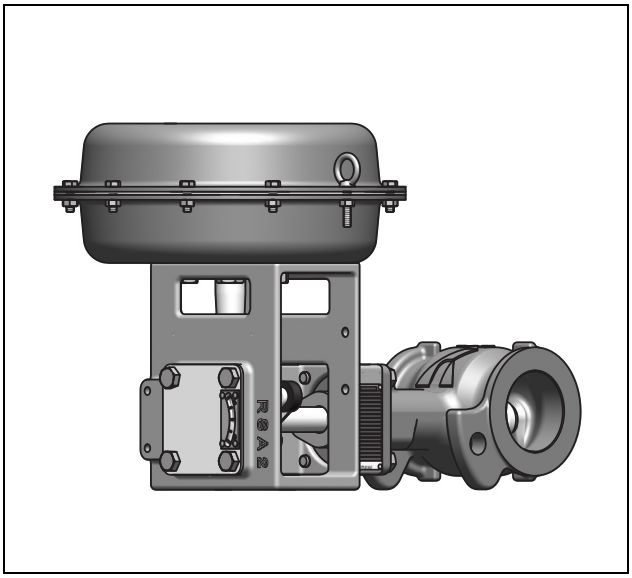
FloWing
Eccentric Rotary Control Valve (For size 1 to 4 inches)
Model VFR

OVERVIEW

The eccentric rotary control valve, "FloWing" (model VFR), consists of a straight-through valve body with minimal flow resistance and an open yoke plug with a wing that rotates eccentrically. The FloWing is suitable for applications requiring a large flow capacity and wide rangeability, and for the control of those slurry fluids susceptible to clogging. Also, the model VFR is able to control the occurrence of cavitation when the liquid is decompressed with high pressure reduction and can decrease the level of noise and vibration. The model VFR can effectively decompress the liquid by inserting a perforated plate (multi-hole plate) into the main body outlet side of the valve. Therefore, cold and warm water with a low or medium pressure line or process liquid can be controlled even with a Kc value* over 0.55. Furthermore, for the multi-hole plate, there are two types: the built-in type and the combined external type (model HRL).

Note) Please refer to selection guide.



SPECIFICATIONS

Body

Type

Straight-through

Nominal size

1, 1½, 2, 3 or 4 inches
If you need nominal size 6 inches or over, please refer to No.SS2-VFR100-0100.

Pressure rating

Pressure rating	Nominal size (inches)				
	1	1½	2	3	4
JIS 10K, 20K ANSI 150, 300 JPI 150, 300	○ △	○ △	○ △	○ △	○ △
JIS 30K, 40K ANSI 600 JPI 600	○	○	○	—	—

Note) ○: wafer type, △: flange type.

End connections

- Wafer type
  Note) For bolt and nut materials and fluid temperatures, refer to Table 1. (The connection bolts and nuts are provided as standard accessories.)
- Flange type

Connection type	Pressure rating	Applicable standard
RF	JIS10K	JIS B2212-1972
	JIS20K, 30K, 40K	JIS B2214-1967
	ANSI Class 150, 300, 600	ANSI B16.5-1968
	JPI Class 150, 300, 600	JPI-7S-15-1993

Material

For combinations of valve body, trim materials and fluid temperatures, refer to Table 1.

Bonnet

Integral body type (-60 to +350°C)

Gland type

Bolted gland

Packing/Grease

- Without grease….PTFE yarn
- With grease……..Graphite packings
  Note) PTFE: Polytetrafluoroethylene.

Trim

Valve plug
Eccentric rotary open yoke plug with wing

Seat ring
Clamp seat ring

Material
For combinations of valve body, trim materials and fluid temperatures, refer to Table 1.

Actuator

Type
Spring type pneumatic diaphragm actuator

Action
Direct or reverse action

Diaphragm
Chloroprene rubber reinforced with nylon fabric

Spring range
80 to 240 kPa {0.8 to 2.4 kgf/cm^2} (model RSA1, 2)

Note) Spring range and air supply pressure vary according to nominal size.

Supply pressure
340 to 400 kPa {3.5 to 4.0 kgf/cm^2},

Air connection
Rc1/4 internal thread

Ambient temperature
-30°C to +70°C

Maximum diaphragm chamber capacity
- RSA1D (R) : 760 cm^3
- RSA2D (R) : 3800 cm^3

Valve action
Direct or reverse action

Positioner (optional)
VPR pneumatic positioner or SVP electro-pneumatic positioner (Refer to their respective specification sheets.)

Optional accessories (provided upon request)
Pressure regulator with filter, handwheel, limit switch, solenoid valve, motion transmitter, booster relay, lock-up valve, and others.

Note) 1) For the optional items, refer to the specification sheets and installation drawings of respective accessories.

Additional specifications (special order)
- Multi-hole plate (built-in type)
- Special inspections
  Flow characteristic inspection, material inspection (Material certificate), non-destructive inspection, steam inspection, low temperature inspection
- Flange type
- Copper free treatment
- Oil/water free treatment
- SUS304 atmosphere-exposed nuts and bolts
- Sand-/dust-preventive measures
- Special air connections and joint
- Cold-area use specifications
- Saline damage countermeasures
- Tropical-area use specifications
- Vacuum service
- Yoke material (SCPH12)*
- Compliance to the High Pressure Gas Control Law

*Note) *: Carbon steel (A216 WCB) is the standard material for yoke used in actuator model RSA.*

Performance

Rated Cv value
Refer to “Cv value and travels” on page 4.

Flow characteristics
Refer to Figure 2.

Inherent rangeability
100 : 1

Allowable differential pressure
Refer to Table 6 to Table 9.

Leakage specifications
IEC 60534-4:2006 or JIS B 2005-4:2008
- Metal seat
  Class IV
  Leakage less than 0.01% of maximum valve capacity, or leakage less than 0.001% (optional)
- Soft seat
  Class VI
  Leakage less than 0.00001% of maximum valve capacity.

Hysteresis error
Within 1% F.S.

Linearity
Within ± 2% F.S.

Operation speed (from fully closed to fully open)
- RSA1D (R) : 5 sec.
- RSA2D (R) : 7 sec.

(With air supply pressure 340 kPa {3.5 kgf/cm^2} for RSA1, 400 kPa {4.0 kgf/cm^2} for RSA2, using model VPR positioner and pressure regulator with filter, and with no load.)

Dimensions
Refer to Figure 3 and Figure 4, Table 10 to Table 12.

Weight
Refer to Table 10 to Table 12.

Mounting position
Refer to Figure 6 and Figure 7.

