MODEL ST-10
STRAINER
PRODUCT MANUAL

Thank you very much for choosing the Yoshitake's product. To ensure the correct and safe use of the product, please read this manual before use. This manual shall be kept with care for future references.
The symbols used in this manual have the following meanings.

Warning	This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
Caution	This symbol indicates a hazardous situation that, if not avoided, may result in minor or moderate injury or may result in only property damage.

Table of Contents

YOSHITAKE

1. Usage of the Product

The ST-10 strainer is used for dust removal in piping.

2. Specifications

Model		ST-10
Nominal size		125-250A *1
Application		Cold and hot water, Oil (Kerosene, Heavy oils A and B), Other non-dangerous fluids
Maximum working pressure		1.0 MPa
Maximum temperature		80°C
Connection		JIS 10K FF flanged
Installation posture		Horizontal or vertical installation *2
Material	Body	Ductile cast iron
	Screen	Stainless steel
Connection	Perforation	ϕ 8-10P
	Mesh	Standard 60 mesh *3
Rust proof		Electrodeposition coating

*1 Available with davit for 250A.

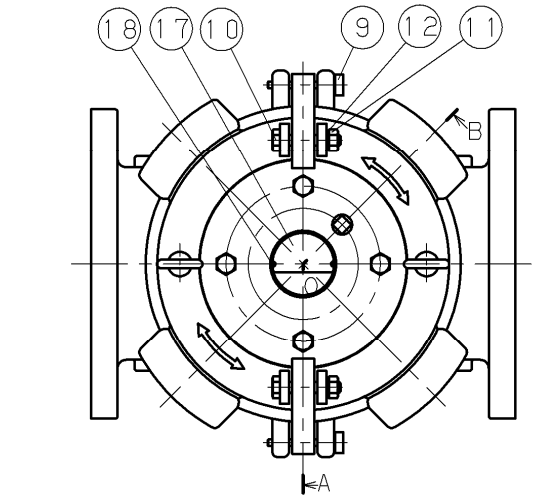
*2 If fluid flows from bottom to top, it is necessary to install devices such as blow valve. See details in “5.1 Piping Example” on Page 4.

*3 Available with 20, 40, 80 and 100 mesh.

Caution	Please confirm that the indications on the product correspond with the specifications of the ordered product model before use. * If they are different, please contact us without using the product.

