



# MODEL 681-02 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 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.

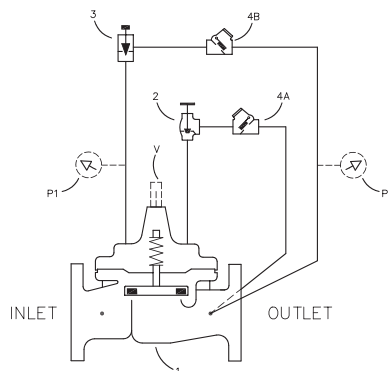
Note: The effectiveness of this valve is related to pipeline velocity. We recommend a maximum flow based on pipeline velocity of 6 feet per second. If pipeline velocities exceed 6 feet per second, consideration should be given to adding a Cla-Val Model 50-01 Pressure Relief Valve or a Cla-Val Model 52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

## Schematic Diagram

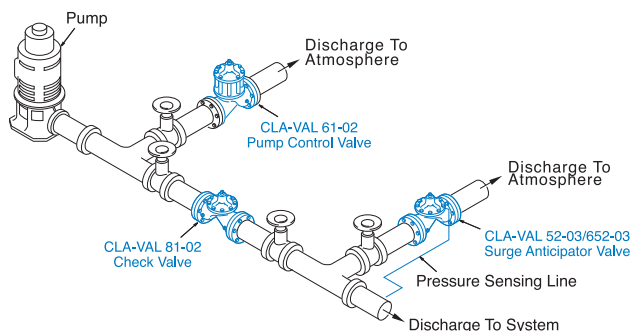
Item	Description
1	100-20 Hytrol Reverse Flow Main Valve
2	CGA Angle Valve (Closing)
3	CNA Needle Valve (Opening)
4	CSC Swing Check Valve

## Optional Features

Item	Description
P	X141 Pressure Gauge
V	X101 Valve Position Indicator

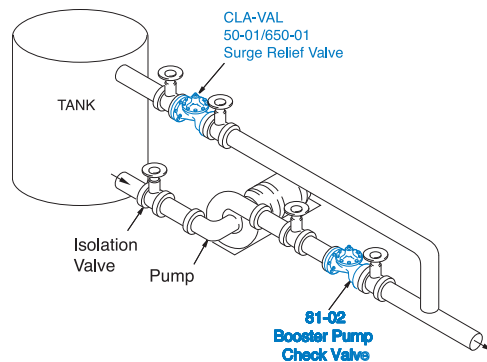


## Typical Applications



### 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 681-02 (Uses 100-20 Hytrol Reverse Flow Main Valve)

### Pressure Ratings (Recommended Maximum Pressure - psi)

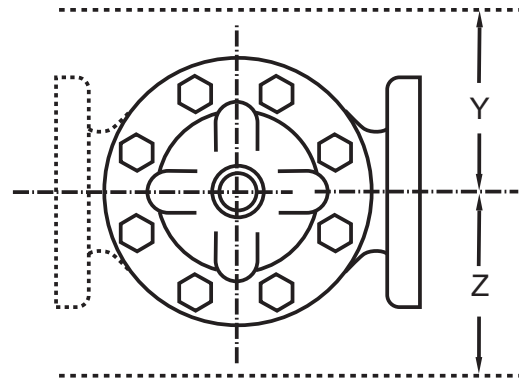
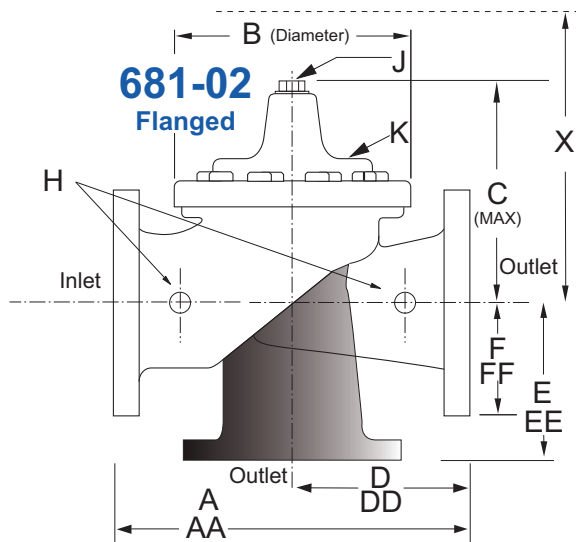
Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
ASTM B62	Bronze	B16.24	225	400