Finish
Blue (Munsell 10B5/10) or silver, or other specified colors.

Selection guide for the multi-hole plate (anti-cavitation and low noise specification)

1. selection standard

• For incompressible fluid (liquid)

Cavitation number (Kc value) will be calculated according to the operation condition.
The multi-hole plate is recommended (select the specification) if the calculated Kc value is over 0.55. It is not applicable for compressible fluid (gas/steam).

$$Kc = \frac{\Delta P}{P_1 - Pv}$$

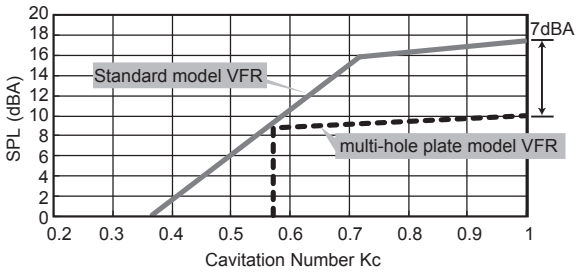
P_1: Valve primary side pressure
P_2: Valve secondary side pressure
Pv: Saturated vapor pressure of fluid according to inflow side temp. condition
$\Delta P = P_1 - P_2$: Valve differential pressure

• For compressible fluid (gas/steam)

Calculate predictive noise level.
The multi-hole plate is recommended if predict noise level is higher than the regulation level.

2. Noise control efficiency of the multi-hole plate

The figure below shows differences in the noise occurring based on the structures of the standard type and multi-hole plate type model VFR. Noise that occurs when controlling the flow differs depending on the structures of the valve body and inner valve. The multi-hole plate type model has a maximum noise suppression of 7 dBA.



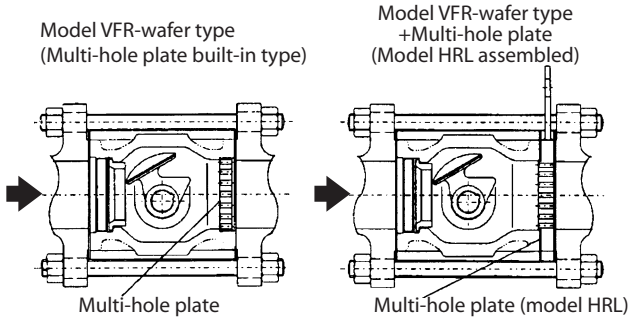


Figure 1 Noise control efficiency (dBA)

Table 1 Body / trim material combination and operating temperature ranges (°C)

Components		Material									
Valve body	JIS	SCPH2				SCS13A			SCS14A		
	ASTM	A216WCB				A351 CF8			A351 CF8M		
Trims	Valve plug	SCS24		SCS14 Stellite		SCS14 Stellite			SCS14 Stellite		
	Seat ring	SUS630	SUS316 (*4) PTFE seat	SUS316	SUS316 (*4) PTFE seat	SUS316	SUS316 Stellite	SUS316 (*4) PTFE seat	SUS316	SUS316 Stellite	SUS316 (*4) PTFE seat
	Seat retainer	SUS630	SUS316								
	Plain bearing	SUS440C (*1, *2)				SUS316 Stellite					
	Main bushing	SUS440C (*1, *2)				SUS316 Stellite					
	Valve stem	SUS316 (*2)									
	Key	SUS630				Stellite					
	Spring	SUS316									
	Packing ring	SUS316									
	Packing	PTFE yarn, Graphite packing + carbon yarn packing *3									
	Packing follower	SUS316									
	Packing flange	SUS304									
	Bolts and nuts for packing flange	SCM3 / SUS304 (For packing)									
	Gasket	Spiral type*5 (Installed between seat ring and seat retainer)									
Temperature range		-5 to 350°C				-60 to 350°C					

*Note) *1. SUS316 Stellite type is used for valves for gas or steam service.*
**2. SUS316 Stellite type is used for valves for thermal medium service.*
**3. P6610CH Graphite packing + P6528 (carbon yarn packing) is used for valves for thermal medium service.*
**4. SUS316 PTFE seat (glass reinforced) type is applicable to fluid temperatures -30 to +200°C (standard type) or -60 to -31°C (low temperature type).*
**5.*

	Temperature range	Gasket material
General	-60°C ≤ t ≤ +350°C	SUS316 with inorganic paper as filler material
Oil free	-60°C ≤ t < +230°C	SUS316 with PTFE as filler material
	+230°C ≤ t ≤ +350°C	SUS316 with graphite as filler material

Table 2 Piping bolt and nut materials and applicable fluid temperature ranges

Fluid temperature	Material of bolts	Material of nuts
-25°C to 350°C	SNB7	S45C
-60°C to -30°C	SUS304	SUS304

Cv value and travels

Table 3 Cv values and travels (Standard model)

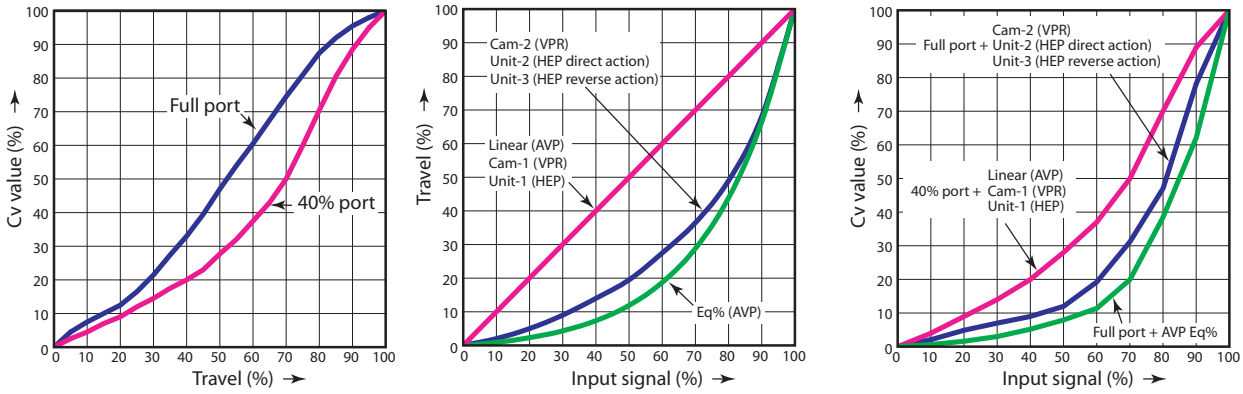
Nominal size (inches)		1	1½	2	3	4
Rated Cv value	Full port	14	30	50	150	250
	40% port	5.6	12	20	60	100
	Rated travel (Rotating angle)	25 mm (60°)			38 mm (60°)	

