



**92-01**  
 (Full Internal Port)  
 — MODEL —  
**692-01**  
 (Reduced Internal Port)

# Combination Pressure Reducing & Pressure Sustaining Valve



- Accurate Response to Slight Pressure Changes
- Check Feature Available
- Completely Automatic Operation
- Drip-Tight, Positive Seating Action
- Operation is Fully Hydraulic

The Cla-Val Model 92-01/692-01 Combination Pressure Reducing and Pressure Sustaining Valve automatically performs two independent functions. It maintains a constant downstream pressure, regardless of fluctuating demand and sustains the upstream pressure to a pre-determined minimum.

The pressure reducing control responds to slight variations in downstream pressure and immediately repositions the main valve to maintain the desired downstream pressure. The pressure sustaining control is normally held open by the upstream pressure, but modulates should the pressure drop to the control set point. This, in turn, modulates the main valve to sustain the desired upstream pressure.

If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber and the valve closes to prevent return flow.

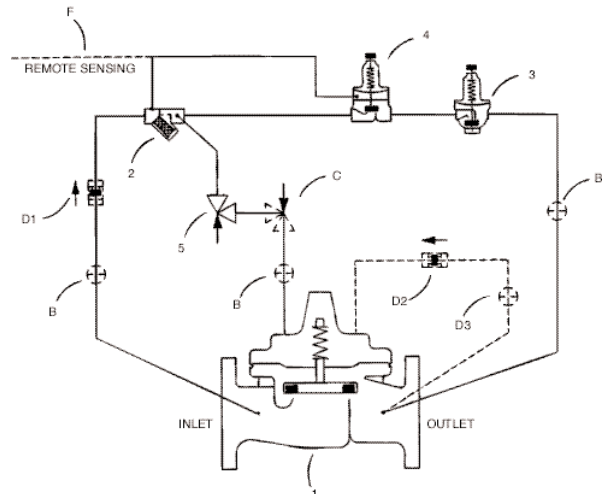
## Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	X44A Strainer & Orifice
3	CRD Pressure Reducing Control
4	CRL Pressure Relief Control
5	CV Flow Control (Opening)

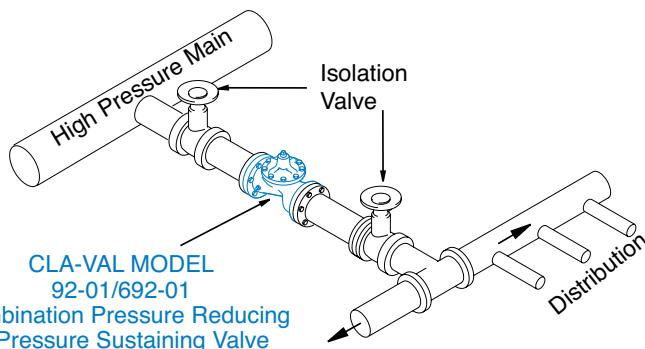
## Optional Features

Item	Description
B	CK2 (Isolation Valve)
C	CV Flow Control (Closing)*
D	Check Valves With Isolation Valve
F	Remote Pilot Sensing

\* The (optional) closing speed control on this valve should always be open at least three (3) turns off its seat.



The "D" feature on a vertically installed 6" and larger valves must be horizontally installed.



## Typical Applications

A Combination Pressure Reducing and Pressure Sustaining Valve is typically used to automatically reduce pressure for the downstream distribution network and sustain a minimum pressure in the high pressure main regardless of distribution demand.



## Model 92-01 (Uses Basic Valve Model 100-01)

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

Valve Body & Cover		Pressure Class			
		Flanged			Threaded
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

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

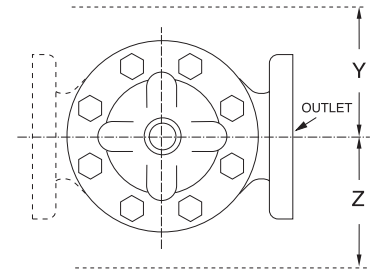
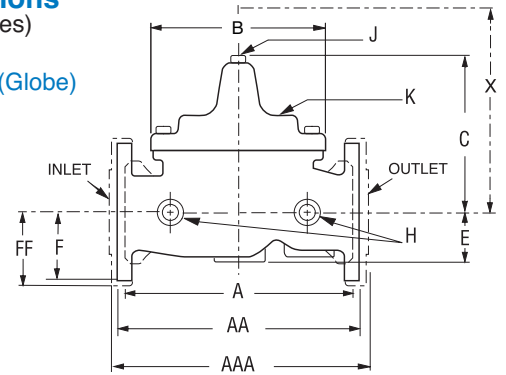
### Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	1¼" - 36"	1¼" - 16"	1¼" - 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		

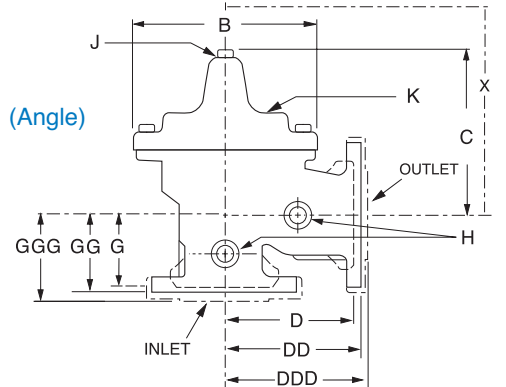
For material options not listed, consult factory.  
 Cla-Val manufactures valves in more than 50 different alloys.

