



▲ Model 110

The Model 110 controls the pressure difference between two points in a system. It has a wide range of applications: anywhere an increase in the sensed pressure differential causes the valve to open.

Typical examples include:

- Maintaining constant pump discharge to suction differential
- Balancing valve in chilled water systems
- LPG metering systems to prevent flashing

SERIES FEATURES

- ▶ Valve opens 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

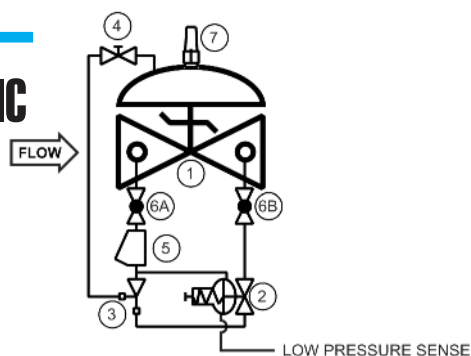
The normally closed, spring-loaded pilot, sensing two pressure points, responds to changes in the pressure difference and causes the main valve to do the same. The valve opens on increased differential. The net result is a constant modulating action of the pilot and main valve to hold the pressure differential 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 valve inlet, while the low pressure sensing point can be valve outlet or remotely connected, e.g., pump suction.

COMPONENTS

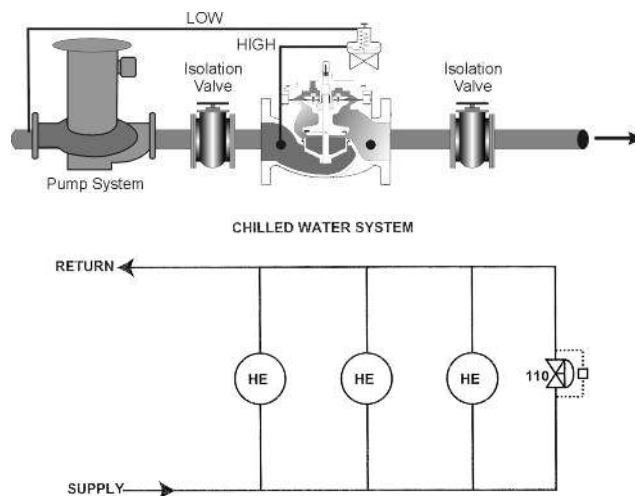
The Model 110 consists of the following components, arranged as shown on the schematic diagram:

- 1.) Model 65 Basic Control Valve
- 2.) Model 1356 Differential Control Pilot
- 3.) Model 126 Ejector
- 4.) Model 141-3 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)

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.

MAX. 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

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 open.

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 110, <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 |
| | 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 |
| C ANGLE | 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 | -- |
| | 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 | -- |
| D ANGLE | 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 | -- | -- | -- | -- | -- | -- | -- |
| | 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 | -- |
| E | 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 110 valve

When Ordering please provide:

Fluid to be controlled -Model Number -Size

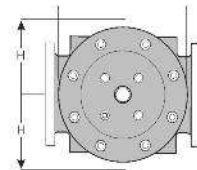
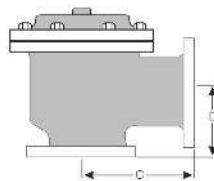
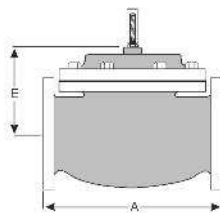
Globe or Angle -End Connection -Body Material

Trim Material -Pilot Options -Pressure Differential

Setting or Spring Range -High pressure and low

pressure connection requirement

-Special Requirements / Installation Requirements



QUALITY SYSTEM
REGISTERED TO
ISO 9001

Represented by:

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