

▲ Model 110

The Model 110 operates on/off based on the pressure difference between two points in a system.  
Typical examples include:

- ▶ LPG metering systems to prevent flashing
- ▶ Metering systems as an air eliminator shut-off valve

## SERIES FEATURES

- ▶ Valve opens on an increasing differential; closes on decreasing 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

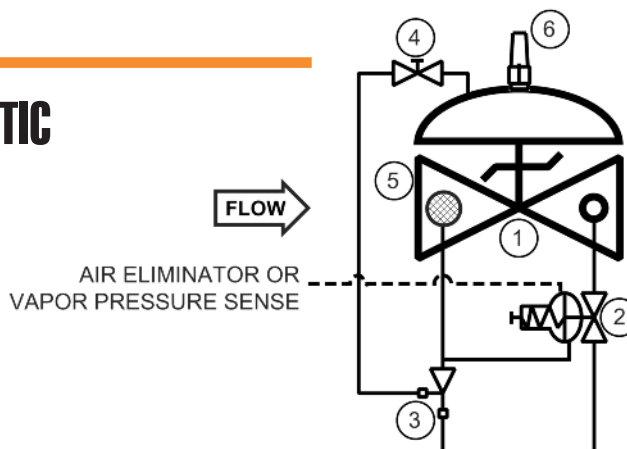
The normally closed, spring-loaded pilot senses two pressure points: the high pressure sense in the main valve inlet and the low pressure sense that is field-connected to an air eliminator head (liquid fuel) or vapor pressure bulb (LPG system). As long as the differential pressure is above the set point, the pilot is open, along with the main valve. If the differential drops below the set point, the pilot and main valve will close. In this manner, the valve acts to prevent the passage of air and/or flashing liquid through the meter. The pilot system is equipped with a needle valve response speed control.

## COMPONENTS

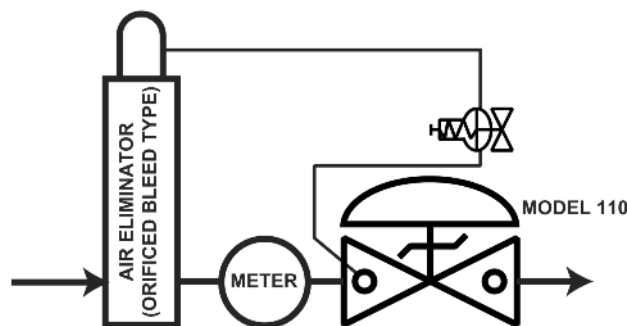
The Model 110 consists of the following components, arranged as shown on the schematic diagram:

- 1.) Model 65 Basic Control Valve (Fail Closed)
- 2.) Model 1356 Differential Control Pilot
- 3.) Model 126 Ejector
- 4.) Model 141-2 Needle Valve
- 5.) Model 123 Inline Strainer
- 6.) 155 Visual Indicator (optional)

## SCHEMATIC



## RECOMMENDED INSTALLATION



## SIZING

The Model 110 is normally sized to match the meter size; however, in no case should the maximum velocity exceed 20 ft/sec, as shown below.

## MAX. PRESSURE

(The pressures listed here are maximum working pressures at 100°F)

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	ALUMINUM
Threaded	640 psi	640 psi	285 psi
Grooved	300 psi	300 psi	200 psi
150# Flanged	250 psi	285 psi	285 psi
300# Flanged	640 psi	740 psi	---

SIZE	1 1/4", 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
MAX. FLOW, GPM	120	200	280	460	800	1800	3000	4200	6000	7200	9600	25000

Definitive sizing information can be found in the OCV Catalog under both the Series 110 section and the Engineering section Performance Charts. Consult the factory for assistance.

**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 110 (Terminal Services)



## SIZES

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

## FLUID OPERATING TEMPERATURE

RANGE (Valve Elastomers)
Buna-N -40°F to 180°F
Viton 20°F to 230°F
Fluorosilicone -40°F to 150°F
EPDM 0°F to 230°F

## SPRING RANGE (differential setting)

5-30psi (standard), 20-80psi, 20-200psi, 100-300psi
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## MATERIALS

Consult factory for others.

**Body/Bonnet:** Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, Aluminum

**Seat Ring:** Stainless Steel, Bronze

**Stem:** Stainless Steel, Monel

**Spring:** Stainless Steel

**Diaphragm:** Buna-N, Viton, (Nylon reinforced)

**Seat Disc:** Buna-N, Viton

**Pilot:** Stainless Steel, Bronze

**Other pilot system components:**

Stainless Steel, Bronze/Brass

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

## SPECIFICATIONS (Typical Terminal Services Application)

The differential control valve shall function to operate on a differential between two pressure points, where a decreased differential shall cause the valve to close.

## DESIGN

The differential control 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 needle valve speed control and inline strainer. 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. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be Stainless Steel. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The control pilots shall be Stainless Steel while the speed control, tubing and fittings shall be Stainless Steel.

## OPERATING CONDITIONS

The differential control valve shall be suitable for flow rates ranging from <X to X> gpm.

## ACCEPTABLE PRODUCTS

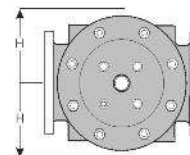
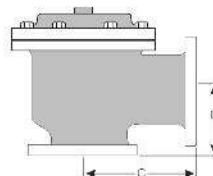
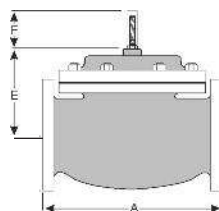
The differential control valve shall be a <size> Model 110, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

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
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	--
	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	--
E	ALL	6	6	7	6 1/2	8	10	11 7/8	15 3/8	17	18	19	27
	F (OPT)	ALL	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	6 3/8	6 3/8	6 3/8	6 3/8	6 3/8	8
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.



QUALITY SYSTEM  
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ISO 9001

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 - Elastomers -  
Special Requirements / Installation Requirements

Represented by:

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