

**427-01**

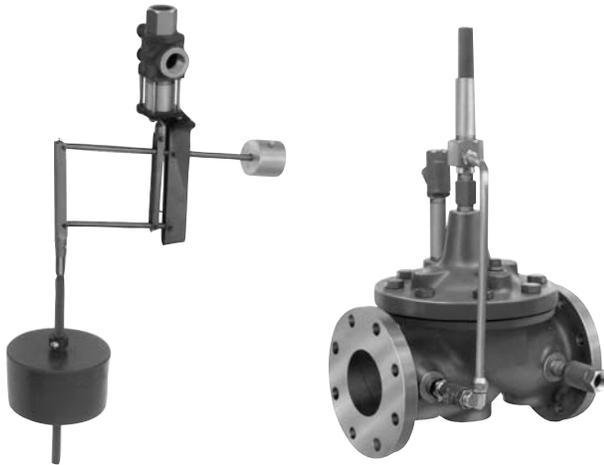
(Full Internal Port)

**627-01**

(Reduced Internal Port)

— MODEL —

# Modulating Float Valve



- Accurate and Repeatable Level Control
- Reliable Hydraulic Operation
- Drip-Tight Positive Shut-Off
- Multi Function Capability
- Completely Automatic Operation

The Cla-Val Model 427-01/627-01 Float Valve modulates to maintain a constant liquid level in a storage tank by compensating for variations in supply or demand. It can be installed to control either the flow into or out of the tank by either Closing on a rising level or Opening on a rising level. This valve is a hydraulically-operated, pilot controlled diaphragm valve.

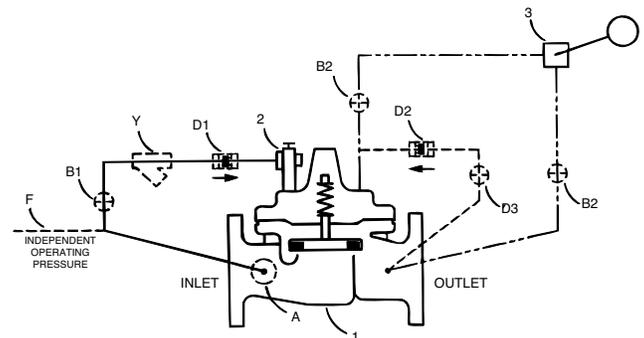
The Pilot Control System consists of a Variable Orifice Pilot Control mounted on the valve cover, and a Remote Mounted Float Control. A slight change in liquid level moves the float control. This action varies the pressure in the valve cover, causing the main valve to seek a new position. The Variable Orifice Pilot tracks the valve movement, automatically regulating the flow into the cover until the valve attains a position that is in direct relation to the position of the float control.

## Schematic Diagram

Item	Description
1	Hytrol Main Valve
2	X74B-3 Stem Valve (Variable Orifice Pilot)
3	CFM-7 Float Control or CFM-7A

## Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 (Isolation Valve)
F	Independent Operating Pressure
Y	X43 "Y" Strainer



## Installation Data

The valve may be installed in any position. The Remote Float Control may be mounted at any convenient location above the liquid level. Float rods are available in lengths from 2' to 12' in two-foot increments.

A stilling well (8" min. diameter) should be provided around the float if the liquid surface is subject to turbulence, ripples or wind.

The float control may be installed at any elevation above the valve providing that the amount of flowing line pressure in psi is equal to or greater than the vertical distance in feet between the valve and the float control.

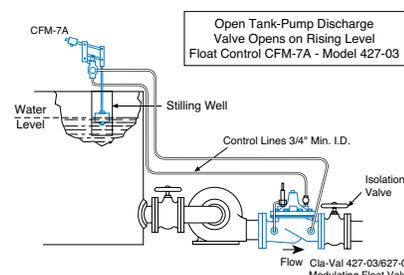
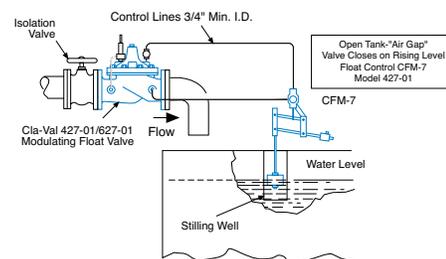
For good modulation under all conditions the float control discharge must be piped back into the main valve discharge side. Both lines connecting the valve and float control must be large enough to minimize pressure drop under maximum flow conditions ( $\frac{3}{4}$ " I.D. to 20', 1" I.D. up to 30').

