

# Operating Manual

**Model: 8101**

**Size:**

**Serial #:**

**Sales Order :**

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# high level control valve

## installation, operating and maintenance instructions

### model 8101

#### GENERAL DESCRIPTION

The OCV Model 8101, with its remote-mounted float pilot, is specifically designed for high level shutoff use. The 8101 performs the following functions:

1. Opens to allow the tank to fill when the float is down.
2. Closes when the float is up.

The 8101 consists of the following components, arranged as shown on the schematic diagram:

1. **Model 65 Basic Valve Assembly**, a hydraulically operated, diaphragm actuated, pilot controlled globe valve that closes with an elastomer-on-metal seal.
2. **Model 812 Float Pilot**, a two way float actuated pilot valve that closes as the float rises.
3. **Model 126 Ejector**, a simple tee fitting with a small orifice in its inlet port. Acting in conjunction with the float pilot, the ejector provides the proper pressures to the main valve diaphragm chamber for opening and closing the valve.
4. **Model 141-2 Needle Valve**, that controls the opening and closing speeds of the main valve.
5. **Model 123 Inline Strainer** that protects the pilot system from solid contaminants in the line fluid.
6. **Model 141-4 Ball Valve**, that provides a means of manually testing the 8101's shutoff capability.
7. **Model 155L Visual Indicator** that enables the user to determine the valve's operating position at a glance.

#### THEORY OF OPERATION

Operation of the 8101 can be readily seen by referring to the schematic diagram.

When the float is down, the float pilot (2) relieves more pressure from the diaphragm chamber of the main valve than can be provided by the ejector (3). Inlet pressure acting under the diaphragm forces the valve open.

When the float reaches its full up position, no pressure can be relieved from the diaphragm chamber of the main valve. The ejector applies full inlet pressure to the main valve diaphragm chamber, moving the valve fully and tightly closed.

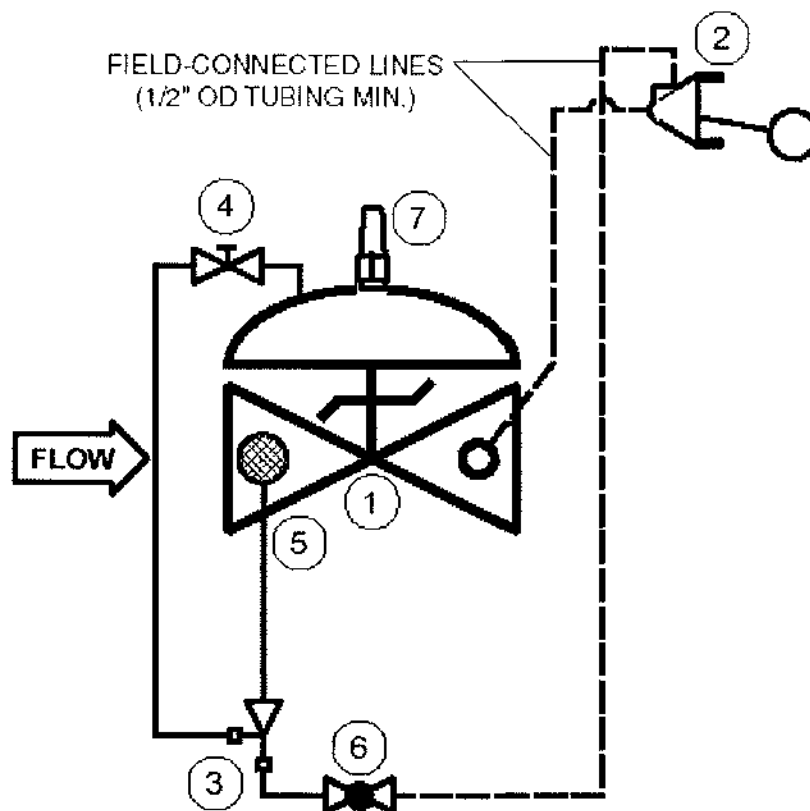
#### INSTALLATION

The 8101 valve is furnished fully factory assembled with the 812 float pilot furnished separately for remote installation. Refer to the Model 65 Basic Valve section of this manual for details of valve installation.

The 812 float pilot is mounted inside the tank, typically suspended below a flange on the tank top by means of a length of 3/8" pipe. The pilot should be located so that the centerline of the float ball is at the designated high level with the float rotated to its upmost position. Minimum ID of the flanged opening is 10".

Two lines must then be connected from the main valve to the float pilot, as shown: Minimum recommended size for these lines is 3/8" pipe or 1/2" OD tubing.

If the float pilot is equipped with a manual tester, install it as shown in the drawing in this manual.



## STARTUP AND ADJUSTMENT

The procedures listed below should be followed in order to effect an initial startup of the 8101. NOTE: In order to perform the startup, the receiving tank must be at least a foot or two below high level.

1. Loosen the jam nut on needle valve (4) and turn the adjusting screw **clockwise** to a full stop. Then turn it **counterclockwise** two full turns.
2. Close ball valve (6).
3. Start the pump or otherwise pressurize the valve. The valve will remain closed or else open only a very small amount.
4. Carefully loosen a pipe plug in the main valve bonnet until fluid appears around the threads. When only clear fluid (no air) is discharging, retighten the plug.
5. Open ball valve (6). The valve should now open.
6. Close ball valve (6). The valve should close.
7. Reopen ball valve (6) and let the valve reopen.
8. If the float pilot is equipped with the manual tester,

use it to pull the float to the full "up" position. The main valve should close.

9. Opening and closing speed of the valve is set by needle valve (4). Turn the adjusting screw **clockwise** to **decrease** opening/closing speed; **counterclockwise** to **increase** opening/closing speed. **CAUTION:** *Never close needle valve (4) completely. To do so will keep the valve from operating.*
10. The above procedure, using manual ball valve (6) and/or the manual tester, gives virtual certainty that the valve will close when high level is reached. However, it is always a good idea to closely monitor the valve as high level is approached on initial tank fill.

