

# 60-08

(Full Internal Port)

MODEL

# 660-08

(Reduced Internal Port)

## Booster Pump Control Valve with High Capacity Pilot System



- Designed for Larger Sized Pump Stations
- Low Head Loss
- Built-in Check Valve
- Opening and Closing Rates Separately Adjusted
- Proven Reliable Design

The Cla-Val Model 60-08/660-08 Pump Control Valve is a pilot-operated valve designed for installation on the discharge of booster pumps to eliminate pipeline surges caused by the starting and stopping of the pump.

The pump starts against a closed valve. When the pump is started, the solenoid control is energized and the valve begins to open slowly, gradually increasing line pressure to full pumping head. When the pump is signaled to shut-off, the solenoid control is de-energized and the valve begins to close slowly, gradually reducing flow while the pump continues to run. When the valve is closed, a limit switch assembly, which serves as an electrical interlock between the valve and the pump, releases the pump starter and the pump stops.

Should a power failure occur, a built-in, lift-type check valve closes the moment flow stops, preventing reverse flow regardless of solenoid or diaphragm assembly position.

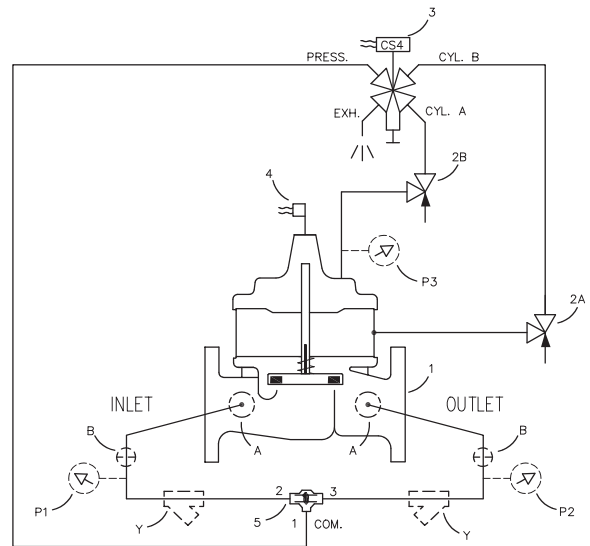
### Schematic Diagram

#### Item Description

- 1 100-03 Powercheck Main Valve
- 2 CV Flow Control
- 3 CS4SM 4-Way Solenoid Control
- 4 X105LCW Switch Assembly
- 5 CVS-1 Shuttle Valve



**NSF/ANSI 372:**  
National Lead Free  
Mandate "Reduction  
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Water Act"



### Optional Features

#### Item Description

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

#### Product Dimensions Data:

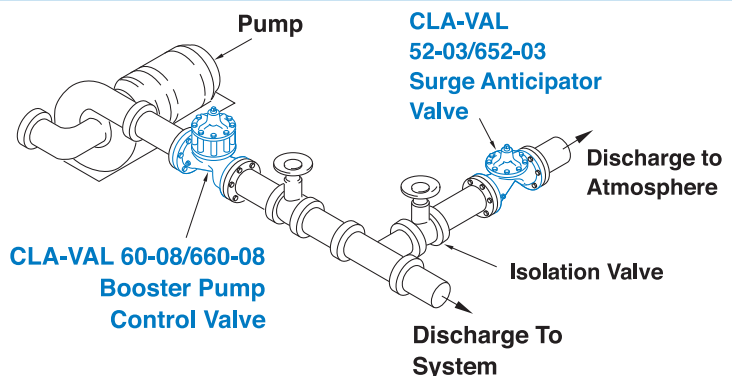
For the 60-08 Main Valve (100-03) dimensions, see pages 25.  
For the 660-08 Main Valve (100-22) dimensions, [www.cla-val.com](http://www.cla-val.com)

### Typical Installation

Install Model 60-08/660-08 valve as shown. Flexible conduit should be used for electrical connections to the solenoid control and the limit switch. A Model 52-02/652-03 Surge Anticipator Valve is recommended for power failure protection.

Note: For optimum operation of built-in check feature, installation must be with valve stem vertically up.

