



**81-02**  
 – MODEL – (Full Internal Port)  
**681-02**  
 (Reduced Internal Port)

# Check Valve



- Simple Proven Design
- No-Slam Operation
- Drip-Tight Shut-Off
- Dual Speed Control
- No Packing Glands or Stuffing Boxes
- Available in a Variety of Materials

The Cla-Val Model 81-02/681-02 Check Valve is a hydraulically operated No-Slam Check Valve with dual speed controls. 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.

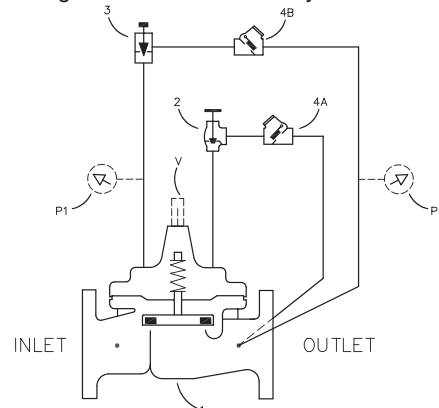
Note: The effectiveness of this valve is related to pipeline velocity. We recommend a maximum flow based on pipeline velocity of 6 feet per second. If pipeline velocities exceed 6 feet per second, consideration should be given to adding a Cla-Val Model 50-01 Pressure Relief Valve or a Cla-Val Model 52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

## Schematic Diagram

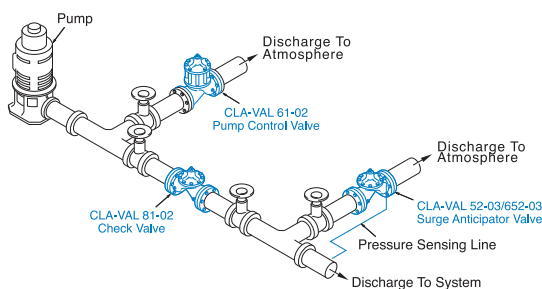
Item	Description
1	Hytrol (Reverse Flow Main Valve)
2	CGA Angle Valve (Closing)
3	CNA Needle Valve (Opening)
4	CSC Swing Check Valve

## Optional Features

Item	Description
P	X141 Pressure Gauge
V	X101 Valve Position Indicator

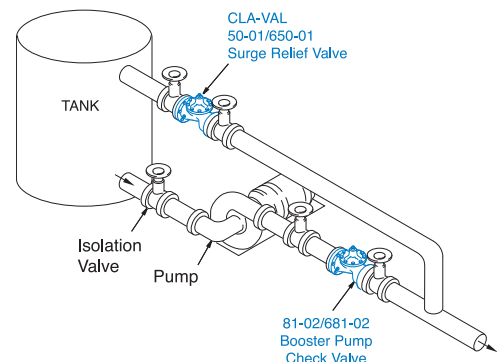


## Typical Applications



### Deep Well Pump

This valve should be an integral part of any well designed pumping system. It is used to prevent damaging and sometimes expensive flow reversal.



### Booster Pump

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.



**Model 81-02** (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

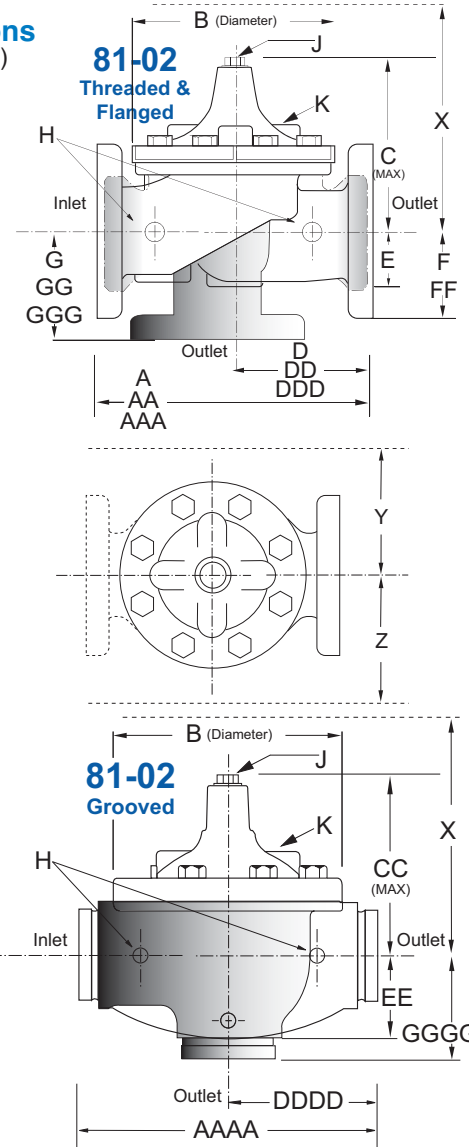
Note: \* ANSI standards are for flange dimensions only.  
 Flanged valves are available faced but not drilled.  
 ‡ End Details machined to ANSI B2.1 specifications.  
**Valves for higher pressure are available; consult factory for details**

