Operating Manual

Model: 128
Size: "
Serial #:
Sales Order :

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OCV Control Valves LLC

Global performance. Personal touch.

excess flow shutoff valve

installation, operating and maintenance instructions

(formerly Model 120G-4)

model 128

GENERAL DESCRIPTION

The OCV Model 128 is an on-off (non-modulating), pilot operated, diaphragm type globe valve. It is designed to close tightly whenever flow through it exceeds a preset maximum, and remain closed until manually reset. It is especially useful as a protective device against downstream line rupture.

The 128 consists of the following components, arranged as shown on the schematic diagram.

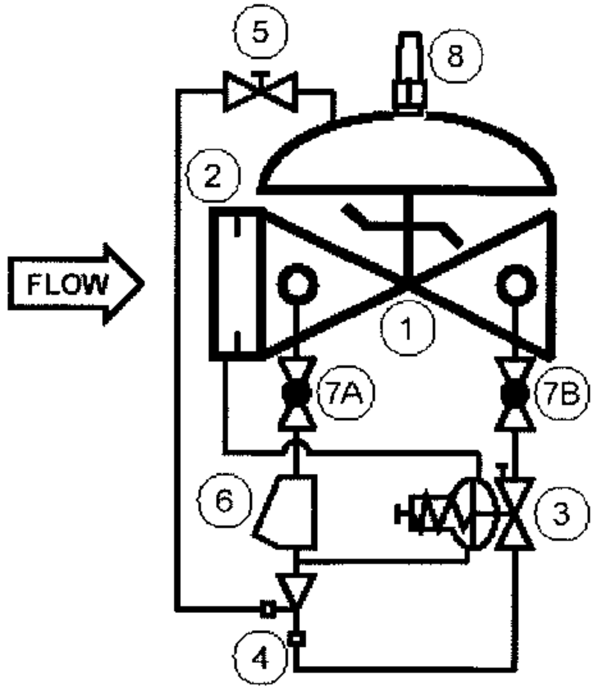
1. **Model 65 Basic Control Valve,** a hydraulically operated, diaphragm actuated, pilot controlled globe valve that closes with an elastomer-on-metal seal.
2. An **orifice plate**, integrally mounted in the upstream valve flange, that provides a differential pressure proportional to the flow rate.
3. **Model 1380 Excess Flow Control Pilot,** a two-way, latched-open control pilot that senses the differential pressure created by the orifice plate and balances it against an adjustable spring load. An increase in differential above the set point will unlatch the pilot, causing it to close. It will remain closed until it is manually reset via the pushbutton located at its downstream end.
4. **Model 126 Ejector,** a simple "tee" fitting with a small orifice pressed into its inlet port. The ejector, acting in conjunction with the excess flow pilot (item 3), allows the valve to open and close.
5. **Model 141-2 Needle Valve,** that controls the speed at which the valve closes.
6. **Model 159 Y-Strainer,** that protects the pilot system from solid contaminants in the line fluid.
7. Two **Model 141-4 Ball Valves,** useful for isolating tthe pilot system for maintenance or troubleshooting.
7. **Model 155 Visual Indicator (optional),** that enables the operator to determine the valve's operating position at a glance.

THEORY OF OPERATION

Operation of the 128 may be clearly seen by referring to the schematic diagram. The excess flow pilot (3) is connected to sense the differential pressure across the integral orifice plate (2). As long as flow rate, hence orifice differential, is below the set point of the pilot, the pilot is locked in an open position. This allows flow through the pilot system from the inlet port to the outlet port of the main valve (1). Due to the pressure drop created by the orifice of the ejector (4), there is less pressure over the main valve diaphragm than under it, therefore the main valve is open.

If flow rate increases to the point that the pressure across the orifice plate exceeds the set point of the pilot, the pilot unlatches and, due to spring loading, goes immediately and tightly closed. This puts full inlet pressure above the main valve diaphragm, therefore the main valve closes tightly.

After repairs are made to correct the excess flow condition, the valve is put back into operation by pushing the manual reset button and holding it until normal flow is reestablished.



