Operating Manual

Model: 119
Size:
Serial #:
Sales Order :

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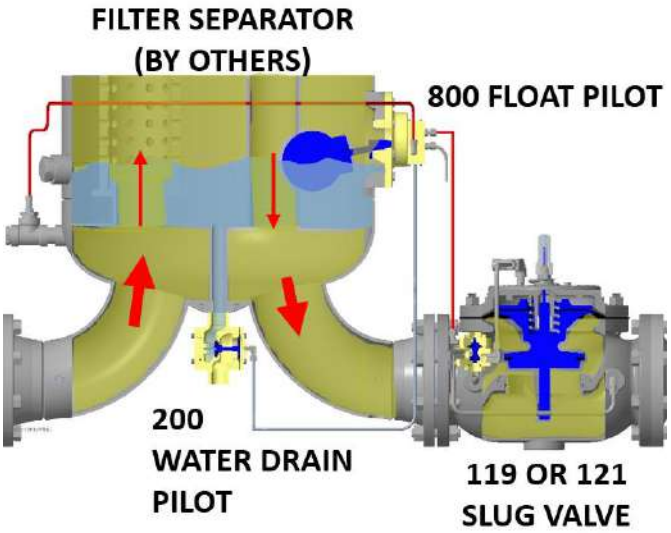

Installation, Operating, Maintenance Instructions

Filter Separator Slug Valve

Model 119

GENERAL DESCRIPTION

The OCV Model 119 is a special fuel system valve designed for use on the discharge of a filter separator. The 119-slug valve operates in conjunction with a remote mounted OCV Series 800 interface float pilots and 200 automatic water drain pilot. The 119 performs the following functions:

1. Opens to allow fuel flow when there is little or no water in the sump of the filter separator.
2. Closes tightly to prevent flow when a high water level is reached in the filter sump.

The 119 consists of the following components, arranged as shown on the schematic diagram.

1. **Model 65 Basic Valve Assembly,** a hydraulically-operated, diaphragm-actuated globe-style valve that closes with an elastomer-on-metal seal.
2. **Model A224 Accelerator Pilot** that receives the hydraulic signals from the interface float pilot and shifts to either open or close the main valve.
3. **Model 141-3 Flow Control Valve,** a needle type valve that allows free flow in one direction and metered flow in the other direction. On the 119, the flow control valve is connected as an opening speed control.
4. **Model 123 Inline Strainer** that protects the pilot system from solid contaminants in the flow stream.
5. **800D Side Mounted Float** is a 4 port, 3 position pilot and will perform the following functions depending on float position. For more details of operation please refer to the 800 series manual.
   a. Float Down – Slug Open, WDV Closed
   b. Float Middle - Slug Open, WDV Opened
   c. Float Up - Slug Closed, WDV Opened
6. **Model 200 Water Drain Pilot** is a optional 2 port, Normally closed pilot. It opens when pressure is applied to the top chamber. When this pilot is not installed, a pipe plug should be installed in the 1/8” NPT port of the 800 Series float pilot.
7. **Model 155L Visual Indicator Assembly** that allows the user to determine the valve’s operating position at a glance.

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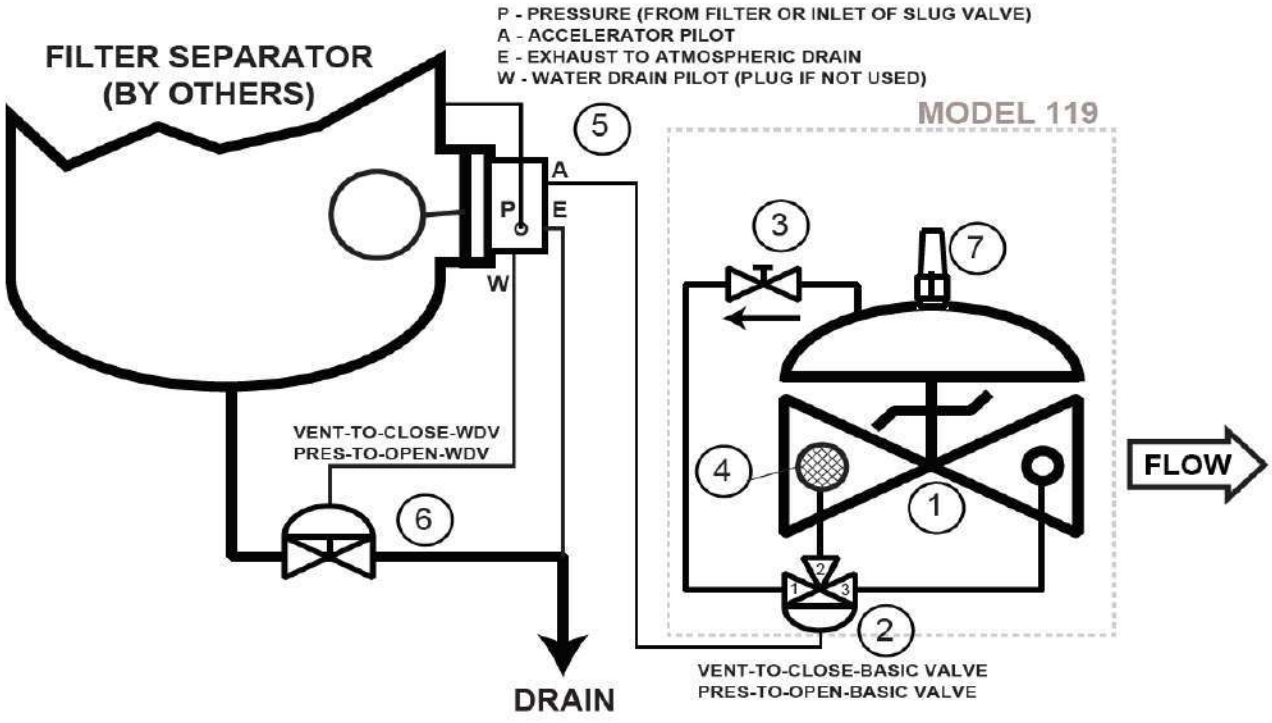

FILTER SUMP WATER LEVEL	800 FLOAT ACTION	119 SLUG VALVE				(W) WDV	
		(A) ACCELERATOR		65 VALVE			
		BONNET	PORT	BONNET	ACTION	BONNET	ACTION
LOW	DOWN	PRESSURE	1-3	VENTED	OPEN	VENTED	CLOSED
SOME	MIDDLE	PRESSURE	1-3	VENTED	OPEN	PRESSURE	OPEN
HIGH	UP	VENTED	2-1	PRESSURE	CLOSED	PRESSURE	OPEN

THEORY OF OPERATION

SLUG CONTROL: The action of the main valve (1) as a slug control (high water level shutoff) is governed by the action of the accelerator pilot (2), which in turn is controlled by the interface float pilot (5). There are 3 positions which will affect operations of the slug valve and, if installed, water drain pilot (6).

- **If there is little or no water in the sump of the filter separator**, the float is down and the float pilot pressurizes the diaphragm of the accelerator pilot. This shifts the pilot to connect the main valve diaphragm chamber to downstream, allowing the main valve to open. The water drain pilot bonnet will be vented and will remain closed.
- **If some water accumulates in the sump and lifts the float to a middle position**, the float pilot will apply pressure to the water drain pilot to attempt to remove the water from the sump. At the same time, the 800-float pilot still pressurizes the diaphragm of the accelerator pilot which keeps the slug valve open.
- **If a large slug of water accumulates in the sump and lifts the float to a high position**, the float pilot vents the diaphragm of the accelerator pilot and water drain pilot. The accelerator pilot shifts to connect the main valve diaphragm chamber directly to inlet pressure. This drives the main valve fully closed. The water drain pilot will continue to evacuate water from the sump to a fuel product recover system.

INSTALLATION

The 119 is furnished fully factory-assembled, ready for installation on the discharge flange of the filter separator.

1. Install the valve following the instructions given in the Model 65 Basic Valve section of this manual.
2. Install the interface float pilot on the filter separator.
3. Install the automatic water drain valve (if used) on the drain piping from the sump of the filter separator.
4. Make the hydraulic connections from the interface float pilot with 1/4" OD tubing as follows:

   (a) "ACCEL VALVE" (A) port on float pilot to the 1/8" NPT port in the bonnet of the accelerator pilot.

   (b) "POWER" (P) port on float pilot to a point, which will sense main valve inlet pressure. A convenient location is the unused inlet side port of the main valve.

   (c) "WATER DRAIN" (W) port on float pilot to the bonnet of the automatic water drain valve (if used). If a water drain pilot is not used. Plug the W port with a 1/8" NPT pipe plug.

   (d) "EXHAUST" (E) port on float pilot to an *atmospheric* drain line.

   ****CAUTION**** Do not plug the exhaust port. Doing so will disable the function of the 119 Slug Valve.

STARTUP AND ADJUSTMENTS

The following steps should be followed in the order presented in order to affect an initial startup of the 119. NOTE:

1. Start the pump or otherwise start the system flowing.
2. Carefully loosen a pipe plug in the valve bonnet until fluid appears around the threads. When only clear fluid (no air) is discharging, retighten the plug.

MAINTENANCE

Required maintenance of the 119 is minimal. However, the following checks, periodically performed, will do much to keep the valve operating efficiently and safely.

1. Check for chipped or peeling paint. Touch up as required.
2. Check for leaks around flanges and fittings. Tighten as required.
3. If the interface float pilot is equipped with a manual tester, the slug control function of the 119 may be checked at any time. Simply activate the manual tester to close the valve. This action will also open the automatic water drain valve (if used). Release the manual tester to restore normal operation.

TROUBLESHOOTING

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

MAIN VALVE FAILS TO OPEN

1. High water level in filter separator sump — Drain water from sump.
2. Temporarily disconnect the sense line at the bonnet of the accelerator pilot. If there is no water in the filter sump and the float is down, you should receive flow from the interface pilot, but no flow from the accelerator pilot.

   (a) If conditions are as described above, proceed to Step 3.

   (b) If you receive flow from the accelerator pilot, the accelerator pilot diaphragm is ruptured — Replace the diaphragm. See the A224 section of this manual.

(c) If you receive no flow from the interface float pilot, there is a malfunction of the 800 pilot — See the 800 pilot section of this manual.

3. Stem of accelerator pilot binding or lower seat deteriorated — Disassemble pilot and determine cause. See the A224 section of this manual.

4. Main valve diaphragm ruptured — Replace diaphragm. See the Model 65 Basic Valve section of this manual.

5. Main valve stem binding — Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual.

MAIN VALVE FAILS TO CLOSE

1. If the interface float pilot is equipped with a manual tester, activate it.

   (a) If the valve closes, the water level has not yet risen to the high level required to close the valve.

   (b) If the valve still does not close, proceed to Step 2.

2. Temporarily disconnect the sense line at the bonnet of the accelerator pilot. There should be no flow from the interface float pilot if the float is in the full up position.

   (a) If there is flow from the interface float pilot, there is a malfunction of that pilot — See the 800 pilot section of this manual.

   (b) If there is no flow from the interface float pilot, proceed to Step 3.

3. Stem of the accelerator pilot binding or upper seat deteriorated — Disassemble pilot and determine cause. See the A224 section of this manual. If you can find nothing wrong with the accelerator pilot, proceed to Step 4.

4. Main valve stem binding, seat deteriorated or object caught in valve — Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual.

Installation, Operating, and Maintenance Instructions

Model 65/765

basic control valve

GENERAL DESCRIPTION

The OCV Series 65 is a hydraulically operated, diaphragm-actuated valve, *full port* valve. The globe configuration (Model 65) is available in sizes 1 ¼" thru 16" and 24". The angle configuration (Model 65A) is available in sizes 1 ¼" thru 12" and 16".

The Series 765 is the same as the Series 65, except that it is a *reduced port* valve. It is available only in the globe configuration in sizes 3" thru 24".

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. A synthetic rubber seat disc forms a tight seal with the valve seat when pressure is applied above the diaphragm.

FUNCTIONAL DESCRIPTION

Because the Series 65/765 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.

