



MODEL **93-01**
693-01 ✂

Pressure Reducing & Solenoid Shut-off Valve



- **Accurate Pressure Control**
- **Wide Adjustment Ranges**
- **Optional Check Feature Available**
- **Quick Acting Solenoid Shutoff**
- **Easy Installation and Maintenance**

The Model 93-01/693-01 Combination Pressure Reducing and Solenoid Shutoff Valve consists of a Cla-Val hytrol main valve, a reducing control and a solenoid control connected to the main valve. This valve automatically reduces higher inlet pressure to a steady lower downstream pressure regardless of changing flow rate and/or varying inlet pressure.

The 93-01/693-01 is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined delivery pressure. When downstream pressure exceeds the pressure setting of the control pilot, the pilot valve and main valve close drip-tight. A solenoid control is provided to intercept the operation of the pressure reducing control and close the main valve. This valve is furnished either normally open (de-energized to open), or normally closed (energized to open). Pressure setting adjustment is made with a single adjusting screw.

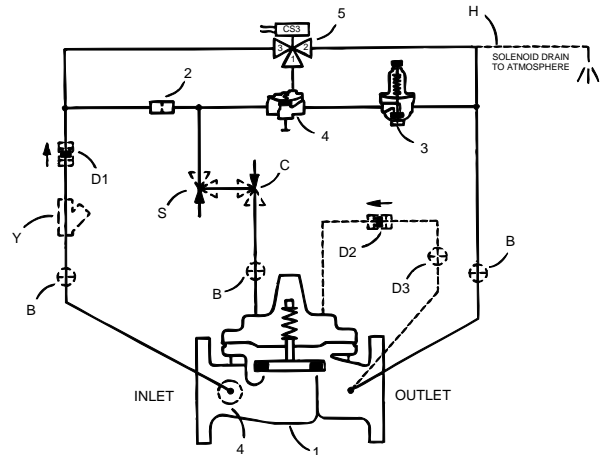
Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	X58C Restriction Assembly
3	CRD Pressure Reducing Control
4	100-01 Hytrol (Reverse Flow)
5	CS3 Solenoid Control

Optional Features

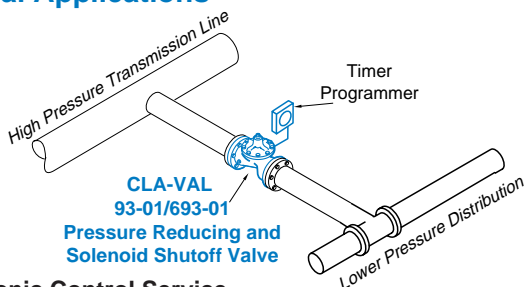
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Cock (Isolation Valve)
C	CV Flow Control (Closing)*
D	Check Valves with Cock
H	Solenoid Drain To Atmosphere
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer

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



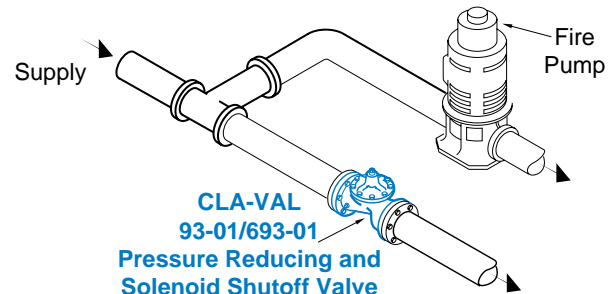
The "D" feature on a vertically installed 6" and larger valve must be horizontally installed.

Typical Applications



Electronic Control Service

An application for this valve is reducing high transmission line pressures to lower distribution system levels, while opening and closing on command. The solenoid control feature can be activated by an electrical signal from a timer or programmer.



Fire Service

The 93-01/693-01 can be installed in a distribution line where there is a need to close the valve on the starting of a fire pump. The solenoid control is activated on pump start-up and closes the valve.

