



# Control Valves Solutions

INDUSTRIAL APPLICATIONS

# Precise Control for Industrial Applications

## Typical Industries Served

Because of their flexible design and precise performance, Cla-Val Automatic Control Valves are ideal for use in a variety of industries, including:

- Pulp and Paper
- Petrochemical
- Power
- Mining
- Distilleries, Wineries and Breweries
- Refineries
- Automotive Manufacturing
- Steel Mills

## Typical Applications

Cla-Val Automatic Control Valves are available in the sizes and materials necessary to achieve optimum performance in industrial fluid control applications, including but not limited to the following:

### Pressure Control - Hydraulic or Electronic

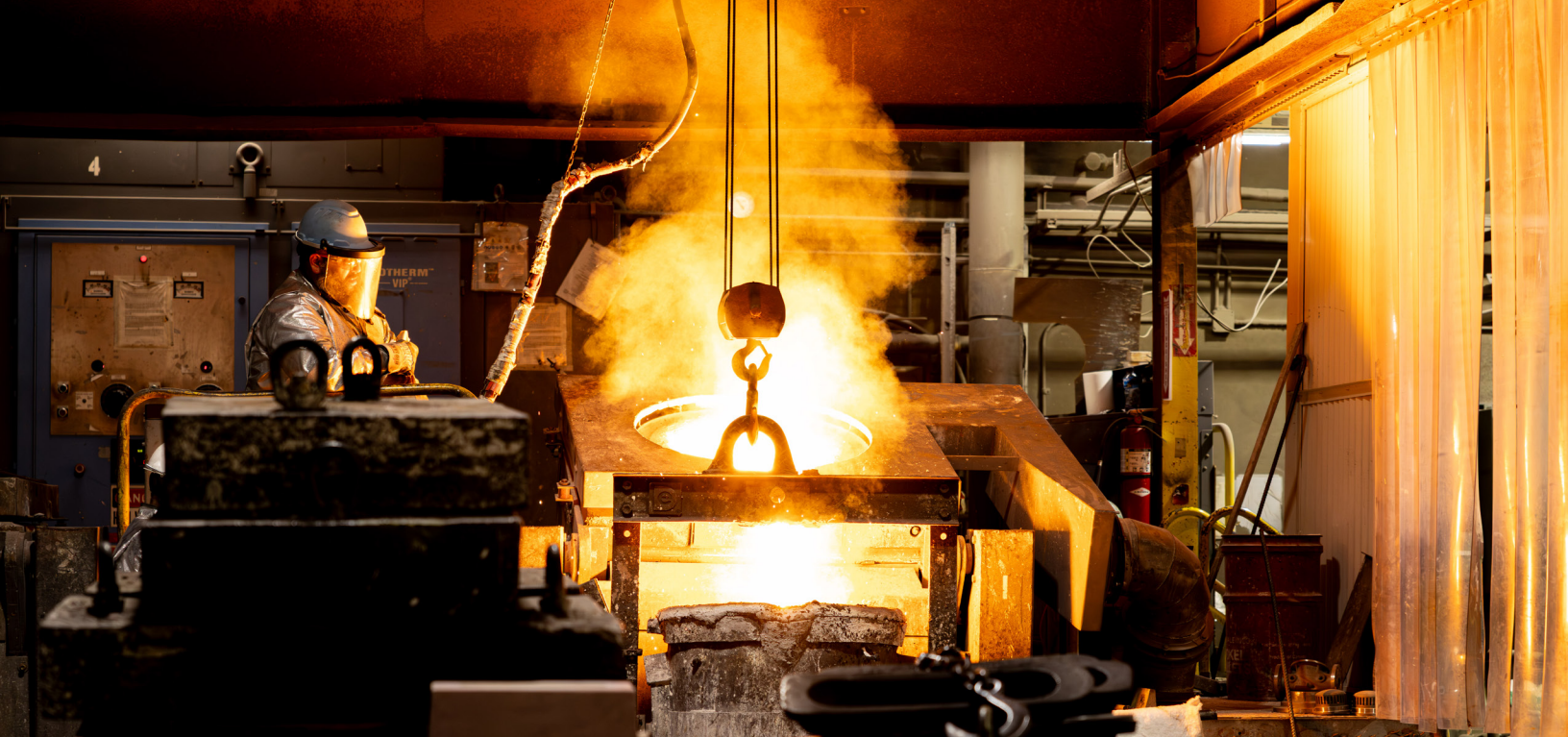
- Pressure Reducing
- Pressure Relief
- Pressure Sustaining
- Backpressure