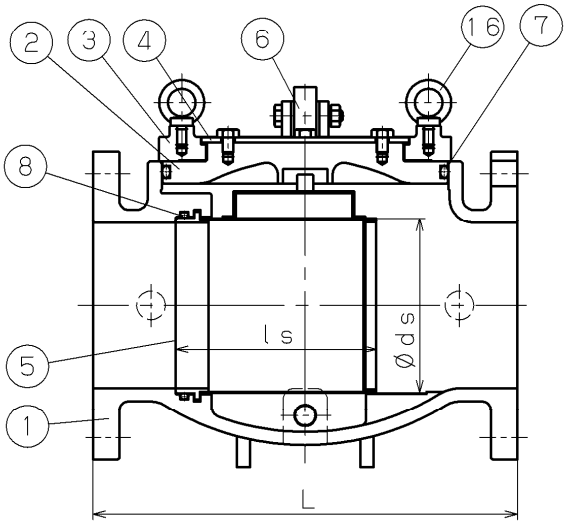
3. Dimensions and Weights

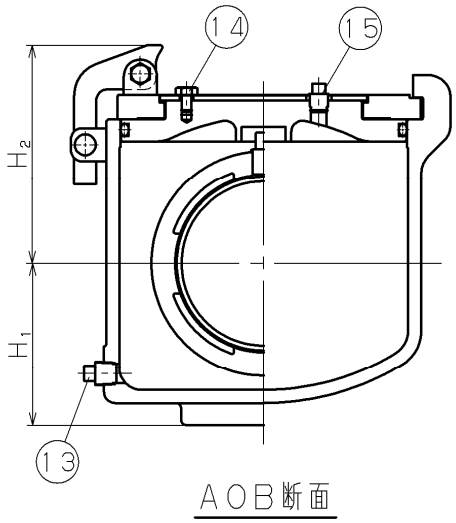
・125～200A



No.	Parts name	No.	Parts name
1	Body	10	Bolt
2	Cover	11	Nut
3	Stopper ring	12	Spring washer
4	Cover plate	13	Plug
5	Screen	14	Bolt
6	Handle	15	Plug
7	O-ring	16	Eye bolt
8	O-ring	17	Name plate
9	Thumbscrew	18	Rivet

* Eye bolt [16] is available only for 150 to 250A.



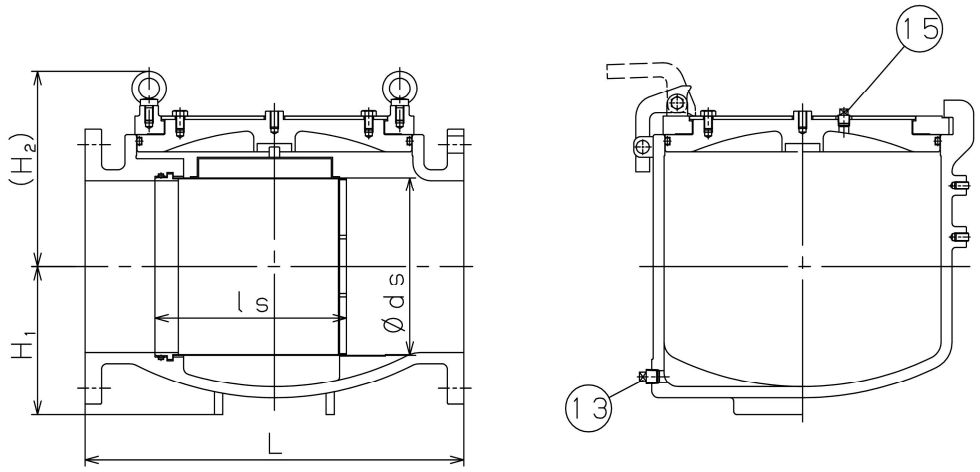


AOB Cross-sectional view

(mm)

Nominal size	L	H_1	H_2	Screen		Plug [13]	Plug [15]	Weight (kg)
				ds	Ls			
125A	335	132	179.5	133	154.5	R1/2	R3/8	42
150A	385	147	198	158	182	R1/2	R3/8	60
200A	470	175	233	208	228	R1/2	R3/8	100

