



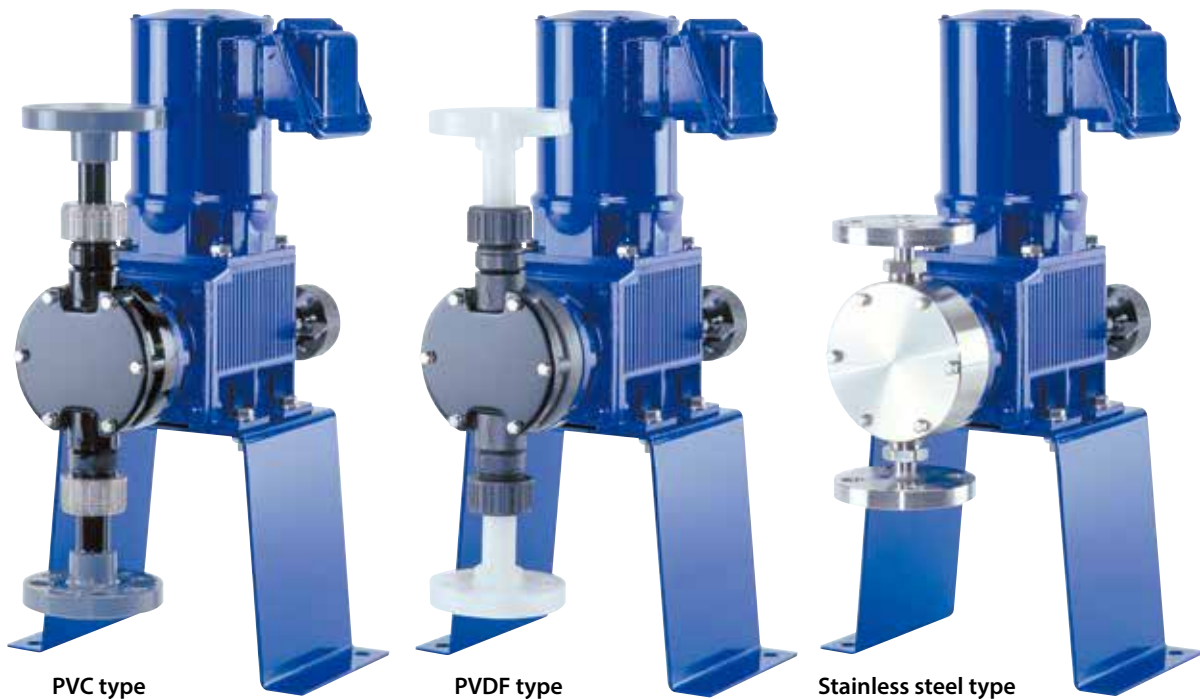
**Answer to Wide-Range Application from  
Inclusion Into a System to Plant Facilities**

# Answer to Wide-Range Application from Inclusion Into a System to Plant Facilities



The SK Series are small-sized diaphragm metering pumps suitable for most chemical feeding purposes including water treatment of up to 1 l/min. capacity.

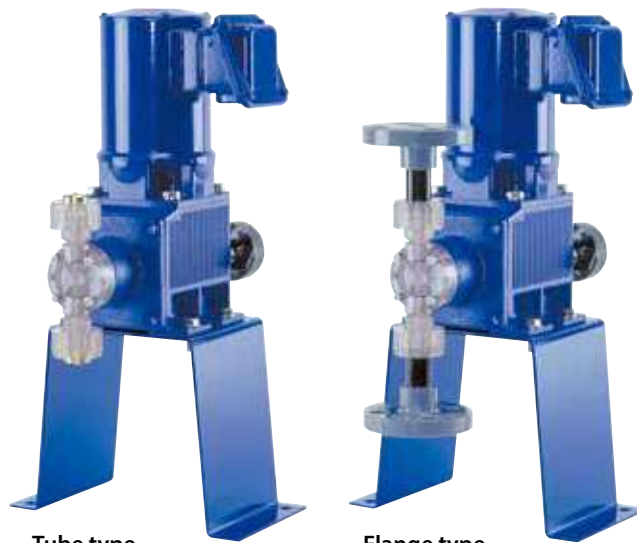
Designed to be light-weight and compact in size, the pumps in SK series are not only most suitable for inclusion into a system, but are also very durable and can withstand severe operating environments such as plant facilities as they have a fully closed structure for outdoor applications.



