



# Combination Back Pressure & Solenoid Shut-off Valve



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

The Model 58-01/658-01 valve performs two separate functions. It maintains a constant back pressure by discharging excess pressure downstream and when the solenoid is activated the valve closes drip tight.

In operation, the valve is actuated by hydraulic line pressure through the pilot control system. When inlet pressure is greater than the control setting, the valve opens. When inlet pressure is equal to the control setting, the pilot modulates the valve maintaining the pre-selected back pressure. When inlet pressure is less than the control setting, the pilot system closes the valve drip tight. Changing the pressure setting simply involves turning an adjusting screw on the pilot control.

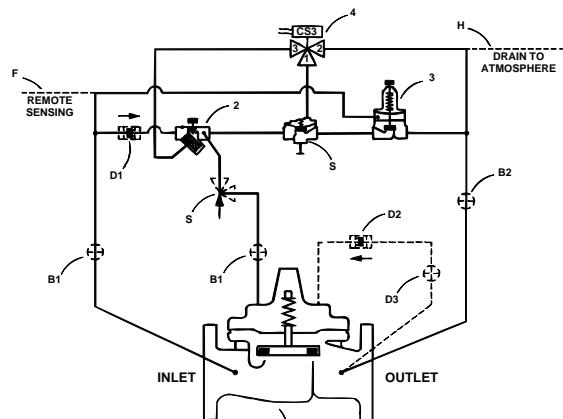
The solenoid control is available in energize to open or de-energize to open models.

## Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	X42N-3 Strainer & Needle Valve
3	CRL Pressure Relief Control
4	CS3 Solenoid Control
5	100-01 Hytrol (Reverse Flow)

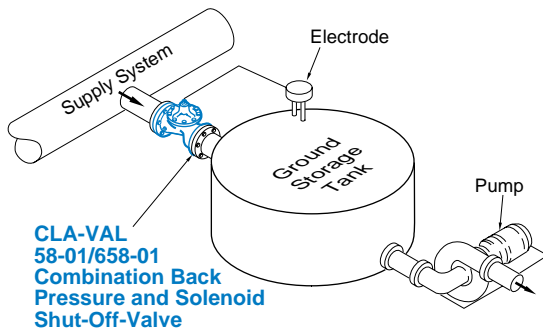
## Optional Features

Item	Description
B	Shutoff Cocks - Isolates Pilot System
D	Check Valves with Cock
F	Remote Pilot Sensing
H	Drain to Atmosphere
S	CV Speed Control (Opening)



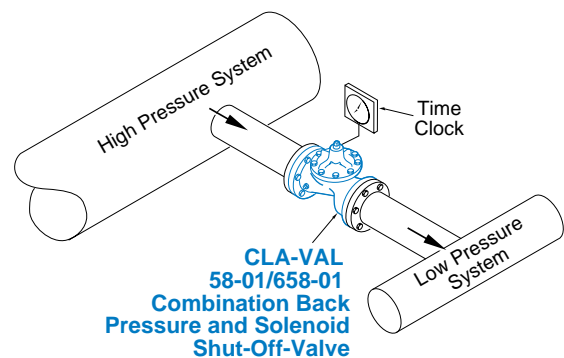
The "D" feature on a vertically installed 6" and larger valve must be horizontally oriented.

## Typical Applications



### Back Pressure Maintenance Service

A frequent application of this valve is to maintain minimum back pressure in the system while supplying water to a reservoir. The electrode in the storage tank activates the solenoid shutoff feature when the tank reaches a pre-set level.



### Electronic Control Service

Using a timer connected to the solenoid control of the valve, flow from the high pressure system to the low pressure system can be controlled at certain times during the day.



## Model 58-01 (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** Details
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.

### Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens			
Valve Size	Displacement	Valve Size	Displacement
1 - ¼"	.020 gal	8"	1.26 gal
1 - ½"	.020 gal	10"	2.51 gal
2"	.032 gal	12"	4.00 gal
2 - ½"	.043 gal	14"	6.50 gal
3"	.080 gal	16"	9.57 gal
4"	.169 gal	24"	29.00 gal
6"	.531 gal		

### Materials

Component	Material Options				
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum
Available Sizes	1¼" - 16", 24"	1¼" - 16", 24"	1¼" - 16", 24"	1¼" - 16", 24"	1¼" - 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				

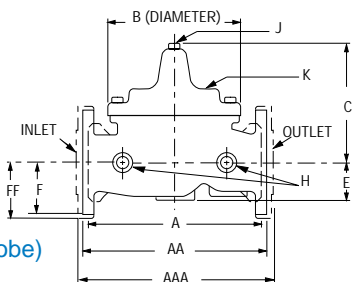


2" Globe, Screwed

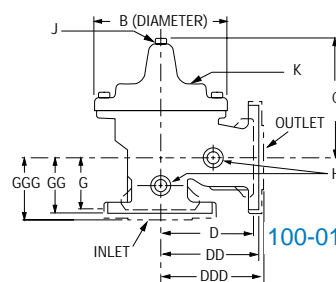


4" Angle, Flanged

### Dimensions (In Inches)



100-01 (Globe)



