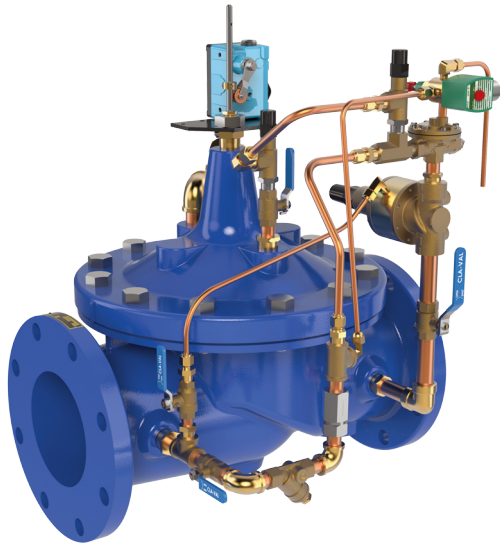




— MODEL — **60-32**

Combination Pump Control and Back Pressure Valve (4" and Larger)



- Built-in Check Valve
- Accurate Pressure Control
- Low Head Loss
- Smooth Control of Pump Surges
- Easy Maintenance Design

The Cla-Val Model 60-32 Combination Pump Control and Back Pressure Valve is a pilot-operated control valve designed for booster pump discharge installation to eliminate pipeline surges caused by starting and stopping of pump and to provide adjustable back pressure on pump while it is running. The valve features a modified globe-design with diaphragm-actuation, and hydraulic operation for smooth, reliable automatic operation during pump starting and stopping. A built-in lift-type check feature automatically closes valve on electric power failure or any time pressure reversal occurs to protect pump from back spinning.

In operation, when pump is off, the pump control valve is closed by downstream system pressure. When pump is started, the solenoid control is energized and valve opens slowly to gradually increase pump flow and line pressure to desired back pressure setting for pumping conditions. When pump is signaled to shut-off, the solenoid control is de-energized and the valve begins to slowly close, gradually reducing flow while pump continues to run. When valve is closed, the included limit switch assembly turns off pump. Adjustable flow controls are included to easily regulate valve opening and closing speed to prevent surges. Using Cla-Val wiring diagram (see page 4) ensures safe electrical interlock control of pump and valve.

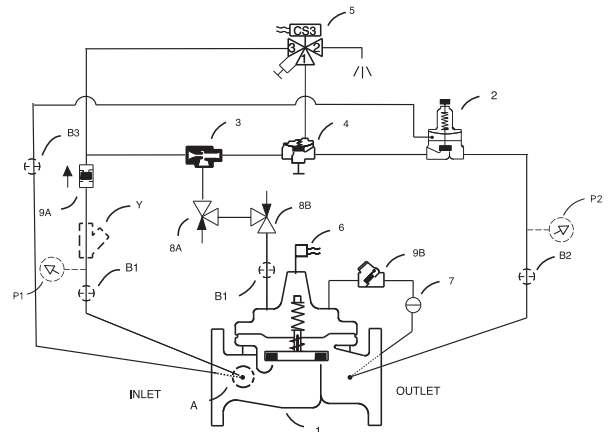
Schematic Diagram

Item	Description
1	Hycheck Main Valve 100-04
2	CRL Pressure Relief Control
3	X47A Ejector
4	100-01 Hytrol (Reverse Flow)
5	CS3M Solenoid Control
6	X105LCW Switch Assembly
7	CK2 Isolation Valve
8	CV Flow Control (Opening and Closing Speed)
9	CDC/CSC Check Valve

Optional Features

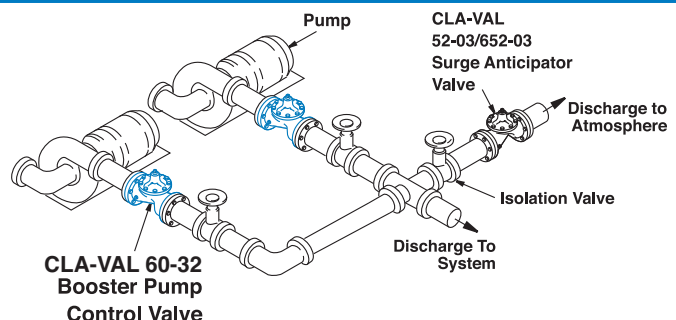
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
P	X141 Pressure Gauge
Y	X43 "Y" Strainer

Note: For main valve option descriptions, refer to the 100-04 (60-32) Engineering Data Sheet



Typical Application

Install Model 60-32 valve as shown in multiple pump applications. Flexible water-tight conduit should be used for electrical connections to the solenoid control and the limit switch. A Model 52-03/652-03 Surge Anticipator Valve is recommended for power failure protection.