Table 4 Cv values and travels (Multi-hole plate model for unti-cavitation and noise reduction)

Nominal size (inches)		1	1½	2	3	4
Rated Cv value	Full port	10	22	35	105	175
	40% port	4	9	14	42	70
	Rated travel (Rotating angle)	25 mm (60°)			38 mm (60°)	

Table 5 Cv values and travels (Multi-hole plate model HRL single Cv value) (Formed between the flanges)

Nominal size (inches)		1	1½	2	3	4
Rated Cv value	Full port (for model VFR)	12	32	50	140	245
	40% port (for model VFR)	5.7	13	17	60	105



a. Flow characteristics of valve **b. Positioner cam/unit characteristics** **c. Modified flow characteristics** (Combination of 4 and 6 characteristics)

Figure 2 Flow control characteristics when valve is used in conjunction with positioner cam/unit

Allowable differential pressures

PTFE packing

Table 6 Air-to-close

Actuator model No.	Air supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Positioner	Differential pressure [by nominal size (inch)] kPa {kgf/cm^2}				
				1	1½	2	3	4
RSA1D	340 {3.5}	80 to 240 {0.8 to 2.4}	✔	2940 {30.0}	2940 {30.0}	2940 {30.0}	—	—
RSA2D	400 {4.0}	80 to 240 {0.8 to 2.4}	✔	—	—	—	2060 {21.0}	2060 {21.0}

Table 7 Air-to-open

Actuator model No.	Air supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Positioner	Differential pressure [by nominal size (inch)] kPa {kgf/cm^2}				
				1	1½	2	3	4
RSA1R	340 {3.5}	80 to 240 {0.8 to 2.4}	✔	2940 {30.0}	2940 {30.0}	2940 {30.0}	—	—
RSA2R	400 {4.0}	80 to 240 {0.8 to 2.4}	✔	—	—	—	2060 {21.0}	2060 {21.0}

Note) ✔ :*Positioner provided.*

Graphite packing “P6610CH+P6528” (+230 to +350°C)

Table 8 Air-to-close

Actuator model No.	Air supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Positioner	Differential pressure [by nominal size (inch)] kPa {kgf/cm^2}				
				1	1½	2	3	4
RSA1D	340 {3.5}	80 to 240 {0.8 to 2.4}	✔	2940 {29.9}	2880 {29.3}	1960 {19.9}	—	—
RSA2D	400 {4.0}	80 to 240 {0.8 to 2.4}	✔	—	—	—	2060 {21.0}	2060 {21.0}

Table 9 Air-to-open

Actuator model No.	Air supply pressure kPa {kgf/cm^2}	Spring range kPa {kgf/cm^2}	Positioner	Differential pressure [by nominal size (inch)] kPa {kgf/cm^2}				
				1	1½	2	3	4
RSA1R	340 {3.5}	80 to 240 {0.8 to 2.4}	✔	2940 {29.9}	1950 {19.8}	1330 {13.5}	—	—
RSA2R	400 {4.0}	80 to 240 {0.8 to 2.4}	✔	—	—	—	2060 {21.0}	1170 {11.9}

Note) ✔ :*Positioner provided.*

DIMENSIONS

Table 10 Dimension and weight in wafer connection

[Unit: mm]

Nominal size (Inch)	Pressure rating	Actuator model No.	K	A	B	C *3	D *3	E	F	R	P	H	G	M	N	Weight (kg)
1	JIS10K, 20K, 30K, 40K ANSI150, 300, 600 JPI150, 300, 600	RSA1D(R)	102	195	40	37	68	-	-	-	218	255	75	128	23	15
1½	JIS10K, 20K, 30K, 40K ANSI150, 300, 600 JPI150, 300, 600	RSA1D(R)	114	201	45	50	83	-	-	-	218	255	75	128	23	16
2	JIS10K, ANSI150, JPI150	RSA1D(R)	124	205	49	61	98	-	-	-	218	255	75	128	23	17
	JIS20K							22.5	19	60						
	JIS30K, JIS40K							22.5	19	65						
	ANSI300, 600, JPI300, 600							22.5	19	63.5						
3	JIS10K	RSA2D(R)	165	312	70	87	128	22.5	19	75	350	365	150	240	35.5	49
	JIS20K							22.5	23	80						
	ANSI150							45	19	76.3						
	ANSI300							22.5	22	84						
	JPI150							45	19	76.2						
	JPI300							22.5	22	84.1						
4	JIS10K	RSA2D(R)	194	315	108	112	153	22.5	19	87.5	350	365	150	240	35.5	54
	JIS20K							22.5	23	92.5						
	ANSI150							22.5	19	92.3						
	ANSI300							22.5	22	100						
	JPI150							22.5	19	92.3						
	JPI300							22.5	22	100						

Nominal size (Inch)	Mounting position of valve on process pipes (SV0512-XXX)	L
1	100,101,500,501,010,011,020,021	197
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	203
	400,401,800,801,070,071,080,081	200
1½	100,101,500,501,010,011,020,021	196.5
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	203.5
	400,401,800,801,070,071,080,081	200
2	100,101,500,501,010,011,020,021	196
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	204
	400,401,800,801,070,071,080,081	200
3	100,101,500,501,010,011,020,021	287
	200,201,600,601,030,031,040,041	295
	300,301,700,701,050,051,060,061	303
	400,401,800,801,070,071,080,081	295
4	100,101,500,501,010,011,020,021	285
	200,201,600,601,030,031,040,041	295
	300,301,700,701,050,051,060,061	305
	400,401,800,801,070,071,080,081	295

*Note) *1. The face-to-face dimensions comply with ISA S75.04 and SAMA PMC23.3A. (Scientific Apparatus Makers Association)*

**2. Face-to-face dimensions of the multi-hole plate specification (built-in type) will not be changed.*

**3. Please use joint sheet gasket for piping connection.*
In case of using spiral wound gasket, please prepare the gasket conforming to inner and outer diameters of gasket contact surface because the gasket of non-standard dimensions is needed in following conditions.

