installation, operating and maintenance instructions

electrically operated deluge valve (energize to open)

model 115-4DV

SK7000

GENERAL DESCRIPTION

The OCV Model 115-4DV solenoid control deluge valve is designed to open or close in response to an electrical signal. It consists of the following components:

1. **Model 65 Basic Valve**, a hydraulically-operated, diaphragm-actuated, angle valve with an elastomer-on-metal seal.
2. **Model 452 Solenoid Pilot** (SK7000) a three-way, electrically-operated valve.
3. **Model 330P** or **Model 3600S Three-Way Auxiliary Pilot,** a three-way, hydraulically-operated valve.
4. **Model 159 Y-Strainer**. The strainer protects the pilot system from solid contaminants in the line fluid.
5. Two **Model 141-4 Ball Valves**, useful for isolating the pilot system for maintenance or troubleshooting. (See schematic diagram) Item 5B is a manual override to open the main valve without energizing the solenoid valve.
6. **Model 155 Visual Indicator** is used to visually see the valve's position at a glance. **Model 150** or **Model 31** single or dual limit switch assemblies are also available and can be used to send a remote electrical signal.

At user option, the 115-4DV may also be equipped with the following:

1. Model 150 Limit Switch Assembly (includes visual indicator). Similar to Model 31 above.
2. Model 141-3 Flow Control Valve, set up as a closing speed control or as an opening speed control. Or two 141-3's can be provided to give separate, independent control of both closing and opening speeds.

THEORY OF OPERATION **(refer to schematic diagram):**

Operation of the 115-4DV is extremely simple. Energizing the coil of the solenoid pilot connects port "1" (supply) to port "2" (common), which pressurizes the diaphragm chamber of the three-way auxiliary pilot. This pilot shifts to relieve pressure from the diaphragm chamber of the main valve. Thus, the main valve opens.

Conversely, deenergizing the coil of the solenoid pilot connects port "2" (common) and port "3" (exhaust), which vents the diaphragm chamber of the three-way auxiliary pilot. The pilot shifts to route full inlet pressure to the diaphragm chamber of the main valve. Thus, the main valve closes fully.

INSTALLATION

The 115-4DV is furnished fully factory-assembled and ready for installation at the appropriate point in the system. The user is referred to the Basic Valve section of this manual for full installation details.

Once the main valve is installed, the solenoid pilot is wired into the control system. This is a simple two-wire hookup.

STARTUP AND ADJUSTMENT

The following procedures should be followed in the order presented in order to effect an initial statup of the 115-4DV.

1. Make sure the coil of the solenoid pilot is deenergized.
2. Start the pump, or otherwise start the system flowing. The main valve will at this time be fully closed.
3. Carefully loosen one of the pipe plugs in the main valve bonnet until fluid appears around the threads. **Caution: loosening the pipe plug too much will allow the main valve to open**. When only clear fluid (no air) is discharging, retighten the plug.
4. Energize the solenoid pilot. Observe that the main valve opens.
5. Deenergize the solenoid pilot and observe that the valve closes.
6. Utilize the manual override ball valve 5B to assure the deluge valve functions in that mode as well. After the main valve opens, simply reclose 5B and the main valve should reclose.

MAINTENANCE

Due to the simplicity of design of the 115-4DV, required maintenance is minimal. However, the following checks, periodically performed, can do much to keep the valve operating properly and efficiently.

1. Check for chipped or peeling paint. Touch up as required.
2. Check for leaks at fittings and around flanges and connections. Tighten as required.
3. Check for frayed or loose electrical connections.
4. Check the y-strainer screen for buildup of solid material. Clean as required. This point is most important, as a clogged strainer can keep the valve from closing. On new installations, it is recommended that the strainer be checked every day or two until experience dictates a greater or lesser interval. Strainer maintenance is covered in detail on a special page later in this manual.

TROUBLESHOOTING

In the event of malfunction of the 115-4DV, the following guide should enable the technician to isolate the specific cause of the problem and take the appropriate corrective action.

A. MAIN VALVE FAILS TO OPEN:

1. Valve closed upstream or downstream of the 115-4DV. Open as required.
2. Solenoid not energized. Check electrical system.
3. Solenoid pilot stuck closed or coil burned out. Assure correct voltage is being supplied to the coil. Coil might need replacing.
4. Stem of three-way auxiliary pilot binding or seat deteriorated. Disassemble pilot and determine cause. See 330P or 3600S section of this manual.
5. Stem of main valve binding. Disassemble valve and determine cause. See the Model 65 Basic Valve section of this manual. A quick way to determine whether or not the main valve is binding, is to utilize the manual override ball valve 5B.