## MAINTENANCE

Required maintenance of the 8101 is minimal. Flanges and fittings should be checked periodically for leakage and tightened if necessary. Damage to the tubing, particularly the tubing connecting the main valve to the float pilot, should be corrected immediately.

## TROUBLESHOOTING

In the event of malfunction of the 8101, the following guide should enable the technician to isolate the cause of the problem and take appropriate corrective action.

### MAIN VALVE FAILS TO OPEN

1. Make sure the level in the tank is at least 6" below high level.
2. Make sure inlet pressure is at least 5 psi higher than tank head.
3. Main line isolation valve closed — Open as required.
4. Ball valve (6) closed — Open as required.
5. Needle valve (5) closed fully — Open as required. See Adjustment Instructions.
6. Float pilot (2) clogged — Clean as required. See the 815 Pilot section of this manual.
9. Main valve (1) stem binding or diaphragm ruptured — Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual.

### MAIN VALVE FAILS TO CLOSE ON HIGH LEVEL

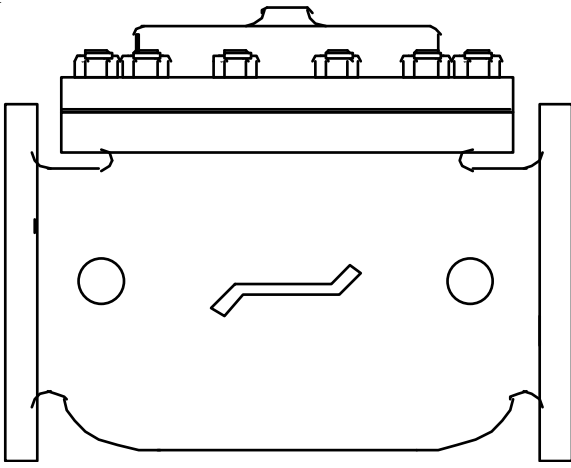
1. Make sure that high level has been reached.
2. Temporarily close ball valve (6).
  - (a) If the valve closes, proceed to Step 3.
  - (b) If the valve still does not close, proceed to Step 4.
3. Needle valve (4) closed fully — Open as required.
4. Malfunction in float pilot (2): disc leaking badly or pilot is stuck in position — Make appropriate repairs. See the 812 Pilot section of this manual.
5. Main valve (1) stem binding or seat deteriorated — Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual.

### MAIN VALVE FAILS TO CLOSE ON CHECK FEATURE

1. Ball valve (7C) closed — Open as required.
2. Check valve (5A) leaking — Repair or replace as necessary.
3. Check valve (5B) stuck closed — Repair or replace as necessary.
4. Main valve (1) stem binding or seat deteriorated —

Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual.





# installation, operating, and maintenance instructions

## series 65 basic control valve

### GENERAL DESCRIPTION

The OCV Series 65 is a hydraulically-operated, diaphragm-actuated valve. It is available in either a globe (Model 65) or angle (Model 65A) configuration. The diaphragm is nylon-fabric bonded with synthetic rubber and forms a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. An elastomeric seat disc forms a tight seal with the valve seat when pressure is applied above the diaphragm.

### FUNCTIONAL DESCRIPTION

Because the Series 65 is a hydraulically operated valve, it requires a minimum line pressure of approximately 5 psig in order to function. The valve functions on a simple principle of pressure differential. The line pressure at the inlet of the valve is bypassed through the pilot control piping to the diaphragm chamber of the valve. This pressure, together with the valve spring, works against the pressure under the valve seat. Because the effective area of the diaphragm is greater than that of the seat, the valve is held tightly closed. As the controlling pilot(s) allow the pressure to bleed off the diaphragm chamber, the two opposing pressures begin to balance and the valve will begin to open. The valve can be used to perform a simple on-off function, or with the proper pilot system, a modulating, or regulating function.

In cases where the line fluid is unusually dirty, or is otherwise unsuitable for operating the valve, an independent operating pressure source may be employed. The pressure available from such a source must be equal to, or greater than, line pressure.

### INSTALLATION

In order to insure safe, accurate and efficient operation of the OCV control valve, the following list of checkpoints and procedures should be followed when installing the

valve.

1. Make a careful visual inspection of the valve to insure that there has been no damage to the external piping, fittings or controls. Check that all fittings are tight.
2. Thoroughly flush all interconnecting piping of chips, scale and foreign matter prior to mounting the valve.
3. Install the valve in the line according to the flow arrow on the inlet flange. The arrow should point downstream.
4. Allow sufficient room around the valve for ease of adjustment and maintenance service.

In addition, it is highly recommended that:

1. Isolation valves (eg., gate or butterfly) be installed on the inlet and discharge sides of the valve to facilitate isolating the valve for maintenance.
2. Pressure gauges be installed at the inlet and outlet sides of the valve to provide monitoring of the valve during initial start-up and during operation. The body side ports, if unused by the pilot system, provide a convenient connection for the gauges.
3. All valves larger than 6" be installed horizontally, i.e., with the bonnet pointed up, for ease of adjustment and maintenance servicing.

### MAINTENANCE

The OCV control valve requires no lubrication and a minimum of maintenance. However, a periodic inspection should be established to determine how the fluid being handled is affecting the efficiency of the valve. In a water system, for example, the fluid velocity as well as the substances occurring in natural waters, such as dissolved minerals and suspended particles, vary in every installation. The effect of these actions or substances must be determined by inspection. It is recommended that an annual inspection, which includes ex-

amination of the valve interior, be conducted. Particular attention should be paid to the elastomeric parts, i.e., the diaphragm and seat disc. Any obviously worn parts should be replaced.

### REPAIR PROCEDURES

In the event of malfunction of the OCV control valve, troubleshooting should be conducted according to the procedures outlined for the specific model of valve. Then, if those steps indicate a problem with the main valve, this section will outline the procedures necessary to correct the problem.