The Model 60-08/660-08 is for 10" and larger valves or when the pressure is above 300 psi.





**MODEL** **60-11**  
(Full Internal Port)  
**660-11**  
(Reduced Internal Port)

# Booster Pump Control Valve



- Built-in Check Valve
- Valve Uses Line Pressure for Operation
- Opening and Closing Rates Adjusted Separately
- Solenoid Control Can Be Operated Manually

The Cla-Val Model 60-11/660-11 Booster Pump Control Valve is a pilot-operated valve designed for installation on the discharge of booster pumps to eliminate pipeline surges caused by the starting and stopping of the pump.

The pump starts against a closed valve. When the pump is started, the solenoid control is energized and the valve begins to open slowly, gradually increasing line pressure to full pumping head. When the pump is signaled to shut-off, the solenoid control is de-energized and the valve begins to close slowly, gradually reducing flow while the pump continues to run. When the valve is closed, a limit switch assembly, which serves as an electrical interlock between the valve and the pump, releases the pump starter and the pump stops.

Should a power failure occur, a built-in lift-type check valve closes the moment flow stops, preventing reverse flow regardless of solenoid or diaphragm assembly position.

## Schematic Diagram

Item	Description
1	100-03 Powercheck Main Valve
2	CV Flow Control
3	CSM11-A2-2 Solenoid Control
4	X105LCW Switch Assembly
5	CVS-1 Shuttle Valve



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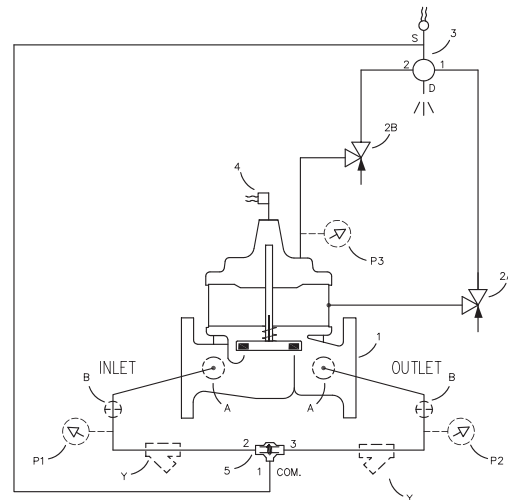
## Optional Features

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



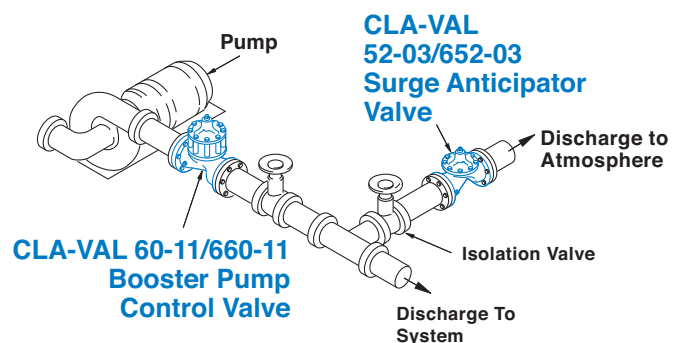
## Product Dimensions Data:

For the 60-11 Main Valve (100-03) dimensions, see pages 25.  
For the 660-11 Main Valve (100-22) dimensions, [www.cla-val.com](http://www.cla-val.com)



## Typical Installation

Install Model 60-11/660-11 valve as shown. Flexible conduit should be used for electrical connections to the solenoid control and the limit switch. A Cla-Val Model 52-03/652-03 Surge Anticipator Valve is recommended for power failure protection.



Note: Installation with valve stem vertical up is recommended. For horizontal stem installation use Cla-Val Model 60-73/660-73.

# 60-31

(Full Internal Port)

MODEL-

# 660-31

(Reduced Internal Port)



## Booster Pump Control Valve



- Simple Hydraulic Operation
- Low Head Loss
- Built-in Check Valve
- Proven Reliable Design

The Cla-Val Model 60-31/660-31 Booster Pump Control valve is a pilot-operated valve designed for installation on the discharge of booster pumps to eliminate pipeline surges caused by the starting and stopping of the pump.