### Dimensions (In inches)

#### 100-01 (Globe)



#### 100-01 (Angle)



### Model 92-01 Dimensions (In Inches)

Valve Size (Inches)	1¼-1½	2	2½	3	4	6	8	10	12	14	16	24	36
<b>A</b> Threaded	7.25	9.38	11.00	12.50	—	—	—	—	—	—	—	—	—
<b>AA</b> 150 ANSI	8.50*	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	61.50	76.00
<b>AAA</b> 300 ANSI	9.00*	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	63.24	78.00
<b>B</b> Dia.	5.62	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	53.16	66.00
<b>C</b> Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	43.93	61.50
<b>D</b> Threaded	3.25	4.75	5.50	6.25	—	—	—	—	—	—	—	—	—
<b>DD</b> 150 ANSI	4.00*	4.75	5.50	6.00	7.50	10.00	12.75	14.88	17.00	19.50	20.81	—	—
<b>DDD</b> 300 ANSI	4.25*	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—
<b>E</b>	1.12	1.50	1.69	2.56	3.19	4.31	5.31	9.25	10.75	12.62	15.50	17.75	24.56
<b>F</b> 150 ANSI	2.50	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	19.25	28.00
<b>FF</b> 300 ANSI	3.06	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	—	—
<b>G</b> Threaded	1.88	3.25	4.00	4.50	—	—	—	—	—	—	—	—	—
<b>GG</b> 150 ANSI	4.00*	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—
<b>GGG</b> 300 ANSI	4.25*	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—
<b>H</b> NPT Body Tapping	¾	¾	½	½	¾	¾	1	1	1	1	1	1	2
<b>J</b> NPT Cover Center Plug	¼	½	½	½	¾	¾	1	1	1¼	1½	2	1½	2
<b>K</b> NPT Cover Tapping	¾	¾	½	½	¾	¾	1	1	1	1	1	1	2
Valve Stem Internal Thread UNF	10-32	10-32	10-32	¼-28	¼-28	¾-24	¾-24	¾-24	¾-24	¾-24	¾-24	½-20	¾-16
Stem Travel	0.4	0.6	0.7	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	6.75	10.12
Approx. Ship Wt. Lbs.	15	35	50	70	140	285	500	780	1165	1600	2265	6200	11470
<b>X</b> Pilot System	11.00	13.00	14.00	15.00	17.00	29.00	31.00	33.00	36.00	40.00	40.00	68.00	86.00
<b>Y</b> Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	39.00	45.00
<b>Z</b> Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	39.00	45.00

\*1½" Size Only

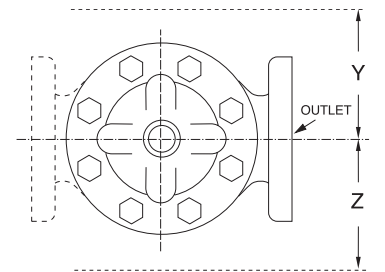
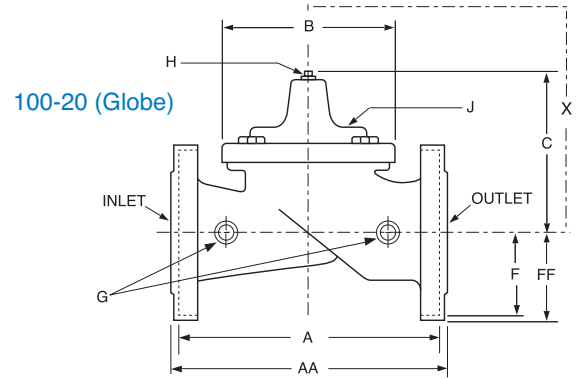
**Model 692-01** (Uses Basic Valve Model 100-20)

**Dimensions**  
(In inches)

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

Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 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

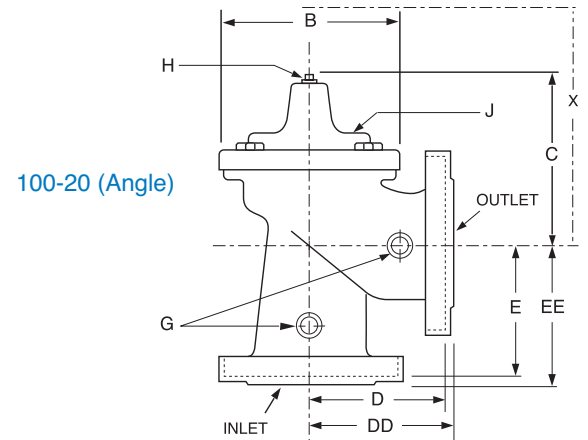
Note: \*ANSI standards are for flange dimensions only.  
Flanged valves are available faced but not drilled.



