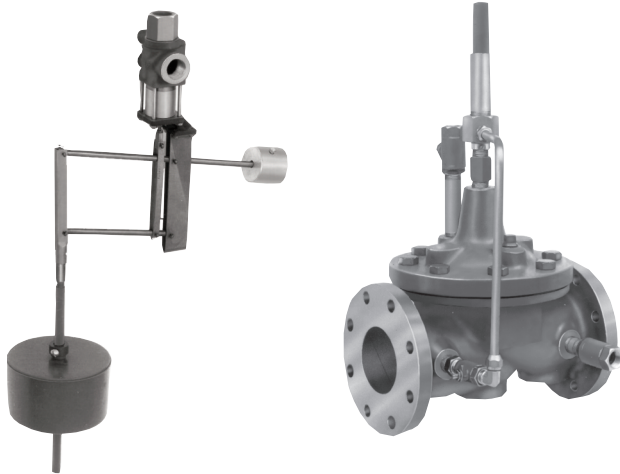




— MODEL — **427-01**

Modulating Float Valve



Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X74B-3 Stem Valve (Variable Orifice Pilot)
3	CFM-7 Float Control or CFM-7A

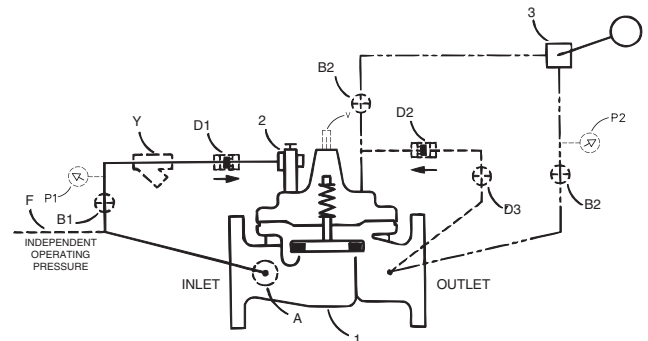
Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
F	Independent Operating Pressure
P	X141 Pressure Gauge
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer

- **Accurate and Repeatable Level Control**
- **Reliable Hydraulic Operation**
- **Multi Function Capability**
- **Completely Automatic Operation**

The Cla-Val Model 427-01 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.



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.

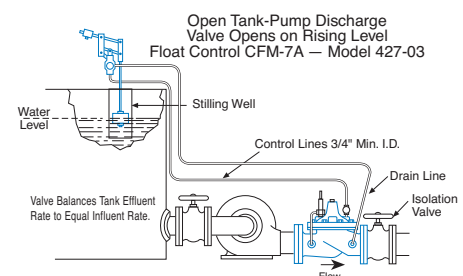
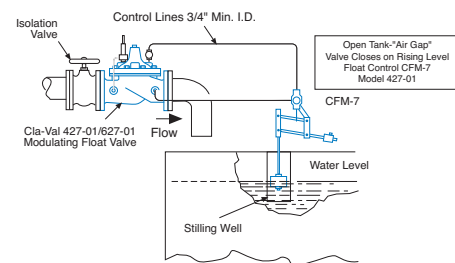
For good modulation under all conditions the float control discharge must be piped back into the main valve discharge side. Both lines connecting the valve and float control must be large enough to minimize pressure drop under maximum flow conditions ($\frac{3}{4}$ " I.D. to 20', 1" I.D. up to 30').

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 100-01 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

