

IWAKI  
METERING  
PUMPS

**SK**



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

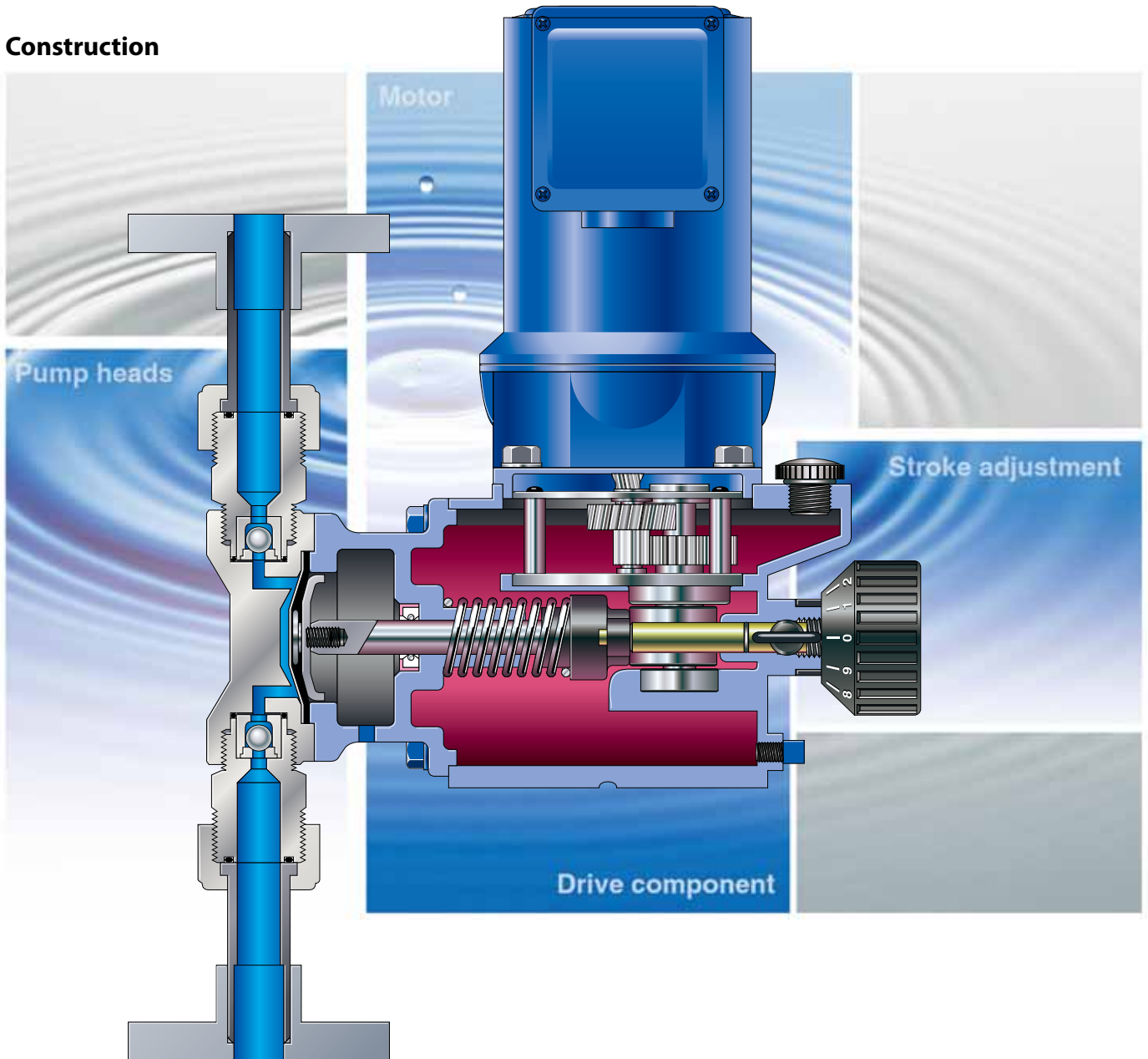


Tube type

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: SK-S type for the original motor and SK-E type for IEC motor. SK-S type motors come in two models: a 65W 3 phase outdoor use and single phase indoor use. An IEC motor can be set up. (SK-E type driving unit)

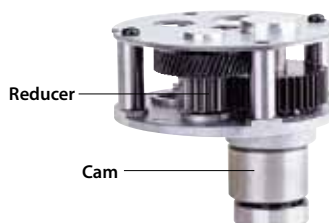


With IEC motor

### Drive component

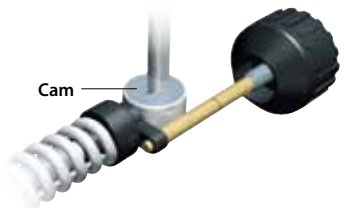
Driving unit components including the reducer, cam, etc., are built in a small but rigid sealed housing made of diecast. Oil bath lubrication is employed inside the driving unit.

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



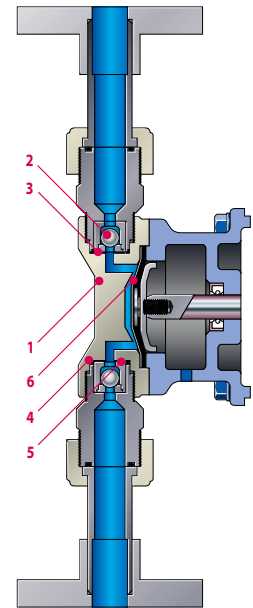
### Stroke adjustment

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

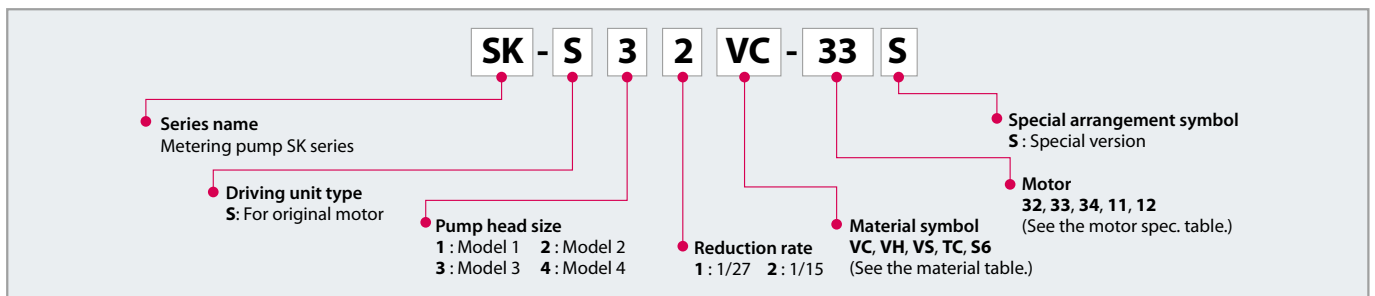


### Wet-end materials

|                         | PVC type  |  |   | PVDF type                                     | SUS type                  |
|-------------------------|---|--|---|---|---------------------------|
|                         | VC  | VH   | 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   | HC   | HC  | Ceramic                                       | HC                        |
| 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           |
| <b>Material symbols</b> |   |  |   |   |                           |
| PVC                     | : Vinyl chloride resin                                  | HC   | : Hastelloy C276                            | PTFE  | : Polytetrafluoroethylene |
| PVDF                    | : Vinylidene fluoride resin                             | FKM  | : Fluoro rubber                             |   |                           |
| SUS                     | : Stainless steel                                       | EPDM                                       | : Ethylene propylene rubber                 |   |                           |



### Pump identification



### Specifications

| Pump model | Discharge L/min |       | Max. discharge pressure MPa |     | Stroke speed spm |      | 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   | 15A JIS10K<br><br>JIS16K<br>in the case of SUS | ø4 x ø9                   | ø4 x ø6        | 65         | 8                         | 10        |
| SK-21      | 0.055           | 0.066 | 1.0                         | 1.5 | 53               | 64   |  |                           |                |            | 9                         |           |
| SK-22      | 0.10            | 0.12  | 1.0                         | 1.5 | 96               | 116  |  | ø8 x ø13.5<br>or ø8 x ø14 | ø9 x ø12       |            | 9                         | 11        |
| SK-31      | 0.26            | 0.31  | 0.4                         | 1.0 | 53               | 64   |  |                           |                |            | ø12 x ø18<br>or ø13 x ø20 | ø12 x ø16 |
| SK-32      | 0.46            | 0.55  | 0.4                         | 0.7 | 96               | 116  |  |                           |                |            |                           |           |
| SK-41      | 0.61            | 0.73  | 0.5                         | 0.5 | 53               | 64   |  |                           |                |            |                           |           |
| 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



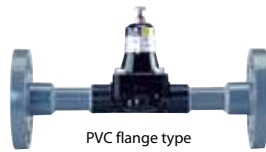
PVC type



SUS type

### 2. Relief valve

Model RV



PVC flange type



PVC tube type

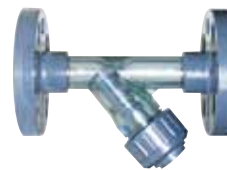
### 3. Back pressure valve

Model BV



PVC flange type

### 4. Y-shaped strainer



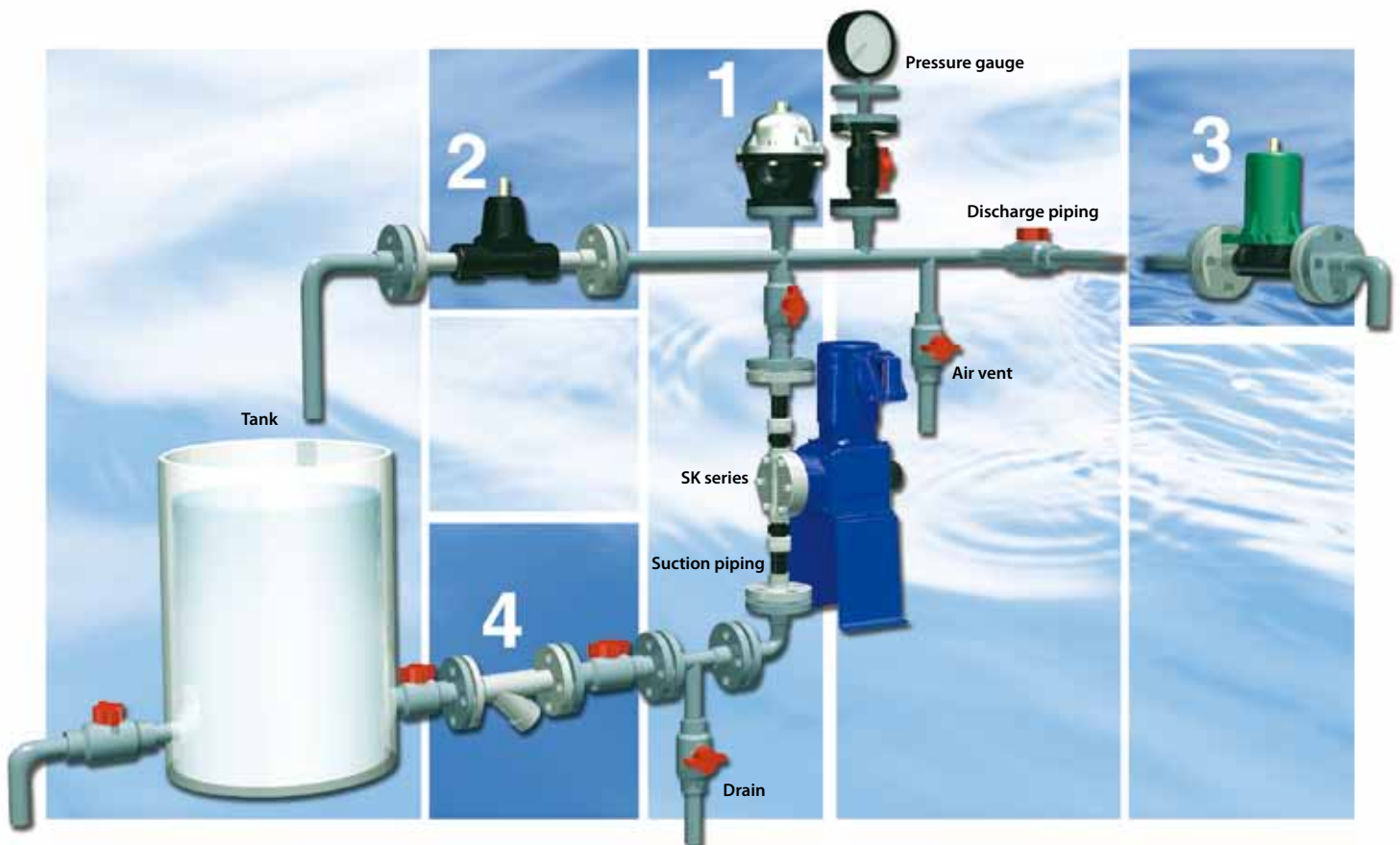
PVC type

### Tube flange



### Flow checker

Model FC



## Specifications of optional accessories

### Air chamber

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

### Back pressure valve

| Material | Model      | Max. capacity L/min | Setting pressure MPa | Connection |            |
|----------|------------|---------------------|----------------------|------------|------------|
| PVC      | BV-1P□L-4H | 1.0                 | 0.05 - 0.3           | ø4 X ø9    | Tube (PVC) |
|          | BV-1P□-4H  | 1.0                 | 0.3 - 0.8            | ø4 X ø9    |            |
|          | BV-1P□L-8H | 1.0                 | 0.05 - 0.3           | ø8 X ø13.5 |            |
|          | BV-1P□-8H  | 1.0                 | 0.3 - 0.8            | ø8 X ø13.5 |            |
|          | BV-3P□-12H | 3.0                 | 0.1 - 0.8            | ø12 X ø18  | Tube (PE)  |
|          | BV-1P□L-4P | 1.0                 | 0.05 - 0.3           | ø4 X ø6    |            |
|          | BV-1P□-4P  | 1.0                 | 0.3 - 0.8            | ø4 X ø6    |            |
|          | BV-1P□L-9P | 1.0                 | 0.05 - 0.3           | ø9 X ø12   |            |
|          | BV-1P□-9P  | 1.0                 | 0.3 - 0.8            | ø9 X ø12   |            |
|          | BV-3P□-12P | 3.0                 | 0.1 - 0.8            | ø12 X ø16  |            |
|          | BV-1P□L-15 | 1.0                 | 0.05 - 0.3           | JIS10K15A  |            |
|          | BV-1P□-15  | 1.0                 | 0.3 - 0.8            | JIS10K15A  |            |
| BV-3P-15 | 3.0        | 0.1 - 0.8           | JIS10K15A            | Flange     |            |
| SUS      | BV-2S6-15  | 2.0                 | 0.05 - 0.8           |            | JIS10K15A  |
| PVDF     | BV-1TV-15  | 1.0                 | 0.05 - 0.8           | JIS10K15A  |            |
|          | BV-7T□-15  | 7.0                 | 0.05 - 0.8           | JIS10K15A  |            |

### Relief valve

| Material   | Model      | Max. capacity L/min | Setting pressure MPa | Connection |            |
|------------|------------|---------------------|----------------------|------------|------------|
| PVC        | RV-1P□-4H  | 1.0                 | 0.3 - 0.8            | ø4 X ø9    | Tube (PVC) |
|            | RV-1P□-8H  | 1.0                 | 0.3 - 0.8            | ø8 X ø13.5 |            |
|            | RV-3P□-12H | 3.0                 | 0.1 - 0.3            | ø12 X ø18  |            |
|            | RV-1P□-4P  | 1.0                 | 0.3 - 0.8            | ø4 X ø6    | Tube (PE)  |
|            | RV-1P□-9P  | 1.0                 | 0.3 - 0.8            | ø9 X ø12   |            |
|            | RV-3P□-12P | 3.0                 | 0.1 - 0.3            | ø12 X ø16  |            |
|            | RV-1P□-15  | 1.0                 | 0.3 - 0.8            | JIS10K15A  |            |
| RV-3P-15   | 3.0        | 0.1 - 0.3           | JIS10K15A            | Flange     |            |
| SUS        | RV-2S6-15  | 2.0                 | 0.3 - 0.8            |            | JIS10K15A  |
| RV-2S6B-15 | 2.0        | 0.8 - 1.5           | JIS16K15A            |            |            |
| PVDF       | RV-1TV-15  | 1.0                 | 0.3 - 0.8            | JIS10K15A  |            |
|            | RV-7T□-15  | 7.5                 | 0.3 - 0.8            | JIS10K15A  |            |

### Tube flange

| Material | Model           | Connection |
|----------|-----------------|------------|
| PVC      | 15F X 4 (4 X 9) | ø4 X ø9    |
|          | 15HF□X 8        | ø8 X ø13.5 |
|          | 15HF X 12       | ø12 X ø18  |
|          | 15F X 4 (4 X 6) | ø4 X ø6    |
|          | 15HF□X 9P       | ø9 X ø12   |
|          | 15HF X 12P      | ø12 X 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.
- Symbol of tube size  
8H: PVC tube ø8 X ø13.5 12H: PVC tube ø12 X ø18 13E: PVC tube ø13 X ø20 9P: PE tube ø9 X ø12 12P: PE tube ø12 X ø16

## Standard accessories



Back pressure valve  
with check valve



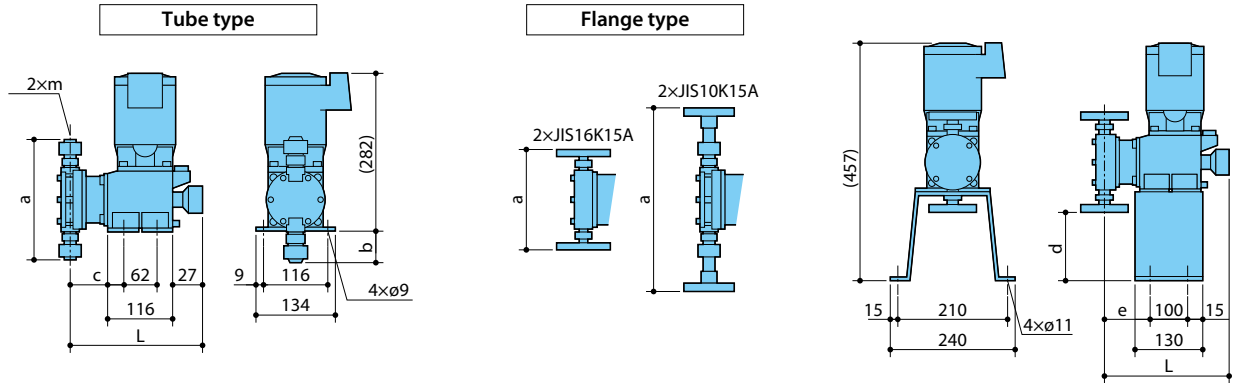
Strainer

- Pump installation bolt (SUS) X 4
- PVC tube of 4 m length, provided with PVC tube type only
- Standard accessories is not available for SK-E except installation bolts.

| Models                               | SK-11, 21, 22 | SK-31, 32     | SK-41, 42    | Applicable pump        |
|--------------------------------------|---------------|---------------|--------------|------------------------|
| Pump installation bolt (SUS)         |               | M8 X 25L X 4  |              | 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 X ø9 4m    | ø8 X ø13.5 4m | ø12 X ø18 4m | Polyethylene tube type |
| Back pressure valve with check valve | BVC-1P□L-4P   | BVC-1P□L-9P   | BVC-1P□L-12P |                        |
| Strainer                             | S-V4P         | S-V9P         | S-V12P       |                        |

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

Dimensions in mm



| Type | Tube type |    |    |     |    |     | Flange type |     |    |     |    |     |     |    |    |     |    |     |
|------|-----------|----|----|-----|----|-----|-------------|-----|----|-----|----|-----|-----|----|----|-----|----|-----|
|      | PVC       |    |    |     |    |     | PVC,PVDF    |     |    |     |    | SUS |     |    |    |     |    |     |
|      | a         | b  | c  | d   | e  | L   | a           | b   | c  | d   | e  | L   | a   | b  | c  | d   | e  | L   |
| SK-1 | 146       | 18 | 90 | 157 | 64 | 237 | 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 | 244 | 335         | 112 | 95 | 63  | 69 | 244 | 184 | 37 | 96 | 138 | 70 | 244 |

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

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**Caution for safety use:**  
 Before use of pump, read instruction manual carefully to use the product correctly.

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 Specifications and dimensions are subject to change without prior notice.  
 For further details please contact us.

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