・250A

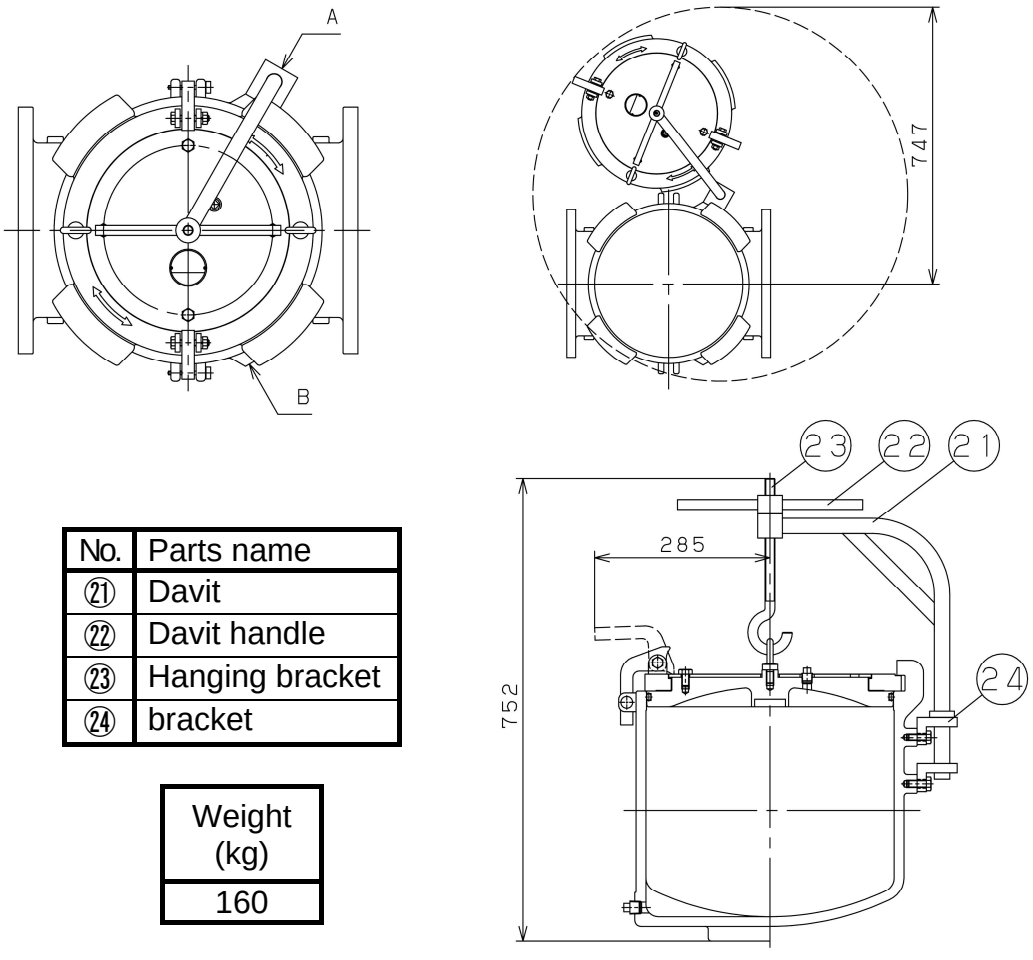


(mm)

Nominal size	L	H_1	H_2	Screen		Plug [13]	Plug [15]	Weight (kg)
				ds	ls			
250A	550	215	285	258	278	R1/2	R3/8	156

・250A with Davit

※Davit mounting position A or B is optional.



No.	Parts name
㉑	Davit
㉒	Davit handle
㉓	Hanging bracket
㉔	bracket

Weight (kg)
160

4. Nominal Size Selection

Select a strainer of the same nominal size as that of the pipe (nominal size of piping = nominal size of strainer). Note that using a strainer of a smaller nominal size increases the pressure loss of the strainer and may result in the pressure fallen below the specified level at the inlet side of the equipment (see Fig. 1 “Pressure Loss Chart”).

