

CLA-VAL™ Altitude Valve For One-Way Flow

3-Way On/Off Altitude Level Control
CDS-6A



- **Accurate and Repeatable Level Control**
- **Drip-Tight, Positive Shut-Off**
- **Reliable Hydraulic Operation**
- **Easily Adjustable Control**
- **Completely Automatic Operation**

The Cla-Val Series 210 Altitude Valve controls the high water level in reservoirs without the need for floats or other devices. It is a non-throttling valve that remains fully open until the shut-off point is reached. This valve is designed for one-way flow only.

This valve is hydraulically operated and pilot controlled. The pilot control operates on the differential in forces between a spring load and the water level in the reservoir. The desired high water level is set by adjusting the spring force. The pilot control measures the reservoir head through a customer supplied sensing line* connected directly to the reservoir.

This valve can also be furnished with auxiliary controls to meet the need for multiple functions, such as: pressure sustaining, pressure reduction, rate of flow control, solenoid override, etc.

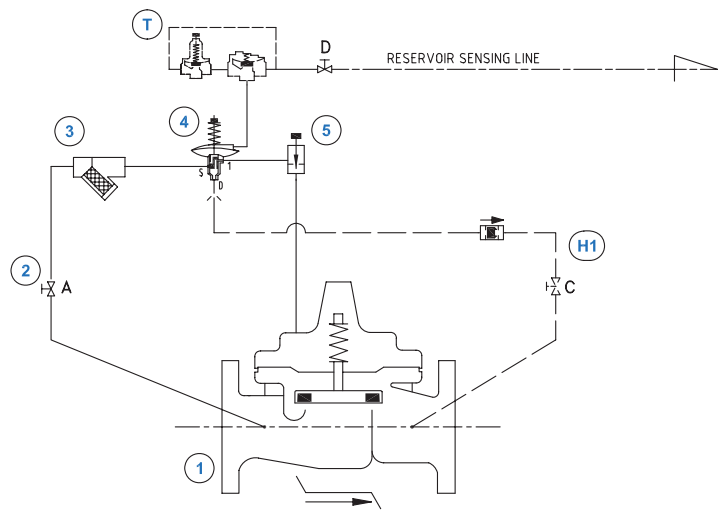
If the check feature option is added and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber and the valve closes to prevent return flow.

Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	RB-117 Isolation Ball Valve
3	X43 Strainer
4	CDS6A 3-Way On/Off attitude Level Control
5	6120 Needle Valve

Optional Features

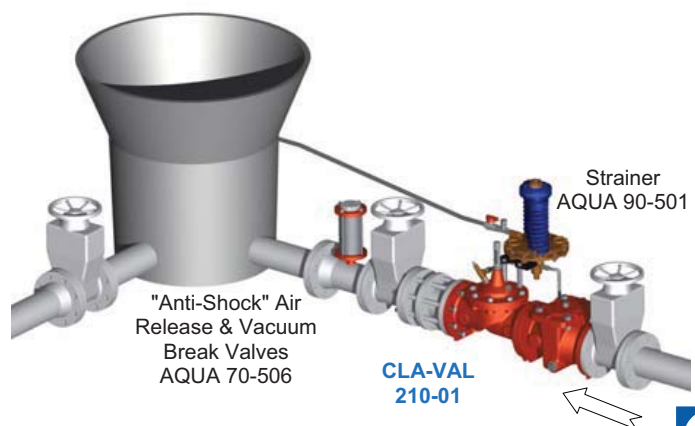
Item	Description
H1	CDC-1 & RB-117 Drain to Main Valve Outlet
T	CVC & 81-01 Delayed Opening



Typical Applications

The CLA-VAL 210-01 is typically designed for closed reservoirs where water is withdrawn through a separate line. The desired water level is set by adjusting the spring force. The pilot control operates on the differential in forces between a spring load and the water level in the reservoir.

The CLA-VAL 210-01 is one way flow only. The reservoir pressure sensing line should be 20 mm minimum I.D. installed with 2° slope from the valve to the reservoir to avoid air pockets.



Model 210GE-01 (Uses Basic Valve Model 100GE-01)

Pressure Ratings (Recommended Maximum Pressure - bar)

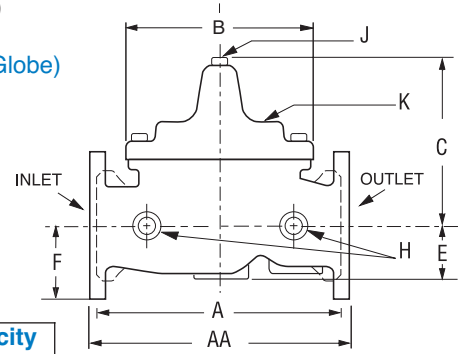
Valve Body & Cover		Pressure Class				
		Flanged				Threaded
Grade	Material	PN10	PN16	PN25	PN40	End Details
ASTM A536	Ductile Iron	10	16	25	40	20