### Flow/Pump/Solenoid/Level Control

### Check Valves







## Extensive Material Options

One of Cla-Val's greatest strengths is the ability to produce valves in **more than 50 different metals** poured in two onsite foundries located at our 20-acre facility in Southern California. The foundry facilities also include a pattern shop where customized patterns are built to meet unique customer requirements and a full metallurgical laboratory that tests samples of metals poured before, during and after the casting process.

### Metal Alloys

A representative sample of available materials include:

- Ductile Iron
- Cast Steel
- Stainless Steel
- Monel
- Nickel Aluminum Bronze
- Titanium
- Super Duplex Stainless Steel
- Super Austenitic Stainless Steel

### Elastomers

The wide range of materials is further extended to the choice of elastomers we can provide to ensure that the valves can withstand the service for which they are intended. Common choices include BUNA N, Viton®, EPDM, Silicone, Neoprene, among others.

## Engineering Expertise

Cla-Val has been in the control valve business for nearly 80 years. The Engineering expertise we developed along the way has enabled us to design hundreds of thousands of valve configurations for both standard and complex applications.

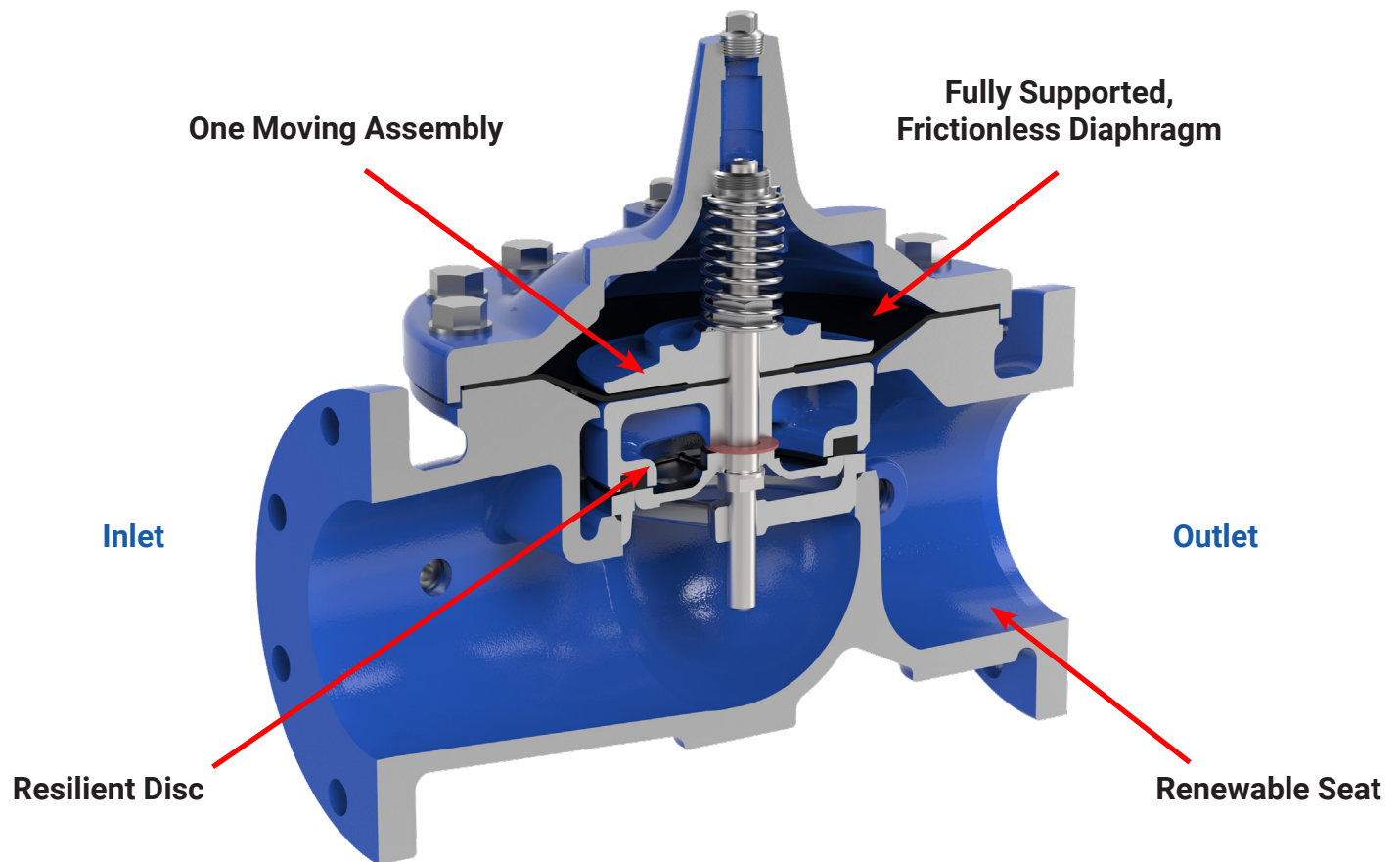
Our fully staffed, in-house Engineering team, combined with extensive industry knowledge enables us to develop solutions for just about any fluid control application you can think of.