Problems with the main valve can be classed in three basic categories:

1. VALVE FAILS TO OPEN
  - a. Diaphragm damaged\* - See Procedure A
  - b. Stem binding - See Procedure B
2. VALVE FAILS TO CLOSE
  - a. Diaphragm damaged\* - See Procedure A
  - b. Stem binding - See Procedure B
  - c. Object lodged in valve - See Procedure B
3. VALVE OPENS AND CLOSES BUT LEAKS WHEN CLOSED
  - a. Seat disc damaged - See Procedure C
  - b. Seat ring damaged - See Procedure D

*\*A diaphragm failure can prevent the valve from either opening or closing, depending on the flow direction. Most water service valves flow "under the seat", in which case a diaphragm failure will keep the valve from closing. On the other hand, most fuel service valves flow "over the seat", in which case a diaphragm failure will keep the valve from opening. To determine which you have, examine the bridge mark cast into the side of the valve body, then compare it with the figures below.*

#### PROCEDURE A : DIAPHRAGM REPLACEMENT

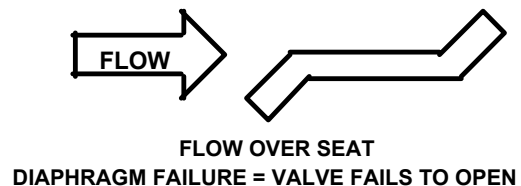
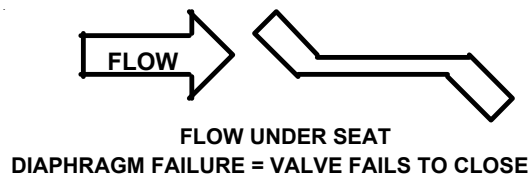
1. Isolate the valve from the system by closing upstream and downstream block valves.
2. Loosen one of the tubing connections on the bonnet. Allow any residual pressure to bleed off.
3. Remove all tubing connected at the bonnet.
4. Remove the bonnet nuts.
5. Remove the bonnet. If the bonnet sticks in place, it may be loosened by rapping sharply around its edge with a rubber-headed mallet. *NOTE: 8" and larger valves are equipped with eye bolts through which a chain can be fastened to aid in*

*lifting the bonnet.*

6. Remove the spring.
7. Remove the diaphragm plate capscrews and the diaphragm plate.
8. Remove the old diaphragm.
9. Making sure the dowel pin holes are in the proper location, place the new diaphragm over the studs and press down until it is flat against the body and spool.
10. Replace the diaphragm plate and the diaphragm plate capscrews.
11. Tighten all diaphragm plate capscrews snugly.
12. Replace the spring.
13. Replace the bonnet and reinstall the bonnet nuts.
14. Tighten the bonnet nuts snugly using a criss-cross tightening pattern.
15. Reinstall the control tubing.
16. Reopen the upstream and downstream block valves.
17. Before placing the valve back in service, perform the air bleed procedure described in the first section of this manual.

#### PROCEDURE B: CORRECTION OF BINDING STEM

1. Perform Steps 1 thru 6 of Procedure A, above.
2. Remove the spool assembly from the valve. *NOTE:*



*On smaller valves, this can be accomplished simply by grasping the stem and pulling upward. Valves 6" and larger have the top of the stem threaded to accept an eyebolt to aid in lifting the spool out of the body. 6" thru 12" valves are threaded 3/8-16. 14" and 16" valves are threaded 5/8-11.*

3. Carefully examine both ends of the stem for deep scratches, scoring or buildup of mineral deposits.

Polish the stem if necessary using a fine grade of emery cloth.

4. Similarly, examine and polish the upper bushing (in the bonnet) and the lower guide (in the seat ring).
5. Reinstall the spool assembly.
6. Reassemble the valve, following Steps 12 thru 17 in Procedure A.

#### PROCEDURE C: SEAT DISC REPLACEMENT

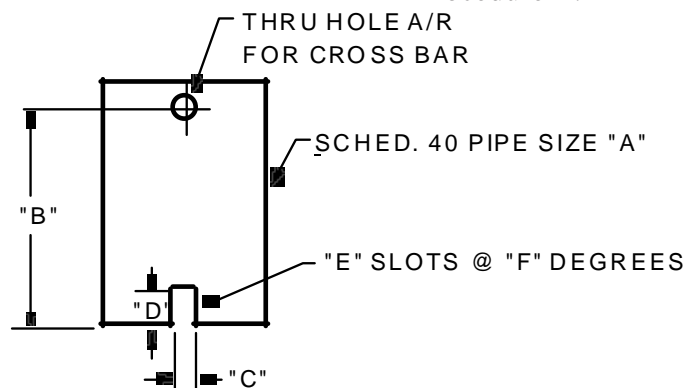
1. Perform Steps 1 and 2 of Procedure B, above.
2. With the spool assembly removed from the body, remove the seat retainer screws.
3. Slide the seat retainer off the lower end of the stem.
4. Remove the seat disc from its groove in the spool.  
*NOTE: The seat disc may fit quite tightly in the groove. If necessary, it may be pried out using a thin-bladed screwdriver or similar tool.*
5. Install the new seat disc in the groove.
6. Reinstall the seat retainer and tighten the seat retainer screws.
7. Reassemble the valve, following Steps 5 and 6 of Procedure B.