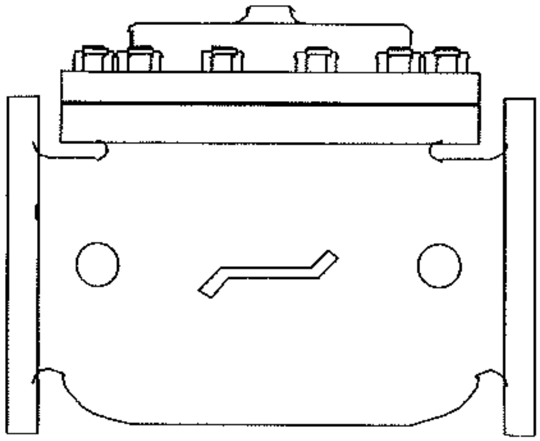
INSTALLATION

The 128 is furnished fully factory-assembled, ready for installation at the appropriate point in the system, with flow in the direction shown in the schematic diagram. Please refer to the Model 65 Basic Valve section of this manual for full installation details.

CONTROLS ADJUSTMENT

Inasmuch as it may be difficult or impossible to simulate safely an "excess flow" condition in an actual system, the following procedure is recommended for initially setting the 128.

1. Remove the protective cap from the excess flow pilot (3), and loosen the adjusting screw jam nut. Turn the adjusting screw **fully clockwise.**
2. Make sure the needle valve (5) is at least 2-3 turns open.
3. Start the system and set it to flow at or near the maximum allowable rate.
4. Slowly turn the adjusting screw of the excess flow pilot (3) until the pilot trips and the main valve closes.
5. Turn the adjusting screw one-quarter turn clockwise.
6. Reset the pilot by pushing the manual reset button and holding it until flow is reestablished.
7. If the pilot trips again, repeat steps 4 and 5 until the pilot no longer trips.
8. Retighten the adjusting screw jam nut, being careful not to change the position of the adjusting screw, and replace the cap.
9. The needle valve (5) sets the speed at which the valve closes. Ideally, you want the valve to close quickly, but not so quickly that it unduly surges the upstream piping. Turn the adjusting screw clockwise to decrease closing speed.



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 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

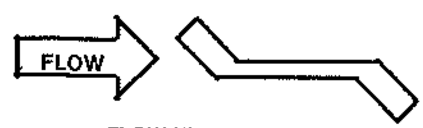
**A diaphragm failure can prevent the valve from either opening or closing, depending on the flow direction. Most water service valves flow "under the seat", in which case a diaphragm failure will keep the valve from closing. On the other hand, most fuel service valves flow "over the seat", in which 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.*

<u>*PROCEDURE A : DIAPHRAGM REPLACEMENT*</u>

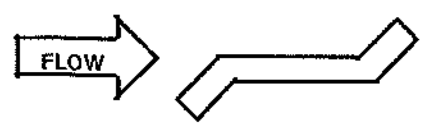
1. Isolate the valve from the system by closing upstream amd downstream block valves.
2. Loosen one of the tubing connections on the bonnet. Allow any residual pressure to bleed off.
3. Remove all tubing connected at the bonnet.
4. Remove the bonnet nuts.
5. Remove the bonnet. If the bonnet sticks in 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.

<u>*PROCEDURE B: CORRECTION OF BINDING STEM*</u>

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



FLOW UNDER SEAT
DIAPHRAGM FAILURE = VALVE FAILS TO CLOSE



FLOW OVER SEAT
DIAPHRAGM FAILURE = VALVE FAILS TO OPEN

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.