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" - 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		

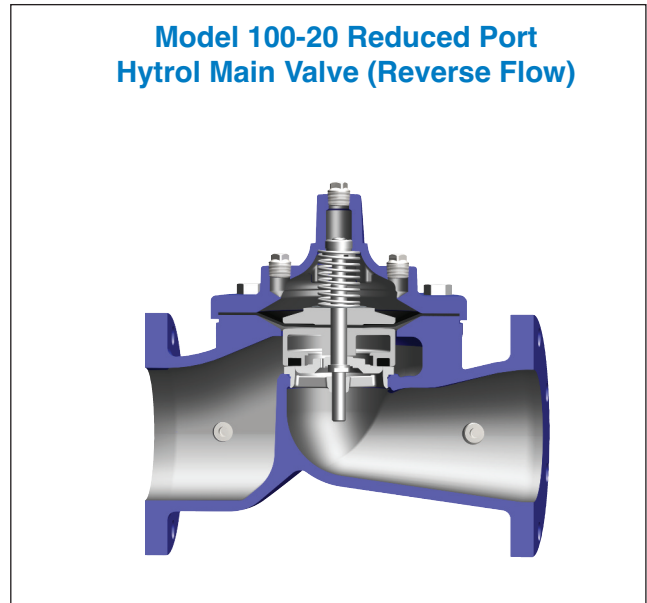
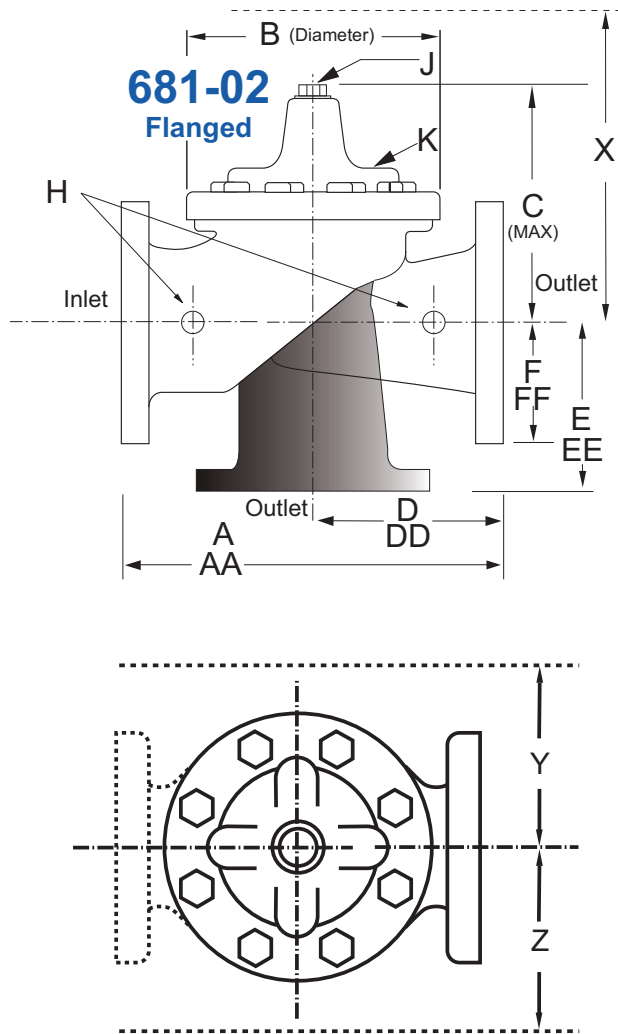
For material options not listed, consult factory.  
Cla-Val manufactures valves in more than 50 different alloys.



