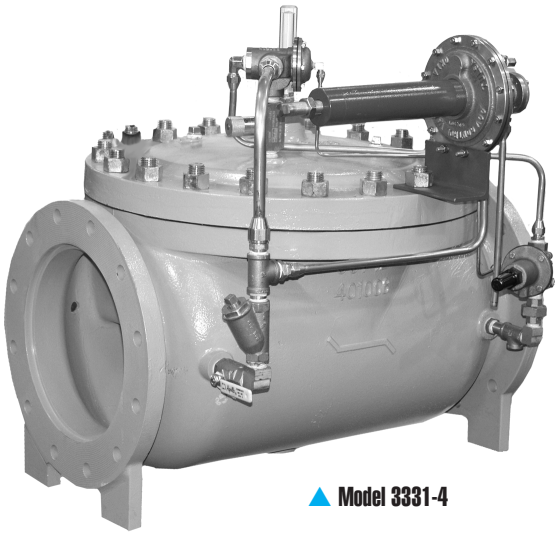


▲ Model 3331-4

The Model 3331-4 is applicable anywhere it is necessary to automatically maintain the water level in elevated storage tanks or reservoirs, and where it is desired to allow the tank level to fall a given amount before refilling to allow greater turnover and/or to prevent stagnation. Such applications occur in:

● Municipal water ● Rural water ● Industrial plants

SERIES FEATURES

- Automatic tank fill and shut-off without the use of floats or sensors
- Accurate shut-off to within inches of set point
- High level (closing) point adjustable with single screw
- Low level (opening) point separately adjustable
- Exhaust-to-atmosphere operation allows minimum pressure loss
- Can be maintained without removal from the line
- Adjustable response speed
- Factory tested and can be pre-set to your requirements

OPERATION

The model 3331-4 is designed for tank fill only, with discharge from the tank by a separate line or by-pass. Tank head (pressure) is sensed under the diaphragm of the altitude pilot and the normally open drawdown pilot. When the tank head falls below the set point of the altitude pilot, the pilot shifts to vent water from the diaphragm chamber of the main valve, however, the vent cannot physically happen until the tank head falls still further to the set point of the drawdown pilot. At that point the pilot opens, allowing the main valve to open and fill the tank. When the tank level reaches the high level set point, the altitude pilot shifts to apply full inlet pressure to the diaphragm of the main valve, forcing the valve fully closed.

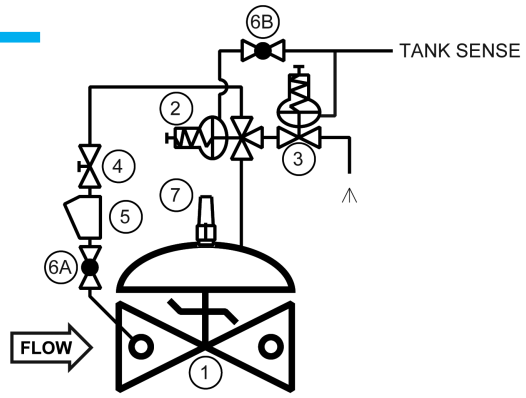
On 8" and smaller valves, the altitude pilot operates the main valve directly. On 10" and larger valves, the altitude pilot operates the main valve through a high-capacity, three-way auxiliary pilot for more positive response.

COMPONENTS

The Model 3331-4 consists of the following components, arranged as shown on the schematic diagram:

1.) **Model 65 Basic Control Valve**
2.) **Model 3300 Altitude Pilot**
3.) **Model 1340 Pressure Reducing Pilot**
4.) **Model 141-2 Needle Valve**
5.) **Model 159 Y-Strainer**
Protects pilot system from dirt/debris
6.) **Model 141-4 Isolation Ball Valves**
7.) **Model 155 Visual Indicator**