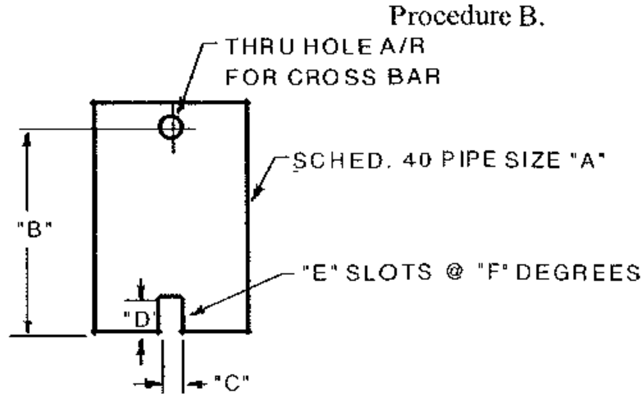
PROCEDURE C: SEAT DISC REPLACEMENT

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

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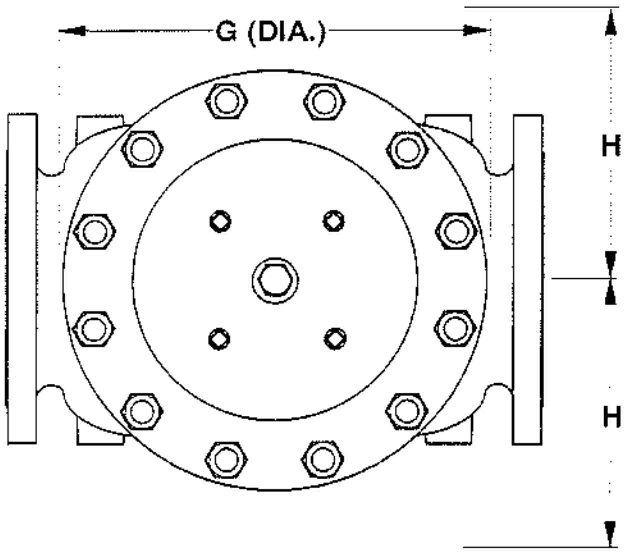
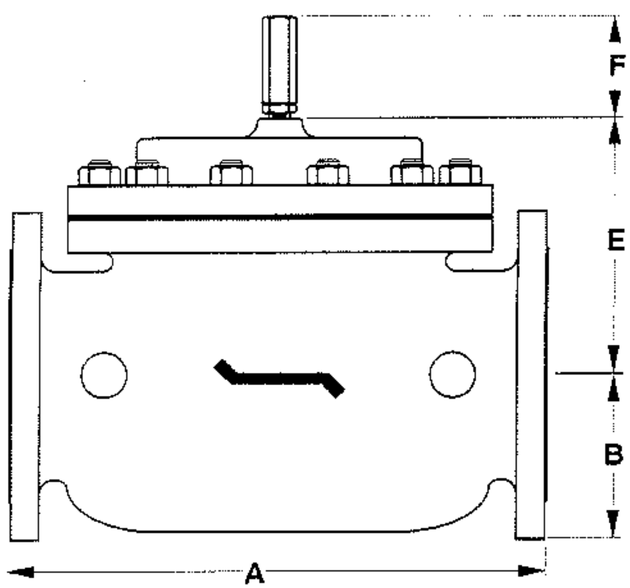
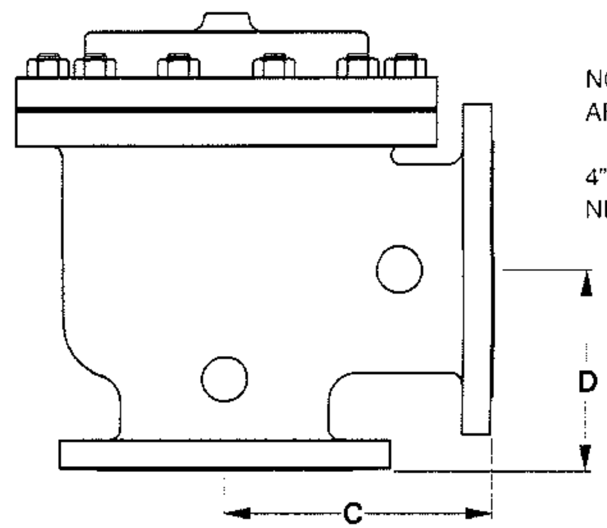


DIM	ANSI CLASS	VALVE SIZE 1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
A	S.E	8.75	8.75	9.88	10.50	13.00	–	–	–	–	–	–	–	–
	150	8.50	8.50	9.38	10.50	12.00	15.00	17.75	25.38	29.75	34.00	39.00	40.38	62.00
	300	8.75	8.75	9.88	11.12	12.75	15.62	18.62	26.38	31.12	35.50	40.50	42.00	63.75
B	SE	1.44	1.44	1.69	1.88	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

