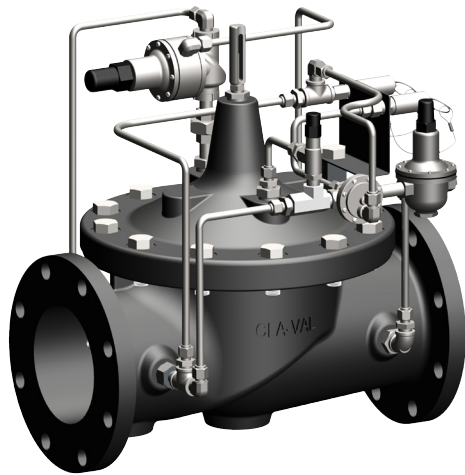




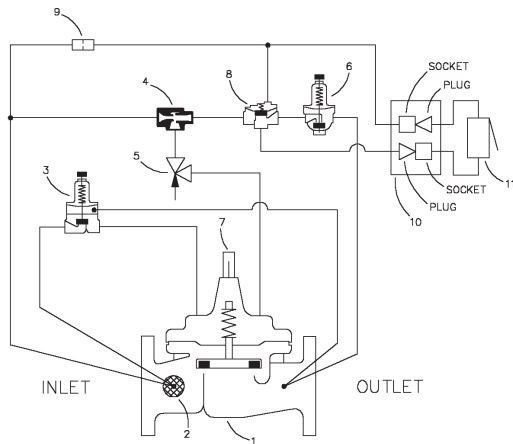
Model 90AF4A-3

PRESSURE REDUCING VALVE



- Maintains constant downstream pressure
- Closes quickly to prevent downstream surge when flow is stopped suddenly
- Deadman control
- Surge control prevents damage to refuelers
- Used in conjunction with Cla-Val bottom-loading pantograph
- Fail-safe operation

The Cla-Val Model 90AF-4A-3 Hytrol Valve is used as the basic unit in almost all Cla-Val automatic control valves for petroleum applications. The 90AF-4A-3 is a hydraulically operated, diaphragm actuated, globe or angle pattern valve. It is available in various materials and full range of sizes. It consists of three major components: body, diaphragm assembly and cover. The diaphragm assembly is the only moving part. The rugged simplicity of design and packless construction assure a long life dependable, trouble-free operation. Should the diaphragm become damaged the valve will close tight, providing "fail safe" operation. The 90AF-4A-3 Hytrol Valve is used in any type of piping system that requires control, flow regulation, rate of flow control, or check valve operation.



Schematic Diagram	
Item	Description
1	100-34 Hytrol (Reverse Flow)
2	X47A Ejector
3	Bell Reducer
4	CFM2 Float Control
5	X101D Valve Position Indicator X105L Switch Assembly (Optional)

Optional Features	
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Cock (Isolation Valve)
C	CV Flow Control (Closing)
G	81-01 Check Valve With Cock
Q	Quick Connect Assembly
S	CV Flow Control (Opening)
T	55F Thermal Relief Control

Specifications

Sizes

Globe: 1 1/2" - 16" flanged
Angle: 2" - 16" flanged

End Details

Flanged:
Cast Aluminum, 150 ANSI B16.1
Cast Bronze, 150 & 300 ANSI B16.24
Ductile Iron, 150 & 300 ANSI B16.42
Cast Steel, 150 & 300 ANSI B16.5

Temperature Range

Light Petroleum Product -40°F to +140°F

Pressure Ratings

150 class 175 psi Max
150 class 275 psi Max
250 class 300 psi Max
300 class 400 psi Max

Material

Body & Cover:
Cast Aluminum, 356-T6
Cast Bronze ASTM B62
Ductile Iron ASTM A-536
Cast Stainless Steel 303
Cast Steel ASTM A216-WCB

