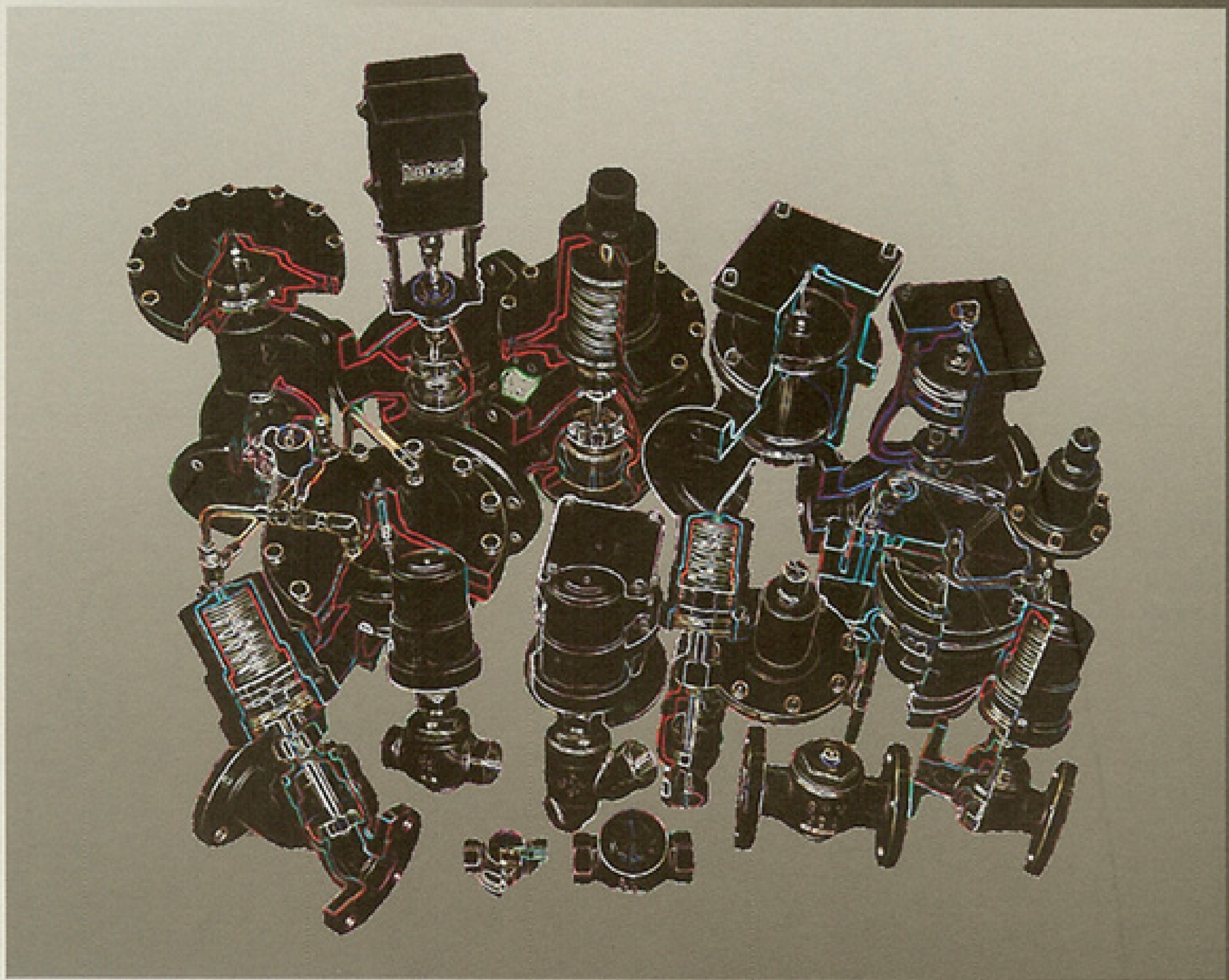
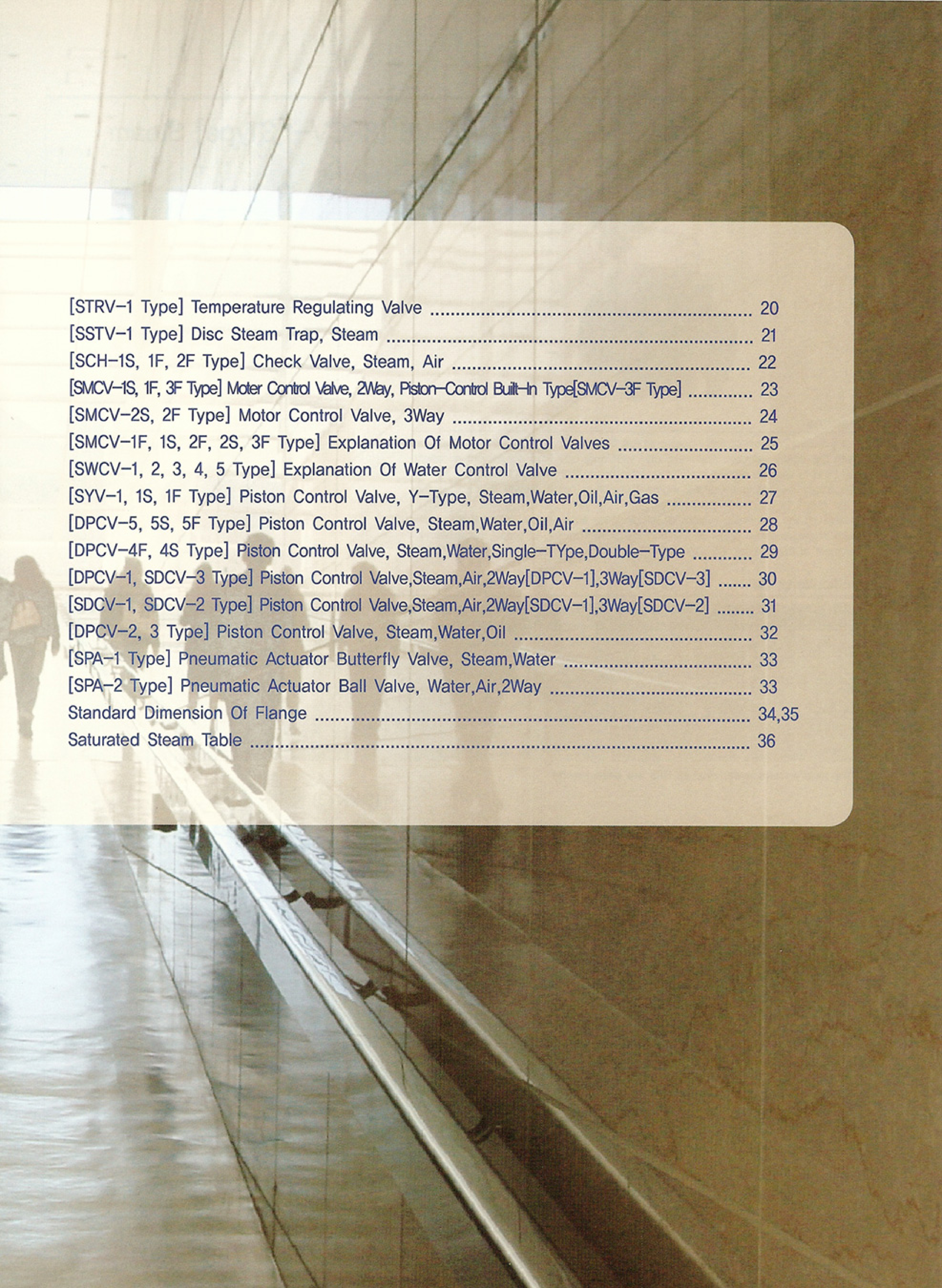
SUNKWANG



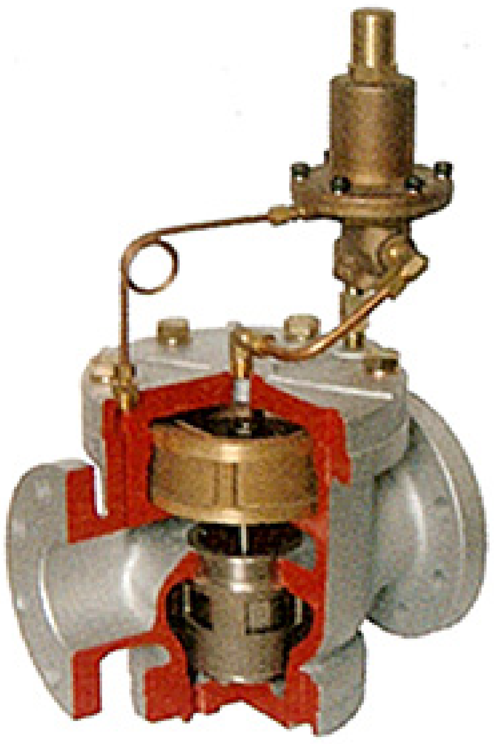
SPECIALIZE AUTO VALVE MAKER

SUN KWANG VALVE CO.

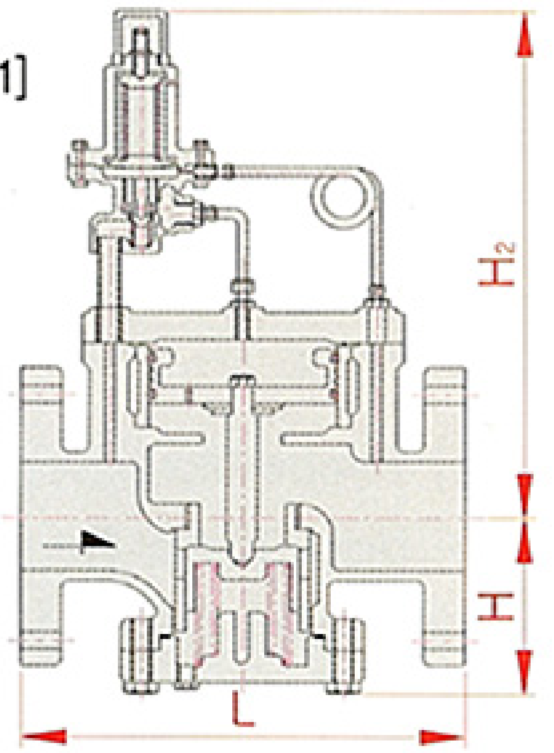
Contents



PILOT PRESSURE REDUCING VALVE [SRCV-1,3Type] Steam



[SRCV-1]



Features

- Pilot reducing valve of technologyoriented Sunkwang is precisely manufactured with the rigidly selected materials, and with only one time adjustment, excellent function is exerted regardless of the used volume of 2nd and after.
- Especially the efficiency of the moment on-off is being proved in the industrial field, and it is used with SDCV-1, etc.
- Also, with the automatic system developing, the auto control on-off type attached with accessories(air pressure valve & electronic device) is order-made at the request of consumers. [SRCV-1A TYPE]

Dimension[FLANGE TYPE] (mm)

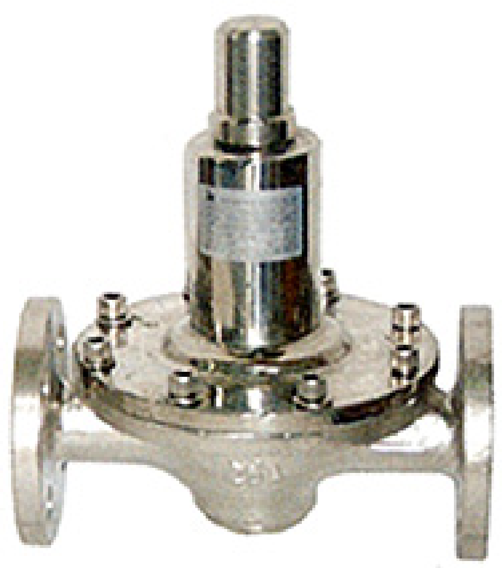
SIZE	40A	50A	65A	80A	100A	125A	150A
L	210	220	265	285	335	370	420
H_1	110	110	110	125	135	160	180
H_2	350	350	350	375	385	400	420
CV	10	15	26	38	65	105	150

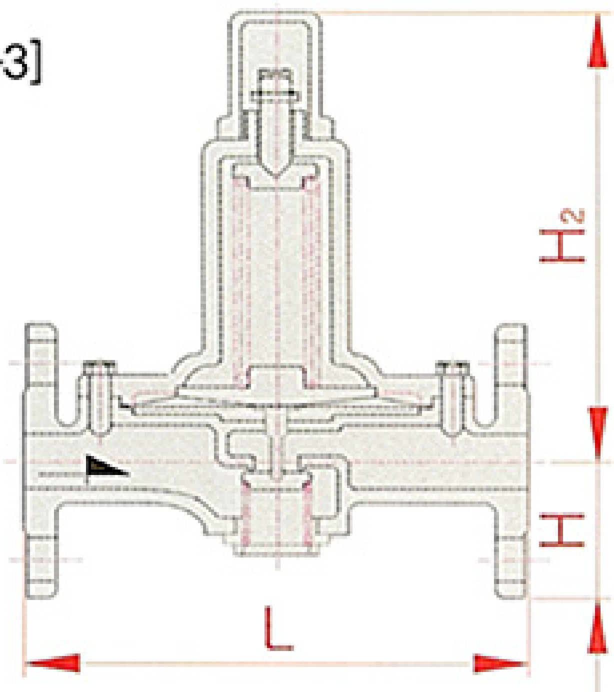
Specifications[사양]

CLASS	FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE	REDUCING RATIO	USE
SRCV-1	STEAM	MAX 10kgf/㎠g	MAX 200℃	KS 10K FF FLANGE	BODY:GC TRIM:STS BC6	PILOT ACTING	10:1	REDUCING VALVE
SRCV-3	STEAM	MAX 10kgf/㎠g	MAX 200℃	KS 10K RF FLANGE	BODY:BC6 TRIM:STS	PILOT ACTING	10:1	REDUCING VALVE

20K for heavy warm water and all STS are order-made

[SRCV-3]





Features

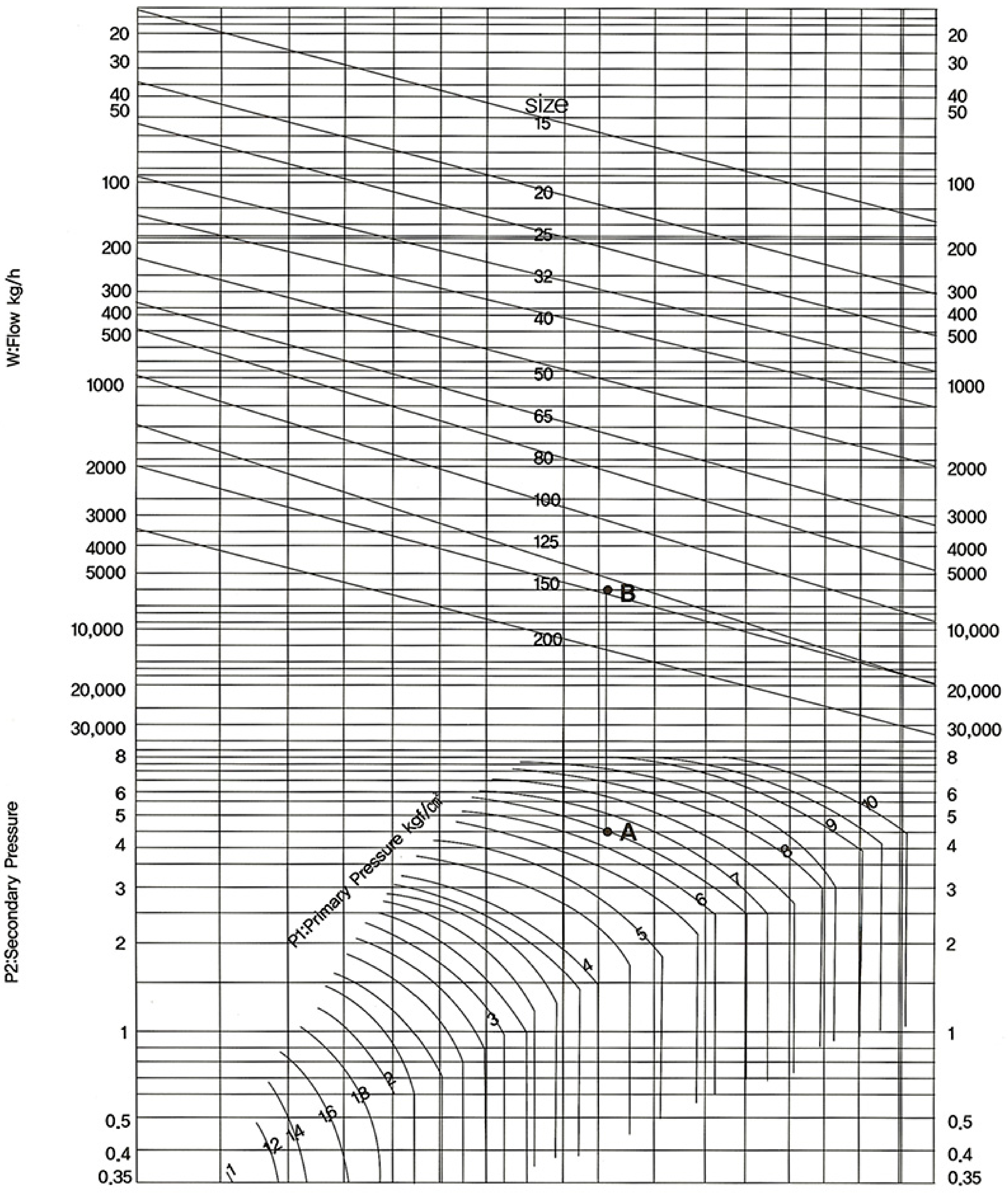
- Model SRCV-3 is designed to be used in low pressure(2nd side) (less than 0.1~3kgf/㎠g)
- Manufactured from stainless(STS) and bronze(BC6), it is closely related to cleanness, as it is to pharmaceutical and food companies. Also, it is fastened to various kinds of machinery that must not corrode.

Dimension[FLANGE TYPE] (mm)

SIZE	15A	20A	25A
L	230	230	230
H_1	63	63	63
H_2	190	190	190
CV	5	5	5

SRCV-1,3 Type

Diameter Selection Table of Pressure Reducing Valve[Steam]



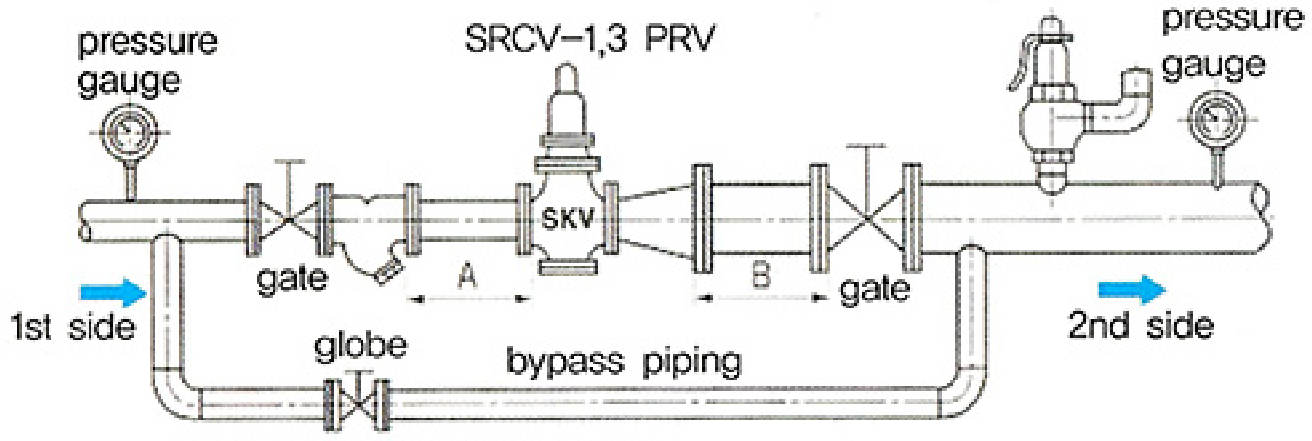
■ 도표 사용법

What is the diameter of valve, given the pressure of 1st 6kgf/cm²g(0.6Mpa),that of 2nd is 4kgf/cm²g(0.4Mpa), and the rate of steam fluid is 6,000kg/h ?

1) Locate the point A where 1st 6kgf/cm²g(0.6Mpa) and that of 2nd is 4kgf/cm²g(0.2Mpa) meet each other, and come straight down from the point A, until it meets the point B of 6,000kg/h of this line.
2) Since the point B is between diameter 125A and 150A, select the diameter 150A so that it does not give burden to the piping line.

[SRCV-1 Type] Pilot Pressure Reducing Valve[Steam]

Standard piping line



The Length of Direct Pipes Before & After P.R.V (mm)

Classification / VALVE SIZE	A	B
15A~20A	400	900
50A~100A	900	1,500
125A~200A	1,200	2,500

Precaution when piping is installed

1. The pressure reducing valves should be piped horizontally to the direction of flowing.
2. Strainer should be attached in front of pressure reducing valve as in the piping figure,and it is recommended to us 100Mesh stainless screen if possible.
3. A safety valve is installed on the 2nd pressure valve in case of need, and the capacity of the safety valve is adjusted to be 10% of the maximum rate of fluid, as long as no limitation is made, and the exhaust pressure of the safety valve is placed about +0.8kg^f/㎠, when the set pressure of pressure reducing valve is less than 4kg^f/㎠, and about +1.2kg^f/㎠, when more than 4kg /㎠.
4. Bypass should be installed for the continuous supply of steam when the pressure reducing valve is maintained.
5. The pressure reducing valve should be fixed on the piping and support should be set up so that the weight the piping or heating stress is not sent directly the pressure reducing valve.
6. If the pressure reducing valve is installed close to the place where it is used, the smaller diameter of piping can be done for the 1st piping, by which the expense of piping can be saved, and the more close to the place, the more precise reducing can be maintained.
7. The breakdown of the pressure reducing valves in the newly-installed piping is caused by mainly dirts such as scale, so, the fluid should be passed fully in the pressure reducing valve (about 30min) to clear completely the dirts in the piping before the valve is operated.
8 Nomal operation is impossible if the condensed water is induced in the pressure reducing valve, so, the drain pocket should be installed in front of the valve and strainer, and then, steam trap is attached, so that more efficient maintenance is avail.

How to adjust the 2nd pressure

1. Since the adjustment of the 2nd pressure on the pressure reducing valve is not set up when shipping out of factory, the fluid does not flow. Therefore, after installing in place, adjust the pressure according to the preesure hoped.
2. Shut off the gate of P^1– P^2
3. Open the gate of the bypass piping, remove the impurities completely.
4. Remove the cap of pressure reducing valve in the state of shutting off the gate of the bypass piping, and then check if the adjusting screw has the spring load.
5. Turn the adjusting screw clockwise so that the fluid passes through the pressure reducing valve, opening slightly the gate of P^2pressure hoped.
6. Watching the pressure gauge of P, turn the adjusting screw clockwise until it reaches the pressure that was hoped.
7. Do not forget to cover it with a cap after the adjustment is finished, so that others can not adjust it at random.

The necessary items when ordering

1. Model 2. Maximum usable pressure 3. Super high temperature usable 4. Connection of flange 5. Maximum rate of fluid 6. Setting pressure

Cause of breakdown and measures [STEAM용 P.R.V. SRCV-1]

Pressure going up on the 2nd	• Main Seat,Disc Leak occur • Pilot Seat,Disc Leak occur • By-Pass Valve doesn't open • Piston cylinder stuck	• Check for dirts after disassembling • Clean filtering net after disassembling • Attach By-Pass Valve • After disassembling,remove dirts,&re-assemble
Fluid does not flow	• Setting is not done • Piston cylinder stuck	• Turn adjusting screw clockwise • Remove dirts after disassembling
Hunting	• Diameter is wrongly chosen • Ratio of pressure reducing is too big	• Re-choose,after checking details • Start the 2nd pressure reducing
Lack of capacity	Valve is wrongly chosen	Adjust the diameter bigger
Pressure on 2nd down	Capacity lacks	Re-choose after referring to the table of fluid rate &pressure

Calculation Formula For Cv Value & Flow Capacity

CV valve : In the condition that clean water with temperature of 60℃(15.6℃)is maintained at 1 psi (0.07kgf/㎠) of the differential pressure, flow rate is expressed in the value of US gal/min, which is called CV value.

PROCEDURE(방법)

(1) The size of valve is generally calculated in CV value when a valve is selected. In this case, CV value will be calculated for maximum, usual, and minimum flow rate respectively. In other words, CV value for the condition of max. flow rate and min. differential pressure will be max. CV value while that for the condition of min. flow rate and max. differential value will be min.CV value

(2) It is usual to select a nominal diameter by adding 10 to 20% of allowance to the estimated CV value. in addition, as the minimum adjustable quantity or rangeability (the ratio of the maximum controllable flow rate to the minimum flow rate) is determined depending on the kind of adjusting value, you have to pay attention to the estimated minimum CV value.

Cv CALCULATING FORMULAE / FLOW CALCULATING FORMULAE

1. STEAM

In case of $\triangle P < \frac{P_1}{2}$

$$CV = \frac{WK}{13.67\sqrt{\triangle P\ (P_1+P_2)}} \qquad W = Cv\frac{13.67\sqrt{\triangle P\ (P_1+P_2)}}{K}$$

In case of $\triangle P \geq \frac{P_1}{2}$

$$CV = \frac{WK}{11.9P_1} \qquad W = Cv\frac{11.9P_1}{K}$$

W	:Max. flow rate	kg/h
P1	:primary pressure	kgf/㎠g abs
P2	:Secondary pressure	kgf/㎠g abs
$\triangle P$	:P_1-P_2	kgf/㎠g
K	: 1+(0.0013 * Degree of overheat ℃)	

2. GASES

In case of $\triangle P < \frac{P_1}{2}$

$$CV = \frac{Q}{287}\sqrt{\frac{G(273+t)}{\triangle P\ (P_1+P_2)}} \qquad Q = Cv\frac{287}{\sqrt{\frac{G(273+t)}{\triangle P\ (P_1+P_2)}}}$$

In case of $\triangle P \geq \frac{P_1}{2}$

$$CV = \frac{Q\sqrt{G(273+t)}}{249P_1} \qquad Q = Cv\frac{249P_1}{\sqrt{G(273+t)}}$$

Q	:Max. flow rate	N㎥/h(15℃ 760mmHg abs)
G	:Specific gravity	Air = 1
t	:Temperature	℃
P_1	:Primary pressure	kgf/㎠g abs
P_2	:Secondary pressure	kgf/㎠g abs
$\triangle P$	:P_1-P_2	kg/㎠g

3. LIQUIDS

$$CV = \frac{1.167V\sqrt{G}}{\sqrt{(P_1-P_2)}} \qquad V = Cv\frac{\sqrt{(P_1-P_2)}}{1.167\sqrt{G}}$$

V	:Max. flow rate	㎥/h
G	:Specific gravity	Water = 1
P_1	:Primary pressure	kgf/㎠g abs
P_2	:Secondary pressure	kgf/㎠g abs

■ Standard of selecting valve diameter

The difference of pressure (P_1,P_2) and the fluid rate become the standard when the diameter of pressure reducing valves. At this, its pressure difference is calculated between the pressure of P_1 and the established. but, as known from the characteristic figure of fluid rate, only minimum fluid flows at the set pressure, the lack of flowing volume occurs. Therefore, when the pressure difference (ΔP)is calculated,the lacks of fluid can be prevented, if 2nd pressure is set up as (set pressure + offset 0.5kgf/㎠) Also,if 1st pressure(P_1) has a variation, it is recommended that the pressure difference should be calculated on the basis of that of minimum for safety, and the selection of diameter is calculaed based on the standards of minimum difference of pressure and maximum rate of fluid.

1. Selection of valve by CV Ex (SRCV-2W)

Ex) What is the suitable diameter of valve when the water with the 1st pressure 6kgf/㎠, and the set pressure is 3kgf/㎠/hr ?
(As Offset 0.5kg/㎠ + P_2 PRESSURE)

$$CV = \frac{1.167 \times V\sqrt{G}}{\sqrt{(P_1-P_2)}} = \frac{1.167 \times 20}{\sqrt{2.5}} = 15$$

so 40A should be chosen.