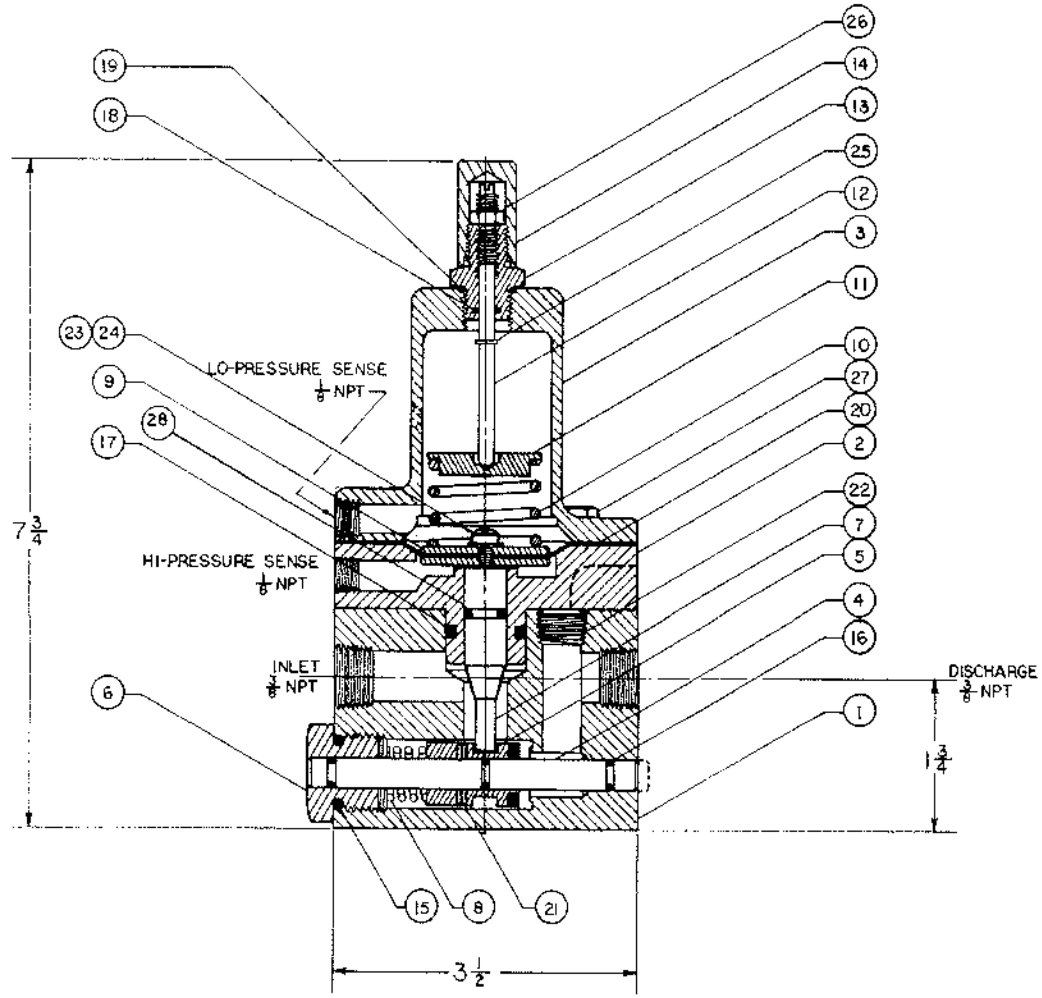
REV. A SDJ 6-6-02
REV. B SDJ 2-3-03

TOLERANCES		OCV Control Valves TULSA, OKLAHOMA U.S.A.		
UNLESS NOTED FRACTIONAL ±1/64 DECIMAL ±.005 MACH. FINISH 125√ ANGULAR ±1/2°		GENERAL VALVE DIMENSIONS		
DRAWN BY SDJ	DATE 10-6-97	SIZE	DRAWING NUMBER	REV.
CHKD. BY	DATE	A	65D	B

MODEL 1380

NOTES:

1. ▲ - RECOMMENDED SPARE PARTS.
2. WHEN ORDERING PILOT OR SPARE PARTS PLEASE SPECIFY: MODEL NUMBER AND QUANTITY, MAIN VALVE SIZE, MEDIA, WORKING PRESSURE AND WORKING TEMPERATURE.