CAUTION: Take appropriate care to protect personnel and equipment when lifting the valve for uncrating and for installation. Use appropriate lifting equipment. Lifting eyes are provided on 8" and larger valves to facilitate this task.

3. Install the valve in the line according to the flow arrow on the inlet flange. The arrow should point downstream.
4. When installing flanged-end valves, use the proper number and size of flange bolts when installing the valve (see Tables 1 & 2). Make sure flange gaskets are of the proper material for the service. To ensure a tight seal, flange bolts should be tightened evenly in a criss-cross pattern. Tables 1 & 2 also shows the proper final torque values for the flange bolts.

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5. Allow sufficient room around the valve for ease of adjustment and maintenance service.
6. After the lines are filled with liquid, bleed all air from the diaphragm chamber. This can be done by carefully loosening a pipe plug in the bonnet until fluid begins to appear around the threads. When only clear liquid (no air) is flowing, retighten the plug.

In addition, it is highly recommended that:

1. Isolation valves (e.g., 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 examination of the valve interior, be conducted. Particular attention should be paid to the rubber 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

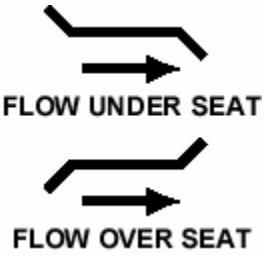
2. VALVE FAILS TO CLOSE

a. Diaphragm damaged* - See Procedure A
b. Stem binding - See Procedure B
c. Object lodged in valve - See Procedure B

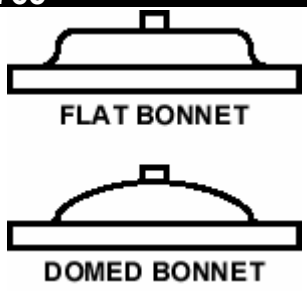
3. VALVE OPENS AND CLOSES BUT LEAKS WHEN CLOSED

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, and then compare it with the figures below.*



IMPORTANT: Over the years, OCV has made significant design changes to the 3", 4", 8", 10" and 12" valves. Therefore, before ordering rubber kits or other parts, you will need to determine which style valve you have (old or new). This can be easily determined by looking at the valve *bonnet*. As shown below, old-style valves have flat bonnets; new-style valves (except for the 3" full port and 4" reduced port valves) have domed bonnets.



For 3" valves, simply measure the *diameter* of the bonnet. Old-style bonnets have a 7-11/16" (195 mm) diameter; new style bonnets have an 8-3/4" (222 mm) diameter. That same 8-3/4" diameter flat bonnet is also used on the 4" reduced port valve.

PROCEDURE A: DIAPHRAGM REPLACEMENT

1. Wear appropriate clothing and equipment to protect the skin and eyes from exposure to the line fluid.
2. Isolate the valve from the system by closing upstream and downstream block valves.
3. Bleed all pressure from the valve.

WARNING! IT IS EXTREMELY IMPORTANT THAT ALL PRESSURE BE REMOVED FROM THE VALVE BEFORE DOING EVEN PARTIAL DISASSEMBLY.

4. Loosen one of the tubing connections on the bonnet. Allow any residual pressure to bleed off.
5. To minimize any possible fluid spillage, drain the upstream and downstream sides of the valve as much as possible. Unused side ports in the main valve body can be used for this purpose. They will bring the fluid level down to approximately the centerline of the piping.
6. Remove all tubing connected at the bonnet.
7. Remove the bonnet nuts.
8. 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.
9. Remove the spring.
10. Remove the diaphragm plate capscrews and the diaphragm plate.
11. Remove the old diaphragm.
12. 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.
13. Replace the diaphragm plate and the diaphragm plate capscrews.
14. Tighten all diaphragm plate capscrews snugly. See Table 4 for proper torque values.
15. Replace the spring.
16. Replace the bonnet and reinstall the bonnet nuts.
17. Tighten the bonnet nuts snugly using a criss-cross tightening pattern. See Table 3 for torque requirements.
18. Reinstall the control tubing.
19. Reopen the upstream and downstream block valves.
20. Before placing the valve back in service, perform the air bleed procedure described in the Installation section of this manual.

PROCEDURE B: CORRECTION OF BINDING STEM

1. Perform Steps 1 thru 9 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. The 24" valve is threaded 3/4-10.
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 15 thru 20 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 3" or smaller valve, or a 4" old-style valve, follow Steps 4 thru 9, below.
3. If you are working on a new-style 4" valve, or any valve 6" or larger, follow Steps 10 thru 16, below.
4. Seat rings in the smaller valves are threaded into the valve body. To remove, you will need a special seat ring tool. One may be purchased from OCV, or one may be fabricated. (See Table 5 for details.)
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 on larger valves 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.

TABLE 1
FLANGE BOLTING REQUIREMENTS – CLASS 150 FLANGES

VALVE SIZE (DN)	NO. OF BOLTS	BOLT SIZE	RECOMMENDED TORQUE (FT-LB)	RECOMMENDED TORQUE (N-M)
1 ¼" (32)	4	1/2-13 X 2.50" LONG	75	102
1 ½" (40)	4	1/2-13 X 2.50" LONG	75	102
2" (50)	4	1/2-13 X 2.50" LONG	75	102
2 ½" (65)	4	5/8-11 X 3.00" LONG	150	204
3" (80)	4	5/8-11 X 3.25" LONG	150	204
4" (100)	8	5/8-11 X 3.25" LONG	150	204
6" (150	8	3/4-10 X 3.50" LONG	250	339
8" (200)	8	3/4-10 X 3.75" LONG	250	339
10" (250)	12	7/8-9 X 4.00" LONG	378	513
12"(300)	12	7/8-9 X 4.25" LONG	378	513
14" (350)	12	1-8 X 4.50" LONG	583	791
16" (400)	16	1-8 X 4.75" LONG	583	791
18" (450)	16	1 1/8" X 5.00" LONG	782	1061
20" (500)	20	1 1/8 X 5.50" LONG	782	1061
24" (600)	20	1 1/4"-7 X 6.00" LONG	1097	1488

TABLE 2
FLANGE BOLTING REQUIREMENTS – CLASS 300 FLANGES

VALVE SIZE (DN)	NO. OF BOLTS	BOLT SIZE	RECOMMENDED TORQUE (FT-LB)	RECOMMENDED TORQUE (N-M)
1 ¼" (32)	4	5/8-11 X 2.75" LONG	150	204
1 ½" (40)	4	3/4-10 X 3.00" LONG	250	339
2" (50)*	6 2	5/8-11 X 3.00" LONG 5/8-11 X 2.25" LONG	150 150	204 204
2 ½" (65)	8	3/4-10X 3.25" LONG	250	339
3" (80)	8	3/4-10 X 3.50" LONG	250	339
4" (100)	8	3/4-10 X 3.75" LONG	250	339
6" (150)	12	3/4-10 X 4.25" LONG	250	339
8" (200)	12	7/8-9 X 4.75" LONG	378	513
10" (250)	16	1-8 X 5.50" LONG	583	791
12"(300)	16	1 1/8-7 X 5.75" LONG	782	1061
14" (350)	20	1 1/8-7 X 6.25" LONG	782	1061
16" (400)*	18 2	1 1/4-7 X 6.50" LONG 1 1/4-7 X 5.50" LONG	1097 1097	1488 1488
18" (450)	24	1 1/4-7 X 6.75" LONG	1097	1488
20" (500)	24	1 1/4-7 X 7.25" LONG	1097	1488
24" (600)	24	1 1/2-6 X 8.00" LONG	1750	2375

* TOP TWO HOLES ON VALVE FLANGES ARE DRILLED & TAPPED. USE THE SHORTER BOLTS LISTED IN THESE HOLES.

TABLE 3
BONNET BOLTING TORQUE SPECIFICATIONS
NEW-STYLE FULL PORT VALVES (SERIES 65)

VALVE SIZE (DN)	NO. OF STUDS	STUD SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
1 ¼" (32)	8	3/8-16	31 (42)	8" (200)	12	7/8-9	378 (513)
1 ½" (40)	8	3/8-16	31 (42)	10" (250)	16	7/8-9	378 (513)
2" (50)	8	3/8-16	31 (42)	12" (300)	20	1 1/8-7	782 (1061)
2 ½" (65)	8	1/2-13	75 (102)	14" (350)	20	1 1/8-7	782 (1061)
3" (80)	8	1/2-13	75 (102)	16" (400)	20	1 1/4-7	1097 (1488)
4" (100)	8	3/4-10	250 (339)	24" (400)	28	1 1/2-6	1750 (2375)
6" (150)	12	3/4-10	250 (339)				

NEW-STYLE REDUCED PORT VALVES (SERIES 765)

VALVE SIZE (DN)	NO. OF STUDS	STUD SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
3" (80)	8	3/8-16	31 (42)	12" (300)	16	7/8-9	378 (513)
4" (100)	8	1/2-13	75 (102)	16" (250)	20	1 1/8-7	782 (1061)
6" (150)	8	3/4-10	250 (339)	18" (300)	20	1 1/4-7	1097 (1488)
8" (200)	12	3/4-10	250 (339)	20" (350)	20	1 1/4-7	1097 (1488)
10" (250)	12	7/8-9	378 (513)	24" (400)	20	1 1/4-7	1097 (1488)

OLD-STYLE FULL PORT VALVES (SERIES 65)

VALVE SIZE (DN)	NO. OF SCREWS	STUD SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
3" (80)	8	3/8-16	31 (42)	10" (250)	16	3/4-10	250 (339)
4" (100)	8	7/16-20	50 (68)	12" (300)	20	1 1/8-7	782 (1061)
8" (200)	12	3/4-10	250 (339)				

TABLE 4
DIAPHRAGM PLATE CAPSCREW TORQUE SPECIFICATIONS
NEW-STYLE FULL PORT VALVES (SERIES 65)

VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
1 ¼" (32)	1	3/8-24 N	21.5 (29)	8" (200)	8	1/2-13 H	43 (58)
1 ½" (40)	1	3/8-24 N	21.5 (29)	10" (250)	12	1/2-13 H	43 (58)
2" (50)	4	1/4-20 A	6.3 (8.6)	12" (300)	12	1/2-13 H	43 (58)
2 ½" (65)	6	10-32 A	2.7 (3.7)	14" (350)	16	3/8-16 H	19.7 (27)
3" (80)	6	1/4-20 A	6.3 (8.6)	16" (400)	16	1/2-13 H	43 (58)
4" (100)	6	3/8-16 H	19.7 (27)	24" (400)	16	1-8 H	286 (383)
6" (150)	8	3/8-16 H	19.7 (27)				

NEW-STYLE REDUCED PORT VALVES (SERIES 765)

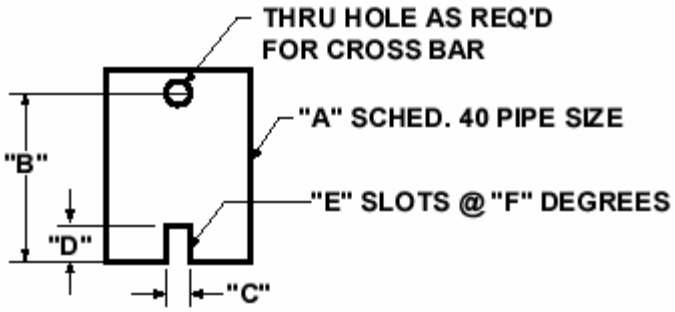
VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
3" (80)	4	1/4-20 A	6.3 (8.6)	12" (300)	12	1/2-13 H	43 (58)
4" (100)	6	1/4-20 A	6.3 (8.6)	16" (250)	12	1/2-13 H	43 (58)
6" (150)	6	3/8-16 H	19.7 (27)	18" (300)	12	1/2-13 H	43 (58)
8" (200)	8	3/8-16 H	19.7 (27)	20" (350)	12	1/2-13 H	43 (58)
10" (250)	8	1/2-13 H	43 (58)	24" (400)	12	1/2-13 H	43 (58)

OLD-STYLE FULL PORT VALVES (SERIES 65)