#### PROCEDURE D: SEAT RING REPLACEMENT

*NOTE: It is rare for a seat ring to require replacement. Minor nicks and scratches in the seating surface can usually be smoothed out with emery cloth.*

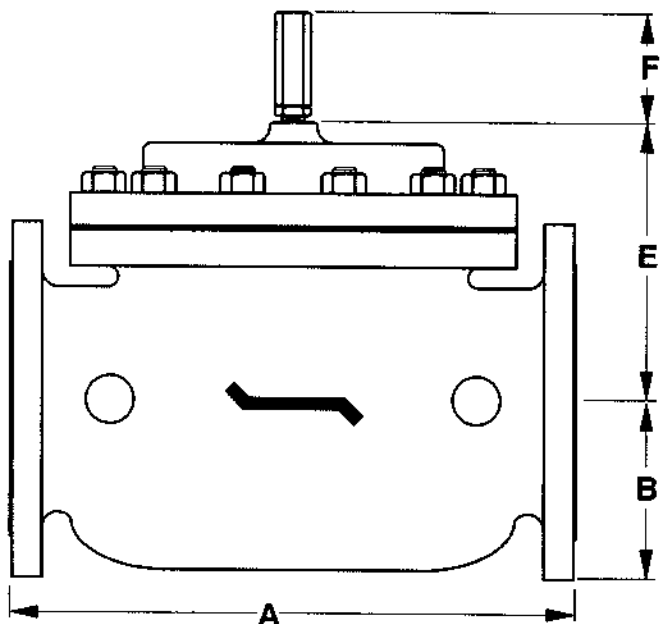
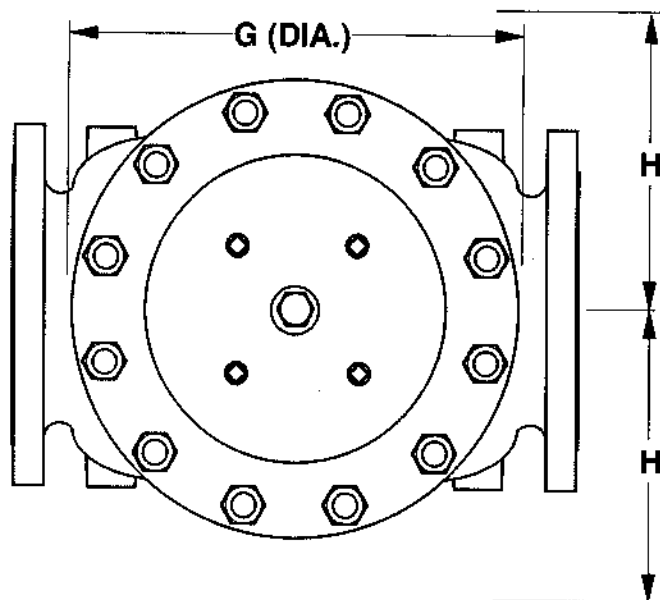
1. Perform Steps 1 and 2 of Procedure B, above.
2. If you are working on a 4" or smaller valve, follow Steps 3 thru 9, below.
3. If you are working on a 6" or larger valve, follow Steps 10 thru 16, below.

4. Seat rings in valves 4" and smaller are threaded into the valve body. To remove, you will need a special seat ring tool. You may fabricate one using standard pipe as shown in the sketch below, or one may be purchased from OCV.
5. Using the seat ring tool, unthread the seat ring from the body.
6. Remove the old o-ring from the counterbore in the body.
7. Install the new o-ring in the counterbore.
8. Using the seat ring tool, install the new seat ring.
9. Reassemble the valve, following Steps 5 & 6 of Procedure B.
10. Seat rings in valves 6" and larger are bolted into the body with socket head capscrews. In addition you will note that the seat ring is equipped with additional threaded holes that may be used for "jacking" the seat ring out of the body.
11. Remove the socket head capscrews.
12. Remove the old seat ring from the body by temporarily installing two or more of the capscrews in the "jacking" holes.
13. Install a new o-ring in the groove of the new seat ring. Lubricate the o-ring and outer seat ring wall with Vaseline® or similar lubricant.
14. Install the new seat ring in the body, making sure that the capscrew holes line up.
15. Replace and tighten all the capscrews.
16. Reassemble the valve, following Steps 5 and 6 of Procedure B.

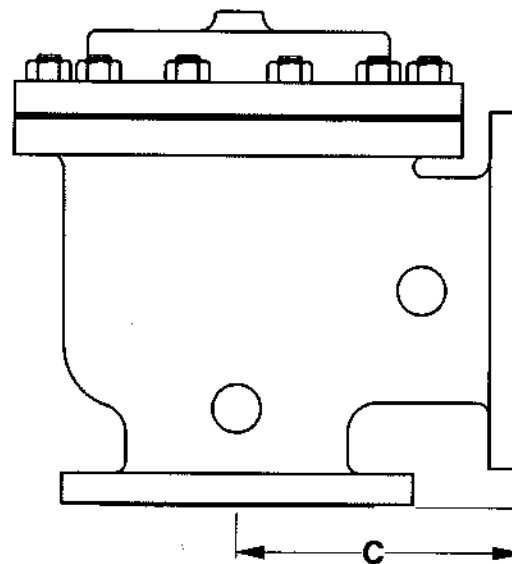


VALVE SIZE	"A" PIPE SIZE	"B" MIN. LENGTH	"C" SLOT WIDTH	"D" SLOT DEPTH	"E" NO. OF SLOTS	"F" SLOT SPACING
1-1/4"	3/4"	6"	3/8"	3/8"	2	180°
1-1/2"	3/4"	6"	3/8"	3/8"	2	180°
2"	1-1/2"	7"	3/8"	3/8"	2	180°
2-1/2"	2"	8"	1/2"	1/2"	3	120°
3"	2-1/2"	9"	5/8"	5/8"	2	180°
4"	3"	10"	5/8"	5/8"	2	180°