	ITEM	OCV NO	QTY	DESCRIPTION	MATL	CODE
	28	611012	1	O-RING	VITON	⬡
	27	531701	4	HEX HEAD CAPSCREW	STN. STL.	③
	26	300709	1	LOCK NUT	CAD.PL.ST.	
	25	630715	1	E-RING	STN. STL.	⑨
	24	685720	1	LOCKWASHER	STN. STL.	③
	23	532701	1	SCREW, FIL. HD.	STN. STL.	③
	22	556010	1	PIPE PLUG	CAD.PL.ST.	
	21	620708	1	ROLL PIN	STN. STL.	⑨
▲	20	694002	1	DIAPHRAGM	NYLON REIN. BUNA-N	
▲	19	611906	1	O-RING	VITON	⬡
▲	18	611008	1	O-RING	VITON	⬡
▲	17	611116	1	O-RING	VITON	⬡
▲	16	611010	3	O-RING	VITON	⬡
▲	15	610910	1	O-RING	BUNA-N	⑧
	14	300016 300516 300137	1	CAP	CAD.PL.ST. ALUM. BRASS	 ⑤ ⑩
	13	300716 300116	1	ADJUSTING SCREW GUIDE	STN. STL. BRASS	③ ⬡ ⑩
	12	300723	1	ADJUSTING SCREW	STN. STL.	③
	11	300791 300091	1	SPRING RETAINER	STN. STL. CAD.PL.ST.	③ ⬡
	10	651710	1	SPRING	STN. STL.	⑦
	9	308705 308105	2	DIAPHRAGM PLATE	STN. STL. BRASS	③ ⑩
	8	651705	1	SPRING	STN. STL.	⑦
	7	314722	1	LOCKING STEM	STN. STL.	③
	6	300772 300172	1	STEM GUIDE	STN. STL. BRASS	③ ⬡ ⑩
▲	5	305728 305128	1	SPOOL	SS/BUNA BR/BUNA	③ ⬡ ⑩
	4	314705	1	STEM	STN. STL.	③
	3	304705 304505 304105	1	BONNET	STN. STL. ALUM. BRONZE	⑥ ⑤ ④
	2	300719 300519 300129	1	ADAPTER	STN. STL. ALUM. BRONZE	⑥ ⑤ ④
	1	302705 302505 302105	1	BODY	STN. STL. ALUM. BRASS	③ ② ①

MATERIAL CODES:

① ASTM B-16
② 6061-T6 OR 2024-T4
③ AISI 304
④ ASTM B-62
⑤ 356-T6
⑥ ASTM A-296 GR. CF8
⑦ AISI 302
⑧ MIL-P-5315
⑨ AISI 420
⑩ ASTM B-21

12-82

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

MATERIAL	TOLERANCES	
	UNLESS NOTED FRACTIONAL ± 1/64 DECIMAL ± .005 MACH. FINISH 125 ANGULAR ± 1/2°	OCV Control Valves TULSA, OKLAHOMA U.S.A.
NO REQ'D	DRAWN BY / DATE	EXCESS FLOW PILOT
SCALE	CHKD BY / DATE	SIZE: C / DRAWING NUMBER: 1380 / REV

installation, operating, and maintenance instructions

excess flow pilot

model 1380

GENERAL DESCRIPTION

The OCV Model 1380 Excess Flow Pilot is a direct-acting, spring-loaded, diaphragm-type control pilot. It is designed to trip and close the main valve whenever flow exceeds a given, preset rate. Once tripped, the pilot must be manually reset before flow can be reestablished. The 1380 has special utility as a protection against downstream line failure. However, since the pilot actually operates on a pressure differential, it can also be used in any application where it is desired to close the main valve when the differential pressure exceeds a given value.