- *For nominal size 1" and JIS40K*
- *For nominal size 1" and ANSI150/300/600*
- *For nominal size 4" and JIS20K*
- *For nominal size 4" and ANSI150/300*

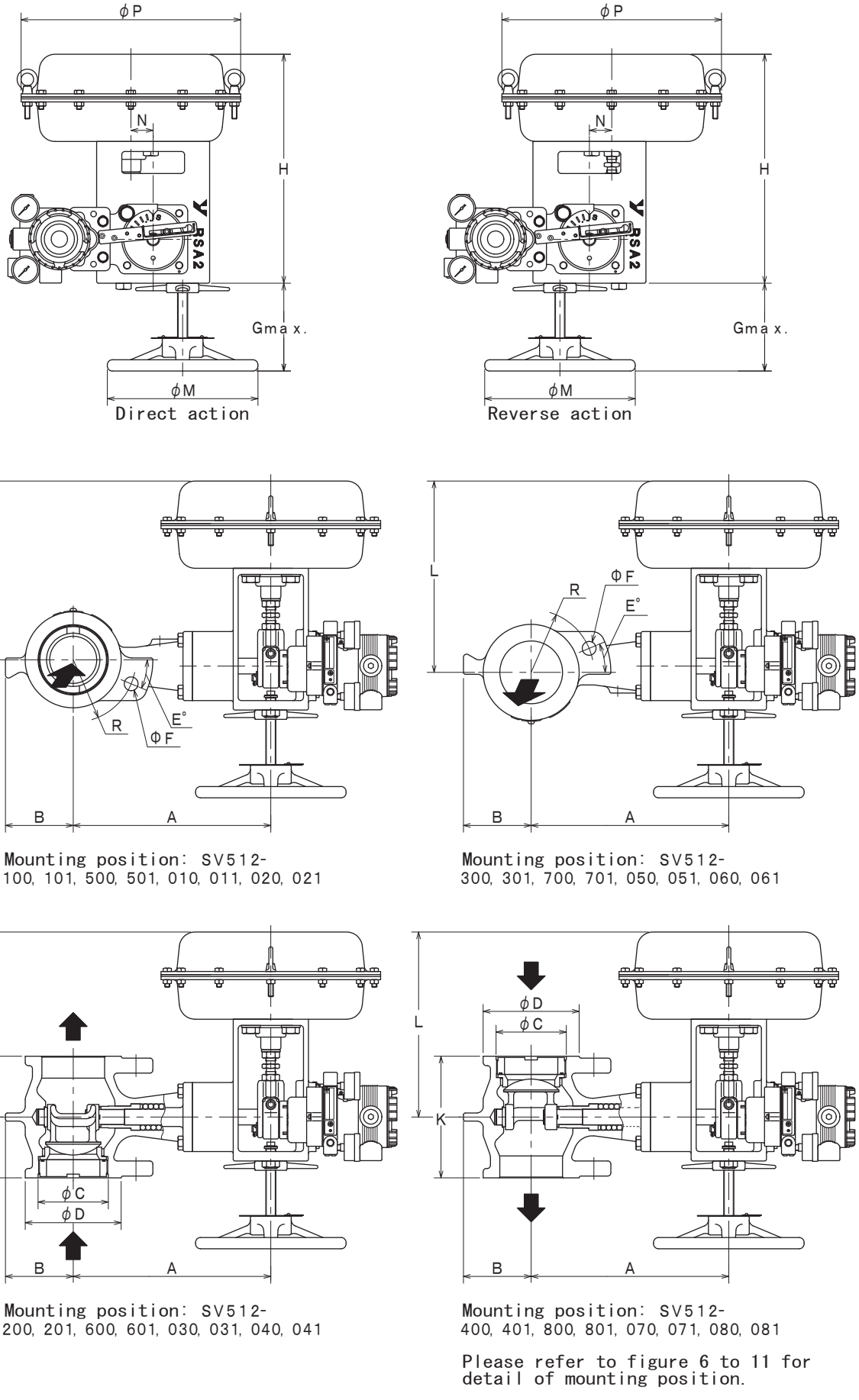


Figure 3 Face-to-face and external dimension in wafer connection

Table 11 Dimension and weight in flange connection

[Unit: mm]

Nominal size (inch)	Pressure rating	Actuator model No.	K	d *3	A	P	H	G	M	N	Weight (kg)
1	JIS10K, ANSI150, JPI150	RSA1D (R)	165	37	195	218	255	75	128	23	17
	JIS20K, ANSI300, JPI300										18
1 ½	JIS10K, ANSI150, JPI150	RSA1D (R)	165	50	201	218	255	75	128	23	19
	JIS20K, ANSI300, JPI300										21
2	JIS10K, ANSI150, JPI150	RSA1D (R)	178	61	205	218	255	75	128	23	22
	JIS20K, ANSI300, JPI300										24
3	JIS10K, ANSI150, JPI150	RSA2D (R)	216	87	312	350	365	150	240	35.5	58
	JIS20K, ANSI300, JPI300										63
4	JIS10K, ANSI150, JPI150	RSA2D (R)	229	112	315	350	365	150	240	35.5	66
	JIS20K, ANSI300, JPI300										74

[Unit: mm]

Nominal size (Inch)	Mounting position of valve on process pipes (SV0512-XXX)	L
1	100,101,500,501,010,011,020,021	197
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	203
	400,401,800,801,070,071,080,081	200
1½	100,101,500,501,010,011,020,021	196.5
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	203.5
	400,401,800,801,070,071,080,081	200
2	100,101,500,501,010,011,020,021	196
	200,201,600,601,030,031,040,041	200
	300,301,700,701,050,051,060,061	204
	400,401,800,801,070,071,080,081	200
3	100,101,500,501,010,011,020,021	287
	200,201,600,601,030,031,040,041	295
	300,301,700,701,050,051,060,061	303
	400,401,800,801,070,071,080,081	295
4	100,101,500,501,010,011,020,021	285
	200,201,600,601,030,031,040,041	295
	300,301,700,701,050,051,060,061	305
	400,401,800,801,070,071,080,081	295

*Note) *1. Face-to-face dimensions of the multi-hole plate specification (built-in type) will not be changed.*

**3. Use joint sheet gaskets to connect pipes.*

If spiral gaskets are used, because a non-standard gasket is needed under the following conditions, use a gasket matching the inner diameter of the gasket-contacting surface.