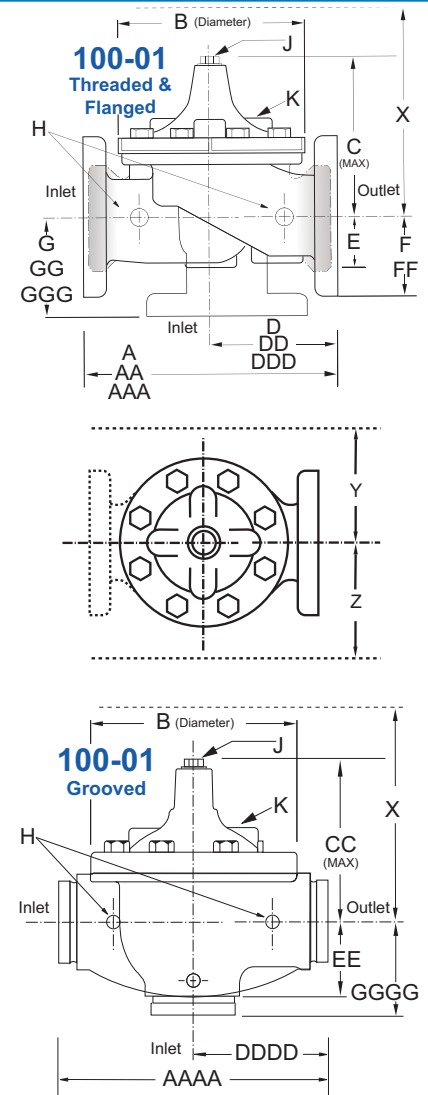
Valve Body & Cover		Pressure Class				
		Flanged			Grooved	Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class	End† Details
ASTM A536	Ductile Iron	B16.42	250	400	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400	400
UNS 87850	Bronze	B16.24	225	400	400	400

Note: * ANSI standards are for flange dimensions only.
 Flanged valves are available faced but not drilled.
 † End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details

Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes (inches)	2" - 36"	2" - 16"	2" - 16"
Available Sizes (mm)	50 - 900 mm	50 - 400 mm	50 - 400 mm
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		

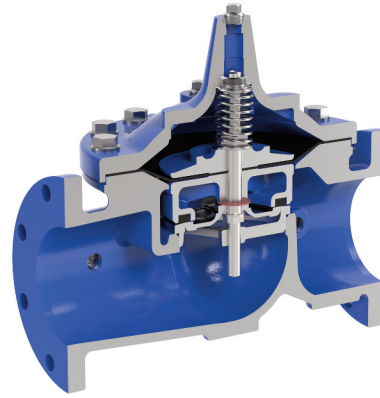
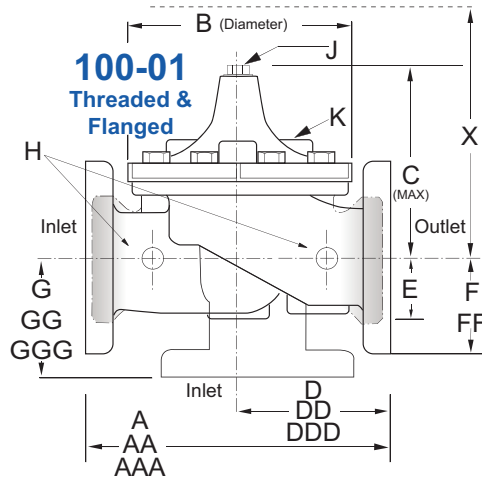
For material options not listed, consult factory.
 Cla-Val manufactures valves in more than 50 different alloys.



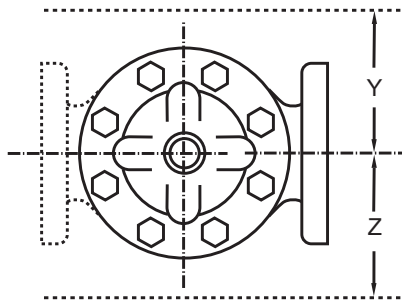
Model 427-01 Dimensions (inches)