Materials

Component	Standard Material Combinations
Body & Cover	Ductile Iron - Fusion Bonded Epoxy coated
Available Sizes	32mm - 400mm
Disc Retainer & Diaphragm Washer	Cast Iron - Fusion Bonded Epoxy coated
Trim: Disc Guide, Seat & Cover Bearing	Stainless Steel
Disc	EPDM
Diaphragm	Nylon Reinforced EPDM
Stem, Nut & Spring	Stainless Steel

Dimensions (In mm)

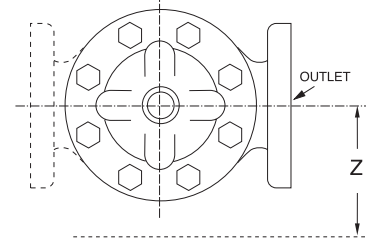
100GE-01 (Globe)



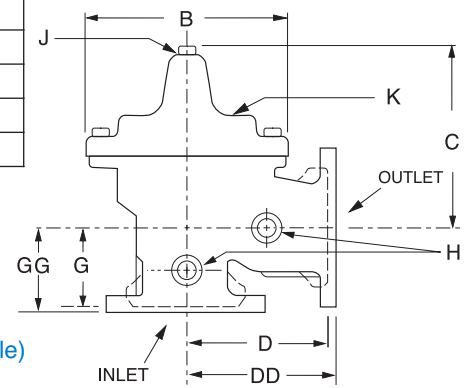
Cover Capacity

Liquid Volume Displaced from Diaphragm Chamber When Valve Opens or Closes

Valve Size	Displacement (In Litres)
50	0.12
65	0.16
80	0.30
100	0.64
150	2.0
200	4.8
250	9.5
300	15.1
350	24.6
400	36.2



100AE-01 (Angle)



Model 210GE-01 Dimensions (In mm)

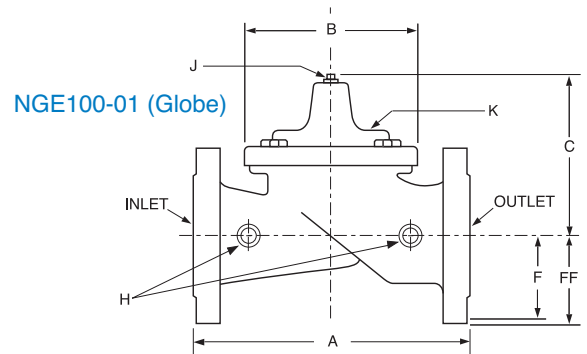
Valve Size (mm)	50	65	80	100	150	200	250	300	350	400
A Threaded	238	280	318	—	—	—	—	—	—	—
AA Flanged	254	279	305	381	508	645	756	864	991	1051
AAAA Grooved End	228	279	318	381	508	645	—	—	—	—
B Dia.	170	205	235	295	400	510	600	712	832	900
C Max.	165	192	208	270	340	406	435	530	614	635
CC Max. Grooved End	146	175	184	236	308	371	—	—	—	—
D Threaded	121	140	159	—	—	—	—	—	—	—
DD Flanged	127	149	162	191	254	324	378	432	495	528
DDDD Grooved End	121	—	152	191	—	—	—	—	—	—
E	38	43	52	81	110	135	235	273	321	394
EE Grooved End	64	73	79	108	152	192	—	—	—	—
F	82.5	93	100	110	142.5	170	236	274	267	295
G Threaded	83	102	114	—	—	—	—	—	—	—
GG Flanged	89	110	111	126	153	203	219	349	378	398
GGGG Grooved End	83	—	108	127	—	—	—	—	—	—
H BSP Body Tapping	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1
J BSP Cover Center Plug	1/2	1/2	1/2	3/4	3/4	1	1	1 1/4	1 1/2	2
K BSP Cover Tapping	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1
Z (Approx Outer Limits of Pilot System)	150	165	203	216	230	285	330	370	400	475
Valve Stem Internal Thread UNF	10-32	10-32	1/4-28	1/4-28	3/8-24	3/8-24	3/8-24	3/8-24	3/8-24	1/2-20
Stem Travel	15	18	20	28	43	58	71	86	102	114
Approx. Ship Wt. Kgs.	20	25	30	50	95	170	310	470	726	970

Model NGE210-01 (Uses Basic Valve Model NGE100-01)

Dimensions
(In mm)

Pressure Ratings (Recommended Maximum Pressure - bar)

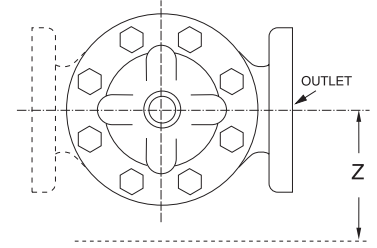
Valve Body & Cover		Pressure Class				
		Flanged				Threaded
Grade	Material	PN10	PN16	PN25	PN40	End Details
ASTM A536	Ductile Iron	10	16	25	40	20