- *Nominal size 1" and ANSI150/300 (only the inner diameter on the seat ring side is non-standard)*

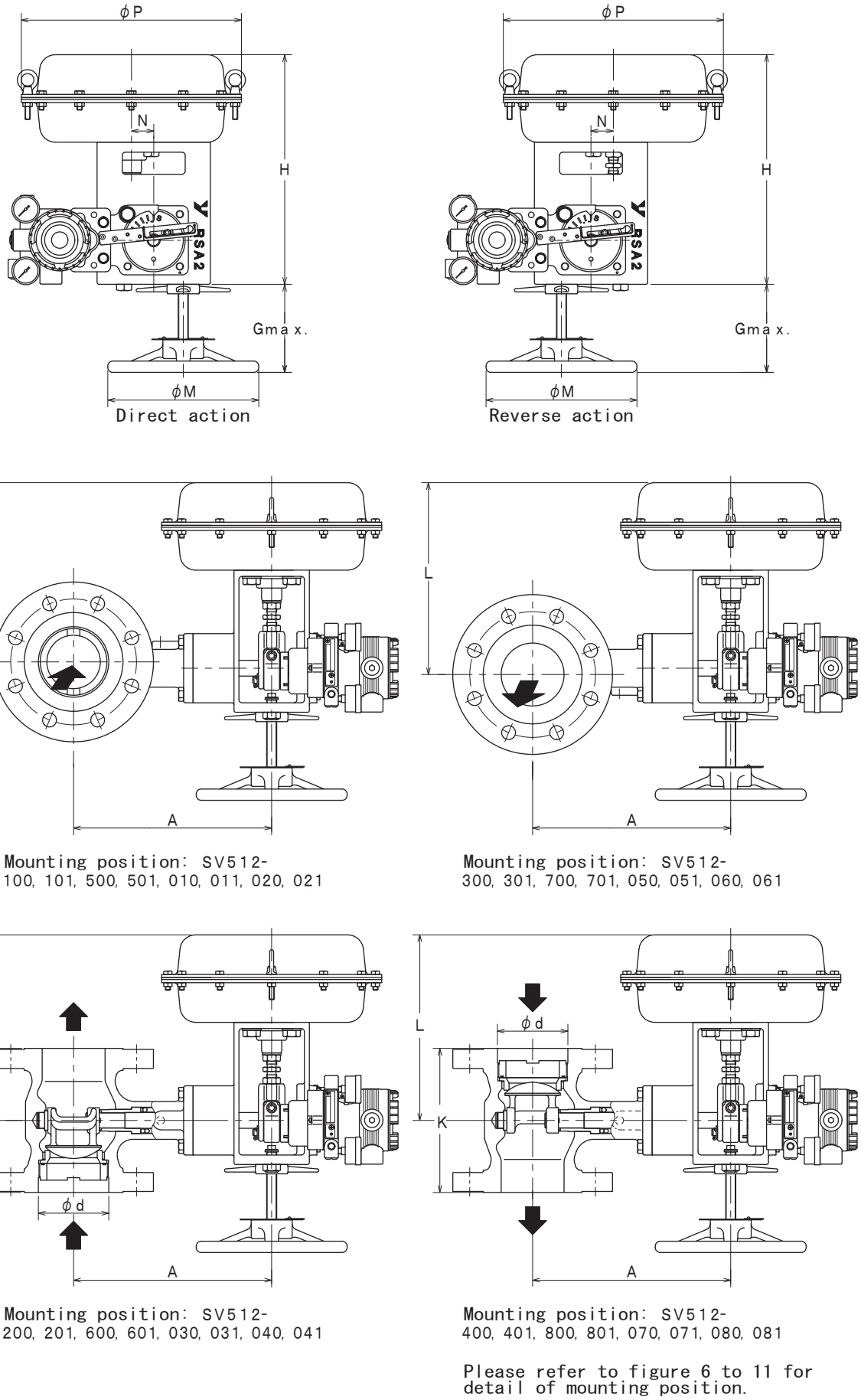


Figure 4 Face-to-face and external dimension in flange connection

Table 12 Multi-hole plate model HRL: External dimensions and weight

(Unit: mm)

Nominal size (inch)	Pressure rating	ϕD	ϕd	T1	T2	H	W	T3	ϕF	Weight (kg)	Face-to-face dimensions *1
1	JIS 10K	67	25	10	6	74	20	4	10	0.34	115.2
	JIS 20K	67								0.34	
	JIS 30K, 40K	70								0.36	
	ANSI 150, 300, 600	51								0.22	
1½	JIS 10K	81	40	10	6	74	20	4	10	0.49	127.2
	JIS 20K	81								0.49	
	JIS 30K, 40K	90								0.58	
	ANSI 150, 300, 600	73								0.41	
2	JIS 10K	96	50	10	6	74	20	4	10	0.75	137.2
	JIS 20K	96								0.75	
	JIS 30K, 40K	105								0.86	
	ANSI 150, 300, 600	92								0.7	
3	JIS 10K	127	78	15	6	88	30	6	14	1.8	183.2
	JIS 20K	132								1.8	
	JIS 30K, 40K	---								---	
	ANSI 150, 300, 600	127								1.7	
4	JIS 10K	151	98	15	6	88	30	6	14	2.5	212.2
	JIS 20K	160								2.6	
	JIS 30K, 40K	---								---	
	ANSI 150, 300, 600	157								2.3	

*Note) *1. Face-to-face dimensions include the valve main body model VFR and gasket. (3.2 mm)*
**2. For ANSI 600, JIS30K and JIS40K, only the connection sizes of 1 inch to 2 inches are available.*

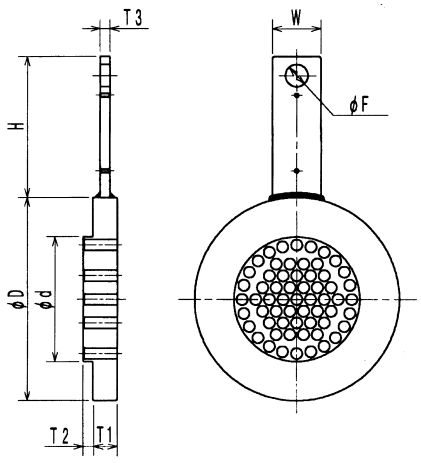


Figure 5

Code number structure (Example)
No. 1 0 0

- Water-proof
  0:No
  1:Yes
- Mounting angle on a pipe
  (See figures below)