CV formula

$$CV = \frac{1.167 \times V\sqrt{G}}{\sqrt{(P_1-P_2)}}$$

CV = valve ability coefficient (Gal/min)

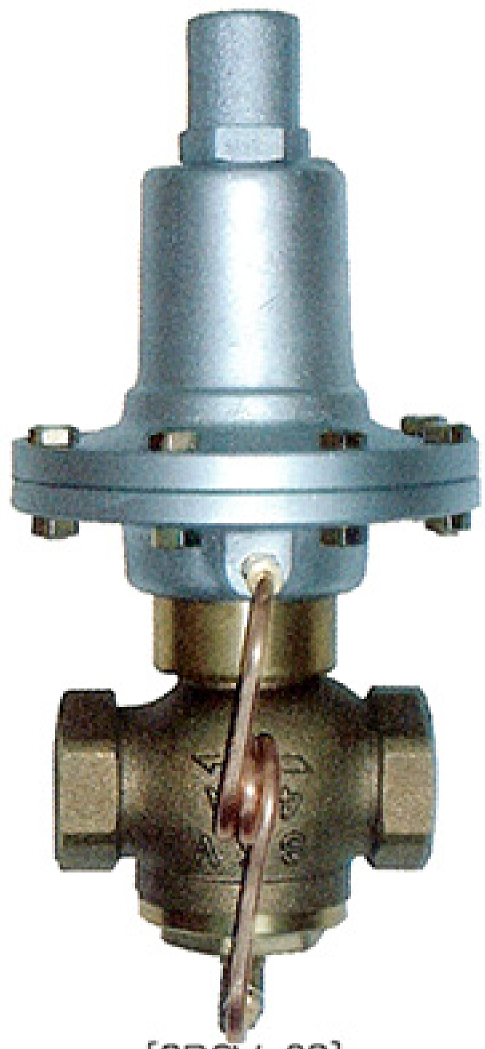
V = fluid rate ㎥/h

G = s.g.(Water :1)

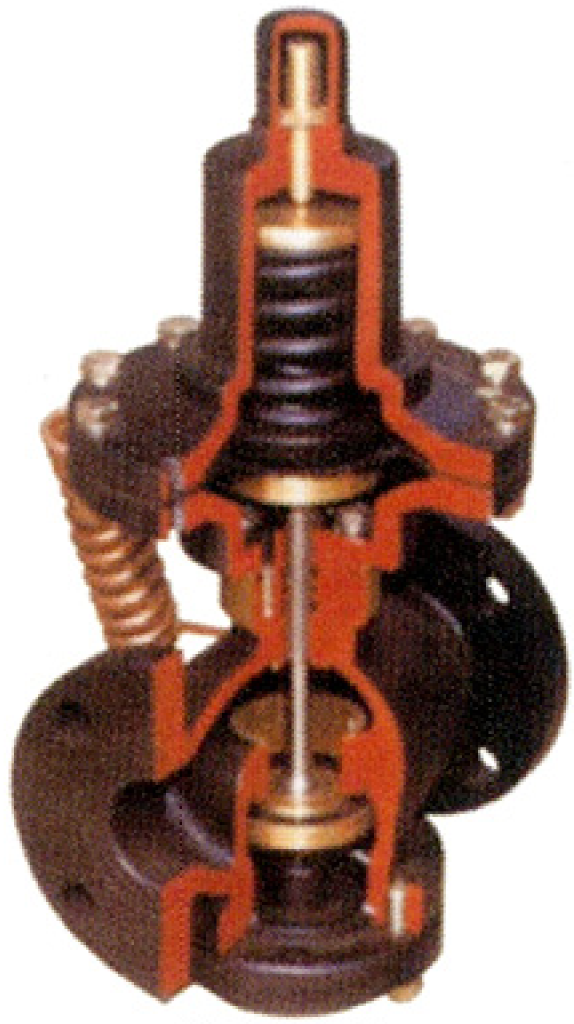
P_1 = 1st pressure

P_2 = 2st pressure

DIAPHRAGM PRESSURE REDUCING VALVE [SRCV-2S, 2W Type]
Air, Water

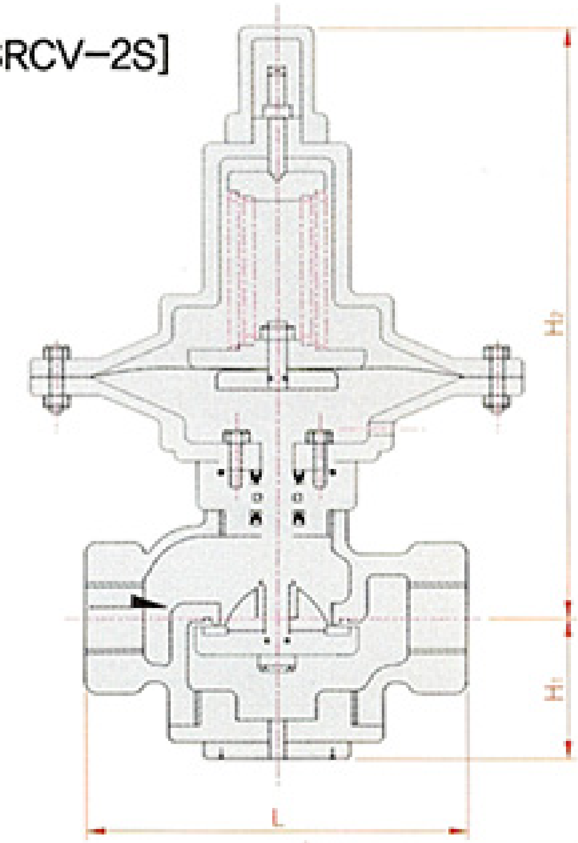


[SRCV-2S]

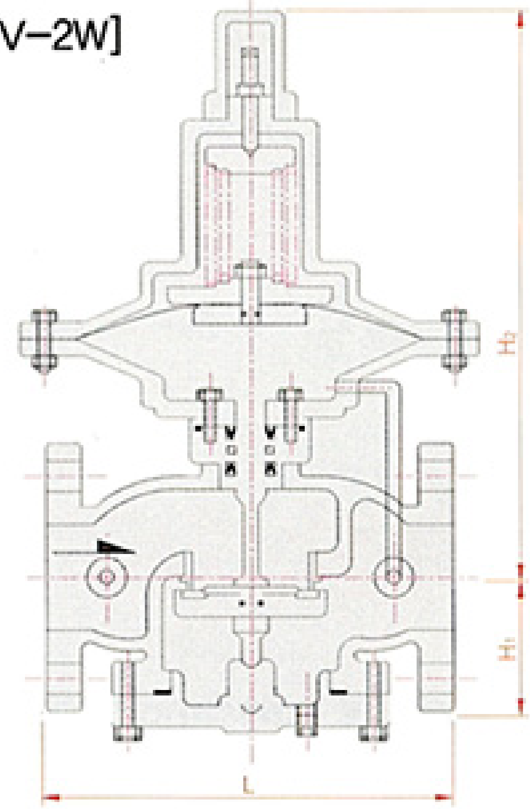


[SRCV-2W]

[SRCV-2S]



[SRCV-2W]



Features

- As a diaphragm-style pressure reducing valve, it maintains an excellent pressure regardless of used volume of the 2nd in any conditions of perpendicular and horizontal.
- Direct acting type-the operation is sensitive.
- It is manufactured N.B.R, E.P.D.M and Viton, etc. according to the option which are suited for the conditions of places where they are installed and which consumers desire.
- The value of CV is one step higher than that of pilot valve.

Dimension [SRCV-2S] (mm)

SIZE	15A,20A	25A	32A	40A	50A
L	100	110	130	140	160
H_1	65	70	75	85	95
H_2	265	270	300	310	320
CV	5	8	14	22	37

Specifications

CLASS	FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE	REDUCING RATIO	USE
SRCV -2W	WATER AIR GAS OIL	MAX 10kg/㎠g	MAX 80℃	KS 10K FF FLANGE	BODY:GC TRIM:STS BSBM	DIAPH-RAGM ACTING	10:1	FOR HIGH PRESSURE FOR LOW PRESSURE
SRCV -2S	STEAM HOT WATER	MAX 10kg/㎠g	MAX 220℃	PT SCREWED	BODY:GC TRIM:STS BSBM	DIAPH-RAGM ACTING	10:1	FOR LOW PRESSURE FOR HIGH PRESSURE

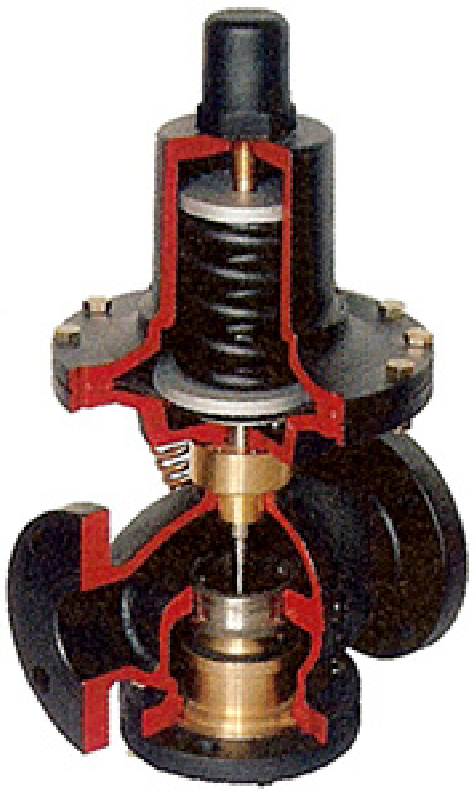
20k for heavy warm water and all STS are order-maed.

Dimension [SRCV-2W] (mm)

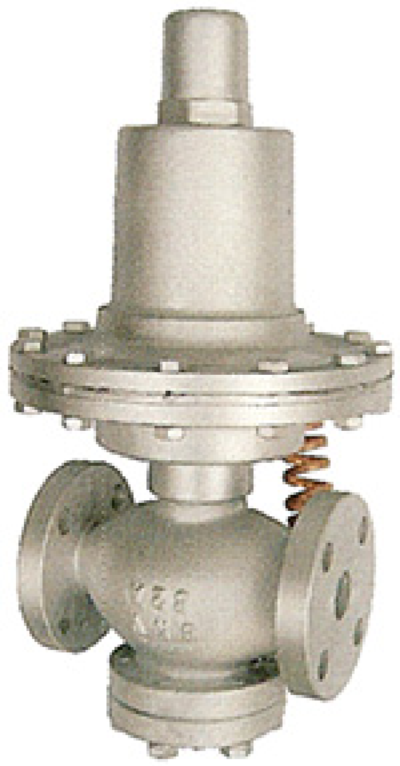
SIZE	15A,20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	205	205	220	265	280	330	370	412
H_1	100	100	105	105	110	115	130	150	180	180
H_2	290	290	320	320	340	400	430	450	480	480
CV	5	8	14	22	37	62	95	150	237	330

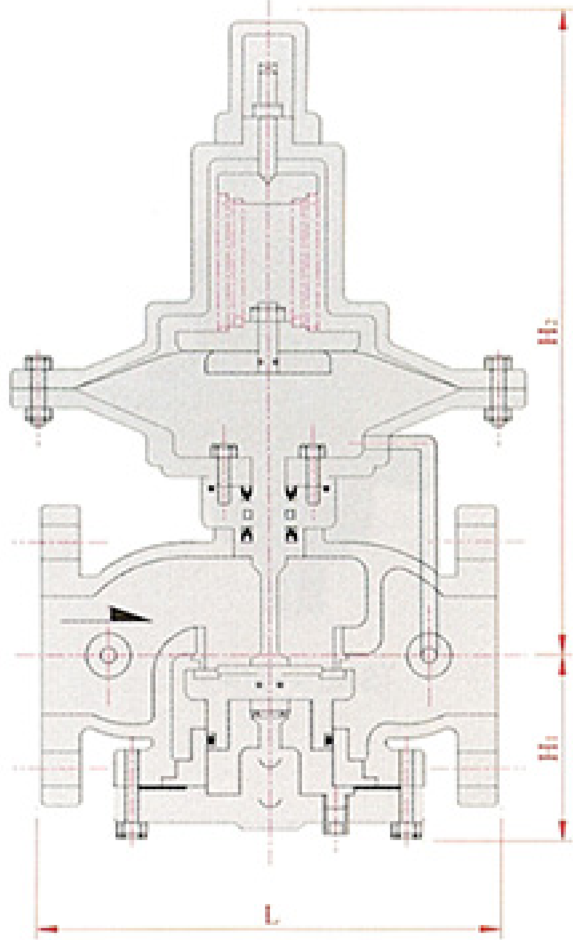
Diaphragm Pressure Reducing Valve Water [Air,Gas] [SRCV-22W,2Type]
Piston-Cylinder Built-in Type. [SRCV-22W] Low Pressure Type [SRCV-2]

SRCV-22W



SRCV-2





SRCV-22W

It is used for.

- Manufacturing plant requiring a precise secondary pressure
- Water supply, pneumatic pressure water supply system, apartment building,ect.

Dimension SRCV-22W (mm)

SIZE	32A	40A	50A	65A	80A	100A	125A	150A
L	205	205	220	265	280	330	370	412
H_1	105	105	110	115	130	150	180	180
H_2	320	320	340	400	430	450	480	480
CV	14	22	37	62	95	150	237	330

Dimension SRCV-2 (mm)

SIZE	32A	40A	50A	65A	80A	100A
L	205	205	220	265	280	330
H_1	105	105	110	115	130	150
H_2	380	380	390	420	450	460
CV	14	22	37	62	95	150

Features

- Diaphragm direct acting (self control type)
- As piston-cylinder is built in, even if the primary pressure changes much, the secondary pressure is precisely controlled.
- Depending on specifications, N.B.R, E.P.D.M, or VITON will be order-made for packing diaphragm.
- It is used in PLANT manufacturing companies, water supplying services, pressurized water supply SYSTEM, APT, and buildings that need precise 2nd side.

Features

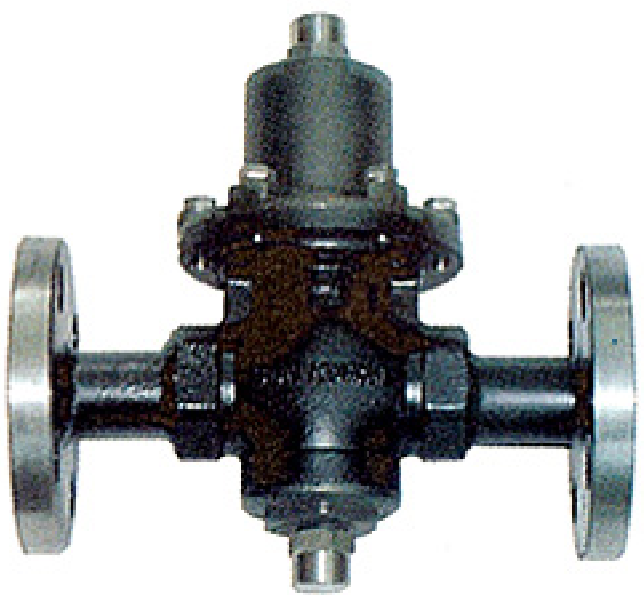
- It is frequently used to decompress to low pressure.
- The 2^{nd} side pressure can be decompressed up to 0.1kgf/㎠g, making its performance outstanding.
- It is usually used in PLANT manufacturing industrial areas.

Specifications

MODEL	FLUID	PRESSURE	TEMP	END CONNECTION	HYDRAULIC PRESSSURE TEST	MATERIALS	REDUCING RATIO
SRCV-22W	WATER,OIL AIR,GAS	MAX 10kgf/㎠g (10~1kgf/㎠g)	MAX 80℃	KS 10K FF FLANGE	BODY : GC TRIM: STS,BSBM	DIAPHRAGM ACTING	10:1
SRCV-2	STEAM, HOT WATER	MAX 2kgf/㎠g (2~0.1kgf/㎠g)	MAX 130℃	KS 10K FF FLANGE	BODY : GC TRIM: STS,BSBM	DIAPHRAGM ACTING	20:1

For STS and special specifications is order-made

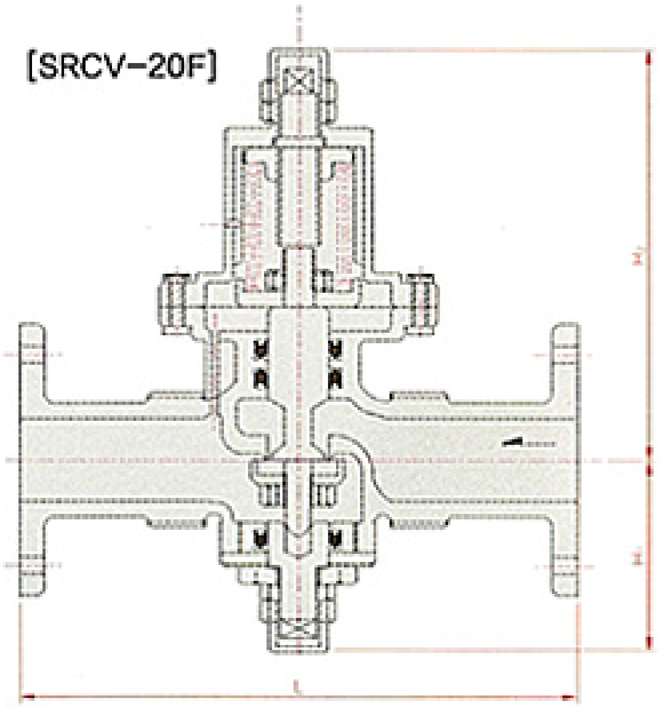
Diaphragm Pressure Reducing Valve
[SRCV-20W, 20F Type] Water,Air,Gas



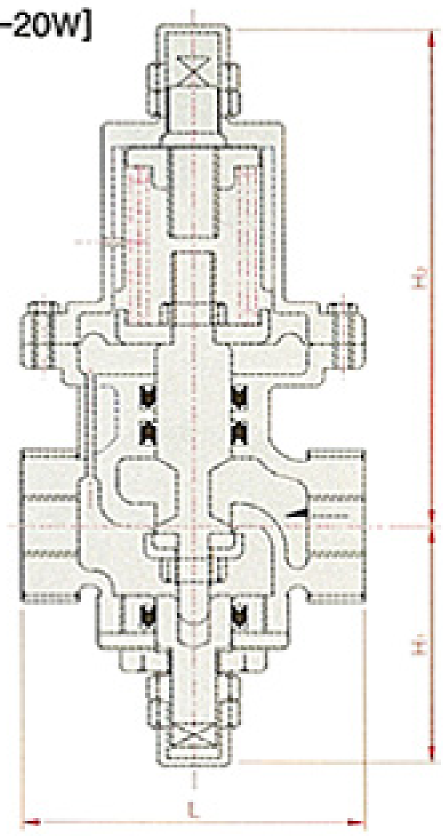
[SRCV-20F]

[SRCV-20W]

[SRCV-20F]



[SRCV-20W]



Features

- It is precisely case of ALL STS 304, and pressure reducing and the adjustment of fluid rate are possible.
- As a small and light type, it has an excellent durability, and usable for any conditions of perpendicular and horizontal.
- It is largely applied to the industrial field of precision plants such as electronics, semiconductor, pharmaceutics, and food, etc.

How to adjust the pressure on the 2nd Side

1. Shut off the stop valves of P_1-P_2.
2. Clear completely the dirts in the pipe by opening the stop valve on the bypass valve.
3. Remove the cap of pressure reducing valve in the state of shutting off the stop valve of bypass piping, and check if the adjusting screw has the spring load.
4. Start to open slowly the stop valve of P_1, and have the stop valve of P_2 opend a little for the slight flowing of the fluid for any time of pressure adjustment on P_2.
5. Turn the adjusting screw counterclockwise, watching the pressure gauge, until the set pressure is reached. If the adjusting screw is turned counterclockwise, the pressure on the 2nd valve increases, and clockwise, the pressure decreases.
6. If the desired pressure is reached, fasten hard the closing nut of the adjusting screw so that the load of the spring is not changed, and then put a cap on it.

How to control the fluid rate

1. Take off the cap on the lower part and adjust the fluid rate that is needed.
2. Turning it clockwise makes the fluid rate increase and counterclockwise, it decreases.

Dimension [SRCV-20F] (mm)

SIZE	15A	20A	25A
L	190	190	190
H_1	75	75	75
H_2	120	120	120
CV	5	5	5

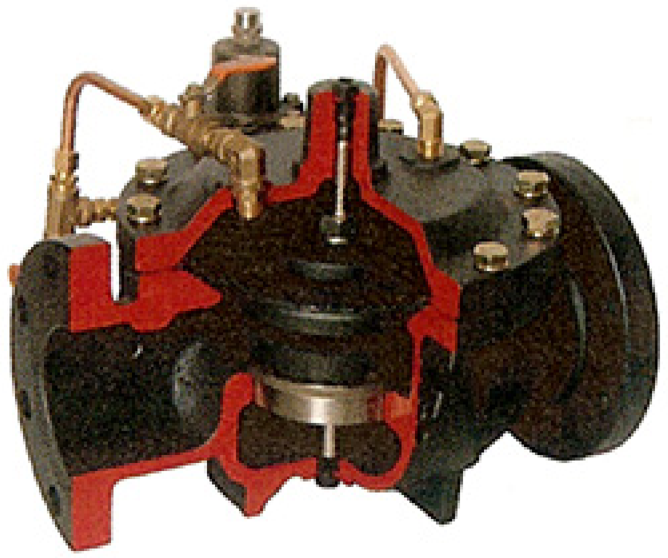
Dimension [SRCV-20W] (mm)

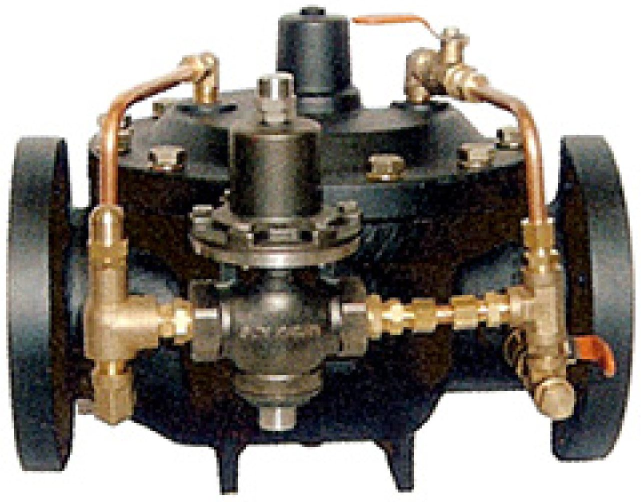
SIZE	15A	20A	25A
L	90	90	90
H_1	75	75	75
H_2	120	120	120
CV	5	5	5

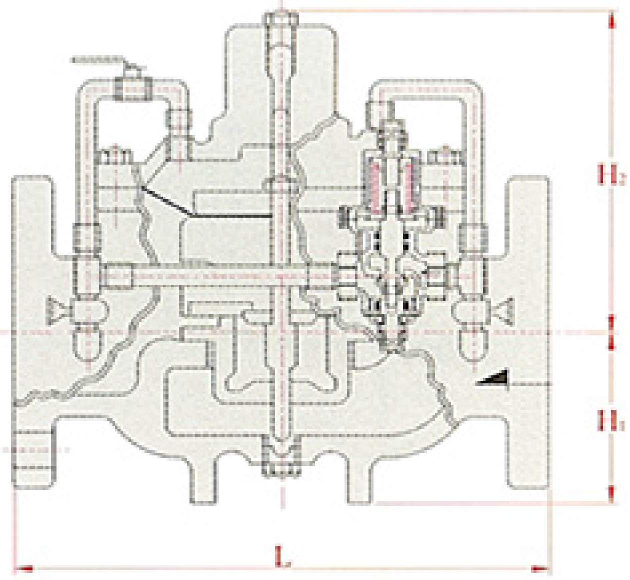
Specifications

MODEL	FLUID	PRESSURE	TEMP	END CONNECTION	HYDRAULIC PRESSSURE TEST	MATERIALS	REDUCING RATIO
SRCV-20W	WATER,OIL AIR,GAS	P1:10~20kgf/㎠g P2:0.5~16kgf/㎠g	MAX 80℃	KS 10K SCREWD	BODY :STS 304 TRIM:STS,BSBM	DIAPHRAGM ACTING	10:1
SRCV-20F				KS 10K FF (RF) FLANGE			

WATER CONTROL VALVE
[SWCV-3 Type] Pressure Reducing Control Valve







Features

- It shows an excellent function for the use of the line of heavy warm water or large-scale diameter.
- It functions to keep the 2nd pressure precisely, attached with a pressure reducing valve of diaphragm style, despite the pressure variation of the 1st valve.
- SRCV-2W direct-driven style is recommendable in the case of installing vertically a rather small-sized diameters for apartment buildings, sky scrapers, and golf ranges.

Dimension (mm)

SIZE	40A	50A	65A	80A	100A	125A	150A	200A
L	250	250	270	330	360	370	450	480
H1	70	80	90	95	110	125	145	170
H2	140	140	150	165	190	205	225	250
CV	50	55	80	100	200	360	500	840

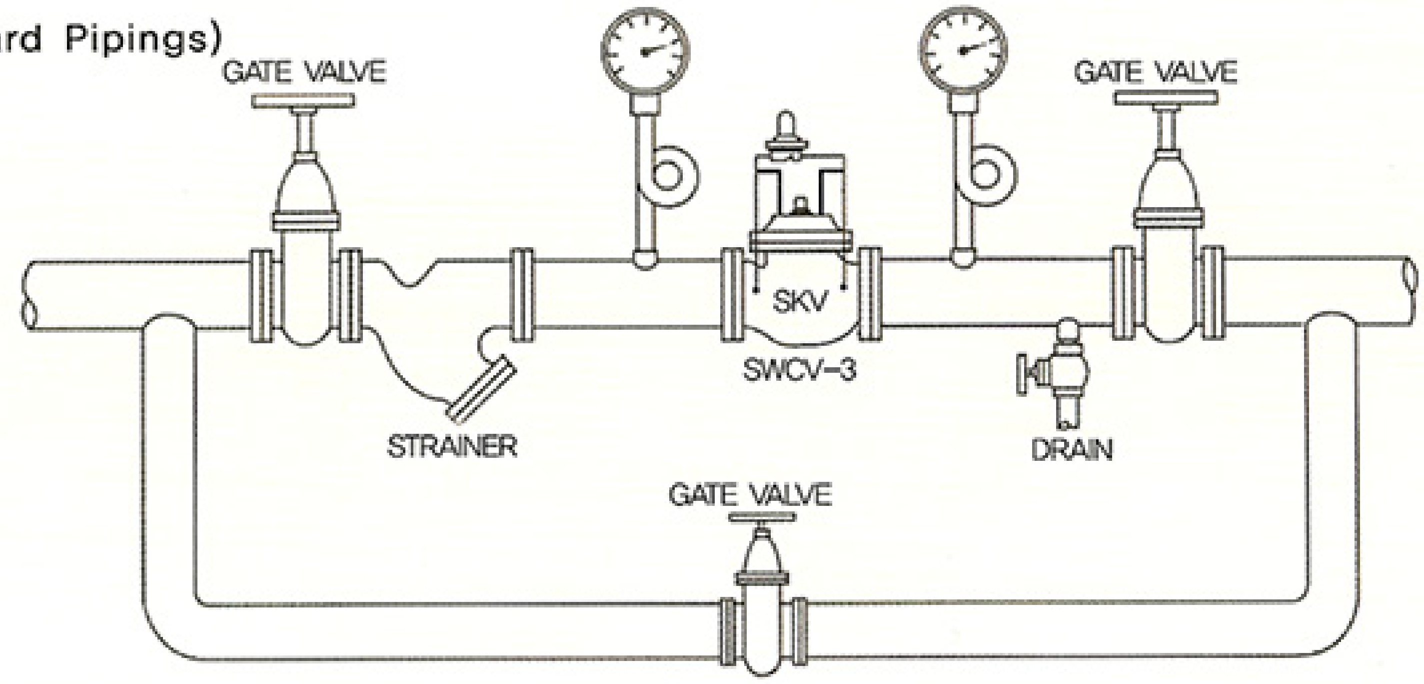
Instructions

Use gauges 1.5 – 2 times more than the 1st pressure and 1.5 – 2 times more than the 2nd pressure, and set up in the manner that the exact pressure can be seen.
Attach a strainer on the 1st valve for removal of dirts and attach a safety device for the safety.
At test run, open the ball valve to remove air.
Open the needle valve at the input 1/4 turn, and the needle valve at the output 3/4turn, adjust pressure by turning the adjusting screw of the accessory (auxilisry reducing pressure) clockwise.
Open slowly the 2nd gate valve after reducing pressure, and make double sure that install drainage and keep warming to preven piping from being frozen in winter.

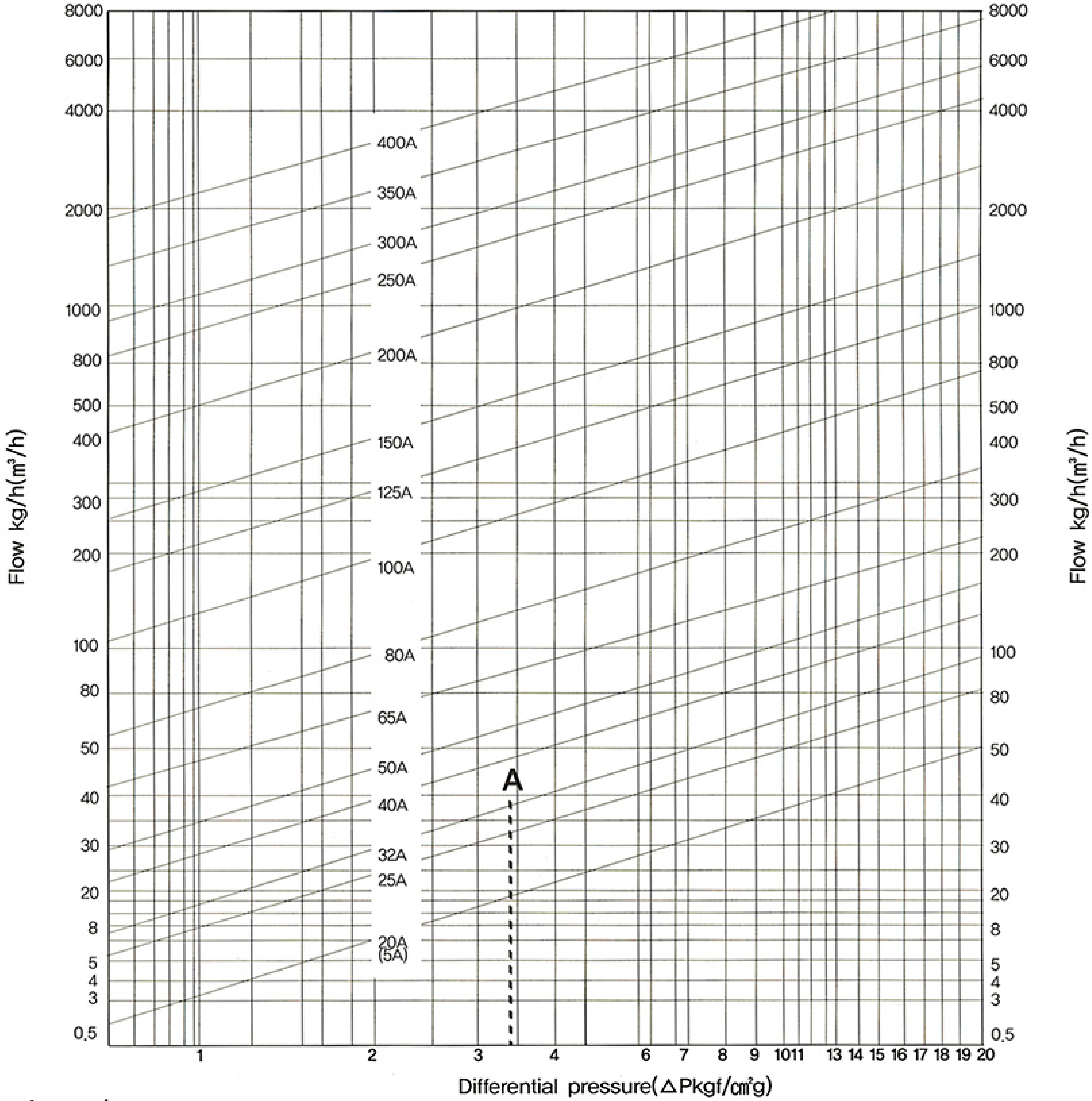
Cause of Breakdown and Measures

PROBLEM	CAUSE	TROUBLESHOOTING
2nd pressure increasing	1. Water leaks from the above because diaphragm breaks caught inside 2. seat & disc leaks 3. by-pass open	1. Change diaphragm. 2. Clean after checking dirts caught inside 3. By-pass close
lack of capacity	Wrong selection of valve	Adjust to high after re-check
big gap established pressure	Wrong selection of spring	Ask for guarantee service
vibration of piping	1. obstruction of air 2. wrong setting of piping	1. Remove air in the pipes 2. Set pipes properly.

(Standard Pipings)



SRCV-2W,22W Diameter Selection (WATER,AIR) of Reducing Valve



How to read

ex) in Case 1st Pressure is 7kgf/㎠g, 2nd 3.6kgf/㎠g, & Flow 40m³/h.

1) 1st pressure 7kgf/㎠g, & 2nd 3.6kgf/㎠g, so, the differece is ($\triangle P = P_1 - P_2$) is 3.4kgf/㎠g.

2) Seek "A" point by connecting vertically the point of 40m³/h from the differentiated 3.4kgf/㎠g .

