

Float Valve



- **Accurate & Repeatable Level Control**
- **On-Off Non-Modulating Action**
- **Fully Adjustable High & Low Level Settings**
- **Simple Design, Proven Reliable**
- **Easy Installation and Maintenance**

The Cla-Val Model 124-01/624-01 Float Valve is a non-modulating valve which accurately controls the liquid level in tanks. This valve is designed to open fully when the liquid level reaches a preset low point and close drip tight when the level reaches a preset high point.

This is a hydraulically operated, diaphragm valve with the pilot control and float mechanism mounted on the cover of the main valve. The float positions the pilot control to close the valve when the float contacts the upper stop. The high and low liquid levels are adjusted by positioning the stop collars on the float rod. The difference between high and low levels can be adjusted to as little as one inch, or to as much as 18 inches.

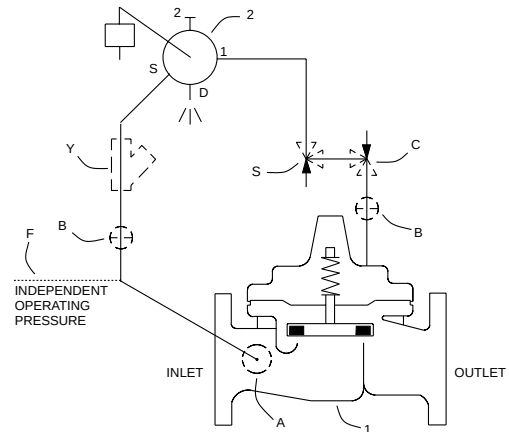
Level settings can be as much as 11½ feet below the valve. The float mechanism may be located remotely from the main valve. See the technical data sheet on Model CF1-C1 Float Control for additional information.

Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	CF1-C1 Float Control

Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Cock (Isolation Valve)
C	CV Flow Control (Closing)
F	Independent Operating Pressure
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer



Typical Applications

The Model 124-01/624-01 Float Valve is commonly mounted above the high water level in a tank. Globe pattern valves are supplied standard with the float control mounted on the cover as illustrated, with a

horizontal discharge. Angle valves are configured to discharge downwards. Note: We recommend protecting tubing and valve from freezing temperatures.

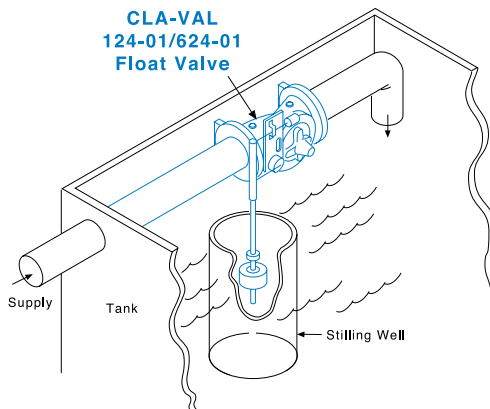
Installation

A stilling well (8" minimum diameter) must be provided around the float if the liquid surface is subject to turbulence, ripples or wind. When the valve is mounted on top of the tank roof a 2" clearance hole should be provided for side movement of the float rod where the rod goes through the top of the tank.

An independent source of air or water may be used to operate the valve. The pressure from this independent source must at all times be equal to or greater than pressure at the valve inlet.

If minimum flowing line pressure is less than 10 psi, consult Cla-Val for full details.

If the float control is remotely mounted from the main valve, the control may be installed at any elevation above the valve, provided the flowing line pressure in psi is equal to or greater than the vertical distance in feet between the valve and the float control. See the technical data sheet on Model CF1-C1 for additional information.



