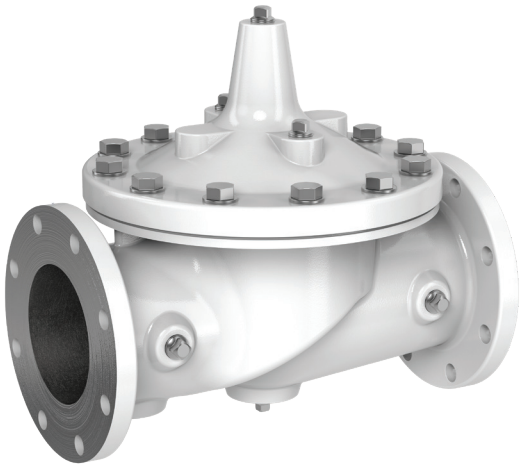
Model 100-34
HYTROL MAIN VALVE

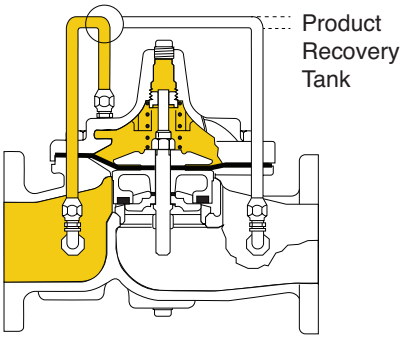
ENGINEERING DATA SHEET



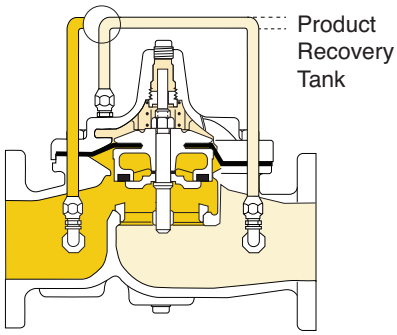
- Drip-Tight, Positive Seating
- Service Without Removal From Line
- Globe or Angle Pattern
- Fail Closed or Fail Open Operation

The Cla-Val Model 100-34 Hytrol Valve is used as the basic valve in many Cla-Val Automatic Control Valves for petroleum applications. It is a hydraulically operated, diaphragm actuated, globe or angle pattern valve available in various materials and a 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 pack-less construction assure a long life of dependable, trouble-free operation. Based on pilot system orientation, the valve can be configured in a "fail safe" open or "fail safe" closed design. The 100-34 Hytrol Valve is used in a variety of applications including flow control, back pressure control, pressure reducing control, remote control, liquid level control, solenoid operation or check valve operation.

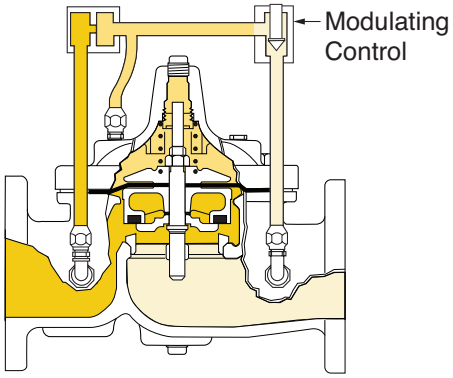
Principles of Operation



Tight Closing Operation
When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



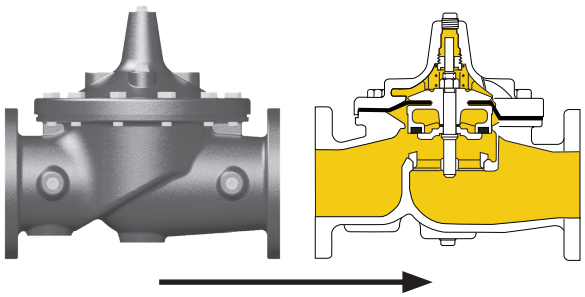
Full Open Operation
When pressure in the cover chamber is relieved to a zone of lower pressure, the valve will open.