B. MAIN VALVE FAILS TO CLOSE:

1. Upstream pilot system ball valve 5A closed. Open as required.
2. Solenoid not deenergized. Check electrical system.
3. Strainer clogged. Clean as required.
4. Solenoid pilot stuck open. Check for internal obstruction.
5. Three-way auxiliary pilot diaphragm ruptured, stem binding or seat deteriorated. Disassemble pilot and determine cause. See 330P or 3600S section of this manual.
6. Close pilot system ball valve 5A and loosen a pipe plug in the main valve bonnet. A **continuous** discharge of fluid from the loosened plug indicates that the main valve diaphragm is rup-

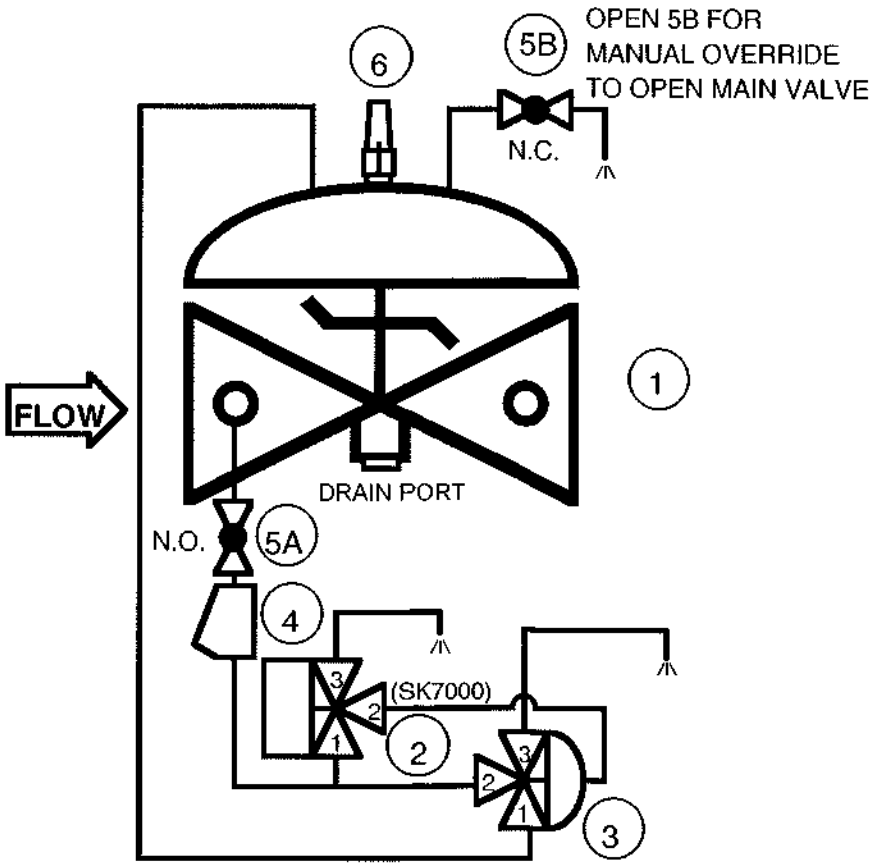
tured. Replace diaphragm. See the Model 65 Basic valve section of this manual. **Caution: when venting the main valve bonnet to atmosphere, the main valve will open.**

7. Main valve stem binding or object in valve. Disassemble valve and determine cause. See Basic Valve section of this manual.

MODEL 115-4DV

RON
4-4-97

DELUGE SOLENOID CONTROL VALVE
(Energize to Open)

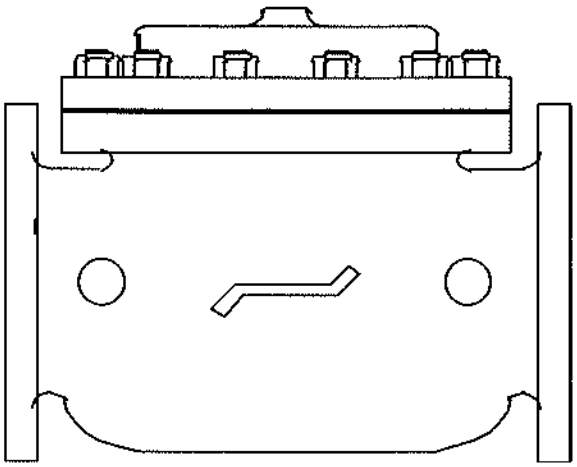


DRAIN PORT (OPTIONAL)
(WATER SUPPLY DRAIN)
2" NPTF ON 4" THRU 10"
1 1/4" NPTF ON 3"
1/2" NPTF ON 2"

ITEM	PART NO.	QTY	DESCRIPTION
1	65	1	BASIC VALVE ASSEMBLY
2	452	1	THREE-WAY SOLENOID PILOT
3	3600S or 330P	1	ACCELERATOR PILOT
4	159	1	Y-STRAINER
5	141-4	2	BALL VALVE
6	155	1	VISUAL INDICATOR

OCV Control Valves

7400 East 42nd Place • Tulsa, Oklahoma 74145-4744 U.S.A.
Phone: 888-628-8258 • 918-627-1942 • Fax: 918-622-8916 • e-mail: ocv@controlvalves.com
• website:www.controlvalves.com



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.