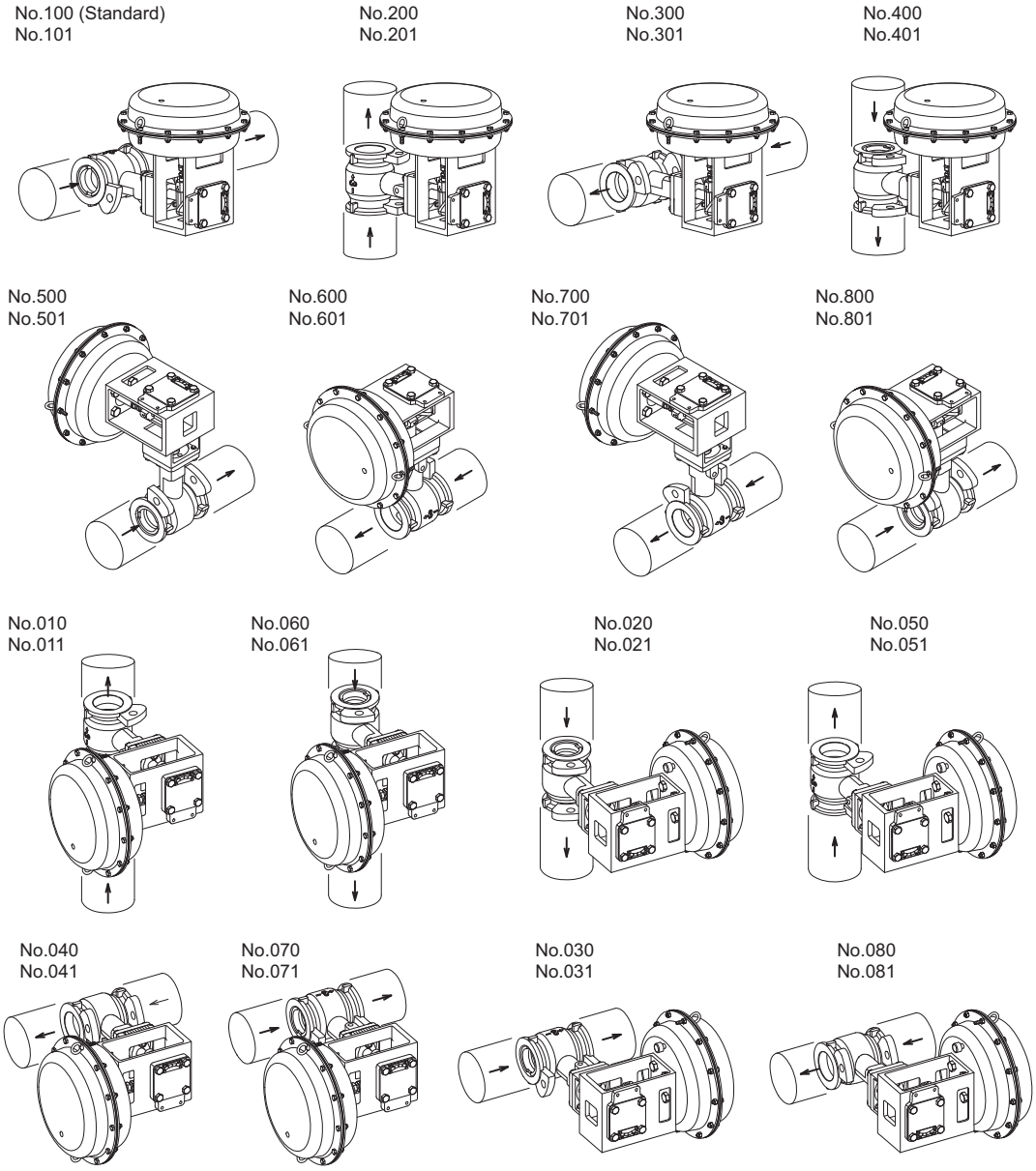
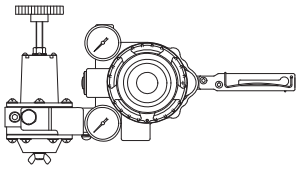


Figure 6 Mounting position of valve on process pipes (Applicable to non-positioner case)

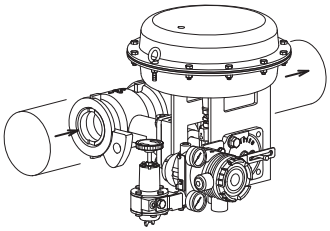
Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 50, 60, 70, 80, 01, 02, 03, 04, 05, 06, 07 or 08,water-proof construction is needed if installing outdoor.
5) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.
6) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, either integral mounting of pressure regulator with filter or separate mounting from positioner can be selected.

Code number structure (Example)
No. 1 0 0
- Water-proof
  - 0:No
  - 1:Yes
- Mounting angle on a pipe (See figures below)

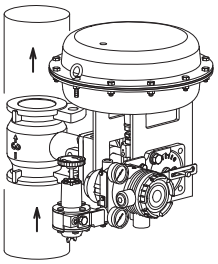


Model AVP with pressure regulator

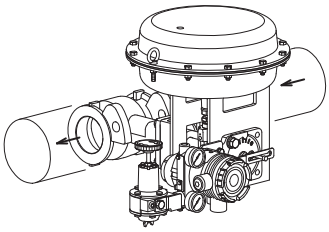
No.100 (Standard)
No.101



No.200
No.201



No.300
No.301



No.400
No.401

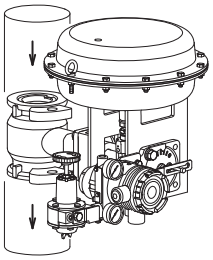
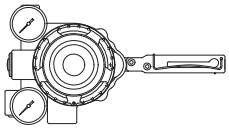


Figure 7 Mounting position of valve on process pipes (Applicable to model AVP positioner with pressure regulator)

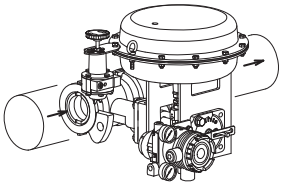
Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.

Code number structure (Example)
No. 1 0 0
- Water-proof
  0:No
  1:Yes
- Mounting angle on a pipe
  (See figures below)

