

▲ Model 111

OCV Model 111 maintains a constant differential between supply and return lines by allowing more or less flow as load changes. For example, if load decreases, differential would tend to increase. The 111 valve would thus close further to maintain the differential at a constant value. Typical examples include:

- Maintaining constant system differential in chilled water systems

## SERIES FEATURES

- ▶ Valve closes on increased pressure differential
- ▶ Operates over a wide flow range
- ▶ Pressure differential is adjustable with single screw
- ▶ Adjustable response speed
- ▶ Can be maintained without removal from the line
- ▶ Factory tested and can be pre-set to your requirements

## OPERATION

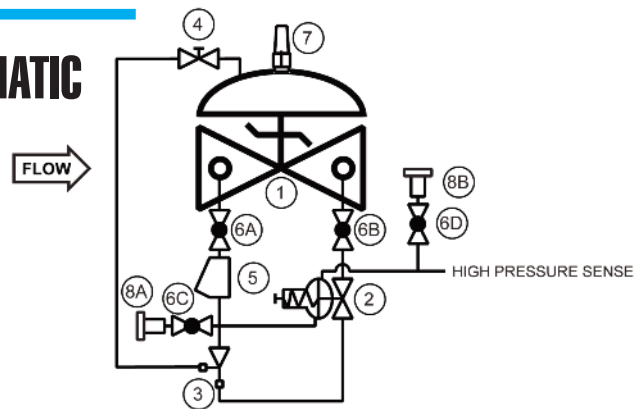
The normally open, spring-loaded pilot, sensing two pressure points, responds to changes in the pressure difference and causes the main valve to do the same. The valve closes on increased differential. The net result is a constant modulating action of the pilot and main valve to hold the pressure differential constant. The pilot system is equipped with a needle valve response speed control that fine tunes the valve response to the system variables. The high pressure sensing point is typically at the pump discharge, while the low pressure sensing point can be valve inlet or remotely connected.

## COMPONENTS

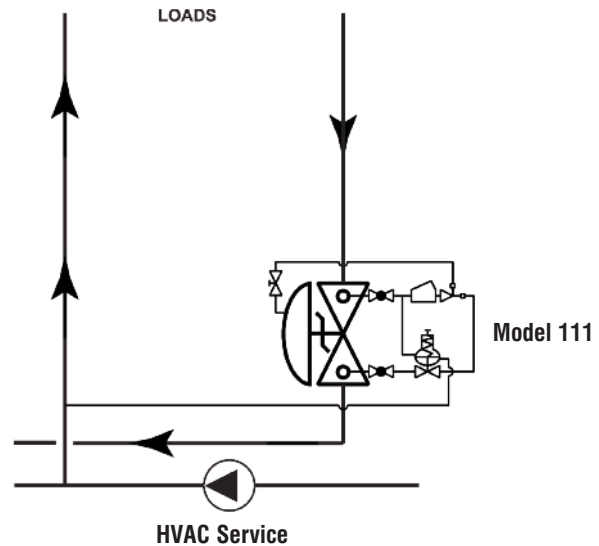
The Model 111 consists of the following components, arranged as shown on the schematic diagram:

- 1.) Model 65 Basic Control Valve
- 2.) Model 1355 Differential Control Pilot
- 3.) Model 126 Ejector
- 4.) Model 141-2 Needle Valve
- 5.) Model 159 Y-strainer  
(Protects Pilot System from dirt and debris)
- 6.) Model 141-4 Isolation Ball Valves
- 7.) Model 155 Visual Indicator (Optional)
- 8.) Test Cock (Customer Supplied)

## SCHEMATIC



## RECOMMENDED INSTALLATION



## SIZING

Definitive sizing information can be found in the OCV Catalog, Series 110 section and Engineering section Performance Charts. Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.

## MAXIMUM PRESSURE

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

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

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

# Model 111



## SIZES GLOBE/ANGLE

Screwed Ends - 1 1/4" - 3"  
 Grooved Ends - 1 1/2" - 6" (globe)  
 1-1/2"-4" (angle)  
 Flanged Ends - 1 1/4" - 24" (globe);  
 1 1/4" - 16" (angle)

## SPRING RANGES (differential setting)

5-30 psi, 20-80 psi, 20-200 psi, 100-300 psi

## FLUID OPERATING TEMPERATURE RANGE

(Valve Elastomers)

EPDM 32°F to 230°F\*

**MATERIALS** - Consult factory for others.

**Body/Bonnet:** Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, low-lead Bronze -Others available (consult factory)

**Seat Ring:** low-lead Bronze, Stainless Steel

**Stem:** Stainless Steel, Monel

**Spring:** Stainless Steel

**Diaphragm:** EPDM\*

**Seat Disc:** EPDM\*

**Pilot:** low-lead Bronze, Stainless Steel

*Other pilot system components:*

low-lead Bronze/Brass, All Stainless Steel

**Tubing & Fittings:** Copper/Brass, Stainless Steel

\*Others available upon request.

\*\*Valves 1-1/4" through 24" are certified to NSF/ANSI 372. Valves 4" through 24" are also certified to NSF/ANSI 61-G.

## SPECIFICATIONS (Typical Water Application)

The differential control valve shall function to maintain a constant differential between two pressure points, where an increase in said differential shall cause the valve to close.

### DESIGN

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

### MATERIALS OF CONSTRUCTION

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

### OPERATING CONDITIONS

The differential control valve shall be suitable for controlling the pressure differential at <X> psig at flow rates ranging from <X to X> gpm.

### ACCEPTABLE PRODUCTS

The differential control valve shall be a <size> Model 111, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

U.S. DIMENSIONS - INCHES

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

\*GROOVED END NOT AVAILABLE IN 1 1/4"

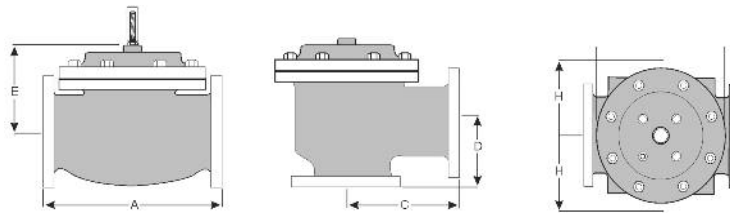
For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing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

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

### How to order your Model 111 valve

When Ordering please provide:

- Fluid to be controlled -Model Number -Size
- Globe or Angle -End Connection -Body Material
- Trim Material -Pilot Options -Pressure Differential Setting or Spring Range -High pressure and low pressure connection requirement
- Special Requirements / Installation Requirements



Represented by:

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