FUNCTIONAL DESCRIPTION

The 1380 senses the pressure differential across an orifice plate located in the inlet flange of the main valve. The upstream, or high pressure, side of the orifice plate is sensed under the pilot diaphragm, and the downstream, or low pressure, is sensed above the diaphragm. The low pressure sense is assisted by the pilot spring. The locking stem is attached to the diaphragm assembly and rides in a groove in the pilot spool, holding the spool in the open position, thus allowing full flow through the pilot. With the pilot in this position, pressure is relieved from the bonnet of the main valve, and the main valve is open. If flow through the main valve increases, the differential pressure across the orifice plate increases and the diaphragm and locking stem of the 1380 move upward. When the set point is reached, the locking stem is pulled out of the groove in the spool, and the spool moves to the closed position by spring loading. With the pilot closed, full inlet pressure builds up on the main valve bonnet, and the main valve also goes closed. After action is taken to correct the cause of excess flow, the pilot is reopened by pushing the reset button located on the downstream side of the pilot body.

The above description also applies when the pilot is used as protection against excessive differential pressure, except that the pilot is connected to sense at the appropriate points in the system. For example, the pilot may be used on a fuel discharge valve from a filter/separator to protect against a clogged filter cartridge. In this case the high pressure sense would be connected at the inlet side of the cartridge, and the low pressure sense would be connected at the outlet side of the cartridge.

INSTALLATION & ADJUSTMENT

The 1380 is installed in the main valve control piping between either the ejector or the accelerator pilot (depending on valve model) and the downstream body tap. If more than one control pilot is used, the 1380 will normally be last in line. Sensing lines are installed from the downstream orifice flange tap (or low pressure point) to the upper sense tap of the pilot and from the upstream orifice flange tap (or high pressure point) to the lower sense tap of the pilot. Pilot adjustment is made with the adjustment screw located on top of the bonnet. Increase trip point by turning the screw clockwise; decrease trip point by turning the screw counterclockwise.

In the event of a pilot trip, and after appropriate corrective action has been taken, reset the pilot by pushing the reset button on the side of the pilot. Allow the main valve to open and flow to stabilize before releasing the button.

MAINTENANCE

Because of the simplicity of design of the 1380 pilot, required maintenance is minimal. Fittings and bolts should be periodically checked for tightness and the body should be inspected for damage or excessive buildup of foreign material.

TROUBLESHOOTING

Operation of the 1380 may be checked as follows:

1. Disconnect the low pressure sense line from both the pilot and the main valve flange. Plug the flange tap.
2. Pressurize the valve.
   a. If the pilot trips, as indicated by the reset button protruding approximately 1/4", and there is only a temporary discharge of fluid from the open sense port, the pilot is functioning normally.
   b. If there is a continuous discharge of fluid at the open sense port, a ruptured diaphragm is indicated. Remove the pilot bonnet and replace the diaphragm.
   c. If the pilot does not trip and a ruptured diaphragm is not indicated, there is likely binding taking place at the locking stem or the spool assembly. Disassemble the pilot and determine the cause.

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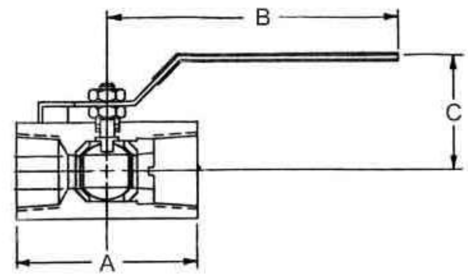
DESCRIPTION

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.

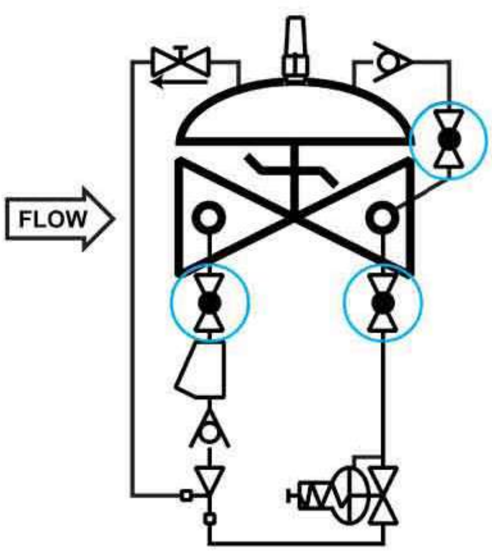
Ball valves are standard on water service valves; optional on fuel service valves.