PVC type

PVDF type

Stainless steel type

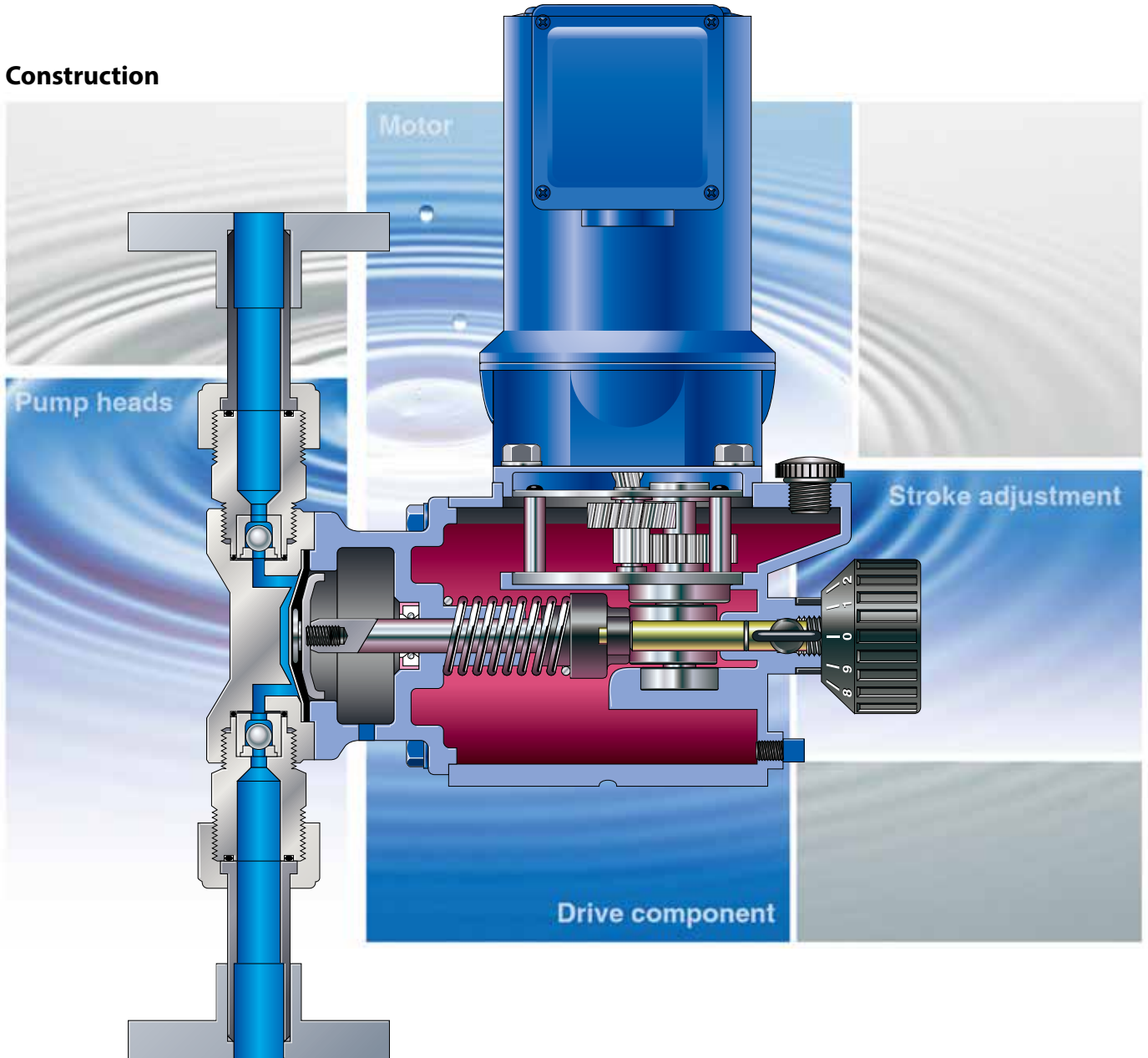


Tube type

Flange type

Note: Base shown on photos is optional accessory.