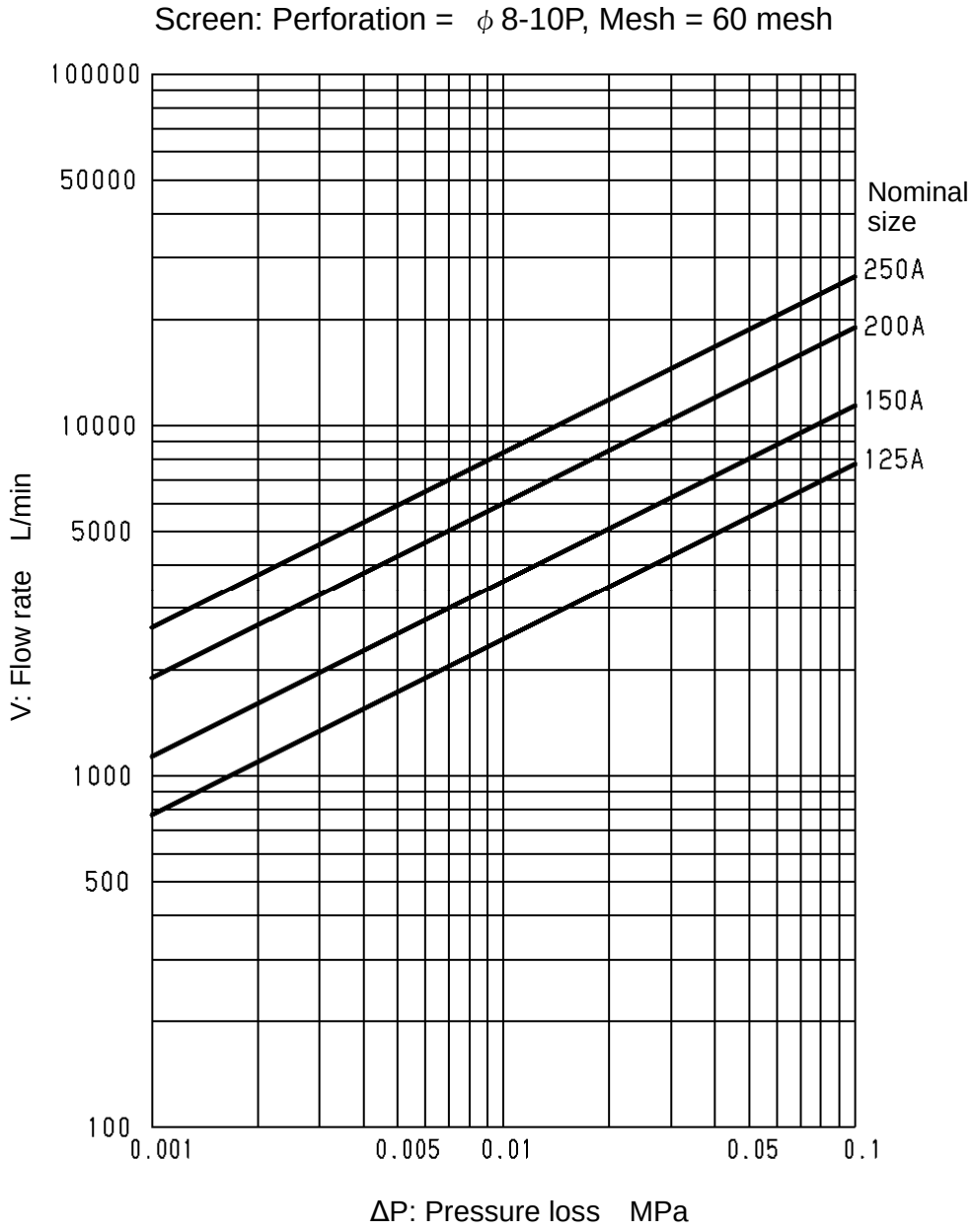


Fig.1 Pressure Loss Chart (For Water)

As a reference, the standard flow velocity is specified in the Japanese Industrial Standards (JIS) as a guide to select an appropriate nominal pipe size. See the following table.

Standard flow velocity

Fluid	Standard Flow Velocity
Water, Oil	2 m/s (2-4)

* The above table is based on the requirements in JIS F 7101:2002 “Shipbuilding - Pipes of machinery - standard velocity of flow”.

