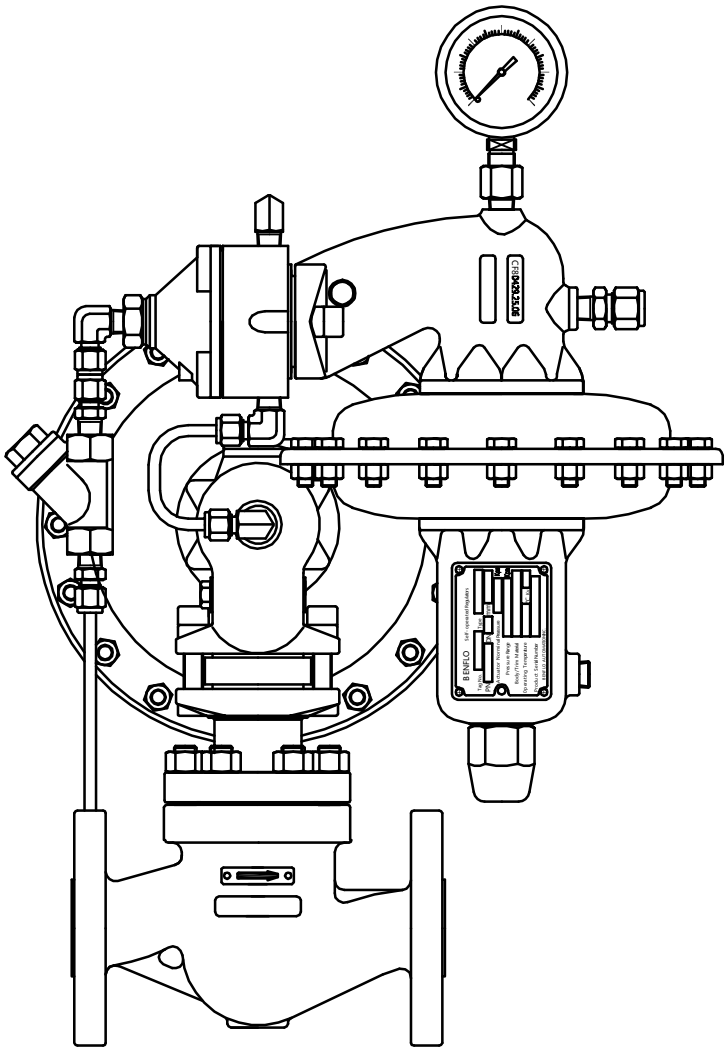
Pilot Control Micro-pressure Blanketing Gas Regulating Valve

Type SP592



BenFLo Automation

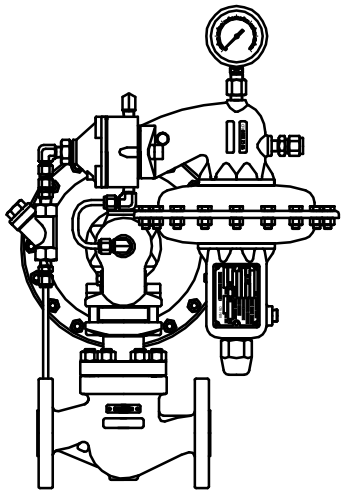
BENFLO AUTOMATION INC.

(Partner Of SaiLing Automation Equiment Co.,Ltd.)

SP592 Pilot Control Micro-pressure Blanketing Gas Regulating Valve (hereafter called as pressure regulating valve)

Caution

Due to the installation,operation or maintenance performed by non-professional persons may cause equipment damages or injuries.The work must be performed by professional persons.



Product Overview

SP592 pressure regulating valve is a micro-pressure regulating valve for pilot type and extensively applied for the micro-pressure control of different gas and micro-pressure nitrogen blanketing. It can regulate the middle-pressure gas to reduce and stabilize the pressure to minimal pressure in a regulation. The minimal control pressure is 0.15 KPa. The maximum control pressure is 12KPa. The minimal operation temperature is -48℃. The maximum operation temperature is 120℃.

Product Feature

- Excellent Micro-Pressure Control Performance---The pressure regulating valve takes many measures to adapt to precise and stable micro-pressure control.
- Amplify Lever Force---The pilot operation mechanism is amplify the pull force of the lever. The micro-pressure control should generate micro push on the diaphragm. The pure expanded diaphragm area will lead to too huge valve volume. The lever can amplify the push to 6 time for control without the need of increasing the valve volume.
- Nozzle Pilot Valve---The control performance of the pilot-valve determines the control capability of the whole pressure regulating valve system. For the micro-pressure control, any friction and resistance will severely affect the control effect. The pilot-valve plug is designed as the nozzle retaining plate structure without any sliding friction, so it is very high in control sensitivity.
- Back-Pressure Control---For the pneumatic system, the back-pressure control is the most stable. The gas be input to the bilateral diaphragm case of the main-valve. The back diaphragm case can adjust the released gas flow via the pilot valve nozzle for stable and precise control.

- Embedded Pressure Reducing Valve---The power gas of the pressure regulating valve of the pilot valve is from the gas ahead of the upstream. Generally the upstream pressure is higher and changes. The embedded pressure reducing valve inside the pilot valve can reduce to the low and stable pressure from the higher pressure of the upstream and it to the control system of the pressure regulating valve.
- Filter---It is the precise pneumatic instrument of the pilot valve and requires clean control gas. The pilot pressure tube of the pressure regulating valve includes includes a filter to guarantee clean gas to the pilot valve.
- Low Start Pressure---The main valve is drive by lever, so the pressure regulating valve can normally start and adjust the pressure regulating valve by using 15KPa upstream pressure.
- Withstand Pressure Difference---The balance main valve plug can make the pressure regulating valve withstand higher pressure difference.
- Soft Sealing Seal---The valve plug is designed as softwore sealing structure and can easily cut off the flow.
- No Packing---Any friction resistance will affect the control precision of the pressure regulating valve at the micro-pressure control. SP592 pressure regulating valve without packing makes the regulating mechanism have highly sensitive and reduces leakage point.
- High Precision---The high-sensitivity pilot valve provides a high control precision of the pressure regulating valve.
- Low Over Control---The less over control is expected for any control system. SP592 pressure regulating valve is a once regulate the flow and the reduction ratio is extremely, so it easil generate over control. The nozzle of the pilot valve is a rewind valve plug. When the pressure is over, the nozzle valve plug will quickly open two diaphragm case make the pressure to balance and quickly reduce the flow to minimze over control.
- Overload Safety---To reduce the influence of the parts gravity for control pressure. The whole regulating device of the pressure regulating valve should be designed as light and precise as far as possible. The downstream pressure is very low during normal operation. The force on the regulating device is very small. The overload is unavoidable in actual operation. The downstream pressure can reach the upstream pressure at abnormal state. At this time, the push force generated by the diaphragm assembly is very destructive to the regulation device. The overload device of the pressure regulating valve can effectively uninstall the overload force and avoid damage