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

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 examination 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

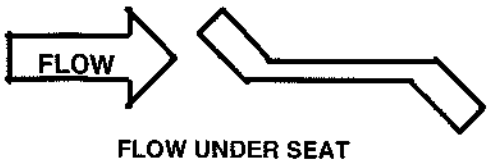
   c. Object lodged in valve - See Procedure B

3. VALVE OPENS AND CLOSES BUT LEAKS WHEN CLOSED

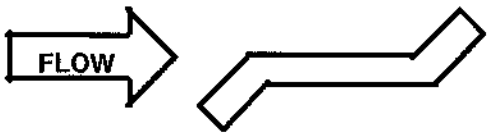
   a. Seat disc damaged - See Procedure C

   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.*



FLOW UNDER SEAT
DIAPHRAGM FAILURE = VALVE FAILS TO CLOSE



FLOW OVER SEAT
DIAPHRAGM FAILURE = VALVE FAILS TO OPEN

PROCEDURE A : DIAPHRAGM REPLACEMENT

1. Isolate the valve from the system by closing upstream amd 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.

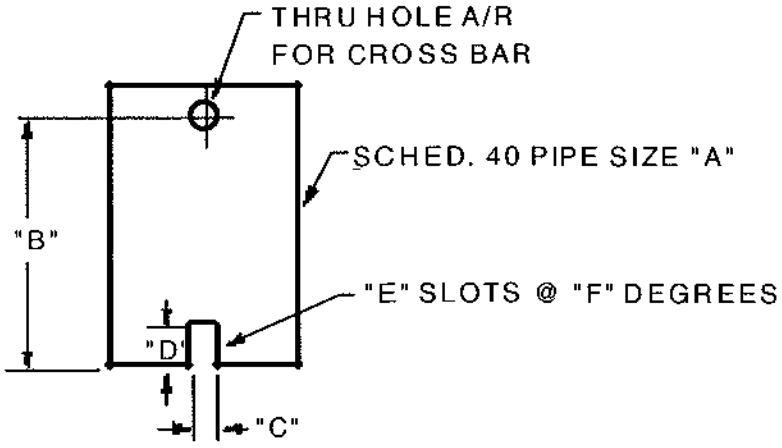
6. Reinstall the seat retainer and tighten the seat retainer screws.

7. Reassemble the valve, following Steps 5 and 6 of Procedure B.

PROCEDURE D: SEAT RING REPLACEMENT

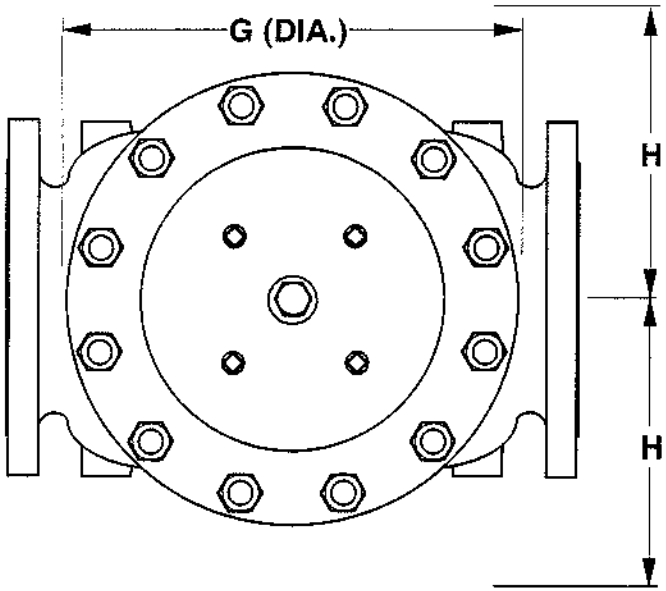
NOTE: It is rare for a seat ring to require replacement. Minor nicks and scratches in the seating surface can usually be smoothed out with emery cloth.

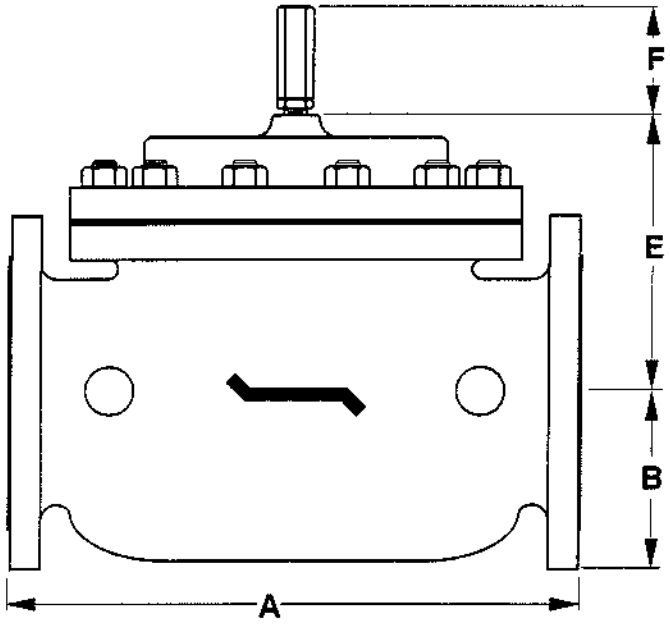
1. Perform Steps 1 and 2 of Procedure B, above.
2. If you are working on a 4" or smaller valve, follow Steps 3 thru 9, below.
3. If you are working on a 6" or larger valve, follow Steps 10 thru 16, below.
4. Seat rings in valves 4" and smaller are threaded into the valve body. To remove, you will need 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.