5. Installation

5.1 Piping Example

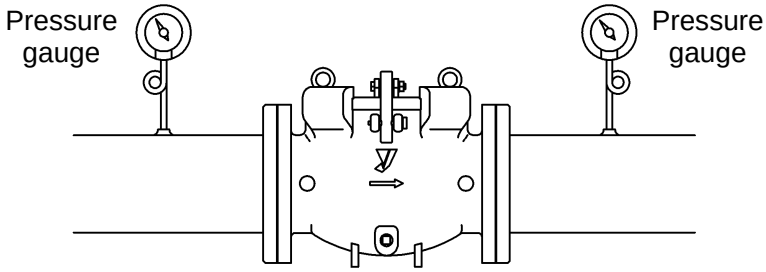


Fig. 2

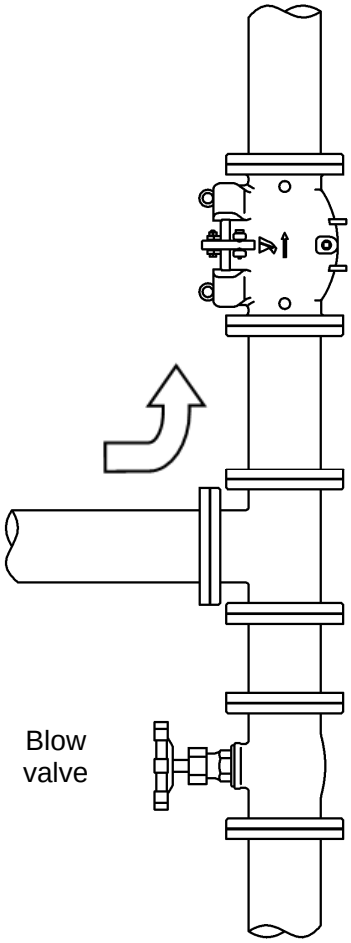


Table 1. Weight of Cover Set

Size	Weight (kg)
125A	12
150A	17
200A	28
250A	41

Fig. 3

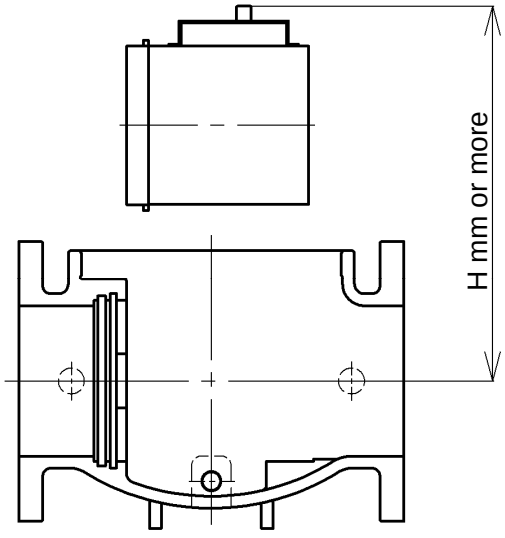
1. Clogging condition inside the product can be known from the differential pressure measured when pressure gauges are installed before and after the product (see Fig. 2).
2. If fluid flows from bottom to top, install a blow valve in order to remove scale accumulated at the bottom of riser pipe (see Fig. 3).

5.2 Precaution for Installation

Warning	Since the product is heavy, securely support it with lifting devices or the like while installing. See the product weight specified in “3. Dimensions and Weights” on Page 2. * Failure to follow this notice may cause falling accident of the product, resulting in bodily injury.

Caution

1. When installing, check the direction of the product so that the fluid flowing and the arrow marked on the product are in the same direction.
   * Setting the product in wrong directions keeps the product from functioning properly.
2. Make sure to support pipes and to secure the product firmly.
   * If an excessive piping stress is applied, the product may be deformed.
3. When installing, secure the space required for maintenance or inspection (cleaning of the screen) as shown in Fig. 4.
   * Failure to follow this notice hampers maintenance and inspection (cleaning of the screen).
4. Do not apply excessive load, torque or vibration to the product.
   * Failure to follow this notice may result in fluid leakage.
5. Connect the product to the pipes securely.
   * Improper connecting may cause fluid leakage from the pipes when vibration is applied to them, resulting in property damage.



Nominal size	H
125A	330
150A	380
200A	470
250A	560

Fig. 4 Space required for maintenance and inspection

6. Operation

6.1 Precaution for Operation

Warning	Before letting the fluid into the product, make sure that there is no danger when the fluid flows at the ends of piping. * The hot fluid, if spouted out, may scald your skin.

Caution	Use the product under a maximum pressure loss of 0.1 MPa or less. Periodically clean the screen. * The screen may be broken.

