Serial No.	H-V019-E-7

Constant Flow Valves

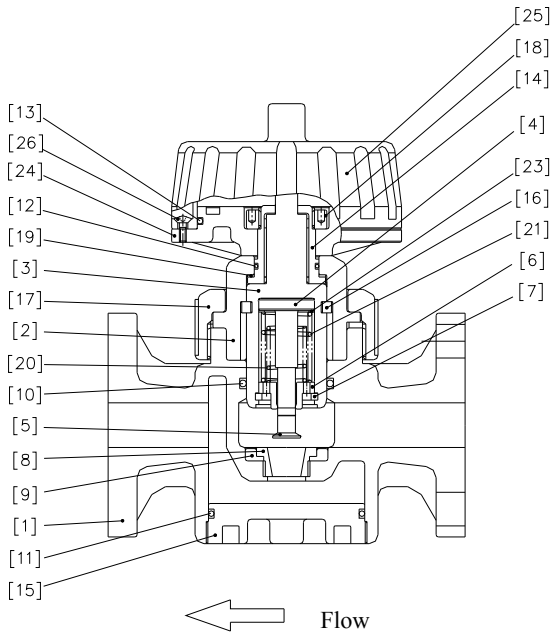
User's Manual

Contents

ASAHI YUKIZAI CORPORATION

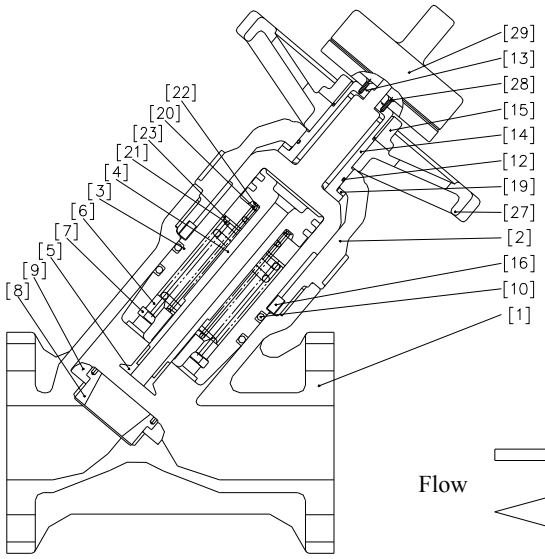
(4) Name of parts

Nominal Size: 15mm（1/2”）, 20mm (3/4”)



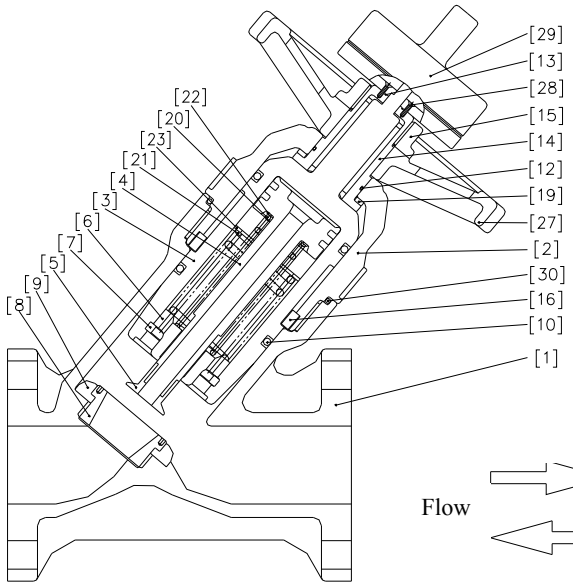
No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body	[14]	Sleeve
[2]	Bonnet	[15]	Cap
[3]	Cylinder	[16]	Key
[4]	Piston	[17]	Cap nut
[5]	Plug	[18]	Nut
[6]	Spring base	[19]	Thrust ring
[7]	Stop ring	[20]	Spring (A)
[8]	Orifice	[21]	Spring (B)
[9]	Seat	[23]	Washer (B)
[10]	O-Ring (A)	[24]	Handle base
[11]	O-Ring (B)	[25]	Handle cover
[12]	O-Ring (C)	[26]	Screw
[13]	O-Ring (D)		