## Manufacturing Know-How

Since the first Cla-Val Automatic Control Valve was produced in 1936, we have manufactured the best quality control valves available, utilizing the latest in manufacturing technology.

Each valve is tested and inspected before leaving the factory in accordance with the Cla-Val Quality Control Program and ISO 9001: 2008 requirements.

# Inside a Cla-Val Automatic Control Valve



■ Many Material Options

■ Epoxy Coating for Durability

■ Stainless Steel Trim and Pilot Controls

## Pressure Classes

ANSI 150 and 300

## End Connections

- Threaded
- Flanged
- Grooved

## Sizes

3/8 through 48-inches

## Working Pressures: 150 Class Valves \* ‡

- Ductile Iron: 400 psi
- Cast Steel: 400 psi
- Stainless Steel: 400 psi

\* Other flange options are also available

‡ Consult factory for higher pressures

## Body Styles

- Globe or Angle Pattern
- Full or Reduced Port

## Stem Options

- Standard Stainless Steel
- Optional Dura-Kleen® Stem with Fluted Surface to prevent
- Optional Delrin® Sleeved Stem for applications with dissolved

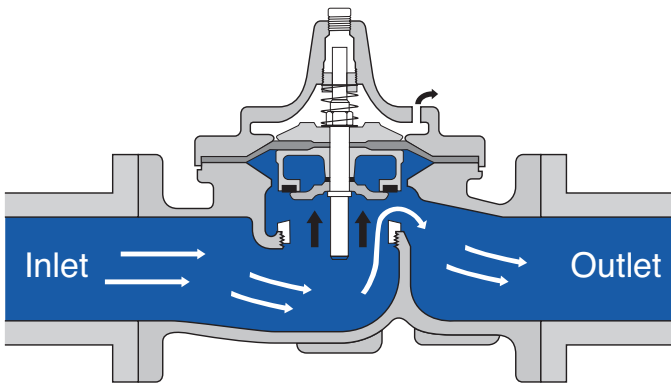
## Control Options

- Hydraulic
- Electronic
- Electronic with Hydraulic Fail-Safe Back-Up
- Solenoid Operated