7. Maintenance

7.1 Troubleshooting

Trouble	Cause	Remedy
Fluid does not flow.	1. The screen [5] is clogged.	1. Disassemble the product and clean the screen [5].
	2. Stop valves before or after the product are closed.	2. Open the stop valves.
Excessive pressure loss.	1. The screen [5] is clogged.	1. Disassemble the product and clean the screen [5].
	2. Pressure gauge is out of order.	2. Replace the pressure gauge with a new one.
	3. Nominal size of the product is too small for the flow rate.	3. Replace the product with a new one proper for the flow rate (see Fig. 1 “Pressure Loss Chart” on Page 3).
Foreign substances are not removed.	1. The screen [5] is damaged.	1. Disassemble the product and replace the screen [5] with a new one.
	2. The O-ring [8] is damaged.	2. Replace the O-ring [8] with a new one.
When replacing the screen [5], the stopper ring [3] is not rotated.	1. There is residual pressure in the product.	1. Completely remove the pressure in the product.
	2. The body [1] and the stopper ring [3] stick to each other.	2. Detach the stopper ring [3] with reference to “7.3 How to Detach/Clean the Screen” on Page 7.
When replacing the screen [5], the cover [2] does not come off.	1. There is negative pressure in the product.	1. When removing the plug [15], break negative pressure in the piping and detach the cover [2].
	2. The cover [2] and the body [1] stick to each other.	2. Detach the cover [2] with reference to “7.3 How to Detach/Clean the Screen” on Page 7.
Outside leakage.	1. The O-ring [7] is damaged.	1. Replace the O-ring [7] with a new one.
	2. The cover [2] is not installed properly.	2. Install the cover [2] with reference to “7.4 Reassembly” on Page 9.

7.2 Daily and Periodic Inspections

Conduct daily and periodic inspection in order to maintain optimum performance of the product.

- Daily inspection (once a day)

Item	How to inspect	When abnormality is found
Clogging of the screen [5].	Check that pressure loss is 1.0 MPa or less by using a pressure gauge.	Disassemble the product and clean or replace the screen [5].
Outside leakage.	Check the product visually.	See “7.1 Troubleshoothing”.

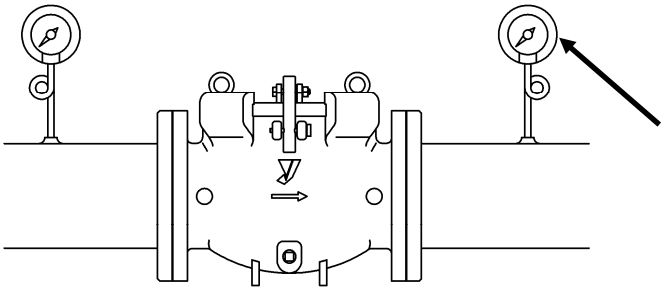
- Periodic inspection (once a year: Add the following item to the above daily inspection items)

Item	How to inspect	When abnormality is found
Clogging of the screen [5].	Disassemble the product and check the screen [5] visually.	Clean or replace the screen [5].

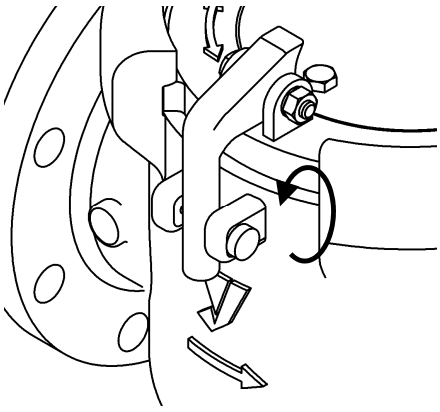
7.3 How to Detach/Clean the Screen

Warning	Completely discharge the pressure inside of the product, piping and equipment prior to detaching the screen. When fluid is hot, cool down the product. * Failure to follow this notice may result in scalds or injury due to the residual pressure.