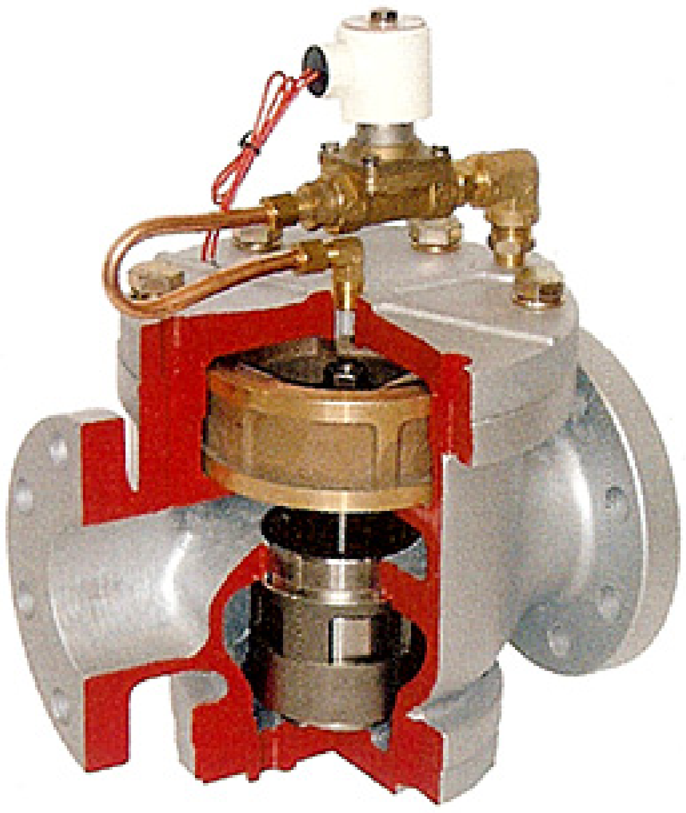
3) 40A is selected since "A" point is between 32A~40A diameter.

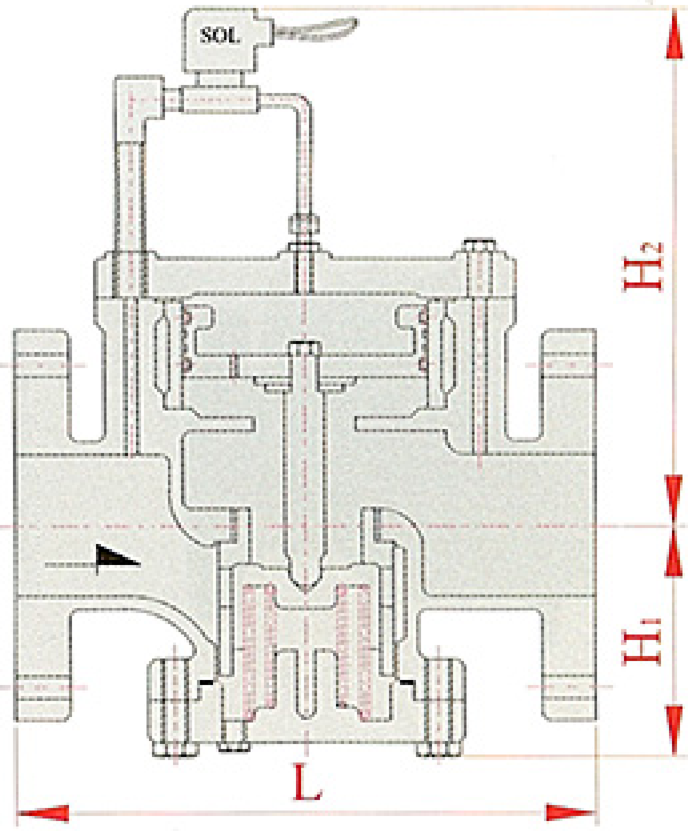
Glossary

- **Primary Pressure**
  the pressure on the input of the inside of pressure reducing valve, or, the pressure of input of the inside of piping close to the pressure reducing valve
- **Secondary Pressure**
  the pressure on the output of the inside of pressure reducing valve, or, the pressure of output of the inside of piping close to the pressure reducing valve
- **Set Pressure**
  the pressure of the 2nd valve in the fluid rate of minimum adjustability

  Offset Pressure
  the pressure of the 2nd valve in the fluid rate of minimum adjustbility the difference between the set pressure and the changing pressure of the 2nd valve for the fluid rate to be gradually increased from the minimum adjustability to the rated, when the pressure of the 1st valve is maintained fixedly.
- **Lock-Up Pressure**
  the increasing pressure from the set pressure, according to cutting off the 2nd valve of reducing pressure.
- **Minimum Adjustability Flow**
  the minimum fluid rate of the pressure reducing valve that can keep the flow stable
- **Rated Flow**
  the maxim fluid rate to guaranteed in the fixed offset when the pressure of the 1st valve is fixed.

Solenoid Control Valve [SSCV-1Type][Steam Type]





Features

- Small-sized solenoid control valves are easy to find, but those above 40A are hard to find, resulting in this product's development.
- It operates indirectly, rarely resulting in water leakage or breakdowns.
- It is a steam-only solenoid control valve, and is frequently used in factories or PLANT.
- There is no abrasion or corrosion since the SEAT and the DISC are made stainless(STS)

Dimension (mm)

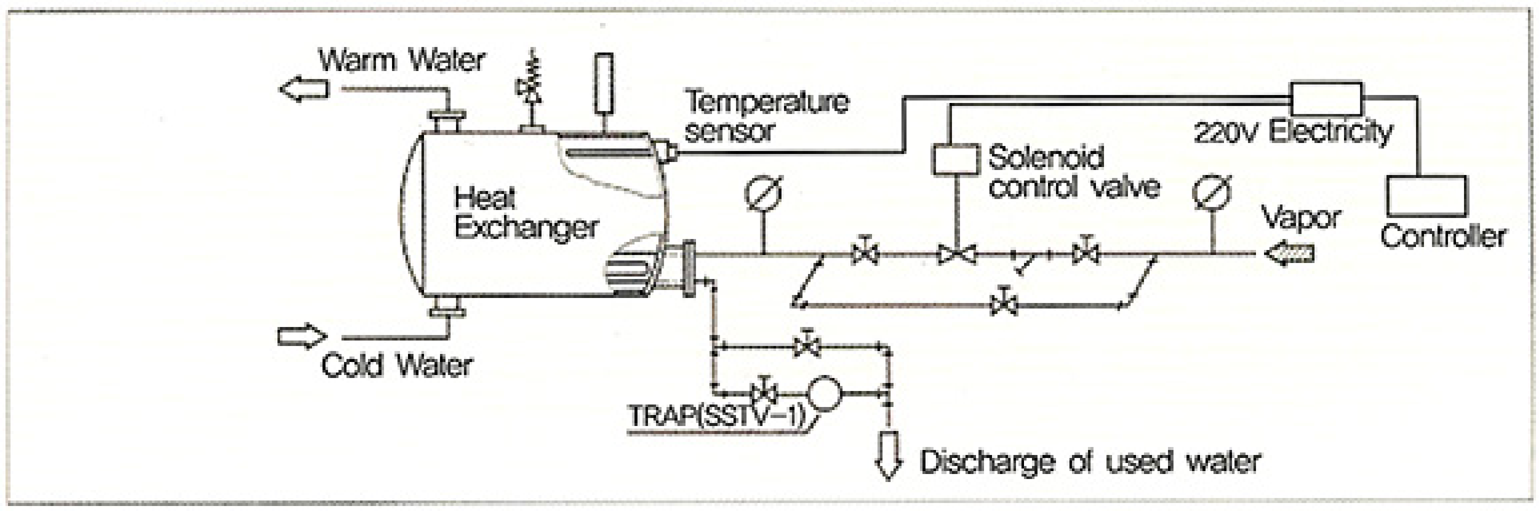
SIZE	40A	50A	65A	80A	100A	125A	150A
L	210	220	265	285	335	370	420
H_1	110	110	110	110	125	160	180
H_2	245	255	260	270	290	320	340

Specifications

MODEL	FLUID	PRESSURE	TEMP	END CONNECTION	HYDRAULIC PRESSSURE TEST	MATERIALS	REDUCING RATIO
SSCV-1	STEAM	MAX10kgf/㎠g	MAX220℃	KS10K FF FLANGED	BODY : GC TRIM :STS,BC6	PISTON ACTING	10 : 1

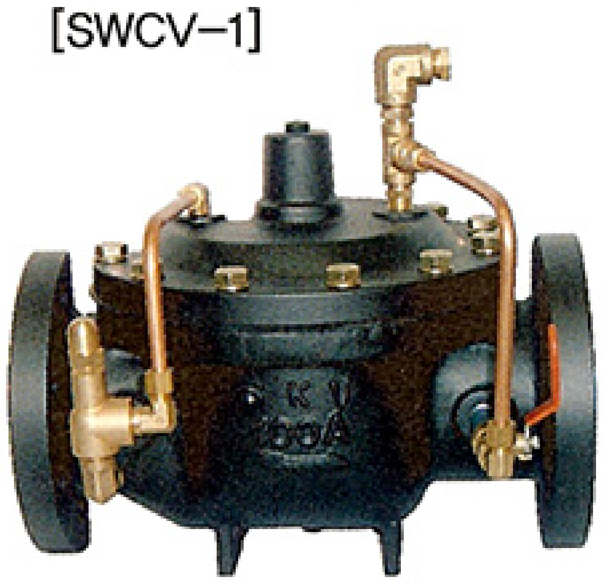
■ Cautions for piping

1) The pipes must be laid horizontally.
2) Strainer must be installed in front of solenoid control valves, and if possible, use a stainless screen that is over 100MESH.
3) In case of a breakdown, attach a manual valve on the shear.
4) When you attach a gangway to the lower part of the valve, freezing or bursting of water pipes and water HAMMER can be prevented.

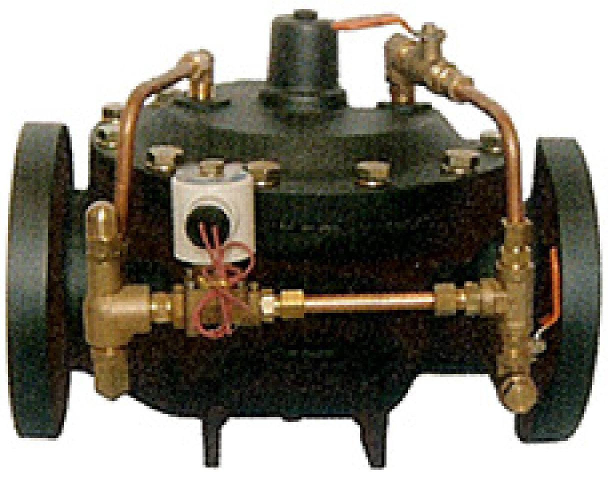


Water Control Valve [SWCV-1,2 Type] Ball Top Type, Solenoid Control Type

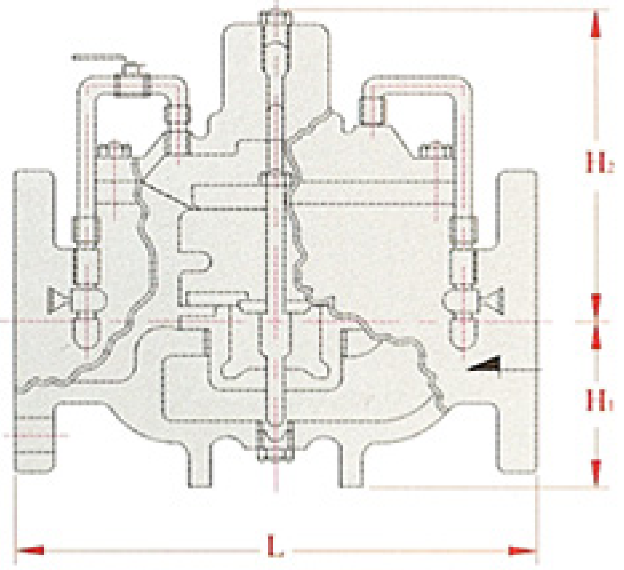
[SWCV-1]



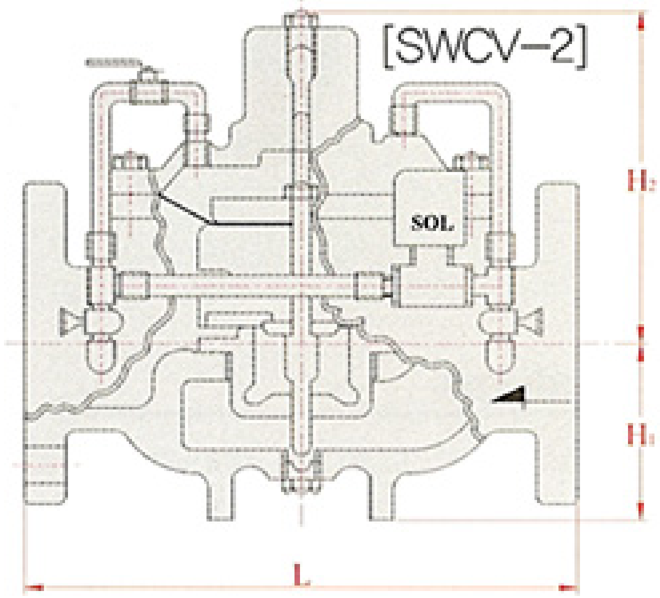
[SWCV-2]



[SWCV-1]



[SWCV-2]



Features

- Pilot solenoid that is remote-controlled in the controlling line of main valve is used to adjust water level, etc. and controls the supply and drainage of water in the water tank and bath, connected to electrodes, and is designed to be manually operated at power failure or at the electronic malfunction.
- It is operated in an electronic or ball tap manner, and in the combination of electronics and ball tap.
- Other features are similar with SWCV-1

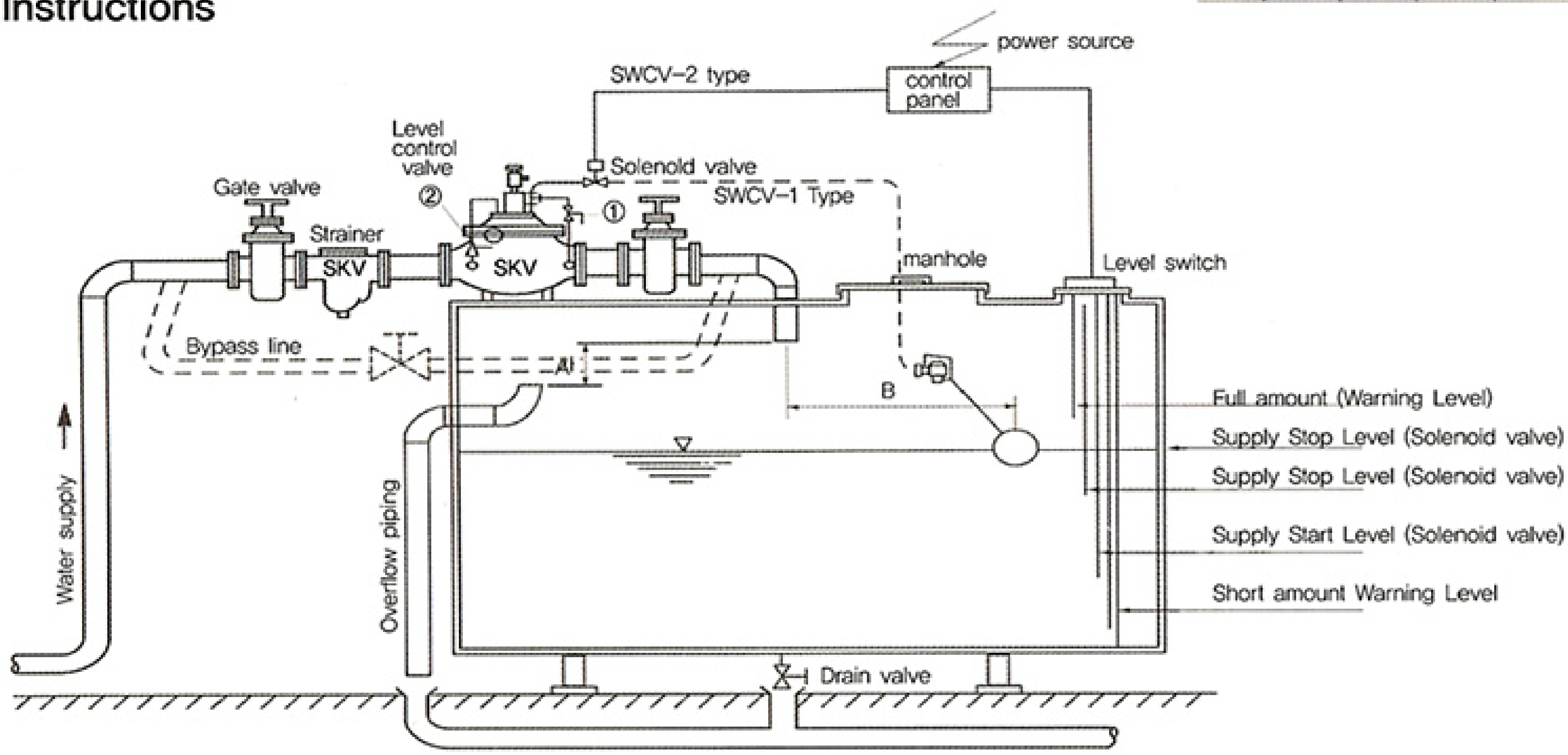
Instructions

- At test run, remove dirts completely by means of by-pass, and open the ball valve above to ventilate air for cheking for the operation.
- Adjust with the 1st and 2nd speed control valve, and stop when the main valve is about to close at the time of slow opening of the 1st valve, and usually open the 2nd valve 2 times more than the 1st valve.

Dimension (mm)

SIZE	40A	50A	65A	80A	100A	125A	150A	200A
L	250	250	270	330	360	370	450	480
H_1	70	80	90	95	110	125	145	170
H_2	140	140	150	165	190	205	225	250
CV	50	55	80	100	200	360	500	840

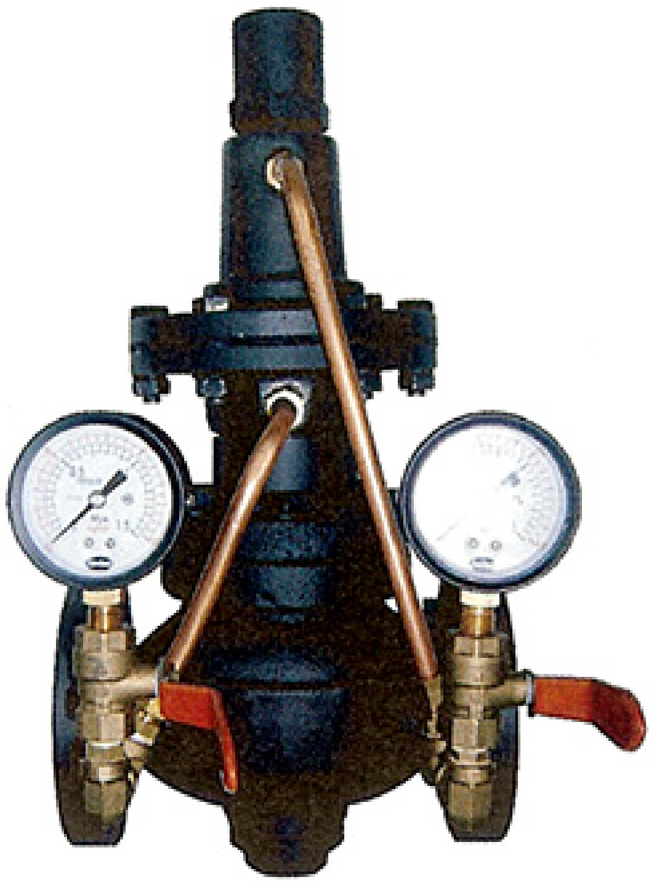
Instructions

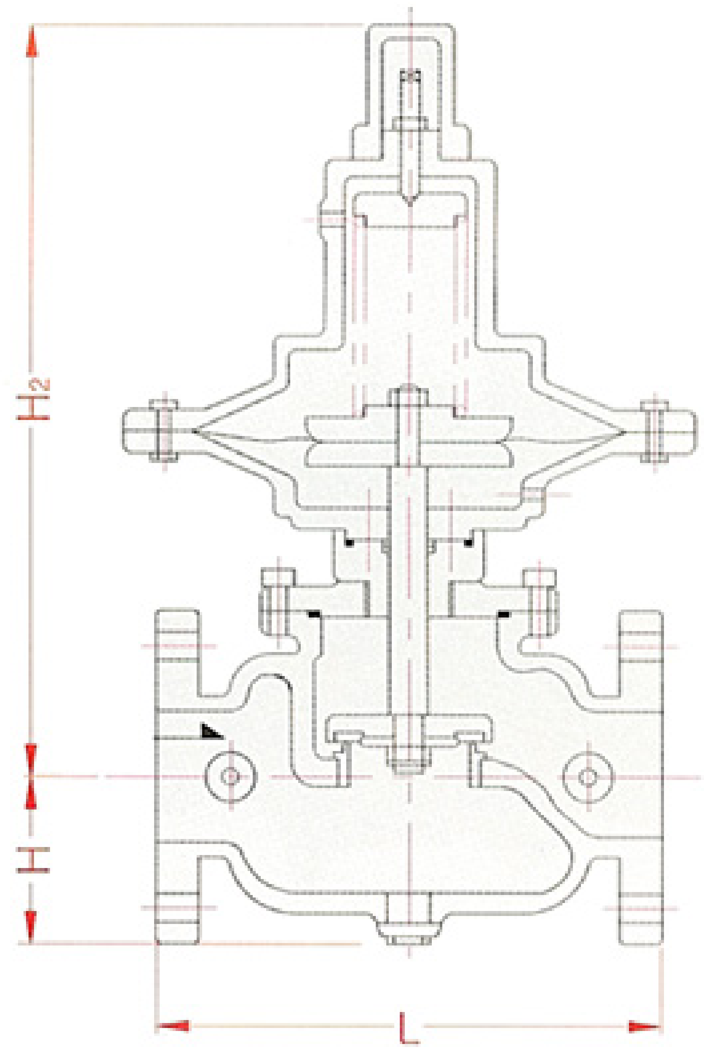


Cautions for piping

1. Distance of A shall be more than 1.5 times of the pipe size(min.50mm). Adjust A with the tank area.
2. Distance of B shall be as long as possible(longer than 1 meter) to prevent the float from waving or take waving prevention treatment.
3. SWCV-1,2 Type valve vertically on horizonal piping after flushing inside piping and removal of all foregn matters.
4. For the convenience of maintenance inspection, mount union joint neat to the Level Control Valve for pilot piping and a stop valve beween the union joint and ball tap.
5. Mount the ball tap near to the manhole on a spot easy for inspection.
6. It is necessary to the warming device for the prevention of freeing damage on the Level control valve when using in cold places.

Pressure Regulating Control Valve [SDPV-1Type]





Features

- There is almost no established difference of pressure according to the change of pressure.
- Piping and handling are easy.
- It is made of copper, which enables fluid rate and relief(the 1st pressure) possible, the concave parts made of stainless have an excellent durability.
- It is a self-control type.
- It exerts an outstanding performance for the line of heavy hot water.

Specifications

FLUID	MANUFACTURED SPECIFICATION	PRESSURE	TEMP	END CONNECTION	MATERIALS
WATER OIL	15A-200A	10kg/㎠g	Below 90℃ & Above 100℃ are Order-Made	KS 10kg/㎠g FLANGE	STS 20k Body:GC Trim:BSBM, STS304

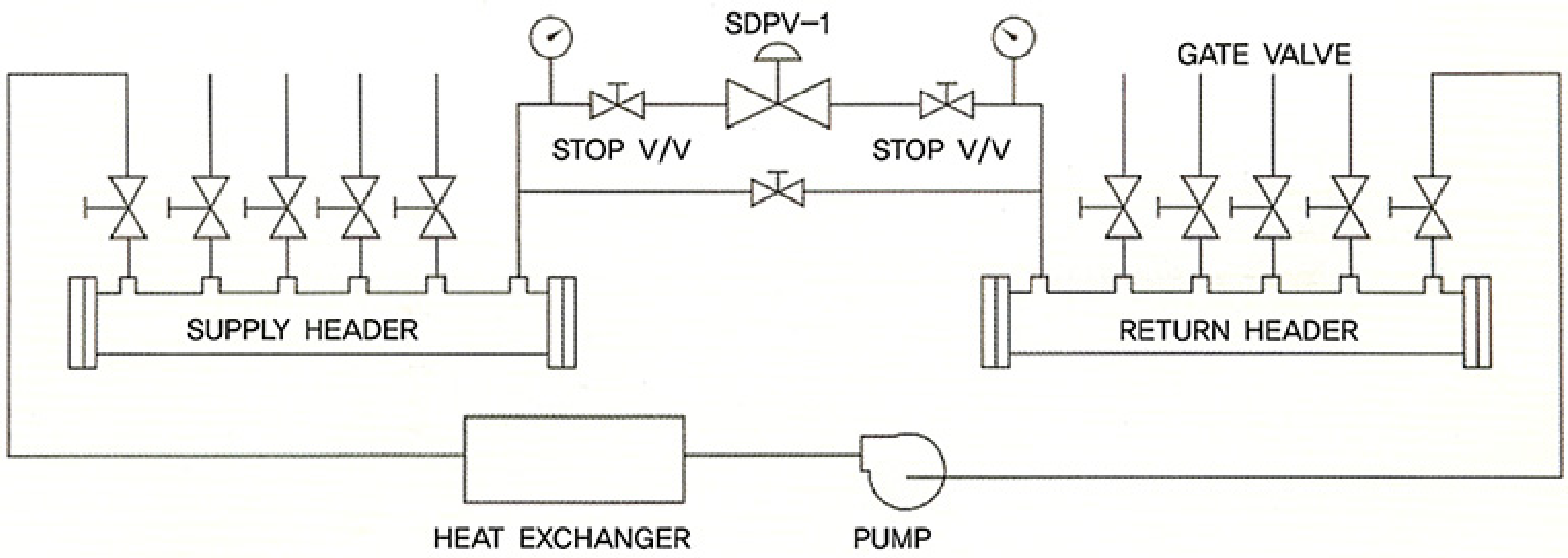
* Heavy warm water-used type is made of 20k steel,and ALL STS is order-made

Dimension

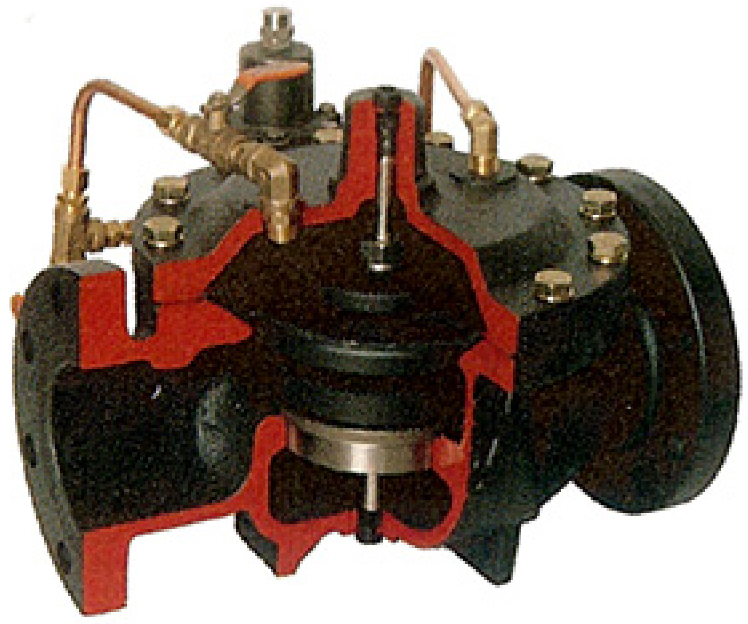
(mm)

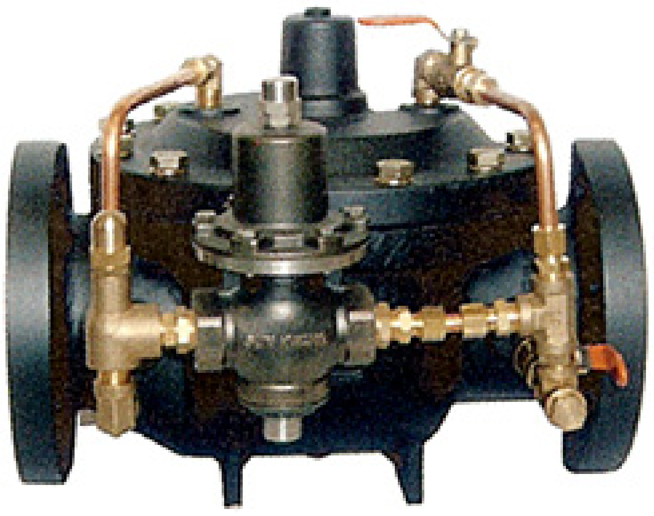
SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	80	80	85	90	95	105	110	120	140	170	190
H_2	325	325	325	360	360	360	430	460	480	520	530

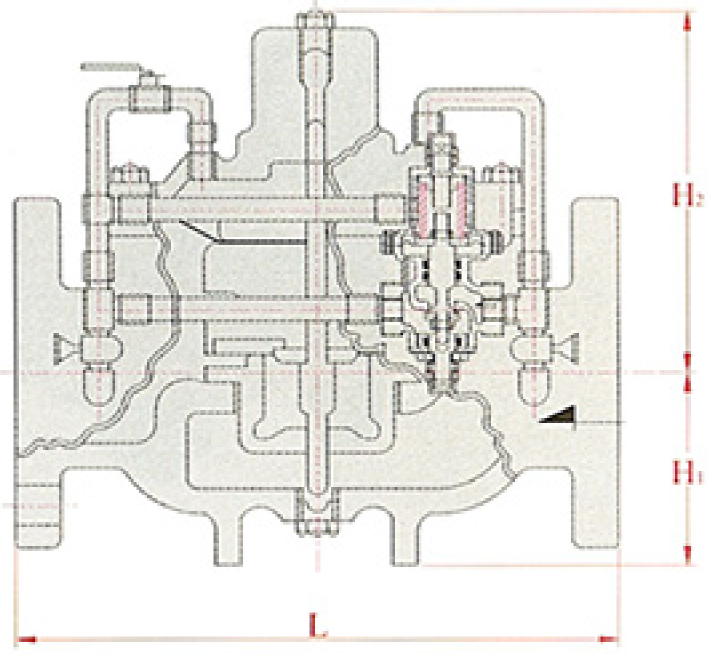
(Standard Drawings)



Water Control valve [SWCV-4 type]
Pressure Regulating Control Valve







Features

- It is an automatic-powered type controlling the differenced pressure and the volum of fluid rate, installed between supply header and return header, protecting overload, breakdown and malfunction of piping and equipments.
- It is manufacttured in accordance with the options of high temperature used for the line of heavy warm water.