100-01 (Angle)

\*1½" Size Only

Valve Size (Inches)	1¼-1½	2	2 ½	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	4.75	5.50	6.25	—	—	—	—	—	—	—	—
DD 150 ANSI	4.00*	4.75	5.50	6.00	7.50	10.00	12.75	14.88	17.00	19.50	20.69	—
DDD 300 ANSI	4.25*	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—
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	¾	¾	½	½	¾	¾	1	1	1	1	1	1
J NPT Cover Center Plug	¼	½	½	½	¾	¾	1	1	1 ¼	1 ½	2	1 ½
K NPT Cover Tapping	¾	¾	½	½	¾	¾	1	1	1	1	1	1-½
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	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	6.50
Approx. Ship Wt. Lbs.	15	35	50	70	140	285	500	780	1165	1600	2265	6200

## Model 658-01 (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.

### Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens			
Valve Size	Displacement	Valve Size	Displacement
3"	.032 gal	12"	2.51 gal
4"	.080 gal	16"	4.00 gal
6"	.169 gal	20"	9.57 gal
8"	.531 gal	24"	9.57 gal
10"	1.26 gal		

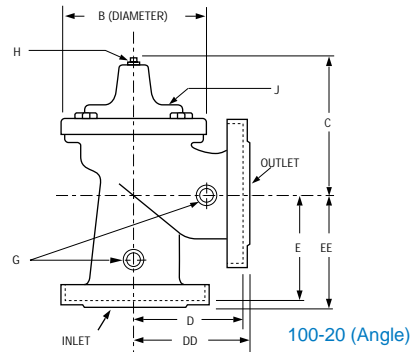
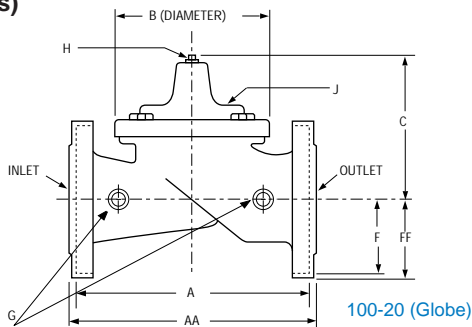
### Materials

Component	Material Options				
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum
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				



3" 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					
<b>Model 58-01</b>	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
<b>Model 658-01</b>	Basic Valve 100-20	Globe														
		Angle														
	Suggested Flow-GPM	Max. Continuous					260	580	1025	2300	4100	6400		9230	16500	16500
		Max. Intermittent					15	30	50	115	200	11000		500	850	1000

\* 658-01 is the reduced internal port size version of the 58-01.

Refer to the 100-01 or the 100-20 Technical Data Sheet 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)

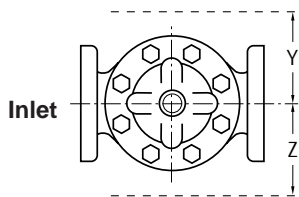
Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates. For sizing questions or cavitation analysis, consult Cla-Val with system details.

\*\*Flanged End Detail Only

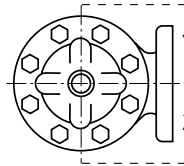
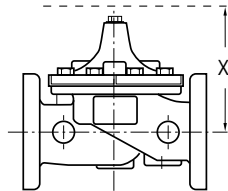
## Pilot System Dimensions (In Inches)

We recommend providing adequate space around valve for maintenance work

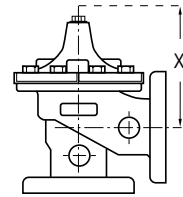
VALVE SIZE	1 1/4" & 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	20"	24"
X Max.	16.00	16.25	16.75	17.00	17.50	17.75	19.75	22.00	25.75	29.00	31.00	34.00	34.00
Y Max.	6.00	6.00	6.50	8.00	8.50	9.00	11.25	13.00	14.50	16.75	18.00	18.00	27.00
Z Max.	4.00	4.00	4.50	5.00	6.00	8.00	10.25	12.00	14.25	16.75	18.00	18.00	27.00



GLOBE



ANGLE



Inlet

## Pilot System Specifications

### Adjustment Ranges

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

### Electrical Ratings:

Voltage:

24, 48, 120, 240, 480 – 60 Hz. VAC

6, 12, 24, 120, 240 VDC

### Materials

Standard Pilot System Materials

Pilot Control: Bronze ASTM B62

Trim: Stainless Steel Type 303

Rubber: Buna N® Synthetic

Rubber

Tubing & Fittings: Copper and Bronze

### Optional Pilot System Materials

Pilot Systems are available with optional Aluminum, Stainless Steel or Monel materials at extra cost.

## When Ordering, Please Specify

- Catalog No. 58-01 or No. 658-01
- Valve Size
- Pattern - Globe or Angle
- Pressure Class
- Screwed or Flanged
- Trim Material
- Energized or De-energized to Open Main Valve
- Adjustment Range
- Desired Options
- Electrical Selection
- When Vertically Installed



E-58-01/658-01 (R-7/98)

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