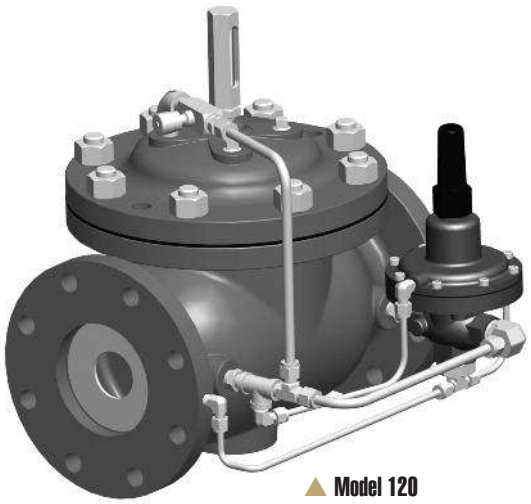
Model 120 (Aviation Fueling)



▲ Model 120

The Model 120 has a wide range of applications: anywhere the flow rate must be controlled or limited.
Typical examples include:
- ▶Pump systems
- ▶Fuel metering systems

SERIES FEATURES

- ▶Controls or limits flow to a predetermined rate
- ▶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

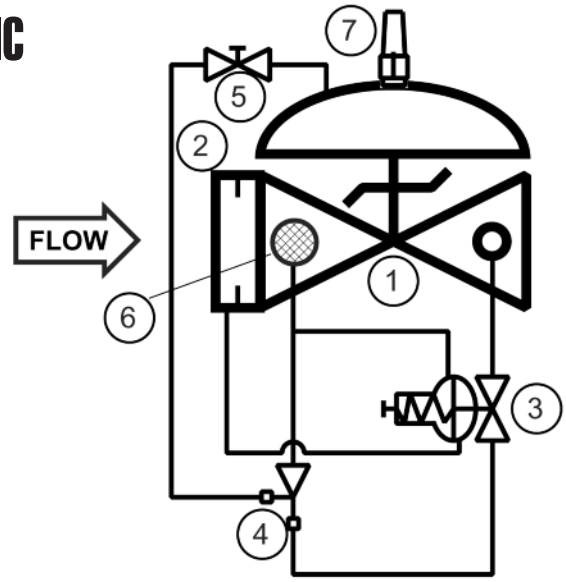
The normally open, spring loaded pilot, sensing the differential across the integral orifice plate which is located in the valve inlet flange, responds to changes in differential and causes the main valve to do the same. Increased differential (flow rate) works to close the pilot and main valve, whereas 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. The pilot system is equipped with a needle valve that fine tunes the valve's response to the system variables.

COMPONENTS

The Model 120 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 126 Ejector**
5.) **Model 141-2 Needle Valve**
6.) **Model 123 Inline Strainer**
7.) **Model 155L Visual Indicator (optional)**

SCHEMATIC



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 bore and all ranges are adjustable within a 4:1 ratio (high to low flow). Consult the factory for assistance.

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.

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	---

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

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 Rate of Flow Control Valve

Model 120 (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 -20°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 valve shall function to control or limit the flow rate, regardless of fluctuations in upstream or downstream pressure.

DESIGN

The rate of flow 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 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 and an inline strainer. The rate of flow 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 pilot shall be stainless steel, while the opening speed control and control line tubing shall be stainless steel. The orifice plate shall also be stainless steel.

OPERATING CONDITIONS

The rate of flow control 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, <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	--
ANGLE	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	--
ANGLE	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

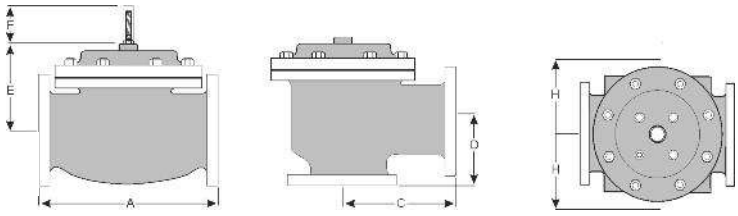
*GROOVED END NOT AVAILABLE IN 1 1/4"

**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 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:

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