Valve Size (Inches)	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
A Threaded	9.38	11.00	12.50	—	—	—	—	—	—	—	—	—	—	—	—
AA 150 ANSI	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	46.00	52.00	61.50	63.00	72.75
AAA 300 ANSI	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	47.64	53.62	63.24	64.50	74.75
AAAA Grooved End	9.00	11.00	12.50	15.00	20.00	25.38	—	—	—	—	—	—	—	—	—
B Diameter	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	41.50	45.00	53.16	56.00	66.00
C Maximum	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	39.06	41.90	43.93	54.60	59.00
CC Maximum Grooved End	5.75	6.88	7.25	9.31	12.12	14.62	—	—	—	—	—	—	—	—	—
D Threaded	4.75	5.50	6.25	—	—	—	—	—	—	—	—	—	—	—	—
DD 150 ANSI	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81	—	—	30.75	—	—
DDD 300 ANSI	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—	31.62	—	—
DDDD Grooved End	4.75	—	6.00	7.50	—	—	—	—	—	—	—	—	—	—	—
E	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	12.95	15.00	17.75	21.31	24.56
EE Grooved End	2.50	2.88	3.12	4.25	6.00	7.56	—	—	—	—	—	—	—	—	—
F 150 ANSI	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	15.00	16.50	19.25	22.50	28.50
FF 300 ANSI	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.00	16.50	19.25	24.00	30.00
G Threaded	3.25	4.00	4.50	—	—	—	—	—	—	—	—	—	—	—	—
GG 150 ANSI	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—	22.06	—	—
GGG 300 ANSI	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—	22.90	—	—
GGGG Grooved End	3.25	—	4.25	5.00	—	—	—	—	—	—	—	—	—	—	—
H NPT Body Tapping	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.50	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.50	2.00	1.00	1.00	1.00	2.00	2.00
K NPT Cover Tapping	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	0.60	0.70	0.80	1.10	1.70	2.30	2.80	3.40	4.00	4.50	5.10	5.63	6.75	7.50	8.50
Approx. Ship Weight (lbs)	35	50	70	140	285	500	780	1165	1600	2265	2982	3900	6200	7703	11720
Approx. X Pilot System	13	14	15	17	29	31	33	36	40	40	43	47	68	79	85
Approx. Y Pilot System	9	10	11	12	20	22	24	26	29	30	32	34	39	40	45
Approx. Z Pilot System	9	10	11	12	20	22	24	26	29	30	32	34	39	42	47

Model 427-01 Metric Dimensions (Uses 100-01 Hytrol Main Valve)



Model 100-01 Full Port Hytrol Main Valve



Model 427-01 Dimensions (mm)

Valve Size (mm)	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
A Threaded	238	279	318	—	—	—	—	—	—	—	—	—	—	—	—
AA 150 ANSI	238	279	305	381	508	645	756	864	991	1051	1168	1321	1562	1600	1848
AAA 300 ANSI	254	295	337	397	533	670	790	902	1029	1105	1210	1326	1606	1638	1899
AAAA Grooved End	228	279	318	381	508	645	—	—	—	—	—	—	—	—	—
B Diameter	168	203	232	292	400	508	600	711	832	902	1054	1143	1350	1422	1676
C Maximum	165	192	208	270	340	406	435	530	614	635	992	1064	1116	1387	1499
CC Maximum Grooved End	146	175	184	236	308	371	—	—	—	—	—	—	—	—	—
D Threaded	121	140	159	—	—	—	—	—	—	—	—	—	—	—	—
DD 150 ANSI	121	140	152	191	254	322	378	432	495	528	—	—	781	—	—
DDD 300 ANSI	127	149	162	200	267	337	395	451	514	549	—	—	803	—	—
DDDD Grooved End	121	—	152	191	—	—	—	—	—	—	—	—	—	—	—
E	38	43	52	81	110	135	235	273	321	394	329	381	451	541	624
EE Grooved End	64	73	79	108	152	192	—	—	—	—	—	—	—	—	—
F 150 ANSI	76	89	95	114	140	171	203	241	267	298	381	419	489	572	724
FF 300 ANSI	83	95	105	127	159	191	222	260	292	324	381	419	489	610	762
G Threaded	83	102	114	—	—	—	—	—	—	—	—	—	—	—	—
GG 150 ANSI	83	102	102	127	152	203	219	349	378	399	—	—	560	—	—
GGG 300 ANSI	89	110	111	135	165	216	236	368	397	419	—	—	582	—	—
GGGG Grooved End	83	—	108	127	—	—	—	—	—	—	—	—	—	—	—
H NPT Body Tapping	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.50	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.50	2.00	1.00	1.00	1.00	2.00	2.00
K NPT Cover Tapping	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	15	18	20	28	43	58	71	86	102	114	130	143	171	190	216
Approx. Ship Weight (kgs)	16	23	32	64	129	227	354	528	726	1027	1353	1769	2812	3494	5316
Approx. X Pilot System	331	356	381	432	737	788	839	915	1016	1016	1093	1194	1728	2007	2159
Approx. Y Pilot System	229	254	280	305	508	559	610	661	737	762	813	864	991	1016	1143
Approx. Z Pilot System	229	254	280	305	508	559	610	661	737	762	813	864	991	1067	1194