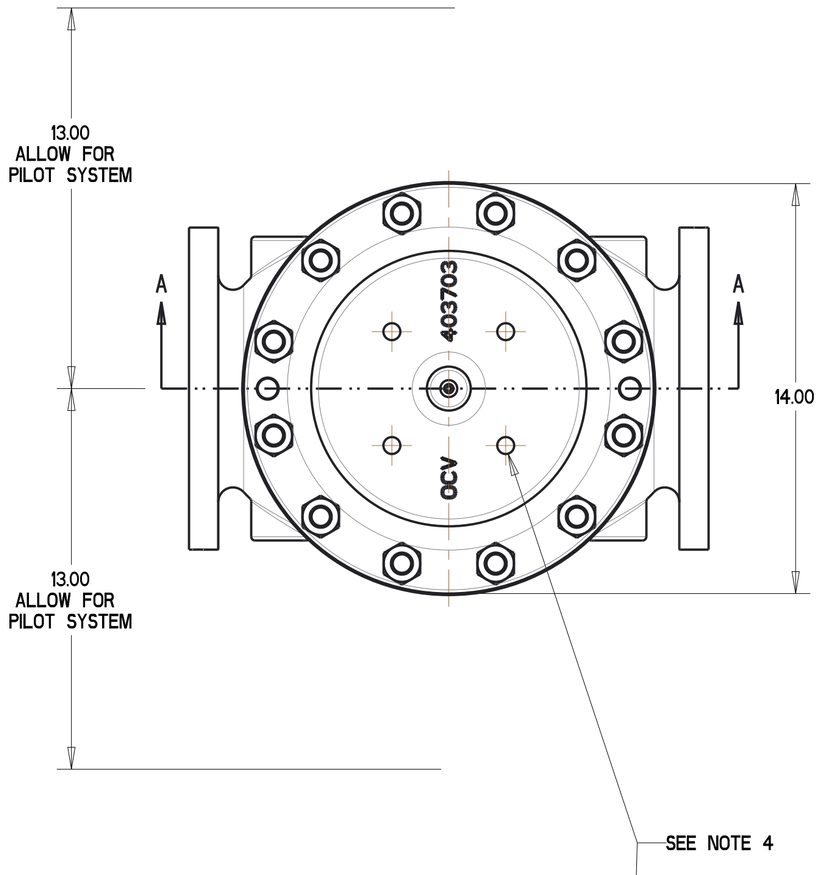
VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)	VALVE SIZE (DN)	NO. OF SCREWS	SCREW SIZE	REC. TORQUE FT-LB (N-M)
3" (80)	4	1/4-20 H	6.3 (8.6)	10" (250)	12	3/8-16 H	19.7 (27)
4" (100)	6	1/4-20 H	6.3 (8.6)	12" (300)	12	1/2-13 H	43 (58)
8" (200)	8	3/8-16 H	19.7 (27)				

N = SINGLE HEX NUT ON VALVE STEM
A = ALLEN-HEAD CAPSCREWS
H = HEX-HEAD CAPSCREWS

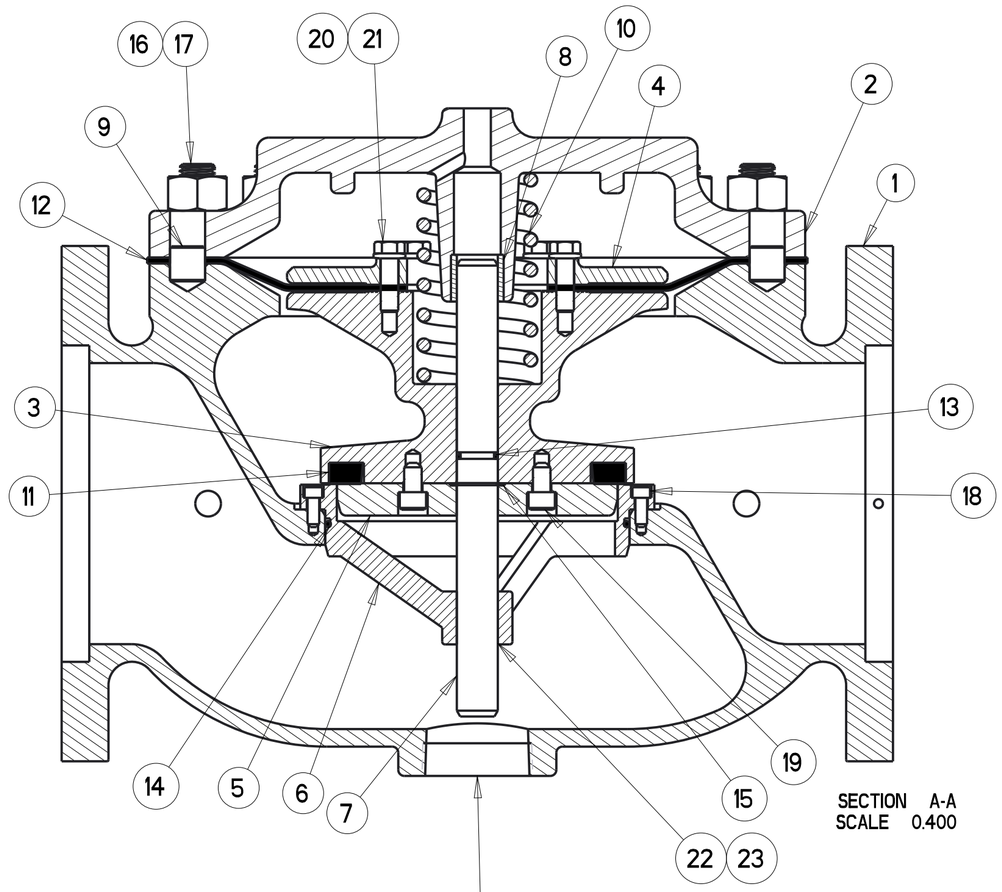
TABLE 5
SEAT RING TOOL DETAILS



VALVE SIZE FULL PORT	VALVE SIZE RED. PORT	"A" PIPE SIZE	"B" MIN. LENGTH	"C" SLOT WIDTH	"D" SLOT DEPTH	"E" # SLOTS	"F" 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"	3"	1 1/2	7"	3/8"	3/8"	2	180°
2 1/2"	--	2	8"	1/2"	1/2"	3	120°
3" NEW	4"	2 1/2	9"	1/4"	3/8"	3	120°
3" OLD	--	2 1/2	9"	5/8"	5/8"	2	180°
4" OLD	--	3	10"	5/8"	5/8"	2	180°

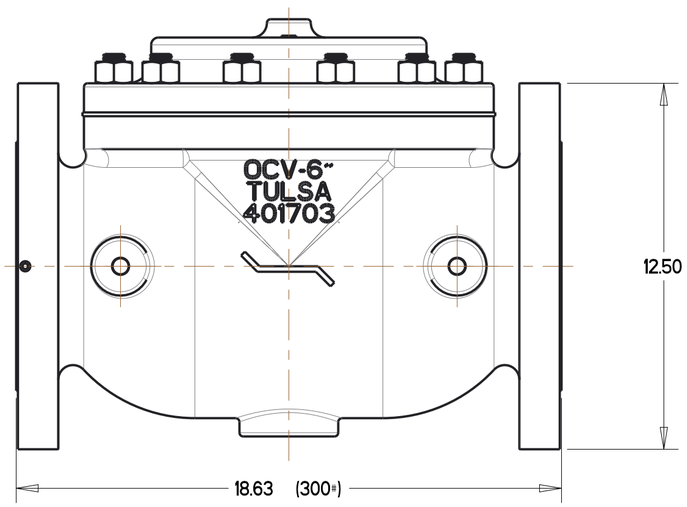


RAISED OR FLAT
FACE AS SPECIFIED
IN QUOTE OR PURCHASE
ORDER



SECTION A-A
SCALE 0.400

2" NPTF DRAIN BOSS
STANDARD ON UL LISTED
DELUGE VALVES



RAISED OR FLAT
FACE AS SPECIFIED
IN QUOTE OR PURCHASE
ORDER

ITEM	QTY	DESCRIPTION
1	1	BODY
2	1	BONNET
3	1	SPOOL
4	1	DIAPHRAGM PLATE
5	1	SEAT RETAINER
6	1	SEAT RING
7	1	STEM
8	1	BUSHING,UPPER
9	2	DOWEL PIN
10	1	SPRING
11	1	SEAT DISC
12	1	DIAPHRAGM
13	1	O-RING, STEM
14	1	O-RING, SEAT RING
15	1	SNAP-RING/SPLIT-RING, STEM
16	12	STUD
17	12	NUT,HEX
18	6	CAPSCREW, SEAT RING
19	4	CAPSCREW, SEAT RETAINER
20	8	CAPSCREW, DIAPHRAGM PLATE
21	8	WASHER, LOCK, DIAPHRAGM PLATE
22	1	BUSHING, LOWER (SS SEATS ONLY)
23	2	SNAP RING (SS SEATS ONLY)

NOTES:
1. EXTERNAL/INTERNAL COATING & MATERIALS PER OCV MATERIAL OF CONSTRUCTION SHEET
2. ABS DESIGN APPROVED
3. UL LISTED DESIGN
4. TOTAL OF (9) 3/8-18 NPTF PIPE TAPS ARE PROVIDED FOR THE PILOT SYSTEM AND ACCESSORIES. (5) ON THE BONNET & (4) ON THE BODY.
5. ANGLE BODYS ARE ALSO AVAILABLE
6. WIDE OPEN CV: 450
7 VERTICAL STROKE: 1.5 INCHES

CHG	ECN	DATE	BY	REVISIONS
E				
D				
C				
B				
A				

REF DWG NO'S

MATERIAL

TOLERANCES
UNLESS NOTED
.XX ±.015
.XXX ±.005
ANGULAR ±0.5°
MACH FINISH 125

NO. REQ'D

DRAWN BY: JRK
DATE: 10-27-2016

SCALE

CHKD BY

DATE

OCV Control Valves
TULSA OKLAHOMA USA

6" 65 SERIES GLOBE VALVE

SIZE: C

DRAWING NUMBER: 6200D

REV

accelerator pilot

installation, operating, and maintenance instructions

model A224

GENERAL DESCRIPTION

The OCV Model A224 Accelerator Pilot is a hydraulically-operated, diaphragm-type three-way valve. It has two operating positions, one which provides full flow between two of its ports. It is normally used on a main valve subject to the following conditions: (1) A modulating-type pilot, such as rate of flow, is also used on the valve; (2) Faster-than-normal closing speed is required; and (3) An independent means, such as a solenoid pilot or float valve, is used to place the valve in or out of operation.

INSTALLATION

Referring to the attached assembly drawing for port identification, the A224 is installed on the main valve as follows: Port A is connected to the control pilot. Port B is connected to the bonnet of the main valve. Port D is connected to the energizing source (solenoid or float pilot).

THEORY OF OPERATION

Pressurizing the bonnet of the A224 pilot through Port D moves the stem assembly to its downward position. Orificed flow is now available from Port C (main valve inlet) to both Port A (Control pilot) and Port B (Main valve bonnet). In this position, the A224 acts as an ejector. Flow through it is modulated by the control pilot, which in turn modulates the main valve to maintain a constant flow rate or pressure.

When pressure is removed from the bonnet of the A224, pressure at Port C forces the stem assembly to its upward position. Now Port A (Control pilot) is blocked, and full flow is available from Port C (main valve inlet) to Port B (main valve bonnet). The main valve thus goes quickly closed.

MAINTENANCE

Because of the simplicity of design of the A224 pilot, required maintenance is minimal. Check fittings and bolts periodically for tightness, and inspect the body for damage or excessive buildup of foreign material.