When a separate source of supply pressure is used by the pilot control system, that pressure must at all times be constant and equal to or greater than the pressure at the valve inlet.

### DO NOT USE FOR ON-OFF SERVICE.

Note: We recommend protecting tubing and valve from freezing temperatures.

## Typical Applications



**Model 427-01** (Uses Basic Valve Model 100-01)

**Pressure Ratings** (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class			
		Flanged			Threaded
Grade	Material	ANSI Standards*	150 lb.	300 lb.	End** Details
ASTM A536	Ductile Iron	B16.42	250	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400
ASTM B62	Bronze	B16.24	225	400	400

Note: \* ANSI standards are for flange dimensions only.  
 Flanged valves are available faced but not drilled.  
 \*\* End Details machined to ANSI B2.1 specifications.

**Materials**

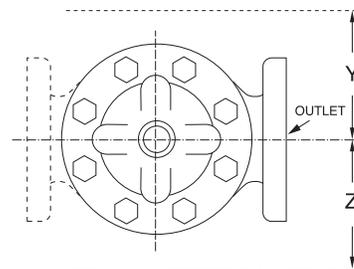
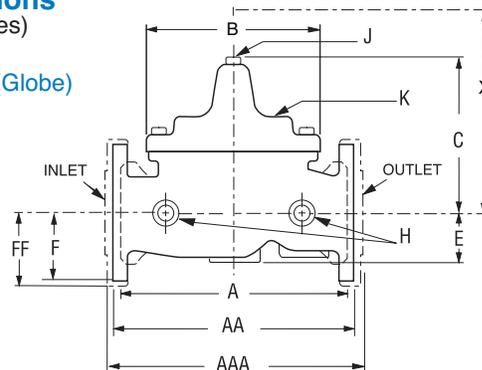
Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	2½" - 36"	2½" - 16"	2½" - 16"
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.  
 Cla-Val manufactures valves in more than 50 different alloys.

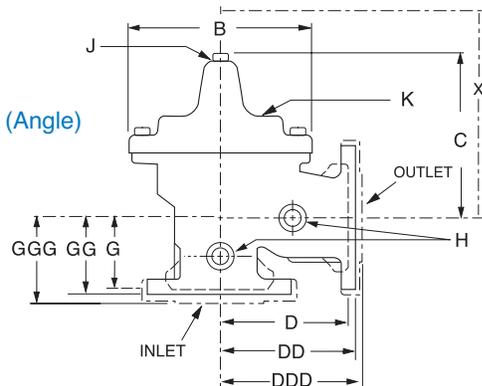
**Dimensions**

(In inches)

**100-01 (Globe)**



**100-01 (Angle)**



**Model 427-01 Dimensions** (In Inches)

Valve Size (Inches)	2 ½	3	4	6	8	10	12	14	16	24	36
A Threaded	11.00	12.50	—	—	—	—	—	—	—	—	—
AA 150 ANSI	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	61.50	76.00
AAA 300 ANSI	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	63.24	78.00
B Dia.	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	53.16	66.00
C Max.	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	43.93	61.50
D Threaded	5.50	6.25	—	—	—	—	—	—	—	—	—
DD 150 ANSI	5.50	6.00	7.50	10.00	12.75	14.88	17.00	19.50	20.81	—	—
DDD 300 ANSI	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—
E	1.69	2.56	3.19	4.31	5.31	9.25	10.75	12.62	15.50	17.75	24.56
F 150 ANSI	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	19.25	28.00
FF 300 ANSI	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	—	—
G Threaded	4.00	4.50	—	—	—	—	—	—	—	—	—
GG 150 ANSI	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—
GGG 300 ANSI	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—
H NPT Body Tapping	½	½	¾	¾	1	1	1	1	1	1	2
J NPT Cover Center Plug	½	½	¾	¾	1	1	1¼	1½	2	1½	2
K NPT Cover Tapping	½	½	¾	¾	1	1	1	1	1	1	2
Valve Stem Internal Thread UNF	10-32	¼-28	¼-28	¾-24	¾-24	¾-24	¾-24	¾-24	¾-24	½-20	¾-16
Stem Travel	0.7	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	6.75	10.12
Approx. Ship Wt. Lbs.	50	70	140	285	500	780	1165	1600	2265	6200	11470
X Pilot System	14.00	15.00	17.00	29.00	31.00	33.00	36.00	40.00	40.00	68.00	86.00
Y Pilot System	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	39.00	45.00
Z Pilot System	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	39.00	45.00

**Model 627-01** (Uses Basic Valve Model 100-20)

**Pressure Ratings** (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 lb.	300 lb.
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
ASTM B62	Bronze	B16.24	225	400

Note: \*ANSI standards are for flange dimensions only. Flanged valves are available faced but not drilled.