**Materials**



















































Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3" - 48"	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 692-01 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	—	36.62	43.63	49.62	49.75	—
B Dia.	6.62	9.12	11.50	15.75	20.00	23.62	28.00	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	—	—	—	—	—	—	—	—
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	3.75	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	—	12.75	15.88	16.06	19.00	—
H NPT Body Tapping	3/8	1/2	3/4	3/4	1	1	1	1	1	1	1	1
J NPT Cover Center Plug	1/2	1/2	3/4	3/4	1	1	1 1/4	1 1/4	2	2	2	2
K NPT Cover Tapping	3/8	1/2	3/4	3/4	1	1	1	1	1	1	1	1
Valve Stem Internal Thread UNF	10-32	1/4-28	1/4-28	3/8-24	3/8-24	3/8-24	3/8-24	3/8-24	1/2-20	1/2-20	1/2-20	3/4-16
Stem Travel	0.6	0.8	1.1	1.7	2.3	2.8	3.4	3.4	3.4	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	13.00	15.00	27.00	30.00	33.00	36.00	36.00	41.00	40.00	46.00	55.00	68.00
Y Pilot System	10.00	11.00	18.00	20.00	22.00	24.00	26.00	26.00	30.00	30.00	30.00	39.00
Z Pilot System	10.00	11.00	18.00	20.00	22.00	24.00	26.00	26.00	30.00	30.00	30.00	39.00

Valve Selection		These Symbols  and  Indicate Available Sizes																	
		Inches	1¼	1½	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
		mm	32	40	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
		End Detail	Threaded	Threaded & Flanged					Flanged										
Model 92-01	Basic Valve 100-01	Globe																	
		Angle																	
	Suggested Flow (gpm)	Max. Continuous	93	125	210	300	460	800	1800	3100	4900	7000	8400	11000			25000		50000
		Max. Intermittent	120	160	260	370	580	990	2250	3900	6150	8720	10540	13700			31300		62500
		Min. Continuous	10	10	15	20	30	50	115	200	300	400	500	650			1750		2900
	Suggested Flow (Liters/Sec)	Max. Continuous	6	8	13	19	29	50	113	195	309	441	529	693			1575		3150
		Max. Intermittent	7.6	10.1	16.4	23	37	62	142	246	387	549	664	863			1972		3940
		Min. Continuous	.6	.6	.9	1.3	1.9	3.2	7.2	13	19	25	32	41			110		180
	Model 692-01	Basic Valve 100-20	Globe																
Angle																			
Suggested Flow (gpm)		Max. Continuous					260	580	1025	2300	4100	6400	9230	9230	16500	16500	16500	28000	
		Min. Continuous					15	30	50	115	200	300	500	500	900	900	900	1850	
Suggested Flow (Liters/Sec)		Max. Continuous					16	37	65	145	258	403	581	581	1040	1040	1040	1764	
		Min. Continuous					.9	1.9	3.2	7.2	13	19	32	32	57	57	57	117	

**692-01 is the reduced internal port size version of the 92-01.**

\*\*Flanged End Detail Only

For 100-01 basic valves, suggested flow calculations were based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft/sec (6.1 meters/sec) & maximum intermittent is approx. 25 ft/sec (7.6 meters/sec) and minimum continuous flow is approx. 1 ft/sec (.3 meters/sec). For 100-20 basic valves, suggested flow calculations were based on flow through the valve seat. Approx. 26 ft/sec (7.9 meters/sec) was used for maximum continuous flow & 1 ft/sec (.3 meters/sec) is used for minimum continuous flow. Maximum continuous flow through the valve seat for the 30" 100-20 is approx. 20 ft/sec (6.1 meters/sec).

Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates. For sizing questions or cavitation analysis, consult Cla-Val with system details.

## Pilot System Specifications

### Adjustment Ranges

Downstream: 2 to 30 psi  
15 to 75 psi  
30 to 300 psi\*

Upstream: 0 to 75 psi  
20 to 200 psi\*  
100 to 300 psi

\*Supplied unless otherwise specified  
Other ranges available, please consult factory.

### Temperature Range

Water: to 180°F

### Materials

#### Standard Pilot System Materials

Pilot Control: Bronze ASTM B62  
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.

Note: Available with remote sensing control.

## When Ordering, Please Specify

1. Catalog No. 92-01 or No. 692-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed



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