## Construction



### Pump heads

Three types of pump head materials are available, PVC for acid and alkaline, PVDF for strong acid, and stainless steel for solvent. For the connection of the most widely used PVC type pump head, a flange and a tube are available. Another type of applicable tube besides PVC braided tube, is polyethylene

### Motor

Available in two types: a 65W 3 phase outdoor use and single phase indoor use. An IEC motor can be set up.

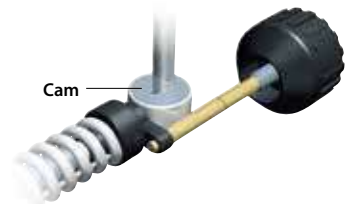
### Drive component

Driving unit components including the reducer, cam, etc., are built in a small but rigid sealed housing made of diecast. Oil bath lubrication is employed inside the driving unit.

Reducer : Noise is extremely low with the use of high-precision helical gears, and durability is extremely high.

### Stroke adjustment

With the micrometer style stroke adjustment system employed, the stroke rate can be set from 0 to 100% in increments of 2.5%.

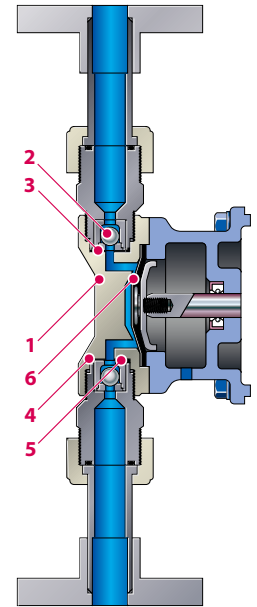


### Wet-End Materials

	PVC type			PVDF type	SUS type
	VC	V6	VS	TC	S6
	For acid	For alkaline	For viscous liquid/ slurry	For strong acid	For solvent
1 Pump head	PVC	PVC	PVC	PVDF	SUS316
2 Valve	Ceramic	SUS316 equivalent		Ceramic	SUS316 equivalent
3 Valve seat	FKM	EPDM	SUS316	FKM	SUS316
4 O ring	FKM	EPDM	EPDM	FKM	-
5 Valve gasket	PTFE				
6 Diaphragm	PTFE+EPDM (EPDM is not to be subject to liquid contact)				
Liquid examples	Hydrochloric acid, sulfuric acid, sodium hypochlorite	Caustic soda, coagulant (of low viscosity)	Calcium hydroxide, high-molecular coagulant	Concentrated sulfuric acid, hydrofluoric acid	Organic solvent

#### Material symbols

PVC : Vinyl chloride resin  
 PVDF : Vinylidene fluoride resin  
 SUS : Stainless steel  
 FKM : Fluoro rubber  
 EPDM : Ethylene propylene rubber  
 PTFE : Polytetrafluoroethylene



### Pump Identification

SK - S 3 2 VC - 33 S

1 2 3 4 5 6 7

**1** Series name  
Metering pump **SK** series

**2** Driving unit type  
**S** : For original motor

**3** Pump head size  
1 : Model 1  
2 : Model 2  
3 : Model 3  
4 : Model 4

**4** Reduction rate  
1 : 1/27  
2 : 1/15

**5** Material symbol  
**VC, V6, VS, TC, S6**  
(See the material table.)

**6** Motor  
**32, 33, 34, 11, 12**  
(See the motor spec. table.)

**7** Special arrangement symbol  
**S** : Special version

### Specifications

Pump model	Discharge L/min		Max. discharge pressure MPa		Stroke speed spm		Max. stroke length mm	Connection		Motor output W	Mass kg		
	50Hz	60Hz	PVC/PVDF	SUS	50Hz	60Hz		Flange	Tube		PVC/PVDF	SUS	
									PVC				PE
SK-11	0.022	0.026	1.0	1.5	53	64	1.5	15A JIS10K	Ø4×Ø9	Ø4×Ø6	65	8	10
SK-21	0.055	0.066	1.0	1.5	53	64	2.0						
SK-22	0.010	0.12	1.0	1.5	96	116	4.0	JIS16K in the case of SUS	Ø8×Ø13.5	Ø9×Ø12	65	9	11
SK-31	0.26	0.31	0.4	1.0	53	64							
SK-32	0.46	0.55	0.4	0.7	96	116							
SK-41	0.61	0.73	0.5	0.5	53	64	5.0		Ø12×Ø18	Ø12×Ø16	65	10	12
SK-42	1.10	1.32	0.3	0.3	96	116							

