

▲ Model 120-1

The Model 120-1 has a wide range of applications: anywhere the flow rate must be controlled or limited, combined with a need for an on/off electrical operation.

Typical examples include:

- Pump systems
- Zone flow control in municipal and industrial water
- Filter backwash control
- Metering systems

SERIES FEATURES

- ▶ Controls or limits flow to a predetermined rate
- ▶ Electrically operated solenoid allows valve to open (control flow) or shut-off (close)
- ▶ Built-in orifice plate for sensing flow rate
- ▶ Extra-sensitive differential pilot
- ▶ Flow rate 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

When closed, a two-way solenoid causes the main valve to close. Opening the solenoid opens the valve and allows the normally open, spring loaded pilot to sense the differential across the integral orifice plate, located in the valve inlet flange, and respond to changes in differential, causing 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. The pilot system is equipped with a needle valve that fine tunes the valve response to the system variables. The solenoid can be supplied normally closed (energize to enable) or normally open (energize to close).

COMPONENTS

The Model 120-1 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 451 Two-way Solenoid Pilot, N.C.
- 5.) Model 126 Ejector
- 6.) Model 141-2 Needle Valve
- 7.) Model 159 Y-Strainer
- Protects pilot system from dirt/debris
- 8.) Model 141-4 Isolation Ball Valves
- 9.) Model 155 Visual Indicator (Optional)

MAX. PRESSURE

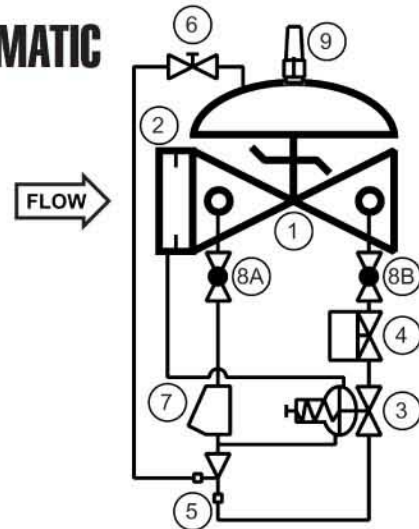
END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	BRONZE
150# Flanged	250 psi	285 psi	225 psi
300# Flanged	640 psi	740 psi	500 psi

SIZING

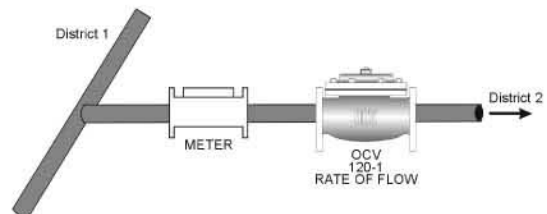
The following chart states the minimum and maximum flow rate with standard bore orifice plate. This means the valve can be adjusted to control within the ranges shown. Lower flow ranges are possible through the use of smaller orifice plate bores. All ranges are adjustable within a 4:1 ratio (high to low flow). Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.

SIZE	1 1/4"-1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
MIN. FLOW GPM	30	50	70	115	200	450	750	1050	1500	1800	2400	7000
MAX. FLOW GPM	120	200	280	460	800	1800	3000	4200	6000	7200	9600	28000

SCHEMATIC



RECOMMENDED INSTALLATION



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

Flanged Ends - 1 1/4" - 24" (globe);
1 1/4" - 16" (angle)

TEMPERATURE RANGE

(Valve Elastomers)

Buna-N -40° F - 180°F

Viton 0° F - 400°F

EPDM 0° F - 300°F

MATERIALS - Consult factory for others.

Body/Bonnet: Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, B61 Bronze, Others available (consult factory)

Seat Ring: Bronze B61, Stainless Steel

Stem: Stainless Steel, Monel

Spring: Stainless Steel

Diaphragm: Nylon Reinforced, Buna-N, Viton, EPDM

Seat Disc: Buna-N, Viton, EPDM

Pilot: Bronze, Stainless Steel

Other pilot system components:

Bronze/Brass, All Stainless Steel

Tubing & Fittings: Copper/Brass, Stainless Steel

Solenoid:

Enclosure: Weatherproof NEMA 4X,

Explosion Proof NEMA 4X, 6P, 7, 9

Body: Brass, Stainless Steel

Voltages: 24, 120, 240, 480 VAC; 12,

24 VDC

Note: working pressures of solenoids vary greatly, consult factory on application of OCV Model 120-1 valves

SPECIFICATIONS (Typical Water Application)

The rate of flow/solenoid shut-off valve shall function to control or limit the flow rate, regardless of fluctuations in upstream or downstream pressure. The valve shall be equipped with a two-way solenoid valve that will allow the valve to open when <energized, de-energized>.

DESIGN

The rate of flow/solenoid shut-off 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 and installed on the main valve. It shall include a needle valve speed control, Y-strainer, solenoid valve and isolation ball valves. The rate of flow/solenoid shut-off 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 bronze per ASTM B61. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. Control pilot shall be ASTM B61 bronze. The opening speed control and isolation ball valves shall be brass, and control line tubing shall be copper. The orifice plate shall be stainless steel. The solenoid shall have a weatherproof enclosure and suitable for operation on <voltage>.

OPERATING CONDITIONS

The rate of flow/solenoid shut-off 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.

ACCEPTABLE PRODUCTS

The rate of flow control valve shall be a <size> Model 120-1, <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	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"

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 120-1 valve

When Ordering please provide:

Fluid to be controlled - Model Number - Size

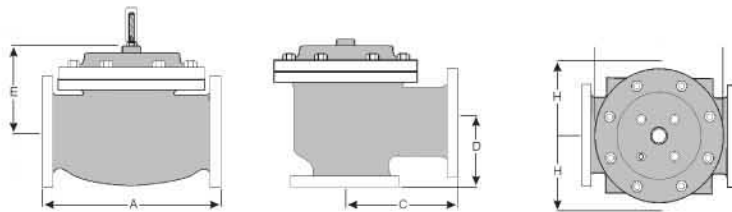
Globe or Angle - End Connection - Body

Material - Trim Material - Pilot Options - Flow

Rate Setting or Range - Solenoid enclosure

Weatherproof or Explosion Proof - Special

Requirements / Installation Requirements



QUALITY SYSTEM REGISTERED TO ISO 9001

Represented by:

TOLL FREE 1.888.628.8258 • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, Oklahoma 74145
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