Model 93-01 (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**
ASTM A-536	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
Type 304	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

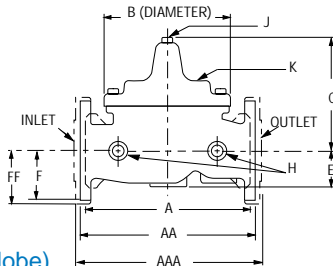
Materials

Component	Material Options				
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum
Available Sizes	1 1/4" - 16", 24"	1 1/4" - 16", 24"	1 1/4" - 16", 24"	1 1/4" - 16", 24"	1 1/4" - 16", 24"
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				

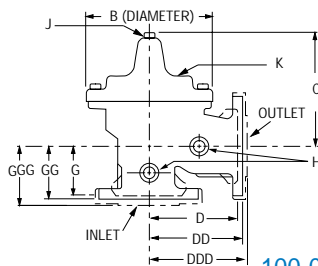


4" Globe, Flanged

Dimensions (In inches)



100-01 (Globe)



100-01 (Angle)



4" Angle, Flanged

Valve Size (Inches)	1 1/4-1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
A Screwed	7.25	9.38	11.00	12.50	—	—	—	—	—	—	—	—
AA 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
AAA 300 ANSI	9.00*	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	—
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
C 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
D Screwed	3.25	4.69	5.50	6.25	—	—	—	—	—	—	—	—
DD 150 ANSI	4.00*	4.69	5.50	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.69	—
DDD 300 ANSI	4.25*	5.00	5.81	6.63	7.81	10.50	13.19	15.56	17.75	20.25	21.75	—
E	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	17.75
F 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
FF 300 ANSI	3.06	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	—
G Screwed	1.88	3.25	4.00	4.50	—	—	—	—	—	—	—	—
GG 150 ANSI	4.00*	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—
GGG 300 ANSI	4.25*	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—
H NPT Body Tapping	3/8	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1	1 1/2
J NPT Cover Center Plug	1/4	1/2	1/2	1/2	3/4	3/4	1	1	1 1/4	1 1/2	2	4-1/4
K NPT Cover Tapping	3/8	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1	1-1/2
Valve Stem Internal												
Thread UNF	10-32	10-32	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	3-12
Stem Travel	0.4	0.6	0.7	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	6.50
Approx. Ship Wt. Lbs.	15	35	50	70	140	285	500	780	1165	1500	2265	3000

*1 1/2" Size Only

Model 693-01 (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 A-536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
ASTM B62	Bronze	B16.24	225	400
Type 304	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

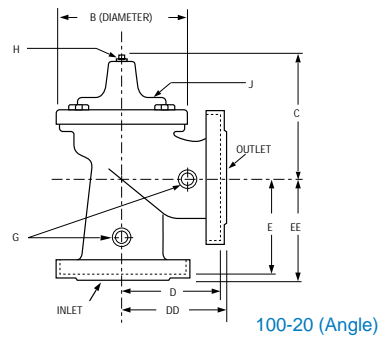
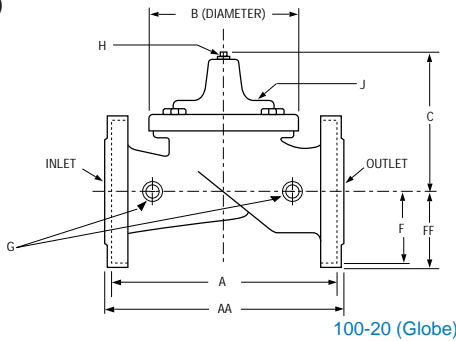
Materials

Component	Material Options				
	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum
Body & Cover					
Available Sizes	3"-24"	3"-24"	3"-24"	3"-24"	3"-24"
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				



6" Globe, Flanged

Dimensions (In inches)







































6" Angle, Flanged

VALVE SIZE (Inches)	3	4	6	8	10	12	16	20	24
A 150 ANSI	10.25	13.88	17.75	21.38	26.00	30.00	35.00	48.00	48.00
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38	31.50	36.62	49.62	49.75
B Dia.	6.62	9.12	11.50	15.75	20.00	23.62	28.00	35.44	35.44
C Max.	7.00	8.62	11.62	15.00	17.88	21.00	25.75	31.00	31.00
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	11.75	14.56	17.00
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75	10.25	12.75	16.06	19.00
G NPT Body Tapping	3/8	1/2	3/4	3/4	1	1	1	1	1
H NPT Cover Center Plug	1/2	1/2	3/4	3/4	1	1	1 1/4	2	2
J NPT Cover Tapping	3/8	1/2	3/4	3/4	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	1/2-20	1/2-20
Stem Travel	0.6	0.8	1.1	1.7	2.3	2.8	3.4	4.5	4.5
Approximate Shipping Weight Lbs.	45	85	195	330	625	900	1380	2551	2733