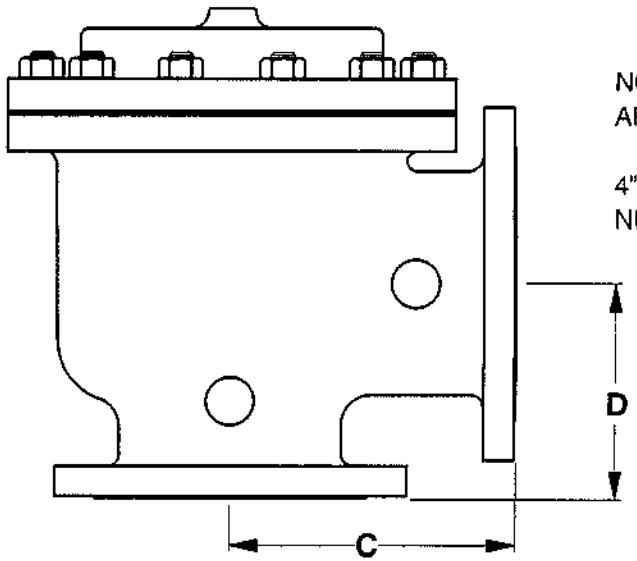
VALVE SIZE	"A" PIPE SIZE	"B" MIN. LENGTH	"C" SLOT WIDTH	"D" SLOT DEPTH	"E" NO. OF SLOTS	"F" SLOT SPACING
1-1/4"	3/4"	6"	3/8"	3/8"	2	180°
1-1/2"	3/4"	6"	3/8"	3/8"	2	180°
2"	1-1/2"	7"	3/8"	3/8"	2	180°
2-1/2"	2"	8"	1/2"	1/2"	3	120°
3"	2-1/2"	9"	5/8"	5/8"	2	180°
4"	3"	10"	5/8"	5/8"	2	180°

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	S.E	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

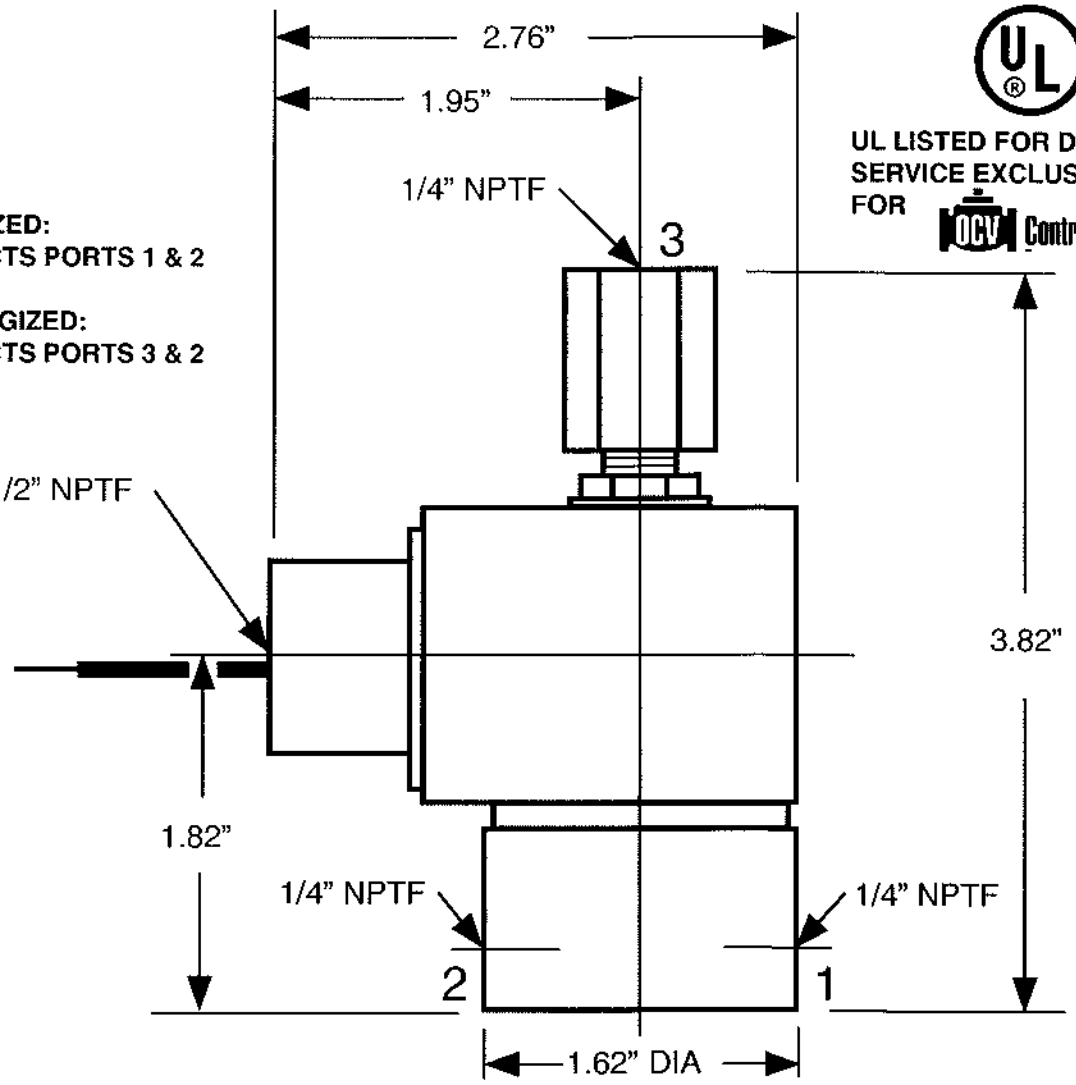
TOLERANCES
UNLESS NOTED
FRACTIONAL ±1/64
DECIMAL ±.005
MACH. FINISH 125
ANGULAR ±1/2°

DRAWN BY	DATE
SDJ	10-6-97
CHKD. BY	DATE

OCV Control Valves
TULSA, OKLAHOMA U.S.A.