REVISED 3-17-97




DIM	ANSI CLASS	VALVE SIZE												
		1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
A	SE	8.75	8.75	9.88	10.50	13.00	—	—	—	—	—	—	—	—
	150	8.50	8.50	9.38	10.50	12.00	15.00	17.75	25.38	29.75	34.00	39.00	40.38	62.00
	300	8.75	8.75	9.88	11.12	12.75	15.62	18.62	26.38	31.12	35.50	40.50	42.00	63.75
B	SE	1.44	1.44	1.69	1.88	2.25	—	—	—	—	—	—	—	—
	150	2.31	2.50	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.62	11.75	16.00
	300	2.62	3.06	3.25	3.75	4.12	5.00	6.25	7.50	8.75	10.25	11.50	12.75	18.00
C	SE	4.38	4.38	4.75	6.00	6.50	—	—	—	—	—	—	—	—
	150	4.25	4.25	4.75	6.00	6.00	7.50	10.00	12.69	14.88	17.00	—	20.81	—
	300	4 3/8	4.38	5.00	6.38	6.38	7.81	10.50	13.19	15.56	17.75	—	21.62	—
D	SE	3.12	3.12	3.88	4.00	4.50	—	—	—	—	—	—	—	—
	150	3.00	3.00	3.88	4.00	4.00	5.50	6.00	8.00	11.38	11.00	—	15.69	—
	300	3.25	3.25	4.12	4.38	4.38	5.81	6.50	8.50	12.06	11.75	—	16.50	—
E	ALL	6.00	6.00	6.00	7.00	6.50	7.92	10.00	11.88	15.38	17.00	18.00	19.00	27.00
F	ALL	3.88	3.88	3.88	3.88	3.88	3.88	3.88	6.38	6.38	6.38	6.38	6.38	8.00
G	ALL	6.00	6.00	6.75	7.69	8.75	11.75	14.00	21.00	24.50	28.00	31.25	34.50	52.00
H	ALL	10.00	10.00	11.00	11.00	11.00	12.00	13.00	14.00	17.00	18.00	20.00	20.00	28.50



NOTE: 3" VALVE DIMENSIONS  
ARE FOR NEW MODEL 3100

4" VALVE DIMENSIONS ARE FOR  
NEW MODEL 4400

REV. A SDJ 6-6-02  
REV. B SDJ 2-3-03

<b>TOLERANCES</b>		 <b>OCV Control Valves</b> TULSA, OKLAHOMA U.S.A.		
UNLESS NOTED				
FRACTIONAL $\pm 1/64$				
DECIMAL $\pm .005$				
MACH. FINISH 125/ ANGULAR $\pm 1/2^\circ$		<b>GENERAL VALVE DIMENSIONS</b>		
DRAWN BY	DATE			
SDJ	10-6-97			
CHKD. BY	DATE	SIZE	DRAWING NUMBER	REV.
		<b>A</b>	<b>65D</b>	<b>B</b>

# rotary float pilot

## installation, operating, and maintenance instructions

### model 812

#### GENERAL DESCRIPTION

The OCV Model 812 Rotary Float Pilot is a float-actuated, two-port pilot valve designed for use as the primary control device for the OCV Series 8100 float-controlled valves. It can be used for modulating service where it is desired to balance tank input and output, thus holding level constant, or as a high level shutoff device where it is permissible or desirable to throttle the main valve slowly closed over the last few inches of level change.

#### INSTALLATION

The 812 can be most conveniently mounted in the tank by suspending it by its 3/8" NPT supply connection. The other end of the supply line is connected as follows:

1. For valve models 8101, 8111, 8121, 8131, 8141 and 8151, the supply line is connected to the downstream end of the ejector. (Note: These models are typically 8" and smaller valves.)
2. For valve models 8104, 8114, 8124, 8134, 8144 and 8154, the supply line is connected to the bonnet sense tap of the Model 1356 Differential Control Pilot. (Note: These models are typically 10" and larger valves.) Minimum recommended supply line size is as follows:
  1. 1/4" pipe or 3/8" tubing for runs up to 20 ft.
  2. 3/8" pipe or 1/2" tubing for runs over 20 ft.

The proper vertical location of the pilot in the tank depends on the intended usage:

1. For the modulating float valve application, the 812 should be installed so that when the float arm is horizontal (i.e., at the midpoint of its travel), the centerline of the float is at the desired level which is to be maintained.
2. For the high-level shutoff application, the 812 should be installed so that the float is at the desired high level point when rotated to its uppermost position.

Regardless of the application, the 812 should be installed inside a stilling well if there is any significant wave action on the liquid surface.

#### THEORY OF OPERATION

The basic principle of operation of the 812 pilot is quite simple and straightforward. There are three flow passages in the pilot disc, and a matching set of flow passages in the pilot body. The pilot disc is connected to the float arm by means of an arbor. At one extreme of rotation of the float arm, the flow passages in the disc and body are aligned, and full flow is allowed through the pilot from the supply port to the exhaust port. At the other extreme of rotation, the flow

passages in the disc and body are not aligned, and flow through the pilot is blocked.

Due to the size and geometry of the flow passages in the disc and body, there is a considerable portion of the float arm rotation period where the flow passages are partially aligned. Thus, there is a "variable orifice" effect as rotation takes place between full open and full closed. This effect is used as a variable sense on the Modulating Float Valve.

#### MAINTENANCE

Because of the simplicity of design of the 812 pilot, as well as its general inaccessibility in the tank, required maintenance is minimal. Most malfunctions of the pilot are caused by grit and particulate matter in the flow stream; therefore, the best preventative maintenance for the pilot is a clean and full-functioning line strainer on the main valve.

#### TROUBLESHOOTING

There are basically only two ways the 812 pilot can malfunction:

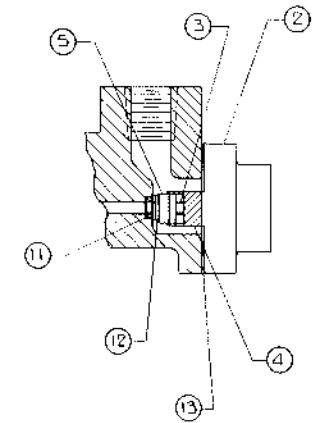
1. Clogged flow passages which restrict flow through the pilot. This will generally be evident in failure to open the main valve. Often, the clog can be cleared without disassembling the pilot by rotating the float arm until the flow passages line up, then blowing through the exhaust port with compressed air.
2. Inability of the pilot to shut off properly due to foreign matter trapped between the disc and body, or scoring of the mating surfaces of the disc and body. This will generally be evident in failure to close the main valve. Here the pilot must be disassembled in order to clear the malfunction.