to the regulation device. Namely when the pressure regulating valve is operating. In most case, the diaghragm case of the actuator can fully withstand the maximum operation pressure of upstream and it will not be damaged.

- Easy Pressure Regulation---The screw regulation device can realize easy, convenient and quick pressure regulation.
- Stainless Actuator---As an important part of the reguator, the actuator is made of stainless plate to ensure its high pressure-strength and long service life.
- Easy Maintenance---The selection criteria of the every structure of the SP592 regulator is to make sure the most convenient installation and maintenance while ensuring the performance requirements are met.

The top-mounted push-down installation method allows you to inspect and maintain the internal parts without any special tools before disassembling the regulator.

The bonnet central alignment method is adopted to avoid all unnecessary repeat matching operation. The internal part has sufficient clearance to make sure itself can be easity taken out or put in.

- Universal Parts---SP592 regulator has estremely high parts universality with the whole self-operated products series manufactured by our company, it helps to reduce the inventory of spare parts.

Specification Series and Performance Indicator

- Body Size(Flanged connection)

  DN15(1/2"),DN20(3/4"),DN25(1"),DN40(11/2"),DN50(2")
  DN65(21/2"),DN80(3"),DN100(4")
- PN16,40,64 ANSI 150LB,300LB,600LB

  Can also be customized
- Flow Factor

Diameter of Valve	DN15,DN20,DN25,DN40,DN50							
KV	0.3	0.6	1	1.6	2.5	4.5	6.5	9

Remak: maximum 4.5 KV is allow for DN15, maximum 6.5 KV is for DN20, the diameter is not limited for other types.

Diameter of Valve	40	50	65	80	100
KV	22	36	58	90	145

Note:Diameters listed in above table are standard diameters, the valves can also be made with Reduced diameters.

- Feedback Interface

  ZG1/4" 10mm card set of connector is provided in the plant.
- Pressure Measuring Method

  Measured at outside.

  Applied to the tank nitrogen blanketing , measuring from top of tank.
- Flow Characteristics

  L (Normal)

  EQ%(Secical processing)
- Division of Regulation Pressure range

  0.2-0.4KPa, 0.25-0.65KPa, 0.4-1.2KPa, 0.9-2.7KPa, 1.5-5KPa, 3-9KPa, 4-12KPa

- Upstream Pressure Scope

  Minimal upstream state pressure: 15KPa

  Minimal pressure for full valve opening: 30KPa

  Maximum upstream pressure: 1200KPa

- Operation Temperature

  This is soft-sealing valves, the temperature depends on the material of the sealing part and diaphragm.

