



SELF-OPERATED MICRO PRESSURE CONTROL VALVE

General

The Self-operated Micro Pressure Control Valve there is no need for any external power source, only used fluid own energy to adjusted the valve opening automatically. The valve uses the regulating mechanism which has quick open flow characteristic of balanced single-seat valve, without packing and frictionless movable components internal., it makes fluid pressure stable, high precision adjusting, which could control micro pressure conditions and make sure safe and reliable sealing performance, arbitrary adjust of set value could be also achieved during operation. So it is widely used for the micro pressure automatic regulation sites of all kinds of fuel, half- finished petroleum of the industrial furnace burning system, oil tank stocking protective gas and heat treatment protective gas.

Characteristics

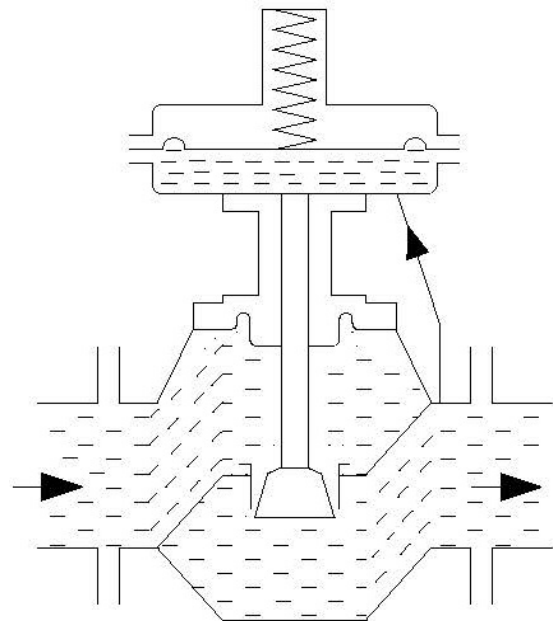
- Without any external driving energy, low cost.
- Simple structure, little maintenance work.
- The set point can be adjusted, and the range is wide, convenient for the user to do continuous adjustment.
- Using the pressure balance valve structure, ensure the constant pressure of medium.
- Body pressure, convenient pipe installation.
- No packing, frictionless movable components, sensitive control, high control precision.

Operational principle

- Operational principle of self-operated outlet micro pressure control valve:

The initial plug position is opening. When the inlet pressure P_1 pass the plug and seat it changes to outlet pressure P_2 , P_2 gets through a pressure guiding pipe input lower membrane chamber in the diaphragm, the reaction force and the spring balance spool position determines the opening level of valve and thus controls the outlet pressure.

When the outlet pressure P_2 increases, the inlet pressure P_2 acting on the diaphragm also increased. Meanwhile, the force on the diaphragm is bigger than the spring reaction force, which makes the plug close on the seat position and decrease the valve opening level, P_2 decreased until the force on the diaphragm equals to the spring reaction force and make P_2 as set figure and vice versa.

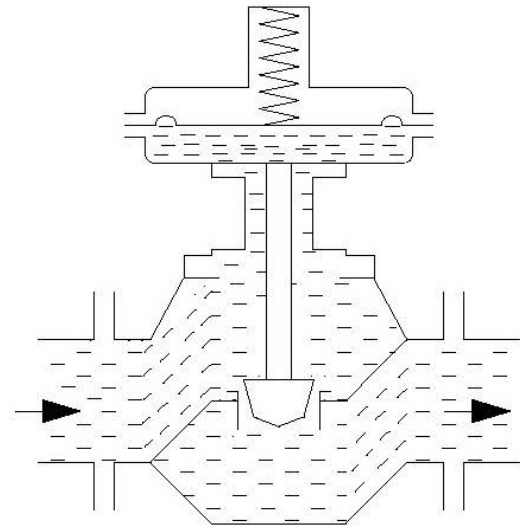


Control Outlet Pressure

■ Operational principle of self-operated inlet micro pressure control valve:

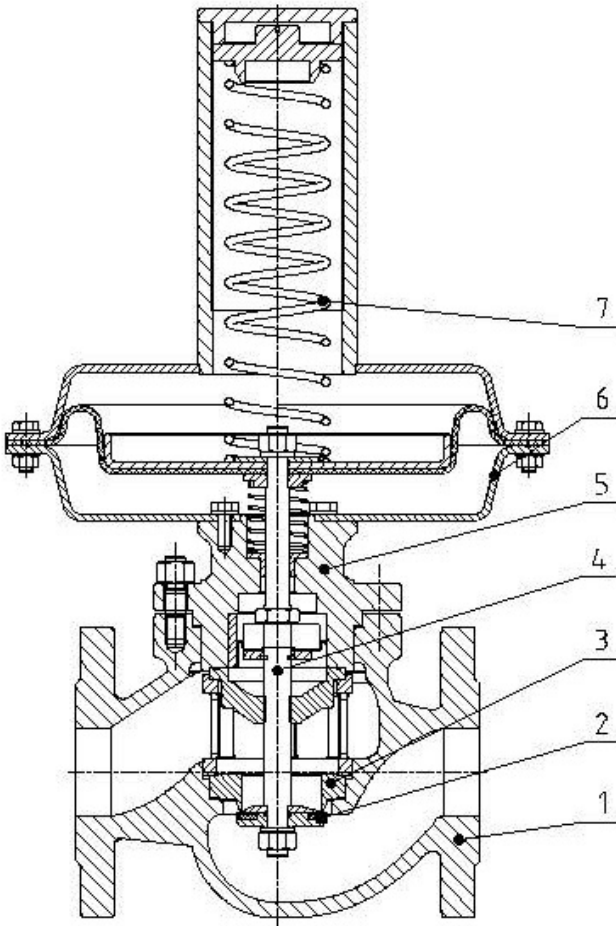
The initial plug position is closing. When the outlet pressure P_1 pass the plug and seat it changes to outlet pressure P_2 , P_1 gets through a pressure guiding pipe input lower membrane chamber in the diaphragm, the reaction force and the spring balance spool position determines the opening level of valve and thus controls the inlet pressure.

When the inlet pressure P_1 increases, the force P_1 acting on the diaphragm also increased. Meanwhile, the force on the diaphragm is bigger than the spring reaction force, which makes the plug get away from the seat position and increase the valve opening level; P_1 decreased until the force on the diaphragm equals to the spring reaction force and make P_1 as set figure and vice versa.



Control Inlet Pressure

Popular materials of parts



<i>POS</i>	<i>PART NAME</i>	<i>MATERIAL</i>
1	Body	WCB, CF8, CF8M
2	Seat	CF8, CF8M, CF3M
3	Plug	NBR, PTFE
4	Stem	304, 316
5	Bonnet	WCB, CF8, CF8M
6	Diaphragm cover	20, 304
7	Spring	60Si2Mn, 50CrVA
8	Diaphragm	NBR, EPDM, FKM

Specifications and technical parameters

1. Main technical parameters (standard valve)

DN (mm)	15	20	25	32	40	50	65	80	100	125	150
Rated Flow Coefficient Kv	3.2	6.3	10	16	25	40	63	100	160	250	400
Rated Travel L (mm)	10						20			30	
Actuator Type	Diaphragm type 600, 400, 200cm ² (choose actuator according to pressure)										
PN (MPa)	1.0 - 1.6										
Inherent Flow Characteristic	Quick opening										
Action Type	Press to close (control outlet), Press to open (control inlet)										
Structure Type	Single seat pressure balance type										
Inherent Adjustable Ratio R	30										
Regulation Accuracy (%)	±5										
Medium Temperature (°C)	Gas < 120°C										
Allowable Leakage	VI, Zero leakage (soft sealing)										
Flange Connection	PN1.6MPa according to ASME B16.9 / EN1092-1 RF, Raised surface										
Pressure Regulating Range (KPa)	(0.25 to 3), (0.5 to 5), (3 to 10), (5 to 14), (10 to 20), (20 to 30) (25 to 40), (40 to 55), (50 to 70), (70 to 85), (80 to 100)										

