"Apollo"®

REVISION DATE: 02/16/06

MODEL A120

DESCRIPTION

A120 RATE OF FLOW CONTROL VALVE

The Model A120 has a wide range of applications: anywhere the flow rate must be controlled or limited.
Typical examples include:
- Pump systems
- Zone flow control in municipal and industrial water
- Filter backwash control
- Fuel metering systems

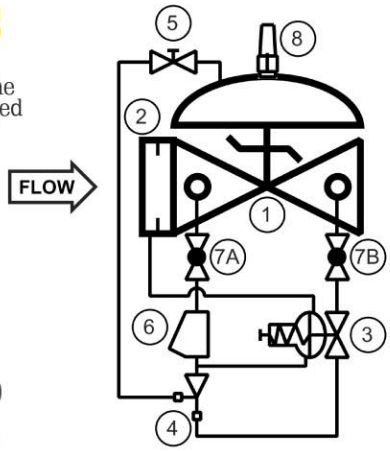
SERIES FEATURES

- 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

SCHEMATIC

The Model A120 consists of the following components, arranged as shown on the schematic diagram:

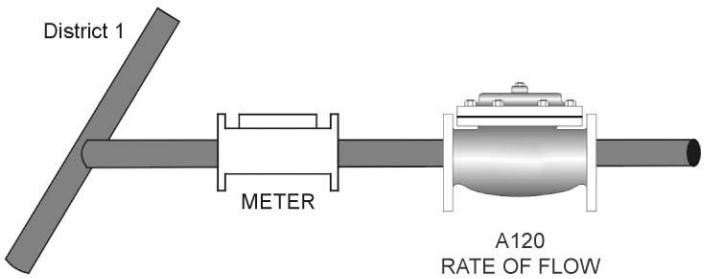
1.) Basic Control Valve
2.) Orifice Plate
3.) Flow Control Pilot
4.) Ejector
5.) Needle Valve
6.) Y-Strainer
7.) Isolation Ball Valves
8.) Visual Indicator (Optional)



OPERATION

The normally open, spring loaded pilot, sensing the differential across the integral orifice plate, 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 response to the system variables.

RECOMMENDED INSTALLATION



Sizes: GLOBE/ANGLE

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

SIZING GUIDELINES

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.

SIZE	1 1/4"-1 1/2"	2"	2 1/2"	3"	4"	6"
MIN. FLOW GPM	30	50	70	115	200	450
MAX. FLOW GPM	120	200	280	460	800	1800

SIZE	8"	10"	12"	14"	16"	24"
MIN. FLOW GPM	750	1050	1500	1800	2400	7000
MAX. FLOW GPM	3000	4200	6000	7200	9600	28000

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

TEMPERATURE RANGE

(Valve Elastomers)
Buna-N -40° F - 180°F; Viton 0° F - 400°F; EPDM 0° F - 300°F

STANDARD MATERIALS

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

"Apollo" Valves
Manufactured by Conbraco Industries Inc.

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SPECIFICATIONS

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 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, a Y-strainer, and isolation ball valves. 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 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.

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.

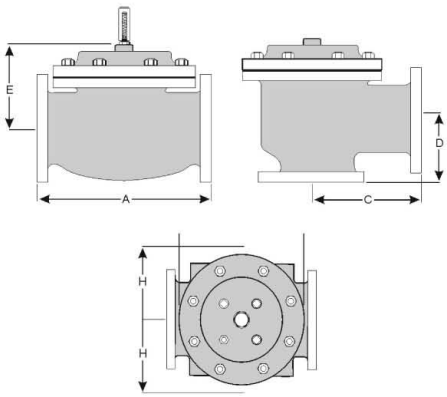
ACCEPTABLE PRODUCTS

The rate of flow control valve shall be a <size> Model A120, <globe pattern, angle pattern>, with <150# flanged, 300# flanged> end connections, as manufactured by Conbraco Industries, Matthews, NC.

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
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 Apollo 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.

Special Functions
000= Standard Valve

***Must Specify Flow Rate and Fluid to be Controlled**

Model Number

A	1	2	0	G	0	0	0	0	2	0	1	1	1	1

Valve Type / Connection
A=Angle / Flanged ANSI 150 Class
B=Angle / Flanged ANSI 300 Class
C=Angle / Threaded (1-1/4 - 3")
E=Angle / Grooved Ends (1-1/2 - 4")
F=Angle / Flanged 300clsX150cls
G=Globe / Flanged ANSI 150cls
H=Globe / Flanged ANSI 300cls
J=Globe / Threaded Ends (1-1/4 - 3")
V=Globe / Grooved Ends (1-1/2 - 4")

Valve Size
012= 1 - 1/4"
015= 1 - 1/2"
020= 2"
025= 2 1/2"
030= 3"
040= 4"
060= 6"
080= 8"
100= 10"
120= 12"
140= 14"
160= 16"
240= 24"

Seat Ring Material
1=Bronze, B61
2=Stainless Steel

Body & Bonnet Material
1=Ductile Iron
2=Cast Steel
4=Bronze
7=Stainless Steel

Elastomers
1=Buna-N 2=Viton 3=EPDM

Pilot, Fitings, Tube

CODE	MATERIAL PILOT	FTGS	TUBE
1	BZ	BRS	CU
4	SS	BRS	CU
8	SS	SS	SS
9	BZ	SS	SS

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