TROUBLESHOOTING

A major malfunction in the A224 pilot would generally be evident in a failure of the main valve to open or close. However, keep in mind that such symptoms can be also caused by a malfunction in the main valve itself or in the control pilot(s). If the A224 is suspected, proceed as follows:

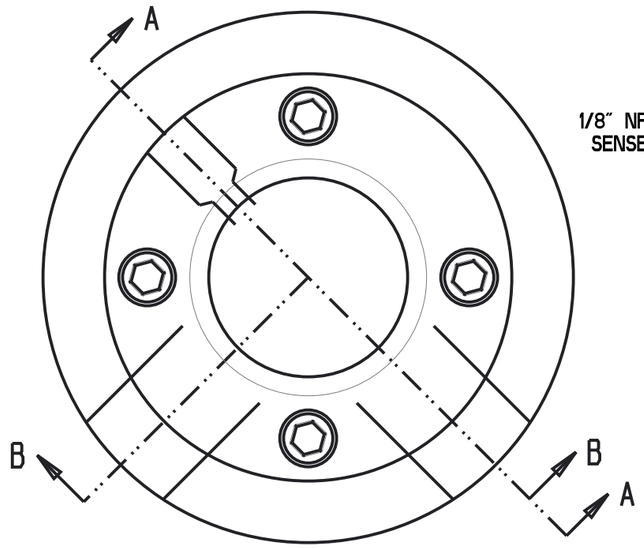
A. FAILURE OF PILOT TO OPEN MAIN VALVE

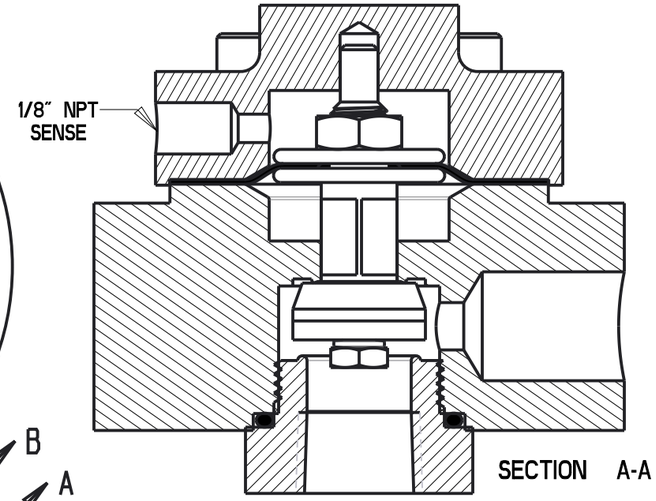
1. Ruptured diaphragm:
   (a) Detach sense line from the bonnet of the pilot and remove the bonnet. Inspect the diaphragm carefully for holes or cracks.
   (b) If damaged, replace with new diaphragm.
2. Pilot stem binding:
   (a) With bonnet removed, inspect the stem journal in the bonnet for buildup of foreign material.
   (b) Clean as necessary and reassemble pilot.
3. Obstruction in seat area: Disassemble pilot and remove obstruction.
4. Rubber seat damaged:
   (a) Disassemble pilot and examine seats for excessive wear or damage.
   (b) Replace if necessary and reassemble pilot.

B. FAILURE OF PILOT TO CLOSE MAIN VALVE

1. Pilot stem binding - Proceed as in A2, above.
2. Obstruction in seat area - Proceed as in A3, above.
3. Rubber seat damaged - Proceed as in A4, above.

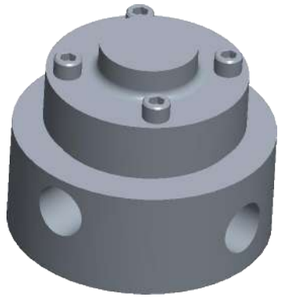
OCV Control Valves
7400 East 42nd Place / Tulsa, Oklahoma 74145 -4744 USA / (918) 627-1942 / 888-OCV-VALV / FAX 918-622-8916
e-mail: sales@controlvalves.com / website: www/controlvalves.com



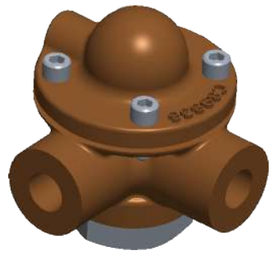


SECTION A-A

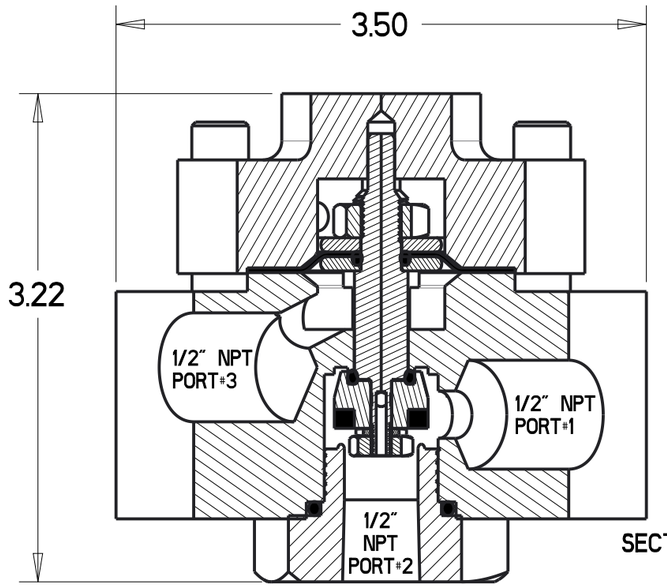
SCALE 0.500



SS,ALUMINUM - BAR

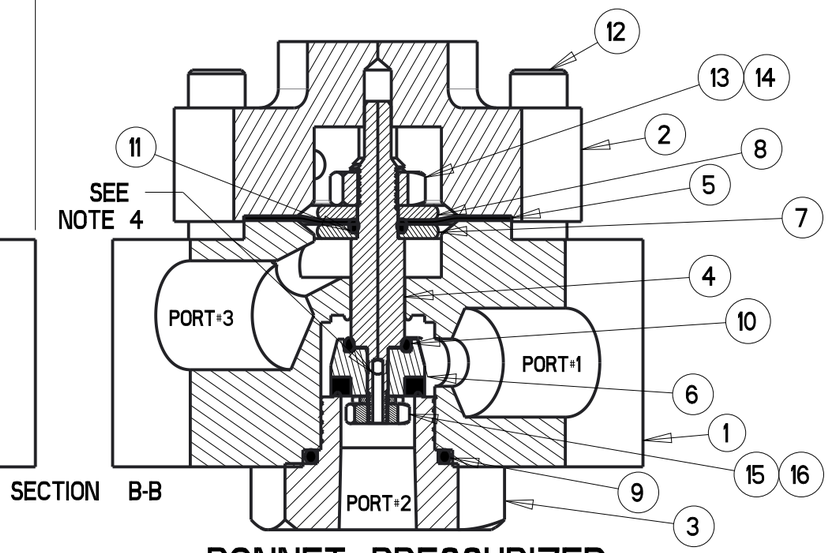


BZ - CASTING



BONNET VENTED

SECTION B-B



BONNET PRESSURIZED

ITEM	P/N	QTY	DESCRIPTION	MATERIAL
1	302100S	1	BODY	LL BRONZE
	302100			B61 BRONZE
	302700			STN. STEEL
	302700DSS			DUPLEX STN STEEL
	302500			ALUMINUM
2	304100S	1	BONNET	LL BRONZE
	304100			B61 BRONZE
	304700			STN. STEEL
	304700DSS			DUPLEX STN STEEL
	304500			ALUMINUM
3	300782	1	ADAPTER	STN. STEEL
	300502			ALUMINUM
	300382			MONEL
	300132			B61 BRONZE
4	314732	1	STEM	STN. STEEL
	314032			MONEL
5	694000	1	DIAPHRAGM	BUNA-N
	694100			VITON
	694400			EPDM
	694300			FLUOROSILICONE
6	310708	1	SEAT PLUG	SS/BUNA
	310748			SS/EPDM
	310008			MONEL/BUNA
	310729			SS/VITON
7	308109	1	LOWER DIAPH PLATE	BRASS
	308709			STN. STEEL
	308001			MONEL
8	308110	1	UPPER DIAPH PLATE	BRASS
	308710			STN. STEEL
	308002			MONEL
9	610216	1	O-RING	BUNA-N
	614216			EPDM
10	611111	1	O-RING	VITON
	614111			EPDM
11	611012	1	O-RING	VITON
	614012			EPDM
12	530708	4	SKT HD CAPSCREW	STN. STEEL, BZ BODY
	530701			STN. STEEL, SS BODY
13	590717	1	HEX NUT	STN. STEEL
	590720			316 STN STEEL
14	685702	1	LOCKWASHER	STN. STEEL
	685723			316 STN STEEL
15	590718	1	NUT, SEAT	STN. STEEL
	590760			316 STN STEEL
16	685720	1	LOCKWASHER, SEAT	STN. STEEL
	685724			316 STN STEEL

NOTES:
1. THIS PILOT IS TYPICALLY USED AS AN ACCELERATOR FOR MODULATING CONTROL VALVES.
2. ◎ RUBBER KITS:
   -BUNA: 930001
   -VITON: 930101
3. NSF APPROVALS AVAILABLE.
4. DRILLED PASSAGE SIMULATES EJECTOR ORIFICE.
5. PORT CONFIGURATION:
   A. BONNET PRESSURE: 1-3, (PORT 2 ORIFICE SUPPLY TO PORT 1&3)
   B. BONNET VENTED: 1-2

CHG	ECN	DATE	BY
E			
D			
C			
B			
A			

REVISIONS

REF DWG NO'S

MATERIAL: SEE TABLE

TOLERANCES: UNLESS NOTED
.XX ±.015
.XXX ±.005
ANGULAR ±0.5°
MACH FINISH 125

NO. REQ'D

SCALE: 1.000

DRAWN BY: JRK — DATE: 3-22-17

CHKD BY: RON — DATE: 3-22-17

OCV Control Valves
TULSA OKLAHOMA USA

ACCELERATOR PILOT
(MODULATING)

SIZE	DRAWING NUMBER	REV
B	A224	

interface float pilot

installation, operating and maintenance instructions

series 800

GENERAL DESCRIPTION

The OCV Series 800 Interface Flaot Pilot is a four-way pilot specifically designed for use in filter/separator systems. OCV manufactures the 800 with a stainless steel pilot block, with mounting flanges of ductile iron, aluminum, and stainless steel. Four different models are available:

MODEL 800B: Bottom-mounted
MODEL 800C: Side-mounted, victaulic connected
MODEL 800D: Side-mounted, flange-connected
MODEL 800H: Bottom-mounted (low profile float)

THEORY OF OPERATION

The four ports of the MODEL 800 PILOT and their piping connections are as follows:

1) POWER —To filter/separator discharge
2) WATER DRAIN —To bonnet of WATER DRAIN VALVE
3) ACC. VALVE —To bonnet of control pilot on main valve (usually OCV Model A224 Accelerator Pilot)
4) EXHAUST — To atmosphere.

The counter weighting of the MODEL 800's float enables it to ride the interface of two immiscible liquids. The float will rise in the heavier fluid (water) and sink in the lighter (flue). The float level controls the routing of flows inside the pilot block, interconnecting the ports in one of three configurations:

FLOAT LEVEL	PORT CONNECTIONS
LOW	POWER—>ACC. VALVE WATER DRAIN—>EXHAUST
MEDIAN	POWER —>ACC. VALVE POWER —> WATER DRAIN
HIGH	POWER —> WATER DRAIN ACC. VALVE —> EXHAUST

With the routing as shown, the main discharge valve will be open at the Low and Median positions, and closed at the High Position. The water drain valve will be closed at the Low Position and Open at the Median and High positions.

INSTALLATION

OCV ships the float/pilot assembly with the float restrained by wire or tape to avoid damage in transit. REMOVE THIS RESTRAINT BEFORE PROCEEDING WITH INSTALLATION.

All ports in the 800 block, as well as those in the bonnets of the accelerator pilot and water drain valve are drilled and tapped 1/8" NPT. The user or contractor is responsible for providing the fittings and tubing (1/4" OD stainless steel) necessary for connecting the various components. (See Theory of Operation.) NOTE: The bottom-mounted versions (800B and 800H) are available with an integral water drain valve. In those case the tubing between the pilot block and water drain valve was installed at the factory.

When installing the pilot assembly on the filter separa-

tor, make sure the float is free to travel over its full range of motion without contacting any internal components in the vessel.