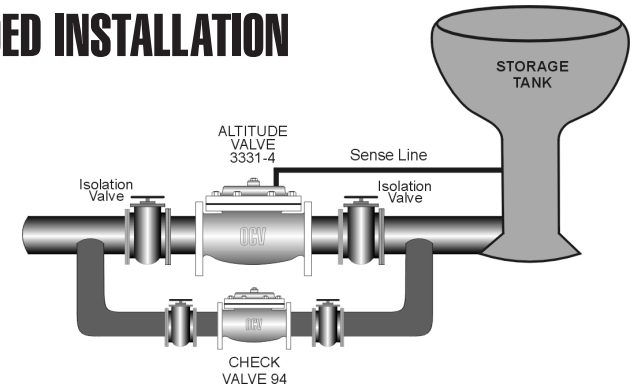
SCHEMATIC



RECOMMENDED INSTALLATION

A sense line must be connected within 40 pipe diameters of the tank wall or riser, minimum size of ½" O.D. tubing or 3/8" pipe. In order to prevent accumulation of air, the sense line should slope upwards to the tank.

As the 3331 exhausts its diaphragm chamber to atmosphere, the volume varying according to valve size, as shown below. Provisions should be made drain or otherwise dispose of this water.



1 ¼" - 1 ½"	0.02 gallons	8"	1.0 gallon
2"	0.05 gallons	10"	2.5 gallons
2 ½"	0.06 gallons	12"	4.0 gallons
3"	0.1 gallons	14"	6.5 gallons
4"	0.2 gallons	16"	9.6 gallons
6"	0.6 gallons	24"	28.0 gallons

SIZING

While most Model 3331-4 Altitude Valves are line size, definitive sizing information can be found in the OCV Catalog, Series 3330 section and Engineering section Performance Charts. Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.

MAX. PRESSURE

The pressures listed below are maximum pressures at 100°F.

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	LOW-LEAD BRONZE
Threaded	640 psi	640 psi	500 psi
Grooved	300 psi	300 psi	300 psi
150# Flanged	250 psi	285 psi	225 psi
300# Flanged	640 psi	740 psi	500 psi

TOLL FREE 1.888.628.8258 ● **phone:** (918)627.1942 ● **fax:** (918)622.8916 ● 7400 East 42nd Place, Tulsa, Ok 74145
email: sales@controlvalves.com ● **website:** www.controlvalves.com

Model 3331-4 One-Way Altitude Valve With Delayed Drawdown

Model 3331-4

SIZES GLOBE/ANGLE
Screwed Ends: 2" - 3"
Grooved Ends: 2" - 4" (globe)
Grooved Ends: 2" - 4" (angle)
Flanged Ends: 2" - 24" (globe); 2" - 16" (angle)
FLUID OPERATING TEMPERATURE RANGE
(Valve Elastomers)
EPDM 32°F - 230°F*
MATERIALS - Consult factory for others.
Body/Bonnet: Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, low-lead Bronze
Others available (consult factory)
Seat Ring: low-lead Bronze, Stainless Steel
Stem: Stainless Steel, Monel
Spring: Stainless Steel
Diaphragm: EPDM*
Seat Disc: EPDM*
Pilot: low-lead Bronze, Stainless Steel
Other pilot system components:
low-lead Bronze/Brass, All Stainless Steel
Tubing & Fittings: Copper/Brass, Stainless Steel
Adjustment Ranges:
Altitude Pilot (High Level Closing Point)
5-30 ft (Green/Blue), 20-50 ft (Green), 40-80 ft (Blue), 70-140 ft (Red), 130-230 ft (Yellow)
Drawdown Pilot (Low Level Opening Point)
10-70 ft (Green), 45-185 ft (Red, 1 1/4" long), 46-460 ft (Red, 2" long))

**Others available upon request.*
**Valves 1-1/4" through 24" are certified to NSF/ANSI 372. Valves 4" through 24" are also certified to NSF/ANSI 61-G.