Model 124-01 (Uses Basic Valve Model 100-01)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class			
		Flanged			Screwed
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
ASTM A743	Stainless Steel	B16.5	285	400	400
356-T6	Aluminum	B16.1	275	—	—

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

Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens			
Valve Size	Displacement	Valve Size	Displacement
½"	0.34 fl. oz.	2"	.032 gal
¾"	0.34 fl. oz.	2 - ½"	.043 gal
1"	0.7 fl. oz.	3"	.080 gal
1 - ¼"	.020 gal	4"	.169 gal
1 - ½"	.020 gal	6"	.531 gal

Materials

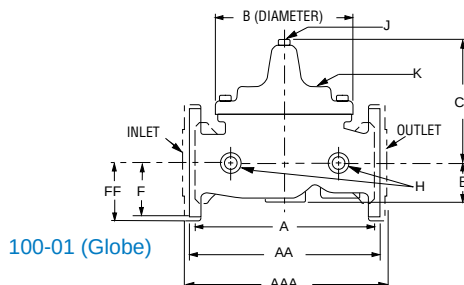
Component	Material Options						
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Available Sizes	½" - 6"	½" - 6"	½" - 6"	½" - 6"	½" - 6"		
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Trim: Disc Guide, Seat & Cover Bearing	Bronze is standard. Stainless Steel is optional.			Stainless Steel is standard.			
Disc	Buna-N® Rubber						
Diaphragm	Nylon Reinforced Buna-N® Rubber						
Stem, Nut & Spring	Stainless Steel						



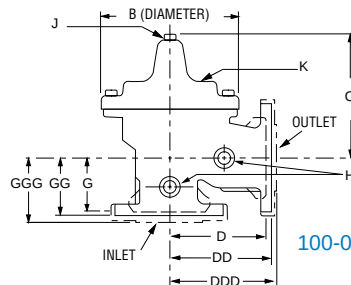
2" Globe, Screwed



4" Angle, Flanged



100-01 (Globe)



100-01 (Angle)

Model 124-01 (Uses Basic Valve Model 100-01)

VALVE SIZE (Inches)	½ - ¾	1	1¼ - 1½	2	2 ½	3	4	6
A Screwed	3.50	5.12	7.25	9.38	11.00	12.50	—	—
AA 150 ANSI	—	—	8.50*	9.38	11.00	12.00	15.00	20.00
AAA 300 ANSI	—	—	9.00*	10.00	11.62	13.25	15.62	21.00
B DIA.	3.12	4.38	5.62	6.62	8.00	9.12	11.50	15.75
C MAX.	3.00	2.75	5.50	6.50	7.56	8.19	10.62	13.38
D Screwed	—	—	3.25	4.75	5.50	6.25	—	—
DD 150 ANSI	—	—	4.00*	4.75	5.50	6.00	7.50	10.00
DDD 300 ANSI	—	—	4.25*	5.00	5.88	6.38	7.88	10.50
E	0.88	1.63	1.12	1.50	1.69	2.06	3.19	4.31
F 150 ANSI	—	—	2.50	3.00	3.50	3.75	4.50	5.50
FF 300 ANSI	—	—	3.06	3.25	3.75	4.13	5.00	6.25
G Screwed	—	—	1.88	3.25	4.00	4.50	—	—
GG 150 ANSI	—	—	4.00*	3.25	4.00	4.00	5.00	6.00
GGG 300 ANSI	—	—	4.25*	3.50	4.31	4.38	5.31	6.50
H NPT Body Tapping	⅛	¼	⅜	⅜	½	½	¾	¾
J NPT Cover Center Plug	⅛	¼	⅜	½	½	½	¾	¾
K NPT Cover Tapping	⅛	¼	⅜	⅜	½	½	¾	¾
Valve Stem Internal Thread UNF	—	—	10-32	10-32	10-32	¼-28	¼-28	⅝-24
Stem Travel	—	—	0.4	0.6	0.7	0.8	1.1	1.7
Approx. Ship Wt. Lbs.	3	8	15	35	50	70	140	285

*1½" Size Only

Model 624-01 (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
ASTM A743	Stainless Steel	B16.5	285	400
356-T6	Aluminum	B16.1	275	—