GENERAL VALVE DIMENSIONS

SIZE	DRAWING NUMBER	REV.
A	65D	B



ENERGIZED:
CONNECTS PORTS 1 & 2

DEENERGIZED:
CONNECTS PORTS 3 & 2

UL LISTED FOR DELUGE SERVICE EXCLUSIVELY FOR OCV Control Valves

OCV MODEL 452 SOLENOID VALVE
MULTIPURPOSE (UNIVERSAL)
3 WAY SOLENOID VALVE
BODY - 430F SS
SEALS - NBR (BUNA-N)
SLEEVE TUBE - 303 OR 304 SS
PLUNGER - 430FR SS
STOP - 430FR SS
SPRINGS - 18-8 SS
SHADING RING - COPPER
PILOT ORIFICE - 303 SS

MAX PRES DIF = 400PSI (UL WP = 300 PSIG)
Cv FACTOR = .024
PIPE SIZE = 1/4"
VOLTAGE RANGES = 24/60, 120/60, 240/60, 220/60, 24/60 V/HZ
12, **24**, 30, 48, 120, 125, 140, 250 VDC
24/50, 110/50, 120/50, 240/50 V/HZ
POWER CONSUMPTION = 10 WATTS, CLASS H COIL
ELECTRICAL CONN = 1/2" CONDUIT
UL LISTED
NEMA 4, 4X, 7 & 9 (UL LISTED FOR HAZARDOUS LOCATIONS CLASS I, GROUPS C AND D, CLASS II, GROUPS E, F AND G)
LEAKAGE - BUBBLETIGHT
MAX AMBIENT TEMP = 65.5C (150 F)
MOUNTING POS = ANY