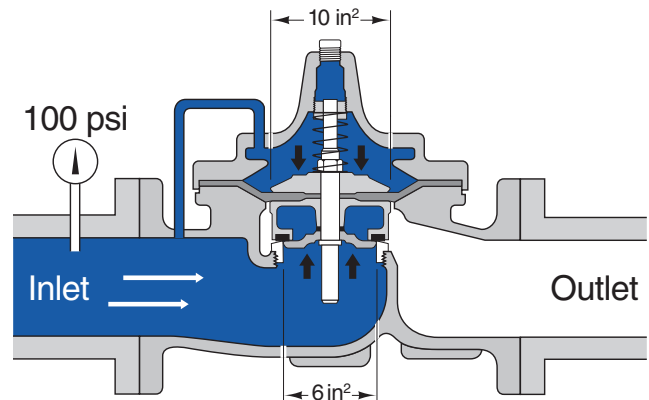
All Cla-Val Control Valves can be serviced without removal from the pipeline. Additional options can be added to provide multiple functions in a single valve, including flow metering and check features.



# How Cla-Val Automatic Control Valves Operate



With the cover chamber vented to atmosphere, the valve will open from line pressure under the disc.

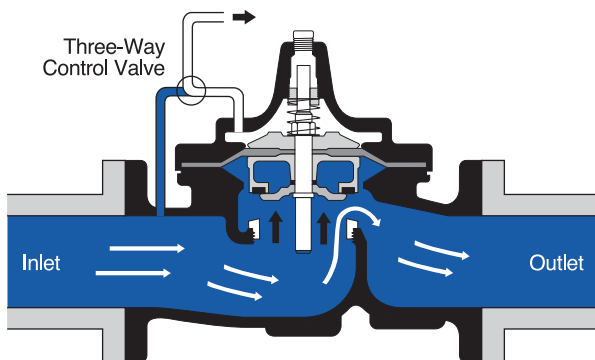


If inlet pressure is connected into the cover chamber, the valve closes tightly.

## On-Off Valve Operation

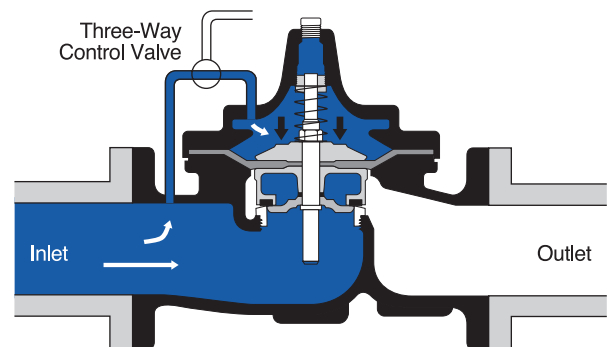
A simple control which either opens the valve wide or closes it tightly is a three-way valve. The type of operation this control gives is called "non-modulating" because the valve cannot pause in a partially open position.

Once the control is turned to either position, operating fluid flow into or out of the cover chamber until the valve is open or closed. On-Off valves can be opened in a variety of ways: With a solenoid; By hand; By a difference in two pressures: and by a float.



### To Open

Control is turned to apply pressure to cover chamber.



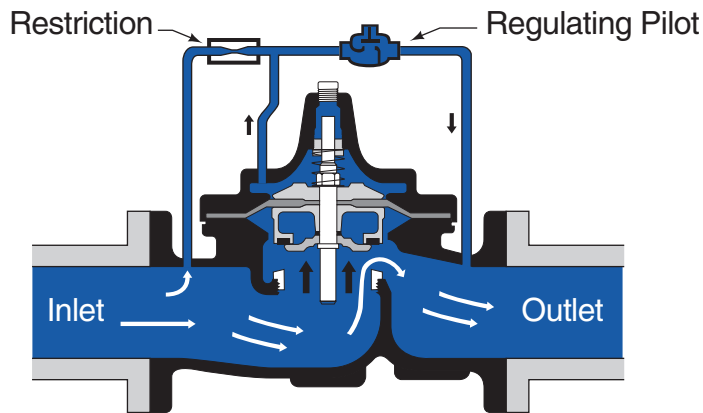
### To Close

Control is turned to apply pressure to cover chamber.