Pressure Ratings (Recommended Maximum Pressure - psi)

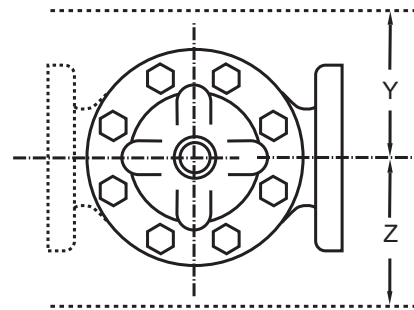
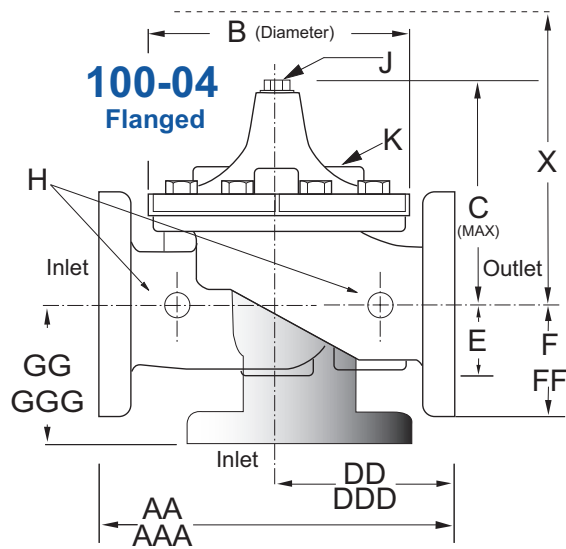
Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
UNS 87850	Bronze	B16.24	225	400

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

Materials

Component	Standard Material Combinations		
	Ductile Iron	Cast Steel	Bronze
Body & Cover	Ductile Iron	Cast Steel	Bronze
100-04 Sizes (inches)	4" - 16"	4" - 16"	4" - 16"
100-04 Sizes (mm)	100 - 600 mm	100 - 400 mm	100 - 400 mm
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		

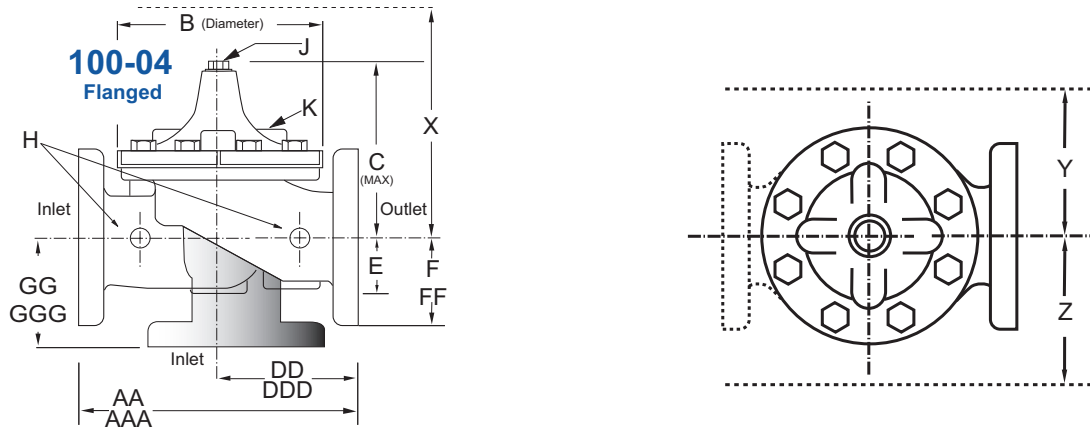
For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.