MAINTENANCE

All of the Series 800 float pilots are equipped with manual test devices. It is highly recommended that these devices be actuated periodically to check for proper operation of the float pilot, main discharge valve, and water drain valve.

The 800B and 800H models have a push rod located on the bottom of the mounting flange. Push the rod up to lift the float and release it to lower the float.

The 800C and 800D models have a round knob with a screwdriver slot, located just to the right of the pilot block. Rotate the knob clockwise to raise the float; counter-clockwise to lower it.

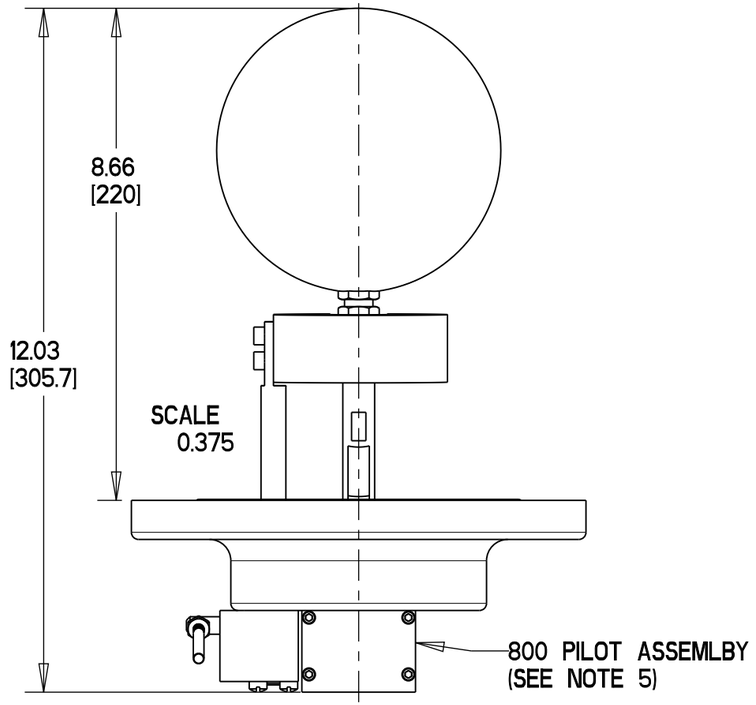
The 800D is also available with a ballasted manual tester (Model 800D-MTW). This consists of a rotating rod located just to the left of the pilot block. Pulling back on the rod removes part of the ballast from the float, now allowing it to float in fuel and rise to the full up position. Releasing the rod restores the ballast, allowing it to sink.

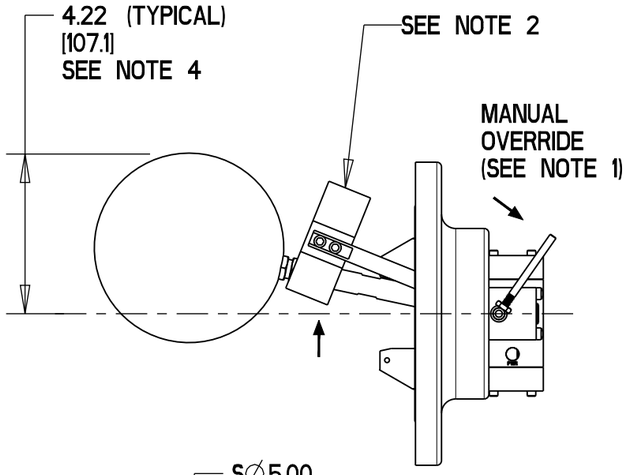
Remember that raising the float fully will close the main discharge valve and open the water drain valve. Returning the float to the full down position will reopen the main discharge valve and reclose the water drain valve.

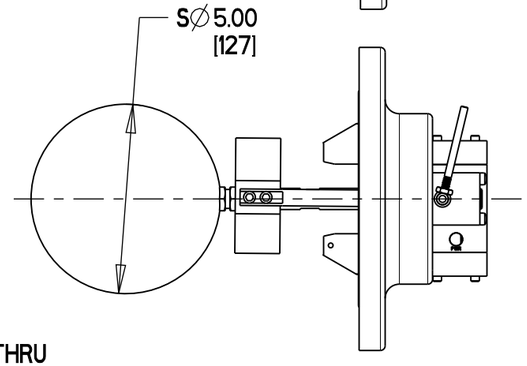
REPAIR

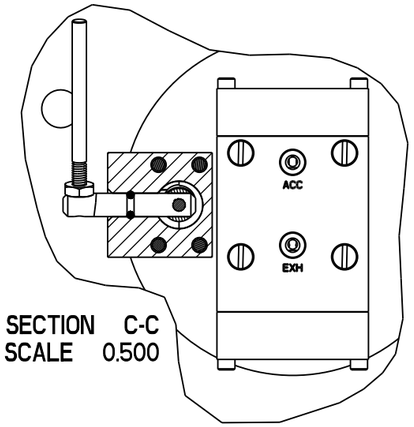
Due to the intricacy of the MODEL 800's assembly and the rarity of malfunctions, OCV docs not recommend field repair of the pilot. If system operation problems are traced to an internal malfunction of the pilot, contact OCV Engineering.

PART NUMBER	MODEL NUMBER.	FLANGE MATERIAL	800 BLOCK AND FLOAT ASSEMBLY MATERIAL
230751	800D-5MTW	DUCTILE IRON	STAINLESS STEEL
230753	800D-6MTW	STN. STEEL	
230755	800D-8MTW	ALUMINUM	

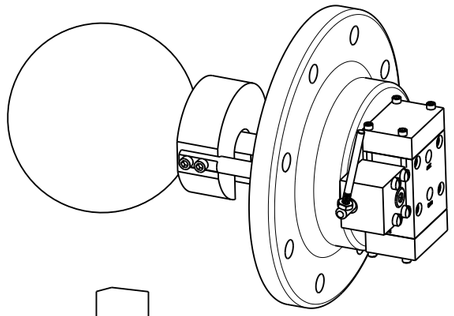


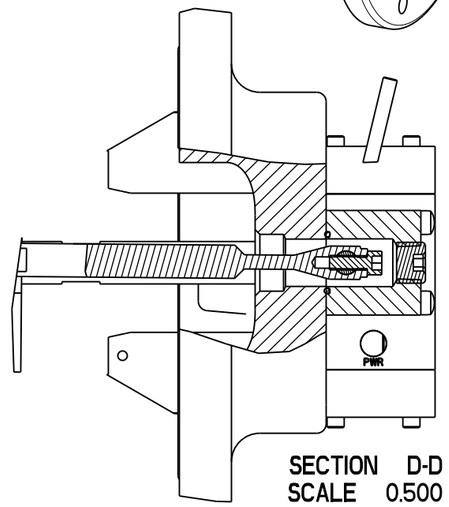




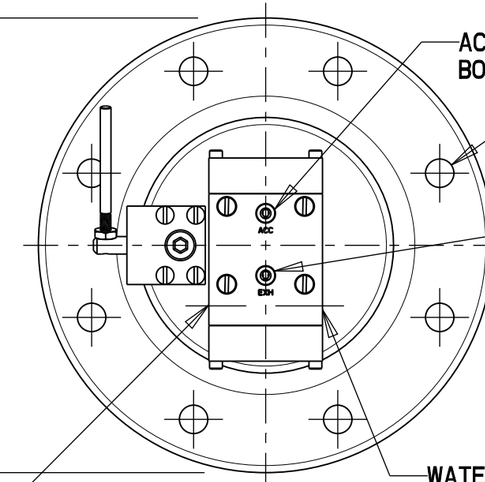


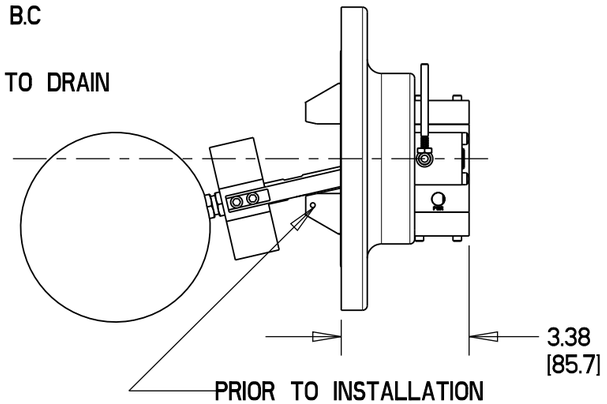
SECTION C-C
SCALE 0.500

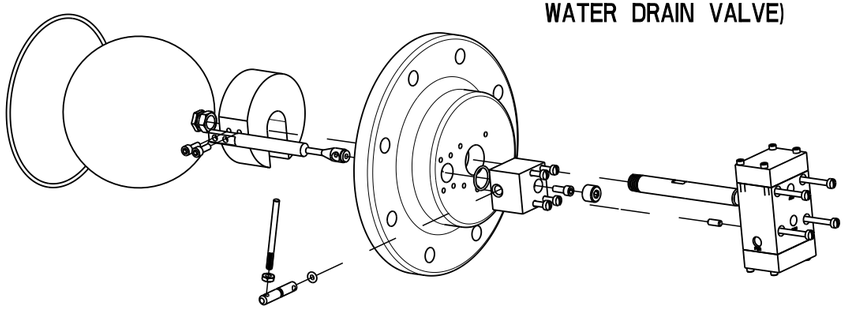




SECTION D-D
SCALE 0.500



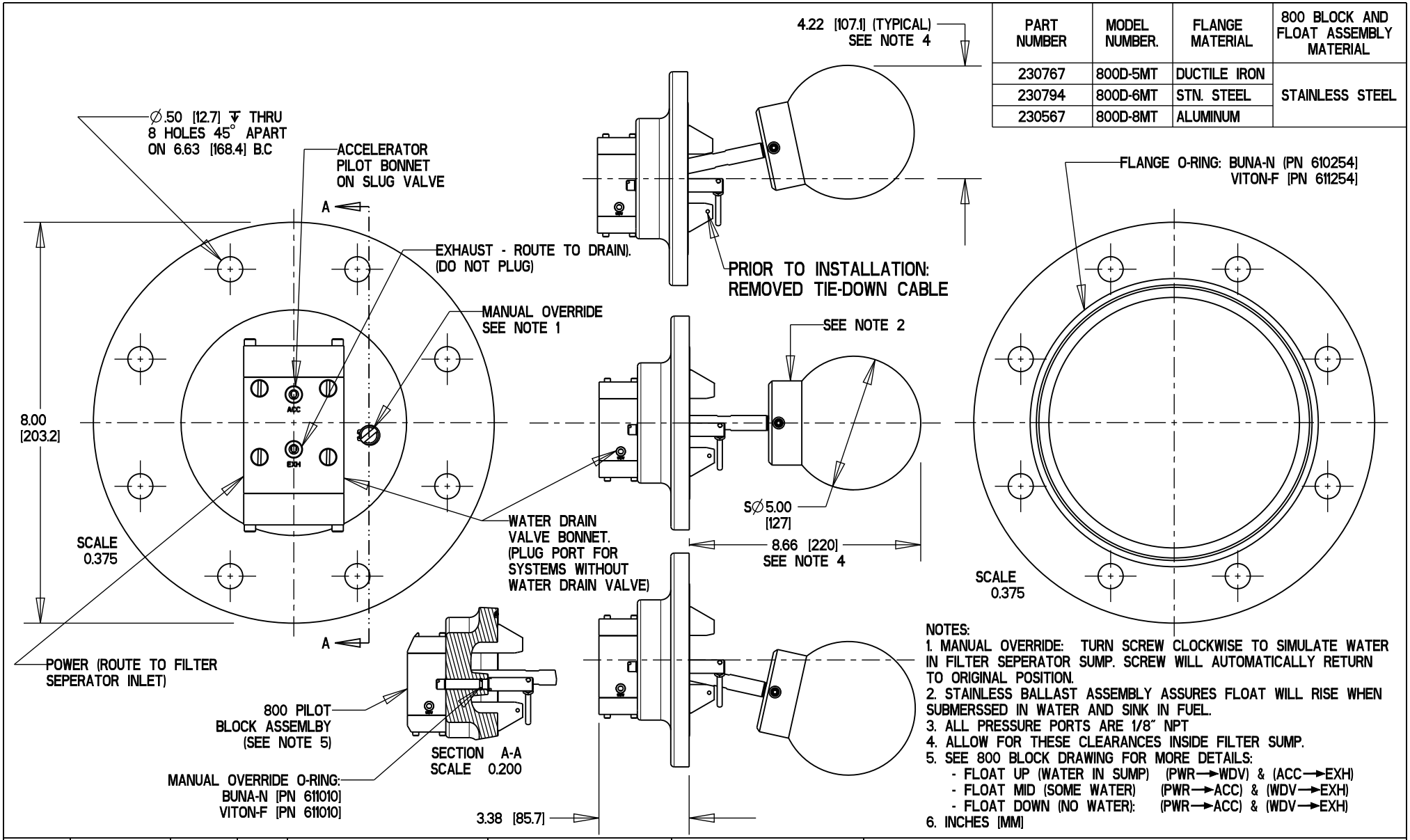




NOTES:
1. MANUAL OVERRIDE: PULLING OUTSIDE LEVER REMOVES BALLAST WEIGHT FROM FLOAT ASSEMBLY. TESTS THE FLOAT BALL INTEGRITY AND THE PILOT FUNCTION.
2. STAINLESS BALLAST ASSEMBLY ASSURES FLOAT WILL RISE WHEN SUBMERSSED IN WATER AND SINK IN FUEL.
3. ALL PRESSURE PORTS ARE 1/8" NPT
4. ALLOW FOR THESE CLEARANCES INSIDE FILTER SUMP.
5. SEE 800 BLOCK DRAWING FOR MORE DETAILS.
6. INCHES [MM]