CHG	E.C. NO.	DATE	BY

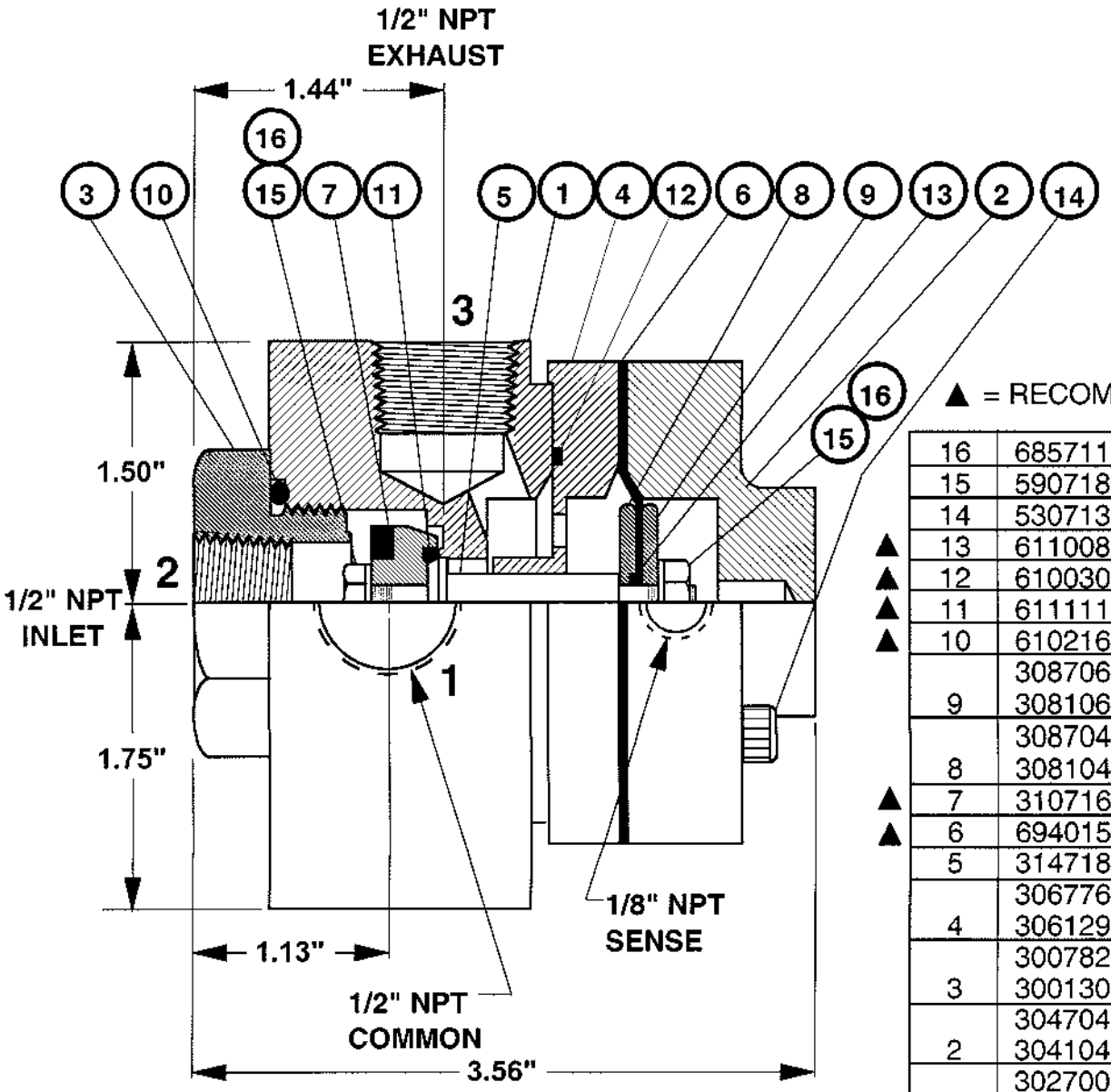
REVISIONS

MATERIAL	TOLERANCES	
	N/A	
NO. REQ'D	DRAWN BY RON	DATE 1-28-99
SCALE NONE	CHKD. BY	DATE

OCV Control Valves
TULSA, OKLAHOMA U.S.A.

3 WAY SOLENOID VALVE MODEL 452 (UNIVERSAL)

SIZE	DRAWING NUMBER	REV.
A	452	



▲ = RECOMMENDED SPARE PARTS

	ITEM	PART NO	QTY	DESCRIPTION	MATERIAL
	16	685711	2	LOCKWASHER	STN. STEEL
	15	590718	2	HEX NUT	STN. STEEL
	14	530713	4	SKT. HD. CAPSCREW	STN. STEEL
▲	13	611008	1	O-RING (610008 BUNA-N)	VITON
▲	12	610030	1	O-RING (611030 VITON)	BUNA-N
▲	11	611111	1	O-RING (610111 BUNA-N)	VITON
▲	10	610216	1	O-RING (611216 VITON)	BUNA-N
	9	308706 308106	1	UPPER DIAPH. PLATE	STN. STEEL BRASS
	8	308704 308104	1	LOWER DIAPH. PLATE	STN. STEEL BRASS
▲	7	310716	1	SEAT PLUG (310727 SS/VT)	SS/BUNA-N
▲	6	694015	1	DIAPHRAGM (694115 VIT)	BUNA-N
	5	314718	1	STEM (314018 MONEL)	STN. STEEL
	4	306776 306129	1	GUIDE PLATE	STN. STEEL BRASS
	3	300782 300130	1	ADAPTER	STN. STEEL BRASS
	2	304704 304104	1	BONNET	STN. STEEL BRONZE
	1	302700 302100	1	BODY	STN. STEEL BRONZE