Note: The top two flange holes on valve sizes 36 thru 48 are threaded to 1 1/2"-6 UNC.

427-01 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) 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
Main Valve 100-01	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G	G	G, A	G	G
	End Detail	T, F, Gr	T, F, Gr*	T, F, Gr	F, Gr	F, Gr*	F, Gr*	F	F	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	210	300	460	800	1800	3100	4900	7000	8400	11000	14000	17000	25000	42000	50000
	Maximum Intermittent	260	370	580	990	2250	3900	6150	8720	10540	13700	17500	21700	31300	48000	62500
Suggested Flow (Liters/Sec)	Maximum	13	19	29	50	113	195	309	442	530	694	883	1073	1577	2650	3150
	Maximum Intermittent	16	23	37	62	142	246	387	549	664	863	1104	1369	1972	3028	3940

100-01 Series is the full internal port Hytrol.

*Globe Grooved Only

Notes:

- 5 psi minimum differential between valve inlet and outlet
- Having adequate space around valve for maintenance work is recommended

Important Notice: Do Not Oversize

Pilot System Specifications

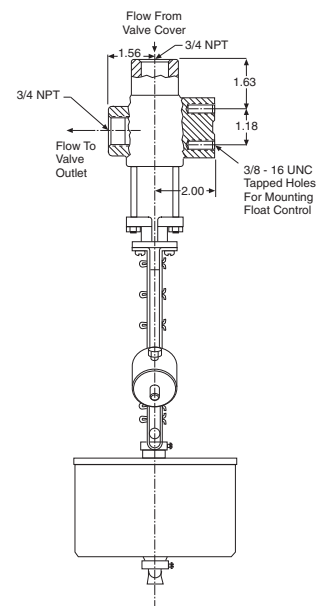
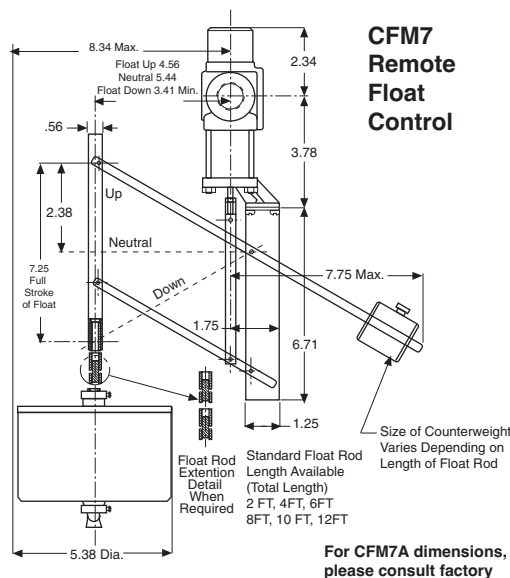
Temperature Range

Water: to 180° F / 82° C

Materials

Pilot Control: Brass
Trim: Stainless Steel
Type 303
Rubber: Buna-N® Synthetic
Rubber
Float: Polypropylene, 5 3/8" / 136.5mm
dia. If temp exceeds 160° F / 70° C,
specify a stainless steel float.

Float Rod: Valves 6"/150 mm & smaller, two 12" /
300 mm sections of PVC rod.
Valves 8" / 200 mm & larger, Four
sections as above.



When Ordering, Please Specify:

1. Catalog No. 427-01
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