**Materials**

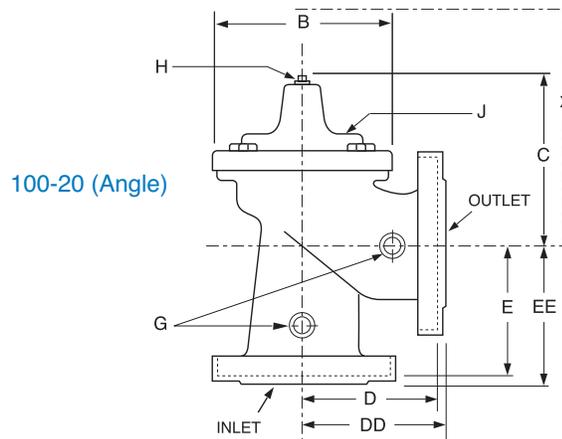
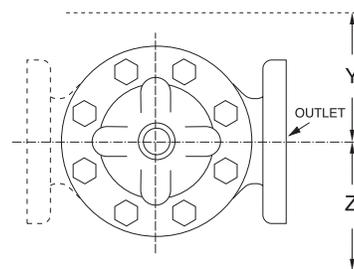
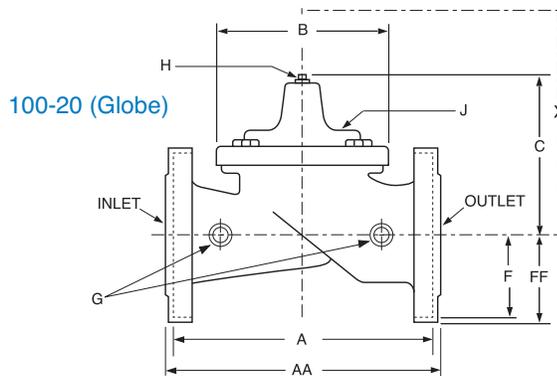
Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	4" - 48"	4" - 16"	4" - 16"
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.  
Cla-Val manufactures valves in more than 50 different alloys.

**Model 627-01 Dimensions** (In Inches)

Valve Size (Inches)	4	6	8	10	12	14	16	18	20	24	30
<b>A</b> 150 ANSI	13.88	17.75	21.38	26.00	30.00	34.25	35.00	42.12	48.00	48.00	63.25
<b>AA</b> 300 ANSI	14.50	18.62	22.38	27.38	31.50	—	36.62	43.63	49.62	49.75	—
<b>B</b> Dia.	9.12	11.50	15.75	20.00	23.62	28.00	28.00	35.44	35.44	35.44	53.19
<b>C</b> Max.	8.62	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.00	31.00	43.94
<b>D</b> 150 ANSI	6.94	8.88	10.69	—	—	—	—	—	—	—	—
<b>DD</b> 300 ANSI	7.25	9.38	11.19	—	—	—	—	—	—	—	—
<b>E</b> 150 ANSI	5.50	6.75	7.25	—	—	—	—	—	—	—	—
<b>EE</b> 300 ANSI	5.81	7.25	7.75	—	—	—	—	—	—	—	—
<b>F</b> 150 ANSI	4.50	5.50	6.75	8.00	9.50	11.00	11.75	15.88	14.56	17.00	19.88
<b>FF</b> 300 ANSI	5.00	6.25	7.50	8.75	10.25	—	12.75	15.88	16.06	19.00	—
<b>H</b> NPT Body Tapping	½	¾	¾	1	1	1	1	1	1	1	1
<b>J</b> NPT Cover Center Plug	½	¾	¾	1	1	1 ¼	1 ¼	2	2	2	2
<b>K</b> NPT Cover Tapping	½	¾	¾	1	1	1	1	1	1	1	1
Valve Stem Internal Thread UNF	¼-28	¼-28	¾-24	¾-24	¾-24	¾-24	¾-24	½-20	½-20	½-20	¾-16
Stem Travel	0.8	1.1	1.7	2.3	2.8	3.4	3.4	3.4	4.5	4.5	6.5
Approx. Ship Wt. Lbs.	85	195	330	625	900	1250	1380	1500	2551	2733	6500
<b>X</b> Pilot System	15.00	27.00	30.00	33.00	36.00	36.00	41.00	40.00	46.00	55.00	68.00
<b>Y</b> Pilot System	11.00	18.00	20.00	22.00	24.00	26.00	26.00	30.00	30.00	30.00	39.00
<b>Z</b> Pilot System	11.00	18.00	20.00	22.00	24.00	26.00	26.00	30.00	30.00	30.00	39.00