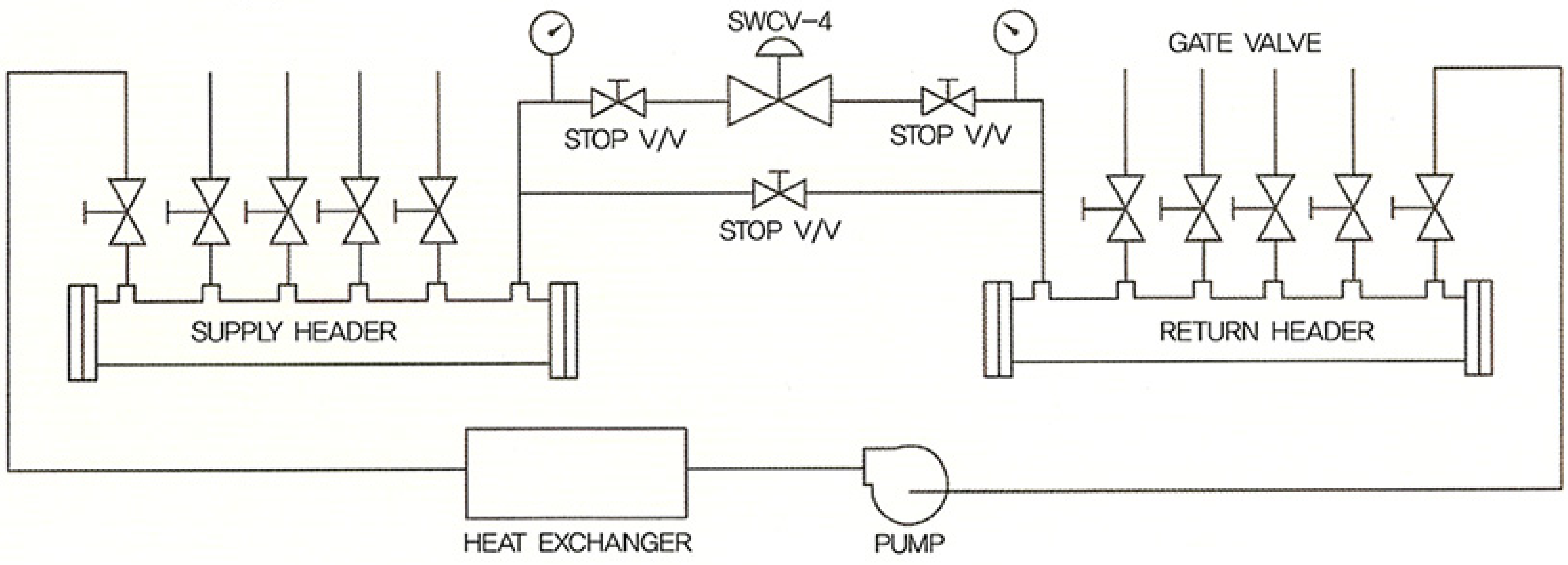
Instructions

- Attach each pressure gauge 1.5 times pressure more than that of input and output.
- Remove air completely by opening the ball valve above the valve.
- Close the manual valve completely at the output, and start to set up the differentiated pressure, watch the both pressure gauge.
- Reset checking for the circulation of the line, with operating the pump by opening the valve after the setting is finished.
- When setting, turn the adjusting screw above the auxiliary reducing pressure valve slowly clockwise, after finishing it, shut off the locking nut of the adjusting screw.
- Make sure to keep it so warm that it is not frozen to burst in winter.

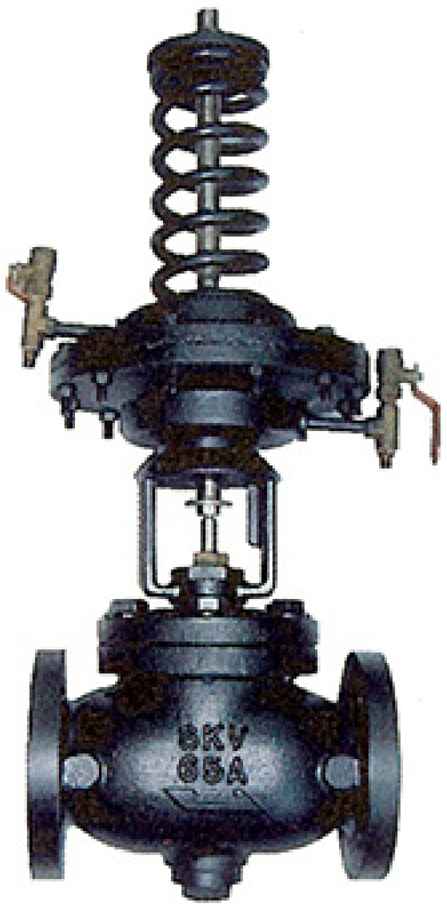
Dimension (mm)

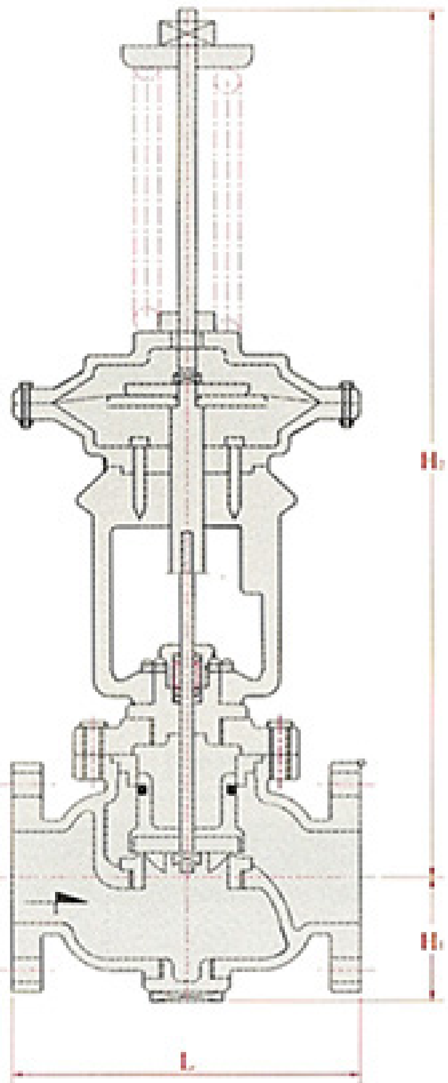
SIZE	40A	50A	65A	80A	100A	125A	150A	200A
L	250	250	270	330	360	370	450	480
H1	70	80	90	95	110	125	145	170
H2	140	140	150	165	190	205	225	250
CV	50	55	80	100	200	360	500	840

(Standard Drawings)



Pressure Differential Control Valve [SDPV-3 Type]





Features

- It is a high efficient valve controlling compositely the differentiated pressure and fluid rate, installed on the supply of loaders or return line.
- Except for controlling the differentiated pressure, it can make a wide controlling from small to large fluid rate,built in a fluid ratecontrolled linear cone.
- Its diaphragm is separated from the main body, so it is not affected by temperature. As a complete balance-type, established difference of pressure is not changed by the change of pressure.

Specifications

TYPE		SDPV-3 Type 10k	SDPV-3 Type 20k
DIAMETER		25A-150A	25A-150A
PRESSURE		MAX 10kg/㎠g	MAX20kg/㎠g
FLUID		COLD & WARM WATER, HOT WATER	
TEMP		MAX180℃	MAX220℃
STRUCTURE		DIAPHRAGM	DIAPHRAGM
SCOPE OF CONTROLLING PRESSURE DIFFERENCE		0.1~1.5,0.5~2,1.5~5kg/㎠g	
SCOPE OF CONTROLLING FLOW		0.5~100% OF REGULAR FLOW	
MATERIALS	BODY	GC	SCPH2
	TRIM	STS.BRONZE	STS
	DIAPHRAGM	EPDM.VITON	EPDM.VITON
HYDRAULIC PRESSURE TEST		20kg/㎠g	30kg/㎠g
END CONNECTION		KS10K FF FLANGE	KS20K RF FLANGE

Dimension

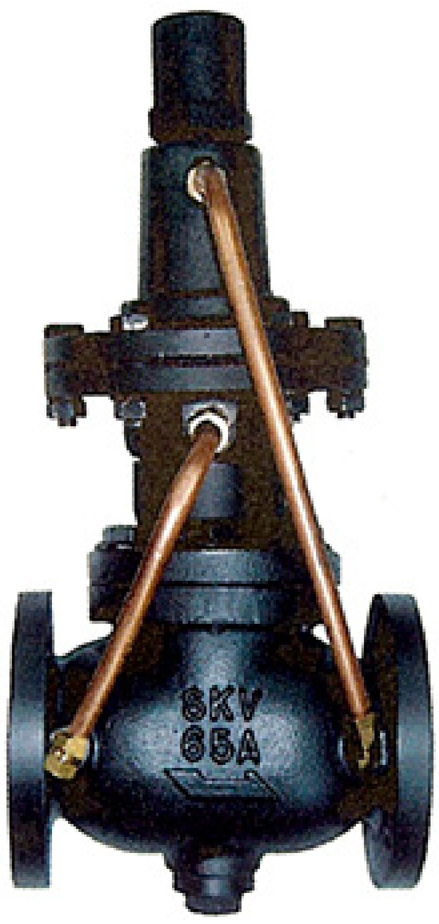
(mm)

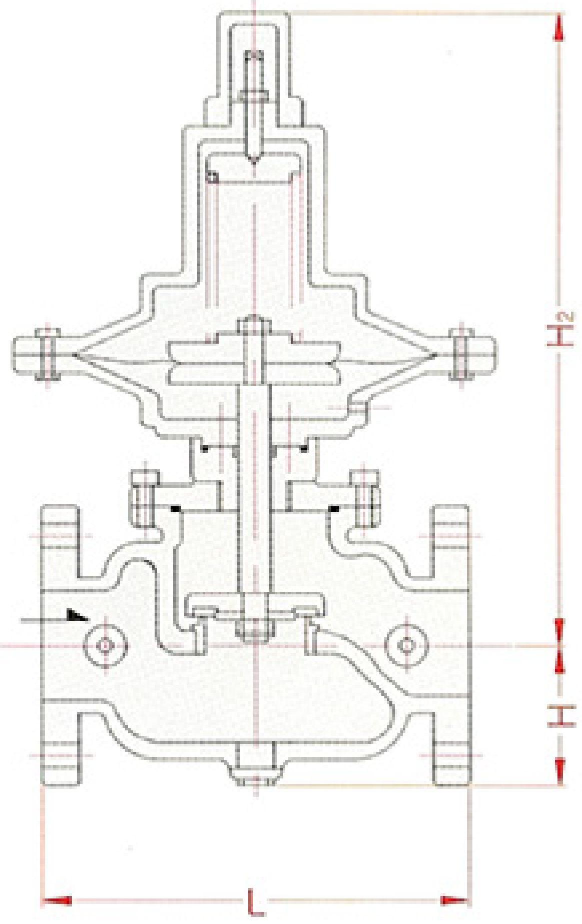
SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	80	80	85	90	95	105	110	120	140	170	190
H_2	400	400	405	480	480	510	580	590	680	700	750

SDPV -3Type flow selection of pressure regulating valve

DIAMETER	SCOPE OF FLOW CONTROL FROM PRESSURE DIFFERENCE (LPM)									
	P(kgf/cm²g)	0.1	0.3	0.5	0.7	1.0	1.3	1.5	1.7	2.0
25A(1")	MIN	0.2	0.4	0.5	0.6	0.7	0.8	0.8	0.9	0.9
	MAX	42	74	95	112	134	153	164	175	190
32A(1 1/4")	MIN	0.4	0.6	0.8	1.0	1.1	1.3	1.4	1.5	1.6
	MAX	72	125	161	191	228	260	280	298	323
40A(1 1/2")	MIN	0.5	0.9	1.2	1.4	1.6	1.9	2.0	2.1	2.3
	MAX	104	180	232	275	328	375	402	428	465
50A(2")	MIN	0.7	1.2	1.6	1.9	2.2	2.5	2.7	2.9	3.1
	MAX	140	242	313	370	443	505	542	577	626
65A(2 1/2")	MIN	1.3	2.3	2.9	3.5	4.1	4.7	5.1	5.4	5.9
	MAX	262	454	586	693	828	944	1014	1080	1171
80A(3")	MIN	2.1	3.6	4.7	5.6	6.6	7.6	8.1	8.7	9.4
	MAX	420	727	939	1111	1328	1514	1627	1732	1878
100A(4")	MIN	3.3	5.7	7.3	8.7	10.4	11.8	12.7	13.5	14.6
	MAX	655	1134	1464	1733	2071	2361	2536	2700	2929
125A(5")	MIN	4.1	7.0	9.1	10.8	12.9	14.7	15.7	16.8	18.2
	MAX	813	1408	1818	2151	2571	2931	3148	3352	3636
150A(6")	MIN	7.2	12.5	16.2	19.1	22.9	26.1	28.0	29.8	32.3
	MAX	1445	2503	3232	3824	4570	5211	5597	5959	6463
200A(8")	MIN	9.0	15.6	20.2	23.9	28.6	32.6	35.0	37.2	40.4
	MAX	1806	3219	4039	4780	5713	6513	6997	7448	8079

Primary Pressure Regulating Valve [SDPV-2 Type] Relief Valve





Features

- Its small and light type can be handled easily, and installed perpendicular and horizontally.
- Diaphragm with the specially processed fabric inserted doubly into N.B.R/VITON is a self control type of excellent durability.
- The regular pressure needed in the 2nd part of pump or another 2nd part is controlled from the 1st part, so, it is used to protect piping or important machinery and to operate the facility safely and effectively.

Specifications

FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE
WTER OIL AIR	MAX 10kg'/㎠g	MAX 80℃	KS 10K FF FLANGE	BODY:GC TRIM:STS BSBM	DIAPHRAGM ACTING

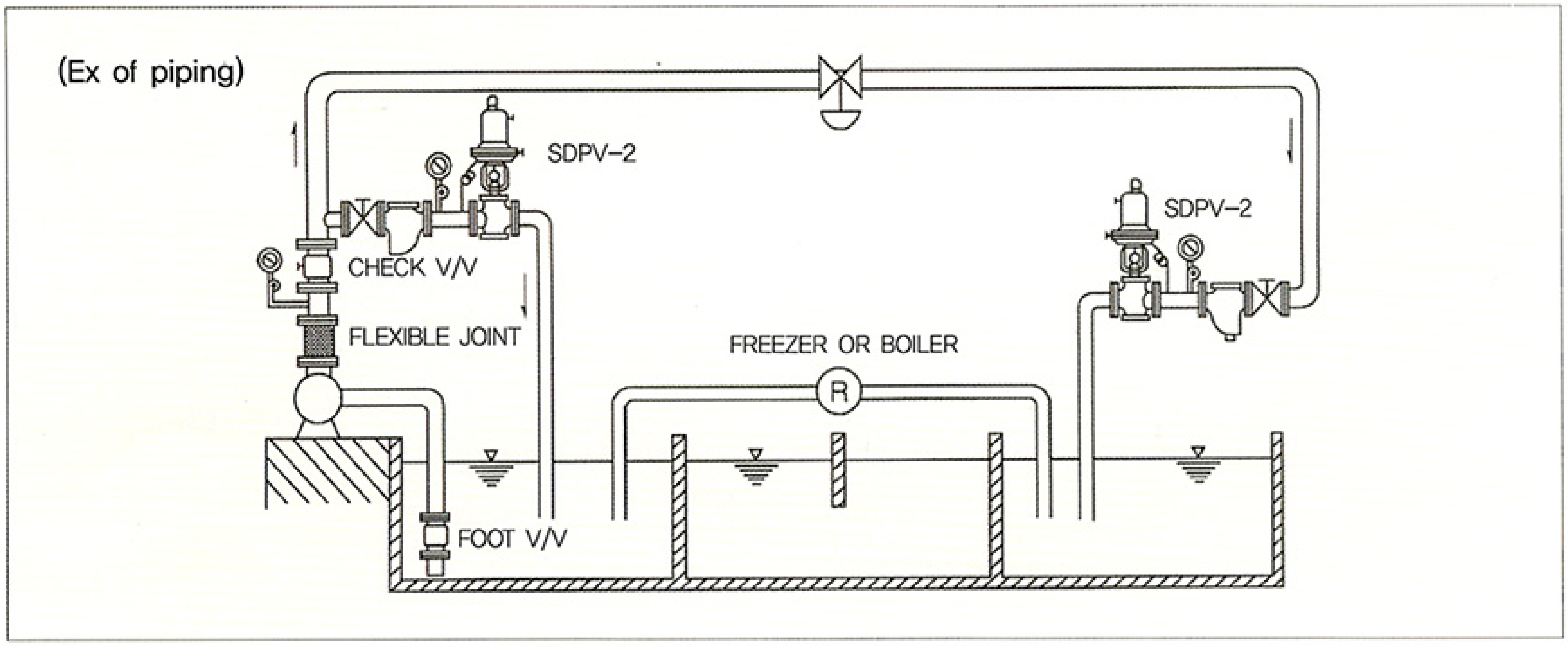
* Heavy warm water-used type, made of 20k SCPH2, and other ALL STS is order-made.

Dimension

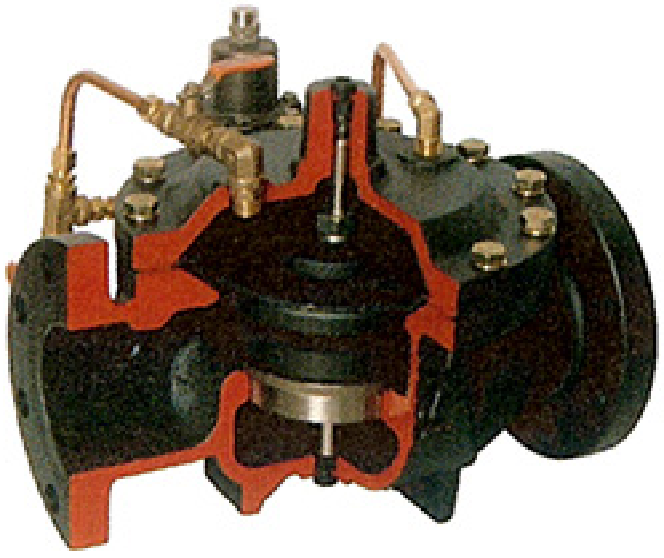
(mm)

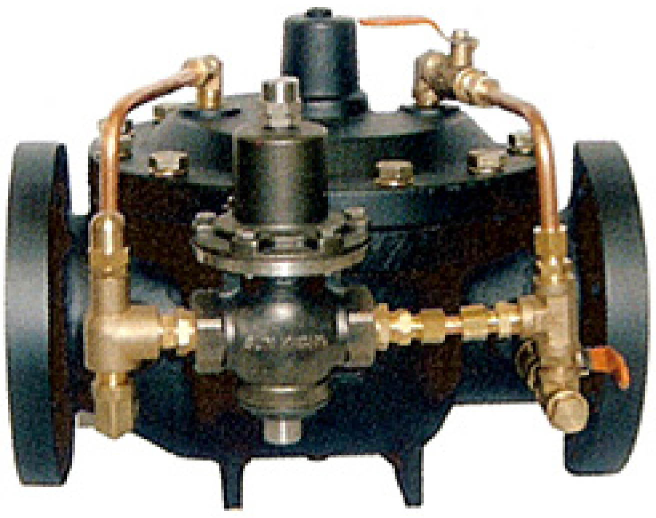
SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H1	80	80	85	90	95	105	110	120	140	170	190
H2	325	325	325	360	360	360	430	460	480	520	530

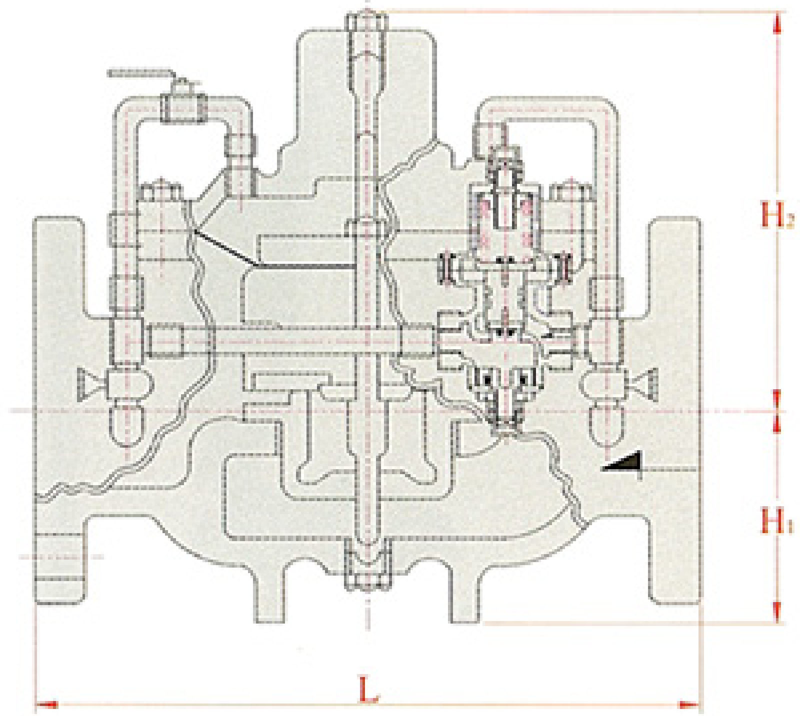
* Over 200A order-made



Water Control Valve [SWCV-5Type] Relief Valve
Primary Pressure Regulating Control Valve







Features

- It is an automatic type, controlling the main valve by an auxiliary pilot.
- Its structure of pressure balance operates sensitively to the change of load.
- It is controlled by its own weight, protecting water hammer, and the controlling speed is controlled according to the field condition, by the manipulation of the speed control valve on the 1st and 2nd valves.
- It can be used as a relief valve.

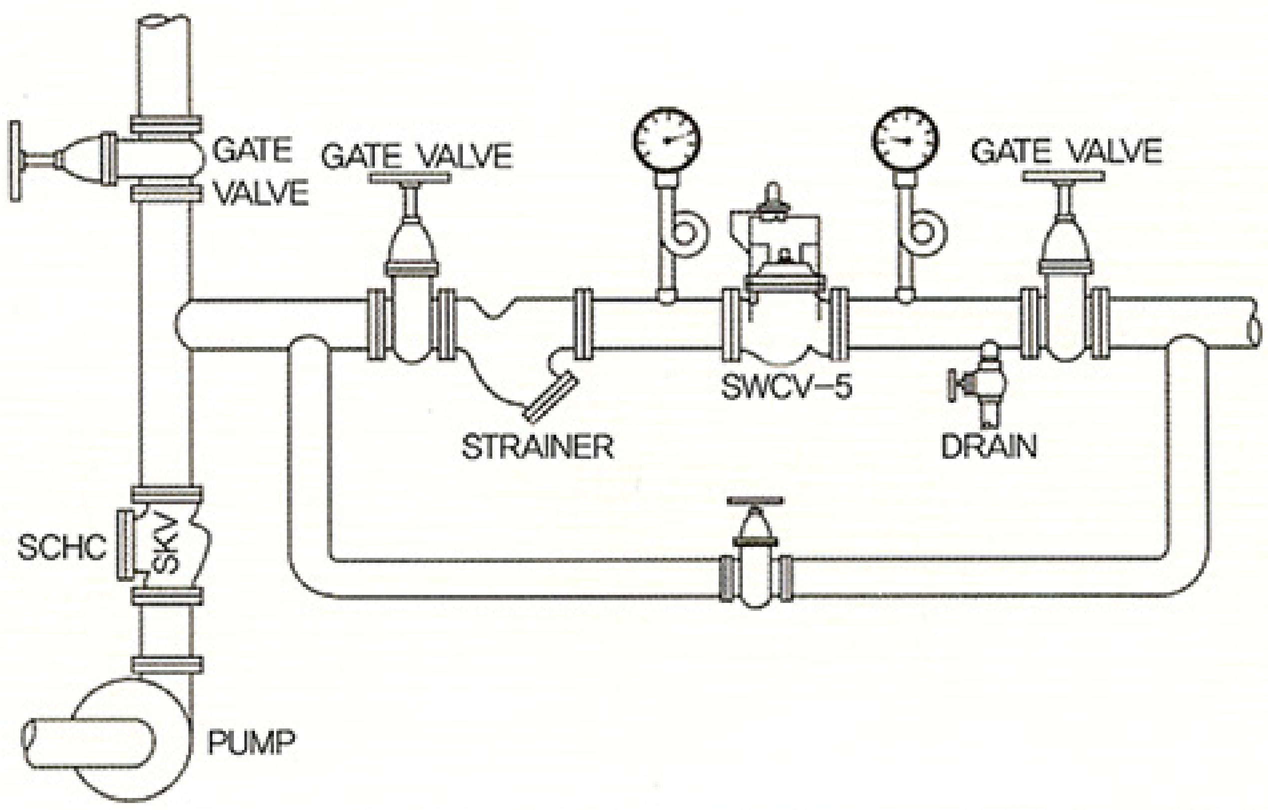
Dimension (mm)

SIZE	40A	50A	65A	80A	100A	125A	150A	200A
L	250	250	270	330	360	370	450	480
H_1	70	80	90	95	110	125	145	170
H_2	140	140	150	165	190	205	225	250
CV	50	55	80	100	200	360	500	840

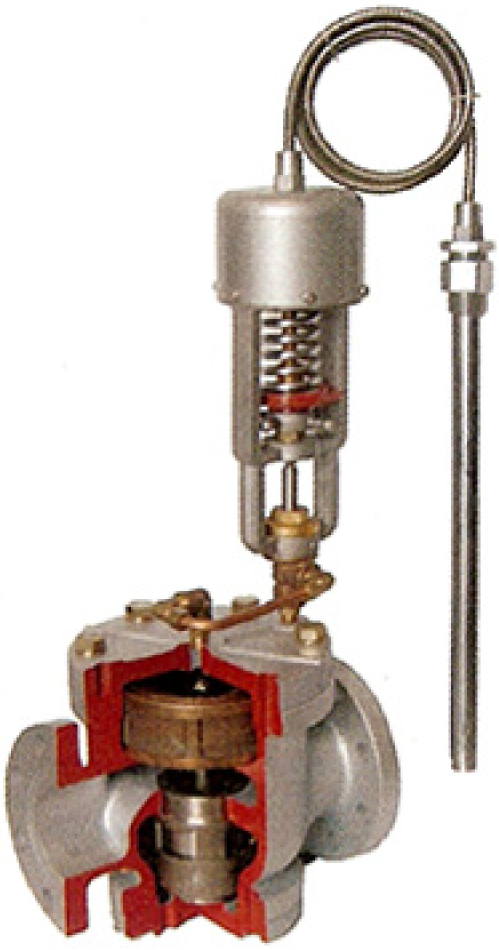
Instructions

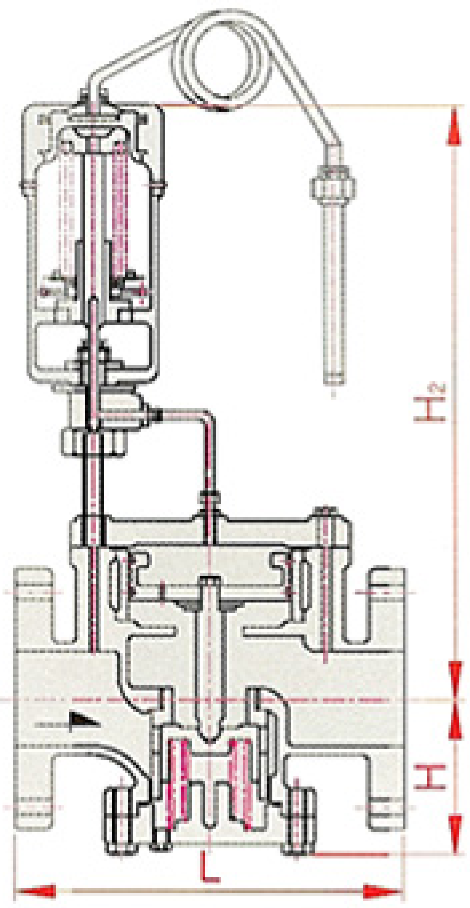
- Install each valve at the input and output, and also attach a safety valve at the input, and a pressure gauge both at the input and output.
- Completely remove air above the 1st pressure controlling valve, using a ball valve.
- Completely open the 1st valve at the time of operating pump.
- Open the needle valve at the input 1/4 turn, and the needle valve at the output 1/2.
- Adjust pressure that is hoped to the 1st pressure gauge by turning clockwise the adjusting screw above the 1st pressure controlling valve.
- In case of reducing manually the 1st pressure, the pressure drops when the manual valve is opened, and reset by shutting off the ball valve.

(Standard pipings)



Temperature Regulating Valve [STRV-1Type]





Features

- It had an excellent function for controlling the temperature of large-scale water tank, it operates very sensitively, with a big capacity, and it can be used for a place where the difference of pressure is high.
- The installing is simple, mainly used for controlling temperature of warm water tanks and heat exchanger, etc.