CHG	E.C. NO.	DATE	BY	REVISIONS
				REF DWG NO'S

MATERIAL

TOLERANCES
UNLESS NOTED
FRACTIONAL ±1/64
DECIMAL ±.005
MACH. FINISH 125
ANGULAR ±1/2°

NO. REQ'D

DRAWN BY: RON
DATE: 12-17-98

SCALE: FULL

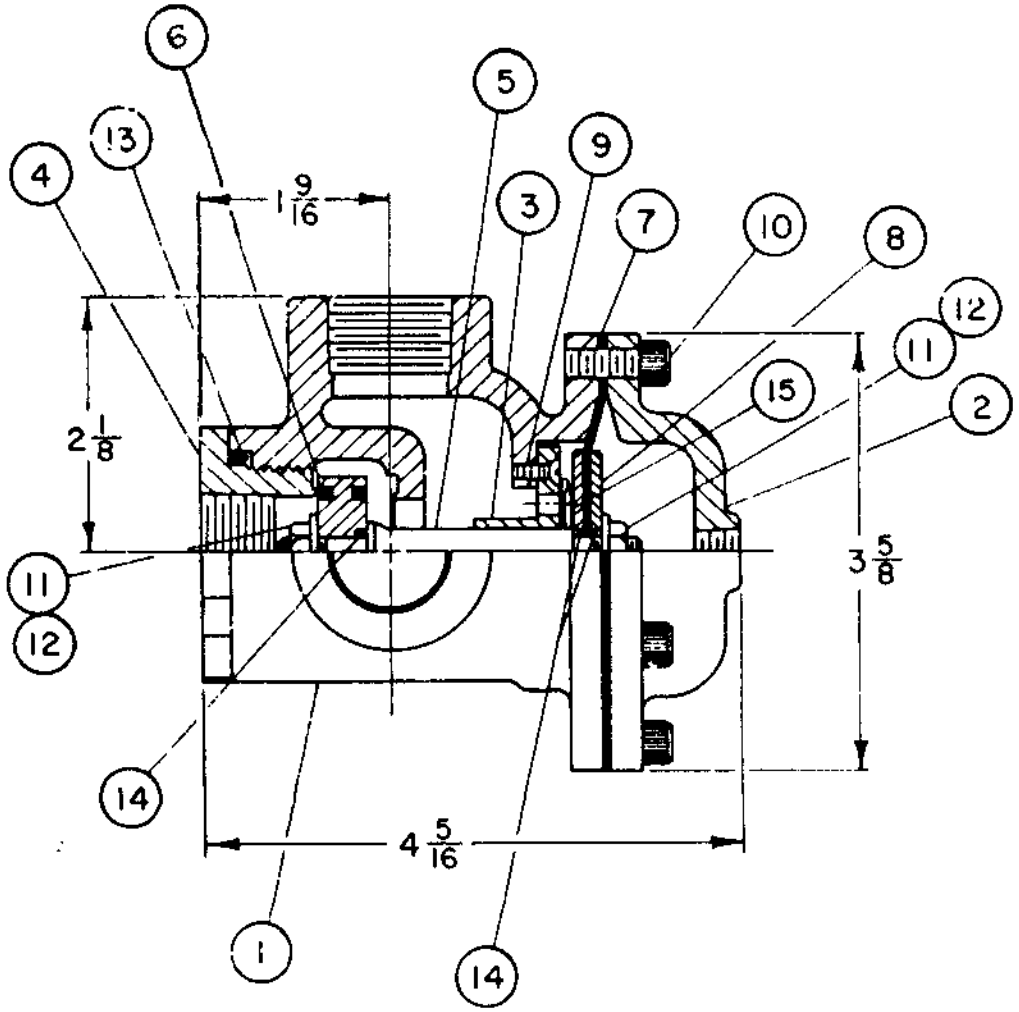
CHKD. BY

DATE

OCV Control Valves

THREE-WAY PILOT

SIZE	DRAWING NUMBER	REV.
A	330P	



NOTE:
1. WHEN ORDERING PARTS PLEASE SPECIFY, ITEM NO., PART NO. AND MATERIAL
2. ▲ RECOMMENDED SPARE PARTS.

	ITEM	PART NO.	QTY.	DESCRIPTION	MATERIAL
	15	651717	1	SPRING	STAINLESS STEEL
▲	14	611010	3	O-RING	VITON
▲	13	610222	1	O-RING	BUNA-N
	12	685700	2	LOCKWASHER	STAINLESS STEEL
	11	590712	2	HEX HEAD JAM NUT	STAINLESS STEEL
	10	530701	6	SOCKET HD. CAPSCREW	STAINLESS STEEL
	9	532735	2	FLAT HEAD SCREW	STAINLESS STEEL
	8	308135	2	DIAPHRAGM PLATE	BRASS
		308735	2	DIAPHRAGM PLATE	STAINLESS STEEL
▲	7	694035	1	DIAPHRAGM	BUNA-N
		694135	1	DIAPHRAGM	VITON
▲	6	310736	1	SEAT DISC	STN. STL./BUNA-N
		310737	1	SEAT DISC	STN. STL./VITON
	5	314735	1	STEM	STAINLESS STEEL
	4	300171	1	ADAPTER	BRASS
		300771	1	ADAPTER	STAINLESS STEEL
	3	300164	1	GUIDE PLATE	BRASS
		300764	1	GUIDE PLATE	STAINLESS STEEL
	2	304135	1	BONNET	BRONZE
		304735	1	BONNET	STAINLESS STEEL
	1	302135	1	BODY	BRONZE
		302735	1	BODY	STAINLESS STEEL

PARTS LIST

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

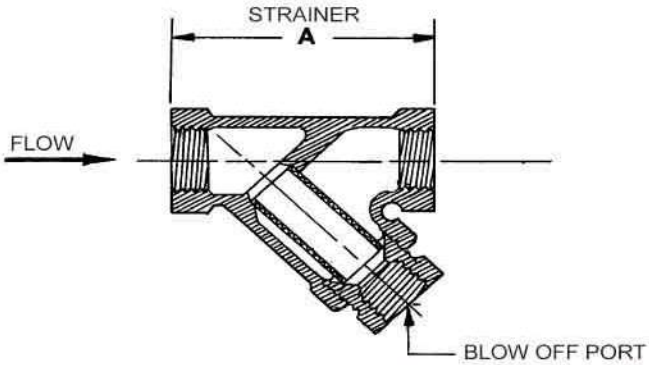
MATERIAL	TOLERANCES UNLESS NOTED FRACTIONAL ± 1/64 DECIMAL ± .005 MACH FINISH 125 ANGULAR ± 1/2°	OCV Control Valves	
		THREE-WAY PILOT	
NO REQ'D	DRAWN BY BRW DATE 7-28-83	SIZE B	DRAWING NUMBER 3600S REV A
SCALE	CHKD BY DATE		

DESCRIPTION

MODEL 159 Y-STRAINER
The 159 Y-Strainer installs in the inlet piping of the pilot system and protects the pilot system from solid contaminants in the line fluid. It is the standard strainer for water service valves.

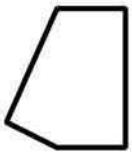
MODEL 159 Y-STRAINER MATRIX

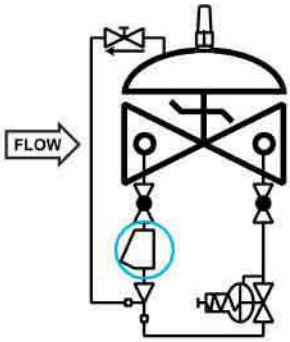
MATERIAL	PART NUMBER	INLET/OUTLET (NPT)	BLOW OFF PORT (NP)	A	STD. MESH	USED ON VALVE SIZE
Bronze	660100	3/8	3/8	2 11/16	24	1 ¼"-6"
Bronze	660101	1/2	3/8	2 5/8	24	8"-10"
Bronze	660102	3/4	3/8	3 5/16	24	12"-16"
Stn. Steel	660700	3/8	1/4	2 1/2	20	1 ¼"-6"
Stn. Steel	660701	1/2	1/4	2 1/2	20	8"-10"
Stn. Steel	660702	3/4	1/4	3 1/8	20	12"-16"