Valve Trim

Bronze ASTM B61
Stainless Steel 303

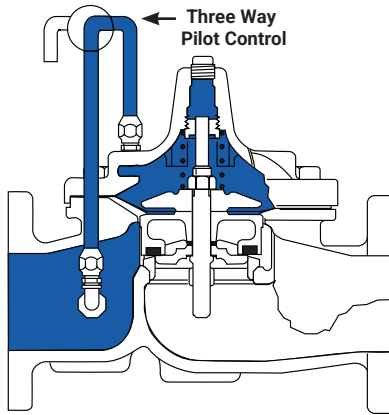
Rubber Parts

Buna-N® Synthetic Rubber
Viton

Other Materials

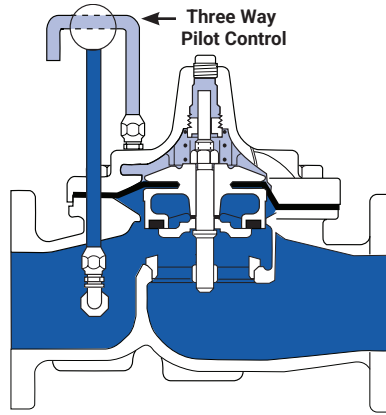
Available on Special Order

Principle of Operation



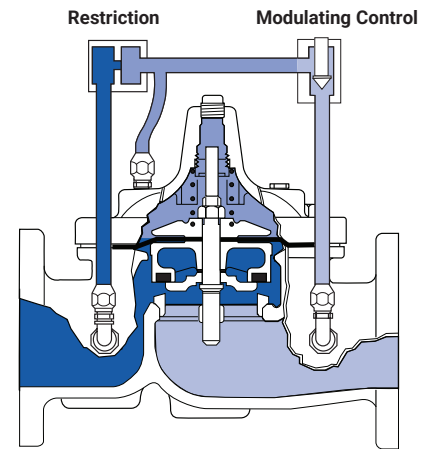
Tight Closing Operation

When pressure from the valve inlet (or an equivalent independent operating pressure) is applied to the diaphragm chamber the valve closes drip-tight.



Full Open Operation

When pressure in diaphragm chamber is relieved to a zone of lower pressure (usually atmosphere) the line pressure (5 psi Min.) at the valve inlet opens the valve.

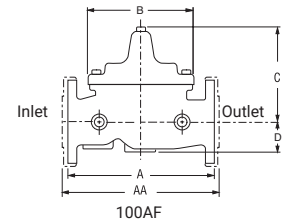


Modulating Action

Valve modulates when diaphragm pressure is held at an intermediate point between inlet and discharge pressure. With the use of a Cla-Val. "Modulating control," which reacts to line pressure changes, the pressure above the diaphragm is varied, allowing the valve to throttle and compensate for the change.

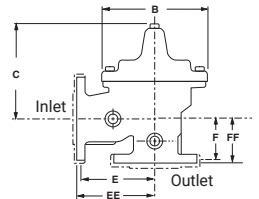
Dimensions

Valve Size (Inches)	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"
A 125 & 150 ANSI	8.50	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38
AA 250 & 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 Diameter	5.62	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50
C Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00
D	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50
E 125 & 150 ANSI	—	4.75	5.00	6.00	7.50	10.00	12.75	14.88	17.00	19.50	20.81
EE 250 & 150 ANSI	—	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62
F 125 & 150 ANSI	—	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69
FF 250 & 300 ANSI	—	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50



Cv Factor											
Valve Size (Inches)	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"
100-34 Globe Pattern	26	49	80	107	200	440	771	1151	1600		
100-34 Angle Pattern	30	62	100	137	—	—	—	—	—		

Cv factor is defined as the number of gallons per minute of water at 60°F that will flow with a 1 psi pressure differential across the valve.



Purchase Specifications

The valve shall be hydraulically-operated, diaphragm-actuated, globe or angle pattern valve. It shall contain a resilient, synthetic rubber disc, having a rectangular cross section, contained on three and on-half sides by a disc retainer and disc guide, forming a tight seal against a single renewable seat. The valve stem shall be guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. The diaphragm consists of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve. All necessary repairs shall be possible without removing the valve from the line. If the diaphragm becomes damaged the valve shall close tight. This valve shall be a Model 100-34 (globe pattern or angle pattern) Hytrol Valve as manufactured by Cla-Val, Newport Beach, California.

When Ordering, Please Specify

1. Size
2. Model 90AF-4A-3 Globe or Angle
3. Pressure Class
4. Temperature and fluid to be handled
5. Static and flowing line pressure
6. Operating fluid and pressure (if other than line pressure)
7. Body and trim materials
8. End details