					MATERIAL	TOLERANCES		OCV Control Valves		
E								TULSA OKLAHOMA USA		
D					SEE TABLE	UNLESS NOTED .XX ±.015 .XXX ±.005 ANGULAR ±0.5° MACH FINISH 125		FLOAT PILOT, FILTER SEPERATOR SUMP WITH BALLAST MANUAL TESTER		
C										
B										
A					NO. REQ'D	DRAWN BY	DATE	SIZE	DRAWING NUMBER	REV
CHG	ECN	DATE	BY			JRK	3-19-2018	B	800D_MTW	
REVISIONS				REF DWG NO'S	SCALE	CHKD BY	DATE			
					0.250	SDJ	3-19-2018			

PART NUMBER	MODEL NUMBER.	FLANGE MATERIAL	800 BLOCK AND FLOAT ASSEMBLY MATERIAL
230767	800D-5MT	DUCTILE IRON	STAINLESS STEEL
230794	800D-6MT	STN. STEEL	
230567	800D-8MT	ALUMINUM	



NOTES:
1. MANUAL OVERRIDE: TURN SCREW CLOCKWISE TO SIMULATE WATER IN FILTER SEPERATOR SUMP. SCREW WILL AUTOMATICALLY RETURN TO ORIGINAL POSITION.
2. STAINLESS BALLAST ASSEMBLY ASSURES FLOAT WILL RISE WHEN SUBMERSSED IN WATER AND SINK IN FUEL.
3. ALL PRESSURE PORTS ARE 1/8" NPT
4. ALLOW FOR THESE CLEARANCES INSIDE FILTER SUMP.
5. SEE 800 BLOCK DRAWING FOR MORE DETAILS:
   - FLOAT UP (WATER IN SUMP) (PWR→WDV) & (ACC→EXH)
   - FLOAT MID (SOME WATER) (PWR→ACC) & (WDV→EXH)
   - FLOAT DOWN (NO WATER): (PWR→ACC) & (WDV→EXH)
6. INCHES [MM]

REVISIONS				REF DWG NO'S
CHG	ECN	DATE	BY	
A				
B				
C				
D				
E				

MATERIAL: SEE TABLE

TOLERANCES: UNLESS NOTED
.XX ±.015
.XXX ±.005
ANGULAR ±0.5°
MACH. FINISH 125

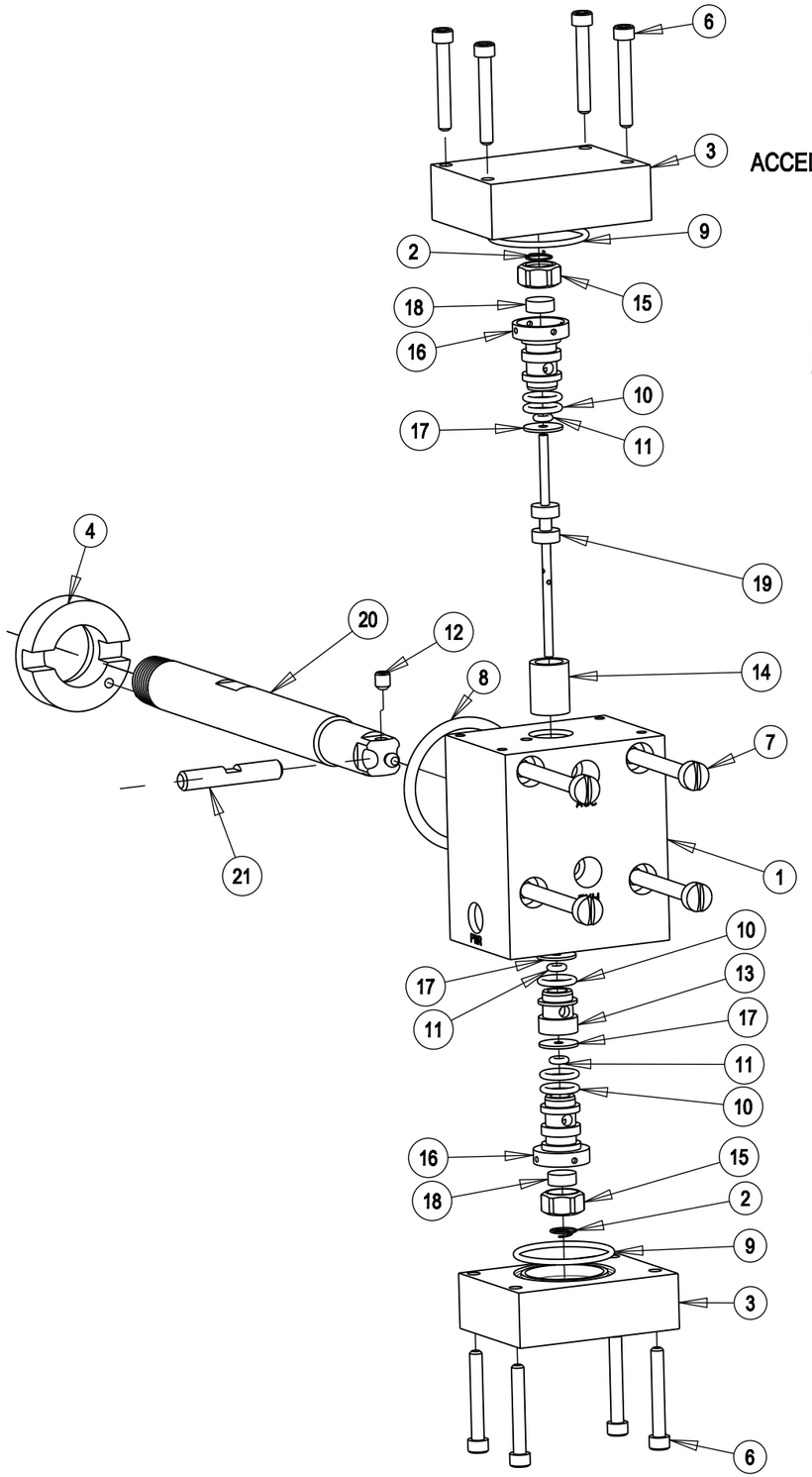
NO. REQ'D	DRAWN BY	DATE
	JRK	3-19-2018
SCALE	CHKD BY	DATE
0.200	SDJ	3-19-2018

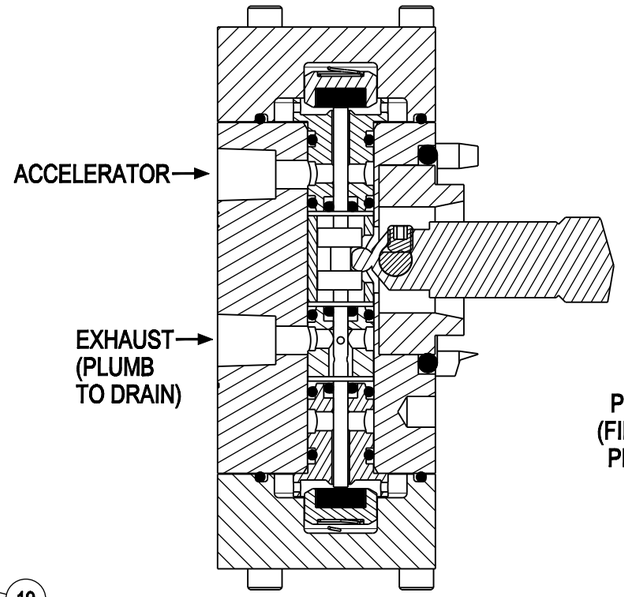
OCV Control Valves

TULSA OKLAHOMA USA

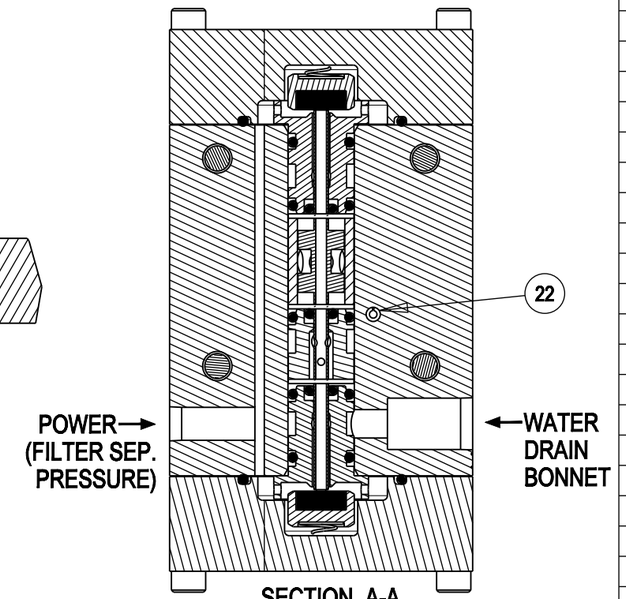
FLOAT PILOT, FILTER SEPERATOR SUMP WITH MECHANICAL MANUAL TESTER

SIZE	DRAWING NUMBER	REV
A	800D-MT	

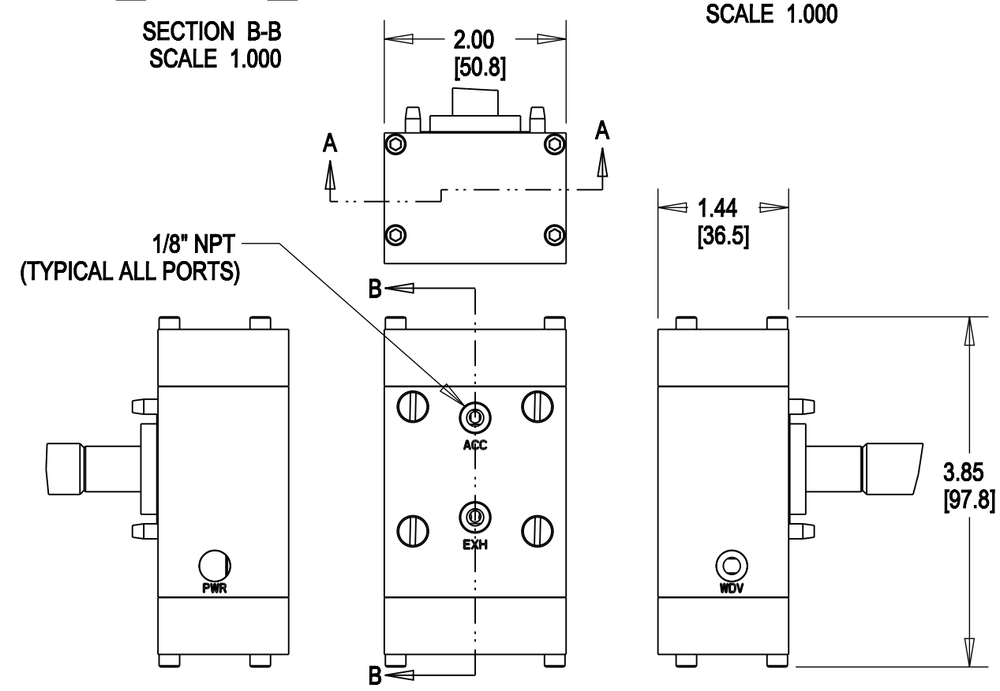




SECTION B-B
SCALE 1.000



SECTION A-A
SCALE 1.000



ITEM	QTY	DESCRIPTION
1	1	BODY
2	2	SPRING
3	2	CAP
4	1	ADAPTER
6	8	SCREW, CAP MOUNING
7	4	SCREW, BODY MOUNTING
8	1	O-RING, ADAPTER
9	2	O-RING, CAP
10	5	O-RING, ORIFICE & PLUG
11	3	O-RING, STEM
12	1	SET SCREW
13	1	PLUG
14	1	BUSHING
15	2	SEAT
16	2	ORIFICE
17	3	SPACER
18	2	DISC
19	1	STEM
20	1	LEVER
21	1	PIN, PIVOT