60-32 Series Dimensions (Full Internal Port 100-04) (inches)

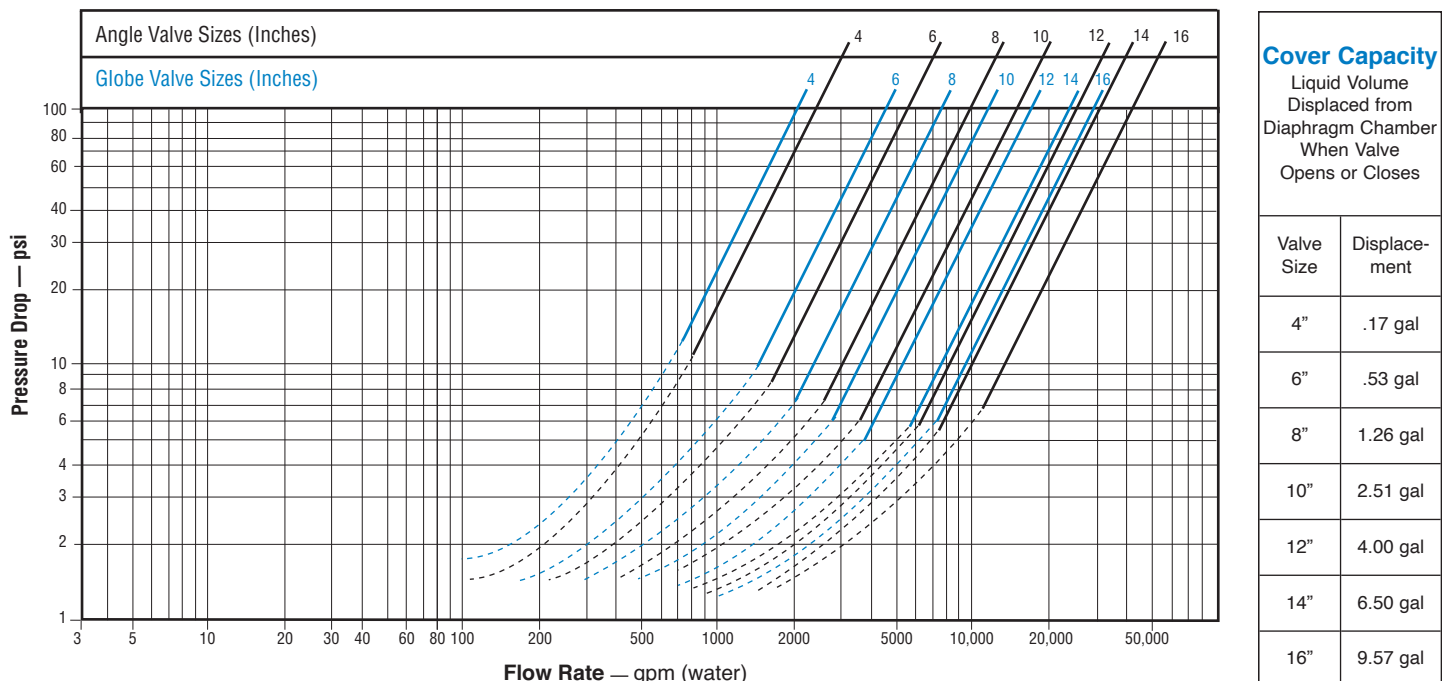
Valve Size (Inches)	4	6	8	10	12	14	16
A 150 ANSI	15.00	20.00	25.38	29.75	34.00	39.00	41.38
AA 300 ANSI	15.62	21.00	26.38	31.12	35.50	40.50	43.50
B Diameter	11.50	15.75	20.00	23.62	28.00	32.75	35.50
C Maximum	10.62	13.38	16.00	17.12	20.88	24.19	25.00
D 150 ANSI	7.50	10.00	12.69	14.88	17.00	19.50	20.69
DD 300 ANSI	7.81	10.50	13.19	15.56	17.75	20.25	21.75
E	3.19	4.31	5.31	9.25	10.75	12.62	15.50
F 150 ANSI	4.50	5.50	6.75	8.00	9.50	10.50	11.75
FF 300 ANSI	5.00	6.25	7.50	8.75	10.25	11.50	12.75
G 150 ANSI	5.00	6.00	8.00	8.62	13.75	14.88	15.69
GG 300 ANSI	5.31	6.50	8.50	9.31	14.50	15.62	16.50
H NPT Body Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.75	0.75	1.00	1.00	1.25	1.50	2.00
K NPT Cover Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00
Stem Travel	1.10	1.70	2.30	2.80	3.40	4.00	4.50
Approx. Ship Weight (lbs)	140	285	500	780	1165	1500	2265
Approx. X Pilot System	17.00	29.00	31.00	33.00	36.00	40.00	40.00
Approx. Y Pilot System	12.00	20.00	22.00	24.00	26.00	29.00	30.00
Approx. Z Pilot System	12.00	20.00	22.00	24.00	26.00	29.00	30.00