SCHEMATIC SYMBOL

The Model 159 Y-Strainer is shown on OCV Valve Schematics as:





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

MATERIALS

Bronze, ASTM B62
Optional mesh sizes: 50,100

Stainless Steel, CF8-M (316)
Optional mesh sizes: 60, 80, 100

Screens are stainless steel

MAINTENANCE

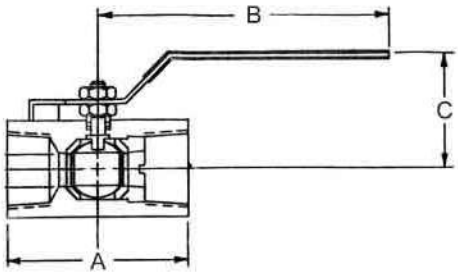
Routine cleaning and checking of the Y-Strainer will aid in keeping the control valve functioning properly. Pilot system isolation ball valves are supplied on valves equipped with the Model 159 Y-Strainer. These allow flushing of the screen through the blow off port, or removal of the screen itself for manual cleaning.

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

DESCRIPTION

The Model 141-4 Ball Valve is a ¼-turn shutoff device used for isolating the pilot system from the main valve. They are extremely useful for performing routine maintenance and troubleshooting.

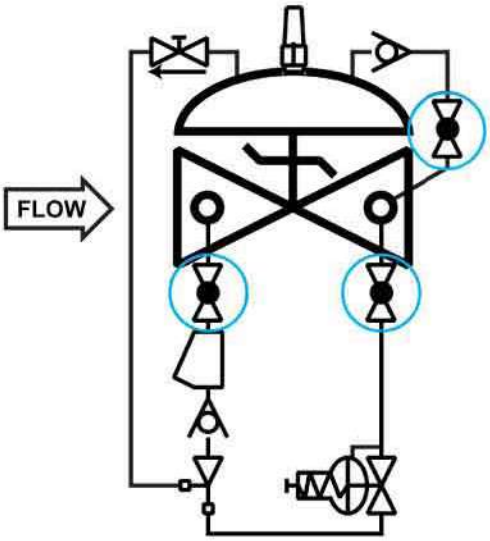
Ball valves are standard on water service valves; optional on fuel service valves.



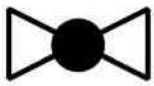
MODEL 141-4 MATRIX

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 ¼"-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 ¼"-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.

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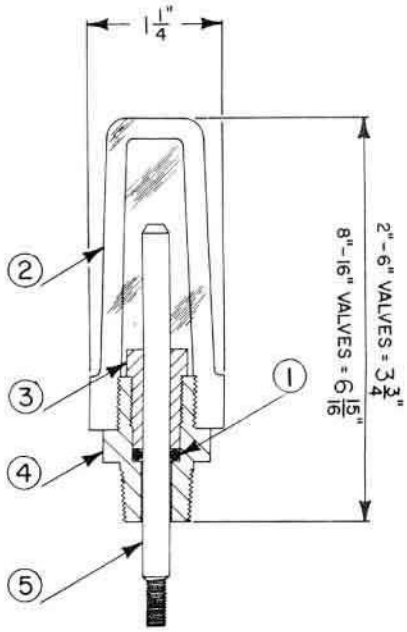
Ball Valve 141-4

DESCRIPTION

The Model 155 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 center port of the valve bonnet, a rod threaded into the main valve stem, a sealing O-ring, and a protective clear plastic housing. The indicator rod moves as the valve opens and closes. It may be installed on virtually any OCV control valve, and can be done so without any disassembly of the valve itself.

WHERE USED - Standard on Series 94 Check Valves, Series 3330 Altitude Valves, and Series 22 Digital Control Valves. Optional on any other valve not employing a limit switch or position transmitter.

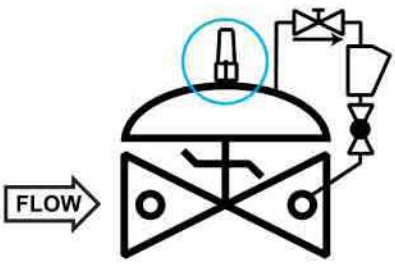
MODEL 155 MATRIX



MATERIAL	PART NO. (BRASS\ ADAPTOR)	PART NO. (STAINLESS ADAPTOR)	VALVE TRAVEL (FULL STROKE)
1 1/4" - 1 1/2"	255100	255700	3/8"
2"	255100	255700	1/2"
2 1/2"	255100	255700	3/4"
3"	255100	255700	1"
4"	255101	255701	1 3/8"
6"	255102	255702	1 1/2"
8" - 10"	255103	255703	2 1/2"
12"	255104	255704	3"
14" - 16"	255105	255705	3 1/2", 4"
24"	255109	255709	6"

ITEM	DESCRIPTION
1	O-Ring
2	Housing
3	Bushing
4	Adaptor
5	Stem

SCHEMATIC SYMBOL



EXAMPLE: Shown here on a Model 94-1 Check Valve

The Model 155 is shown on OCV Valve Schematic as:

MATERIALS

Indicator Rod:	Monel
Adapter:	Brass (std.), Stainless Steel (optional)
Housing:	Butyrate (1 ¼" - 6") Acrylic (8" and larger)
O-Ring:	Viton® (std.) Buna-N, EPDM (optional)

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