**Dimensions**  
(In inches)



Valve Selection		These Symbols  and  Indicate Available Sizes															
		Inches	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
		mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
		End Detail	Threaded & Flanged					Flanged									
Model 427-01	Basic Valve 100-01	Globe															
		Angle															
	Suggested Flow (gpm)	Max. Continuous	210	300	460	800	1800	3100	4900	7000	8400	11000			25000	50000	
		Max. Intermittent	260	370	580	990	2250	3900	6150	8720	10540	13700			31300	62500	
	Suggested Flow (Liters/Sec)	Max. Continuous	13	19	29	50	113	195	309	441	529	693			1575	3150	
		Max. Intermittent	16.4	23	37	62	142	246	387	549	664	863			1972	3940	
Model 627-01	Basic Valve 100-20	Globe															
		Angle															
	Suggested Flow (gpm)	Max. Continuous			260	580	1025	2300	4100	6400	9230	9230	16500	16500	16500	28000	
		Max. Intermittent															
	Suggested Flow (Liters/Sec)	Max. Continuous			16	37	65	145	258	403	581	581	1040	1040	1040	1764	
		Max. Intermittent															

\*\*Flanged End Detail Only

**Important Notice: Do Not Oversize**

**627-01 is the reduced internal port size version of the 427-01.**

For 100-01 basic valves, suggested flow calculations were based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft/sec (6.1 meters/sec) & maximum intermittent is approx. 25 ft/sec (7.6 meters/sec). For 100-20 basic valves, suggested flow calculations were based on flow through the valve seat. Approx. 26 ft/sec (7.9 meters/sec) is used for maximum continuous flow. Maximum continuous flow through the valve seat for the valve seat for the 30" 100-20 is approx. 20 ft/sec (6.1 meters/sec).

We recommend providing adequate space around valve for maintenance work

Minimum Differential: 5 psi minimum differential between valve inlet and outlet

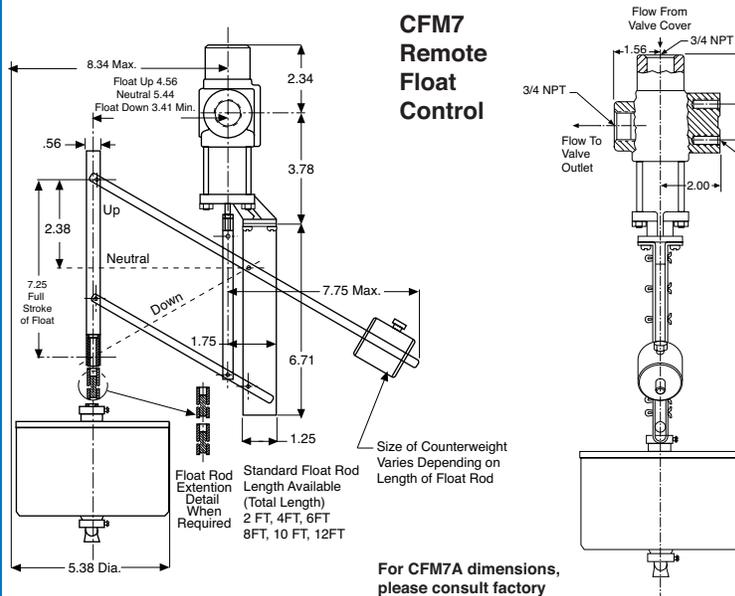
**Pilot System Specifications**

**Temperature Range**

Water: to 180°F

**Materials**

- Pilot Control: Brass
- Trim: Stainless Steel Type 303
- Rubber: Buna-N® Synthetic Rubber
- Float: Polypropylene, 5 3/8" dia. If temp exceeds 160°F specify a stainless steel float.
- Float Rod: Valves 6" & smaller, two 12" sections of PVC rod. Valves 8" & larger, Four sections as above.



**When Ordering, Please Specify**

1. Catalog No. 427- 01 or No. 627-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Materials Desired
6. Threaded or Flanged
7. Valve Closing or Valve Opening on Rising Water Level
8. Desired Options
9. When Vertically Installed



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