NOTES.
1. INCHES [MM].
2. 800 SERIES PILOT BLOCK IS USED ON MODEL B,C,D,F,H FILTER SEPARATO FLOAT ASSEMBLIES. REFER TO SPECIFIC SERIES DRAWINGS FOR MORE DETAILS.
3. FLOAT DOWN (NO WATER).
   (PWR→ACC) & (WDV→EXH)
4. FLOAT UP (WATER IN SUMP)
   (PWR→WDV) & (ACC→EXH)
5. IF NOT USING HYRAULIC WATER DRAIN, PLUG WDV PORT.

E				
D				
C				
B				
A				
CHG	ECN	DATE	BY	
REVISIONS				REF DWG NO'S

MATERIAL	TOLERANCES
	UNLESS NOTED .XX ±.015 .XXX ±.005 ANGULAR ±0.5° MACH FINISH 125

NO. REQ'D	DRAWN BY	DATE
	JRK	02-26-2018
SCALE	CHKD BY	DATE
0.600	SDJ	02-26-2018

OCV Control Valves
TULSA OKLAHOMA USA

800 SERIES BLOCK ASSEMBLY FILTER SEPARATOR FLOAT PILOTS

SIZE	DRAWING NUMBER	REV
B	800	

installation, operating, and maintenance instructions

water drain valve

model 200

GENERAL DESCRIPTION

The OCV Valve Model 200 Water Drain Valve is a normally-closed, diaphragm-actuated globe valve. OCV regularly manufactures the following models:

MODEL	SIZE	MATERIAL	PRESSURE RATING (psi)
200	3/4, 1"	Aluminum	200
225	3/4, 1"	Bronze	225
250	3/4, 1"	Ductile Iron	250
275	3/4, 1"	Stainless Steel	275

THEORY OF OPERATION

The Model 200's spring holds the valve in its normal, closed position until pressure is routed to its bonnet. The force exerted by this pressure moves the seat assembly to its open position. When bonnet pressure is relieved spring force closes the valve once again.

INSTALLATION

OCV furnishes the Model 200 as a separate unit or premounted on the housing of an OCV bottom-mounted float pilot (800B or 800H).

The integral model requires only connection of the Model 200's discharge to a drain pipe.

To install the separate water drain valve:

Thread the valve onto the drain piping of the filter/separator vessel with the flow arrow pointing *away* from the vessel. Connect the bonnet port WATER DRAIN port of the 800-series float pilot.

MAINTENANCE

The MODEL 200 requires no routine maintenance other than a periodic check for leaks at connections and between the pilot body and adaptor.

TROUBLESHOOTING

The following problems can occur due to an internal malfunction of the water drain valve:

SYMPTOM	PROBABLE CAUSE	ACTION
(a) VALVE FAILS TO OPEN EVEN THOUGH SUPPLY PRESSURE IS REACHING BONNET	RUPTURED DIAPHRAGM	REPLACE DIAPHRAGM
(b) LEAKING THROUGH SEAT EVEN THOUGH BONNET IS EXHAUSTED TO ATMOSPHERE	FAULTY SEAT DISC	REPLACE SEAT DISC
(c) LEAKING BETWEEN VALVE BODY AND ADAPTOR (OR BOTTOM PLATE)	FAILURE OF O-RING TO SEAL	REPLACE O-RING

REPAIR

Field maintenance personnel can perform the following repairs:

1) Replace diaphragm: Remove bolts. Pull bonnet. Remove diaphragm. Install new diaphragm. Reassemble.
2) Replace seat disc: Remove bolts. Separate body from adaptor (or bottom plate). Remove spring and seat assembly. Remove seat retainer, flat washer and seat disc. TREAT SEAT RETAINER THREADS WITH PIPE JOINT COMPOUND. Reassemble. Use caution in mating body and adaptor to avoid damage to sealing O-ring.
3) Replace O-ring: Remove bolts from adaptor (or bottom plate). Remove, replace and lubricate O-ring. Reassemble. Avoid damaging O-ring when mating.

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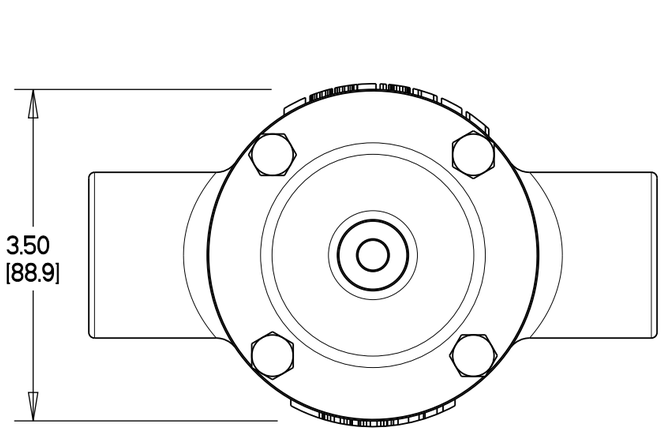
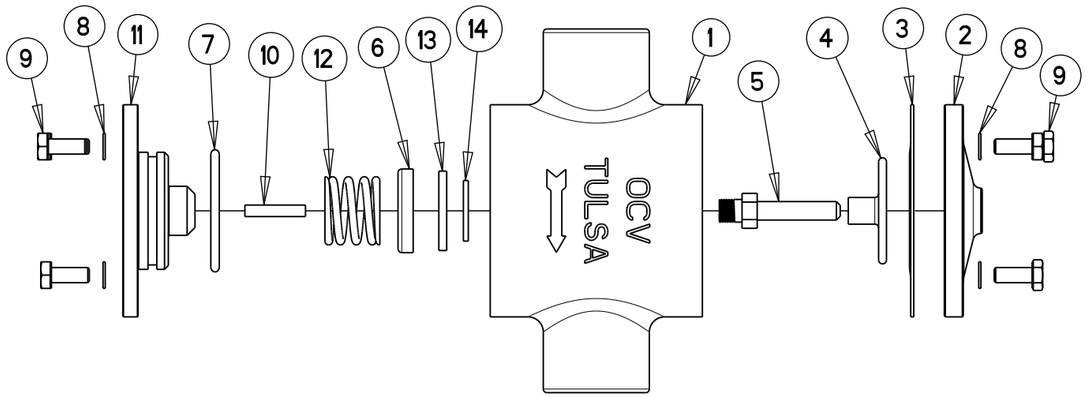
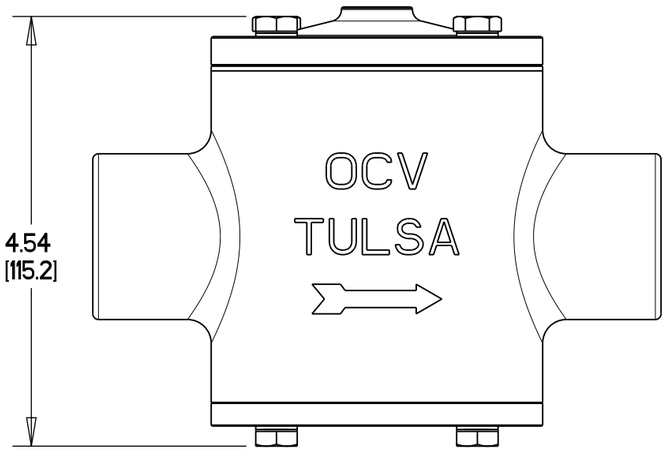
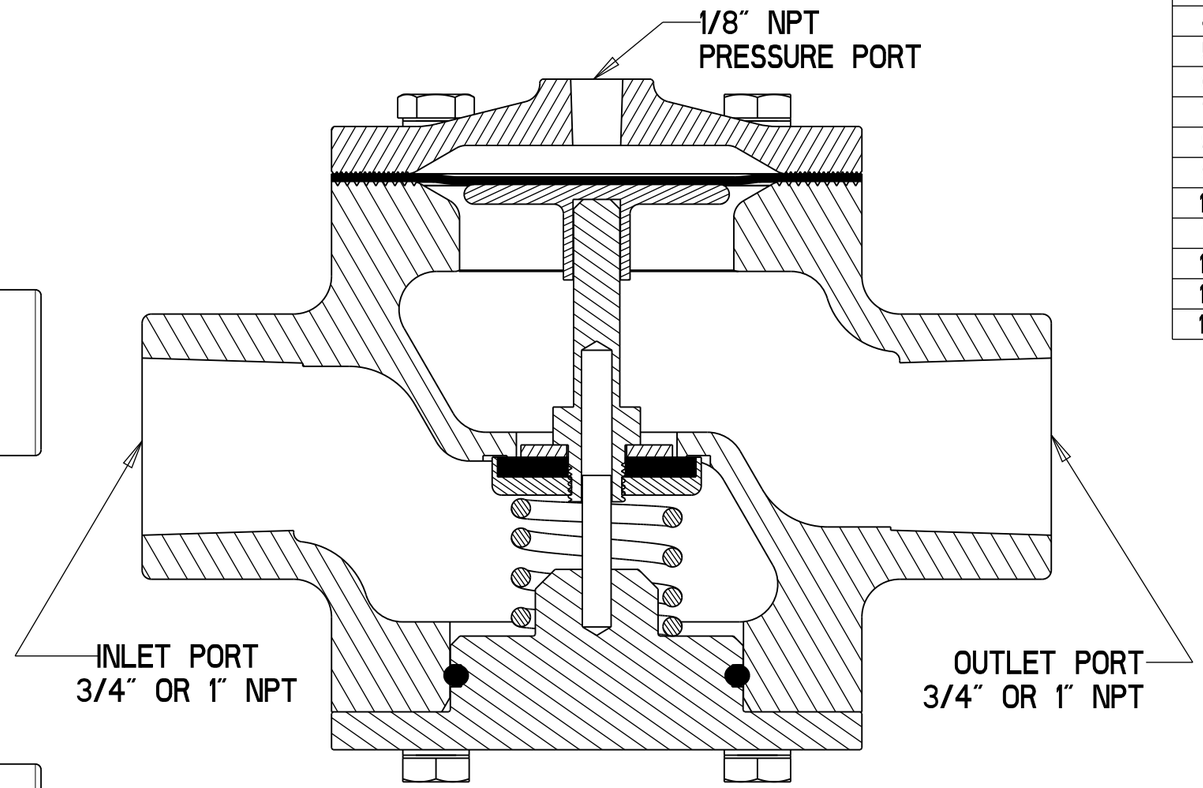
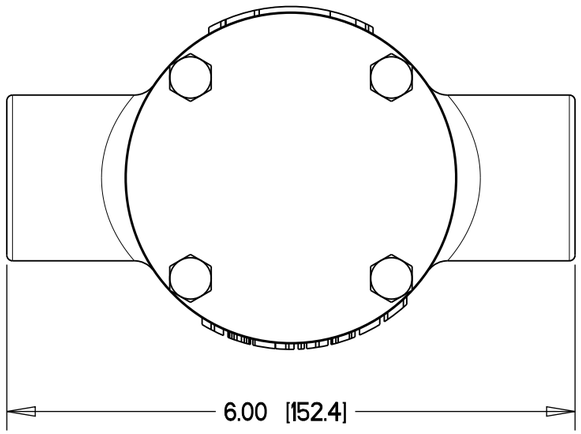