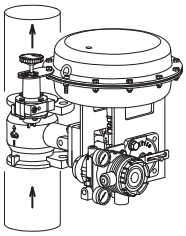


Model AVP

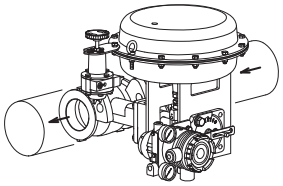
No.100 (Standard)
No.101



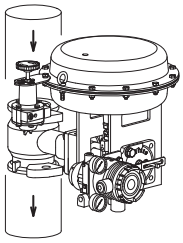
No.200
No.201



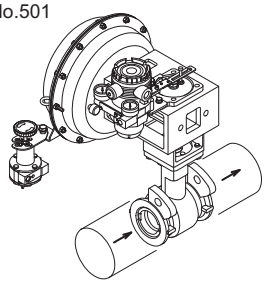
No.300
No.301



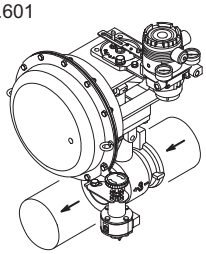
No.400
No.401



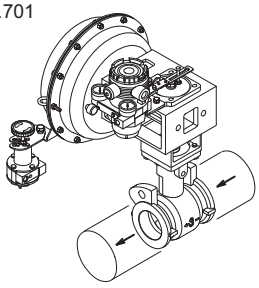
No.500
No.501



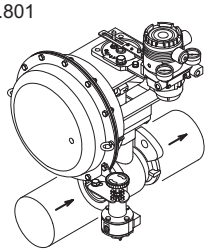
No.600
No.601



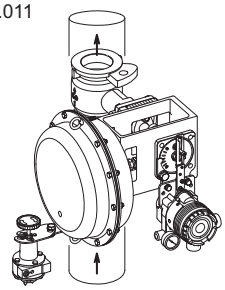
No.700
No.701



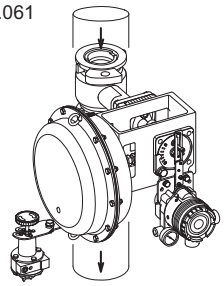
No.800
No.801



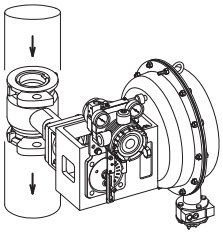
No.010
No.011



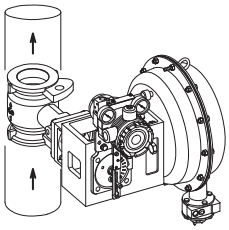
No.060
No.061



No.020
No.021



No.050
No.051



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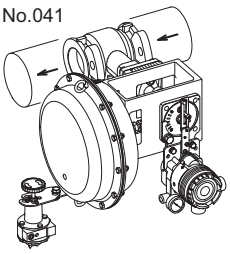
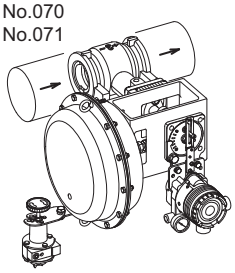
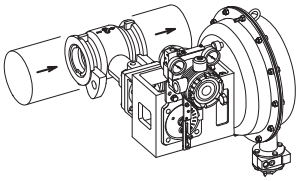
No.041



No.070
No.071



No.030
No.031



No.080
No.081

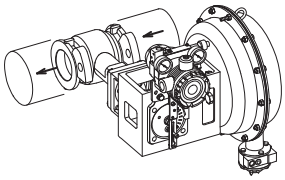
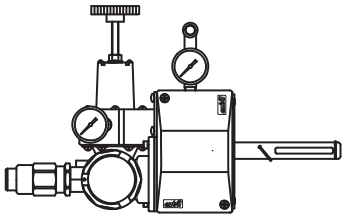


Figure 8 Mounting position of valve on process pipes (Applicable to model AVP positioner)

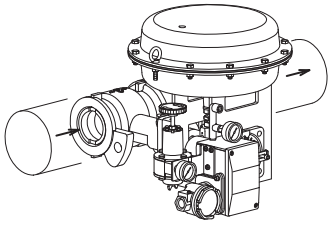
Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 50, 60, 70, 80, 01, 02, 03, 04, 05, 06, 07 or 08, water-proof construction is needed if installing outdoor.
5) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.

Code number structure (Example)
No. 1 0 0
- Water-proof
  - 0:No
  - 1:Yes
- Mounting angle on a pipe
  (See figures below)

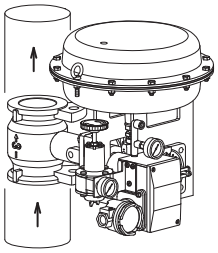


Model HEP with pressure regulator

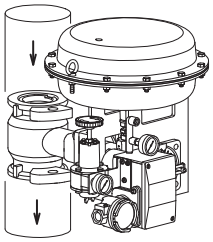
No.100 (Standard)
No.101



No.200
No.201



No.400
No.401



No.300
No.301

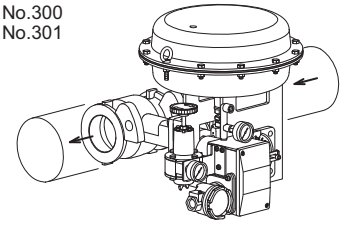
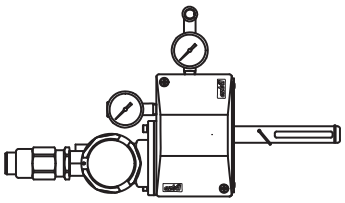


Figure 9 Mounting position of valve on process pipes (Applicable to model HEP positioner with pressure regulator)

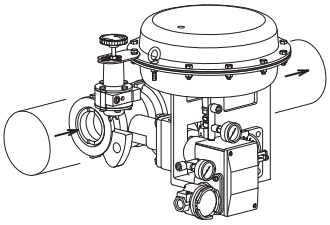
Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.

Code number structure (Example)
No. 1 0 0
- Water-proof
  0:No
  1:Yes
- Mounting angle on a pipe
  (See figures below)

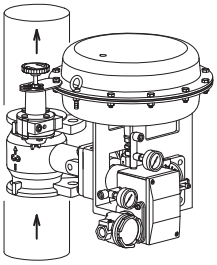


Model HEP

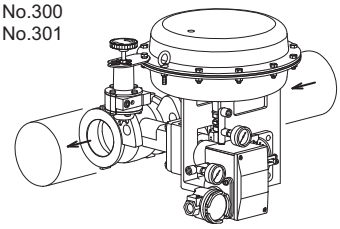
No.100 (Standard)
No.101



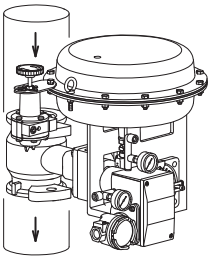
No.200
No.201



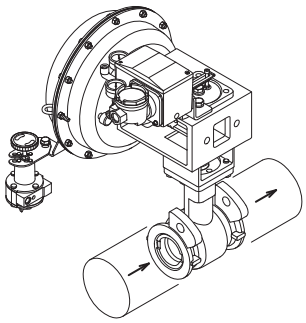
No.300
No.301



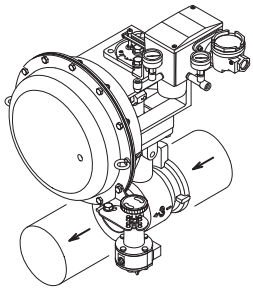
No.400
No.401



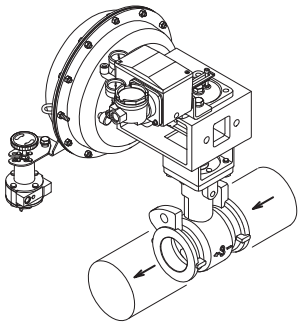
No.500
No.501



No.600
No.601



No.700
No.701



No.800
No.801

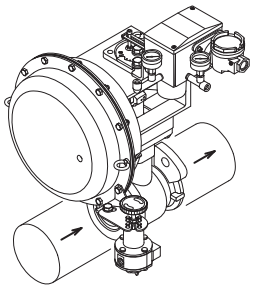
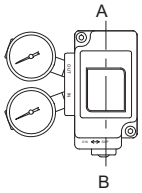


Figure 10 Mounting position of valve on process pipes (Applicable to model HEP positioner)

Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 50, 60, 70, 80, 01, 02, 03, 04, 05, 06, 07 or 08, water-proof construction is needed if installing outdoor.
5) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.