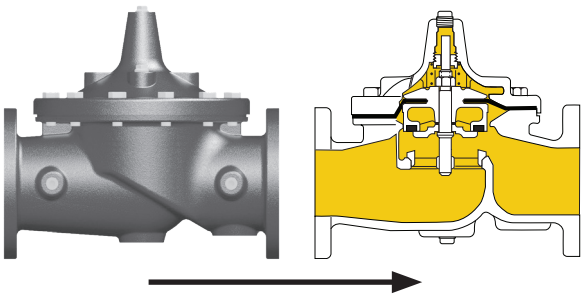
Modulating Action
The main valve modulates when diaphragm chamber pressure is held at an intermediate point between inlet and outlet pressure. Pressure above the diaphragm is varied, allowing the valve to modulate.

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*

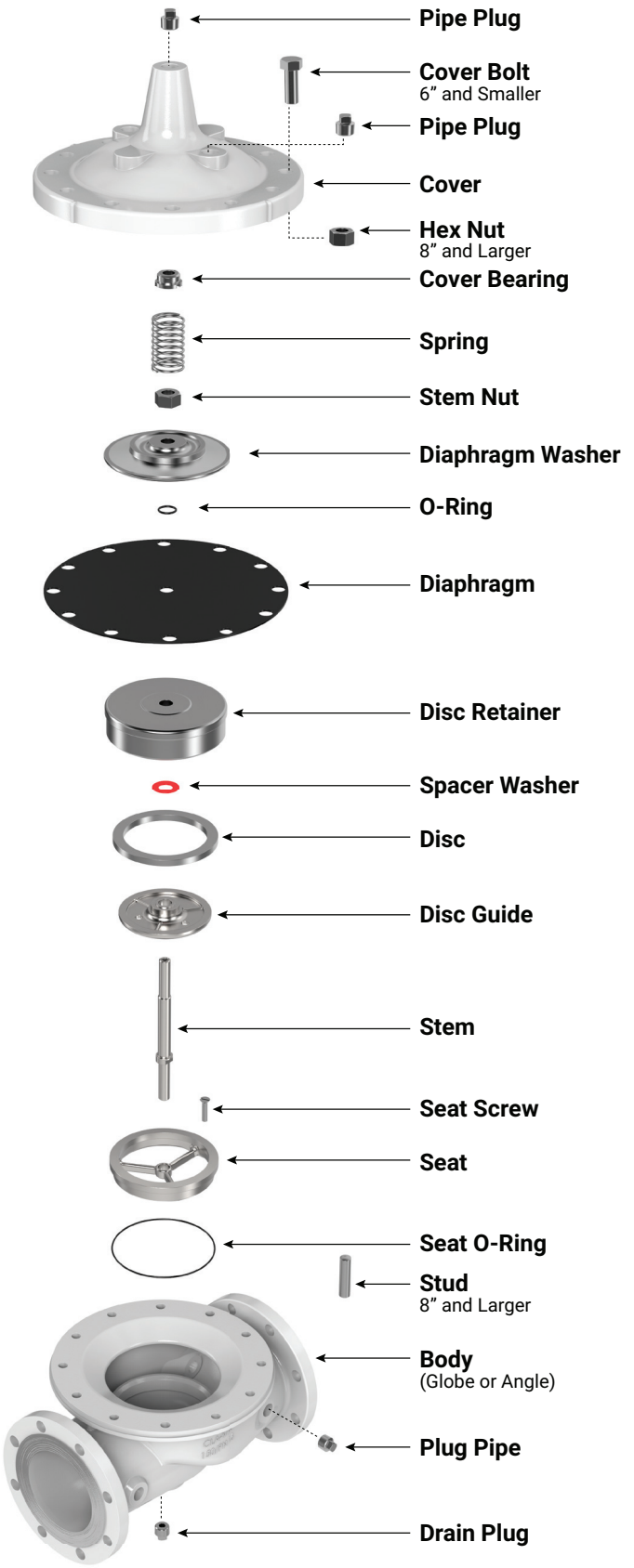


Specifications

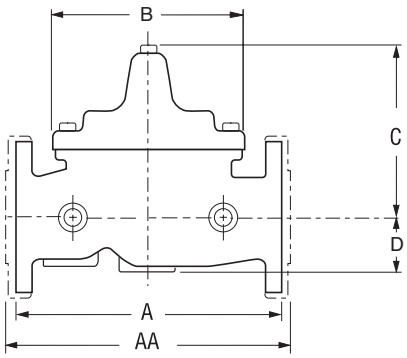
Available Sizes		
Pattern	Threaded	Flanged
Globe	NPS 3/8” - 3”	NPS 1.5” - 20”
Angle	NPS 1” - 3”	NPS 1.5” - 20”
*Larger Sizes Available on Special Request		

Pressure Rating					
Valve Body & Cover	Pressure Class				
	Flanged			Threaded	
Material	Dimensions	150 Class*	300 Class*	Dimensions	NPT Class*
Ductile Iron	B16.42	250	640	ANSI B1.20.1	640
Cast Steel	B16.5	285	740	ANSI B1.20.1	740
Stainless Steel	B16.5	285	740	ANSI B1.20.1	740
Aluminum	B16.5	275	-	-	-