# How Cla-Val Automatic Control Valves Operate

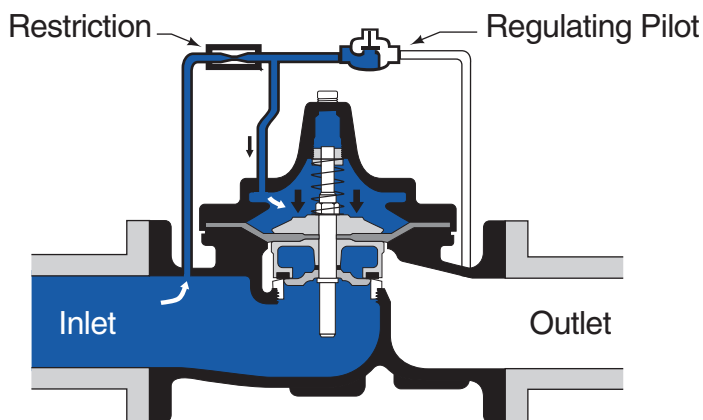
## Operation When Used A Regulator

The Cla-Val Automatic Control Valve modulates if the cover pressure is held between the inlet and outlet pressure. To achieve regulating operation, a slightly different type of control system is utilized.



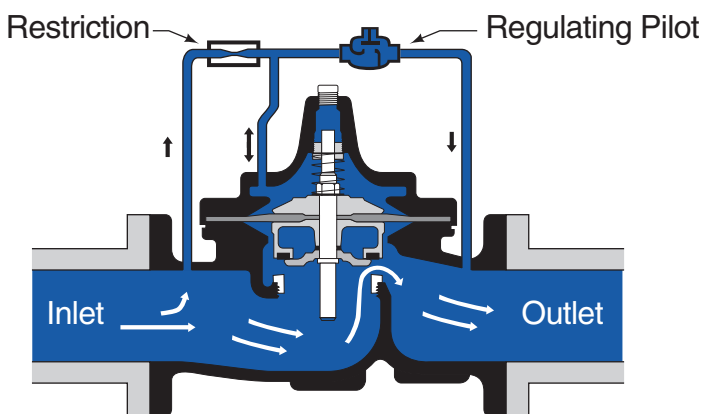
### Valve Open

When the regulating pilot opens to a point where more pressure is relieved from the cover chamber than the restriction can supply, cover pressure is reduced and the valve opens.



### Valve Closed

When the regulating pilot closes sufficiently to direct a great enough pressure into the cover chamber to overcome opening forces of line pressure, the main valve closes.



### Valve Regulating

The main valve regulates to any degree of opening in response to changes in the throttling control. At an equilibrium point, the main valve opening and closing forces hold the valve in balance. This balance holds the valve partially open, but immediately responds and readjusts its position to compensate for any change in the controlled condition.

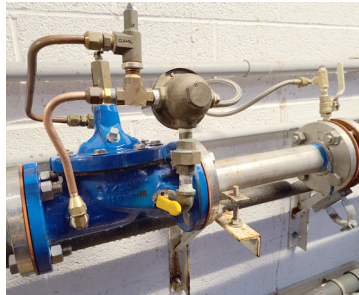
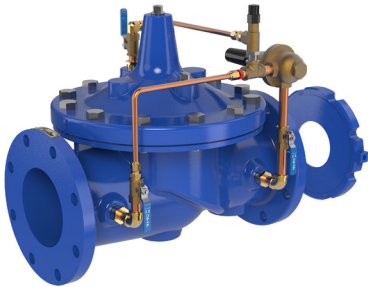