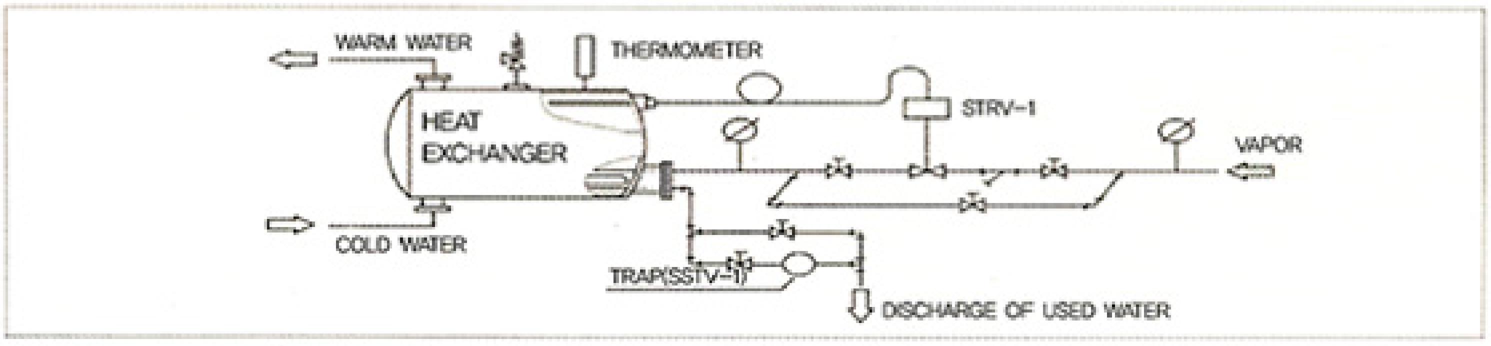
Specifications

Use	Heating
Applicable temperature range	20~120℃
Applicable fluid	Steam and hot water
Fluid to be heated	water,oil, other liquids and gases
End connection	Flanged KS 10kgf/㎠ RF/FF
Applicable temperature for body	Max. 220℃
Lenght of capillary tube	Standard:2meters(Up to 5meters is available upon request.)
Materials	Body : Cast Iron Bellows : Phosphor Bronze Disc&seat:Cast Bronze bronze Thermo : Copper tube
Applicable pressure for thermo bulb	Max 10kgf/㎠g
Hydraulic pressure test	20kgf/㎠g

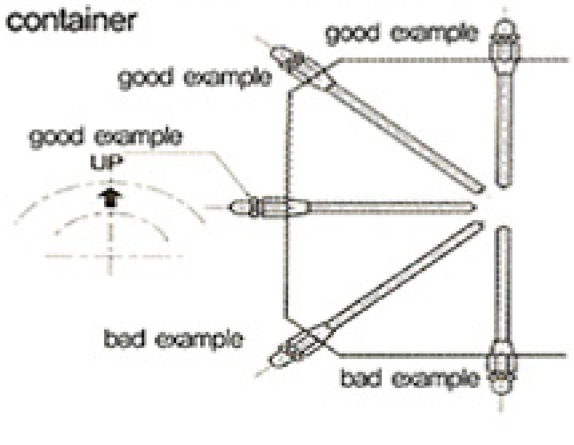
Dimension (mm)

SIZE	40A	50A	65A	80A	100A	125A	150A
L	210	220	265	285	335	370	420
H_1	110	110	110	125	135	160	180
H_2	495	495	495	510	520	535	555

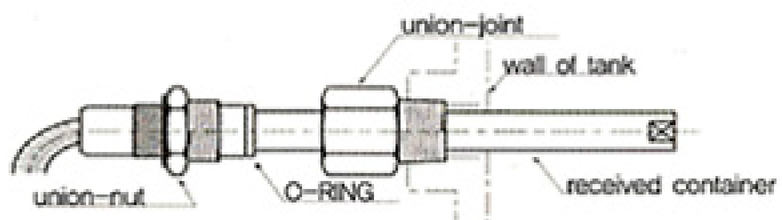
SCOPE OF CONTROLLING TEMP
20~40℃/40~60℃
50 ~ 70℃
60 ~ 80℃
70 ~ 90℃
80 ~ 100℃
100 ~ 120℃



installing direction of heat-received container

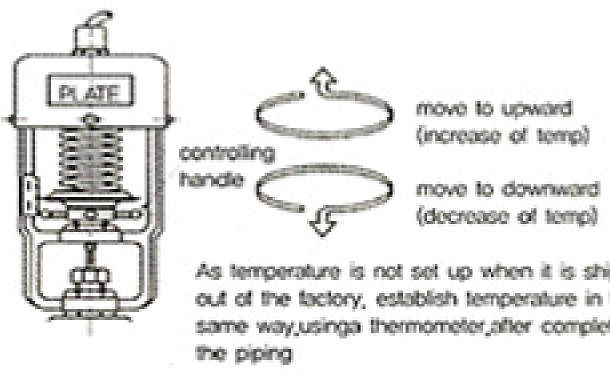


installing of heat-received container



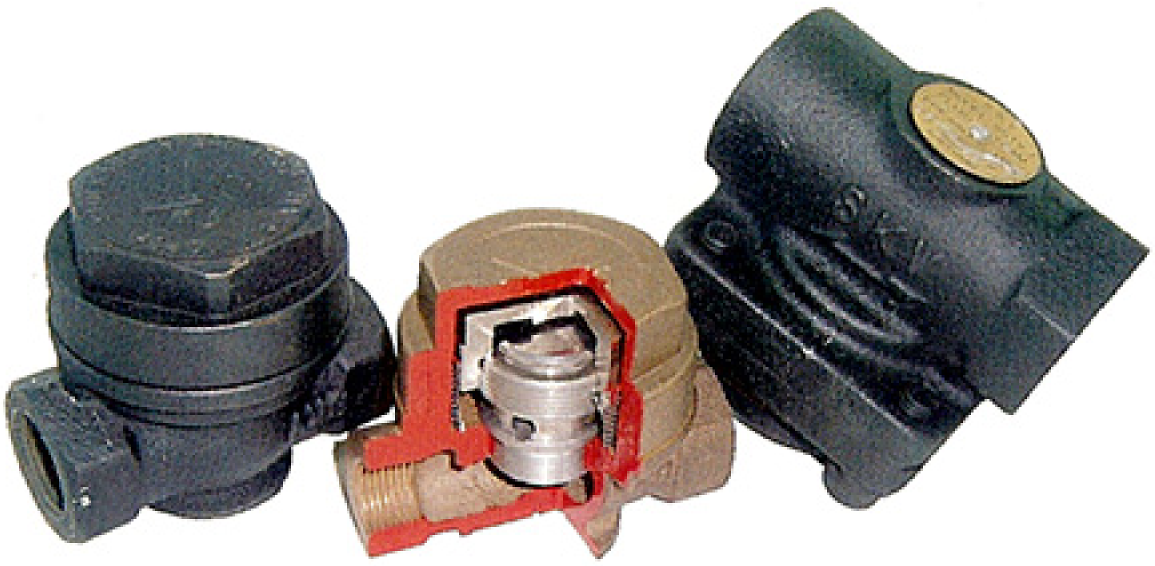
Afterattaching union joint on the wall of tank completely shut tight, and couple the built-in O-ring and union nut with the union joint.

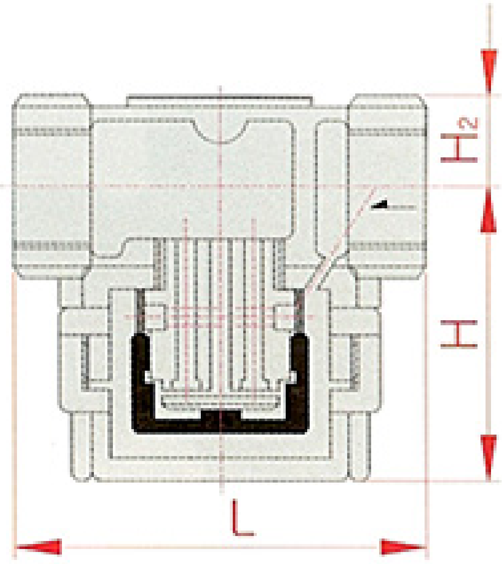
How to adjust temperature



As temperature is not set up when it is shipped out of the factory, establish temperature in the same way,usinga thermometer,after completing the piping

Disc Steam Trap [SSTV-1 Type]





Features

- Circulation warming room is located on the lower part, so, condensed water separates quickly, and the operation is promptly done.
- The drainage of condensed water is very easy at lower pressure, and it is not frozen to burst.
- Air is auto-ventilated structurally at the supply of steam.
- It loses no steam with the help of the special design and processing.
- Strainer is built in.
- The exchange of parts is easy and repaining is simple.

Use

It is suitable to ventilate the condensed water generated from steam-used devices of extensive pressure from Max 42bar, steam engines,high pressure header.

Dimension (mm)

SIZE	15A	20A	25A
L	90	90	90
H_1	55	60	60
H_2	20	22	26

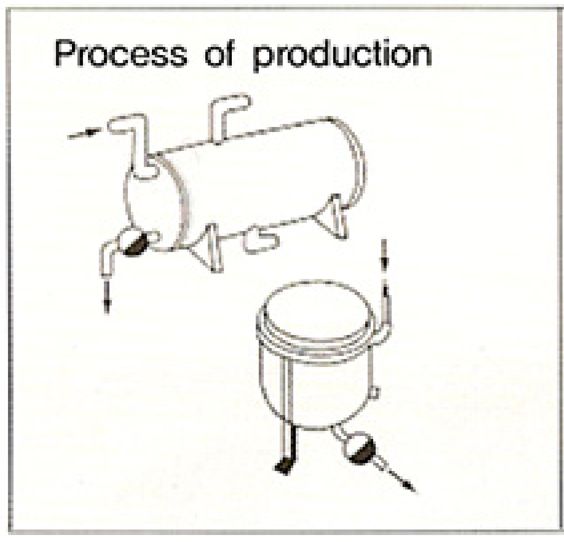
Specifications

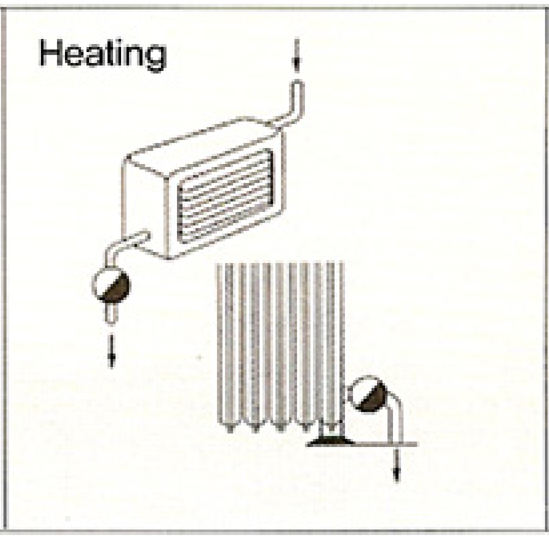
CLASSIFICATION	BASIC SPECIFICATIONS		OPTIONAL-MADE
size	15A~25A		10A~25
TYPE/CONNECTION	DISC/PT SCREWED		DISC/PT SCREWED,FLANGED
INLET PRESSURE	MAX 10kg/㎠g		MAX 42BAR
TEMPERATURE	MAX 220℃		MAX 550℃
MATERIALS	BODY	BC,FCD,SCPH2	STS CASTING ASTM A743(CA40F)
	CAP	FORGED	STS 420
	DISC,SEAT	STS 420	STS 420
	STRAINER	STS 304	STS 304

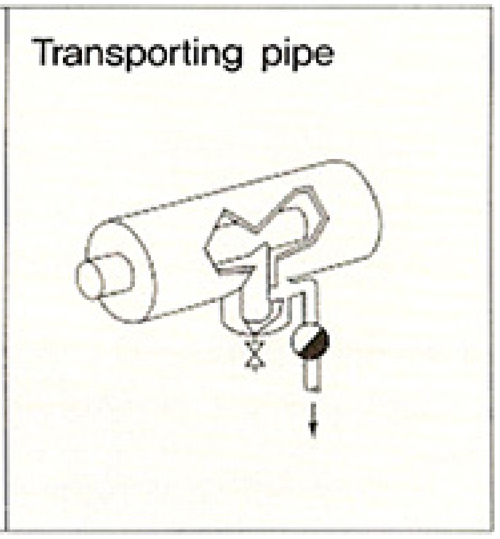
Capacity of drainage[㎥/h]

PRESSURE	0.35	1	3	5	7	10	15	18	20
15A ~ 25A	0.23	0.39	0.67	0.87	1.02	1.23	1.50	1.65	1.74

The draining volume per hour in the case that the condensed water of 6℃ less than the saturated temperature takes out.
The pressure gap of operation is that of the input and the output of trap.
When the double pressure of output is less than that of input.

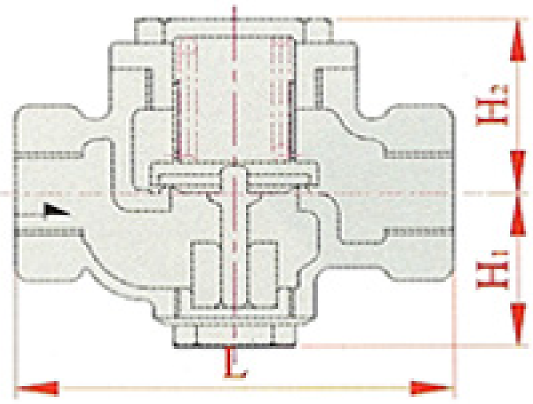






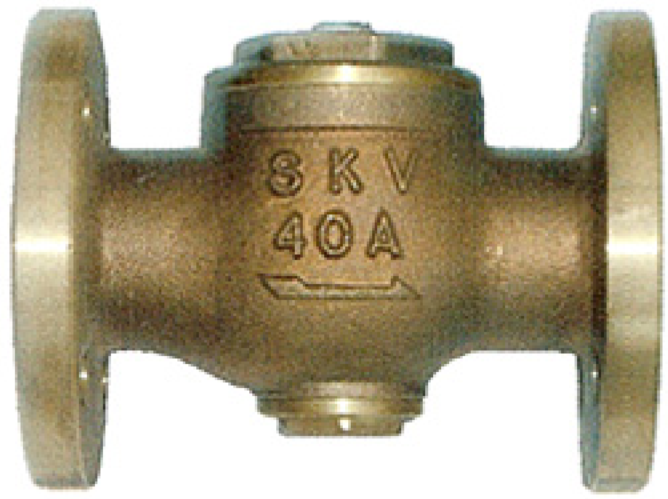
Check Valve [SCH-1S,1F,2F Type] [Steam,Air]

[SCH-1S]

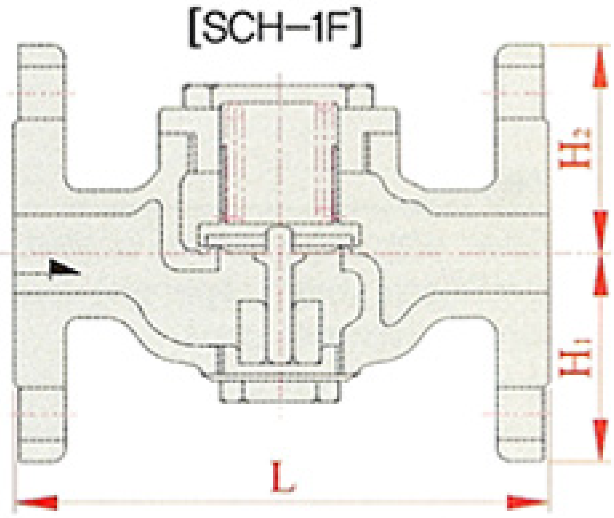


Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	34	34	38	40	50	55
H_2	40	40	40	55	60	65



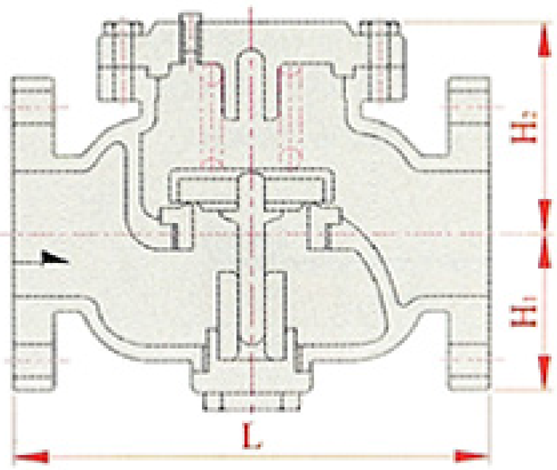
[SCH-1F]



Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A
L	140	140	148	168	180	198
H_1	50	50	63	67	70	77
H_2	50	50	63	67	70	77

[SCH-2F]



Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	80	80	80	95	95	105	110	120	140	170	190
H_2	100	100	100	120	120	120	125	140	160	180	190

Features

- It can be installed in any perpendicular or horizontal location, with perfect performance, it does not have hammer and leakage.

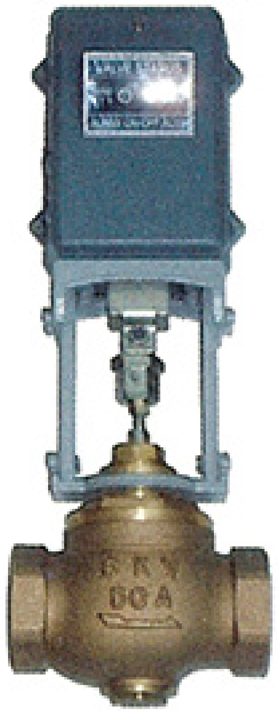
Specifications

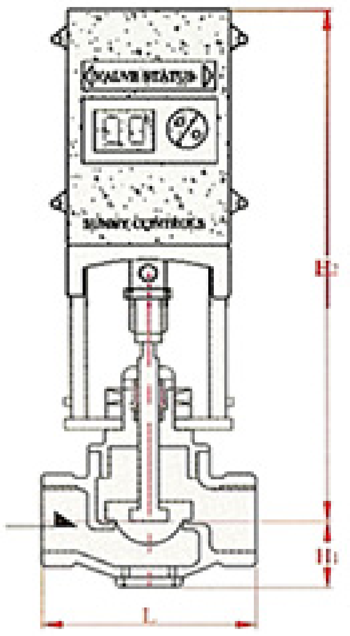
FLUID	TEMP	PRESSURE	MATERIALS
WATER STEAM OIL AIR	MAX 220℃	10kg'/cm^2g FF FLANGE PT SCREWED	BODY:GC200, BC6, SCPH^2 TRIM:STS, BRC, N.B.R/VITON/PTFE

* All STS, 20k cast steel are order-made

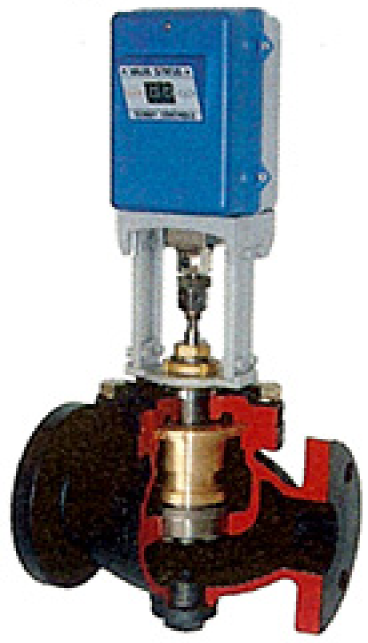
Motor Control Valve [SMCV-1S,1F,3F]2Way
Piston-Cylinder Buit-In Type[SMCV-3F]

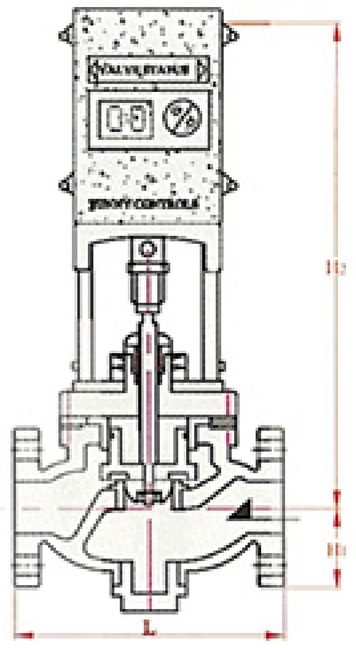
[SMCV-1S]





[SMCV-3F]





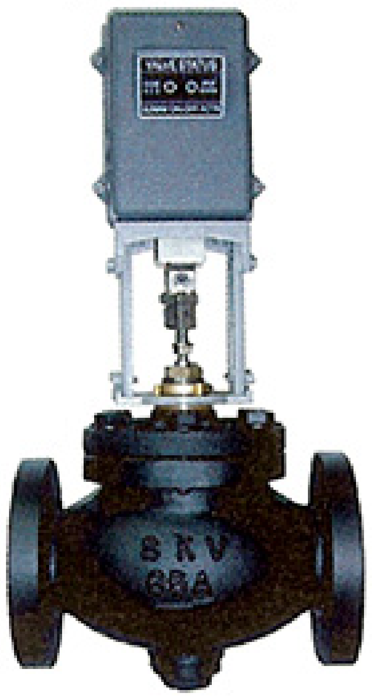
Dimension (mm)

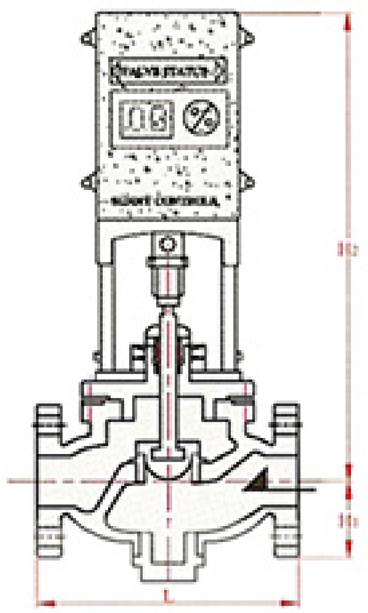
SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	34	34	38	40	50	55
H_2	370	370	375	385	395	400
CV	6	6	10	16	25	44

Dimension (mm)

SIZE	32A	40A	50A	65A	80A	100A	125A	150A
L	205	205	220	265	280	330	370	412
H_1	90	95	105	110	120	140	170	190
H_2	445	445	445	455	470	485	500	520
CV	16	25	44	68	110	200	265	390

[SMCV-1F]





Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	80	80	85	90	95	105	110	120	140	170	190
H_2	430	430	430	445	445	445	455	470	485	500	520
CV	6	6	10	16	25	44	68	110	200	265	390

Specifications

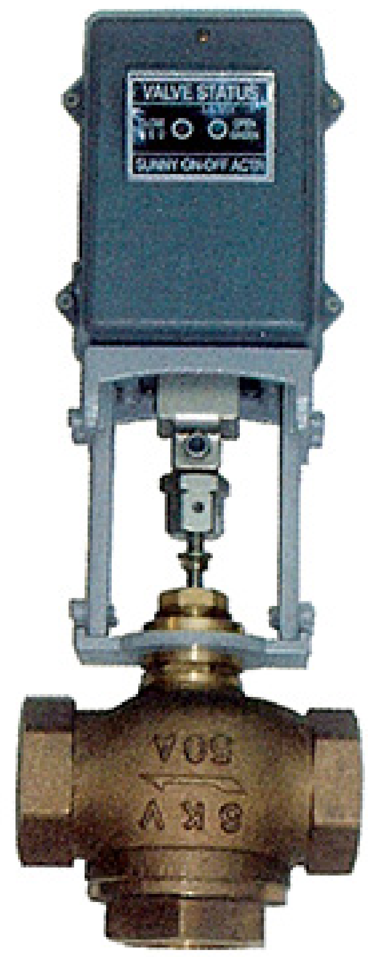
FLUID	STEAM,WATER,AIR
PRESSURE	MAX 10/20kg'/㎠g
MAX TEMP	MAX180℃
AMBIENT TEMPERATURE	-10~60℃
POWER	AC24V(50/60Hz)
OPERATION	ON-OFF, Proportional Type
END CONNECTION	KS PT SCREWED KS 10k/20k FLANGED
SIZE	15A~150A

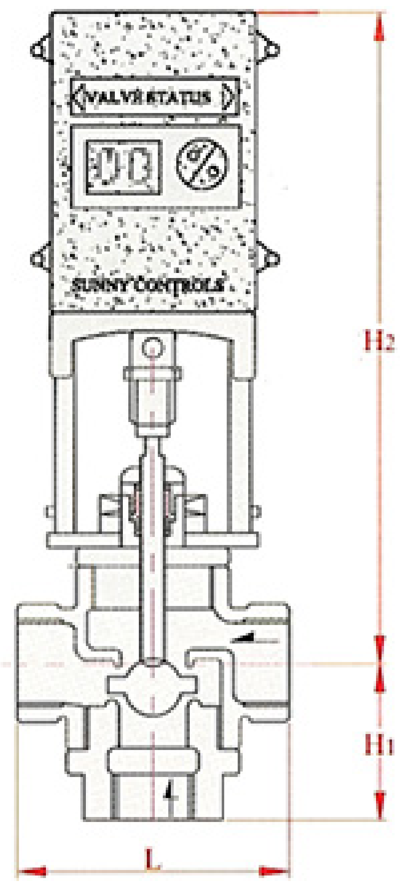
Materials

BODY	ScPH2 BC6,GC,STS
TRIM	STS

Motor Control Valve [SMCV-2S,2F Type] 3Way

[SMCV-2S]



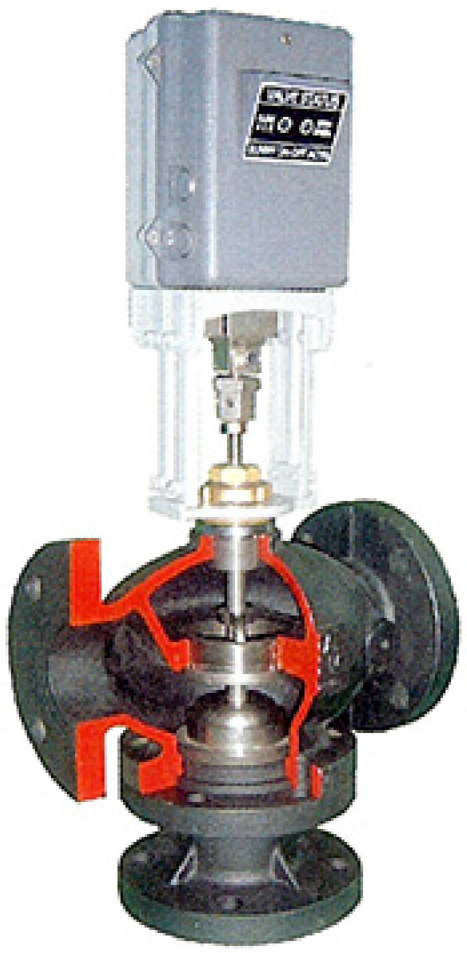


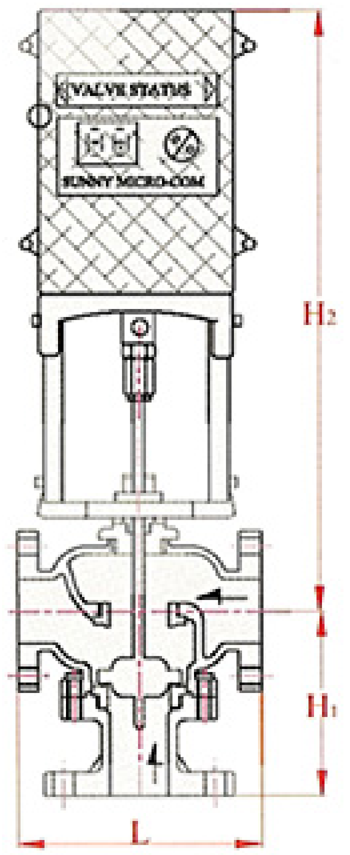
Dimension

(mm)

SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	55	55	60	70	70	75
H_2	370	370	370	375	380	390
CV	6	6	10	16	25	44

[SMCV-2F]





Specifications

FLUID	STEAM,WATER,AIR
PRESSURE	$10/20kg/cm^2g$
MAX TEMP	MAX 180℃
AMBIENT TEMPERATURE	−10~60℃
POWER	AC24V(50/60Hz)
OPERATION	ON-OFF, Proportional Type
END CONNECTION	KS PT SCREWED KS 10k/20k FLANGED
SIZE	15A~150A

Materials

BODY	STS, BC_6 GC , $ScPH_2$
TRIM	STS

Dimension

(mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	145	145	145	160	160	160	200	200	210	235	235
H_2	395	395	395	400	400	410	425	430	450	470	490
CV	6	6	10	16	25	44	68	110	200	265	390

MOTOR CONTROL VALVES

USE of Motor Control Valve

As a kind of control part, it is used to control temperature and humidity of the inside of air ventilating system such as mainnly heating and cooling temperature and fluid rate of cold water,warm water, and heavy warm water, connected to automatic-controllers.

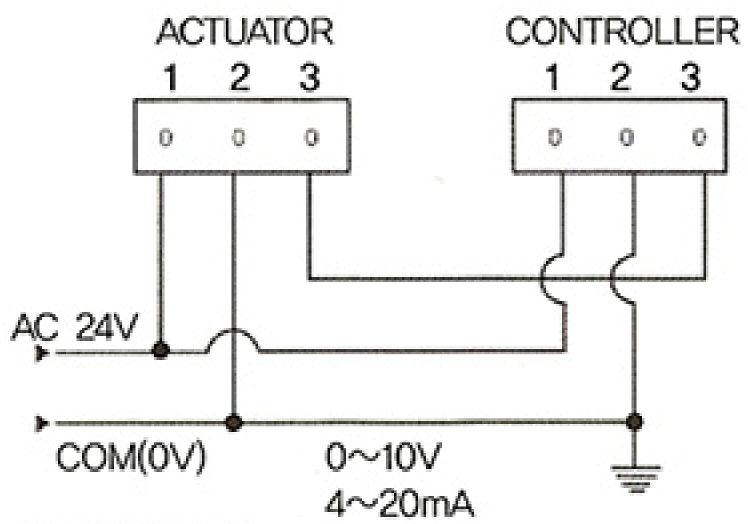
The important parts of automatic-controling system are divided as 3 as follows.

DETECTION PART	a part of measuring temp, humidity, & pressure, etc, and to change it to the signal necessary to controller
ADJUSTING PART	a part of detecting & judging signals of detection part & standard and directing to the operator
OPERATING PART	a part of operating the rates of fluid & wind by the direction of adjusting part .

