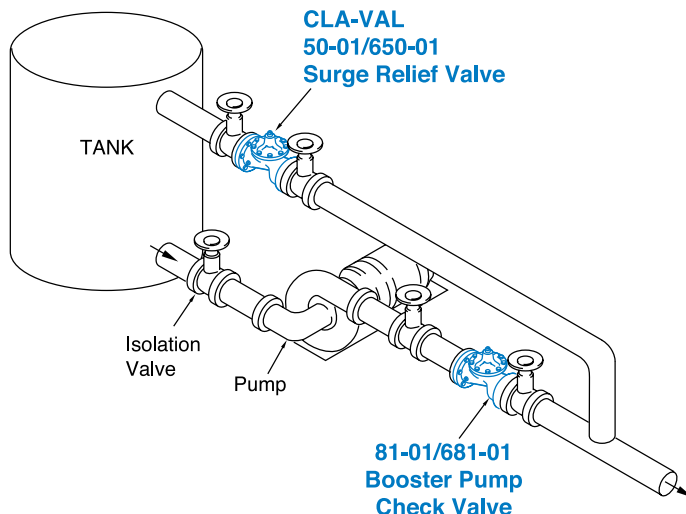
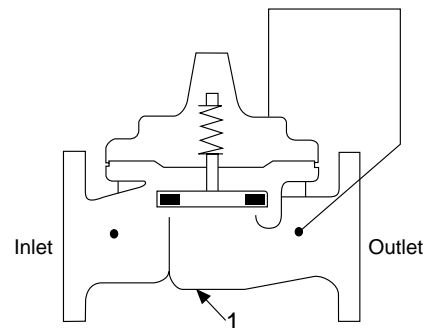
The Cla-Val Model 81-01/681-01 Check Valve is a hydraulically operated No-Slam Check Valve. This valve opens when the pressure at the inlet exceeds the discharge pressure. A gradual rate of opening prevents sudden opening surges. When a pressure reversal occurs the higher downstream pressure is applied to the cover chamber through the control tube lines, and the valve closes drip tight.

This valve is ideally suited for use where a positive shutoff is required. The rubber disc assures tight sealing even if the fluid contains grit or other small-size particles. The simple packless design insures reliable operation and freedom from leaks.

Note: The effectiveness of this valve is related to pipeline velocity. We recommend a maximum flow based on pipeline velocity of 6 feet per second. If pipeline velocities exceed 6 feet per second, consideration should be given to adding a Cla-Val Model 50-01 Pressure Relief Valve or a Cla-Val Model 52 Series Surge Control Valve to the system.

Schematic Diagram

Item	Description
1	Hytrol (Reverse Flow Main Valve)



Typical Applications

Smaller sizes of this valve are used in pilot control systems in Cla-Val Automatic Control valves. This valve can also be used in any piping system where one-way flow is desired.

Install on the discharge of booster pumps to prevent return flow into tank when pump is off. Relief valve as shown is good practice to minimize surges when pump stops.

For valve sizes larger than 3", use Model 81-02.



Model 81-01 (Uses Basic Valve Model 100-01)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class			
		Flanged			Screwed
Grade	Material	ANSI Standards*	150 lb.	300 lb.	End Details**
ASTM A536	Ductile Iron	B16.42	250	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400
ASTM B62	Bronze	B16.24	225	400	400
ASTM A743	Stainless Steel	B16.5	285	400	400
356-T6	Aluminum	B16.1	275	—	—

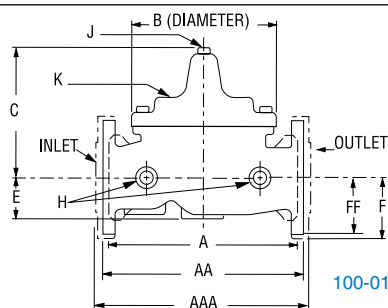
Note: *ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
** End Details machined to ANSI B2.1 specifications.



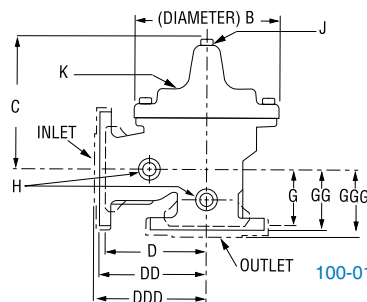
2" Globe, Screwed

Materials

Component	Material Options						
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Available Sizes	⅜" - 3"	⅜" - 3"	⅜" - 3"	⅜" - 3"	⅜" - 3"		
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Trim: Disc Guide, Seat & Cover Bearing	Bronze is standard. Stainless Steel is optional.			Stainless Steel is standard.			
Disc	Buna-N® Rubber						
Diaphragm	Nylon Reinforced Buna-N® Rubber						
Stem, Nut & Spring	Stainless Steel						



100-01 (Globe)



100-01 (Angle)

Model 81-01 Dimensions (In inches)

VALVE SIZE (Inches)	3/8	1/2 - 3/4	1	1 1/4 - 1 1/2	2	2 1/2	3
A Screwed	2.75	3.50	5.12	7.25	9.38	11.00	12.50
AA 150 ANSI	—	—	—	8.50*	9.38	11.00	12.00
AAA 300 ANSI	—	—	—	9.00*	10.00	11.62	13.25
B DIA.	2.50	3.12	4.38	5.62	6.62	8.00	9.12
C MAX.	2.00	3.00	2.75	5.50	6.50	7.56	8.19
D Screwed	—	—	—	3.25	4.75	5.50	6.25
DD 150 ANSI	—	—	—	4.00*	4.75	5.50	6.00
DDD 300 ANSI	—	—	—	4.25*	5.00	5.88	6.38
E	1.25	0.88	1.63	1.12	1.50	1.69	2.06
F 150 ANSI	—	—	—	2.50	3.00	3.50	3.75
FF 300 ANSI	—	—	—	3.06	3.25	3.75	4.13
G Screwed	—	—	—	1.88	3.25	4.00	4.50
GG 150 ANSI	—	—	—	4.00*	3.25	4.00	4.00
GGG 300 ANSI	—	—	—	4.25*	3.50	4.31	4.38
H NPT Body Tapping	—	1/8	1/4	3/8	3/8	1/2	1/2
J NPT Cover Center Plug	1/8	1/8	1/4	1/4	1/2	1/2	1/2
K NPT Cover Tapping	—	1/8	1/4	3/8	1/2	1/2	1/2
Valve Stem Internal Thread UNF	—	—	—	10-32	10-32	10-32	1/4-28
Stem Travel	—	—	—	0.4	0.6	0.7	0.8
Approx. Ship Wt. Lbs.	3	3	8	15	35	50	70

*1 1/2" Size Only

Model 681-01 (Uses Basic Valve Model 100-20)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 lb.	300 lb.
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
ASTM B62	Bronze	B16.24	225	400
ASTM A743	Stainless Steel	B16.5	285	400
356-T6	Aluminum	B16.1	275	—

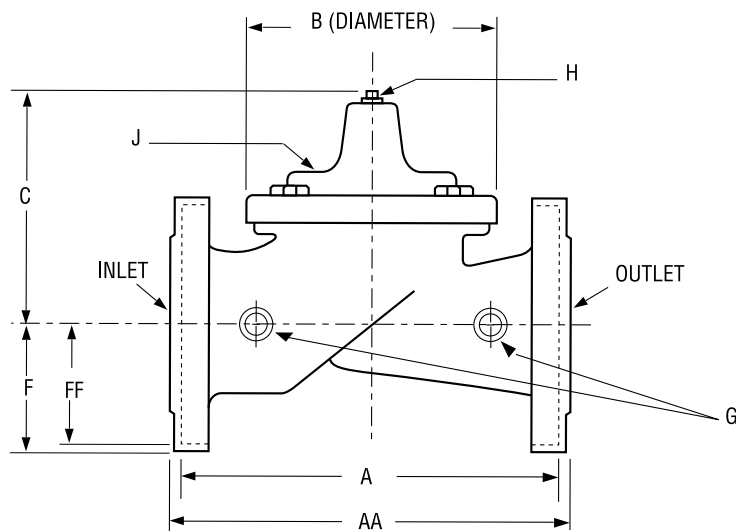
Note: *ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.



3" Globe, Flanged

Materials

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



















100-20 (Globe)

Model 681-01 Dimensions (In inches)

VALVE SIZE (Inches)	3
A 150 ANSI	10.25
AA 300 ANSI	11.00
B DIA.	6.62
C MAX.	7.00
D 150 ANSI	—
DD 300 ANSI	—
E 150 ANSI	—
EE 300 ANSI	—
F 150 Lb ANSI	3.75
FF 300 ANSI	4.12
G NPT Body Tapping	$\frac{3}{8}$
H NPT Cover Center Plug	$\frac{1}{2}$
J NPT Cover Tapping	$\frac{3}{8}$
Valve Stem Internal Thread UNF	10-32
Stem Travel	0.6
Approximate Shipping Weight Lbs.	45

Valve Selection

Valve Selection		These Symbols  and  Indicate Available Sizes									
		Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
		mm	10	15	20	25	32	40	50	65	80
		End Detail	Screwed			Screwed & Flanged				Flanged	
Model 81-01	Basic Valve 100-01	Globe									
		Angle									
	Suggested Flow (GPM)	Max. Continuous	4	6	10	16	28	38	63	90	138
	Suggested Flow (Liters/sec)	Max. Continuous	0.3	0.4	0.6	1.0	1.8	2.4	4.0	5.7	8.7
Model 681-01	Basic Valve 100-20	Globe									 **
		Angle									
	Suggested Flow (GPM)	Max. Continuous									138
	Suggested Flow (Liters/sec)	Max. Continuous									8.7

* **681-01 is the reduced internal port size version of the 81-01.**

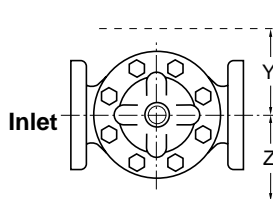
Suggested flow calculations were based on flow through Scheduled 40 Pipe. Maximum continuous flow is approximately 6ft/sec (1.8 meters/sec).

Installation of a surge valve is recommended. **Flanged End Detail Only

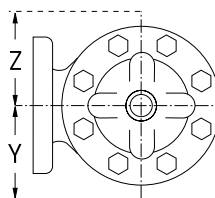
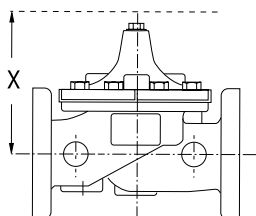
Pilot System Dimensions (In Inches)

We recommend providing adequate space around valve for maintenance work

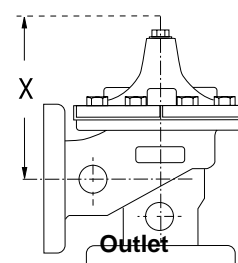
VALVE SIZE		3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
X	Max.	2.00	3.00	3.00	3.25	5.50	5.50	6.50	7.75	8.50
Y	Max.	1.25	1.75	1.75	2.50	4.00	4.00	4.00	4.50	5.00
Z	Max.	1.25	1.75	1.75	2.50	4.00	4.00	4.00	4.50	5.00



GLOBE



ANGLE



Outlet

Pilot System Specifications

Temperature Rating

Water: to 180°F. Max.

Speed Controls

For valves with opening and closing speed controls order Model 81-02

Materials

Standard Pilot System Materials

Fittings: Brass

Tubing: Copper

Optional Pilot System Materials

Pilot Systems are available with optional stainless steel or Monel materials at extra cost.

When Ordering, Please Specify

1. Catalog No. 81-01/681-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Screwed or Flanged
6. Desired Options
7. When Vertically Installed



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