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

Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens			
Valve Size	Displacement	Valve Size	Displacement
3"	.032 gal	6"	.169 gal
4"	.080 gal	8"	.531 gal

Materials

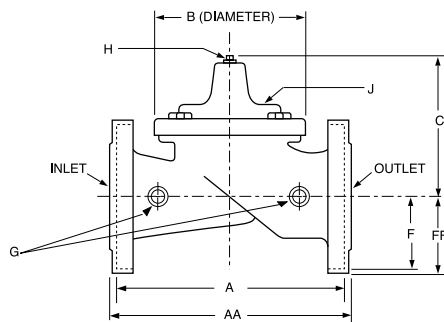
Component	Material Options						
Body & Cover	Ductile Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Available Sizes	3" - 8"	3" - 8"	3" - 8"	3" - 8"	3" - 8"		
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze	Stainless Steel	Aluminum		
Trim: Disc Guide, Seat & Cover Bearing	Bronze is standard. Stainless Steel is optional.			Stainless Steel is standard.			
Disc	Buna-N® Rubber						
Diaphragm	Nylon Reinforced Buna-N® Rubber						
Stem, Nut & Spring	Stainless Steel						



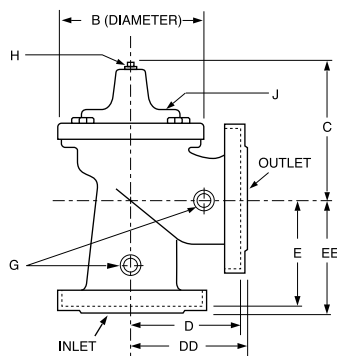
3" Globe, Flanged



6" Angle, Flanged



100-20 (Globe)



100-20 (Angle)

Model 624-01 (Uses Basic Valve Model 100-20)

VALVE SIZE (Inches)	3	4	6	8
A 150 ANSI	10.25	13.88	17.75	21.38
AA 300 ANSI	11.00	14.50	18.62	22.38
B DIA.	6.62	9.12	11.50	15.75
C MAX.	7.00	8.62	11.62	15.00
D 150 ANSI	—	6.94	8.88	10.69
DD 300 ANSI	—	7.25	9.38	11.19
E 150 ANSI	—	5.50	6.75	7.25
EE 300 ANSI	—	5.81	7.25	7.75
F 150 ANSI	3.75	4.50	5.50	6.75
FF 300 ANSI	4.12	5.00	6.25	7.50
G NPT Body Tapping	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
H NPT Cover Center Plug	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
J NPT Cover Tapping	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Valve Stem Internal Thread UNF	10-32	$\frac{1}{4}$ -28	$\frac{1}{4}$ -28	$\frac{3}{8}$ -24
Stem Travel	0.6	0.8	1.1	1.7
Approx Ship Wt. Lbs.	45	85	195	330

Valve Selection

Valve Selection		These Symbols  and  Indicate Available Sizes*											
		Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8
		mm	15	20	25	32	40	50	65	80	100	150	200
		End Detail	Screwed				Screwed & Flanged				Flanged		
Model 124-01	Basic Valve 100-01	Globe											
		Angle											
	Suggested Flow (GPM)	Max. Continuous	19	33	55	93	125	210	300	460	800	1800	
		Max. Intermittent	24	42	68	120	160	260	370	580	990	2250	
	Suggested Flow (Liters/sec)	Max. Continuous	1.2	2.1	3.5	5.9	8	13	19	29	50	113	
		Max. Intermittent	1.5	2.6	4.3	7.6	10.1	16.4	23	37	62	142	
Model 624-01	Basic Valve 100-20	Globe								 **			
		Angle											
	Suggested Flow (GPM)	Max. Continuous								260	580	1025	2300
	Suggested Flow (Liters/sec)	Max. Continuous								16	37	65	145

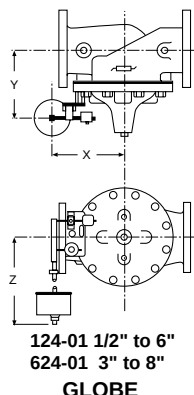
* 624-01 is the reduced internal port size version of the 124-01.