Motor Valve Actuator Specifications

MODEL	MAX 3000 PRO	MAX 3000 M	MAX 2000 PRO	MAX 2000 M
POWER SUPPLY	AC 24V ± 10%	AC 24V ± 10%	AC 24V ± 10%	AC 24V ± 10%
CONSUMPTION	15VA	15VA	8VA	8VA
TORQUE	2,550Nm	2,550Nm	1,450Nm	1,450Nm
LIMIT SWITCH	2 MICRO SWITCHES	2 MICRO SWITCHES	2 MICRO SWITCHES	2 MICRO SWITCHES
INPUT:CONTROL SIGNAL	MULTI SIGNAL CHANGE OVER ETC	TIME SWITCH THERMOSTAT CHANGE OVER ETC	MULTI SIGNAL CHANGE OVER ETC	TIME SWITCH THERMOSTAT CHANGE OVER ETC
ASSOCIATED VALVES	2 1/2"–6" NO or NC	2 1/2" – 2" NO or NC	1/2" – 2" NO or NC	1/2" – 2" NO or NC

Wiring Diagram(proportional control type)



* ACTUATOR
1 (WH) : power supply of operation
2 (BL) : G(Common terminal)
3 (GR) : Terminal of controlling input signal

Wiring Diagram(on-off style)

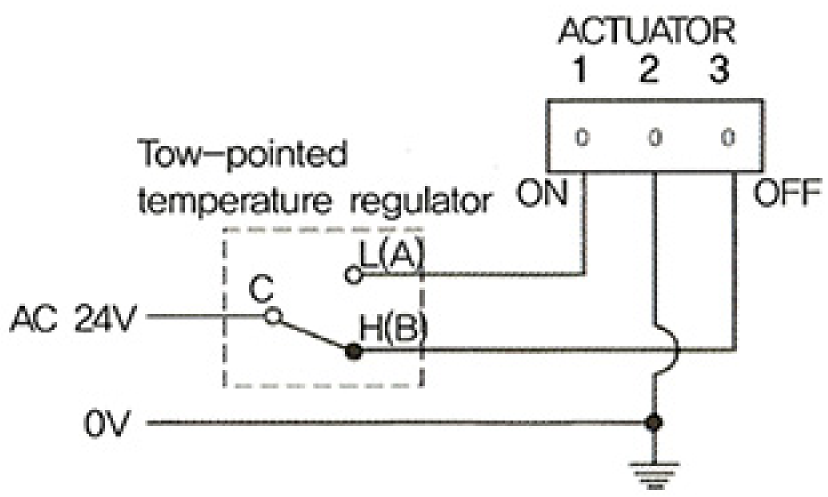
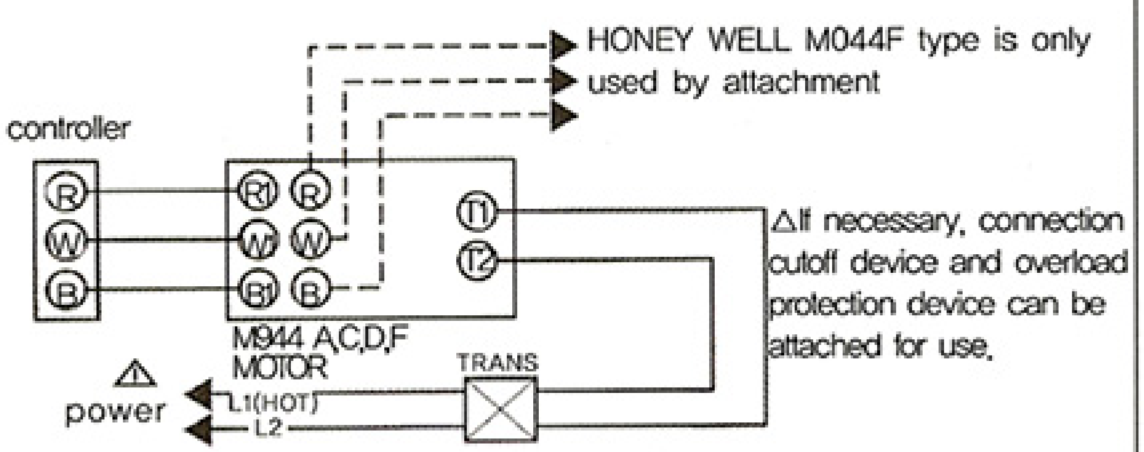
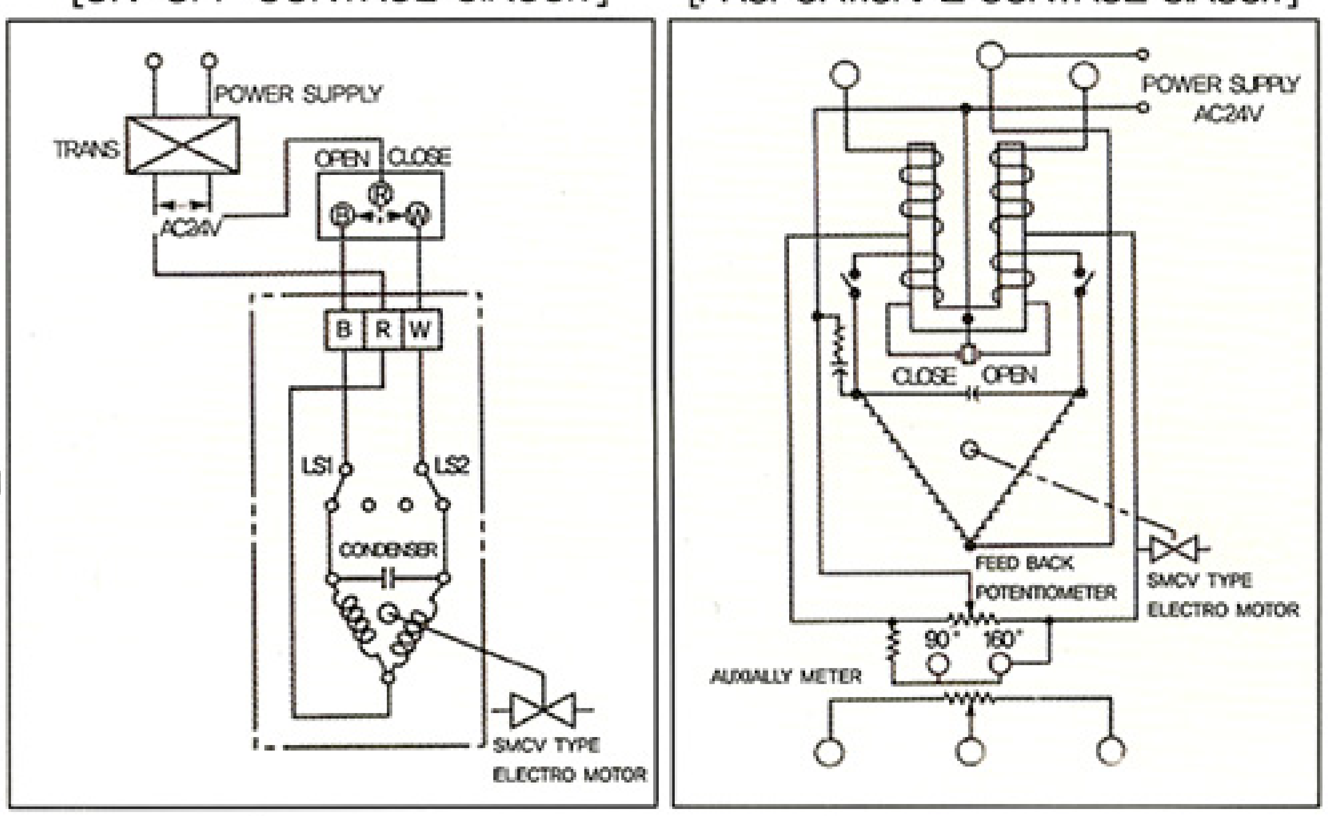


figure of terminal wiring

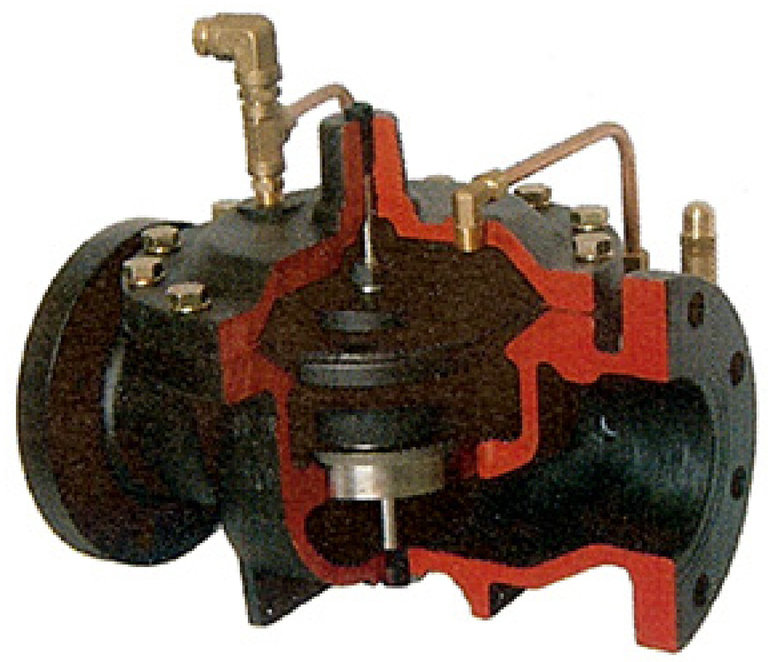


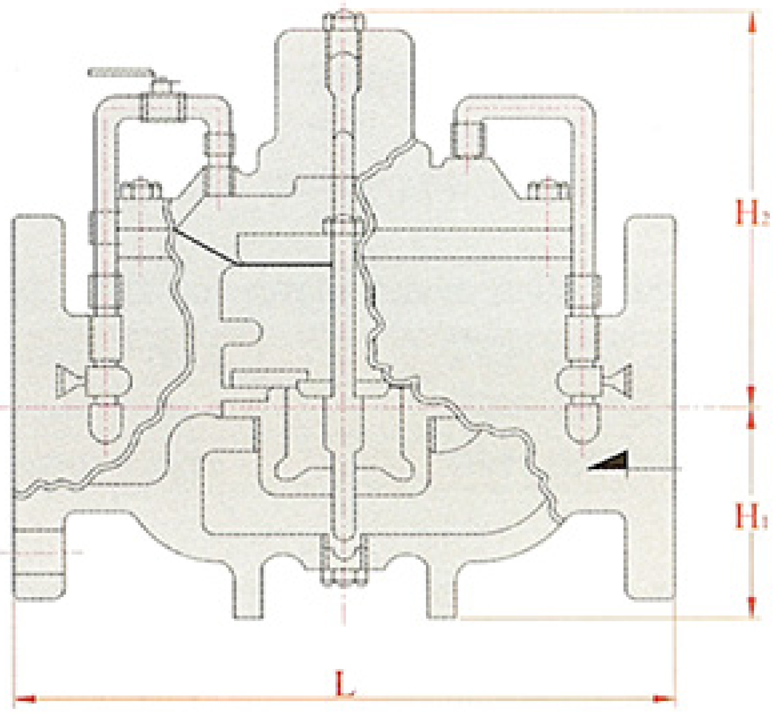
Circuitry of Motor

[ON-OFF CONTROL CIRCUIT] [PROPORTIONAL CONTROL CIRCUIT]



Water Control Valves





Features

- Water control valve of Sunkwang consists of main valve and auxiliary valves of pilot and accessory, etc. It is specialized in using water and heavy warm water, with a variety in function of water level adjusting (ball tap & electronic), pressure reducing, pressure subtracting, controlling of 1st pressure, and relief safety, etc. , large capacity, and excellent airtightness.

Dimension

(mm)

SIZE	40A	50A	65A	80A	100A	125A	150A	200A
L	250	250	270	330	360	370	450	480
H_1	70	80	90	95	110	125	145	170
H_2	140	140	150	165	190	205	225	250
CV	50	55	80	100	200	360	500	840

Model Production

Model	기 능	Page
SWCV-1	controlling water level by ball tap	14
SWCV-2	electronic+ball tap or separately usable only electronic	14
SWCV-3	pressure reducing by pilot valve(control of 2nd pressure)	10
SWCV-4	control of subtracted pressure by pilot valve	16
SWCV-5	control of 1st pressure(relief) by pilot valve	19

* 20K of ALL STS for heavy warm water is order-made

Specifications

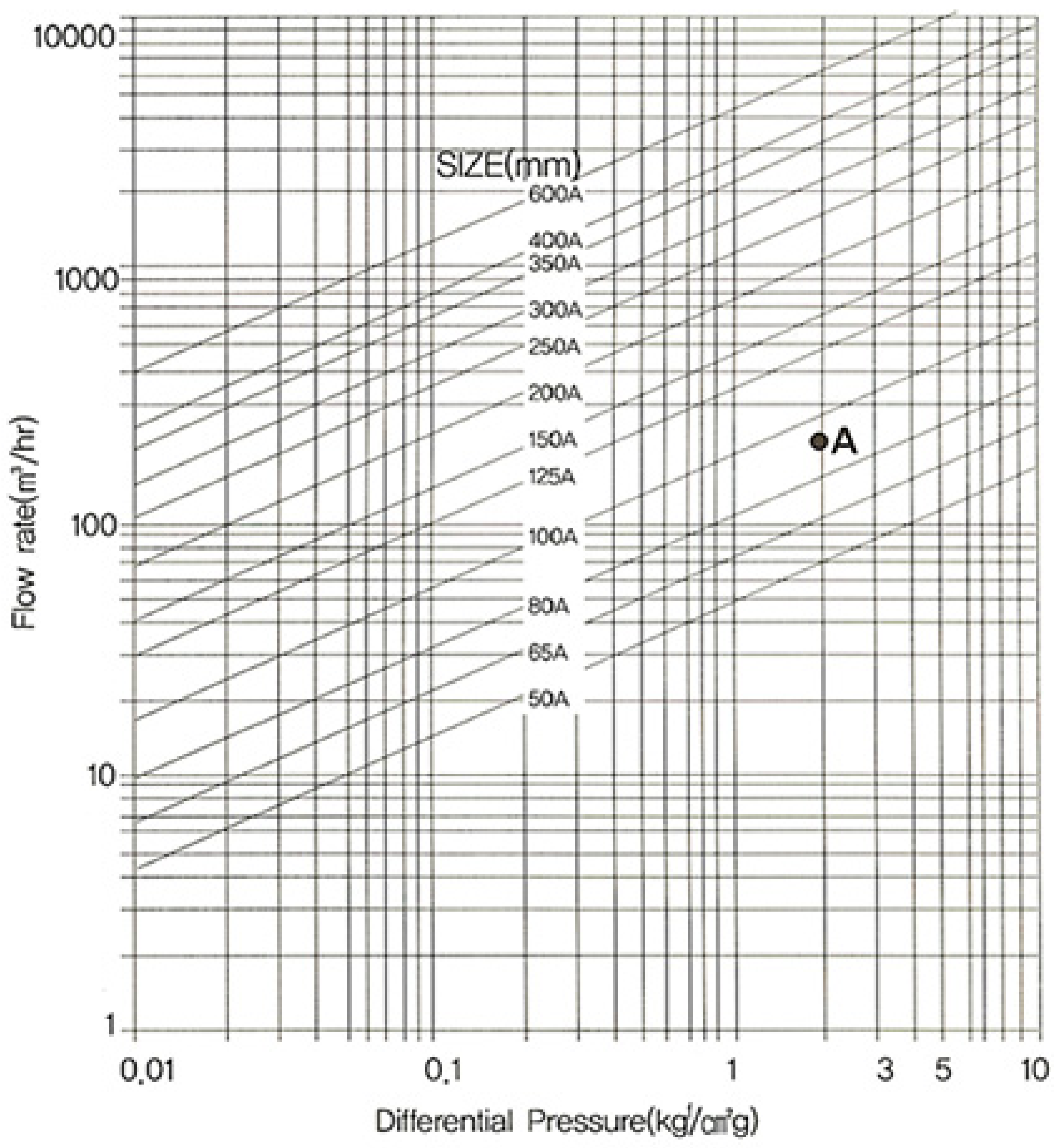
FLUID	PRESSURE	TEMP	LOCK UP PRESSURE	END CONNECTION	HYDRAULIC PRESSURE TEST	MATERIALS	BALL TAP	SOLENOID
WATER AIR OIL	MAX 10kg/㎠g	MAX 80℃	0.5kg/㎠g	KS10K FF FLANGE	20kg/㎠g	BODY: CAST IRON TRIM: STS, BSBM DIAPHRAGM: N.B.R	50-250A: 15A(1/2") KSPT SCREWED	220V (60Hz)

* 20K, ALL STS max, temp 220℃ is order-made

HOW to Select by Chart

Problem 1: When the pressure of input is 4kgf/㎠g, the pressure of output 2kgf/㎠g, and the fluid rate 200m³/h, find the point A of the subtracted pressure
(△P)4−2=2kgf/㎠g and the fluid rate 200m³/h are met. Select the 100A since it is between 80A and 100A.

- CV is the value expressed as u.s. GAL/MIN of fluid rate flowing for 1 min. under the subtracted pressure(△P) of 1P.S.I(0.07kgf/㎠g) of P_1-P_2 when the valve is operated.



Water Control Valve CV

$$CV = \frac{1.167 \times Q\sqrt{G}}{\sqrt{P1-P2}}$$

CV : VALVE COEFFICIENT
Q : FLOW(m³/h)
G : SPECIFIC GRAVITY(WATER=1)
P1 : OF INLET(kgf/㎠g)
P2 : OF OUTLET(kgf/㎠g)

Size	CV
50A	55
65A	80
80A	110
100A	200
125A	360
150A	500
200A	840

problem 2: When the pressure of input is 2kgf/㎠g, the pressure of output 1kgf/㎠g, and the maximum passage of fiuid rate 500m³/h,

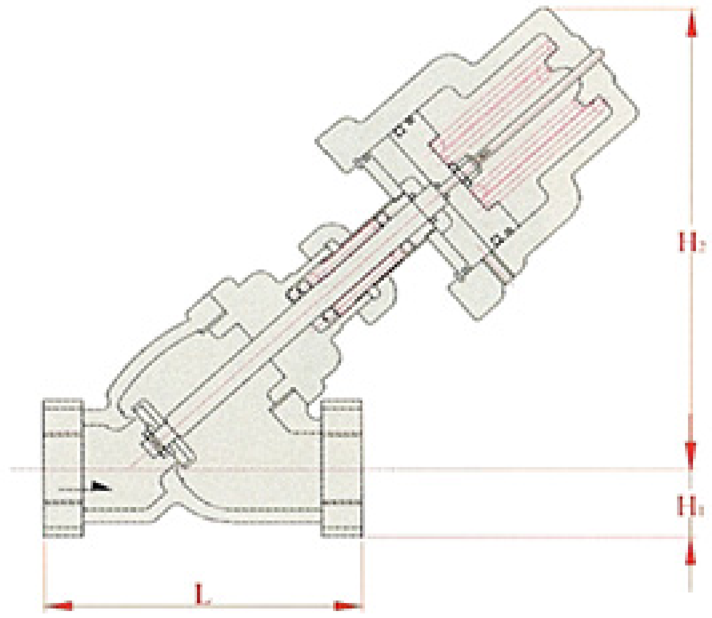
$$CV = \frac{1.167 \times 500\sqrt{1}}{\sqrt{2-1}} = 584$$

The answer is 200A, since 150A is CV500.

Piston Control Valve [SYV-1,1S,1F Type] [Y Type]
Steam, Water, Oil, Air, Gas

[SYV-1]

[SYV-1S]



Features

- Small and compact enough to be easily installed in a compilcated space.
- Special AL., pipe is inserted in the driving part of actuator, so, airtightness and smoothness of piston reciprocating is secured.
- Safety is perfectly secured with yock and packing guide processed all in one.
- It is suitable for dyeing line from which dyeing fluid flows, stypopor, and chemical plants. (S.T.S)
- It is used the most in Styrofoam machines. (BC_6)

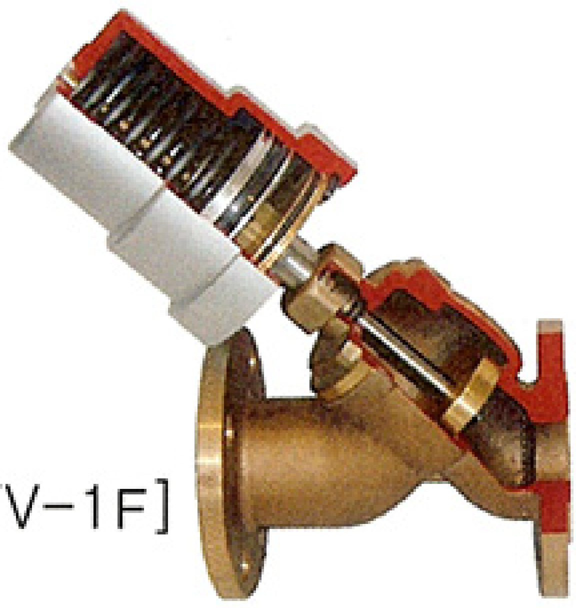
Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	18	18	25	30	35	40
H_2	185	185	200	225	270	280
CV	5	6	8	14	22	36

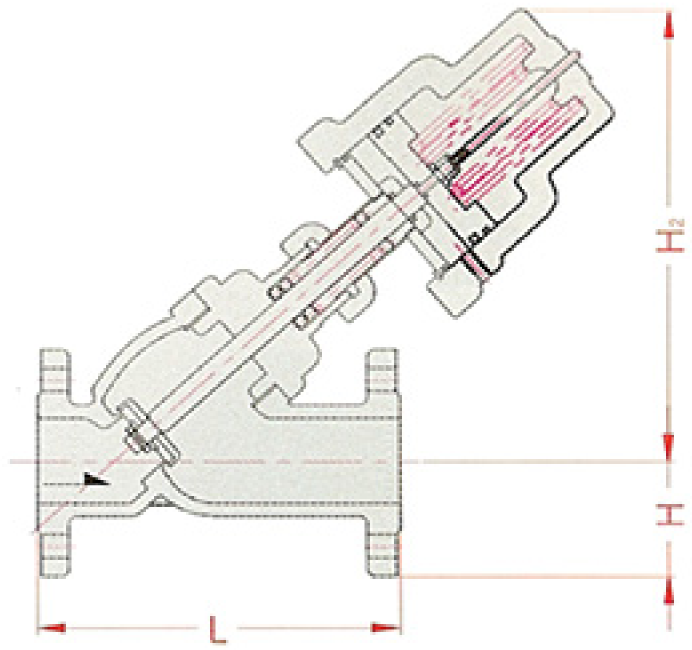
Specifications

FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE	AIR PRESSURE
STEAM WATER AIR OIL	MAX 10kg/ ㎠g	MAX 220℃	PT SCREWED KS 10K RF FLANGED	BODY: STS304,BC_6 TRIM: STS,PTFE	AIR TO OPEN SPRING CLOSE	3kg/㎡g ABOVE

* 20K. is order-made



[SYV-1F]



Features

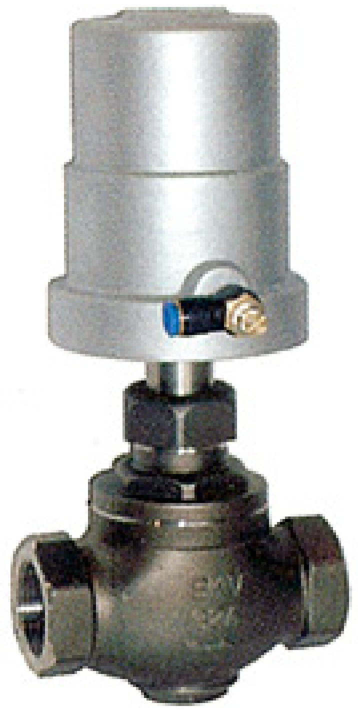
- The standard of the FLANGE is K.S 10kgf/㎠g R.F.
- Its installation is simple, and easy to dismantle or assemble.
- Made by BC_6(BRONZE) bronze casting, thus do not corrode.
- Air pressure over 3kgf/㎡ does not deform the spring.
- GLOBE has more than 30% of emissions amount than the SYV-1F type, and may freeze or burst during winter.

Dimension (mm)

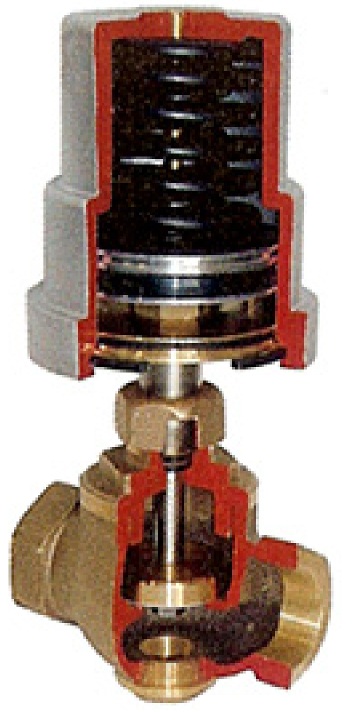
SIZE	15A	20A	25A	32A	40A	50A	65A
L	140	140	140	178	180	198	240
H_1	48	50	63	67	70	78	88
H_2	185	185	200	225	270	280	290
CV	5	6	8	14	22	36	58

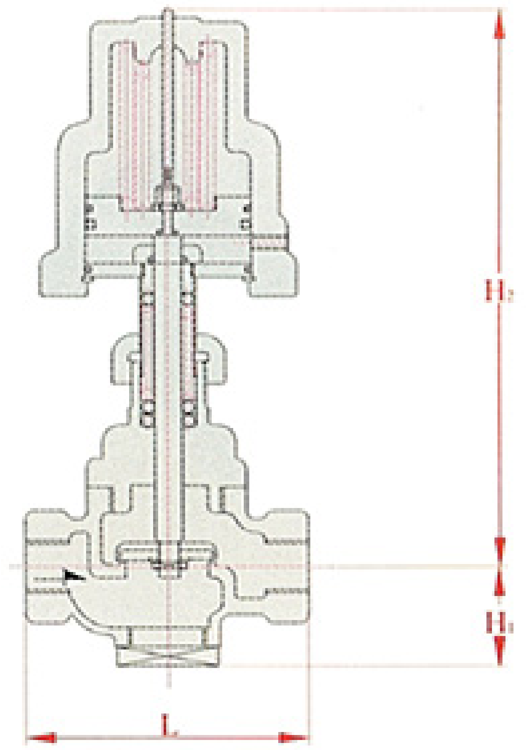
Piston Control Valve [DPCV-5,5S,5F Type] Steam,Air,Water

[DPCV-5]



[DPCV-5S]





Dimension

(mm)

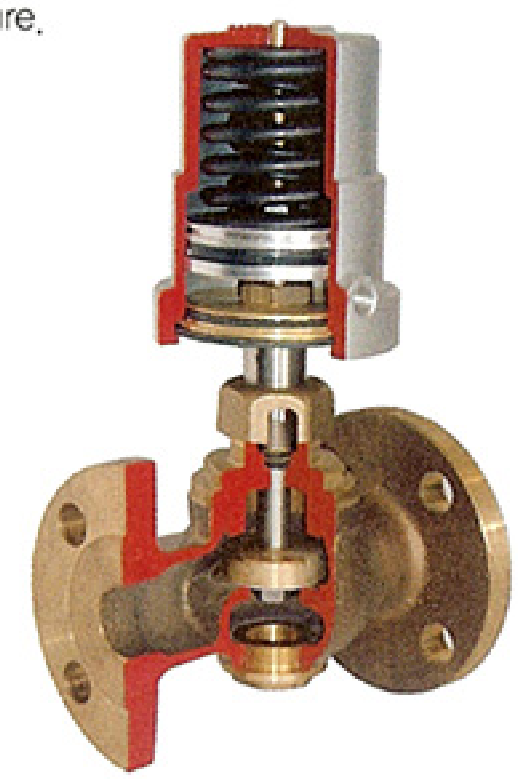
SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	34	35	38	40	50	55
H_2	170	170	200	220	243	255
CV	5	6	8	14	22	36

Features

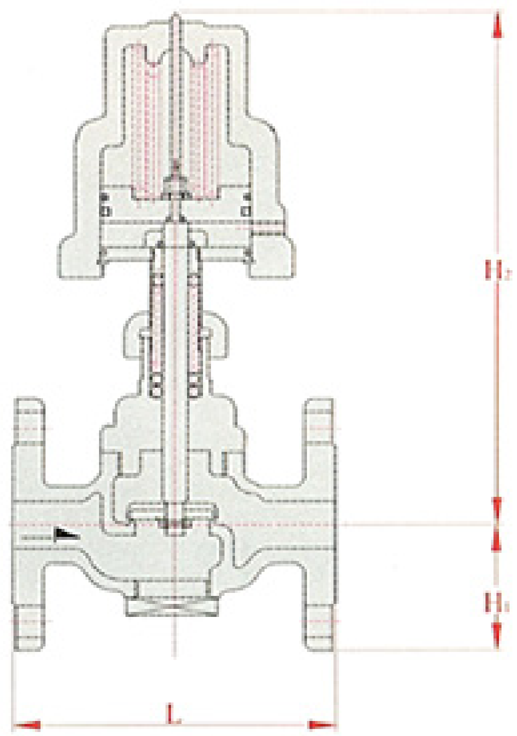
- Easy to dismantle or assemble.
- Easy to use in all sorts of piping: horizontal or vertical.
- Easy to replace its components.
- Made out of special material, O-RING, capable of use of any type of fluid.
- Made out of either BRONZE or STAINNESS material, the range of choice is large due to fluid.
- Due to the SPRING TO CLOSE AND AIR TO OPEN mode, it closes automatically upon emergency.
- It completely opens when the air pressure is over 3kgf/㎡, thus usable in both low and high pressure.
- The spring is duplex, opening and closing works well even in low pressure.

Specifications

FLUID	PRESSURE	TEMP	END CONNECTION	HYDRAULIC PRESSURE TEST	MATERIALS
Water Air Oil	Max 10kgf/ ㎠g	Max 80℃	KS10k RF FLANGE	20kgf/ ㎠g	BODY:BC_6 TRIM:STS, BSBM



[DPCV-5F]



Features

- Easy to install, dismantle, or assemble.
- The standard of the FLANGE is K.S 10kgf/㎡g R.F.
- The PACKING and TRIM(internal) components are made from special materials, thus durable.
- The activation indicator on the upper part allows he state of open and close be viewed through the oil pipe.
- The AIR HOLD is set at P.T 1/4".
- The lower PLUG is made of 38kgf/㎡g hexagonal plug, making the replacement of GLAND PACKING for cleaning rare. There are special grease and spring internally, which automatically prevents water leaks.

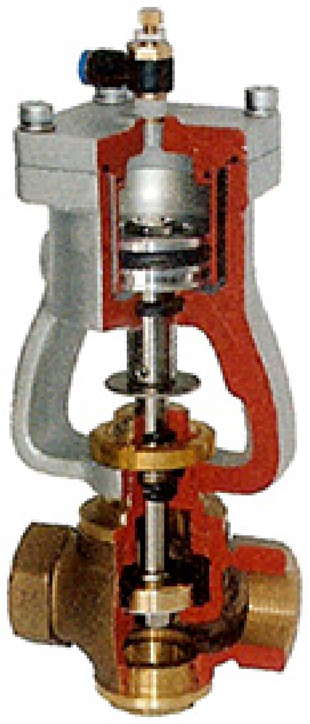
Dimension

(mm)

SIZE	15A	20A	25A	32A	40A	50A
L	140	140	148	168	180	198
H_1	48	50	63	67	70	78
H_2	170	170	200	220	243	255
CV	5	6	8	14	22	36

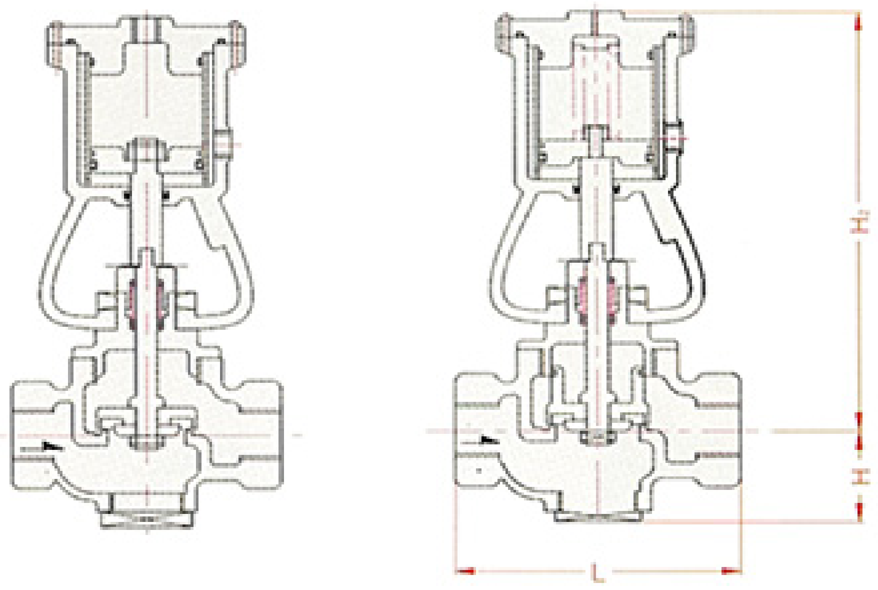
Piston Control Valve [DPCV-4F,4S Type] 4F[Flanged] 4S[Screwed], Single-Type, Double-Type, Water,Air,Steam

[DPCV-4S]



Double Acting

Single Acting



Dimension

(mm)

SIZE	15A	20A	25A	32A	40A	50A
L	100	100	110	130	140	160
H_1	34	35	38	40	50	55
H_2	195	196	205	250	260	280
CV	5	6	8	14	22	36

Features

- It is small and light, thus easy to replace and handle, and has a good durability due to a special Aluminum PIPE which is built-in in the PISTON.
- It is a model that opens and closes from air pressure
- It is produced up to P.T 1/2"(15A)~50A(2").
- In usage, SPEED CONTROLLERS(little valve) are attached to both sides of the air pressure input, so that when it opens or closes, the lifespan is increased and there is no HAMMER phenomenon.
- Opening and shutting it can be confirmed through the oil pipe by the middle signpost.