Nominal Size: 25mm（1”）



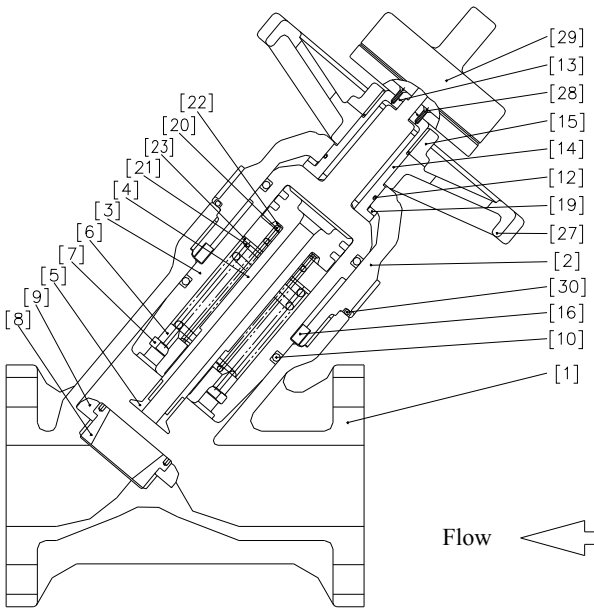
No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body	[14]	Sleeve
[2]	Bonnet	[15]	Cap
[3]	Cylinder	[16]	Key
[4]	Piston	[19]	Thrust ring
[5]	Plug	[20]	Spring (A)
[6]	Spring base	[21]	Spring (B)
[7]	Stop ring	[22]	Washer (A)
[8]	Orifice	[23]	Washer (B)
[9]	Seat	[27]	Hand Wheel
[10]	O-Ring (A)	[28]	Screw
[12]	O-Ring (C)	[29]	Indicator
[13]	O-Ring (D)		

Nominal Size: 50mm (2”), 80mm (3”)



No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body	[14]	Sleeve
[2]	Bonnet	[15]	Cap
[3]	Cylinder	[16]	Key
[4]	Piston	[19]	Thrust ring
[5]	Plug	[20]	Spring (A)
[6]	Spring base	[21]	Spring (B)
[7]	Stop ring	[22]	Washer (A)
[8]	Orifice	[23]	Washer (B)
[9]	Seat	[27]	Hand Wheel
[10]	O-Ring (A)	[28]	Screw
[12]	O-Ring (C)	[29]	Indicator
[13]	O-Ring (D)	[30]	O-Ring (E)

Nominal Size: 100mm (4”)



No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body	[14]	Sleeve
[2]	Bonnet	[15]	Cap
[3]	Cylinder	[16]	Key
[4]	Piston	[19]	Thrust ring
[5]	Plug	[20]	Spring (A)
[6]	Spring base	[21]	Spring (B)
[7]	Stop ring	[22]	Washer (A)
[8]	Orifice	[23]	Washer (B)
[9]	Seat	[27]	Hand Wheel
[10]	O-Ring (A)	[28]	Screw
[12]	O-Ring (C)	[29]	Indicator
[13]	O-Ring (D)	[30]	O-Ring (E)

(5) Specifications

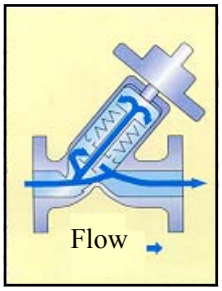
- Working Temperature : PVC = 0-50℃ (30 - 120° F), C-PVC = 0-70℃ (30 – 160° F)
- Upstream Working Pressure : 0.25MPa (2.6kgf / cm^2) or less
  0.25 to 0.5 MPa (2.6 to 5.1kgf / cm^2)
  0.5 to 0.75 MPa (5.1 to 7.7kgf / cm^2)
  0.75 to 1.0 MPa (7.7 to 10.2kgf / cm^2)

* Nom. size 100mm (4") is 0.5 MPa (5.1kgf / cm^2) or less only.

0.1MPa = 14.286PSI

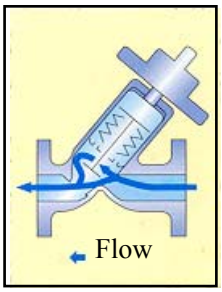
- A Type [25mm (1") – 80mm (3")]

Fluid flows through the valve inside Suitable for semi-conductor industry.
(Ultra pure water line)



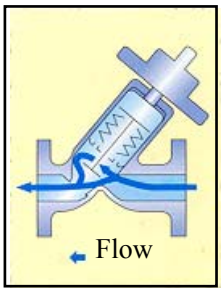
- B Type [15mm (1/2") – 80mm (3")]

Flow rate setting range is large.
(Covers small flow rate to large rate)



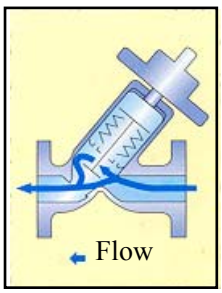
- C Type [15mm (1/2") – 100mm (4")]

Range of working differential pressure is large.
(For lines with large pressure differential between upstream & downstream)



- D Type [80mm (3") – 100mm (4")]

A large flow rate can be set.