# Typical Modulating Applications

## Flow Control

### 40 Series

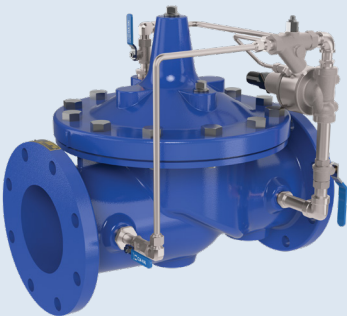
- Prevents excessive flow by limiting flow to a preselected maximum rate
- Ideal for pumping applications and rate-of-flow control for transmission header



## Pressure Relief/Sustaining

### 50 Series

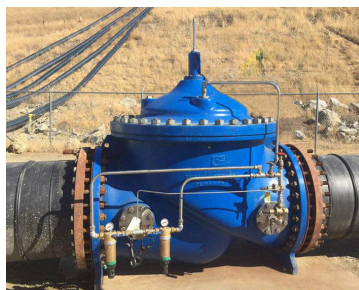
- Opens fast to maintain line pressure and closes slowly to prevent high pressure surges
- Use for pump discharge pressure control or pressure relief at a transmission header



## Pressure Reducing Service

### 90 Series

- Automatically reduces a higher inlet pressure to a steady lower downstream pressure, regardless of fluctuations
- When downstream pressure exceeds the pressure setting of the control pilot, the main valve and pilot valve close drip-tight

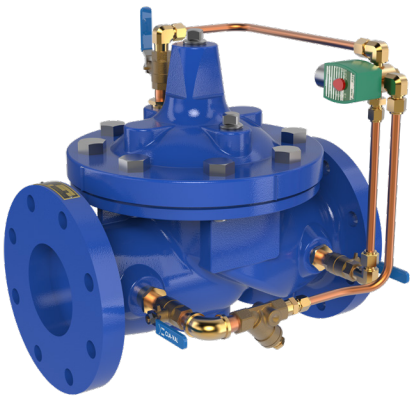


# Typical On-Off Valve Applications

## Solenoid Controlled On-Off Service

### 136 Series

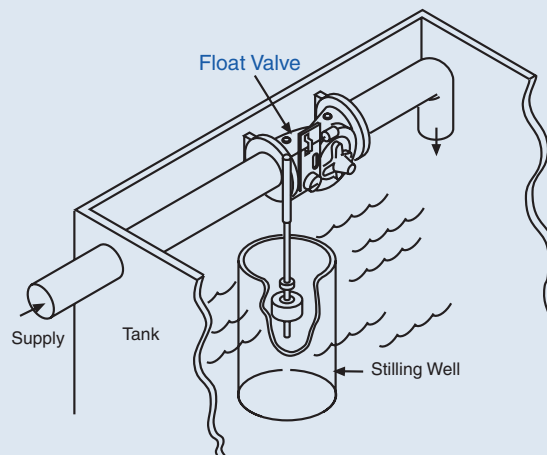
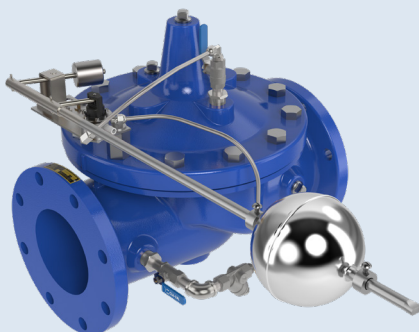
- Control valve which either opens fully or closes drip tight upon receiving an electrical signal to the solenoid pilot control
- Accurately controls process water for batching, mixing, washing, blending and other applications requiring on-off control



## Float Control On-Off Service

### 124 Series

- Designed to open fully when the liquid level reaches a pre-set low point and close drip-tight when the level reaches a preset high point
- Accurately controls process water for batching, mixing, washing, blending and other applications requiring on-off control





# Products That Help Your System at Peak Efficiency

In addition to a complete line of Automatic Control Valves, Cla-Val also manufactures a wide range of complementary products that can significantly improve the performance and stability of any fluid handling system. For a comprehensive overview of available valve accessories and enhancements, visit [www.cla-val.com](http://www.cla-val.com).

## Check Valves

### 580 Series Check Valves

- Valves close to prevent flow reversal
- Can be installed in vertical or horizontal positions with flow up or flow down
- Available in sizes 2" to 10", 125 lb. or 250 lb. pressure class rating
- Other configurations include globe, two-door, and flexible disc check valves
- Many material and elastomer options available

### 585 Series Swing Check Valve

- Designed for long service life and maintenance free operation
- Full-flow body allows unrestricted flow
- Available in sizes 2 through 48-inches



585 Series Swing Check Valves

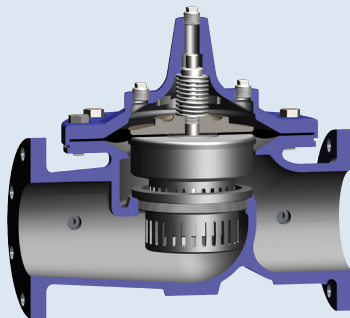


580 Series Water and Globe Check Valves

## Cavitation Protection

Cla-Val's KO anti-cavitation trim fight cavitation in valve applications with extreme pressure differentials and high velocity flow conditions.

- 316 Stainless Steel construction
- Significantly reduces noise and vibration
- Helps improve reliability and performance
- Extends valve life



KO Trim

# Products That Help Your System at Peak Efficiency

## Air Release and Vacuum Breaker Valves

Designed to protect pipelines and vertical turbine pump applications from air lock and vacuum collapse, the Model 33A Air Release and Vacuum Breaker Valve eliminates air and prevents vacuum formations in pipelines.

- Corrosion resistant materials of construction
- Standard Working pressure = 300 psi, for higher pressure applications, consult factory



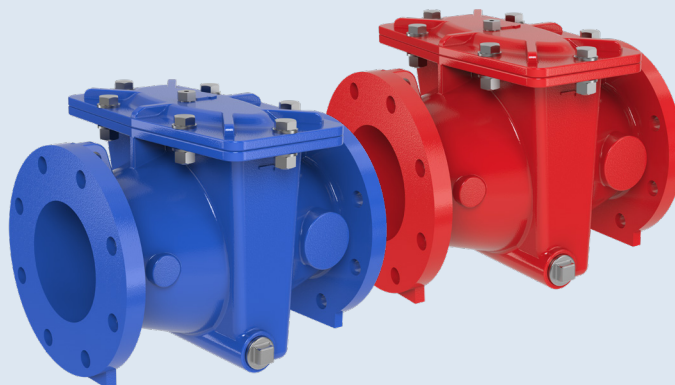
Flanged



Threaded

## In-Line Strainer

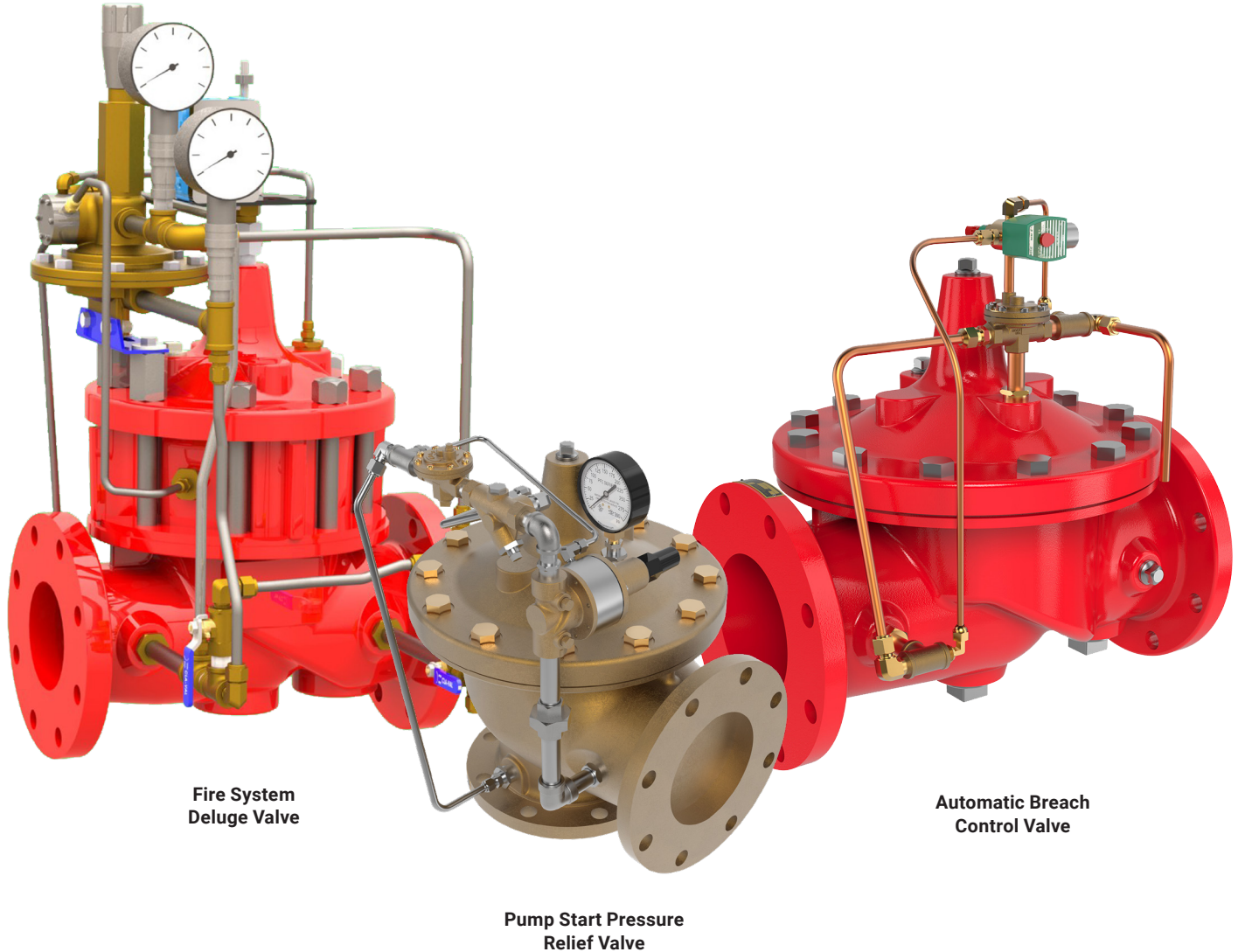
- Provides an effective means of removing unwanted solid particles in pipeline flow
- Low Pressure Drop
- Ductile Iron Fusion Bonded Epoxy Coated Construction with a 316 Stainless Steel Strainer
- Large Flow Area H-Style Design
- Service Without Removal From Line



X43 H-Strainer



# Products That Provide Life & Property



Fire System  
Deluge Valve

Automatic Breach  
Control Valve

Pump Start Pressure  
Relief Valve

In addition to products that help achieve operational goals for efficiency and precise fluid control, Cla-Val also manufactures products for fire suppression systems in a wide variety of materials, sizes and configurations.

## Custom Made Just for You

- Wide Size Range
- Globe or Angle Pattern
- Exotic metals poured in our own onsite foundries
- Flanged, Threaded or Grooved End Connections
- Accessories that add functionality

## Ready When You Need Them

- Large inventory of main valve bodies for quick pilot system assembly
- Fastest deliveries in the control valve industry



# Global Locations



## Global Headquarters

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