Order of Valve

1	APPLICABLE FLUID	WATER,STEAM,AIR,GAS
2	TEMPERATURE	MAX80℃,MAX220℃
3	VALVE SIZE	15A,25A,50A
4	MATERIALS	STAINLESS STEEL CAST STEEL
5	SEAT SEAL TYPE	METAL SEAL FPM SEAL
6	END CONNECTION	10K,20K,FF,RF,SCREWED
7	CONTROL FUCTION	DOUBLE,ACTING,NORMAL CLOSED

* Submit other special chemicals in advance.

Specifications

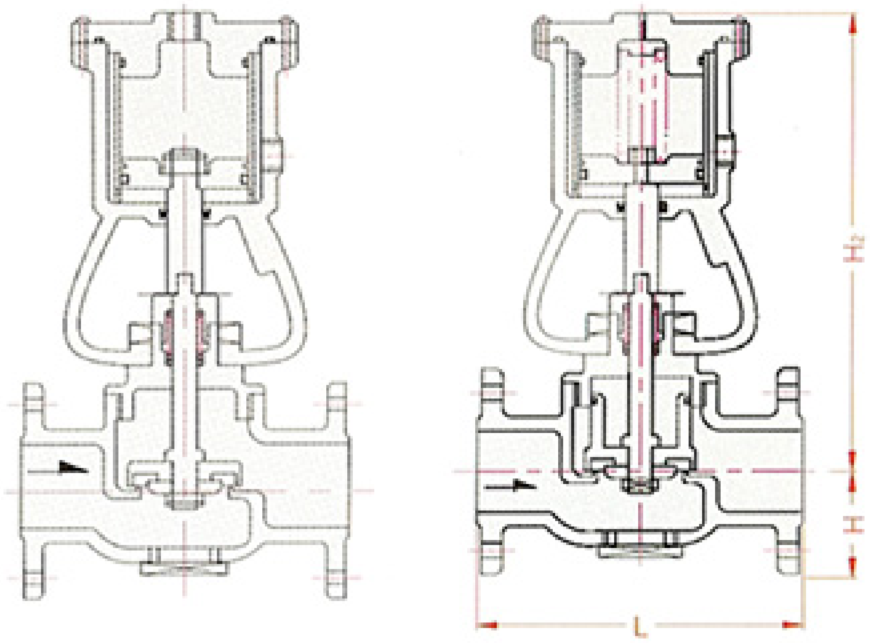
FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE	AIR PRESSURE
WATER STEAM AIR OIL GAS	MAX 10kg/㎠g	MAX 180℃	KS10K RF FLANGE PT SCREWED	BODY: BC6 TRIM:STS CYLINDER:AL	PISTON SINGLE DOUBLE	4kg/㎠g ABOVE

*20K STS is order-made

[DPCV-4F]

Double Acting

Single Acting

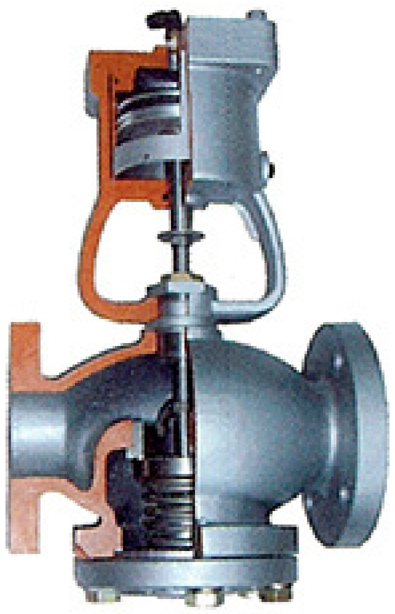


Dimension

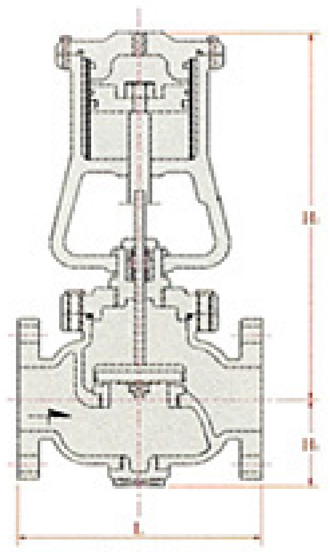
(mm)

SIZE	15A	20A	25A	32A	40A	50A
L	140	140	148	168	180	198
H_1	48	50	63	67	70	78
H_2	170	170	200	220	243	255
CV	5	6	8	14	22	36

Piston Control Valve [DPCV-1, SDCV-3 Type]
[Flanged] Steam, Air



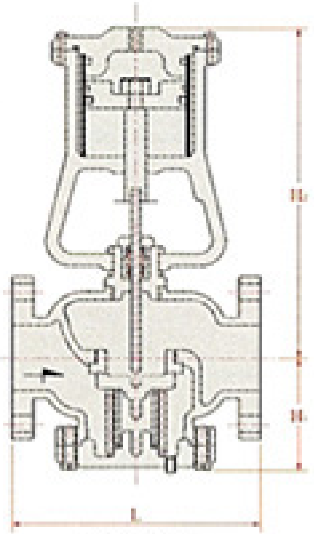
[DPCV-1]



DOUBLE

Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A
L	188	188	188	205	205	220	265	280	330
H_1	80	80	85	90	95	105	110	125	140
H_2	260	260	260	310	310	320	360	390	410
CV	5	5	8	14	22	37	62	95	150

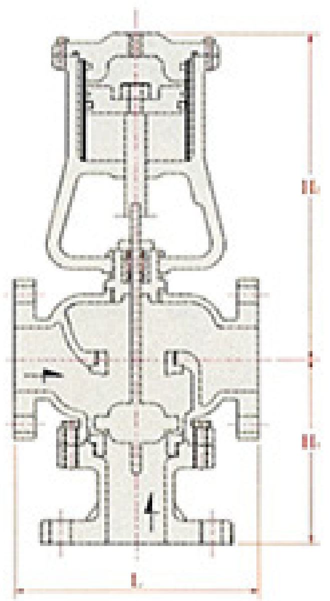


SINGLE

Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A
L	188	188	188	205	205	220	265	280	330
H_1	100	100	100	105	105	110	115	130	150
H_2	220	220	220	260	260	280	320	350	360
CV	5	5	8	14	22	37	62	95	150

[SDCV-3]



3 WAY

Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A
L	188	188	188	205	205	220	265	280	330
H_1	145	145	145	160	160	160	200	200	210
H_2	220	220	220	260	260	280	320	350	360
CV	5	5	8	14	22	37	62	95	150

Specifications

FLUID	PRESSURE	TEMP	END CONNECTION	MATERIALS	TYPE	AIR PRESSURE	ACTUATOR
STEAM AIR	MAX 10kg/㎠g	MAX 180℃	KS10K FF FLANGE	BODY: GC TRIM: STS	SINGLE DOUBLE	4kg/㎠g ABOVE	PISTON ACTING

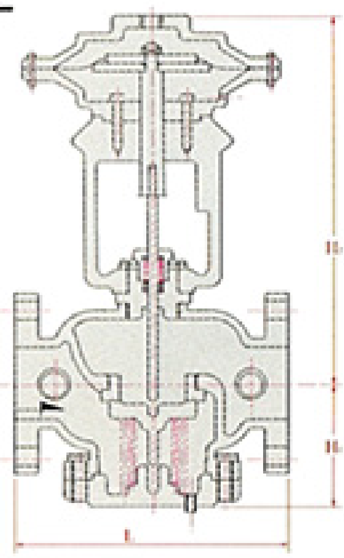
* Type for use of 20K(C.S.STS) is order-made.
* Accessories are separately prices.

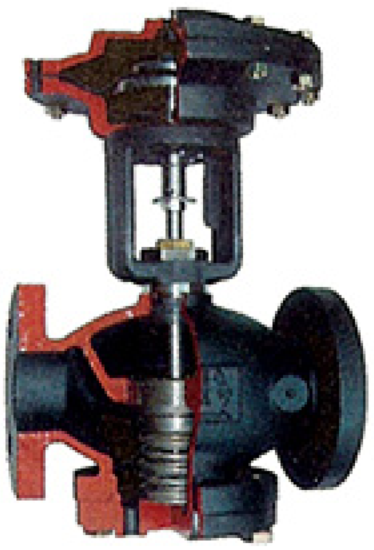
Features

- Disassembly and assembly are easy, it is usable in any perpendicular and horizontal locations, and water hammer is prevented.
- Main parts are manufactured of STS.
- Piston-ring is made of viton, so it resists strongly induration and abrasion. The joining part is made of A.L. pipe to lessen the abrasion of piston-ring.
- As a mixing and diverting type 3way valve, it is used to mix and separate two fluids.(3way)
- In the double-acting product(DPCV-1), the air pressure can change in accordance with the air pressure used.
- The SEAT and the DISC are all made out of ALL STAINNESS, making their life long.
- The double-acting product is made out of TEFLON disc. (In the case of stainless, consult on order.)

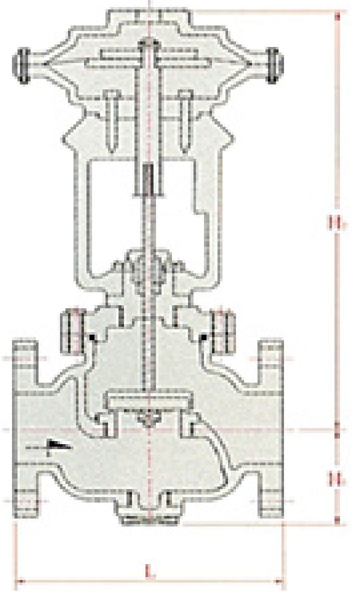
Diaphragm Control Valve [SDCV-1, 2Type] Steam ,Air

SINGLE





DOUBLE



Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	100	100	100	105	105	110	115	130	150	180	180
H_2	270	270	270	290	290	300	320	340	360	380	400
CV	5	5	8	14	22	37	62	95	150	237	330

Dimension (mm)

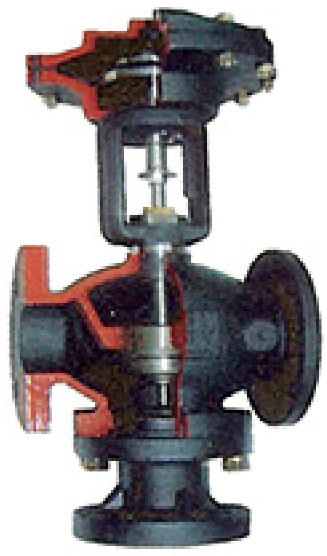
SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	80	80	85	90	95	105	110	120	140	170	190
H_2	315	315	315	325	325	330	360	370	400	420	430
CV	5	5	8	14	22	37	62	95	150	237	330

Features

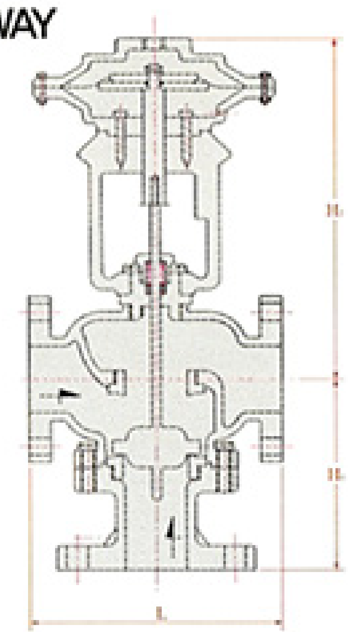
- As a diaphragm-style globe valve, its structure is simple and solid, the packing of its stem is manufactured with special O-ring, and specially processed double-fabric is inserted into N.B. and R of diaphragm so that excellent function and durability are maintained for the use of long durability.
- All metal [STS] is used for seat and disc, so anti-abrasion is excellent.
- 3 way solenoid valve of air pressure attached makes the driving part open and shut by pressurization or ventilation.
- Standard type is single-driving[spring return], and double-driving and proportion-controlled type is optionmanufactured.
- It can be used in any perpendicular and horizontal conditions.
- The indicator of valve is attached in front, so open and shut can be easily checked.

Applications

It is widely used for the industrial fields of petroleum chemical plant, styropor, dyeing, food processing machinery, dryer, rubber molding plant [tire, industrial roll], etc.



3WAY



Dimension (mm)

SIZE	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A
L	188	188	188	205	205	220	265	280	330	370	412
H_1	145	145	145	160	160	160	200	200	210	235	235
H_2	270	270	270	290	290	300	320	340	360	380	400
CV	5	5	8	14	22	37	62	95	150	237	330

Features

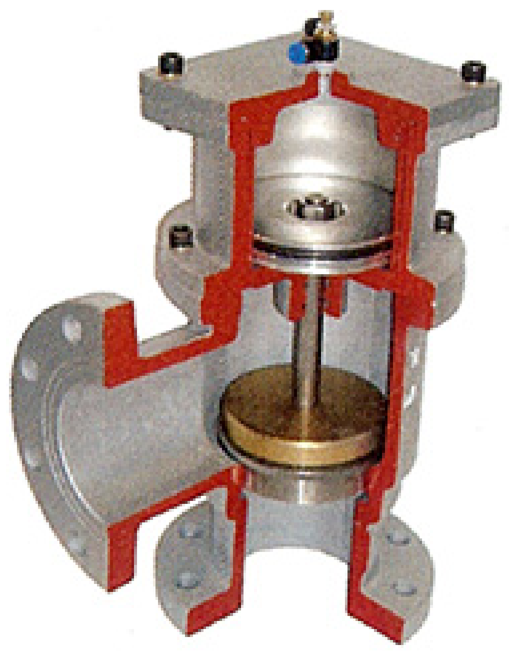
- As a mixing and diverting type 3way valve, it is used to mix and separate properly two fluids of different characteristic and temperature and to keep uniform temperature.
- When valve is opened and shut, hammer does not occur.
- Its simple structure and small size makes it easy to install and handle.
- The indicator of valve is attached in front, so open and shut can be easily checked.
- It can be installed in any perpendicular and horizontal conditions.

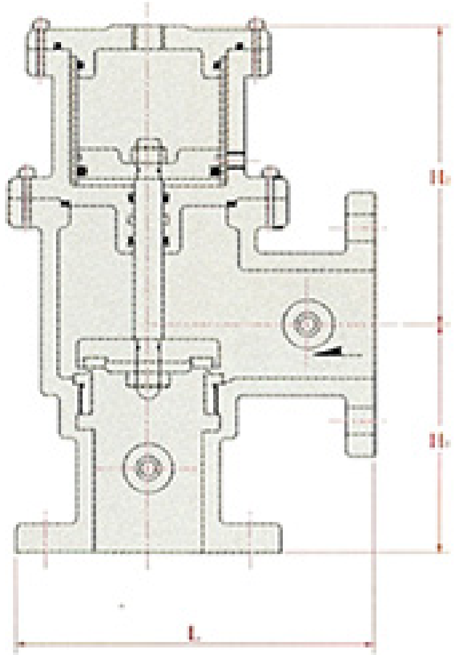
Specifications

FLUID	PRESSURE	TEMP	END CONNECTION	HYDRAULIC PRESSURE TEST	MATERIALS	TYPE	AIR PRESSURE	ACCESSORY
STEAM WATER AIR	MAX 10kg/㎠g	MAX 180℃	KS 10K FF FLANGE	20kg/㎠g	BODY: GC TRIM: STS BRC^3	AIR OPEN AIR CLOSE	3kg/㎠g ABOVE	AIR SET:AIR PRESSURE REGULATOR 3WAY SOLENOID VALVE SPEED CONTROLLER LIMIT SW

* Types for use of 20K(C.S.STS) and more than 220℃ are order-made.
* Accessories are separately prices.

Control Valve [DPCV-2 Type] Drain Valve Piston Control Valve





Features

- Piston valve(2way angle) is used for automatic control of inert gas liquid steam with comparative high temperature and pressure, and is largely applied to styrofoam and dyeing machinery.
- Especially it has a simple structure and is designed as light & small-size.

Specifications

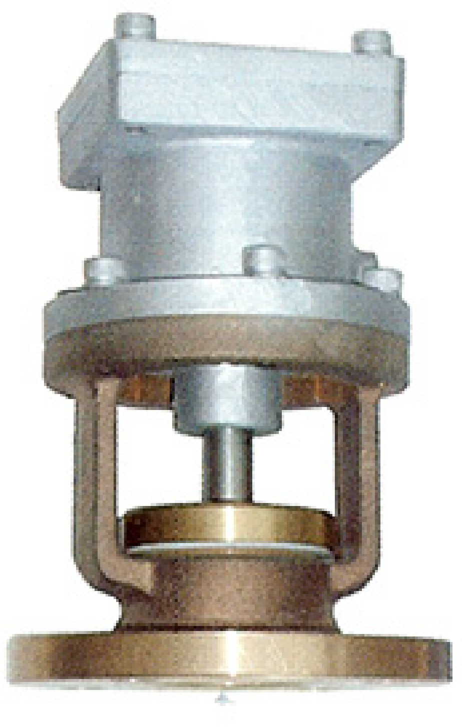
FLUID	PRESSURE	TEMP	AIR PRESSURE
STEAM,GAS	10kg'/㎠g 미만	MAX180℃	4kg'/㎠g 이상

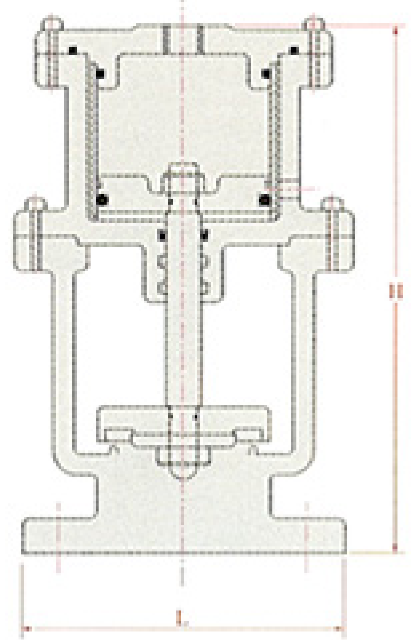
* ALL STS is order-made.

Dimension (mm)

SIZE	50A	65A	80A	100A
L	200	230	255	285
H_1	125	145	165	190
H_2	170	175	195	225

Control Valve [DPCV-3 Type] Air Vent Piston Control Valve Water,Oil,Steam





Features

- It is used to prevent the decrease of the transferring thermal efficiency caused by air problem and the corrosion of piping so that flowing of fluid can smoothen by ventilation of air staying above hot and cold bath, water supply piping, and tanks.

Specifications

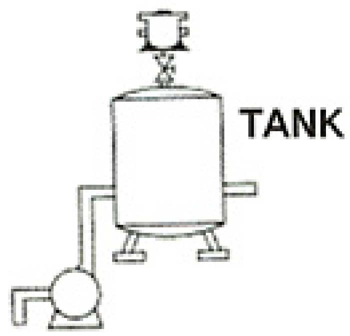
FLUID	PRESSURE	TEMP	AIR PRESSURE
WATER,OIL STEAM,AIR	KS 10kg'/㎠g FF FLANCE	MAX220℃	4kg'/㎠g 이상

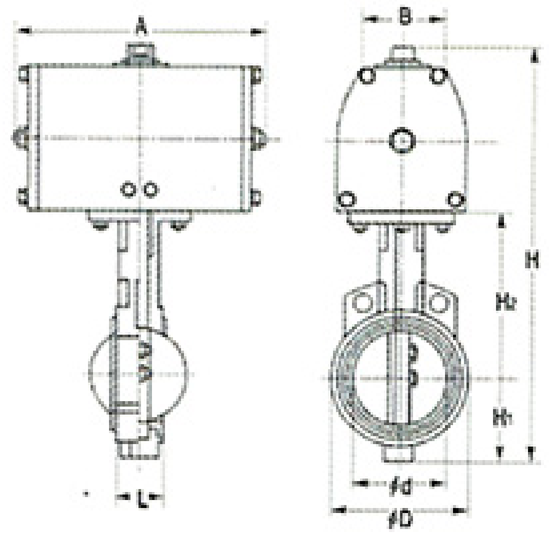
Dimension (mm)

SIZE	40A	50A	65A	80A
L	140	155	175	185
H	235	235	255	280

■ Precaution when installing

- Install perpendicularly.
- Install manual valve at the opening so that maintenance and checking is easy.





Pneumatic Actuator Butterfly Valve [SPA-1 Type]

Features

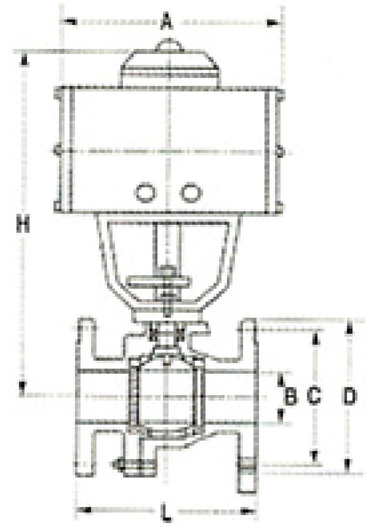
- It has a compact structure and it is easy for installation and handling.
- It is economic and applicable to fluids in various industrial fields.

Specifications

APPLICABLE FLUID	WATER,STEAM,AIR,GAS,OIL,POWEDER(CEMENT,Etc)CHEMICALS	
INLET PRESSURE	MAX 10~20kgf/㎠g	
END CONNECTION	WAFER,FLANGE	
TEMPERATURE(℃)	MAX 80,120,200,500	
MATERIALS	BODY	FC200,FCD,SCPH2,STS304,316,316L,PVC,PVDF
	SEAT	NBR,EPDM,PTFE,METAL
	DISC	STS304,316,AL BRONZE
ACTUATOR	PNEUMATIC DOUBLE,SINGLE	
ACCESSORY (SELECTABLE)	SOLENOID VALVE : AC110,220V,DC24V AIR REGULATOR POSITIONER LIMIT S/W SPEED CONTROL VALVE	

Dimension (mm)

Size	A	B	H	H_1	H_2	ΦD	Φd	L
40A	140	74	287	58	124	86	40	33
50A	140	74	302	66	130	102	52	43
65A	140	74	316	71	140	115	65	46
80A	180	85	353	83	150	128	80	46
100A	180	85	378	95	163	153	100	52
250A	210	110	433	110	178	183	125	56
150A	210	110	460	124	191	210	150	56
200A	255	135	586	163	238	259	198	60
250A	255	135	697	227	285	328	248	68
300A	360	170	777	252	315	374	298	78
350A	360	170	805	271	324	416	327	78
400A	460	230	1007	343	369	475	387	102
450A	460	230	1067	366	406	535	438	114
500A	460	230	1201	421	485	586	477	127



Pneumatic Actuator Ball Valve [SPA-2 Type]2Way

Features

- It is easy for installation and handling and economic with 2way and 3way in kind
- It is applicable depending on specifications such as for form usual fluid to high viscosity fluid, powder, anti-acid, etc.
- It is possible to use two kinds of fluids different in quality and temperrature by mixing or separating them (3way)

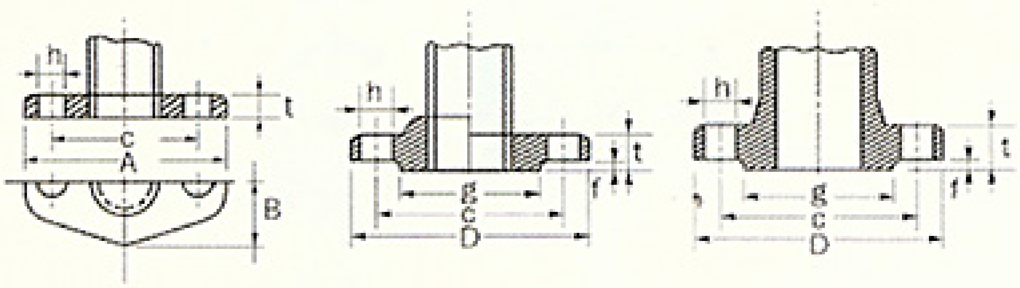
Specifications

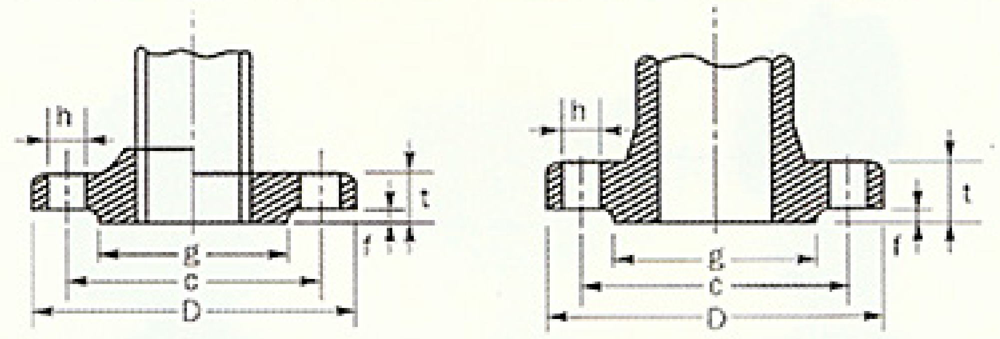
APPLICABLE FLUID	WATER,STEAM,AIR,GAS,OIL,POWEDER(CEMENT,Etc)CHEMICALS	
INLET PRESSURE	MAX 10~20,30,64kgf/㎠g	
END CONNECTION	FLANGE,PT,SCREWED,WELDED	
TEMPERATURE(℃)	MAX 80,120,200	
MATERIALS	BODY	BC, SCPH2, STS304, 316, 316L, PVC, PP, PVDF
	SEAT	PTFE,RTFE,METAL
	DISC	STS304,316,316L
ACTUATOR	PNEUMATIC DOUBLE,SINGLE	
ACCESSORY (SELECTABLE)	SOLENOID VALVE : AC110,220V,DC24V AIR REGULATOR POSITIONER LIMIT S/W SPEED CONTROL VALVE	

Dimension [2WAY] (mm)

Size	A	B	C	D	H	L
15A	127	15	70	95	282	108
20A	127	20	75	100	282	117
25A	127	25	90	125	282	127
32A	165	32	100	135	354	140
40A	165	40	105	140	354	165
50A	178	50	120	150	359	178
65A	190	65	140	175	422	190
80A	203	80	150	185	432	203
100A	229	100	175	210	560	229
125A	356	125	210	250	590	356
150A	394	150	240	280	652	394
200A	457	200	290	330	840	457

Standard Dimension Of Flange





■ Standard Dimension of 5kgf/㎠ Flange

[KS B 1511-1987] [JLS B 2210-1987]

(mm)

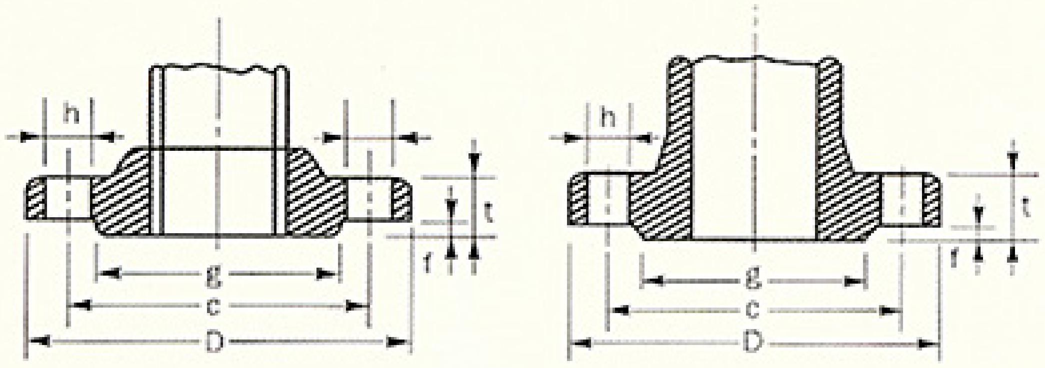
Lenght	Outer Diameter of Applicable Steel Plate	Outer Diameter of Flange D (A * B)	Each Size Flange				Bolt Hold			Bolt Name
			t		f	Diameter (g)	Center Diameter(g)	Number	Diameter (h)	
			Steel Plate & Iron	Iron						
10	17.3	75(75X45)	9	12	1	39	55	4(2)	12	M10
15	21.7	80(80X50)	9	12	1	44	60	4(2)	12	M10
20	27.7	85	10	14	1	49	65	4	12	M10
25	34.0	95	10	14	1	59	75	4	12	M10
32	42.7	115	12	16	2	70	90	4	15	M12
40	48.6	120	12	16	2	75	95	4	15	M12
50	60.5	130	14	16	2	85	105	4	15	M12
65	76.3	155	14	18	2	110	130	4	15	M12
80	89.1	180	14	18	2	121	145	4	19	M16
(90)	101.6	190	14	18	2	131	155	4	19	M16
100	114.3	200	16	20	2	141	165	8	19	M16
125	139.8	235	16	20	2	176	200	8	19	M16
150	165.2	265	18	22	2	206	230	8	19	M16
(175)	190.7	300	18	22	2	232	260	8	23	M20
200	216.3	320	20	24	2	252	280	8	23	M20
(225)	241.8	345	20	24	2	277	305	12	23	M20
250	267.4	385	22	26	2	317	345	12	23	M20
300	318.5	430	22	28	3	360	390	12	23	M20
350	355.6	480	24	30	3	403	435	12	25	M22
400	406.4	540	24	30	3	463	495	16	25	M22
450	457.2	605	24	30	3	523	555	16	25	M22
500	508.0	655	24	32	3	573	605	20	25	M22