(6) Principle & Operation

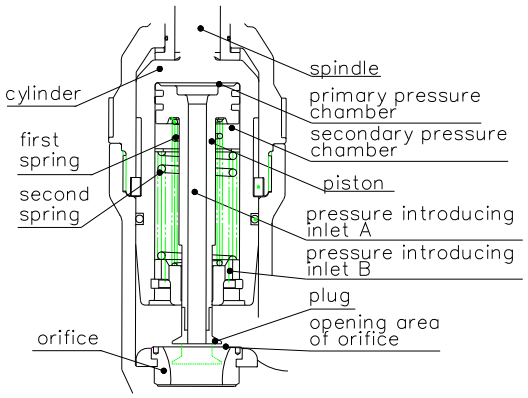


Fig. 1

Refer to Figure 1 for design and operation of ASAHI AV Flow Control Valve. When the upstream fluid pressure, P_1 is introduced at the flow control orifice, it exerts a corresponding pressure on the upper surface of the flange on the piston type valve plug.
Likewise, the downstream pressure, P_2 exerts a corresponding pressure to the lower surface of the valve plug flange. Thus, when a differential pressure exists between the fluid upstream and downstream of the orifice, the corresponding pressure differential acting on the surfaces of the flange moves the valve plug piston either downward against the force of the spring cartridge or upward by the force the spring, depending upon the direction of the force induced by the existing pressure differential.

This upward or downward movement of the valve plug piston causes the flow orifice to be widened or narrowed accordingly, thus the flow rate of the fluid passing across the orifice is automatically adjusted.
For example, if the pressure differential, $P_1 - P_2$ created between the upstream and downstream side of the orifice increases, the valve plug piston moves downward to narrow the area of the orifice opening and automatically adjusts the orifice to the preset flow rate value. (With the type of B, C and D, the plug has no inlet hole for fluid, as the pressure differential $P_1 - P_2$ exerts directly on the surface of the plug.)
The reverse is also true when the pressure differential decreases, the piston moves upward increasing the orifice opening area and allowing the fluid flow rate to increase to the preset value.

Preset flow rate range for use Design flow rate ranges:

Nom. size	TYPE	Flow rate (m^3/hr)	Range ability	Working differential pressure
15mm (1/2")	TYPE B	0.04 - 0.8	20 : 1	0.02 - 0.1MPa (0.2 - 1.0kgf/cm^2)
	TYPE C	0.08 - 0.8	10 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
20mm (3/4")	TYPE B	0.06 - 1.2	20 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE C	0.12 - 1.2	10 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
25mm (1")	TYPE A	0.5 - 2.0	4 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE B	0.1 - 2.0	20 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE C	0.2 - 2.0	10 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
50mm (2")	TYPE A	2.0 - 8.0	4 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE B	0.4 - 8.0	20 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE C	0.8 - 8.0	10 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
80mm (3")	TYPE A	5.0 - 20.0	4 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE B	1.0 - 20.0	20 : 1	0.02 - 0.1 MPa (0.2 - 1.0 kgf/cm^2)
	TYPE C	2.0 - 20.0	10 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
	TYPE D	15.0 - 30.0	2 : 1	0.03 - 0.15 MPa (0.3 - 1.5 kgf/cm^2)
100mm (4")	TYPE C	10.0 - 60.0	6 : 1	0.03 - 0.2 MPa (0.3 - 2.0 kgf/cm^2)
	TYPE D	30.0 - 60.0	2 : 1	0.02 - 0.2 MPa (0.2 - 2.0 kgf/cm^2)

1m^3/hr = 4.4033gal/min, 0.1MPa = 14.286PSI

Constant flow valve

ASAHI YUKIZAI CORPORATION

Distributor

http://www.asahi-yukizai.co.jp/en/

Information in this manual is subject to change without notice. 2016.4