### Model 681-02 Dimensions (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 Diameter	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 Maximum	7.00	8.62	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.50	31.50	43.94
D 150 ANSI	—	6.94	8.88	10.69	12.75	14.94	—	—	20.93	21.06	—	—
DD 300 ANSI	—	7.25	9.38	11.19	—	—	—	—	—	—	—	—
E 150 ANSI	—	5.50	6.75	7.25	8.06	8.68	—	—	15.81	15.94	—	—
EE 300 ANSI	—	5.81	7.25	7.75	—	—	—	—	—	—	—	—
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	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.25	2.00	2.00	2.00	1.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Stem Travel	0.60	0.80	1.10	1.70	2.30	2.80	3.40	4.50	4.50	4.50	6.50	7.50
Approx. Ship Weight (lbs)	45	85	195	330	625	900	1250	1380	2365	2551	2733	6500
Approx. X Pilot System	13	15	27	30	33	36	36	41	40	46	55	68
Approx. Y Pilot System	10	11	18	20	22	24	26	26	30	30	30	39
Approx. Z Pilot System	10	11	18	20	22	24	26	26	30	30	30	39

**Model 681-02 Metric Dimensions** (Uses 100-20 Hytrol Reverse Flow Main Valve)



**Model 681-02 Dimensions (mm)**

Valve Size (mm)	80	100	150	200	250	300	350	400	450	500	600	750
A 150 ANSI	260	353	451	543	660	762	870	889	1070	1219	1219	1607
AA 300 ANSI	279	368	473	568	695	800	908	930	1108	1260	1263	1619
B Diameter	168	232	292	400	508	600	698	711	900	900	900	1351
C Maximum	178	219	295	381	454	533	530	654	635	800	800	1116
D 150 ANSI	—	176	226	272	324	380	—	—	532	535	—	—
DD 300 ANSI	—	184	238	284	—	—	—	—	—	—	—	—
E 150 ANSI	—	140	171	184	205	349	—	—	402	405	—	—
EE 300 ANSI	—	148	184	197	—	—	—	—	—	—	—	—
F 150 ANSI	95	114	140	171	203	241	279	289	403	370	432	505
FF 300 ANSI	105	127	159	191	222	260	292	324	403	408	483	559
H NPT Body Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.25	2.00	2.00	2.00	1.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Stem Travel	15	20	28	43	58	71	86	86	114	114	114	165
Approx. Ship Weight (kgs)	20	39	89	150	284	409	568	627	681	1157	1249	2951
Approx. X Pilot System	331	381	686	762	839	915	915	1042	1016	1169	1397	1728
Approx. Y Pilot System	254	280	458	508	559	610	661	661	762	762	762	991
Approx. Z Pilot System	254	280	458	508	559	610	661	661	762	762	762	991

\*Consult Factory

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
	mm	80	100	150	200	250	300	350	400	450	500	600	750
Main 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
	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.**

Flowrates shown are for a velocity of 6 fps (1.8 m/s).

Velocities can be increased to 10 fps (3.05 m/s) if required, and the installation of a surge valve in the system is recommended in velocities above 6 ft/sec. (1.8 m/sec)

## Pilot System Specifications

### Temperature Rating

**Water:** to 180°F/82°C Max.

### Speed Controls

Opening and closing speed controls are standard on the 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.

### Valve Options



X101 Valve  
Position Indicator



X141 Pressure  
Gauge



CGA Angle Valve  
(Closing)



CNA Needle Valve  
(Opening)



CSC Swing Check  
Valve

### When Ordering, Please Specify:

1. Catalog No. 681-02
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. When Vertically Installed \*



E-681-02 (R-11/2019)

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