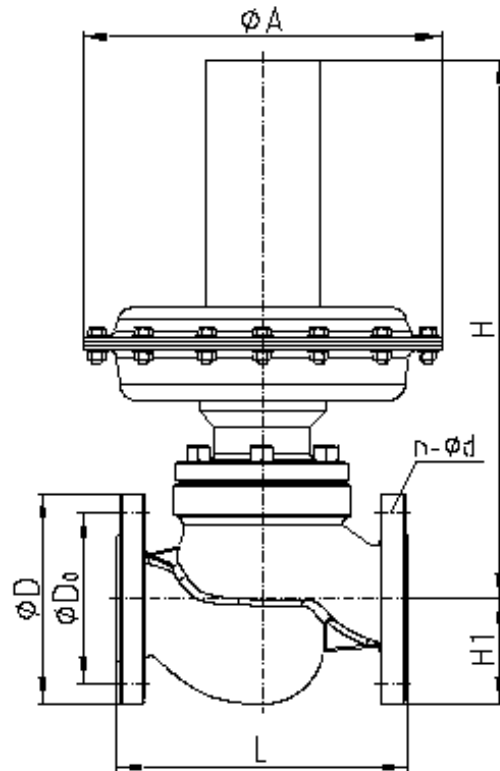
2. Main technical parameters of standard valve (KV≤7)

DN (mm)	15 20 25							
Seat Diameter (mm)	20							
Rated flow Coefficient Kv	0.2	0.32	0.5	0.8	1.2	2.0	3.2	7

Remark:

- Production can be according to customer's special requirements.
- Flange can be produced according to ANSI/ASME, DIN, JIS.
- When the flow is small the diameter stays unchanged, use valve throttling device to achieve client's requirements.

Size and Weight



(Unit: mm)

DN	15	20	25	32	40	50	65	80	100	125	150
L	160			180	200	230	290	310	350	400	480
H	440			470			500			540	580
H1	47.5	52.5	57.5	70	75	82.5	92.5	100	110	125	142.5
ΦA	According to control pressure: 398, 308, 232										
D	95	105	115	140	150	165	185	200	220	250	285
D₀	65	75	85	100	110	125	145	160	180	210	240
n-φd	4-14			4-18				8-18			8-22
Weight (kg)	16			18	22	26	32	36	52	64	88

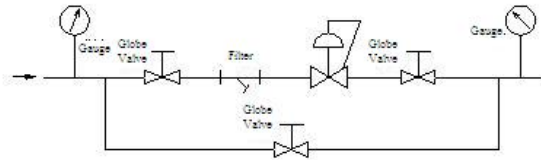
Remark:

- Flange standard is ASME B16.9 / EN1092-1 (PN1.6MPa)
- Valve body pressure, no external pipeline.

Installation, application and notice

1. Installation:

- a) Before installation, clean the pipeline to make enough straight pipelines at the entrance and is equipped with filter.
- b) The valve should be installed vertically upright in horizontal pipelines, inclined when necessary, try to avoid horizontal installation.
- c) In order to ensure the product maintenance or faulty continuous production, should be set to bypass valve, as shown below:



2. Application and notice:

- a) The outlet pressure is measured to set pressure before delivery. Adjust the adjust plate to change the set pressure.
- b) The pressure controlling valve should be installed in a place which temperature does not exceed -25°C to 55°C .
- c) Because the pressure regulating valve has pressure balancing diaphragm, it cannot be exchanged for nominal pressure of 1.5. The valve is suitable for micro pressure automatic regulating occasions.
- d) In the condition of controlling pressure difference, when controlling the front and back pressure difference, body pressure into the lower diaphragm cover and back body pressure into the upper diaphragm cover to control the pressure difference.
- e) In the condition of controlling pressure difference, when controlling pressure difference of two mediums, back body pressure into the lower diaphragm cover and the second medium pressure into the upper diaphragm cover to control the pressure difference.

3. Usage:

A Open cut-off valve before and after valve slowly

B Open the micro pressure valve top cover, regulate spring, make back pressure fit the working condition; cover the spring-cover to be dust and waterproof.

Accessories:

1. Tube and taps are equipped with valve
2. Equip with stainless steel manual ball valve according to customer's requirements.

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Quality Management System



ISO 9001-2015

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