NBR	-29-82℃
FKM	-8-120℃
SR	-48-85℃
EPDM	-38-115℃

- Leakage Class

  Soft-sealing VI

- Control Performance

  Dynamic control precision: 2%

  Static cut-off precision: < 0.25Kpa

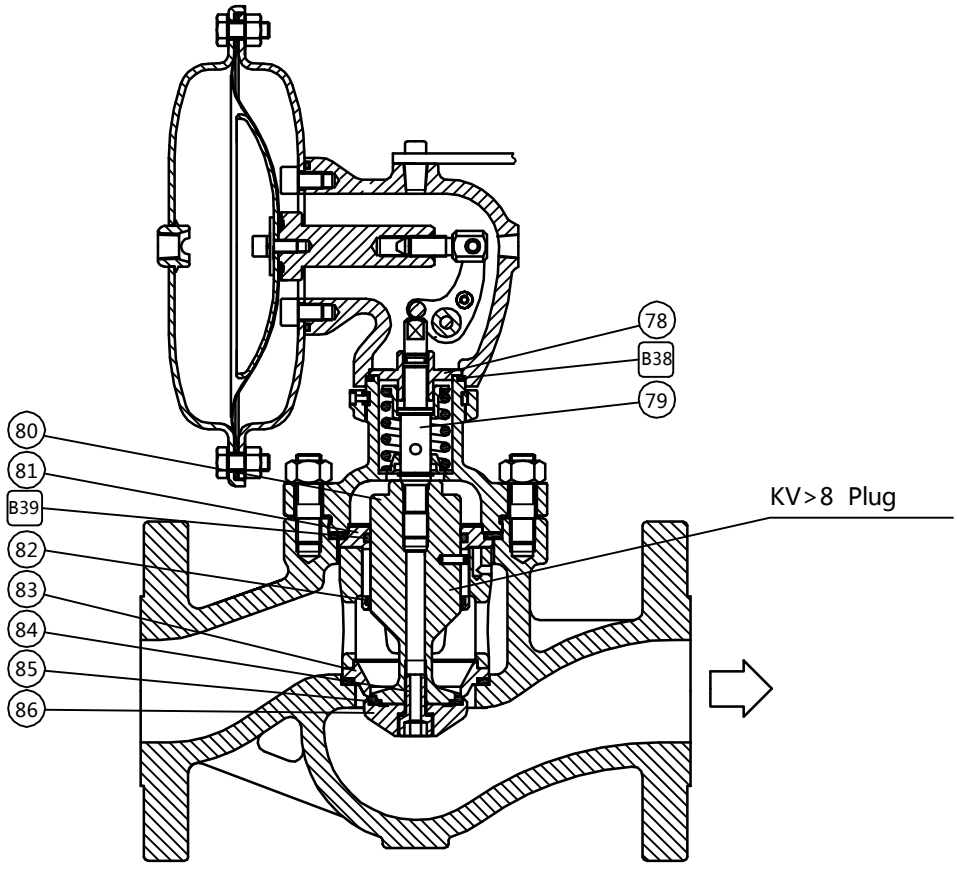
- Overload Pressure: 800KPa

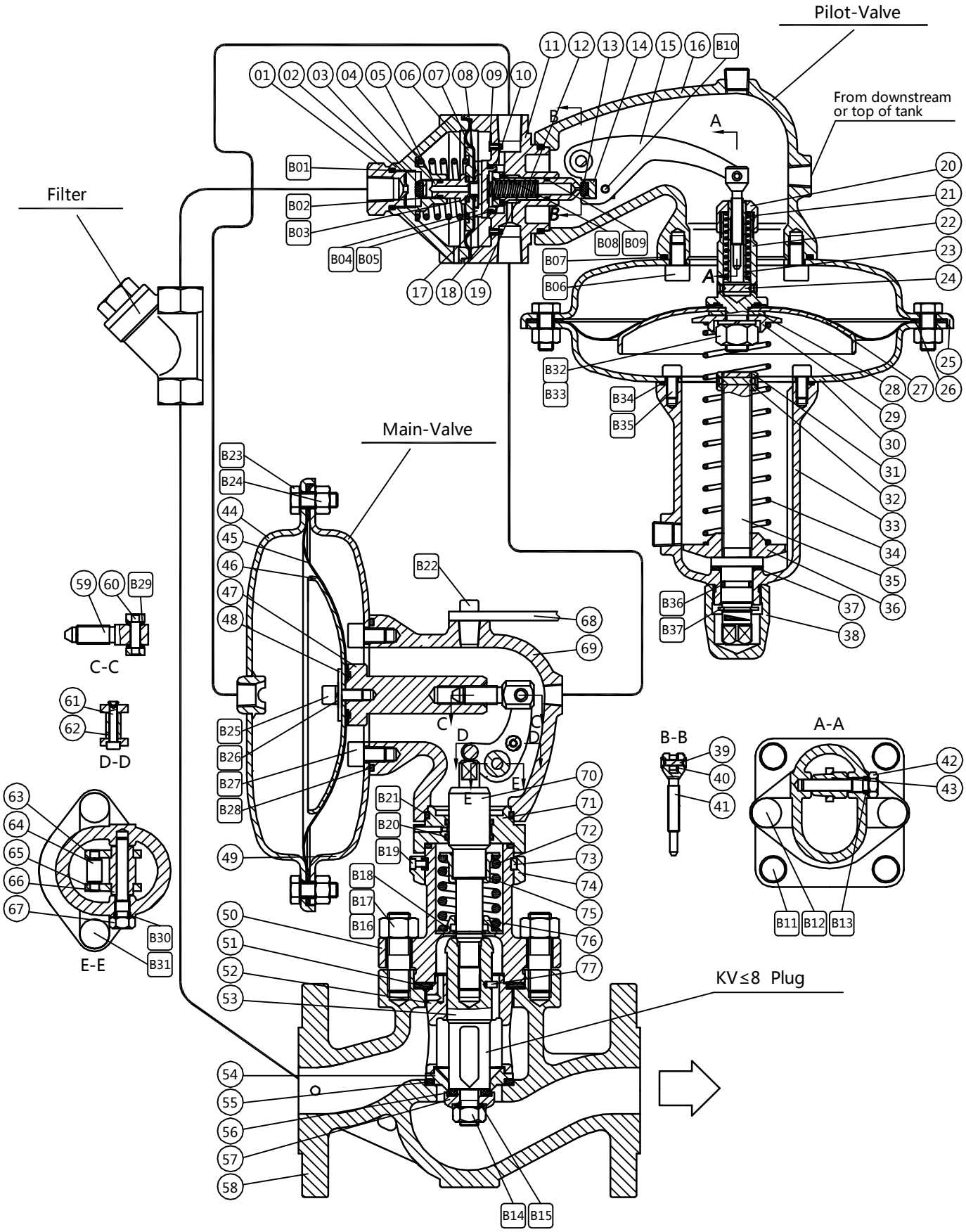
- Annex

  Pressure collection connector, Pressure gauge,

  Pressure collection ball valbe

Structure、Parts List and Material

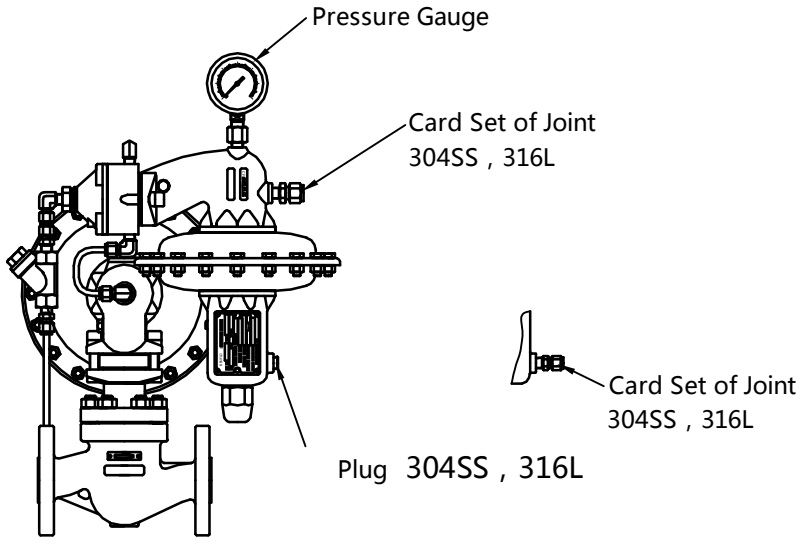



Pilot-Valve
From downstream or top of tank
Filter
Main-Valve
KV≤8 Plug
C-C
D-D
E-E
B-B
A-A
01 02 03 04 05 06 07 08 09 10
11 12 13 14 15 16 B10
B01 B02 B03 B04 B05
B06 B07 B08 B09
17 18 19
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
B32 B33 B34 B35 B36 B37
B22 B23 B24 B25 B26 B27 B28
44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
59 60 B29
61 62
63 64 65 66 67 B30 B31
68 69 70 71 72 73 74 75 76 77
B21 B20 B19 B18 B17 B16
B14 B15
39 40 41
42 43
B11 B12 B13