60-32 Series Dimensions (Full Internal Port 100-04) (mm)



Valve Size (Inches)	4	6	8	10	12	14	16
A 150 ANSI	15.00	20.00	25.38	29.75	34.00	39.00	41.38
AA 300 ANSI	15.62	21.00	26.38	31.12	35.50	40.50	43.50
B Diameter	11.50	15.75	20.00	23.62	28.00	32.75	35.50
C Maximum	10.62	13.38	16.00	17.12	20.88	24.19	25.00
D 150 ANSI	7.50	10.00	12.69	14.88	17.00	19.50	20.69
DD 300 ANSI	7.81	10.50	13.19	15.56	17.75	20.25	21.75
E	3.19	4.31	5.31	9.25	10.75	12.62	15.50
F 150 ANSI	4.50	5.50	6.75	8.00	9.50	10.50	11.75
FF 300 ANSI	5.00	6.25	7.50	8.75	10.25	11.50	12.75
G 150 ANSI	5.00	6.00	8.00	8.62	13.75	14.88	15.69
GG 300 ANSI	5.31	6.50	8.50	9.31	14.50	15.62	16.50
H NPT Body Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.75	0.75	1.00	1.00	1.25	1.50	2.00
K NPT Cover Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00
Stem Travel	1.10	1.70	2.30	2.80	3.40	4.00	4.50
Approx. Ship Weight (lbs)	140	285	500	780	1165	1500	2265
Approx. X Pilot System	17.00	29.00	31.00	33.00	36.00	40.00	40.00
Approx. Y Pilot System	12.00	20.00	22.00	24.00	26.00	29.00	30.00
Approx. Z Pilot System	12.00	20.00	22.00	24.00	26.00	29.00	30.00

Model 60-32 Flow Chart (Uses Main Valve Model 100-04)



60-32 Valve Selection	100-04 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Flanged (F) Indicate Available Sizes							
	Inches	4	6	8	10	12	14	16
	mm	100	150	200	250	300	350	400
Main Valve 100-04	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A
	End Detail	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	800	1800	3100	4900	7000	8400	11000
	Maximum Intermittent	990	2250	3900	6150	8720	10540	13700
Suggested Flow (Liters/Sec)	Maximum	50	113	195	309	442	530	694
	Maximum Intermittent	62	142	246	387	549	664	863

100-04 Series is the full internal port Hycheck.

Optional Electronic Control



The Cla-Val PC-22D provides control of the pump and pump control valve, preventing surges in the system when the pump starts or stops. It consists of a pre-wired electrical control panel employing a programmable valve controller to sequence the pump and pump control valve during all modes of operation. Provides added protection to the pumping system from damage caused by mechanical, hydraulic or power failure.

The PC-22D offers all the control features found in the recommended wiring diagrams for Cla-Val pump control valves, plus alarms, automatic shutdown and adjustable timers.

Pilot System Specifications

Adjustment Ranges

- 0 to 75 psi
- 20 to 105 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 Max

Materials

Standard Pilot System Materials

- Pilot Control: Low Lead Bronze
- Trim: Stainless Steel Type 303
- Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials

Pilot Systems are available with optional Stainless Steel or Monel materials

Solenoid Control

Body:
Brass ASTM B283

Enclosure:
General Purpose, Watertight 1,2,3,3S,4,4X
Optional: Class I, Division 2, Hazardous Locations and Watertight Type 3, 3S, 4, 4X

Voltages:

- 100-240V / 50-60 Hz AC or DC
- 24-99V / 50-60Hz AC or DC
- 2-24VDC

Manual Operator Standard
Max. operating pressure differential: 350 psi

Coil:

- Insulation molded Class F
- Watts AC 2

When Ordering, Please Specify

1. Catalog No. 60-32
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class (Flanged)
5. Trim Material
6. Electrical Selection
7. Desired Options
8. When Vertically Installed (Flow Direction)

Note: For optimum operation of built-in check feature, installation with valve stem vertically position is recommended.