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.

* See the 124-02/624-02 Technical Data Sheet for larger sizes.

**Flanged End Detail Only

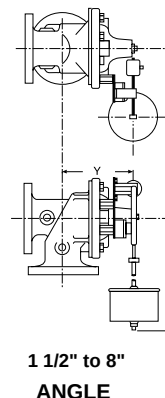
Pilot System Dimensions



124-01/624-01 Float Valve (Globe)										
Size	1/2" & 3/4"	1"	1 1/4" & 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	
X	2.50	5.50	6.00	6.25	6.75	7.25	8.00	10.25	12.25	
Y	4.25	4.75	6.75	7.00	7.75	8.25	9.50	10.50	10.75	
Z (MAX)*	29.75	28.50	28.25	28.50	28.75	29.00	29.25	29.25	53.25	

124-01/624-01 Float Valve (Angle)						
Size	2"	2 1/2"	3"	4"	6"	8"
X	6.25	6.75	7.25	8.00	10.25	12.25
Y	7.00	7.75	8.25	9.50	10.50	10.75
Z (MAX)*	28.50	29.75	29.00	29.25	29.25	53.25

*Z(Max.) is with standard float rod.



Pilot System Specifications

Pressure Rating

300 psi Max.

Temperature Rating

Water: to 180°F. Max.

Materials

In contact with operating fluid :

Nylon-reinforced Delrin, Stainless Steel, Monel,

with Buna-N® seals

Float linkage and float rod: Brass and PVC

Base plate: Treated Steel

Float: Polypropylene

Float

5 3/8" diameter. If maximum temperature exceeds 160°F. specify stainless steel float and rod. Available at extra cost.

Float Rod

Standard: Two 12" sections PVC rod, 6" & smaller 12" extension increments at extra cost. Larger counterweight required if float rod length exceeds 5'.

Optional: 24" stainless steel rod, with 24" extension increments at extra cost. Larger counterweight required if float rod length exceeds 2'.

Adjustment Range

Level Differential:

1" min. to 18" max. with PVC rod.

1" min to 40" max. with stainless steel rod.

Operating Fluids

Clean liquids or gases compatible with specified materials.

When Ordering, Please Specify

1. Catalog No. 124-01 or No. 624-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Screwed or Flanged
6. Float Rod Material and Length
7. Float Ball Material
8. Desired Options
9. When Vertically Installed



E-124-01/624-01 (R-11/01)

CLA-VAL

PO Box 1325 Newport Beach CA 92659-0325
Phone: 949-722-4800 • Fax: 949-548-5441

CLA-VAL CANADA, LTD.