SN	Name of Part	Material
01	Connect	304SS，316L
02	Left Pilot Valve Body	CF8，CF3M
03	Valve Cushion	NBR;FKM;SR;PTFE
04	Spring	304SS，316L
05	Plug	304SS，316L
06	Diaphragm Plate	304SS，316L
07	Diaphragm	NBR,FKM,SR
08	Washer	304SS，316L
09	Constant Throttle	H62
10	Cover	304SS，316L
11	Right Pilot Valve Body	CF8，CF3M
12	Spring	304SS，316L
13	Valve Cushion	NBR;FKM;SR;PTFE
14	Baffle	304SS，316L
15	Lever	304SS，316L
16	End Cover	CF8，CF3M
17	Press Ring	304SS，316L
18	Constant Throttle	H62
19	Nozzle	304SS，316L
20	Screw Set	304SS，316L
21	Spring	304SS，316L
22	Connecting Set	304SS，316L
23	Connecting Rod	304SS，316L
24	Pin	304SS，316L
25	Diaphragm Case	304SS，316L
26	Diaphragm	NBR,FKM,SR
27	Diaphragm Plate	LY12
28	Washer	304SS，316L
29	Spring Seat	304SS
30	Diaphragm Case	304SS，316L
31	Block Ring	304SS
32	Pin	304SS
33	Spring Cover	CF8
34	Setting Spring	304SS
35	Screw	304SS
36	Nut	Hpb59-1
37	Washer	PTFE
38	Protective Cover	304SS
39	Pin	304SS，316L
40	Washer	PTFE
41	Connecting Bolt	304SS，316L
42	Bottom Pin	304SS，316L
43	Shaft Set	304SS，316L
44	Diaphragm Case	304SS，316L
45	Diaphragm	NBR,FKM,SR
46	Diaphragm Plate	304SS，316L
47	Connecting Rod	304SS，316L
48	Washer	304SS，316L
49	Diaphragm Case	304SS，316L
50	Bonnet	WCB,CF8,CF3M
51	Sealing Ring of Bonnet	316SS+Graphite 316L+Graphite 316L+PTFE
52	Cage	CF8,CF3M,304SS,316L
53	Plug	304SS，316L
54	Valve Seat	304SS，316L
55	Sealing Ring of Valva Seat	316SS+Graphite 316L+Graphite 316L+PTFE
56	Valve Cushion	NBR;FKM;SR;PTFE
57	Press Ring	304SS，316L
58	Body	WCB,CF8,CF3M
59	Connecting Bolt	304SS，316L
60	Pin	304SS，316L
61	Screw	304SS，316L
62	Casing	304SS，316L
63	Left Lever	304SS，316L
64	Roller	304SS，316L
65	Right Lever	304SS，316L
66	Shaft Set	304SS，316L
67	Bottom Pin	304SS，316L
68	Connecting Plate	304SS，316L
69	End Cover	CF8,CF3M
70	Valve Stem	304SS，316L
71	Balance Ring	304SS，316L
72	Spring	304SS，316L
73	Baffle Ring	304SS
74	Flange	CF8
75	Spring Seat	304SS，316L
76	Spring Seat	304SS，316L

SN	Name of Part	Material	SN	Name of Part	Material
77	Bottom Pin	304SS，316L	82	Guide Bush	PTFE
78	Guide Bush	304SS，316L	83	Valve Seat	304SS，316L
79	Valve Stem	304SS，316L	84	Screw	304SS，316L
80	Plug	304SS，316L	85	Valve Cushion	NBR;FKM;SR;PTFE
81	Balance Ring	304SS，316L	86	Press Ring	304SS，316L
B01	O-ring	NBR;FKM;SR	B21	O-ring	NBR;FKM;SR
B02	O-ring	NBR;FKM;SR	B22	Socket Head Screw	304SS
B03	O-ring	NBR;FKM;SR	B23	Hex Bolts	304SS
B04	Socket Head Screw	304SS，316L	B24	Hex Nut	304SS
B05	O-ring	NBR;FKM;SR	B25	Socket Head Screw	304SS,316L
B06	Socket Head Screw	304SS，316L	B26	Spring Washer	304SS,316L
B07	O-ring	NBR;FKM;SR	B27	Socket Head Screw	304SS,316L
B08	O-ring	NBR;FKM;SR	B28	O-ring	NBR;FKM;SR
B09	O-ring	NBR;FKM;SR	B29	O-ring	NBR;FKM;SR
B10	Socket Head Screw	304SS，316L	B30	O-ring	NBR;FKM;SR
B11	Socket Head Screw	304SS	B31	Socket Head Screw	304SS
B12	Socket Head Screw	304SS	B32	Hex Nut	304SS
B13	O-ring	NBR;FKM;SR	B33	Spring Washer	304SS,316L
B14	Hex Nut	304SS	B34	O-ring	NBR;FKM;SR
B15	Tooth Cushion	304SS;316L	B35	Socket Head Screw	304SS
B16	Stud	45#;304SS	B36	O-ring	NBR
B17	Hex Nut	45#;304SS	B37	Circlip	304SS
B18	Circlip	304SS	B38	O-ring	NBR;FKM;SR
B19	Socket Head Screw	304SS	B39	O-ring	NBR;FKM;SR
B20	O-ring	NBR;FKM;SR			

Annex



Operational Principle

The pressure regulating valve composed of the main valve, filter and pilot valve. The main valve receives the control signals of the pilot valve to control the openness of the valve plug, so it can control the required process pressure. The filter can supply clean gas to the precise pilot valve. The pilot valve will sense the downstream pressure, transfrom the introduced upstream power pressure to the pneumatic signals and control openness of the main valve.