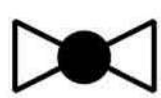
MODEL 141-4 MATRIX

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:



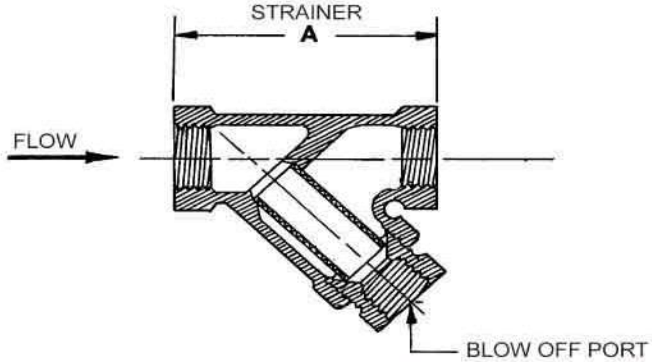
EXAMPLE: Shown here on a MODEL 127-4 Pressure Reducing / Check Valve.

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.

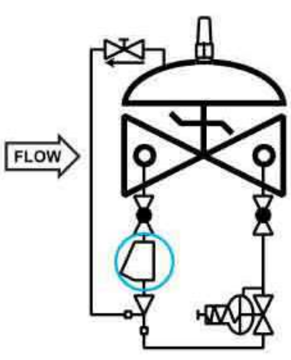
MODEL 159 Y-STRAINER MATRIX

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.

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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.

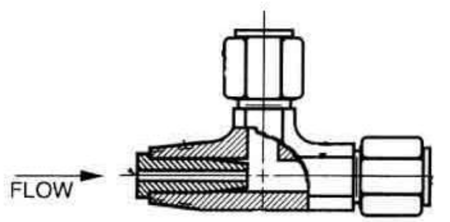
MODEL 126 EJECTOR DIAGRAM

Brass Construction / Stainless Steel Construction

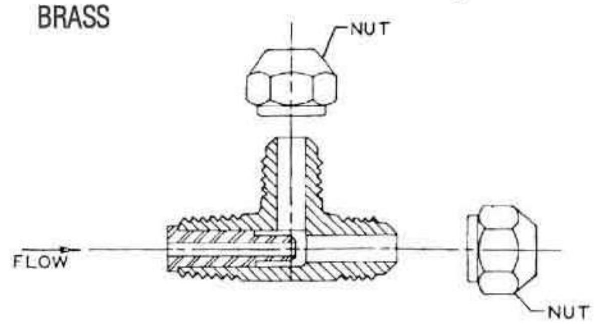
MATERIAL	PART NUMBER	P (NPT)	T-TUBE O.D.	STD. ORIFICE	USED ON VALVE SIZES
Brass	213100	3/8"	3/8"	.125"	1 ¼"-6"
Brass	214100	1/2"	1/2"	.188"	8"-10"
Brass	215100	3/4"	3/4"	.188"	12"-16"
316 Stn. Steel	213700	1/4"	3/8"	.090"	1 ¼"-6"
316 Stn. Steel	214700	3/8"	1/2"	.125"	8"-10"
316 Stn. Steel	215700	1/2"	3/4"	.188"	12"-16"

Orifice bushings are stainless steel.

STAINLESS

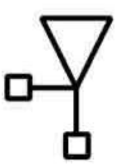


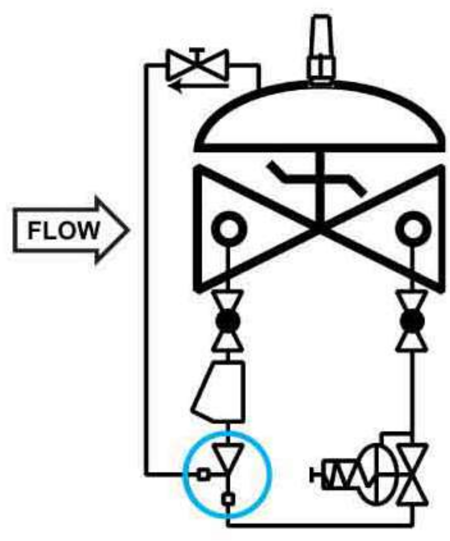
BRASS



SCHEMATIC SYMBOL

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





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

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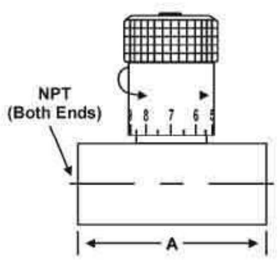
◀Needle Valves shown
Sizes: 3/4" & 1/4"

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.