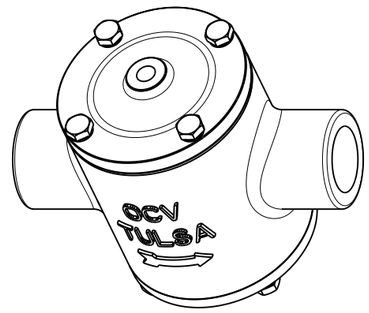






ITEM	P/N	QTY	DESCRIPTION	PORT SIZE (INCHES)	MATERIEAL
1	301412	1	BODY	0.75	DI
	301422				CB
	301432				CA
	301722				SS
	301413			1	DI
	301423				CB
	301433				CA
	301742				SS
2	304523	1	BONNET		CA
	304123				CB
	304723				SS
3	690025	1	DIAPHRAGM		BUNA-N
	690125				VITON
4	307730	1	DIAPHRAGM PLATE		SS
5	309712	1	SEAT RETAINER		SS
6	310712	1	SEAT CUP		SS
7	610132	1	O-RING, COVER		BUNA-N
8	685700	8	LOCKWASHERS		SS
9	531725	8	CAPSCREWS		SS
10	620704	1	ROLL PIN		SS
11	300766	1	COVER,BTM		SS
12	650724	1	SPRING		SS
13	691511	1	SEAT DISC		VITON
14	685711	1	WASHER		SS

NOTES:
1. INCHES [MM].
2. PRESSURIZE TOP CHAMBER TO OPEN PILOT.
3. RUBBER REPAIR KITS: P/N 920016. BUNA DIAPHRAGM AND VITON SEAT.
4. PILOT INSTALLED ON THE SUMP OF A FILTER SEPERATOR IN FUELING SYSTEMS



CHG	ECN	DATE	BY
E			
D			
C			
B			
A			

REVISIONS

REF DWG NO'S

MATERIAL: SEE TABLE

TOLERANCES: UNLESS NOTED
.XX ±.015
.XXX ±.005
ANGULAR ±0.5°
MACH FINISH 125

NO. REQ'D

SCALE

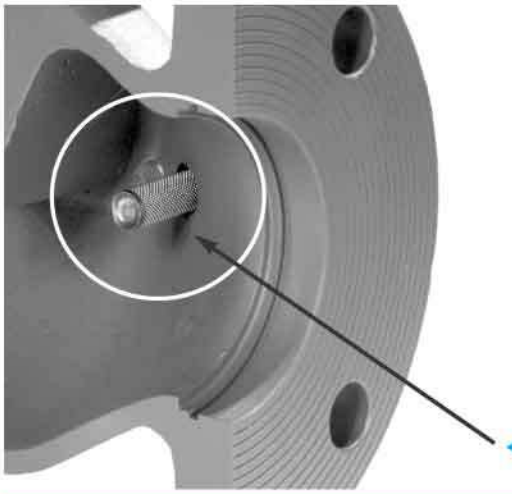
DRAWN BY: JRK — DATE: 6-18-2018

CHKD BY: SDJ — DATE: 6-18-2018

OCV Control Valves
TULSA OKLAHOMA USA

WATER DRAIN PILOT

SIZE	DRAWING NUMBER	REV
B	200	



DESCRIPTION

The 123 Inline Strainer installs in the inlet side port of the main valve, and protects the pilot system from solid contaminates 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.

DIMENSIONS

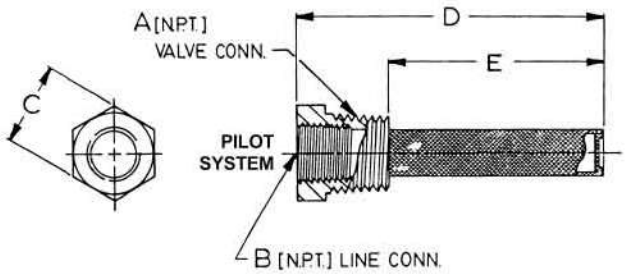
PART NUMBER	A	B	C	D	E	USED ON VALVE SIZE
660704	3/8	1/4	11/16	2 3/16	1 1/2	1 1/4"-6"
660705	1/2	3/8	7/8	2 1/4	1 1/2	8"-10"
660706	3/4	1/2	1 1/8	2 3/8	1 1/2	12"-16"

MATERIALS

Inline strainers are all-stainless steel construction.

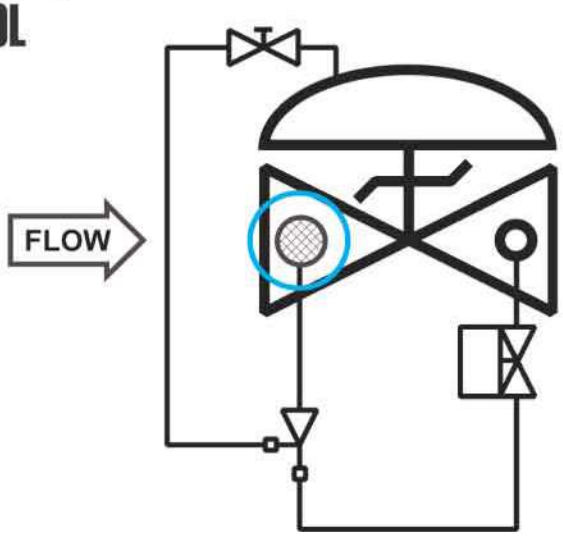
SCREEN SIZE

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.

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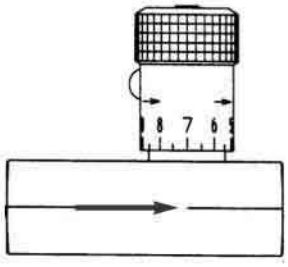
email: sales@controlvalves.com • **website:** www.controlvalves.com

Inline Strainer 123

DESCRIPTION

The Model 141-3 Flow Control Valve is an adjustable restriction device, installed in the control circuit tubing. The flow control valve differs from a standard needle valve in that it includes an internal check valve. Thus it allows free flow in one direction (through the check) and restricted flow in the other direction (through the needle). The setting of the flow control valve meters the flow into or out of the main valve diaphragm chamber, thus controlling either the opening or closing speed of the main valve. These can be installed in series for separate opening and closing speed control. Restricted flow is in the direction of the flow arrow on the body.

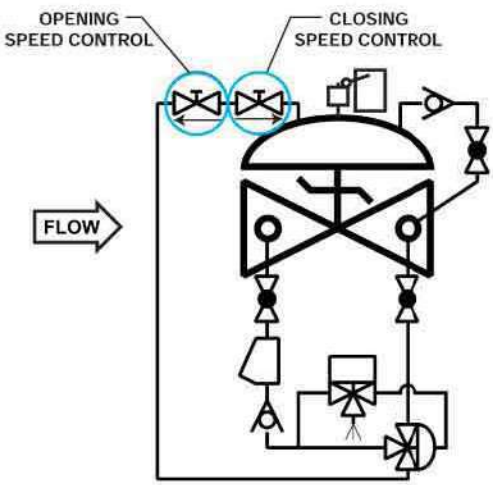


MODEL 141-3 MATRIX

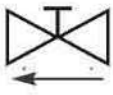
MATERIAL	PART NUMBER	INLET/OUTLET (NPT)	A	USED ON VALVE SIZE*
Brass	682100	1/4	2 3/8	1 ¼"-2"
Brass	682101	3/8	2 3/4	2 ½"-6"
Brass	682102	1/2	3 1/4	8"-10"
Brass	682103	3/4	3 7/8	12"-16"
Stn. Steel	682700	1/4	2 3/8	1 ¼"-2" Stn.
Stn. Steel	682701	3/8	2 3/4	2 ½"-6"
Stn. Steel	682702	1/2	3 1/4	8"-10"
Stn. Steel	682703	3/4	3 5/8	12"-16"

Note: Flow control valve use and size may vary on valve application. Consult factory.

SCHEMATIC SYMBOL



The Model 141-3 Flow Control Valve is shown on OCV Valve Schematics as:



EXAMPLE: Shown here on a MODEL 125 Pump Control Valve as separate opening and closing speeds.

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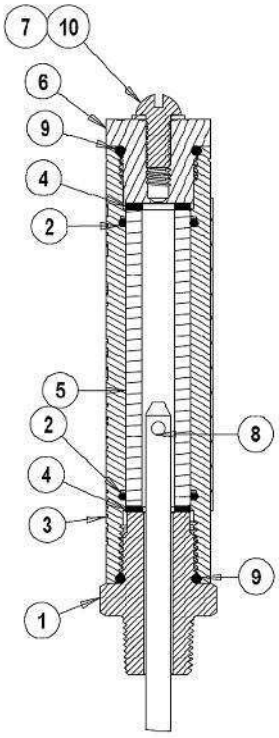
VALVE POSITION INDICATOR (LIQUID FILLED) 155L

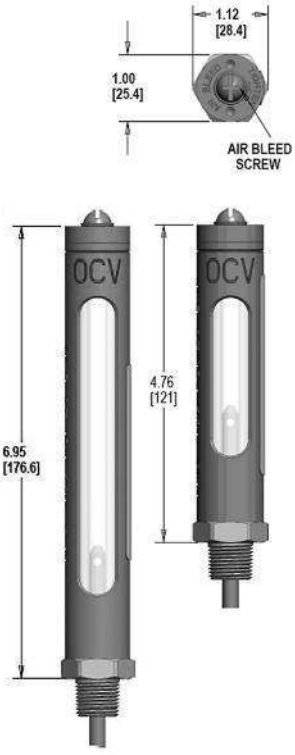
DESCRIPTION

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 main valve bonnet, a rod threaded into the main valve stem, a sealed Pyrex sight glass, and protective stainless steel housing. The indicator rod moves as the main valve opens and closes. The 155L may be installed on virtually any OCV Model 65 Control Valve that requires only visual indication. Installation can be done without disassembly of the main valve. The 155L provides a convenient point for bleeding the air during system startups via a screw located on the top adapter.

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

MODEL 155L MATRIX

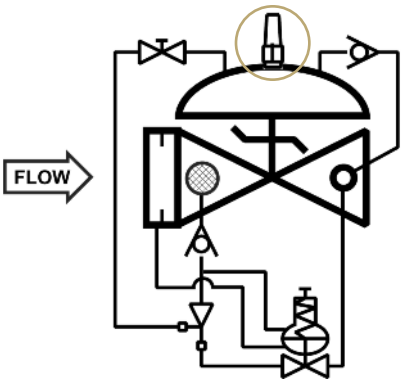




ITEM	DESCRIPTION	QTY	MATERIAL
1	ADAPTOR, LOWER	1	SS
2	O-RING, INNER HOUSING	2	FKM
3	HOUSING	1	SS
4	GASKET, CUSHION	2	FKM
5	SIGHT GLASS	1	PYREX
6	ADAPTOR, UPPER	1	SS
7	SCREW, AIR BLEED	1	SS
8	INDICATOR STEM	1	MONEL
9	O-RING, OUTER HOUSING	2	FKM
10	SEAL WASHER, AIR BLEED	1	FKM / SS

MAX WORKING PRESSURE: 400 PSI

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

Order P/N 155L Assembly With Stem	Main Valve Size INCHES (MM)	Valve Stroke (Inches)
255750	1.25 (32)	0.375"
	1.5 (40)	
	2 (50)	0.5"
	2.5 (65)	0.75"
	3 (80)	1"
255751	4 (100)	1.375"
255752	6 (150)	1.5"
255753	8 (200)	2.5"
	10 (250)	3"
255754	12 (300)	3"
255755	14 (350)	3.5"
	16 (400)	4.3"

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