The main valve is the constantly closed valve. The pilot valve is the constantly open valve.

The gas is supplied into the valve. The upsteam pressure gas is supplied into the pilot valve via the filter. The embedded pressure-reducing valve of the pilot valve will reduce the pressure. This pressure is supplied into two sides of the main valve diaphragm case via the constant throttling part. When the pilot-valve's nozzle is closed , the pressure on both sides of the main valve diaphragm case is equal. The main valve plug is closed under push of the restore spring. To rotate the regulation screw of the pilot valve, the pilot valve spring is compressed to drive the diaphragm component and drive the lever to open the nozzle retaining plate. The pressure will be released in the left diaphragm case of the main valve due to the constant throttling part. The pressure is different on both sides of the diaphragm case. The diaphragm component will drive the adjustment device of the main valve to open the valve plug. The gas will be supplied into the downstream system. The downstream pressure wiil feed back to the pilot valve diaphragm via the pressure conduit to generate push and compare it with the given spring push. When the push is higher than the spring force, the nozzle retaining plate will reduce openness. On the contrary, it will increase the openness. Change of the nozzle retaining plate openness will directly change the pressure of the left diaphragm case of the main valve and will also control the openness of the main valve. For the whole pressure regulation system, the downstream pressure reduces and the main valve openness increase. The downstream pressure increase and the main valve openness reduces. When the push generated by downstream pressure on the pilot valve diaphragm is equal to the given spring push, the nozzle retaining plate will keep under this openness. The pressure of the whole system and openness of the pressure regulating valve will be equal. At this time, the downstream pressure is the set pressure. When the upstream pressure change or downstream flow change leads to downstream pressure change, the old balance will be changed. The pilot valve diaphragm will make the nozzle retaining plate adjust and

make the pressure restore to the setting. The system will quckly restore to the balance state. When the downstream flow reduces to "0", the downstream pressure will gradually increase. The nozzle diameter is very small, the pressure will increase little and the nozzle will close under action of the lever pressurizing device. The pressure balance main valve at two ends of the main valve diaphragm case will also close. The system is under holding state.

The downstream output pressure depends on the given spring push of the pilot valve, to roate the regulating screw, you can adjust and set the downstream pressure. To clockwise roate, the pressure will increase, to roate anticlockwise, the pressure will decrease.

The diaphragm component of the pilot valve and nozzle retaining plate sensing device are very sensitive. If the downstream pressure changes little, they will sense the signals and amplify them as the pneumatic signals to control the main valve. The whole pressure regulation system has a very high regulation precision.

The nozzle is a valve plug which controls the left and right diaphragm case channel of the main valve. The pressure regulating valve can reduce the pressure much, when the system is affected by quick disturbance, it can easily lead to over control (mainly forward over pressure). To reduce the over control as much as possible, the nozzle close two diaphragm case under action of the spring. When affected by quick disturbance, the downstream pressure will increase little. The pilot valve diaphragm will drive the retaining plate to push the nozzle and instantly open two diaphragm case channels of the main valve to forcefully balance the pressure at two ends and quickly reduce the openness of the main valve plug.

The diaphragm component of the pilot valve is installed with the over-load spring. The push of the over-load spring is computed and preset. The pre-compression force can guarantee normal operation of the pressure regulating valve. When the pressure is excessive, the regulation device is fixed in place. The diaphragm component can overcome pre-tightening force of the overload spring to continue movement till touching the diaphragm case, so the over load will be imposed to the diaphragm case and prevent the regulation device from damage. After the system restores to the normal state, it can normal operate.

Installation

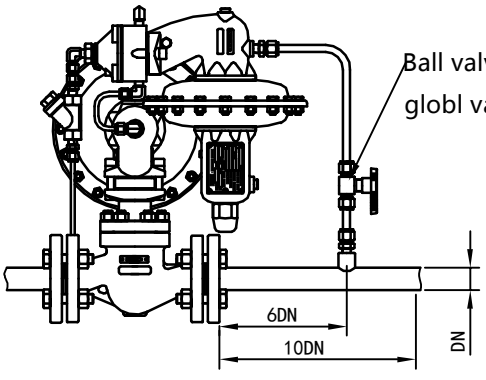
- The medium flow direction should be consistent with the arrow direction when installing the pressure regulating valve. The pressure regulating valve should be installed on the tube as horizontal as possible. The pressure regulating valve can control under very low pressure, the gravity direction of the pilot valve will affect the output pressure. If needed, other installation direction is considered. The pressure may be set again. For DN>50, the valve should be installed horizontally. Otherwise, it may affect the use life.

- Shut-off valves should be installed either at the upstream and downstream of the regulator for inpection and maintenance. The by-pass valve should be installed for emergency in important applications.

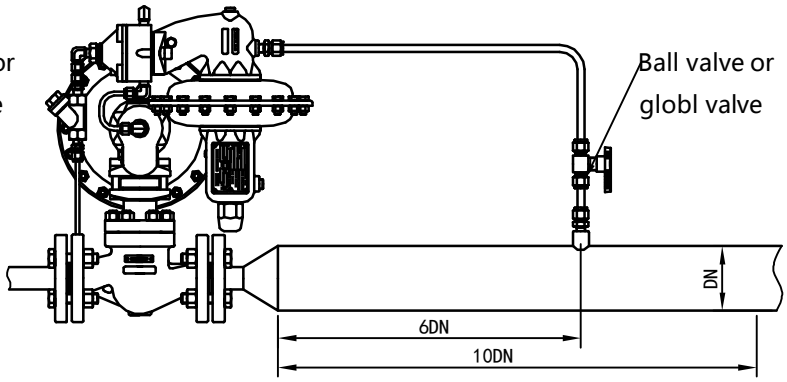
- The pressure gauge or other pressure detection instrument should be installed before and after the pressure regulating valve for pressure adjustment.

- The pressure regulating valve can include a pressure guage. This pressure guage displys the downstream control pressure.

- The pressure regulating valve is extermal measured pressure. The pipe should be installed with the pressure guide pipe.The pressure guide pipe should be installed with of the ball valve or globe valve. The 10DN straight pipe should be installed after the valve. The pressure measured point should be located at 6DN. If the diameter expansion pipe is behing the valve, refer to the diameter of the expanded pipe.