Code number structure (Example)
No. 1 0 0

- Water-proof
  0:No
  1:Yes
- Mounting angle on a pipe
  (See figures below)



Model VPR

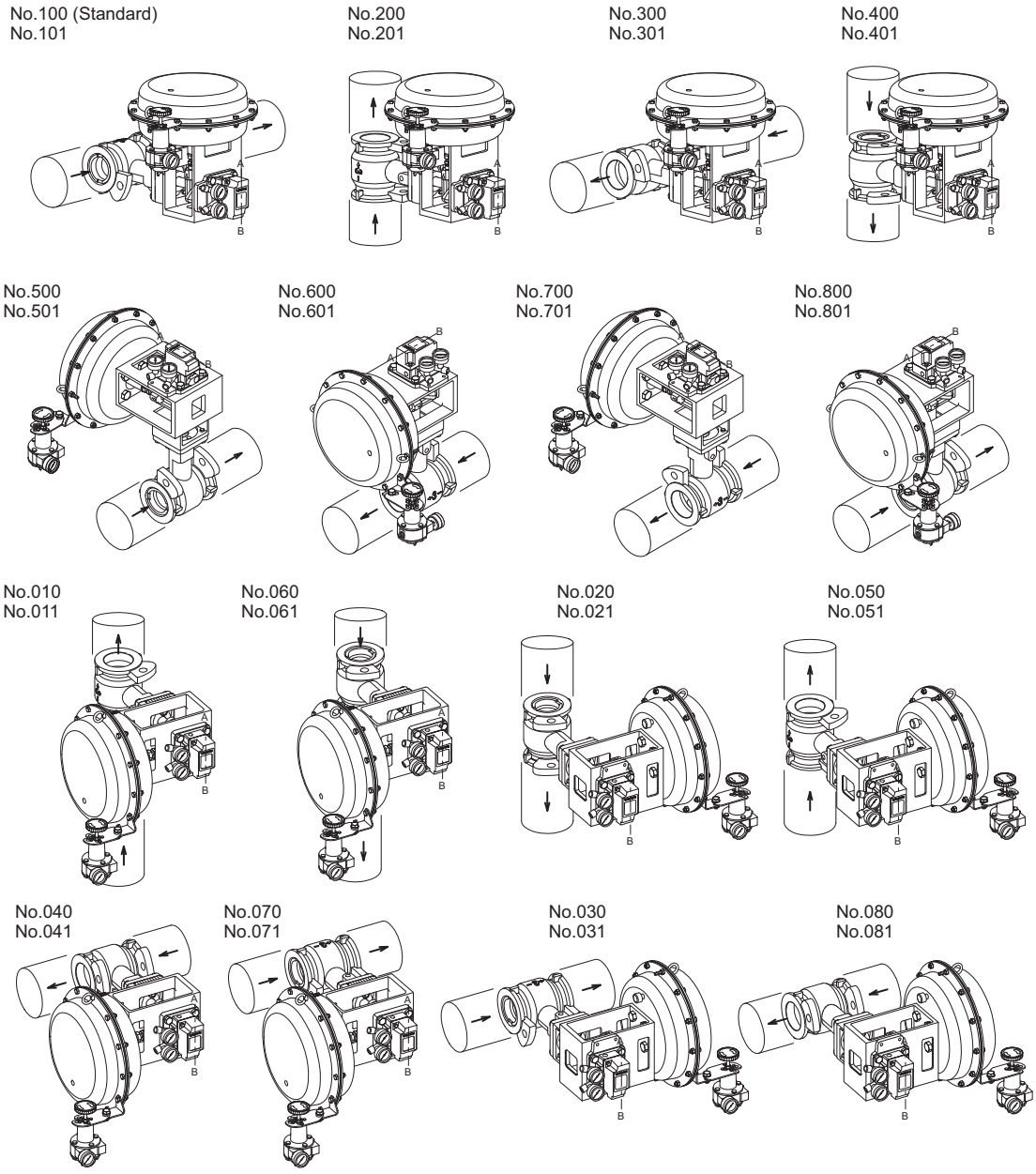


Figure 11 Mounting position of valve on process pipes (Applicable to model VPR positioner)

Note) 1) The pressure regulator with filter is mounted vertically to the ground.
2) Specify mounting positions other than the above standard mounting positions with code number.
3) When installing indoor, water-proof construction is not needed.
4) When the first 2 digits of the model number, which indicate the mounting angle type, are 50, 60, 70, 80, 01, 02, 03, 04, 05, 06, 07 or 08, water-proof construction is needed if installing outdoor.
5) When the first 2 digits of the model number, which indicate the mounting angle type, are 10, 20, 30 or 40, water-proof construction is not required whether it is outdoor or not.

Ordering Information

When ordering, please specify;

1) Model Number: VFR
2) Nominal size X full port or 40% port
3) Rating of valve body
4) Materials of valve body and trims, and necessity of hardening treatment
5) Type of actuator and air supply pressure
6) Valve action (direct or reverse)
7) Accessories (positioner, pressure regulator with filter, etc.)
8) Special requirements for oil / copper free treatment, etc.
9) Name of flow medium
10) Normal flow and maximum flow
11) Pressure of flow medium, upstream and downstream pressure at fully closed and open positions
12) Process fluid temperature and specific gravity
13) Viscosity of flow medium, inclusive or exclusive slurry or flushing
14) Indoor or outdoor usage

Note

Please, read 'Terms and Conditions' from following URL before the order and use.

http://www.azbil.com/products/bi/order.html

Specifications are subject to change without notice.

Azbil Corporation

Advanced Automation Company

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Kanagawa 251-8522 Japan
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