If the pilot must be disassembled, it is important that the following steps be rigidly followed:


1. As the pilot is disassembled, mark the following sets of parts so that proper orientation can be maintained on reassembly.
  - (a) Bonnet in relation to body
  - (b) Disc in relation to body
  - (c) Arbor in relation to disc
2. Carefully separate the disc and body and examine the mating surfaces. Any buildup of foreign material should be carefully removed using a clean, soft cloth. If excessive scoring of the mating surfaces is evident, the body and disc should be replaced.
3. Apply a light coating of Dow Corning Valve Seal\* to the mating surfaces of disc and body. Place the disc against the body using the orientation marks applied in Step 1.
4. Reassemble the pilot, taking special care to observe proper orientation of parts.

\*NOTE: Dow Corning Valve Seal is the only lubricant approved for use in this pilot.

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1/83



13	893015	1	GASKET	BUNA-N
12	685719	2	WASHER, THRUST	STAINLESS STEEL
11	611008	1	O-RING	VITON
10	532705	1	SCREW, FLAT HEAD	STAINLESS STEEL
9	532704	6	SCREW, FILISTER HEAD	STAINLESS STEEL
8	520703	1	FLOAT	STAINLESS STEEL
7	300727	1	FLOAT ARM	STAINLESS STEEL
6	300713	1	FLOAT ARM ADAPTER	STAINLESS STEEL
5	300734	1	ARBOR	STAINLESS STEEL
4	301713	1	DISC	STAINLESS STEEL
3	681711	1	SPRING	STAINLESS STEEL
2	802722	1	BODY	STAINLESS STEEL
1	804122	1	BONNET	BRASS
ITEM	PART NO	QTY	DESCRIPTION	MATERIAL

E		PARTS		LTS1	
D		MATERIAL	TOLERANCES		
C			UNLESS NOTED		
B			FRACTIONAL ± 1/64		
A			DECIMAL ± .006		
			ANGULAR ± 1/8°		
CHG		NO. 828'S		MODEL 812 FLOAT PILOT	
		SCALE	DRAWN BY DATE	CHK	PREPARED BY DATE
			51 7/10/76	D	
REVISIONS		REF DWG NO'S		812	
			CHG'D BY DATE		A

## DESCRIPTION



### MODEL 126 EJECTOR

The Model 126 ejector is a simple tee fitting with a fixed orifice in its inlet port. It provides the proper supply pressure to the main valve diaphragm chamber, allowing various two-way control pilots to control the valve position.

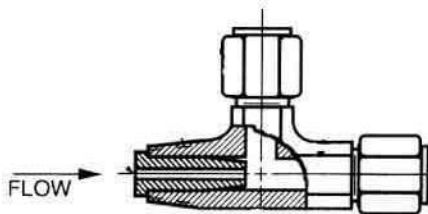
## MODEL 126 EJECTOR DIAGRAM

Brass Construction / Stainless Steel Construction

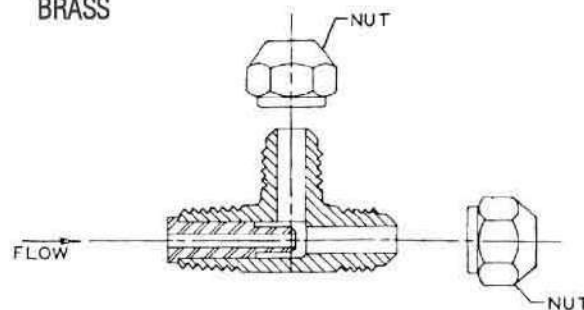
MATERIAL	PART NUMBER	P (NPT)	T-TUBE O.D.	STD. ORIFICE	USED ON VALVE SIZES
Brass	213100	3/8"	3/8"	.125"	1 1/4"-6"
Brass	214100	1/2"	1/2"	.188"	8"-10"
Brass	215100	3/4"	3/4"	.188"	12"-16"
316 Stn. Steel	213700	1/4"	3/8"	.090"	1 1/4"-6"
316 Stn. Steel	214700	3/8"	1/2"	.125"	8"-10"
316 Stn. Steel	215700	1/2"	3/4"	.188"	12"-16"

Orifice bushings are stainless steel.

STAINLESS

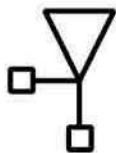


BRASS

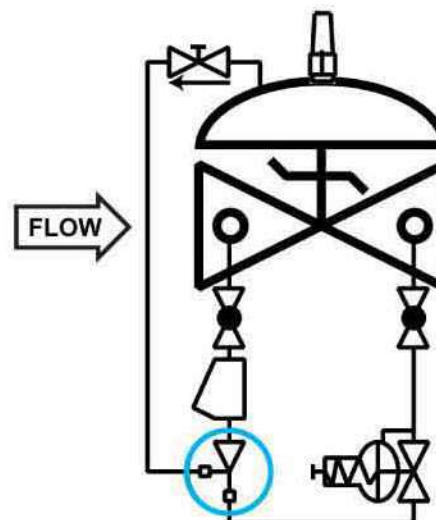


## SCHEMATIC SYMBOL

The Model 126 Ejector is shown on OCV Valve Schematics as:



EXAMPLE: Shown here on a MODEL 127-3 Pressure Reducing Valve



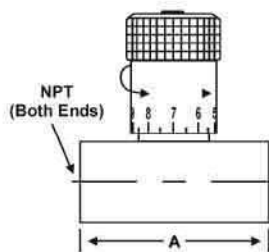
## DESCRIPTION

The Model 141-2 Needle Valve is an adjustable restriction device installed in the control circuit tubing. The setting of the needle valve meters the flow into and out of the main valve diaphragm chamber, thus controlling the response speed of the main valve. Depending on the application, the needle valve may be used as a closing speed control, opening speed control, or both simultaneously.