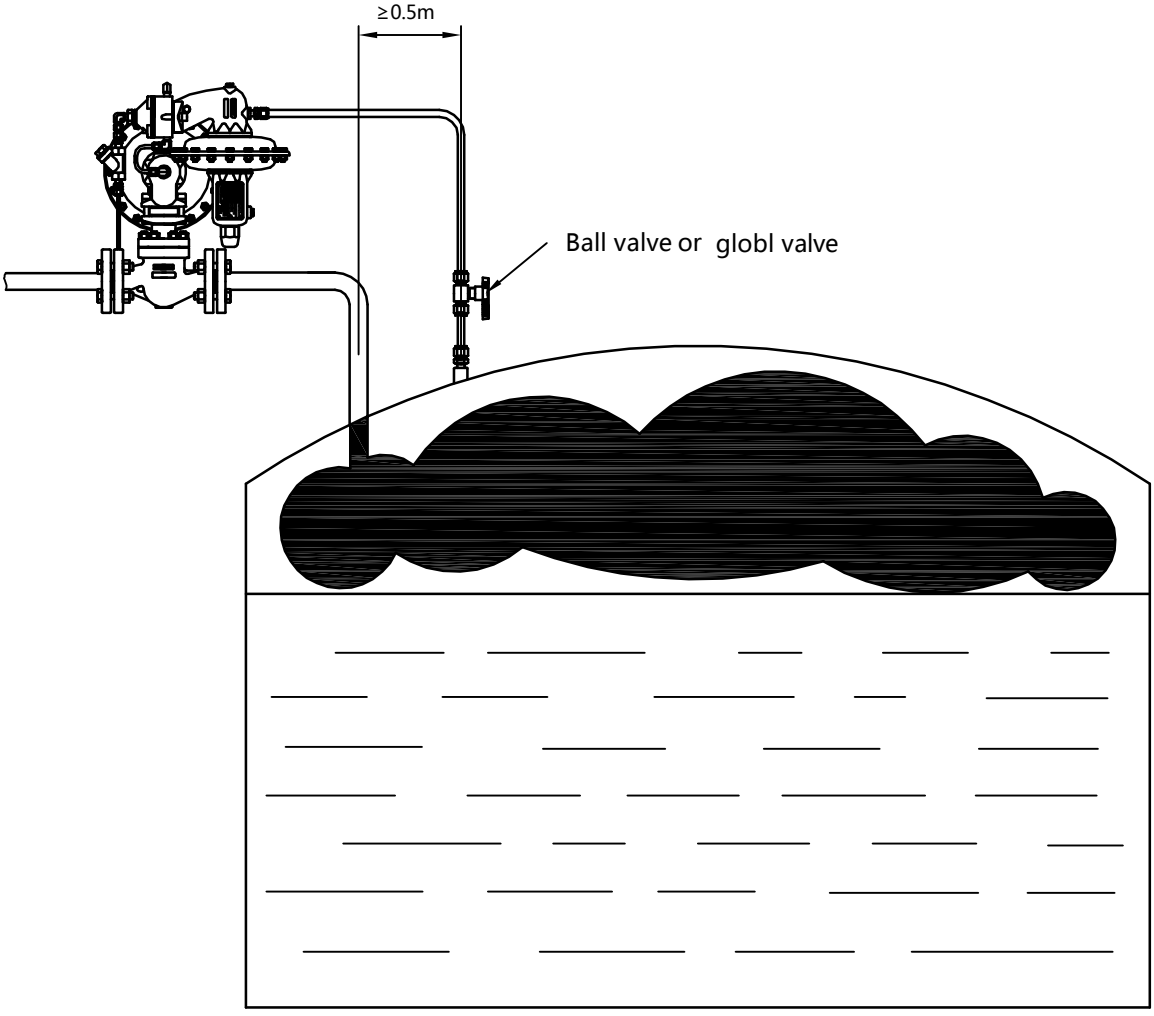


Equal Diameter



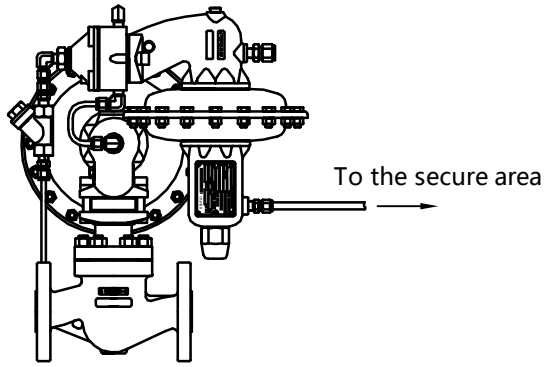
Downstream expanding

● For the nitrogen blanketing tank, the measured point of the pressure regulating valve is collected at the top of the tank, so it can fully meet the flow requirement of the nitrogen blanketing via the output flow of the pressure regulating valve and keep the tank top micro positive pressure to the atmospheric pressure. Generally, the tank is installed with breathing valve and pressure regulating valve. The tank sucks the gas by pressure regulating valve during normal operation and discharge gas via the breathing valve. When the pressure regulating valve fails or the nitrogen breaks, the breathing valve can suck the gas to avoid the tank shrinkage.



For Tank Nitrogen Blanketing

● When the pressure regulating valve diaphragm is damaged, it will lead to medium leakage. If the medium leakage is forbidden at the field, the flow guide pipe can be installed on the actuator of the pressure regulating valve to guide the flow to the secure area.



Installation Of Guide Pipe

● When the piping will be pressure tested after the installation of the regulator, the global valve or ball valve on the pressure introduction pipe should be closed.