- The discharge amount is based on pump operation at the max. stroke speed using clean water at room temperature.
- The max. discharge pressure of the SK-41 tube style connection is 0.3 MPa.
- Performance specifications:  
**Quantitative accuracy** : within 2% (at FS), **Self-priming** : within 2 m (at FS),  
**Liquid temperature** : 0 - 50°C for PVC/PVDF type, 0 - 80°C for SUS type, **Ambient temperature** : 0 - 40°C
- The discharge amount of VS type may be approx. 15% less than the above shown.
- For viscous liquid or slurry liquid, please contact IWAKI.

### Specifications of Original Motor for SK-S Type

Code	Motor type	Output, phase, polarity, and insulation class	Voltage and frequency
32	Totally enclosed outdoor type	65W, 3 phase, 4 pole, B class	200/200/220V 50/60/60Hz
33			380/380/415V 50/60/50Hz
34			400/400/440V 50/60/60Hz
11	Single-phase indoor type	65W, 1 phase, 4 pole, B class	100/100/110V 50/60/60Hz
12			220/220/230V 50/60/50Hz

Note : SK-S type is a pump with a original flanged motor.

## Optional Accessories / Example of Piping

### 1. Air chamber

Model A



PVC type



SUS type

### 2. Relief valve

Model RV



PVC flange type



PVC tube type

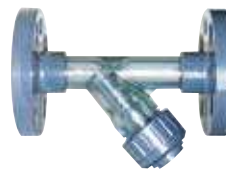
### 3. Back pressure valve

Model BV