**Materials**

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	2" - 24"	2" - 16"	2" - 16"
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 81-02 Dimensions** (In Inches)

Valve Size (Inches)	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
<b>A</b> Threaded	9.38	11.00	12.50	—	—	—	—	—	—	—	—	—	—	—	—
<b>AA</b> 150 ANSI	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	46.00	52.00	61.50	63.00	76.00
<b>AAA</b> 300 ANSI	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	47.64	53.62	63.24	64.50	76.00
<b>AAAA</b> Grooved End	9.00	11.00	12.50	15.00	20.00	25.38	—	—	—	—	—	—	—	—	—
<b>B</b> Dia.	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	41.50	45.00	53.16	56.00	66.00
<b>C</b> Max.	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	39.06	41.90	43.93	54.60	61.50
<b>CC</b> Max. Grooved End	5.75	6.88	7.25	9.31	12.12	14.62	—	—	—	—	—	—	—	—	—
<b>D</b> Threaded	4.75	5.50	6.25	—	—	—	—	—	—	—	—	—	—	—	—
<b>DD</b> 150 ANSI	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81	—	—	30.75	—	—
<b>DDD</b> 300 ANSI	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—	31.62	—	—
<b>DDDD</b> Grooved End	4.75	—	6.00	7.50	—	—	—	—	—	—	—	—	—	—	—
<b>E</b>	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	12.95	15.00	17.75	21.31	24.56
<b>EE</b> Grooved End	2.50	2.88	3.12	4.25	6.00	7.56	—	—	—	—	—	—	—	—	—
<b>F</b> 150 ANSI	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	15.00	16.50	19.25	22.50	25.60
<b>FF</b> 300 ANSI	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.00	16.50	19.25	24.00	25.60
<b>G</b> Threaded	3.25	4.00	4.50	—	—	—	—	—	—	—	—	—	—	—	—
<b>GG</b> 150 ANSI	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—	22.06	—	—
<b>GGG</b> 300 ANSI	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—	22.90	—	—
<b>GGGG</b> Grooved End	3.25	—	4.25	5.00	—	—	—	—	—	—	—	—	—	—	—
<b>H</b> NPT Body Tapping	.375	.50	.50	.75	.75	1	1	1	1	1	1	1	1	2	2
<b>J</b> NPT Cover Center Plug	.50	.50	.50	.75	.75	1	1	1.25	1.5	2	1.5	1.5	1.5	2	2
<b>K</b> NPT Cover Tapping	.375	.50	.50	.75	.75	1	1	1	1	1	1	1	1	2	2
Stem Travel	0.6	0.7	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	5.1	5.63	6.75	7.5	8.5
Approx. Ship Wt. Lbs.	35	50	70	140	285	500	780	1165	1600	2265	2982	3900	6200	7703	11720
<b>X</b> Pilot System	13	14	15	17	29	31	33	36	40	40	43	47	68	56	66
<b>Y</b> Pilot System	9	10	11	12	20	22	24	26	29	30	32	34	39	56	66
<b>Z</b> Pilot System	9	10	11	12	20	22	24	26	29	30	32	34	39	56	66

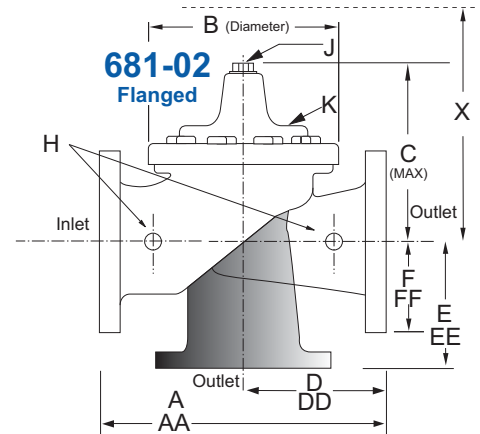
**Model 681-02** (Uses Basic Valve Model 100-20)