*Pressure ratings are determined by ASME B16.34, B16.42, or B16.5. Please consult factory for any application exceeding 400psi to ensure the external control trim is engineered to handle higher pressures.					

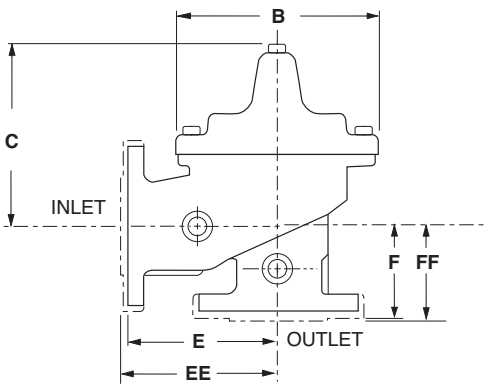
Materials				
Component	Standard Material Combinations			
Body & Cover	*Ductile Iron	*Cast Steel	Stainless Steel	Aluminum
Available Sizes, NPS	3/8” - 20”	1-1/21” - 20”	1-1/2” - 20”	1-1/2” - 20”
Disc Retainer & Diaphragm Washer	*Ductile Iron	*Cast Steel	Stainless Steel	Aluminum
Cover Bearing, Spring, Disc Guide, Stem, & Seat	Stainless Steel			
Plugs, Bolts, Studs, Screws, Washers, & Nuts	Stainless Steel			
Diaphragm, Disc, & O-ring	Stainless Buna-N (-40 to 180° F) Viton™ (0 to 210° F) EPDM (0 to 210° F) s Steel			
Internal Materials may vary slightly and are based on standard configurations *Ductile & Steel metals are offered with epoxy coating or electroless nickel plating				