MODEL 141-2 MATRIX

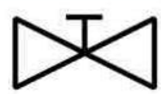


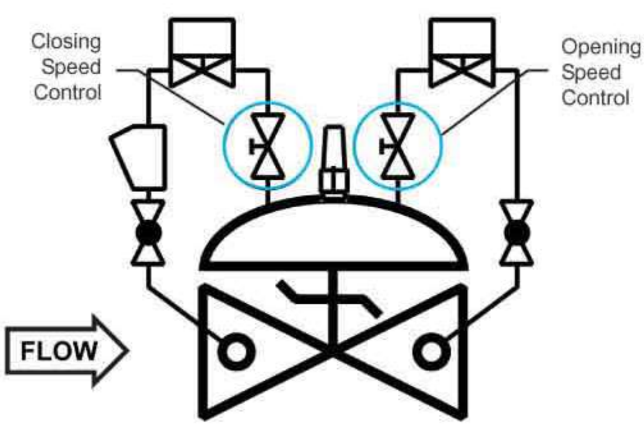
MATERIAL	PART NUMBER	INLET/OUTLET (NPT)	A	USED ON VALVE SIZE*
Brass	683100	1/4	2	1 ¼"-2"
Brass	683101	3/8	2 1/4	2 ½"-6"
Brass	683102	1/2	2 5/8	8"-10"
Brass	683103	3/4	3 1/4	12"-16"
Stn. Steel	683700	1/4	2	1 ¼"-2"
Stn. Steel	683702	3/8	2 1/4	2 ½"-6"
Stn. Steel	682704	1/2	2 5/8	8"-10"
Stn. Steel	683703	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.

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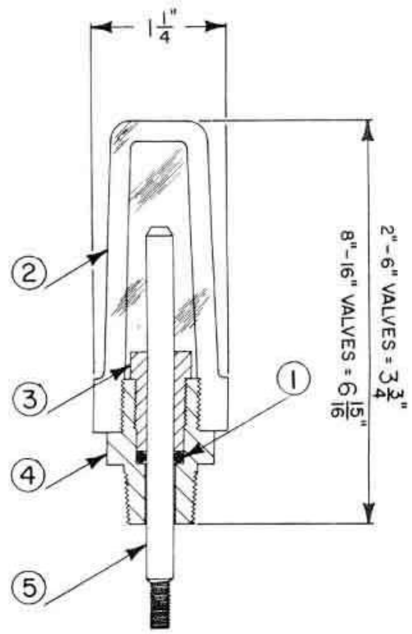
Needle Valve 141-2

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.

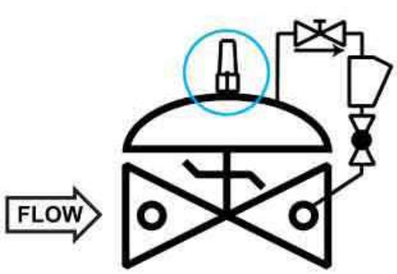
MODEL 155 MATRIX



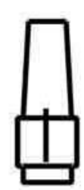
MATERIAL	PART NO. (BRASS\ ADAPTOR)	PART NO. (STAINLESS ADAPTOR)	VALVE TRAVEL (FULL STROKE)
1 1/4" - 1 1/2"	255100	255700	3/8"
2"	255100	255700	1/2"
2 1/2"	255100	255700	3/4"
3"	255100	255700	1"
4"	255101	255701	1 3/8"
6"	255102	255702	1 1/2"
8" - 10"	255103	255703	2 1/2"
12"	255104	255704	3"
14" - 16"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



The Model 155 is shown on OCV Valve Schematic as:



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

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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