Warning

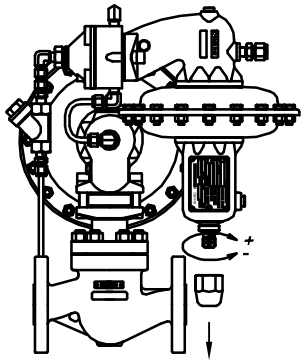
● After the pressure regulating valve is delivered to the site, its pressure should be tested. The pressure regulating valve is different from the commom valve. The waterpressure test is forbidden for the pressure regulating valve. Once the water flows into the pilot valve system, it will severely affter operation of the pressure regulating valve. For pressure test and leakage detection, first use clean air or nitrogen and then use the foam. The leakage detection pressure should not be over the permitted operation pressure of the valve.

● The piping should be flushed or purged before the instillation of the regulator to remove any particulates or welding slag.

Operation

● To make sure the components of the regulator are correctly installed before the regulator is put into operation.

● To open the ball valve or globe valve on the pressure on the guide pipe. First close the bypass valve(if provided) and open the downstream globe valve, guaratee that downstream system has certain flow, slowy open the upstream globe valva and watch the pressure gauge, if no exception, you can fully open the upstream globe valve, the pressure regulating valve enters operation state. To change the output pressure, you should open the protection cover on the actuator and rotate the adjusting screw. To rotate clockwise, the pressure will increase. On the contray, the pressure will reduce.



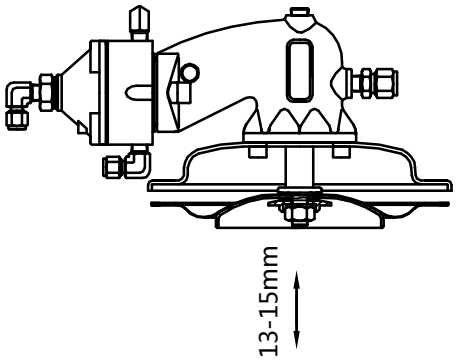
- If the pressure regulating valve includes a pressure gauge, you should open the upstream globe valve as slowly and stably as possible to avoid damage to the micro-pressure gauge of the diaphragm box.

Repair Points

- The pilot valve, filter and main valve of the pressure regulating valve are independent components and can be separately repaired.

- For the pilot valve, you mainly check whether the pressure reducing valve diaphragm, pilot valve diaphragm, pressure reducing valve cushion and retaining valve cushion are damaged and are invalid, also check the sealing ring. For internal components, you should mainly check whether the constant flow component is blocked and is clean inside. If it is blocked by the waste, you should clean it.

- When the diaphragm component of the pilot valve is installed again, its stroke should be about 13-15mm.

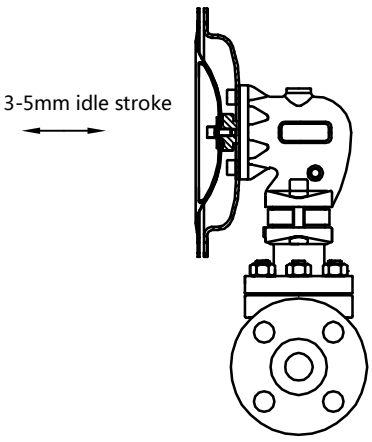


After the diaphragm component is connected with the connection bolt, you should rotate it inward to press the diaphragm component till the bottom and push out. you should feel that the retaining plate is just closed. At this time, the stroke of the diaphragm component should be about 13-15 mm.

- Take out the filtering mesh of the filter and clean it.

- For the main valve, you mainly check whether the rubber parts such as diaphragm and valve plug sealing cushion are aging and invalid. If they are damaged, you should replace them in time.

- After the diaphragm of the main valve is roated in, to pull the diaphragm component back, you should reserve 3-5mm idle stroke, so it can guarantee that the main valve plug is fully closed and the valve plug has enough full state stroke.



Mode Establishment

SP 592 ——— □ — □

DN: 15-DN15(1/2") 40-DN40(11/2") 80-DN80(3")
20-DN20(3/4") 50-DN50(2") 100-DN100(4")
25-DN25(1") 65-DN65(21/2")

PN: 16-PN16 150-150LB
40-PN40 300-300LB
64-PN64 600-600LB

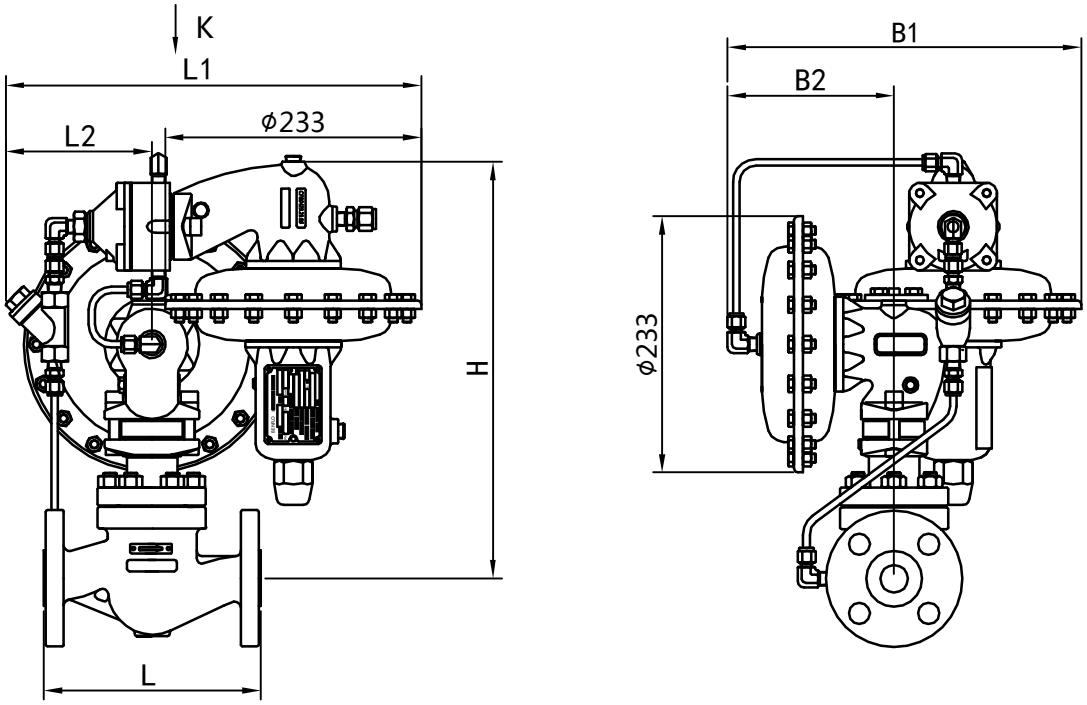
Description on The Nameplate

- Type
- Nominal Diameter
- Nominal Pressure
- Material of Body/Internal Parts
- Material of Diaphragm
- Regulation Range
- Maximun Pressure of Actuator
- Kv Value
- Operating Temperature
- Flange Standard
- Serial Number