The pump starts against a closed valve. When the pump is started, the solenoid control is energized and the valve begins to open slowly, gradually increasing line pressure to full pumping head. When the pump is signaled to shut-off, the solenoid control is de-energized and the valve begins to close slowly, gradually reducing flow while the pump continues to run. When the valve is closed, a limit switch assembly, which serves as an electrical interlock between the valve and the pump, releases the pump starter and the pump stops.

The Model 60-31/660-31 is an automatic valve of a modified globe-type design with a built-in, lift type, check feature. It is hydraulically operated and diaphragm-actuated. A three-way solenoid valve controls the valve operation. Flow control valves located in the pilot control system provide regulation of both the opening and closing rate. Pilot system strainer insures that the pilot control supply is clean.

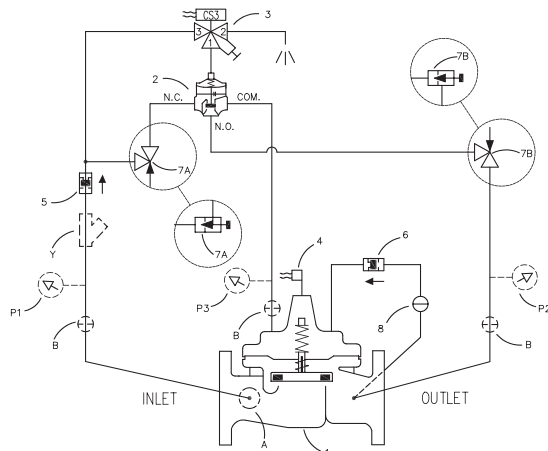
### Schematic Diagram

Item	Description
1	100-04 Hycheck Main Valve
2	102C-3H Three Way Hytrol
3	CS3SM Solenoid Control
4	X105LCW Switch Assembly
5	CDC Disk Check Valve
6	CDC/CSC Check Valve
7	CNA Angle Valve
8	CK2 Isolation Valve

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



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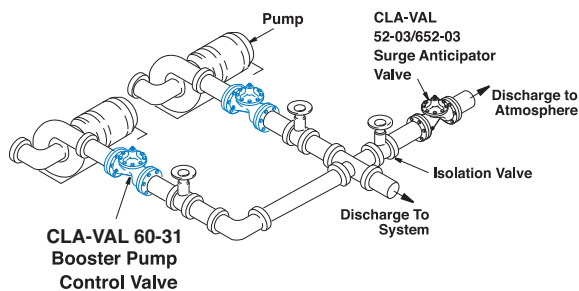


### Product Dimensions Data:

For the 60-31 Main Valve (100-04) dimensions, see [www.cla-val.com](http://www.cla-val.com)  
For the 660-31 Main Valve (100-23) dimensions, [www.cla-val.com](http://www.cla-val.com)

### Typical Application

Install Model 60-31/660-31 valve as shown in multiple pump applications. Flexible 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.





**MODEL** **60-32**  
(Full Internal Port)  
**660-32**  
(Reduced Internal Port)

# 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 60-32/660-32 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.

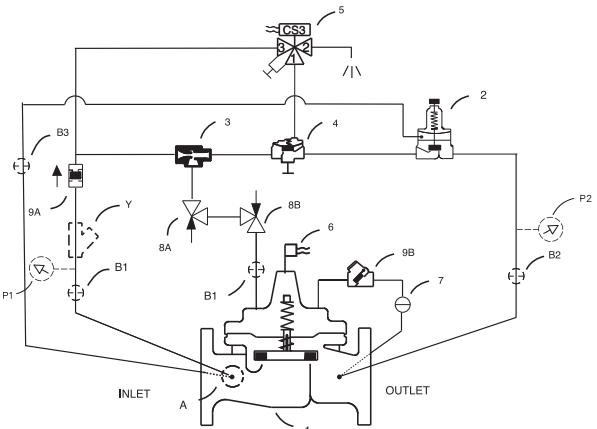
In operation, when pump is off, the pump control valve is closed by downstream system pressure. When pump is started, the solenoid control is energized and valve opens slowly to gradually increase pump flow and line pressure to desired back pressure setting for pumping conditions. When pump is signaled 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	100-04 Hycheck Main Valve
2	CRL-60 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



