

▲ Model 120-6PS

The Model 120-6PS has a wide range of applications: anywhere the flow rate and pump suction vacuum must be controlled or limited and reverse flow must be prevented. It therefore has an ideal application as a pump discharge control valve.

## SERIES FEATURES

- ▶ Controls or limits flow to a predetermined rate
- ▶ Built-in orifice plate for sensing flow rate
- ▶ Limits the vacuum on the pump suction to a predetermined maximum
- ▶ Check feature closes valve on pressure reversal
- ▶ Extra-sensitive pilots
- ▶ Flow rate and vacuum are each 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 the differential across the integral orifice plate which is located in the valve inlet flange, responds to changes in differential and causes the main valve to do the same. Increased differential (flow rate) works to close the pilot and main valve, whereas decreased differential works to open them. The net result is a constant modulating action of the pilot and main valve to hold the differential, hence the flow rate, constant.

Similarly, a normally open, spring loaded pilot senses the pressure or vacuum on the suction side of the pump. An increase in vacuum works to close the pilot and main valve until the vacuum decreases to within prescribed limits.

The pilot system is equipped with a needle valve that fine tunes the valve's response to the system variables.

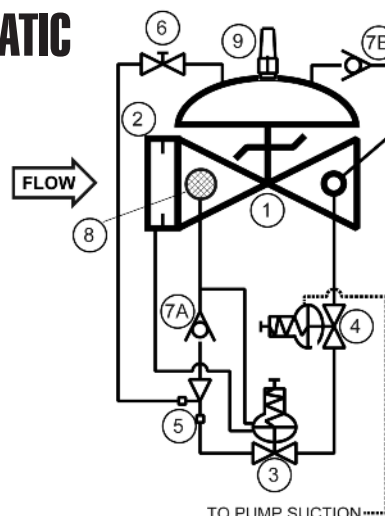
If downstream pressure becomes greater than upstream pressure, the valve will fully close to prevent reverse flow.

## COMPONENTS

The Model 120-6 consists of the following components, arranged as shown on the schematic diagram:

- 1.) Model 65 Basic Control Valve
- 2.) Orifice Plate
- 3.) Model 2450 Rate of Flow Control Pilot
- 4.) Model 1355XS Vacuum Control Pilot
- 5.) Model 126 Ejector
- 6.) Model 141-2 Needle Valve
- 7.) Model 141-1 Check Valve
- 8.) Model 123 Inline Strainer
- 9.) Model 155L Visual Indicator (optional)

## SCHEMATIC



## RECOMMENDED INSTALLATION

- ▶ Install the valve with adequate space above and around the valve to facilitate servicing. Refer to the Dimension Table.
- ▶ Valve should be installed with the bonnet (cover) at the top, particularly 8" and larger valves, and any valve with a limit switch.
- ▶ Shut-off valves should be installed upstream and downstream of the control valve. These are used to isolate the valve during start-up and maintenance.
- ▶ In order to properly set the flow rate, a meter, or some other means of measuring flow, should be installed in series with the control valve.

## SIZING

The following chart states the minimum and maximum flow rate with standard bore orifice plate, based on a fluid specific gravity of 0.8. This means the valve can be adjusted to control within the ranges shown. Lower flow ranges are possible through the use of smaller orifice plate bores and all ranges are adjustable within a 4:1 ratio (high to low flow). Consult the factory for assistance.

SIZE	1 1/4", 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
MIN. FLOW, GPM	38	63	88	145	250	560	940	1310	1875	2250	3000	8750
MAX. FLOW, GPM	152	252	352	580	1000	2240	3760	5240	7500	9000	12000	35000

## MAX. PRESSURE (The pressures listed here are maximum working pressures at 100°F)

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	ALUMINUM
150# Flanged	250 psi	285 psi	285 psi
300# Flanged	640 psi	740 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 120-6PS (Aviation Fueling)



## SIZES

### GLOBE/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

## 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 Aviation Fueling Application)

The rate of flow control/suction control/check valve shall function to control or limit the flow rate, regardless of fluctuations in upstream or downstream pressure. It shall also prevent the pump suction vacuum from exceeding a predetermined value. Finally, if downstream pressure becomes greater than upstream pressure, the valve will close fully to prevent reverse flow.

### DESIGN

The rate of flow control/suction control/check 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 orifice plate shall be integrally-installed in the valve inlet flange. The pilot system shall be furnished complete, installed on the main valve and include a needle valve speed control, pilot check valves and an inline strainer. The complete 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. Control pilot shall be stainless steel while the opening speed control, check valves, and control line tubing shall be stainless steel. The orifice plate shall also be stainless steel.

### OPERATING CONDITIONS

The rate of flow control/suction control/check valve shall be suitable for controlling the flow rate over a range of <X to X (limited to 4:1)> gpm at pressures ranging from <X to X> psi, while limiting the vacuum on the pump suction to a maximum of <x> psi.

### ACCEPTABLE PRODUCTS

The rate of flow control/check valve shall be a <size> Model 120-6PS, <globe pattern, angle pattern>, with <150# flanged, 300# flanged> 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	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	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	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
F (OPT)	ALL	3 7/8	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"

\*\*Note: for military fueling valves, 6" 150# flanges have 20" face to face dimensions and 6" 300# flanges have 20-7/8" face to face dimensions.

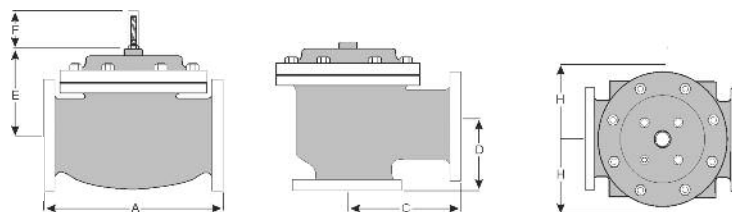
For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 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 120-6PS valve

When ordering please provide:

Fluid to be controlled - Model Number -  
Size - Globe or Angle - End Connection -  
Body Material - Trim Material - Pilot  
Options - Flow Rate Setting or Range -  
Special Requirements / Installation  
Requirements.



QUALITY SYSTEM  
REGISTERED TO  
ISO 9001

United States/Canada Joint  
Certification Program (JCP)  
Certification Number 0073030

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](mailto:sales@controlvalves.com) • website: [www.controlvalves.com](http://www.controlvalves.com)