◀ Needle Valves shown  
Sizes: 3/4" & 1/4"

## MODEL 141-2 MATRIX

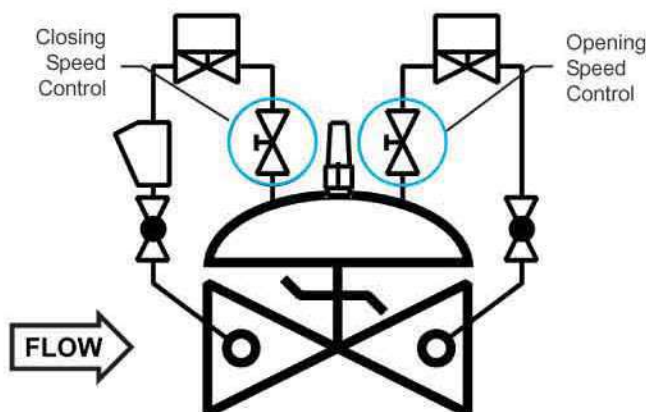
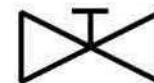


MATERIAL	PART NUMBER	INLET/OUTLET (NPT)	A	USED ON VALVE SIZE*
Brass	683100	1/4	2	1 1/4"-2"
Brass	683101	3/8	2 1/4	2 1/2"-6"
Brass	683102	1/2	2 5/8	8"-10"
Brass	683103	3/4	3 1/4	12"-16"
Stn. Steel	683700	1/4	2	1 1/4"-2"
Stn. Steel	683702	3/8	2 1/4	2 1/2"-6"
Stn. Steel	682704	1/2	2 5/8	8"-10"
Stn. Steel	683703	3/4	3 5/8	12"-16"

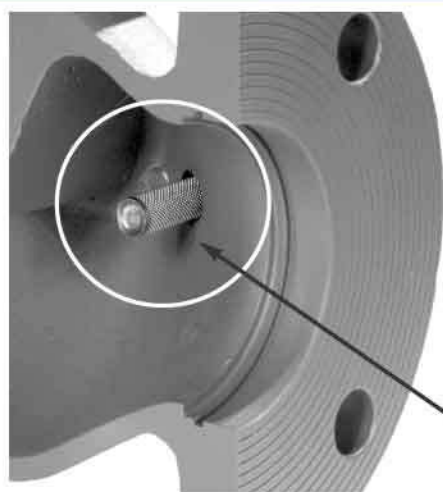
Note: Needle valve size may vary on valve application. Consult factory.

## SCHEMATIC SYMBOL

The Model 141-2 Needle Valve is shown on OCV Valve Schematics as:



EXAMPLE: Shown here on a MODEL 115-3 DIGITAL VALVE as separate opening and closing speed controls.



## DESCRIPTION

The 123 Inline Strainer installs in the inlet side port of the main valve, and protects the pilot system from solid contaminants in the line fluid. The screen prevents the entrance of particles into the pilot system piping while flow through the main valve washes the screen clean. Recommended use on petroleum valve applications where flushing or removal of the screen for cleaning is not practical or may be considered hazardous.

Strainer Shown Installed

## DIMENSIONS

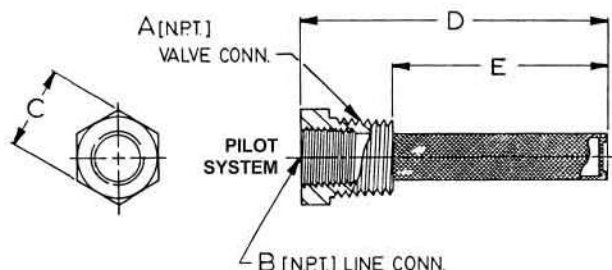
PART NUMBER	A	B	C	D	E	USED ON VALVE SIZE
660704	3/8	1/4	11/16	2 3/16	1 1/2	1 1/4"-6"
660705	1/2	3/8	7/8	2 1/4	1 1/2	8"-10"
660706	3/4	1/2	1 1/8	2 3/8	1 1/2	12"-16"

## MATERIALS

Inline strainers are all-stainless steel construction.

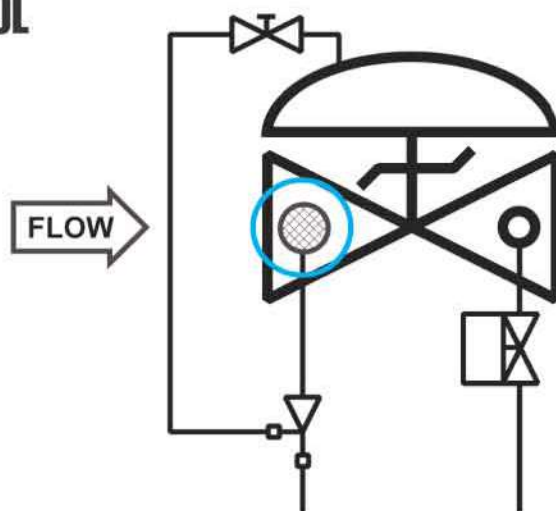
## SCREEN SIZE

Standard screen is 40 mesh. Other mesh sizes are available.



## SCHEMATIC SYMBOL

The Model 123 Inline Strainer is shown on OCV Valve Schematics as:



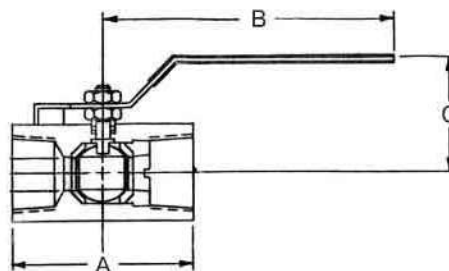
EXAMPLE: Shown here on a MODEL 115-2 Solenoid Valve.

## DESCRIPTION



The Model 141-4 Ball Valve is a 1/4-turn shutoff device used for isolating the pilot system from the main valve. They are extremely useful for performing routine maintenance and troubleshooting.

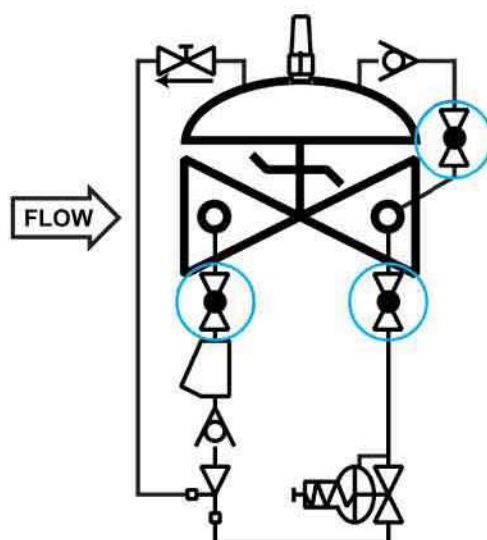
Ball valves are standard on water service valves; optional on fuel service valves.



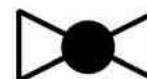
## MODEL 141-4 MATRIX

MATERIAL	PART NUMBER	INLET/OUTLET (NPT)	A	B	C	USED ON VALVE SIZE*
Bronze	680100	3/8	1 3/4	3 1/2	1 7/8	1 1/4"-6"
Bronze	680101	1/2	2	3 1/2	2 1/4	8"-10"
Bronze	680102	3/4	3	4 3/4	2 1/4	12"-16"
Stn. Steel	680700	3/8	2	3 3/4	2 1/8	1 1/4"-6"
Stn. Steel	680701	1/2	2 1/4	3 3/4	2 1/2	8"-10"
Stn. Steel	680702	3/4	3	4 3/4	2 1/4	12"-16"

## SCHEMATIC SYMBOL



The Model 141-4 Ball Valve is shown on OCV Valve Schematics as:



EXAMPLE: Shown here on a MODEL 127-4 Pressure Reducing / Check Valve.

## DESCRIPTION

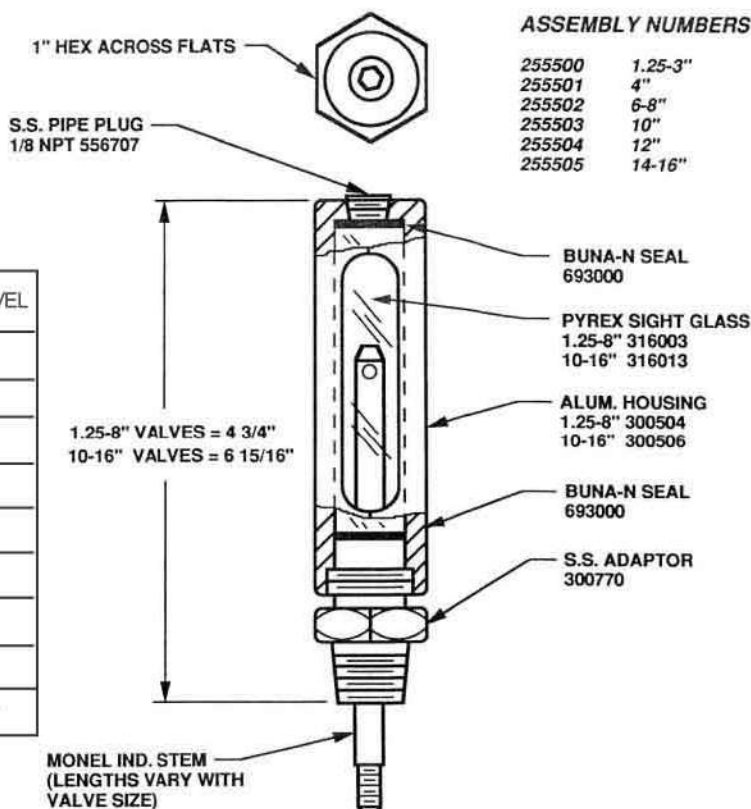
The Model 155L Visual Indicator is a device that enables the user to determine the extent of opening of a control valve. It consists of an adaptor threaded into the valve bonnet, a rod threaded into the main valve stem, a sealed Pyrex sight glass, and a protective aluminum housing. The indicator rod moves as the valve opens and closes. The 155L may be installed on virtually any OCV control valve, and can be done so without any disassembly of the valve itself. Since the assembly is not sealed from the diaphragm chamber of the main valve, it provides a convenient point for bleeding air via the 1/8" NPT port located at the top of the sight glass.

**WHERE USED** - The 155L is the standard visual indicator on fuel service valves. Optional on virtually any control valve not already employing a limit switch or position transmitter.

## MODEL 155L MATRIX

MATERIAL	PART NO.	VALVE TRAVEL
1 1/4" - 1 1/2"	255500	3/8"
2"	255500	1/2"
2 1/2"	255500	3/4"
3"	255500	1"
4"	255501	1 3/8"
6" - 8"	255502	1 1/2" - 2"
10"	255503	2 1/2"
12"	255504	3"
14" - 16"	255505	3 1/2", 4"

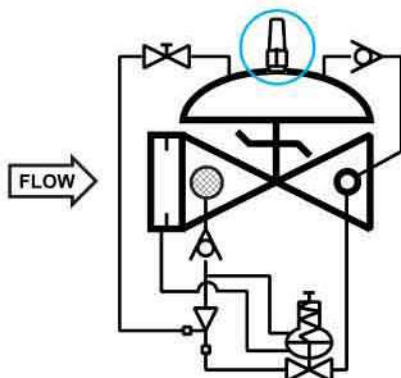
MAX WORKING PRESSURE: 300 PSI



## ASSEMBLY NUMBERS

255500	1.25-3"
255501	4"
255502	6-8"
255503	10"
255504	12"
255505	14-16"

## SCHEMATIC SYMBOL



The Model 155L is shown on OCV Valve schematics as:



EXAMPLE: Shown here on a Model 120-6 Rate of Flow / Check Valve.

## MATERIALS

Indicator Rod:	Monel
Adapter:	Stainless Steel
Housing:	Aluminum
Sight Glass:	Pyrex
Sight Glass Seals:	Buna-N

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Global performance. Personal touch.

Valve Position Indicator (Liquid Filled) 155L



**Global** performance. **Personal** touch.