4687 Christie Drive

Beamsville, Ontario

Canada LOR 1B4

Phone: 905-563-4963

Fax: 905-563-4040

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CLA-VAL SA

Chemin des Mesanges 1

CH-1032 Romanel/

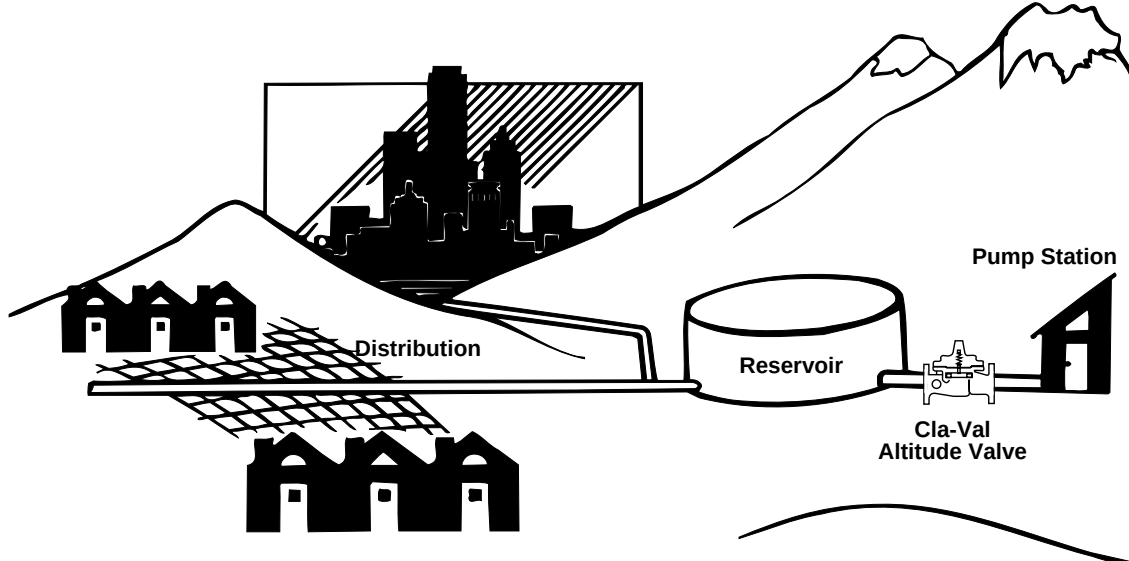
Lausanne, Switzerland

Phone: 41-21-643-15-55

Fax: 41-21-643-15-50

www.cla-val.com

Represented By:



CLA-VAL LEVEL CONTROL VALVES

The water level of tanks and reservoirs can be controlled in many ways using automatic control valves. Fundamentally, all level control valves have in common the fact that they close on a high level in a tank or reservoir. To understand the various types of level control valves available, they can be grouped by the type of valve action. They form into two kinds of valve action: on-off or modulating. The on-off group of control valves provide a simple on-off high level shutoff function. The modulating group of control valves provide a variable amount of valve position and flow in relation to the changing water level in the tank. Within these two fundamental groups are combination level control valves, where a virtually unlimited number of other valve functions can be added to any valve, such as: back pressure, two-way flow, delayed opening, rate of flow control, check feature, solenoid override, ect.

ON-OFF GROUP

A simple, reliable way for smaller tank level control would be using a three-way float actuated pilot valve. The float pilot valve is mounted on the main hytrol valve for filling from the reservoir top, or the float pilot valve can be remotely mounted for reservoir filling from the bottom. (Cla-Val Series 124)

Larger reservoirs due to their size or height often require a "float-less" or altitude valve for level control. The pressure head of the reservoir is sensed through a separate line by the valve mounted pilot control which shifts to close the main hytrol valve when the reservoir is full. (Cla-Val Series 210)

When electricity is available at the reservoir site it can be used for operating a small solenoid pilot valve mounted on the main valve filling the reservoir. When the high level is reached a float switch or level probe signals the main hytrol valve to close by switching power to the solenoid pilot valve. (Cla-Val Series 136)

MODULATING GROUP

Tanks or reservoirs where the level must be held within closely controlled limits regardless of filling or lowering flow rates normally use a modulating type pilot control system arrangement. Modulating float valves are not normally recommended for straight on-off service. The pilot control senses the water level shift which in turn modulates the main hytrol valve to a new position between fully open and tight closed. (Cla-Val Series 427 and 428)

Reservoirs where the rising level is to match the closing of the valve also use a modulating type float pilot control system arrangement. As the reservoir fills the main hytrol valve is open then as the level approaches the shut off point the float pilot slowly modulates the valve closed. (Cla-Val Series 129)

Please call your Cla-Val regional office or sales agent for complete design assistance. Our goal is to provide the best automatic control valve solution for each application.