SPECIFICATIONS (Typical Water Application)

The altitude valve shall function to control the level in the tank without the use of floats or probes in the tank itself. It shall be a one-way flow (single-acting) type, designed to open fully to fill the tank when the predetermined low level is reached, and close completely when the predetermined high level is reached. Sensing of the altitude pilot and drawdown pilot shall be by means of a field-installed sense line between the pilots and the base of the tank. The altitude valve shall be equipped with a visual indicator assembly.

DESIGN
The altitude valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. These, and other parts, shall be replaceable without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall the pistons be used as an operating means. The pilot system shall be furnished complete and installed on the main valve. It shall include the altitude pilot, drawdown pilot, a needle valve, Y-strainer and isolation ball valves. The altitude valve shall be operationally and hydrostatically tested prior to shipment.

MATERIALS OF CONSTRUCTION
The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be low-lead Bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be EPDM. The altitude and drawdown pilots shall be low-lead Bronze. The needle valve and isolation ball valves shall be brass and control line tubing shall be copper.

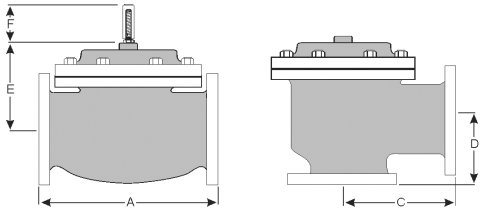
OPERATING CONDITIONS
The altitude valve shall be suitable for a flow of <X> gpm, a maximum pressure of <X> psig, an opening level of <X> feet, and a full tank level of <X> feet.

ACCEPTABLE PRODUCTS
The altitude valve shall be a <size> Model 3331-4, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

U.S. DIMENSIONS - INCHES

DIM	END CONN.	1 1/4-1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
	SCREWED	8 3/4	9 7/8	10 1/2	13	--	--	--	--	--	--	--	--
A	GROOVED	8 3/4	9 7/8	10 1/2	13	15 1/4	20	--	--	--	--	--	--
	150# FLGD	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	39	40 3/8	62
	300# FLGD	8 3/4	9 7/8	11 1/8	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8	35 1/2	40 1/2	42	63 3/4
	SCREWED	4 3/8	4 3/4	6	6 1/2	--	--	--	--	--	--	--	--
C	GROOVED	4 3/8*	4 3/4	6	6 1/2	7 5/8	--	--	--	--	--	--	--
ANGLE	150# FLGD	4 1/4	4 3/4	6	6	7 1/2	10	12 11/16	14 7/8	17	--	20 13/16	--
	300# FLGD	4 3/8	5	6 3/8	6 3/8	7 13/16	10 1/2	13 3/16	15 9/16	17 3/4	--	21 5/8	--
	SCREWED	3 1/8	3 7/8	4	4 1/2	--	--	--	--	--	--	--	--
D	GROOVED	3 1/8*	3 7/8	4	4 1/2	5 5/8	--	--	--	--	--	--	--
ANGLE	150# FLGD	3	3 7/8	4	4	5 1/2	6	8	11 3/8	11	--	15 11/16	--
	300# FLGD	3 1/8	4 1/8	4 3/8	4 3/8	5 13/16	6 1/2	8 1/2	12 1/16	11 3/4	--	16 1/2	--
E	ALL	6	6	7	6 1/2	8	10	11 7/8	15 3/8	17	18	19	27
F	ALL	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	6 3/8	6 3/8	6 3/8	6 3/8	6 3/8	8
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

*GROOVED END NOT AVAILABLE IN 1 1/4"



For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" and larger valves, or any valves with a limit switch, in positions other than described. Space should be taken into consideration when mounting valves and their pilot systems.

A routine inspection & maintenance program should be established and conducted yearly by a qualified technician. Consult our factory @ **1-888-628-8258** for parts and service.

How to order your Model 3331-4 valve
When Ordering please provide:
Fluid to be controlled -Model Number -Size -Globe or Angle -End Connection -Body Material -Trim Material Pilot Options -High level Setting or Spring Range Delayed Drawdown Setting -Special Requirements / Installation Requirements

Represented by:

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