Valve Selection

These Symbols  and  Indicate Available Sizes

		Size	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	20"	24"
End Details		Screwed	Screwed or Flanged					Flanged								
Model 93-01	Basic Valve 100-01	Globe														
		Angle														
	Suggested Flow GPM	Max. Continuous	93	125	208	300	460	800	1800	3100	4900	7000	8500	11000		28000
		Max. Intermittent	120	160	260	370	580	990	2250	3900	6150	8720	10340	13700		35000
Min. Continuous		15	15	15	20	30	50	115	200	300	400	500	650		3000	
Model 693-01	Basic Valve 100-20	Globe														
		Angle														
	Suggested Flow-GPM	Max. Continuous					260	580	1025	2300	4100	6400		9230	16500	16500
		Min. Continuous					15	30	50	115	200	300		500	850	1000

✳️693-01 is the reduced internal port size version of the 93-01.

Refer to the 100-01 or the 100-20 Technical Data Sheet for basic valve options.

Max. Continuous Flow based on 20 fps (100-01), 25 fps (100-20)

Max. Intermittent Flow based on 25 fps (100-01)

Min. Continuous Flow based on appx. 1 fps (100-01) and (100-20)

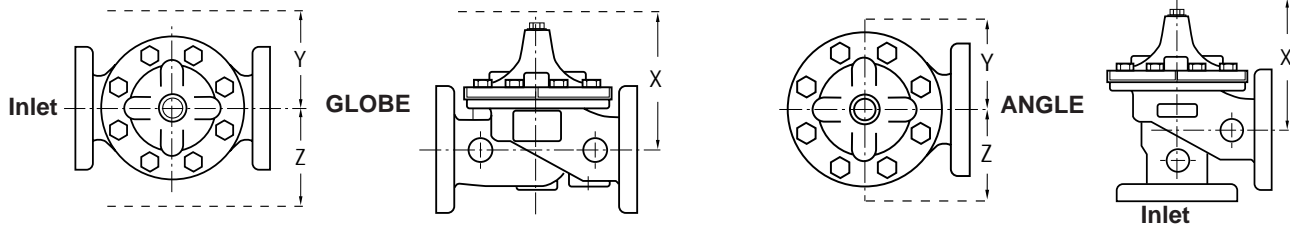
Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates. For sizing questions or cavitation analysis, consult Cla-Val with system details.

**Flanged End Detail Only

Pilot System Dimensions (In Inches)

We recommend providing adequate space around valve for maintenance work

VALVE SIZE	1 1/4" & 1 1/2"	2	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	20"	24"
X	Max.	12.50	13.50	13.75	14.00	14.50	16.00	17.25	20.25	21.75	25.00	27.25	31.00
Y	Max.	4.00	4.00	4.50	5.00	6.00	8.00	10.25	12.00	14.25	16.75	18.00	27.00
Z	Max.	7.50	7.50	8.00	9.00	10.00	10.50	12.50	13.50	15.75	17.50	18.00	27.00



Pilot System Specifications

Adjustment Ranges

- 2 to 30 psi
- 15 to 75 psi
- 30 to 300 psi*

*Supplied unless otherwise specified

Other ranges available, please consult factory.

Electrical Ratings

- 24, 48, 120, 240, 480 – 60 Hz VAC
- 6, 12, 24, 120, 240 VDC

This valve is furnished either normally open (de-energized to open), or normally closed (energized to open).

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, Monel or Cast Steel materials at extra cost.

Note: Available with remote sensing control.

When Ordering, Please Specify

1. Catalog No. 93-01 or No. 693-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Screwed or Flanged
6. Trim Material
7. Adjustment Range
8. Desired Options
9. Normally Open or Normally Closed
10. Electrical Selection
11. When Vertically Installed



E-93-01/693-01 (R-7/98)

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