PVC flange type

### 4. Y-shaped strainer



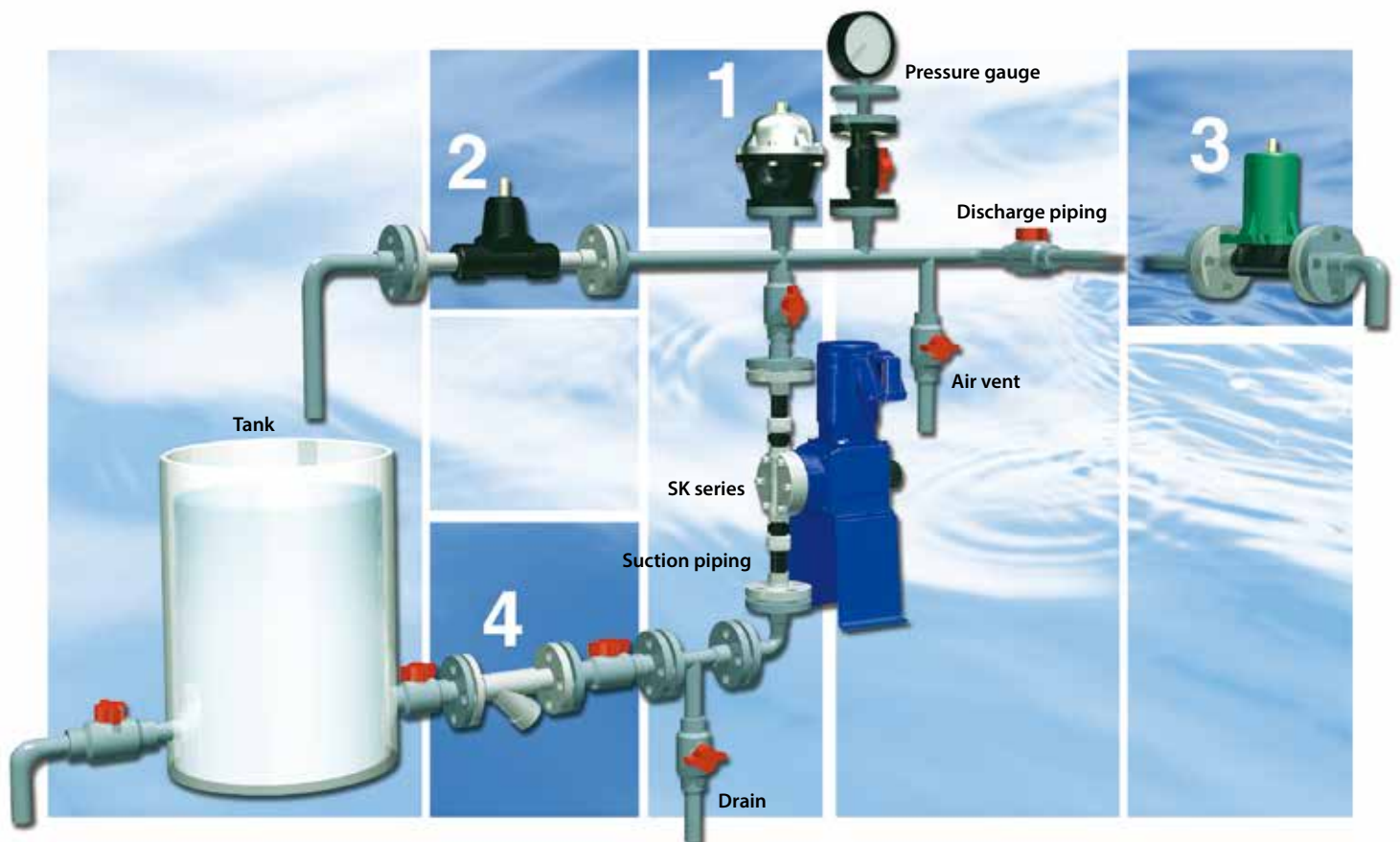
PVC type

### Tube flange



### Flow checker

Model FC



## Specifications of Optional Accessories

### Air chamber

Model	Material	Capacity L/min	Max. pressure MPa	Connection	
A-1V□	PVC	1.0	0.5	JIS10K15A-25A (Common)	Flange
A-05S6-15	SUS	0.5	0.9	JIS10K15A	
A-1S6-15		1.5			

### Back pressure valve

Model	Material	Flow rate range L/min	Set pressure MPa	Connection		
BV-1P□L-4H	PVC	0.005 - 1.0	0.05 - 0.2	Ø4×Ø9	Tube (PVC)	
BV-1P□-4H			0.2 - 0.8			
BV-1P□L-8H			0.05 - 0.2	Ø8×Ø13.5		
BV-1P□-8H			0.2 - 0.8			
BV-1P□L-12H			0.05 - 0.2	Ø12×Ø18		
BV-1P□-12H			0.2 - 0.8			
BV-3P□-12H		0.03 - 3.0	0.1 - 0.8	Ø12×Ø18		
BV-1P□L-4P		0.005 - 1.0	0.005 - 1.0	0.05 - 0.2	Ø4×Ø6	Tube (PE)
BV-1P□-4P				0.2 - 0.8		
BV-1P□L-9P				0.05 - 0.2	Ø9×Ø12	
BV-1P□-9P				0.2 - 0.8		
BV-1P□L-12P				0.05 - 0.2	Ø12×Ø16	
BV-3P□-12P	0.03 - 3.0			0.1 - 0.8		
BV-1P□L-15	0.005 - 1.0	0.005 - 1.0	0.05 - 0.2	JIS10K15A	Flange	
BV-1P□-15			0.2 - 0.8			
BV-3P-15			0.03 - 3.0			0.1 - 0.8
BV-1TVL-15	PVDF	0.005 - 1.0	0.05 - 0.2	JIS10K15A	Flange	
BV-1TV-15			0.2 - 0.8			
BV-3T□-15		0.000125 - 3.0	0.1 - 0.8			
BV-7T□-15		0.2 - 7.5	0.05 - 0.8			
BV-2S6-15	SUS	0.02 - 2.0	0.05 - 0.8	JIS10・16K15A	Flange	

### Relief valve

Model	Material	Max. capacity L/min	Set pressure MPa	Connection			
RV-1P□-4H	PVC	1.0	0.3 - 0.8	Ø4×Ø9	Tube (PVC)		
RV-1P□-8H				Ø8×Ø13.5			
RV-1P□-12H				Ø12×Ø18			
RV-3P□-12H				Ø12×Ø18			
RV-1P□-4P				Ø4×Ø6			
RV-1P□-9P				Ø9×Ø12			
RV-3P□-12P		Ø12×Ø16					
RV-1P□-15		1.0	0.3 - 0.8	0.8 - 1.0	JIS10K15A	Flange	
RV-1P□B-15							
RV-3P-15							
RV-1TV-15		PVDF	1.0	0.3 - 0.8	JIS10K15A	Flange	
RV-3T□-15							3.0
RV-7T□-15	7.5						
RV-2S6-15	SUS	2.0	0.3 - 0.8	JIS10・16K15A	Flange		
RV-2S6B-15						0.8 - 1.5	

### Tube flange

Model	Material	Tube connection	Material		
			Flange	Body	Rubber
15FX4 (4X9)	PVC	Ø4×Ø9	JIS10K15AFF	PVC	-
15HF□X8		Ø8×Ø13.5			FKM/EPDM
15HFX12		Ø12×Ø18			-
15FX4 (4X6)		Ø4×Ø6			FKM/EPDM
15HF□X9P		Ø9×Ø12			-
15HFX12P		Ø12×Ø16			-

#### Note

- : Symbol for material of O-Ring ("V" for FKM or "E" for EPDM)
- Material of diaphragm of RV/BV is PTFE except RV/BV-1P type used synthetic rubber.
- Rigid PVC chamber may be deteriorated by ultraviolet ray or the applied chemical liquid over a long period of time. The chamber should be replaced every three years to guarantee safety.

## Standard Accessories

- Pump installation bolt (SUS) × 4
- PVC tube of 4 m length, provided with PVC tube type only



Back pressure valve with check valve



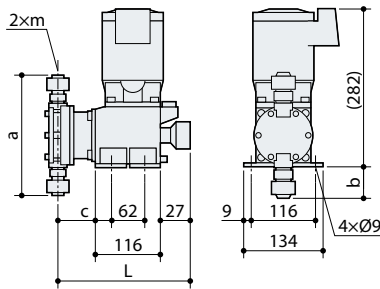
Strainer

Models	SK-11, 21, 22	SK-31, 32	SK-41, 42	Applicable pump
Pump installation bolt (SUS)	M8 × 25			All models
Back pressure valve with check valve	BVC-1P□L-4H	BVC-1P□L-8H	BVC-1P□L-12H	PVC tube type
Strainer	S-V4H	S-V8H	S-V12H	
PVC tube	Ø4 × Ø9 4m	Ø8 × Ø13.5 4m	Ø12 × Ø18 4m	
Back pressure valve with check valve	BVC-1P□L-4P	BVC-1P□L-9P	BVC-1P□L-12P	Polyethylene tube type
Strainer	S-V4P	S-V9P	S-V12P	

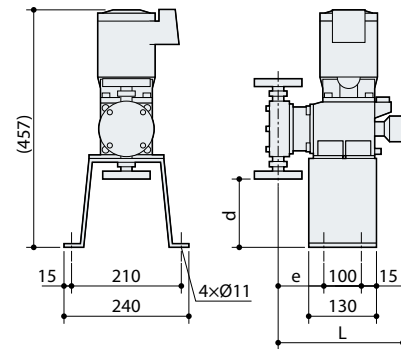
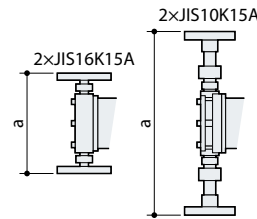
- : Symbol for material of O-Ring ("V" for FKM or "E" for EPDM)

### Dimensions in mm

#### Tube type



#### Flange type



Type	Tube type							Flange type											
	PVC							PVC, PVDF					SUS						
	a	b	c	d	e	L	m	a	b	c	d	e	L	a	b	c	d	e	L
SK-1	146	18	90	157	64	237	Note	256	73	90	102	64	237	186	38	88	137	62	234
SK-2	164	27	92	148	66	239		273	82	92	94	66	239	151	21	90	155	64	236
SK-3	199	44	96	131	70	244		309	99	96	76	70	244	168	29	96	146	70	244
SK-4	225	57	95	118	69			335	112	95	63	69		184	37		138		

Note : Refer to the specifications table for "m" dimension (connection). For the dimension of stainless steel type, please contact IWAKI.

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