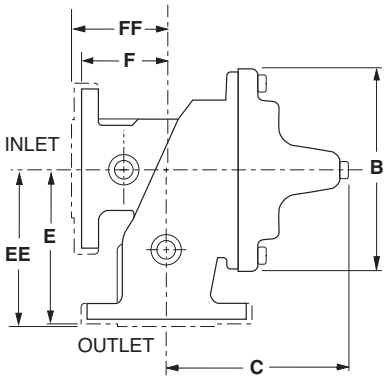
Dimensions



REVERSE FLOW



NORMAL FLOW

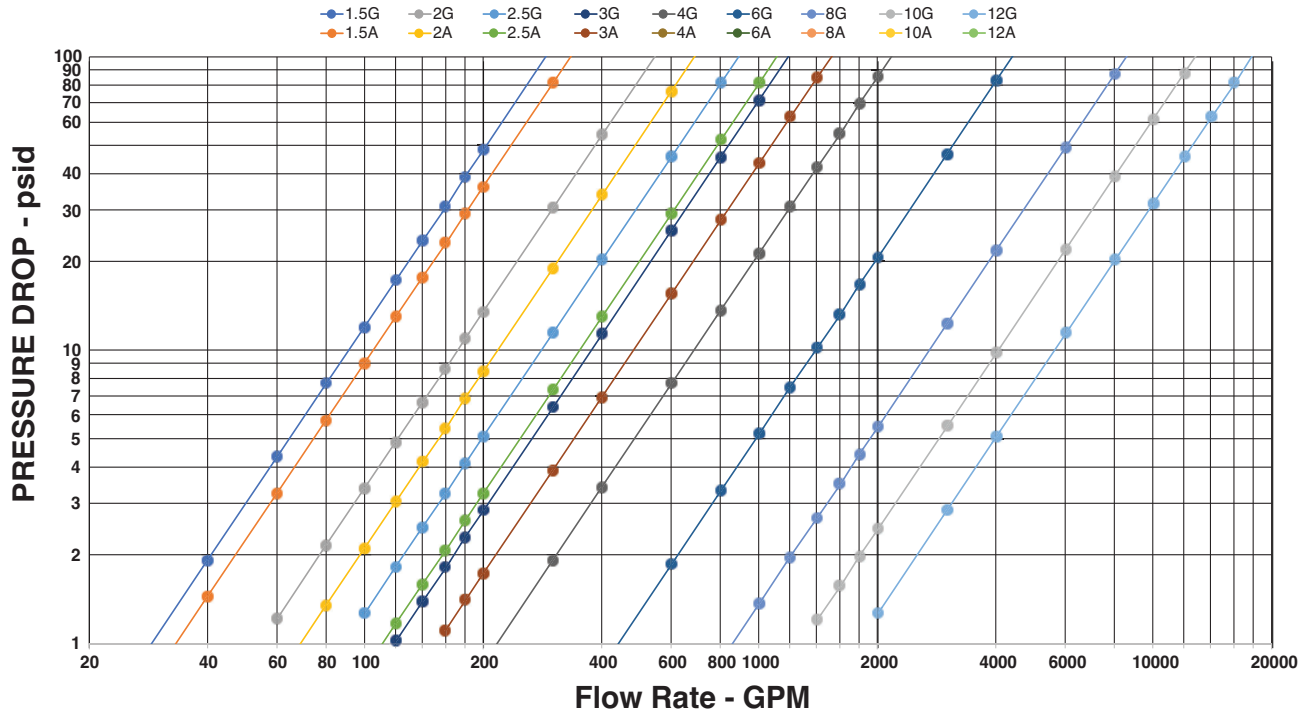


Size (inches)	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	20"
A 150 ANSI	8.50	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	52.00
AA 300 ANSI	9.00	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	53.62
B Diameter	5.62	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	45.00
C Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	41.90
D	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	15.00
E 150 ANSI	4.00	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81	–
EE 150 ANSI	4.25	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	–
F 150 ANSI	4.00	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	–
FF 300 ANSI	4.25	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	–
Stem Travel	0.40	0.60	0.70	0.80	1.10	1.70	2.30	2.80	3.40	4.00	4.50	5.63
Angle Pattern: Installation dimensions vary based on flow direction through valve.												

C_V Values and Cover Chamber Capacity									
Size (inches)	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"
Globe, *Reverse Flow	26	49	80	107	195	396	771	1151	1600
Angle, *Reverse Flow	30	62	100	137	–	–	–	–	–
Globe, †Normal Flow	31	54	81	119	196	437	775	1219	1816
Angle, †Normal Flow	29	61	101	139	240	541	990	1575	2500
Cover Chamber Capacity - U.S. Gal.	0.02	0.03	0.04	0.08	0.17	0.53	1.26	2.51	4.00

*Reverse Flow Design: Typical for most fuel valves.
†Normal Flow Design: Typical for Relief Valves.
C_V 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.

HYTROL, REVERSE FLOW, FULL OPEN PRESSURE LOSS, SG 0.81



HYTROL, NORMAL FLOW, FULL OPEN PRESSURE LOSS, SG 0.81