Materials






































Component	Standard Material Combinations
Body & Cover	Ductile Iron - Fusion Bonded Epoxy coated
Available Sizes	50mm - 600mm
Disc Retainer & Diaphragm Washer	Cast Iron - Fusion Bonded Epoxy coated
Trim: Disc Guide, Seat & Cover Bearing	Stainless Steel
Disc	EPDM
Diaphragm	Nylon Reinforced EPDM
Stem, Nut & Spring	Stainless Steel

Cover Capacity	
Liquid Volume Displaced from Diaphragm Chamber When Valve Opens or Closes	
Valve Size	Displacement (In Litres)
50	0.075
65	0.16
80	0.12
100	0.3
150	0.64
200	2.0
250	4.8
300	9.5
350	15.1
400	15.1
450	36.2
500	36.2
600	36.2



Model NGE210-01 Dimensions (In mm)

Valve Size (mm)	50	65	80	100	150	200	250	300	350	400	450	500	600
A	230	290	310	350	480	600	730	850	980	1100	1200	1250	1450
B Dia.	145	170	170	235	295	400	510	600	712	712	712	900	900
C Max.	136	170	178	219	295	381	454	533	530	654	635	800	800
F PN16	83	93	100	110	143	170	200	228	260	290	325	370	430
FF PN25	83	93	100	118	150	180	213	243	278	310	335	370	430
H BSP Body Tapping	3/8"	3/8"	3/8"	1/2"	3/4"	3/4"	1"	1"	1"	1"	1"	1"	1"
J BSP Cover Center Plug	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1"	1 1/4"	1 1/4"	2"	2"	2"
K BSP Cover Tapping	3/8"	3/8"	3/8"	1/2"	3/4"	3/4"	1"	1"	1"	1"	1"	1"	1"
Z (Approx Outer Limits of Pilot System)	190	200	200	200	250	270	290	365	400	425	450	520	520
Valve Stem Internal Thread UNF	10-32	10-32	10-32	1/4-28	1/4-28	3/8-24	3/8-24	3/8-24	3/8-24	3/8-24	3/8-24	1/2-20	1/2-20
Stem Travel	10	15	15	20	28	43	58	71	86	86	86	114	114
Approx. Ship Wt. Kgs.	15	20	25	39	70	120	190	330	540	640	681	980	1060

Valve Selection		These Symbols  and  Indicate Available Sizes													
		Inches	2	2½	3	4	6	8	10	12	14	16	18	20	24
		mm	50	65	80	100	150	200	250	300	350	400	450	500	600
End Detail		Threaded & Flanged						Flanged							
Model 210GE-01	Basic Valve 100GE-01	Globe Pattern													
		CV (L/S)	13	20	28	48	111	185	299	414	552	706			
		Angle Pattern													
		CV (L/S)	16	24	33	57	130	238	378	601	734	1009			
	Suggested Flow (M ³ /hr)	Max. Continuous	43	72	108	173	389	702	1080	1548	2088	2736			
		Max. Intermittent	54	90	137	216	482	864	1350	1944	2628	3456			
	Suggested Flow (Litres/Sec)	Max. Continuous	12	20	30	48	108	195	300	430	580	760			
		Max. Intermittent	15	25	38	60	134	240	375	540	730	960			
Contact Factory for Sizes not Shown															
Model NGE210-01	Basic Valve NGE100-01	Globe Pattern													
		CV (L/S)	9	12	16	33	58	133	222	359	455	497	575	847	895
	Suggested Flow (M ³ /hr)	Max. Continuous	36	61	90	144	316	565	882	1271	1732	2261	3535	3535	5090
		Max. Continuous	10	17	25	40	88	157	245	353	481	620	982	982	1414

NGE210-01 is the reduced internal port size version of the 210GE-01 **Flanged End Detail Only **Important Notice: Do Not Oversize**
The flow coefficient CV, expressed as l/s is the flow which produces a 1 bar pressure drop across the fully open valve at a water temperature of 15 °c.
For 100GE-01 basic valves, suggested flow calculations were based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 6.1 meters/sec & maximum intermittent is approx. 7.6 meters/sec. For NGE100-01 basic valves, suggested flow calculations were based on flow through the valve seat of approx. 5.0 meters/sec was used for maximum continuous flow.

We recommend providing adequate space around valve for maintenance work

Minimum Differential: 0.35 bar between valve inlet and outlet

Pilot System Specifications

Adjustment Ranges

0.1 - 1.2 bar
1.2 - 2.4 bar
2.4 - 3.6 bar
3.6 - 4.8 bar
4.8 - 6.0 bar

Temperature Range

Water: to 65°C

If flowing line pressure is less than 0.7 bar, consult factory for full details.

If inlet pressure is above 10 bar, consult factory for recommendations.

Materials

Standard Pilot System Materials

Pilot Control: Bronze ASTM B62
Trim: Stainless Steel Type 303
Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials

Pilot Systems are available with optional Aluminum, Stainless Steel, or Monel materials at additional cost.

Valve position indicator is standard.

When Ordering, Please Specify

1. Catalog No. 210GE-01 or NGE210-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Materials Desired
7. Adjustment Range
8. Desired Options
9. When Vertically Installed
10. When "D" feature is ordered, the "H" feature is required.



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