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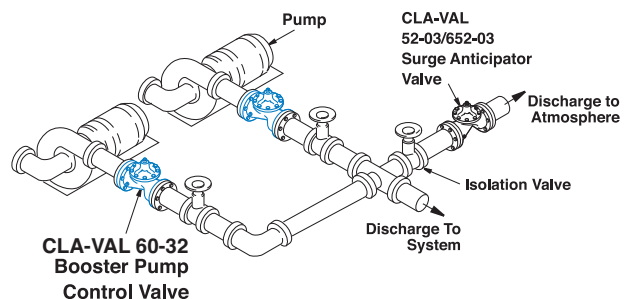


## Optional Features

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

## Typical Application

Install Model 60-32/660-32 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.



## Product Dimensions Data:

For the 60-32 Main Valve (100-04) dimensions, see [www.cla-val.com](http://www.cla-val.com)  
For the 660-32 Main Valve (100-23) dimensions, [www.cla-val.com](http://www.cla-val.com)

# 61-02

(Full Internal Port)

# 661-02

(Reduced Internal Port)

## MODEL



# Deep Well Pump Control Valve



- Prevent Surges in Pipelines
- Simple Hydraulic Operation
- Adjustable Opening and Closing Speeds
- Solenoid Control Can Be Operated Manually
- Proven Reliable Design

The Cla-Val Model 61-02/661-02 Deep Well Pump Control Valve is designed to protect pipelines from surges caused by the starting and stopping of deep well pumps. This is a hydraulically operated diaphragm valve which is controlled by a solenoid pilot valve. Separate adjustable flow control valves in the pilot system regulate the opening and closing rates. A limit switch on the valve stem serves as an electrical interlock between the valve and the pump motor.

The operation of the valve is completely automatic and controlled by the solenoid valve. With the pump off, the valve is wide open. When the pump is started, the solenoid is energized and the valve begins to close slowly, discharging air and the initial rush of sand and water from the pump column to atmosphere. As the valve closes the pump output is gradually diverted into the main line, preventing the development of a starting surge.

When it is time to shut-off the pump, the solenoid is de-energized. The pump continues to run while the pump control valve opens slowly, diverting pump output to atmosphere. As pump pressure gradually decreases, the main line check valve closes slowly, preventing shock or slam during the pump stopping cycle. When the pump control valve is wide open, the limit switch assembly releases the pump starter and the pump stops.

## Schematic Diagram

Item	Description
1	100-02 Powertrol Main Valve
2	CSM11-A2-2 Solenoid Control
3	CV Flow Control
4	X105LOW Switch Assembly
5	CK2 Isolation Valve
6	X43 "Y" Strainer
7	Union



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## Item Description

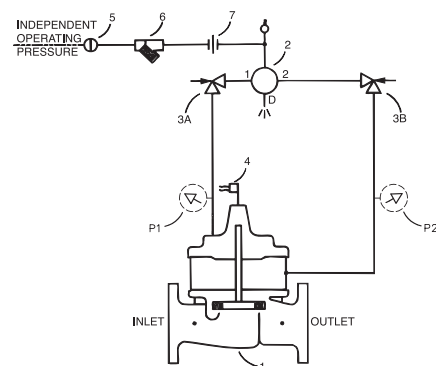
P	X141 Pressure Gauge
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Note: For main valve option descriptions, refer to 100-02 (61-02) or 100-21 (661-02) Technical Data Sheets.

## Product Dimensions Data:

For the 61-02 Main Valve (100-02) dimensions, see pages 21.  
For the 661-02 Main Valve (100-21) dimensions, [www.cla-val.com](http://www.cla-val.com)



## Typical Installation

Install Model 61-02/661-02 valve as shown. Use a minimum of 1/2" tubing to connect operating pressure connection of the valve to the system side of check valve. Flexible conduit should be used for electrical connections to the solenoid control and the limit switch assembly. A Model 52-02/652-03 Surge Anticipator is recommended for power failure and surge protection.