Selection Criteria

- Pipeline Dimensions
- Medium
- Medium Temperature、Ambient Temperature
- Medium Density
- Upstream Pressure、Downstream Pressure
- Flowrate
- Pressure Measuring Method
- Setting Point
- Flange Standard
- Requirements on Material of The Body and Internal parts
- Other Special Requirements

Dimension



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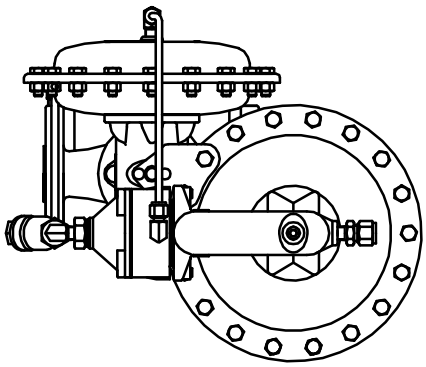

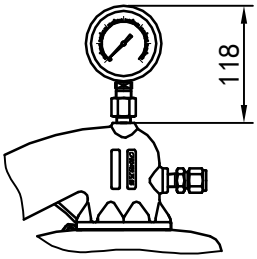

Nominal Diameter		15	20	25	40	50	65	80	100
PN16(150LB)	L	181	181	184	222	254	276	298	352
PN40(300LB)		181	194	197	235	267	292	317	368
PN64(600LB)		206	206	210	251	286	311	337	337
L1		377					425		
L2		132					164		
H		375	375	385	400	406	485	490	505
B1		322					386		
B2		152					225		
PN16(150LB)	重量 Kg Weight	20	22	23	28	31	45	58	71
PN40(300LB)		20	22	23	28	31	45	60	75
PN64(600LB)		22	25	27	33	36	53	65	83

Remark: The weight will be different due to different configurations, the weight indicates average weight

Experience Sharing

- Dowerstream Safety Device

As for micro-pressure regulating valver, the safety of the downstream equipment must be seriously evaluated, the maximum downstream pressure may equal to the upstream pressure in this abnormal condition. The downstream safety valve or other safety-release devices must be installed, the tripping pressure of the safety valve should be higher than the setting pressure with a certain range, this range normally should be about 50%. The discharge capacity of the safety valve should be selected based on the full-opened discharge capacity of the regulator, the maximum flow of the by-pass valve should also be considered whenever necessary.

- Generally the pressure regulating valve is used for tank blanketing with breathing valve. The exhaust pressure of the breathing valve should be at least 50% higher than the set pressure of the pressure regulating valve, so it is not easy to control disturbance. The nitrogen can be saved. The drainage of the breathing valve should be sum of the drainage capacity of the tank in feeding and temperature increase, maximum gas supply capacity of the pressure regulating valve and maximum gas supply capacity of the bypass(if the bypass is provided).

When the pressure regulating valve is used for tank blanketing, the measured point should be directly collected at the top and should not be collected from downstream pipeline. When no flow is available, the downstream system is an enclosed system. The pressure of different points are same. When the valve starts to charge the nitrogen, the pressure of the pipeline and tank top includes high deviation under dynamic condition. Even if the pressure control of the downstream pipleline is normal, the tank top has a negative pressure. For the system with a small flow, the pressure can be collected from pipeline, but you should carefully compute whether the flow of the downstream pipeline under pressure-relieved micro-pressure state meets the requirement of tank nitrogen blanketing. If the downstream pipeline has enough expanded diameter, the measured point can be collected from the pipeline, you should also compute the pipeline flow under micro-pressure state.

- The Calculation of The Flow Coefficient and Selection KV Value.

The detailed calculation of the flow cofficient will not be described here because the method is the same with normal valve, it should be noticed that the maximum openness of the valve should be not higher than 70% when the KV value is selected, the suitable range of the openness should be 10-60%.

To identify the flow of the tank nitrogen blanketing, we should consider the maximum drainage capacity of the feed out pump and top gas shrinkage when the tank temperature reduce. Namely the pressure regulating valve has enough output flow to keep the micro positive pressure of the tank top in any case.

- Selection of Regulation Range

The regulation range selected must cover the process setting required. There will be a number of regulation ranges can be used for the same setting value. The ranges should be selected to make the setting value is at the middle or uper middle of the range, it is because that the theorretical deviation of every combination of spring and actuator is fixed, the deviation will be smaller when the setting value is closer to the upper limit of the regulation range. Generally, it is suitable to make the setting valve is in the 40-85% of the regulation range.

- Flow Characteristics

The "L" or "EQ%" chsaracteristics can be selected for the pressure regulating valve. "L" characteristics response should be quickly, but it may be unstable under small flow control. "EQ%" can be stably controlled in case of small flow, but the response is relatively slow in the small flow control. When the tank is used and the pressure is collected from the tank top, "L" characteristics can be used. For pressure collection and regulation of the pipe, "EQ%" characteristics is used.

- Selection of Actuator

It must be noticed that the regulator is different with conventional valve. The medium will enter the actuator and make direct contact with the diaphragm. Therefore, we should conside that whether there is any corroison to the diapgragm will be caused by the medium or whether the temperature of the medium is higher than the allowed temperature of the diaphragm when we select the suitable material of the diaphragm.

- Start Pressure Different

The pilot valve operates the pressure regulating valve via the pressure difference before and after the pressure regulatign valve. To drive normal operation of the valve, the pressure difference must not be less than 30KPa.

Type SP592

Pilot Control Micro-pressure Blanketing Gas Regulating Valve

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