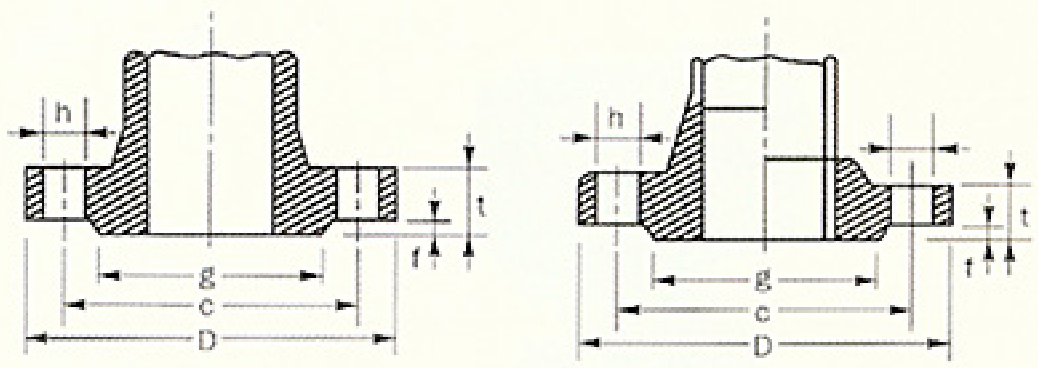
■ Standard Dimension of 10kgf/㎠ Flange

[KS B 1511-1987] [JLS B 2210-1987]

(mm)

Lenght	Outer Diameter of Applicable Steel Plate	Outer Diameter of Flange D (A * B)	Each Size Flange				Bolt Hold			Bolt Name
			t		f	Diameter (g)	Center Diameter(g)	Number	Diameter (h)	
			Steel Plate & Iron	Iron						
10	17.3	90	12	14	1	46	65	4	15	M12
15	21.7	95	12	16	1	51	70	4	15	M12
20	27.2	100	14	18	1	56	75	4	15	M12
25	34.0	125	14	18	1	67	90	4	19	M16
32	42.7	135	16	20	2	76	100	4	19	M16
40	48.6	140	16	20	2	81	105	4	19	M16
50	60.5	155	16	20	2	96	120	4	19	M16
65	76.3	175	18	22	2	116	140	4	19	M16
80	89.1	185	18	22	2	126	150	8	19	M16
(90)	101.6	195	18	22	2	136	160	8	19	M16
100	114.3	210	18	24	2	151	175	8	19	M16
125	139.8	250	20	24	2	182	210	8	23	M20
150	165.2	280	22	26	2	212	240	8	23	M20
(175)	190.7	305	22	26	2	237	265	12	23	M20
200	216.3	330	22	26	2	262	290	12	23	M20
(225)	241.8	350	22	28	2	282	310	12	23	M20
250	267.4	400	24	30	2	324	355	12	25	M22
300	318.5	445	24	32	3	368	400	16	25	M22
350	355.6	490	26	34	3	413	445	16	25	M22
400	406.4	560	28	36	3	475	510	16	27	M24
450	457.2	620	30	38	3	530	565	20	27	M24
500	508.0	675	30	40	3	585	620	20	27	M24





■ Standard Dimension of 20kgf/㎠ Flange

[KS B 1511-1987] [JLS B 2210-1987]

(mm)

Lenght	Outer Diameter of Applicable Steel Plate	Outer Diameter of Flange D (A * B)	Each Size Flange				Bolt Hold			Bolt Name
			t		f	Diameter (g)	Center Diameter(g)	Number	Diameter (h)	
			Steel Plate & Iron	Iron						
10	17.3	90	14	16	1	46	65	4	15	M12
15	21.7	95	14	16	1	51	70	4	15	M12
20	27.2	100	16	18	1	56	75	4	15	M12
25	34.0	125	16	20	1	67	90	4	19	M16
32	42.7	135	18	20	2	76	100	4	19	M16
40	48.6	140	18	22	2	81	105	4	19	M16
50	60.5	155	18	22	2	96	120	8	19	M16
65	76.3	175	20	24	2	116	140	8	19	M16
80	89.1	200	22	26	2	132	160	8	23	M20
(90)	101.6	210	24	28	2	145	170	8	23	M20
100	114.3	225	24	28	2	160	185	8	23	M20
125	139.8	270	26	30	2	195	225	8	25	M22
150	165.2	305	28	32	2	230	260	12	25	M22
200	216.3	350	30	34	2	275	305	12	25	M22
250	267.4	430	34	38	2	345	380	12	27	M24
300	318.5	480	36	40	3	395	430	16	27	M24
350	355.6	540	40	44	3	440	480	16	33	M30X3
400	406.4	605	46	50	3	495	540	16	33	M30X3
450	457.2	675	48	54	3	560	605	20	33	M30X3
500	508.0	730	50	58	3	615	660	20	33	M30X3

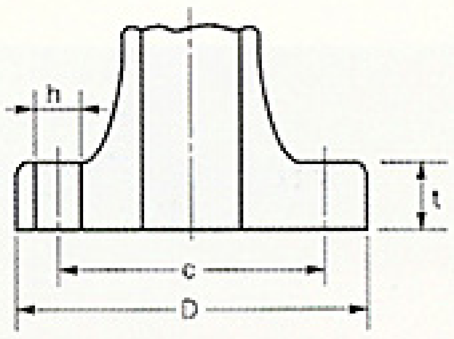
■ Standard Dimension of 30kgf/㎠ Flange

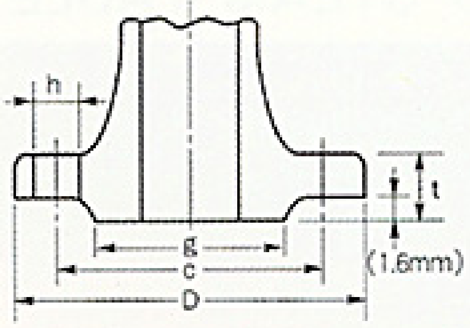
[KS B 1511-1987] [JLS B 2210-1987]

(mm)

Lenght	Outer Diameter of Applicable Steel Plate	Outer Diameter of Flange D (A * B)	Each Size Flange			Bolt Hold			Bolt Name
			t	f	Diameter (g)	Center Diameter(g)	Number	Diameter (h)	
10	17.3	110	16	1	52	75	4	19	M16
15	21.7	115	18	1	55	80	4	19	M16
20	27.2	120	18	1	60	85	4	19	M16
25	34.0	130	20	1	70	95	4	19	M16
32	42.7	140	22	2	80	105	4	19	M16
40	48.6	160	22	2	90	120	4	23	M20
50	60.5	165	22	2	105	130	8	19	M16
65	76.3	200	22	2	130	160	8	23	M20
80	89.1	210	28	2	140	170	8	23	M20
(90)	101.6	230	30	2	150	185	8	25	M22
100	114.3	140	32	2	160	195	8	25	M22
125	139.8	175	36	2	195	230	8	25	M22
150	165.2	325	38	2	235	275	12	27	M24
200	216.3	370	42	2	280	320	12	27	M24
250	267.4	450	48	2	345	390	12	33	M30X3
300	318.5	515	52	3	405	450	16	33	M30X3
350	355.6	560	54	3	450	495	16	33	M30X3
400	406.4	630	60	3	510	560	16	39	M30X3

Standard Dimension Of Flange





■ ANSI 125 POUND Standard Dimension of Cast Iron Flange

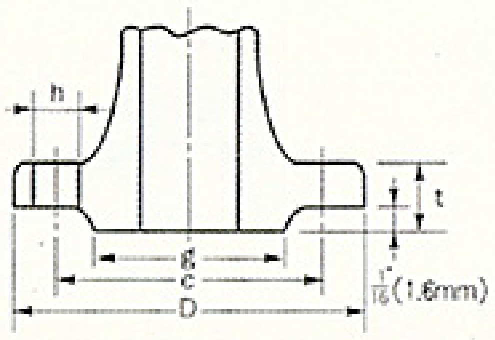
in(mm)

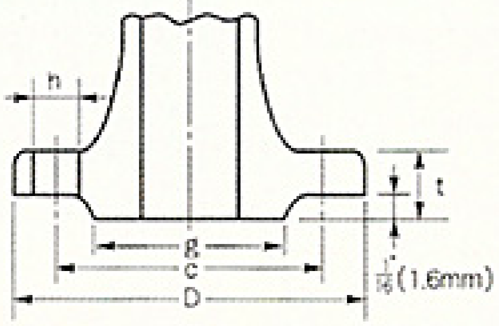
Lenght		Outer Diameter	Thickness	Bolt Hole			Bolt
(in)	(mm)	of Flange (D)	(t)	Center Diameter(c)	Number	Diameter(h)	Name
1	25	$4\frac{1}{4}$ (108)	$\frac{11}{16}$(11.2)	$3\frac{1}{8}$(79.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$1\frac{1}{4}$	32	$4\frac{5}{8}$ (117)	$\frac{1}{2}$(12.7)	$3\frac{3}{16}$(89.0)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$1\frac{1}{2}$	40	5 (127)	$\frac{13}{16}$(14.3)	$3\frac{1}{4}$(98.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
2	50	6 (152)	$\frac{7}{8}$(15.9)	$4\frac{3}{8}$(120.5)	4	$\frac{3}{4}$(19)	$\frac{1}{2}$
$2\frac{1}{2}$	65	7 (178)	1 (17.5)	$5\frac{7}{16}$(139.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
3	80	$7\frac{1}{2}$ (191)	$1\frac{1}{8}$(19.1)	6 (152.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
$3\frac{1}{2}$	90	$8\frac{1}{2}$ (216)	$1\frac{3}{16}$(22.3)	7 (178.0)	8	$\frac{3}{4}$(19)	$\frac{5}{8}$
4	100	9 (229)	$1\frac{1}{4}$(23.9)	$7\frac{1}{2}$(190.5)	8	$\frac{3}{4}$(19)	$\frac{5}{8}$
5	125	10 (254)	$1\frac{3}{8}$(23.9)	$8\frac{1}{2}$(216.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
6	150	11 (279)	$1\frac{7}{16}$(25.4)	$9\frac{1}{2}$(241.5)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
8	200	$13\frac{1}{2}$ (343)	$1\frac{1}{8}$(28.6)	$11\frac{3}{4}$(298.5)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
10	250	16 (406)	$1\frac{7}{8}$(30.2)	$14\frac{1}{4}$(362.0)	12	1 (25)	$\frac{7}{8}$
12	300	19 (483)	2 (31.8)	17 (432.0)	12	1 (25)	$\frac{7}{8}$
14	350	21 (533)	$2\frac{1}{8}$(35.0)	$18\frac{3}{4}$(476.0)	12	$1\frac{1}{8}$(29)	1
16	400	$23\frac{1}{2}$ (597)	$2\frac{1}{4}$(36.6)	$21\frac{1}{4}$(36.6)	12	$1\frac{1}{8}$(29)	1

■ ANSI 150 POUND Standard Dimension of Steel Flange

in(mm)

Lenght		Outer Diameter	Thickness	Diameter	Bolt Hole			Bolt
(in)	(mm)	of Flange (D)	(t)	(g)	Center Diameter(c)	Number	Diameter(h)	Name
$\frac{1}{2}$	15	$3\frac{1}{2}$(89)	$\frac{7}{16}$(11.2)	$1\frac{3}{8}$(35)	$2\frac{3}{8}$(60.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$\frac{3}{4}$	20	$3\frac{7}{8}$(98)	$\frac{1}{2}$(12.7)	$1\frac{11}{16}$(43)	$2\frac{3}{4}$(70.0)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
1	25	$4\frac{1}{4}$(108)	$\frac{9}{16}$(14.3)	2 (51)	$3\frac{1}{8}$(79.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$1\frac{1}{4}$	32	$4\frac{5}{8}$(117)	$\frac{5}{8}$(15.9)	$2\frac{1}{2}$(64)	$3\frac{1}{2}$(89.0)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$1\frac{1}{2}$	40	5 (127)	$\frac{11}{16}$(17.5)	$2\frac{7}{8}$(73)	$3\frac{7}{8}$(98.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
2	50	6 (152)	$\frac{3}{4}$(19.1)	$3\frac{5}{8}$(92)	$4\frac{3}{4}$(120.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
$2\frac{1}{2}$	65	$7\frac{1}{2}$(178)	$\frac{7}{8}$(22.3)	$4\frac{1}{8}$(105)	$5\frac{1}{2}$(139.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
3	80	$7\frac{1}{2}$(191)	$\frac{15}{16}$(23.9)	5 (127)	6 (152.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
$3\frac{1}{2}$	90	$8\frac{1}{2}$(216)	$\frac{15}{16}$(23.9)	$5\frac{1}{2}$(140)	7 (178.0)	8	$\frac{3}{4}$(19)	$\frac{5}{8}$
4	100	9 (229)	$\frac{15}{16}$(23.9)	$6\frac{3}{16}$(157)	$7\frac{1}{2}$(190.5)	8	$\frac{3}{4}$(19)	$\frac{5}{8}$
5	125	10 (254)	$\frac{15}{16}$(23.9)	$7\frac{5}{16}$(186)	$8\frac{1}{2}$(216.0)	8	$\frac{7}{8}$(22)	$\frac{5}{8}$
6	150	11 (279)	1 (25.4)	$8\frac{1}{2}$(216)	$9\frac{1}{2}$(241.5)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
8	200	$13\frac{1}{2}$(343)	$1\frac{1}{8}$(28.6)	$10\frac{5}{8}$(270)	$11\frac{3}{4}$(298.5)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
10	250	16 (406)	$1\frac{3}{16}$(30.2)	$12\frac{3}{4}$(324)	$14\frac{1}{4}$(362.0)	12	1 (25)	$\frac{7}{8}$
12	300	19 (483)	$1\frac{1}{4}$(31.8)	15 (381)	17 (432.0)	12	1 (25)	$\frac{7}{8}$
14	350	21 (533)	$1\frac{3}{8}$(35.0)	$16\frac{1}{4}$(413)	$18\frac{3}{4}$(476.0)	12	$1\frac{1}{8}$(29)	1
16	400	$23\frac{1}{2}$(597)	$1\frac{7}{16}$(36.6)	$18\frac{1}{2}$(470)	$21\frac{1}{4}$(539.5)	16	$1\frac{1}{8}$(29)	1





■ ANSI 250 POUND Standard Dimension of Cast Iron Flange

in(mm)

Lenght		Outer Diameter	Thickness	Diameter	Bolt Hole			Bolt
(in)	(mm)	of Flange (D)	(t)	(g)	Center Diameter(c)	Number	Diameter(h)	Name
1	25	$4\frac{7}{8}$(124)	$\frac{11}{16}$(17.5)	$2\frac{11}{16}$(68.5)	$3\frac{1}{2}$(89)	4	$\frac{3}{4}$ (19)	$\frac{5}{8}$
$1\frac{1}{4}$	35	$5\frac{1}{4}$(133)	$\frac{3}{4}$(19.1)	$3\frac{1}{16}$(78.0)	$3\frac{7}{8}$(98)	4	$\frac{3}{4}$ (19)	$\frac{5}{8}$
$1\frac{1}{2}$	40	$6\frac{1}{8}$(156)	$\frac{13}{16}$(21.0)	$3\frac{9}{16}$(90.5)	$4\frac{1}{2}$(114)	4	$\frac{7}{8}$ (22)	$\frac{3}{4}$
2	50	$6\frac{1}{2}$(165)	$\frac{7}{8}$(22.3)	$4\frac{3}{16}$(106.5)	5 (127)	4	$\frac{3}{4}$ (19)	$\frac{5}{8}$
$2\frac{1}{2}$	65	$7\frac{1}{2}$(191)	1 (25.4)	$4\frac{15}{16}$(125.5)	$5\frac{7}{8}$(149)	4	$\frac{7}{8}$ (22)	$\frac{3}{4}$
3	80	$8\frac{1}{4}$(210)	$1\frac{1}{8}$(23.6)	$5\frac{11}{16}$(144.5)	$6\frac{7}{8}$(168)	8	$\frac{7}{8}$ (22)	$\frac{3}{4}$
$3\frac{1}{2}$	90	9 (229)	$1\frac{3}{16}$(30.2)	$6\frac{5}{16}$(160.5)	$7\frac{1}{4}$(184)	8	$\frac{7}{8}$ (22)	$\frac{3}{4}$
4	100	10 (254)	$1\frac{1}{4}$(31.8)	$6\frac{15}{16}$(176.5)	$7\frac{7}{8}$(200)	8	$\frac{7}{8}$ (22)	$\frac{3}{4}$
5	125	11 (279)	$1\frac{3}{8}$(35)	$8\frac{5}{16}$(211.5)	$9\frac{1}{4}$(235)	8	$\frac{7}{8}$ (22)	$\frac{3}{4}$
6	150	$12\frac{1}{2}$(318)	$1\frac{7}{16}$(36.6)	$9\frac{11}{16}$(246.5)	$10\frac{5}{8}$(270)	8	$\frac{7}{8}$ (22)	$\frac{3}{4}$
8	200	15 (381)	$1\frac{5}{8}$(41.3)	$11\frac{11}{16}$(303.5)	13 (330)	12	1 (25)	$\frac{7}{8}$
10	250	$17\frac{1}{2}$(445)	$1\frac{7}{8}$(47.6)	$14\frac{1}{16}$(357.5)	$15\frac{1}{4}$(387)	12	$1\frac{1}{8}$ (29)	1
12	300	20 (521)	2 (50.8)	$16\frac{7}{16}$(418.0)	$17\frac{3}{4}$(451)	16	$1\frac{1}{4}$ (32)	$1\frac{1}{8}$
14	350	23 (584)	$2\frac{1}{8}$(54.0)	$18\frac{15}{16}$(481.5)	$20\frac{1}{4}$(514)	16	$1\frac{1}{4}$ (32)	$1\frac{1}{8}$
16	400	$25\frac{1}{2}$(648)	$2\frac{1}{4}$(57.2)	$21\frac{1}{16}$(535.0)	$22\frac{1}{2}$(572)	20	$1\frac{3}{8}$ (35)	$1\frac{1}{4}$

■ ANSI 300 POUND Standard Dimension of Steel Flange

in(mm)

Lenght		Outer Diameter	Thickness	Diameter	Bolt Hole			Bolt
(in)	(mm)	of Flange (D)	(t)	(g)	Center Diameter(c)	Number	Diameter(h)	Name
$\frac{1}{2}$	15	$3\frac{3}{4}$(59)	$\frac{9}{16}$(14.3)	$1\frac{3}{8}$(35)	$2\frac{5}{8}$(66.5)	4	$\frac{5}{8}$(16)	$\frac{1}{2}$
$\frac{3}{4}$	20	$4\frac{5}{8}$(117)	$\frac{5}{8}$(15.9)	$1\frac{11}{16}$(43)	$3\frac{1}{4}$(82.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
1	25	$4\frac{7}{8}$(124)	$\frac{11}{16}$(17.5)	2 (51)	$3\frac{1}{2}$(89.0)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
$1\frac{1}{4}$	32	$5\frac{1}{4}$(133)	$\frac{3}{4}$(19.1)	$2\frac{1}{2}$(64)	$3\frac{7}{8}$(98.5)	4	$\frac{3}{4}$(19)	$\frac{5}{8}$
$1\frac{1}{2}$	40	$6\frac{1}{8}$(156)	$\frac{13}{16}$(20.7)	$2\frac{7}{8}$(73)	$4\frac{1}{2}$(114.5)	4	$\frac{7}{8}$(22)	$\frac{3}{4}$
2	50	$6\frac{1}{2}$(165)	$\frac{7}{8}$(22.3)	$3\frac{5}{8}$(92)	5 (127.0)	8	$\frac{3}{4}$(19)	$\frac{5}{8}$
$2\frac{1}{2}$	65	$7\frac{1}{2}$(191)	1 (25.4)	$4\frac{1}{8}$(105)	$5\frac{7}{8}$(149.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
3	80	$8\frac{1}{4}$(210)	$1\frac{1}{8}$(28.6)	5 (127)	$6\frac{5}{8}$(168.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
$3\frac{1}{2}$	90	9 (229)	$1\frac{3}{16}$(30.2)	$5\frac{1}{2}$(140)	$7\frac{1}{4}$(184.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
4	100	10 (254)	$1\frac{1}{4}$(31.8)	$6\frac{3}{16}$(157)	$7\frac{7}{8}$(200.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
5	125	11 (279)	$1\frac{3}{8}$(35.0)	$7\frac{5}{16}$(186)	$9\frac{1}{4}$(235.0)	8	$\frac{7}{8}$(22)	$\frac{3}{4}$
6	150	$12\frac{1}{2}$(318)	$1\frac{7}{16}$(36.6)	$8\frac{1}{2}$(216)	$10\frac{5}{8}$(270.0)	12	$\frac{7}{8}$(22)	$\frac{3}{4}$
8	200	15 (381)	$1\frac{5}{8}$(41.3)	$10\frac{5}{8}$(270)	13 (330.0)	12	(25)	$\frac{7}{8}$
10	250	$17\frac{1}{2}$(445)	$1\frac{7}{8}$(47.7)	$12\frac{3}{4}$(324)	$15\frac{1}{4}$(387.5)	16	$\frac{1}{8}$(29)	
12	300	$20\frac{1}{2}$(521)	2 (50.8)	15(381)	$17\frac{3}{4}$(451.0)	16	$\frac{1}{4}$(32)	$\frac{1}{8}$
14	350	23 (584)	$2\frac{1}{8}$(54.0)	$16\frac{1}{4}$(413)	$20\frac{1}{4}$(514.5)	20	$\frac{1}{4}$(32)	$\frac{1}{8}$
16	400	$25\frac{1}{2}$(648)	$2\frac{1}{4}$(57.2)	$18\frac{1}{2}$(470)	$22\frac{1}{2}$(571.5)	20	$\frac{3}{8}$(35)	$\frac{1}{4}$

SATURATED STEAM TABLE

Absolute pressure of Vapor(abs) (kg/cm²)	(1b/in²)	Temp of Vapor (℃)	(℉)	Volume of 1kg Water before Evaporation (ℓ)	Volume of 1kg Vapor (m³)	Weight of 1m³ Vapor (kg)	Energy Contained by 1kg Vapor(kcal) water Energy h	Latent Heat L	Total Energy H=h+L	Absolute pressure of Vapor(abs) (kg/cm²)	(1b/in²)	Temp of Vapor (℃)	(℉)	Volume of 1kg Water before Evaporation (ℓ)	Volume of 1kg Vapor (m³)	Weight of 1m³ Vapor (kg)	Energy Contained by 1kg Vapor(kcal) water Energy h	Latent Heat L	Total Energy H=h+L
0,02	0,28	17,2	62,9	1,0012	68,26	0,0147	17,2	587,8	605,0	13,50	192,0	192,4	378,3	1,1451	0,1485	6,734	195,5	469,9	665,4
0,04	0,57	28,6	83,5	1,0039	35,45	0,0282	28,7	581,3	610,0	14,00	199,1	194,1	381,4	1,1476	0,1434	6,974	197,3	468,4	665,7
0,06	0,85	35,8	96,4	1,0063	24,18	0,0414	35,8	577,3	613,1	14,50	206,2	195,8	384,4	1,1500	0,1386	7,214	199,0	466,9	665,9
0,08	1,14	41,2	106,2	1,0083	18,44	0,0542	41,2	574,2	615,4	15	213,3	197,4	387,3	1,1524	0,1342	7,454	200,7	465,5	666,2
0,10	1,42	45,5	113,9	1,0101	14,95	0,0669	45,4	571,8	617,2	16	227,4	200,4	392,7	1,1572	0,1260	7,934	204,1	462,6	666,7
0,15	2,13	53,6	128,5	1,0138	10,21	0,0980	53,5	567,1	620,6	17	241,7	203,4	398,1	1,1618	0,1189	8,414	207,2	459,9	667,1
0,20	2,84	59,7	139,5	1,0170	7,791	0,1284	59,6	563,5	623,1	18	256,0	206,2	403,2	1,1663	0,1124	8,894	210,2	457,2	667,4
0,25	3,56	64,6	148,3	1,0197	6,319	0,1583	64,5	560,7	625,2	19	270,2	208,8	407,8	1,1706	0,1067	9,375	213,1	454,6	667,7
0,30	4,27	68,7	155,7	1,0221	5,326	0,1878	68,7	558,2	626,9	20	284,4	211,4	412,5	1,1749	0,1015	9,857	215,9	452,1	668,0
0,35	4,98	72,3	162,1	1,0242	4,609	0,2170	72,2	556,1	628,3	21	298,6	213,9	417,0	1,1791	0,0967	10,34	218,6	459,6	668,2
0,40	5,69	75,4	167,7	1,0262	4,067	0,2459	75,4	554,2	629,6	22	312,8	216,2	421,2	1,1833	0,0924	10,82	221,2	447,2	668,4
0,45	6,40	78,3	172,9	1,0281	3,642	0,2746	78,3	552,5	630,8	23	327,1	218,5	425,3	1,1873	0,0885	11,31	223,8	444,8	668,6
0,50	7,11	80,9	177,6	1,0298	3,300	0,3030	80,9	550,9	631,8	24	341,3	220,8	429,4	1,1913	0,0848	11,79	226,2	442,6	668,8
0,60	8,53	85,5	185,9	1,0329	2,782	0,3594	85,5	548,1	633,6	25	355,5	222,9	433,2	1,1953	0,0815	12,28	228,6	440,3	668,9
0,70	9,95	89,5	193,1	1,0357	2,408	0,4152	89,5	545,7	635,2	26	369,7	225,0	427,0	1,1991	0,0784	12,76	230,9	438,1	669,0
0,80	11,4	93,0	199,4	1,0383	2,125	0,4705	93,0	543,5	636,5	27	383,9	227,0	440,6	1,203	0,0755	13,25	233,2	435,9	669,1
0,90	12,8	96,2	205,2	1,0407	1,904	0,5253	96,2	541,5	637,7	28	398,2	229,0	444,2	1,207	0,0728	13,74	235,4	433,8	669,2
1,00	14,2	99,1	210,4	1,0430	1,725	0,5797	99,2	539,6	638,8	29	412,4	230,9	447,6	1,210	0,0703	14,23	237,5	431,7	669,2
1,20	17,1	104,3	219,7	1,0471	1,454	0,6875	104,4	536,3	640,7	30	426,6	232,8	451,0	1,214	0,0679	14,72	239,6	429,7	669,3
1,40	19,9	108,7	227,7	1,0508	1,259	0,7942	108,9	533,5	642,4	32	455,0	236,4	457,5	1,221	0,0637	15,70	243,7	425,6	669,3
1,60	22,8	112,7	234,9	1,0542	1,111	0,8999	112,9	530,8	643,7	34	483,5	239,8	463,6	1,229	0,0599	16,69	247,6	421,7	669,3
1,80	25,6	116,3	241,3	1,0573	0,9952	1,005	116,6	528,4	645,0	36	511,9	243,0	469,4	1,236	0,0565	17,69	251,3	417,9	669,2
2,00	28,4	119,6	247,3	1,0603	0,9018	1,109	119,9	526,3	646,2	38	540,4	246,2	475,2	1,243	0,0535	18,69	254,9	414,2	669,1
2,50	35,6	126,8	260,2	1,0669	0,7317	1,367	127,2	521,4	648,6	40	568,8	249,2	480,6	1,249	0,0508	19,70	258,4	410,5	669,9
3,00	42,7	132,9	271,2	1,0728	0,6168	1,621	133,4	517,2	650,6	42	597,2	252,1	485,8	1,256	0,0483	20,72	261,7	407,0	669,7
3,50	49,8	138,2	280,8	1,0782	0,5337	1,874	138,8	513,4	652,2	44	625,7	254,9	490,8	1,263	0,0460	21,74	265,0	403,5	668,5
4,00	56,9	142,9	289,2	1,0831	0,4708	2,214	143,7	510,0	653,7	46	654,1	257,6	495,7	1,269	0,0439	22,77	268,2	400,0	668,2
4,50	64,0	147,2	297,0	1,0877	0,4214	2,373	148,1	506,8	654,9	48	682,6	260,2	500,4	1,276	0,0420	23,80	271,3	396,6	667,9
5,00	71,1	151,1	304,0	1,0920	0,3816	2,620	152,1	503,9	656,0	50	711,0	262,7	504,9	1,283	0,0402	24,85	274,3	393,3	667,6
5,50	78,2	154,7	310,5	1,0961	0,3489	2,867	155,8	501,2	657,0	55	782,1	268,7	515,7	1,299	0,0364	27,49	281,5	385,1	666,6
6,00	85,3	158,1	316,6	1,1000	0,3213	3,112	159,3	498,6	657,9	60	853,2	274,3	525,7	1,315	0,331	30,18	288,3	377,2	665,5
6,50	92,4	161,2	322,2	1,1037	0,2980	3,356	162,6	496,1	658,7	65	924,3	279,5	535,1	1,331	0,0304	32,93	294,8	369,4	664,2
7,00	99,5	164,2	327,6	1,1072	0,2778	3,600	165,7	493,8	659,5	70	995,4	284,5	544,1	1,347	0,0280	35,75	301,0	361,8	662,8
7,50	106,7	167,0	332,6	1,1111	0,2602	3,843	168,6	491,6	660,2	75	1066,5	289,2	552,6	1,363	0,0259	38,62	307,0	354,3	661,3
8,00	113,8	169,6	337,3	1,1140	0,2448	4,086	171,3	489,5	660,8	80	1137,6	293,6	560,5	1,379	0,0241	41,56	312,8	346,9	659,7
8,50	120,9	172,1	341,8	1,1172	0,2311	4,328	174,0	487,4	661,4	85	1208,7	297,9	568,2	1,395	0,0224	44,58	318,4	339,6	658,0
9,00	128,0	174,5	346,1	1,1203	0,2188	4,570	176,5	485,4	661,9	90	1279,8	301,9	575,4	1,412	0,0210	47,67	323,8	332,4	656,2
9,50	135,1	176,8	350,2	1,1233	0,2079	4,811	178,9	483,5	662,4	95	1350,9	305,8	582,4	1,429	0,0197	50,85	329,1	325,2	654,3
10,00	142,2	179,0	354,2	1,1262	0,1979	5,052	181,3	481,6	662,9	100	1422,0	309,5	589,1	1,446	0,0185	54,12	334,3	318,0	652,3
10,50	149,3	181,2	358,2	1,1291	0,1890	5,293	183,5	479,8	663,3	120	1706,4	323,1	613,6	1,518	0,0147	68,22	354,0	289,4	643,4
11,00	156,4	183,2	361,8	1,1319	0,1807	5,533	185,6	478,1	663,7	140	1990,8	335,1	653,2	1,599	0,0118	84,52	372,8	260,0	632,8
11,50	163,5	185,2	365,4	1,1346	0,1732	5,774	187,7	476,4	664,1	160	2275,2	345,8	654,4	1,693	0,0096	104,0	391,3	228,4	619,7
12,00	170,6	187,1	368,8	1,1373	0,1663	6,014	189,8	474,7	664,5	180	2559,6	355,4	671,7	1,814	0,0078	128,3	410,8	192,9	603,7
12,50	177,8	188,9	372,0	1,1400	0,1599	6,254	191,7	473,1	664,8	200	2844,0	364,1	687,4	1,990	0,0062	161,6	431,6	151,2	582,8
13,00	184,9	190,7	375,3	1,1425	0,1540	6,494	193,6	471,5	665,1	225,56	3208,7	374,15	705,47	3,170	0,0032	315,5	503,3	0	503,3

SUNKWANG

AUTOMATIC CONTROL VALVE MAKER

SUN KWANG VALVE CO.