**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

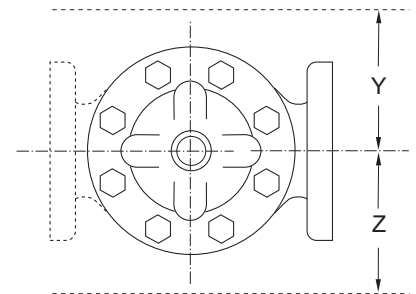
Note: \* ANSI standards are for flange dimensions only.  
Flanged valves are available faced but not drilled.  
**Valves for higher pressure are available; consult factory for details**



**Materials**

Component	Standard Material Combinations		
	Ductile Iron	Cast Steel	Bronze
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3" - 30"	3" - 16"	3" - 16"
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 681-02 Dimensions** (In Inches)

Valve Size (Inches)	3	4	6	8	10	12	14	16	18	20	24	30
A 150 ANSI	10.25	13.88	17.75	21.38	26.00	30.00	34.25	35.00	42.12	48.00	48.00	63.25
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38	31.50	35.75	36.62	43.63	49.62	49.75	63.75
B Dia.	6.62	9.12	11.50	15.75	20.00	23.62	27.47	28.00	35.44	35.44	35.44	53.19
C Max.	7.00	8.62	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.00	31.00	43.94
D 150 ANSI	—	6.94	8.88	10.69	CF*	CF*	CF*	CF*	CF*	CF*	CF*	—
DD 300 ANSI	—	7.25	9.38	11.19	CF*	CF*	CF*	CF*	CF*	CF*	CF*	—
E 150 ANSI	—	5.50	6.75	7.25	CF*	CF*	CF*	CF*	CF*	CF*	CF*	—
EE 300 ANSI	—	5.81	7.25	7.75	CF*	CF*	CF*	CF*	CF*	CF*	CF*	—
F 150 ANSI	3.75	4.50	5.50	6.75	8.00	9.50	11.00	11.75	15.88	14.56	17.00	19.88
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.88	16.06	19.00	22.00
H NPT Body Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1	1
J NPT Cover Center Plug	.50	.50	.75	.75	1	1	1.25	1.25	2	2	2	2
K NPT Cover Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1	1
Stem Travel	0.6	0.8	1.1	1.7	2.3	2.8	3.4	3.4	4.5	4.5	4.5	6.5
Approx. Ship Wt. Lbs.	45	85	195	330	625	900	1250	1380	1500	2551	2733	6500
X Pilot System	13	15	27	30	33	36	36	41	40	46	55	68
Y Pilot System	10	11	18	20	22	24	26	26	30	30	30	39
Z Pilot System	10	11	18	20	22	24	26	26	30	30	30	39

\*Consult Factory

81-02 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes																			
	Inches	1	1¼	1½	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36	
	mm	25	32	40	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900	
Basic Valve 100-01	Pattern				G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G	G	G, A	G	G	
	End Detail				T, F, Gr	T, F, Gr*	T, F, Gr	T, F, Gr	T, F, Gr*	T, F, Gr*	F	F	F	F	F	F	F	F	F	
Suggested Flow (gpm)	Maximum				63	90	138	240	550	950	1475	2100	2600	3400	4200	5200	7700	10150	14020	
Suggested Flow (Liters/Sec)	Maximum				4.0	5.7	8.7	15.1	34.7	60	93	132	164	214	265	328	485	-	-	

100-01 Series is the full internal port Hytrol.

\*Globe Grooved Only

681-02 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	20	24	30	36	42	48
	mm	80	100	150	200	250	300	350	400	450	500	600	750	900	1000	1200
Basic Valve 100-20	Pattern	G	G, A	G, A	G, A	G	G	G	G	G	G	G	G			
	End Detail	F	F	F	F	F	F	F	F	F	F	F	F			
Suggested Flow (gpm)	Maximum	60	138	240	550	950	1475	2100	2100	3800	3800	3800	8400			
Suggested Flow (Liters/Sec)	Maximum	3.8	8.7	15.1	35	60	93	132	132	239	239	239	529			

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

Opening and closing speed controls are standard on the 81-02 and 681-02 Model.

\* **Note:** Advise factory when ordering if valve will not be installed with the main valve stem in a vertical position.

#### 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. 81-02 or 681-02
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. When Vertically Installed \*



**CLA-VAL**

Represented By: