



81-01
(Full Internal Port)
MODEL
681-01
(Reduced Internal Port)

Check Valve

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



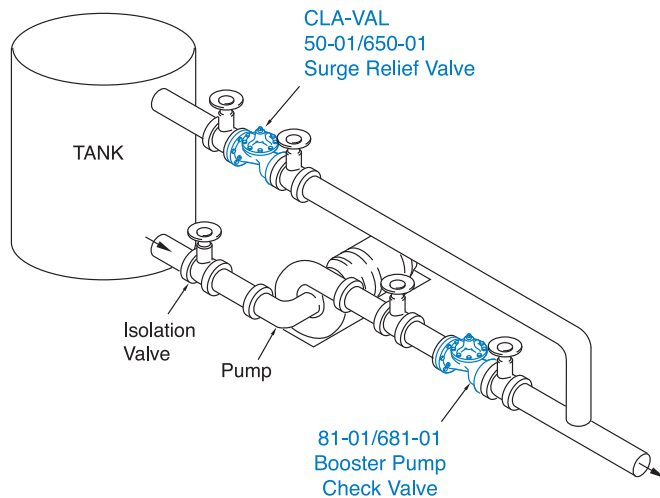
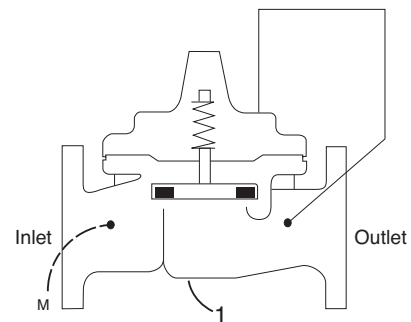
The Cla-Val Model 81-01/681-01 Check Valve is a hydraulically operated No-Slam Check Valve. This valve opens when the pressure at the inlet exceeds the discharge pressure. A gradual rate of opening prevents sudden opening surges. When a pressure reversal occurs the higher downstream pressure is applied 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)
M	X144 e-FlowMeter



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		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
ASTM B62	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.

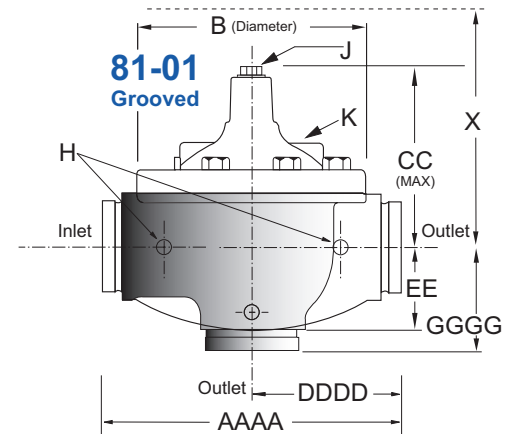
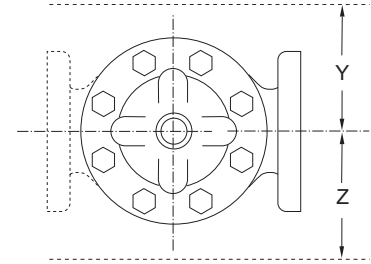
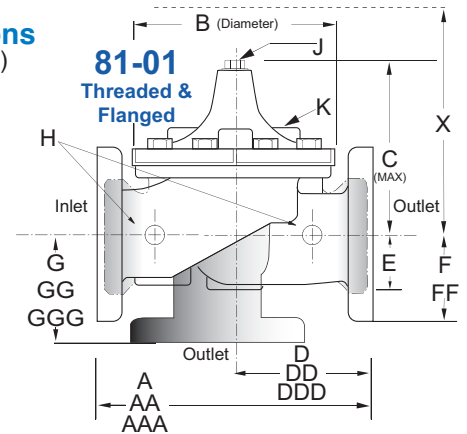
Valves for higher pressure are available; consult factory for details

Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3/8" - 3"	3/8" - 3"	3/8" - 3"
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 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 Threaded	2.75	3.50	3.50	7.25	7.25	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
AAAA Grooved End	—	—	—	—	—	8.50	9.00	11.00	12.50
B Dia.	2.50	3.12	3.12	5.62	5.62	5.62	6.62	8.00	9.12
C Max.	2.00	3.00	3.00	5.50	5.50	5.50	6.50	7.56	8.19
CC Max. Grooved End	—	—	—	—	—	4.75	5.75	6.88	7.25
D Threaded	—	—	—	3.25	3.25	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
DDDD Grooved End	—	—	—	—	—	—	4.75	—	6.00
E	1.25	0.88	0.88	1.12	1.12	1.12	1.50	1.69	2.06
EE Grooved End	—	—	—	—	—	2.00	2.50	2.88	3.12
F 150 ANSI	—	—	—	—	—	2.50	3.00	3.50	3.75
FF 300 ANSI	—	—	—	—	—	3.06	3.25	3.75	4.13
G Threaded	—	—	—	1.88	1.88	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
GGGG Grooved End	—	—	—	—	—	—	3.25	—	4.25
H NPT Body Tapping	—	.125	.125	.375	.375	.375	.375	.50	.50
J NPT Cover Center Plug	.125	.125	.125	.25	.25	.25	.50	.50	.50
K NPT Cover Tapping	—	.125	.125	.375	.375	.375	.375	.50	.50
Stem Travel	—	—	—	0.4	0.4	0.4	0.6	0.7	0.8
Approx. Ship Wt. Lbs.	3	3	3	15	15	15	35	50	70
X Pilot System	8	9	9	11	11	11	13	14	15
Y Pilot System	5	6	6	9	9	9	9	10	11
Z Pilot System	5	6	6	9	9	9	9	10	11

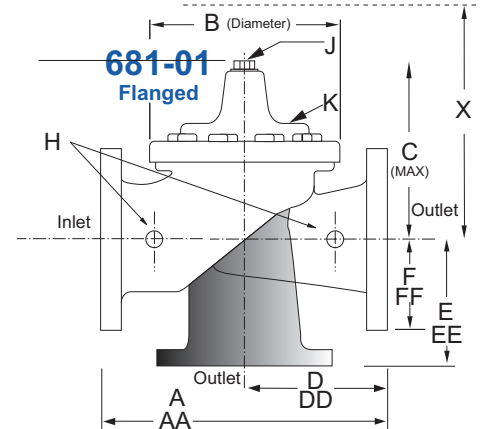
Model 681-01 (Uses Basic Valve Model 100-20)

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
ASTM B62	Bronze	B16.24	225	400

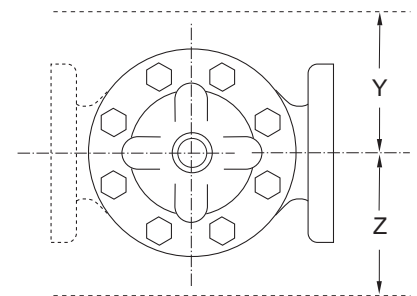
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details



Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3"	3"	3"
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 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 ANSI	3.75
FF 300 ANSI	4.12
H NPT Body Tapping	3/8
J NPT Cover Center Plug	1/2
K NPT Cover Tapping	3/8
Stem Travel	0.6
Approx. Ship Wt. Lbs.	45
X Pilot System	13
Y Pilot System	10
Z Pilot System	10

81-01 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes									
	Inches	¾	½	¼	1	1¼	1½	2	2½	3
	mm	10	15	20	25	32	40	50	65	80
Basic Valve 100-01	Pattern	G	G	G	G, A	G, A	G, A	G, A	G, A	G, A
	End Detail	T	T	T	T	T	T, F, Gr*	T, F, Gr	T, F, Gr*	T, F, Gr
Suggested Flow (gpm)	Maximum	4	6	10	16	28	38	63	90	138
Suggested Flow (Liters/Sec)	Maximum	0.3	0.4	0.6	1.0	1.8	2.4	4.0	5.7	8.7

100-01 Series is the full internal port Hytrol. *Globe Grooved Only

681-01 Valve Selection	100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes									
	Inches	3	4	6	8	10	12	14	16	18
	mm	80	100	150	200	250	300	350	400	450
Basic Valve 100-20	Pattern	G								
	End Detail	F								
Suggested Flow (gpm)	Maximum	138								
Suggested Flow (Liters/Sec)	Maximum	8.7								

100-20 Series is the reduced internal port size version of the 100-01 Series.

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.

When Ordering, Please Specify

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



E-81-01/681-01 (R-6/2012)

CLA-VAL

PO Box 1325 Newport Beach CA 92659-0325
Phone: 949-722-4800 • Fax: 949-548-5441

CLA-VAL CANADA

4687 Christie Drive
Beamsville, Ontario
Canada L0R 1B4
Phone: 905-563-4963
Fax: 905-563-4040

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CLA-VAL EUROPE

Chemin des Mesanges 1
CH-1032 Romanel/
Lausanne, Switzerland
Phone: 41-21-643-15-55
Fax: 41-21-643-15-50

www.cla-val.com

Represented By: