



# Global Presence



CLA-VAL  
EUROPE



CLA-VAL USA  
Costa Mesa CA



CLA-VAL  
CANADA



CLA-VAL  
UK



CLA-VAL  
FRANCE



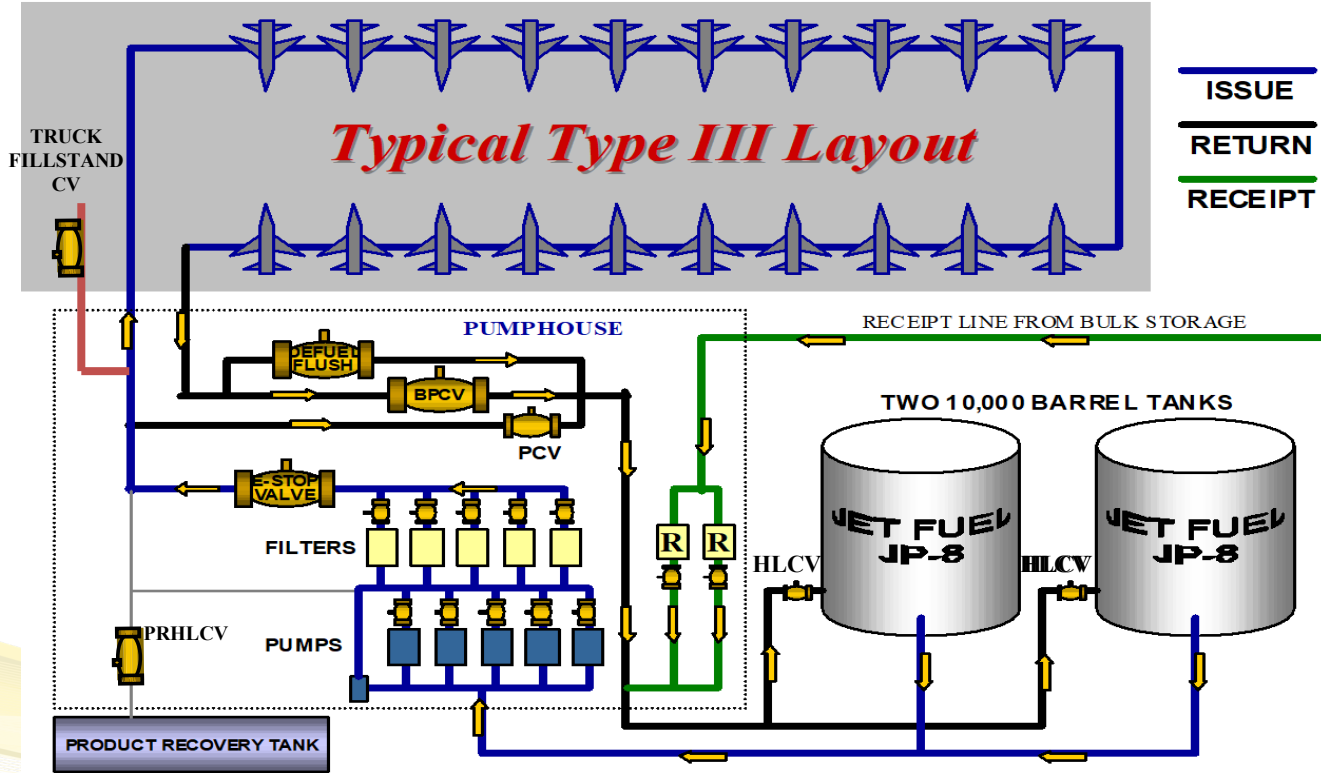
CLA-VAL PACIFIC  
New Zealand



# Tank Farm to the Aircraft Solutions



# Type III Hydrant Fueling System Control Valves





# Cla-Val Hytrol Main Valve

Valve Sizes from 3/8" to 56"

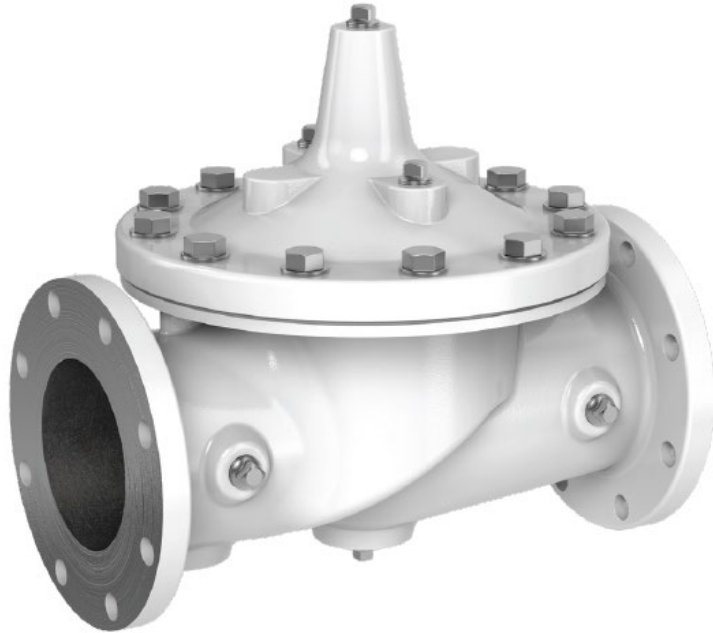


3/8" Hytrol





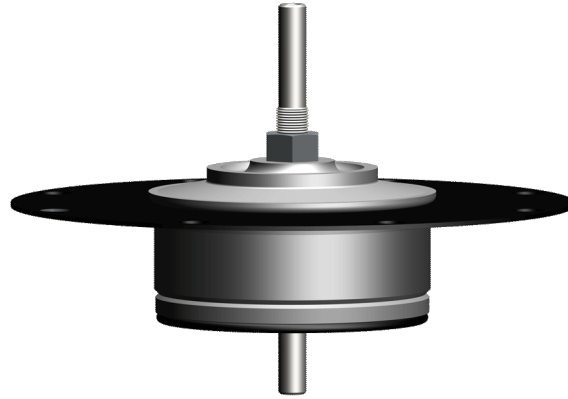
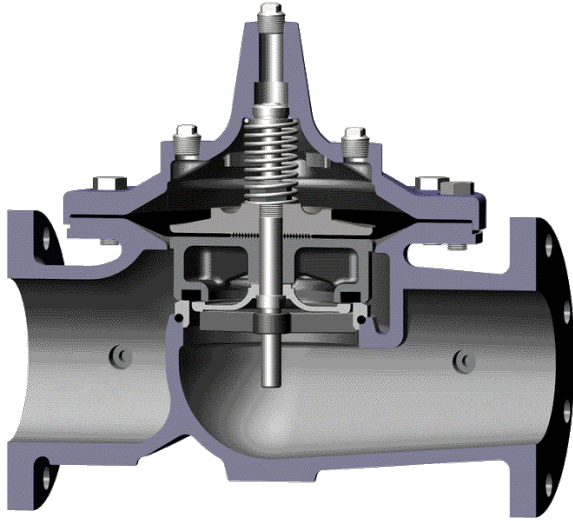
# Cla-Val Hytrol Main Valve



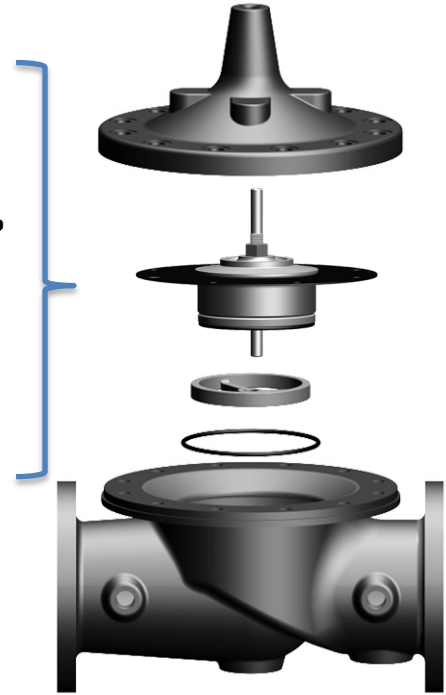
- Modified Globe Design
- Diaphragm Actuated
- Hydraulically Operated
- Pilot Controlled
- “Fail Safe”



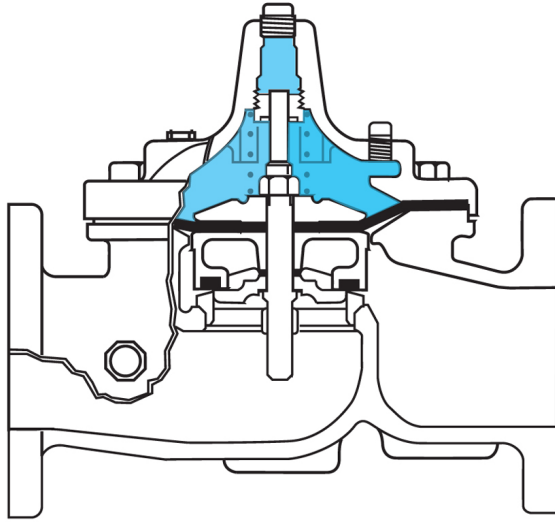
# Cla-Val Hytrol Main Valve



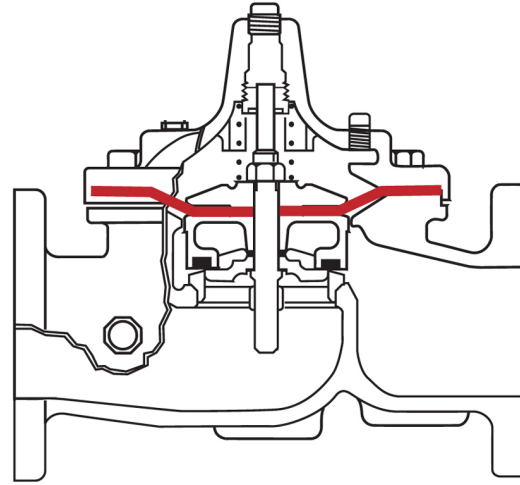
*Diaphragm  
Assembly*



# Cla-Val Hytrol Main Valve



Hydraulically Operated



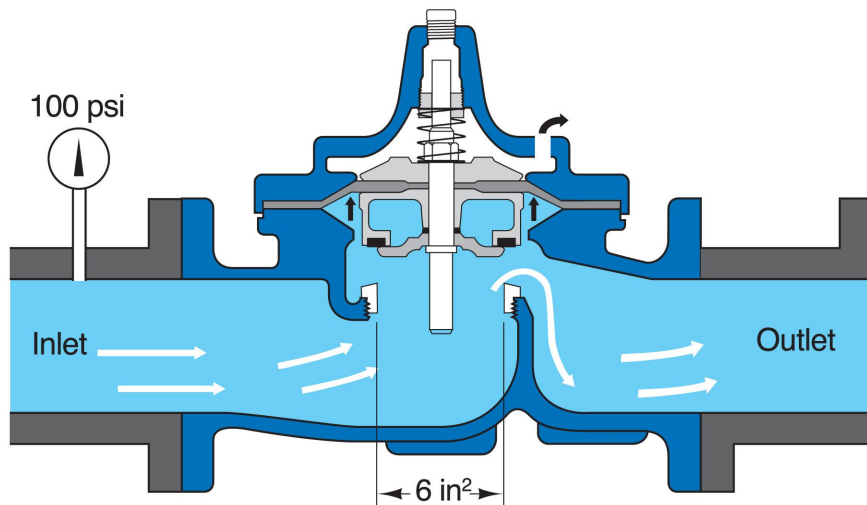
Diaphragm Actuated





# Cla-Val Hytrol Main Valve

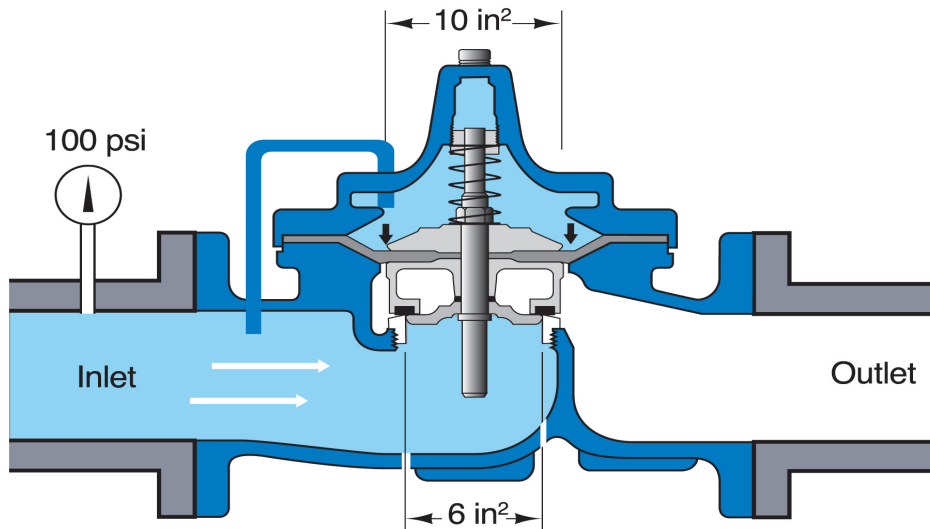
Line Pressure to Open



$$100\text{psi} \times 6 = 600\text{lbs.}$$

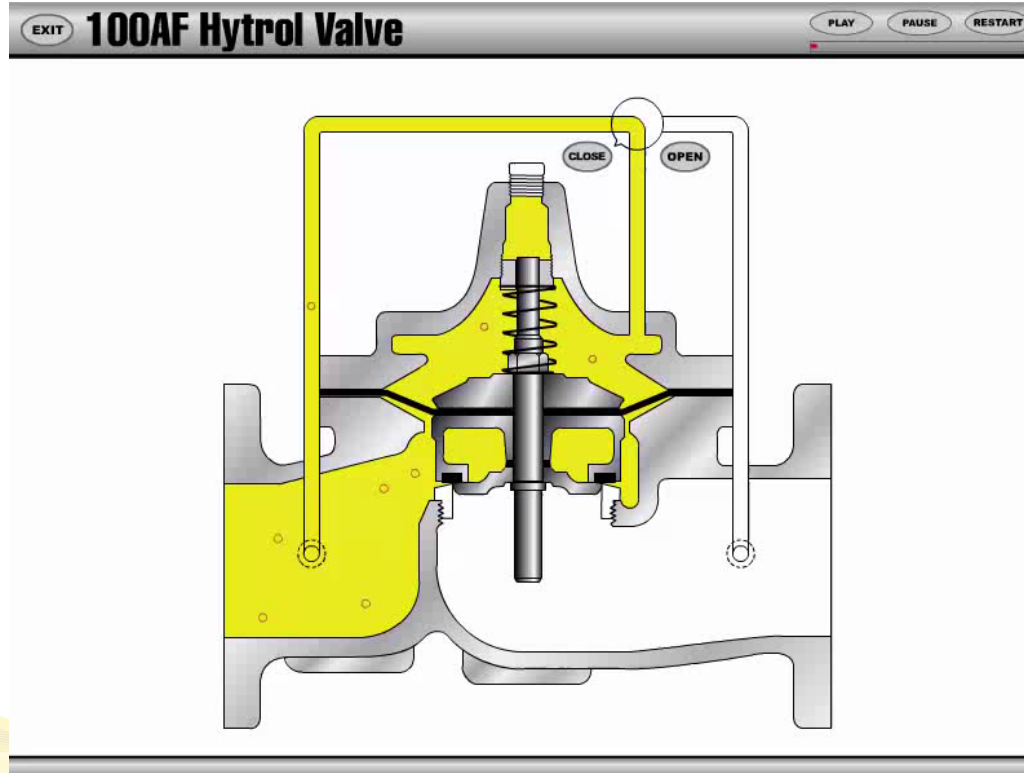
# Cla-Val Hytrol Main Valve

Line Pressure to Close



$$\begin{aligned} \text{Closing Force} &= 100 \times 10 = 1000 \text{ lbs.} \\ \text{Opening Force} &= 100 \times 6 = 600 \text{ lbs.} \\ \text{Difference} &= 400 \text{ lbs.} \end{aligned}$$

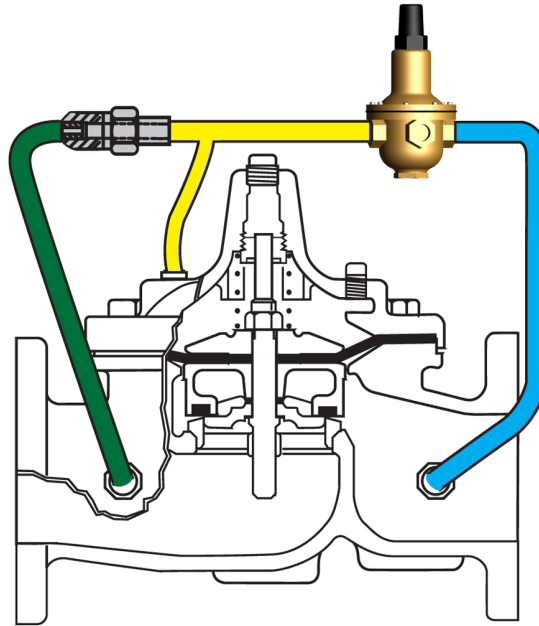
# Cla-Val Hytrol Main Valve





# Cla-Val Hytrol Main Valve

Controlling Pressure in Main Valve Cover



Pilot Controlled

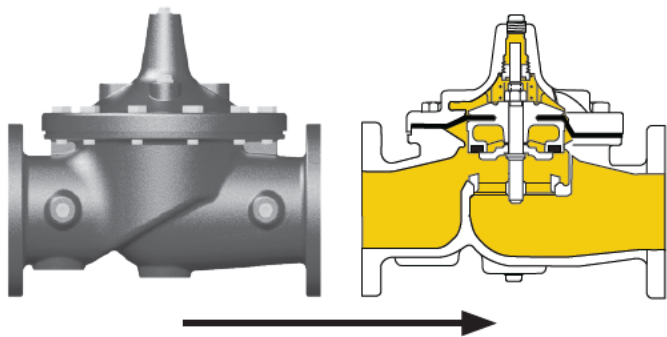


# Cla-Val Hytrol Main Valve

## FLOW ORIENTATION

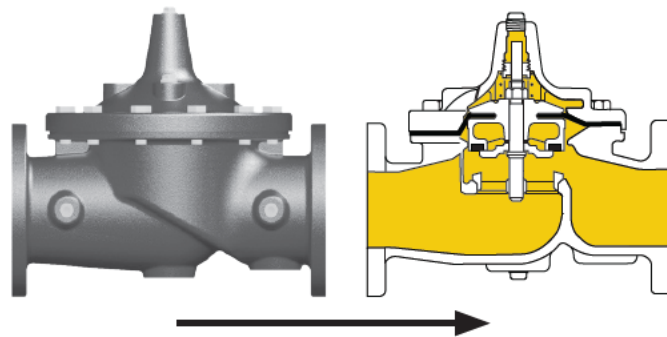
### REVERSE FLOW

Flow Over Seat, Fail Close - *Typical For Most Fuel Valves*



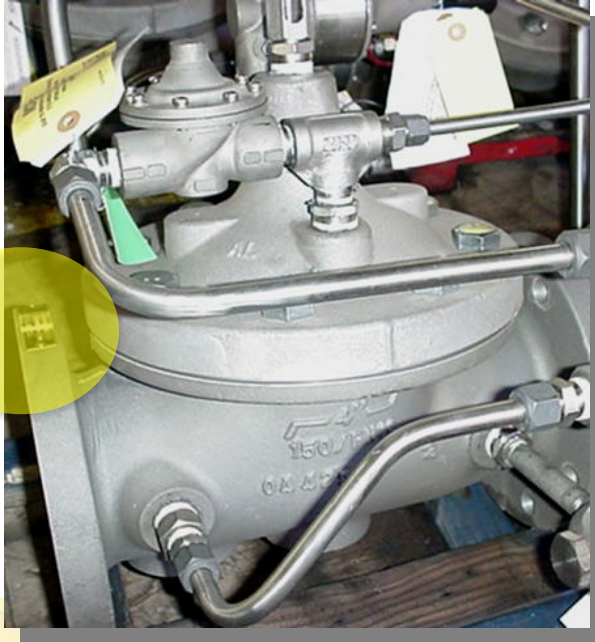
### NORMAL FLOW

Flow Under Seat, Fail Open - *Typical For Relief Valves*

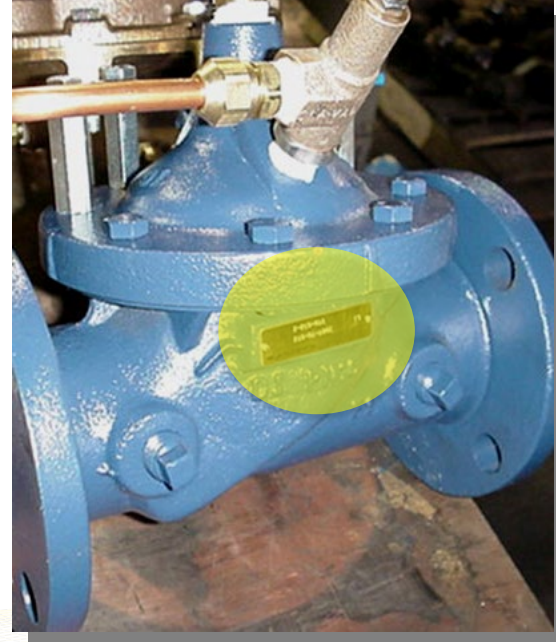


# Name Plate Locations

2.5" & Larger  
On inlet Flange



2.0" & Smaller  
On side of Valve Body



# Name Plate





# Applications and Functions

TANK HIGH LEVEL SHUTOFF

PUMP FLOW CONTROL

FILTER SLUG VALVES

TRUCK FILL STAND & AIRCRAFT FUELING

BACKPRESSURE CONTROL VALVES



# High Level Shutoff Valves



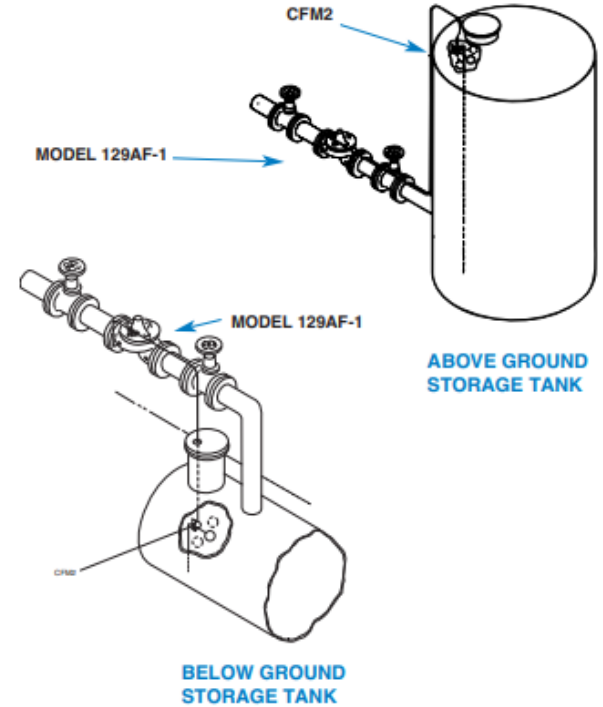
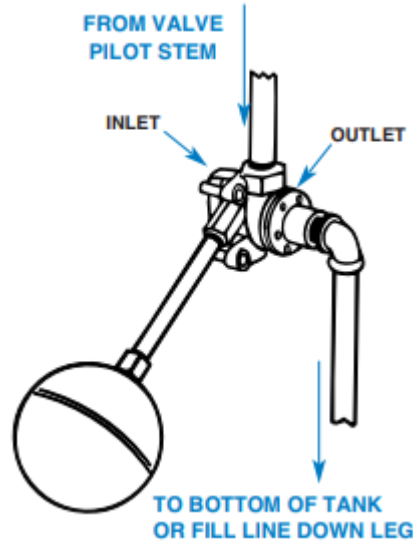
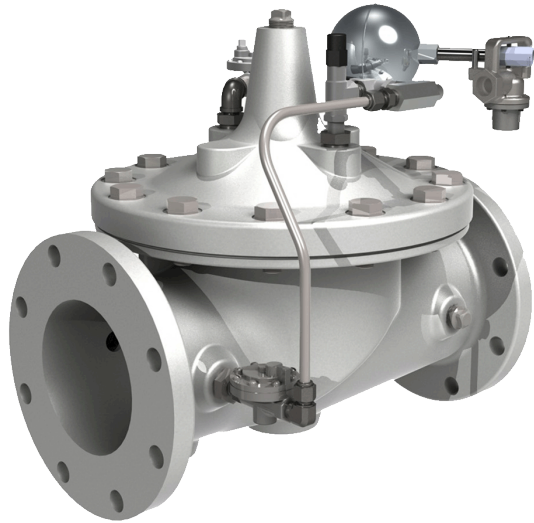


# High Level Shutoff (Externally Mounted Float)



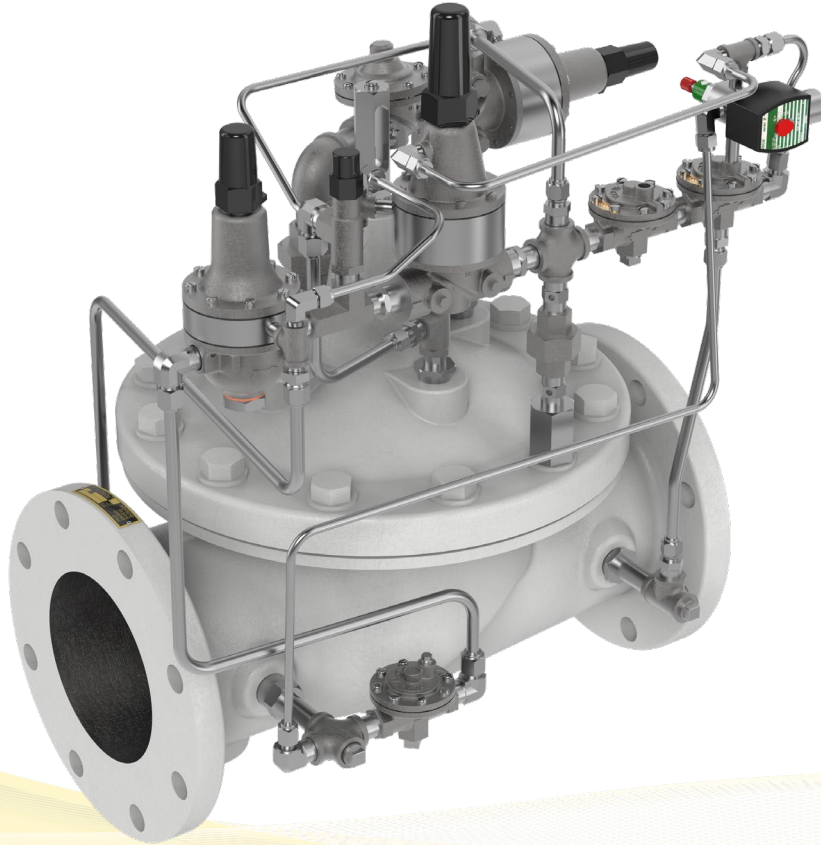


# High Level Shutoff (Internally Mounted Float)





## High Level Shutoff



### Common Features

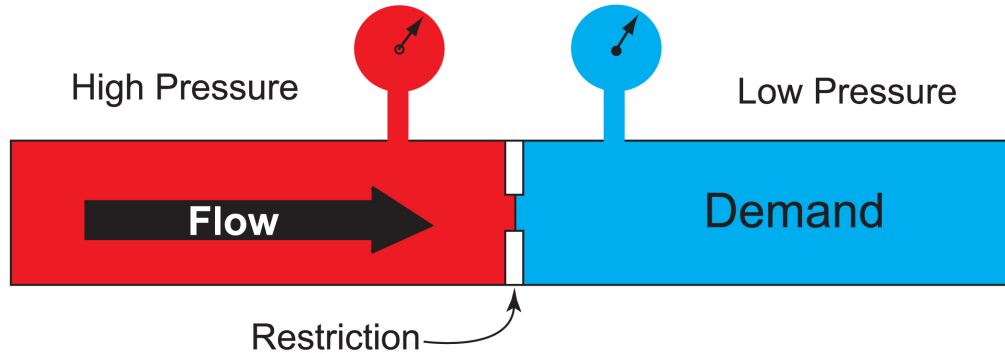
- Solenoid Shutoff Valve
- Differential Control
- Pressure Sensitive Closing
- Rapid Opening Feature
- Check Features

# Pump Flow Control Valves



# Pump Flow Control Valves

## Basic Definition of Constant Flow Rate



When a constant differential pressure is  
across a fixed restriction



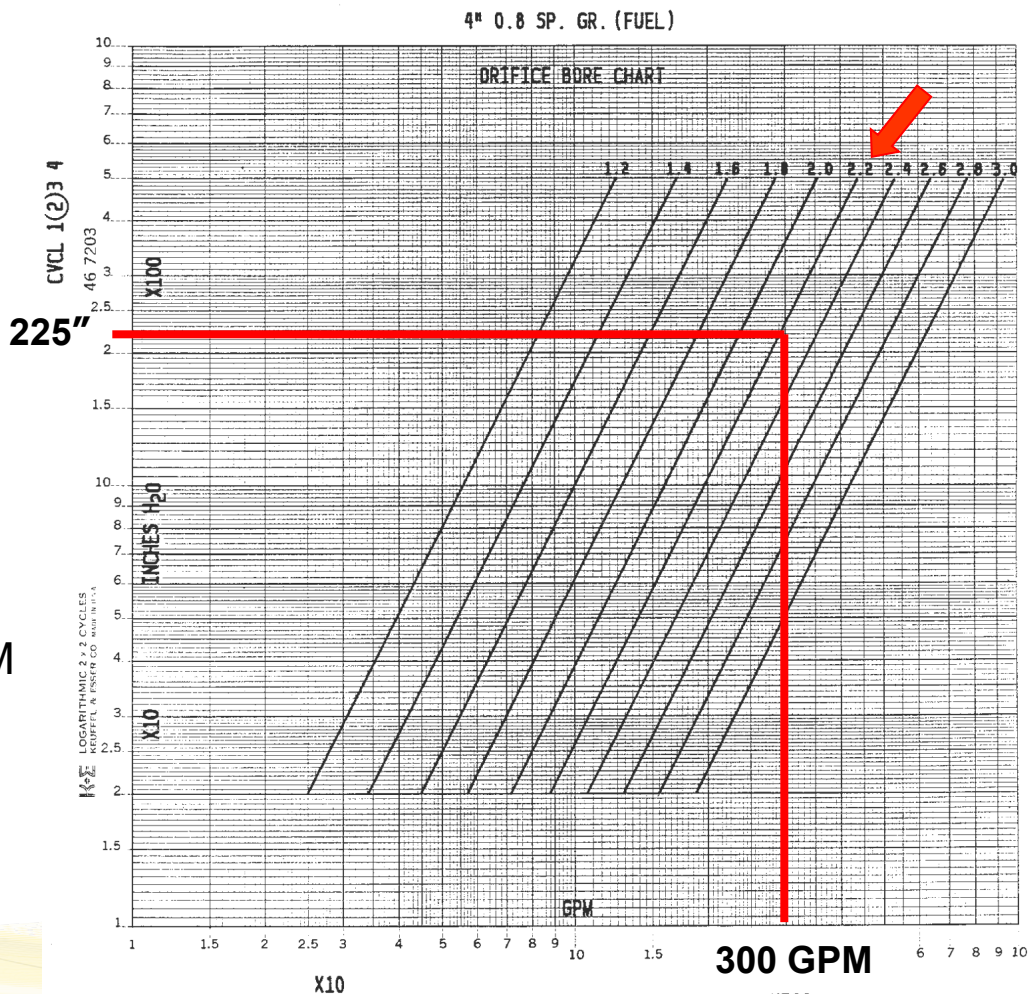
### 4-inch Orifice Bore Chart

FLUID: 0.8 SG

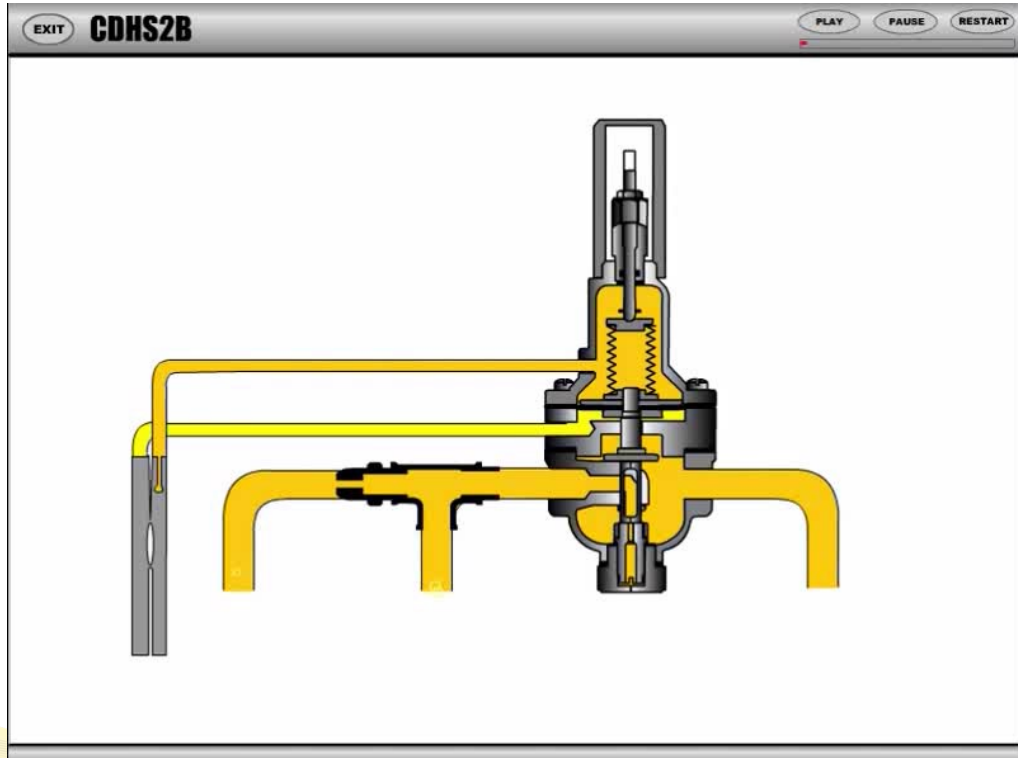
PIPE SIZE: 4in

ORIFICE ID: 2.2"

8.1 psid (225" H<sub>2</sub>O) = 300 GPM



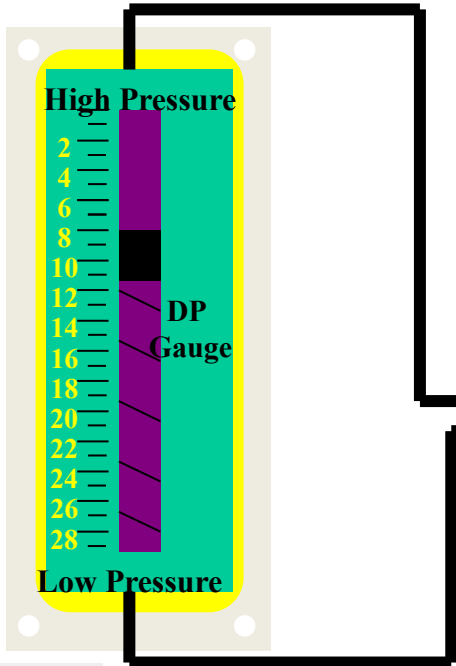
# CDHS2B Differential Control Pilot





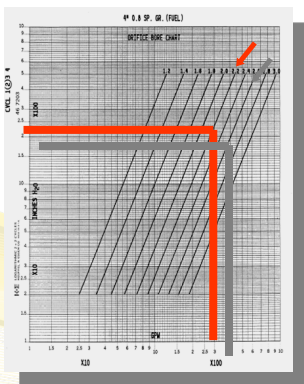
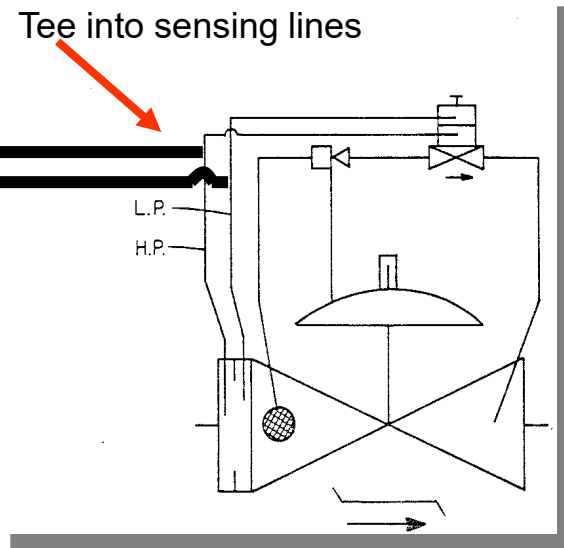


psi  
Diff.

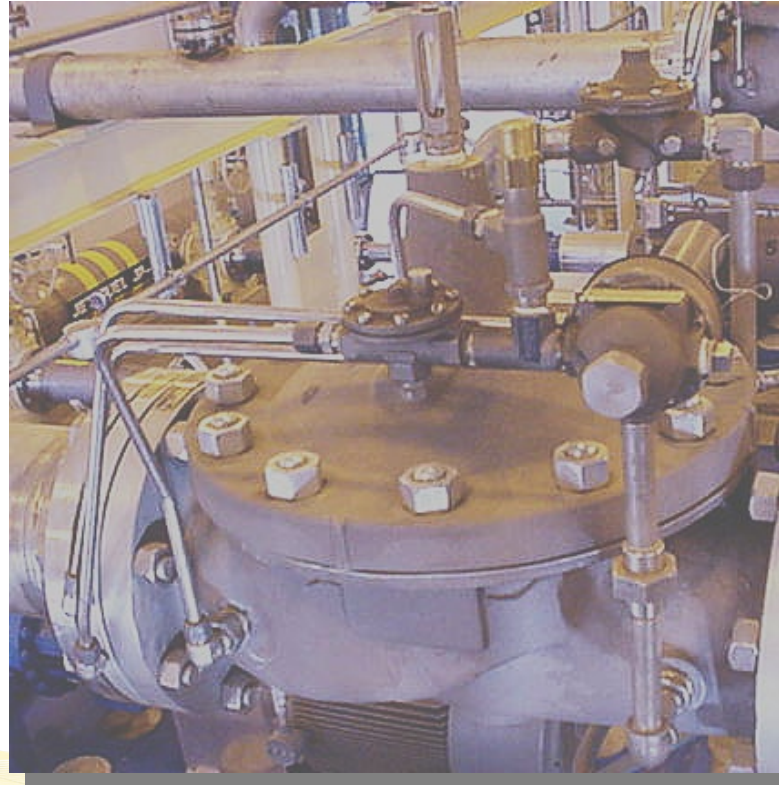


## Using a Differential Pressure Gauge and Orifice Bore Chart to Set the Flow

Tee into sensing lines



# Pump Flow Control Valves



## Common Features:

- Flow Limiting
- Check Feature

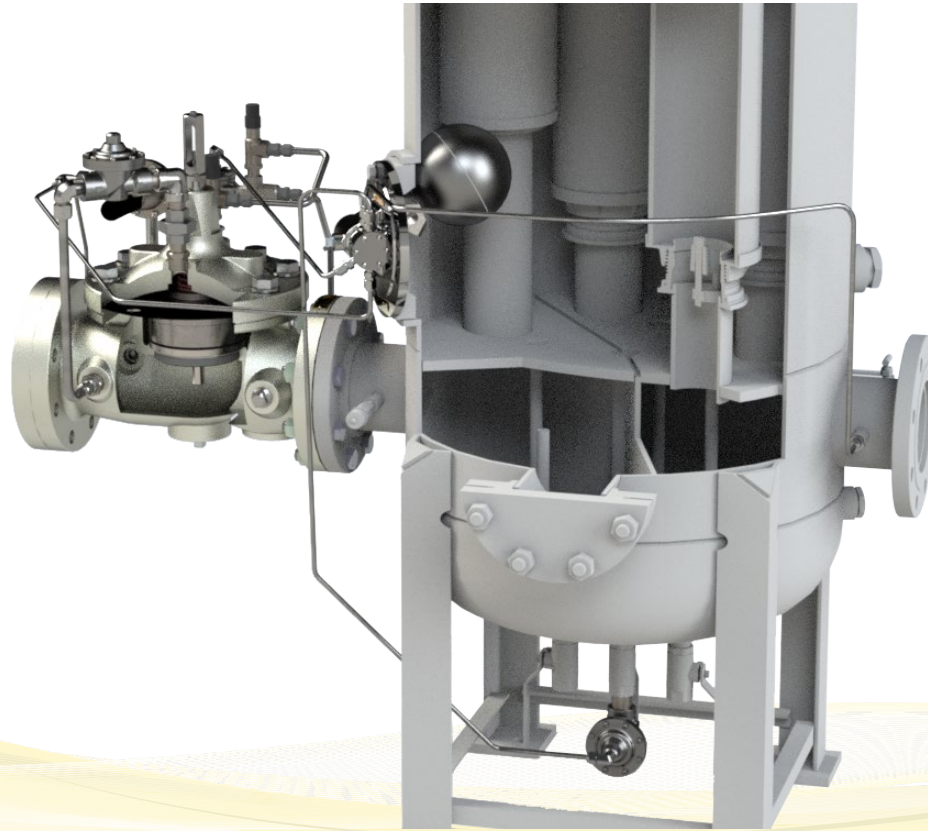


# Filter Separator Control Valves

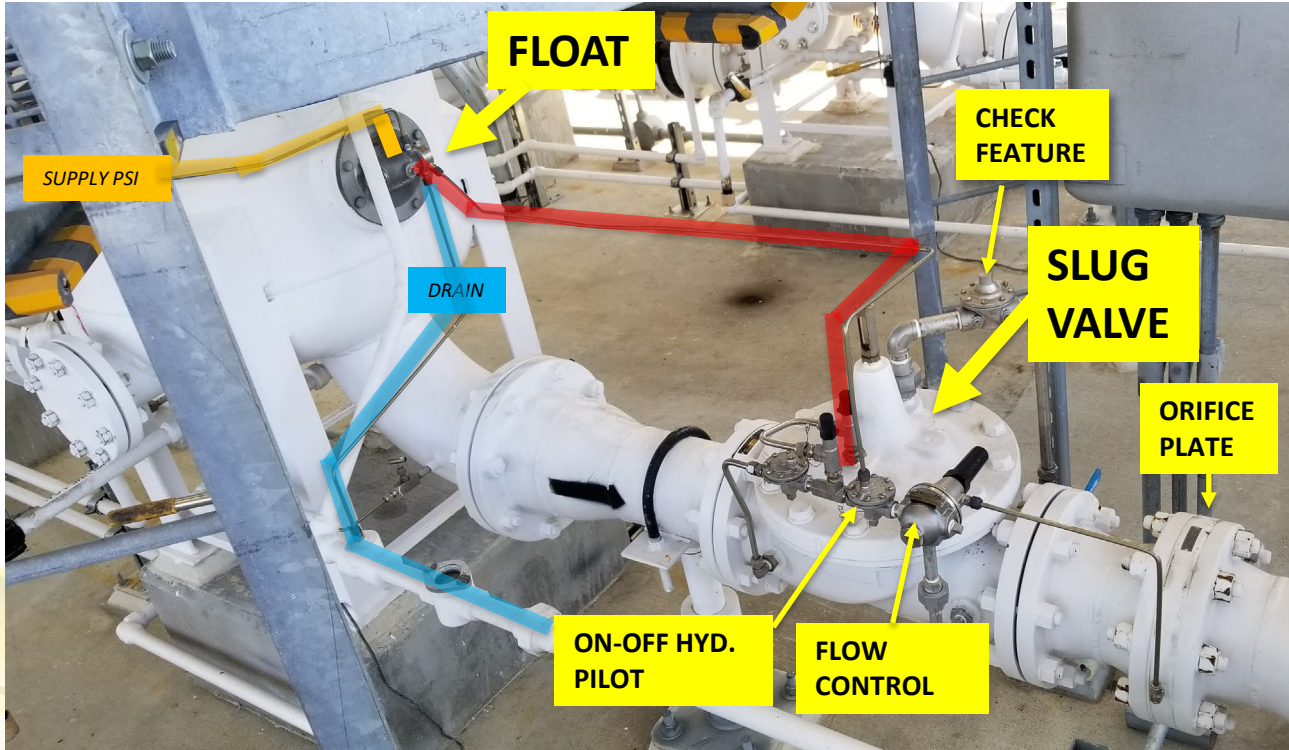




# Filter Water Separator Slug Valve and Automatic Water Drain Installation



# Filter Water Separator Slug and Float



## Common Features:

- Flow limiting
- Float On-Off
- Check Feature
- Valve Min. DP
- Filter Max DP Shut
- Solenoid On/Off

# Filter Water Separator - Float



← CFF21-H2 Filter  
Float Assembly  
With Removable  
Ballast Weight

CFF18T-H2  
Filter Float Assembly  
with Tester





# Filter Water Separator – On/Off Pilot





# Truck Fill Stand Control Valves





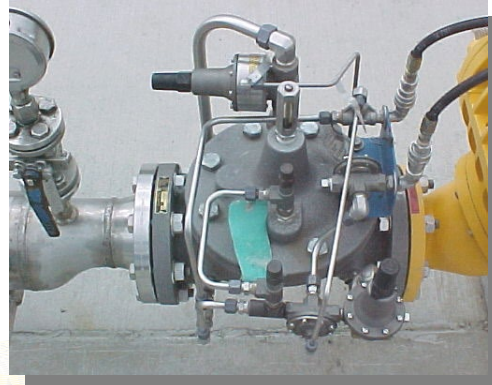


# Truck Fill Stand Control Valves

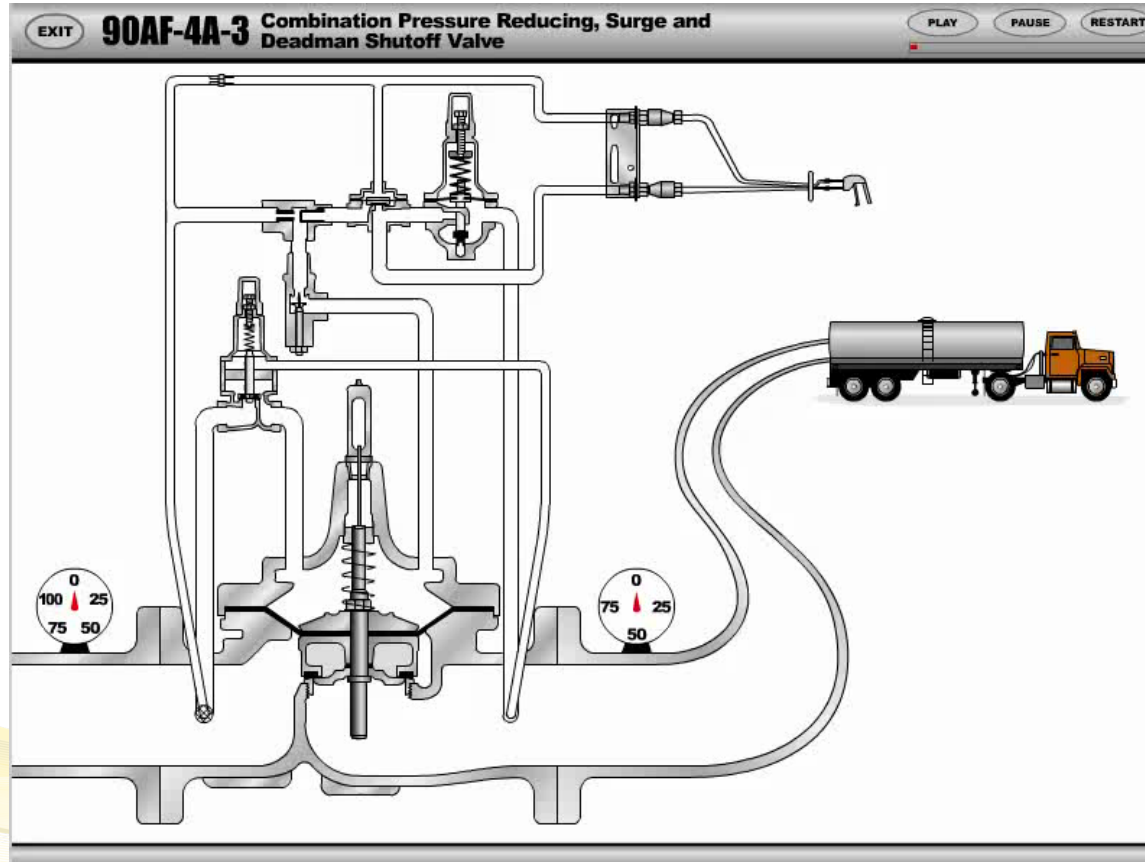


## Common Features

- Manual On-Off Deadman
- Pressure Reducing
- Surge Control



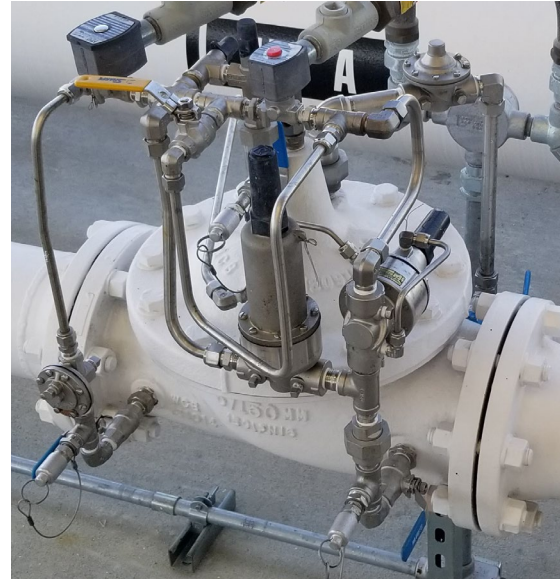
# Truck Fill Stand Control Valve





# Truck Fill Stand Control Valve

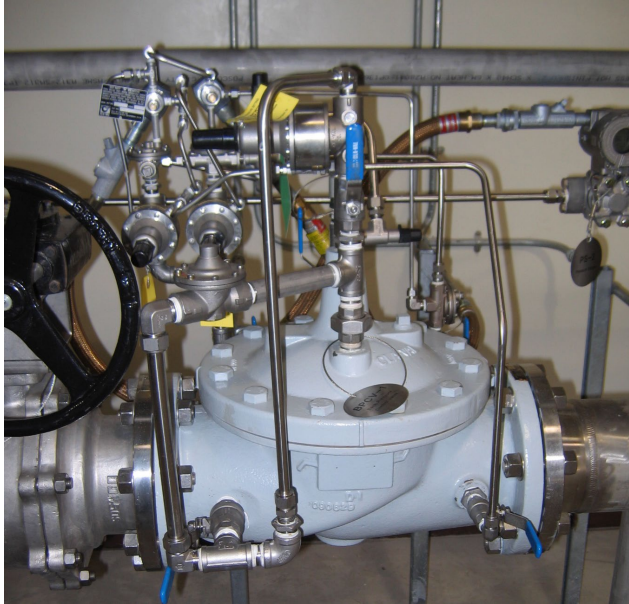
## Digital Control Valves



# Back Pressure Control Valves



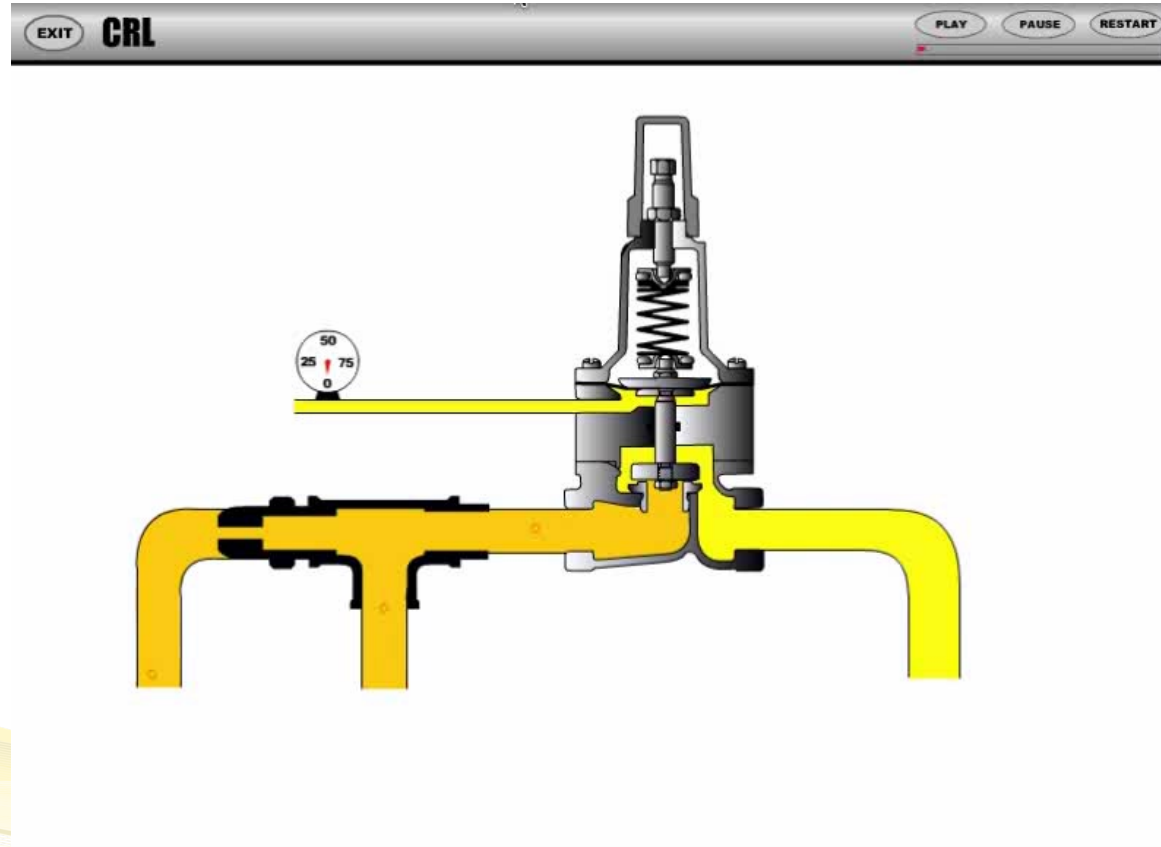
# Back Pressure Control Valve



## Common Features

- **Backpressure,**  
*(Multiple settings)*
- **Solenoid On-Off**
- **Check Feature**
- **Quick Opening**

# Back Pressure Control Valve





# CLA-VAL

AVIATION FUELING PRODUCTS & APPLICATIONS



*Superior Products  
Exceptional Performance  
Unparalleled Support*