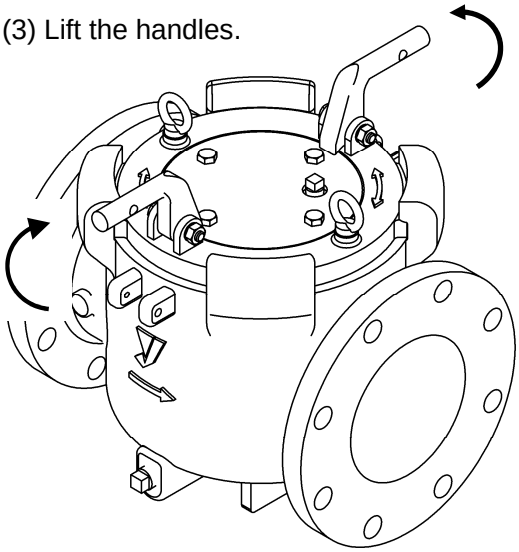
(1) Check that the internal pressure is completely discharged.



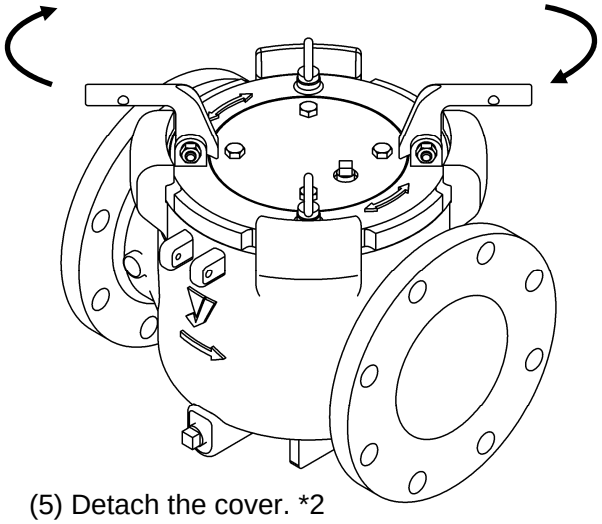
(2) Remove the thumbscrew.



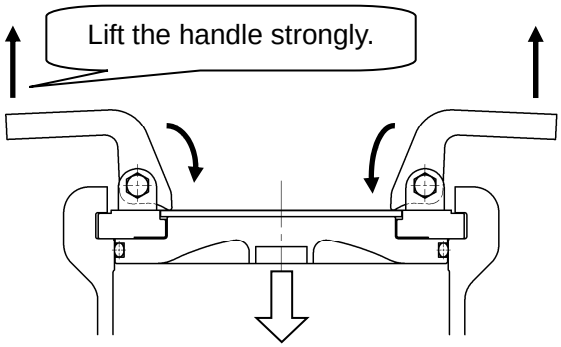
(3) Lift the handles.



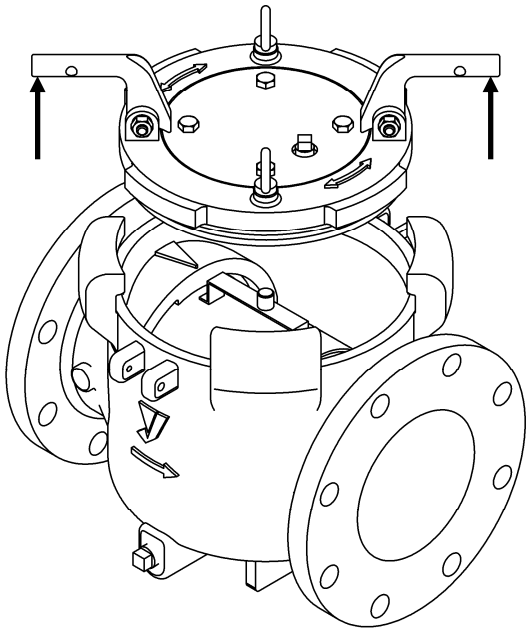
(4) Grab the handles, rotate the stopper ring by 45°. *1



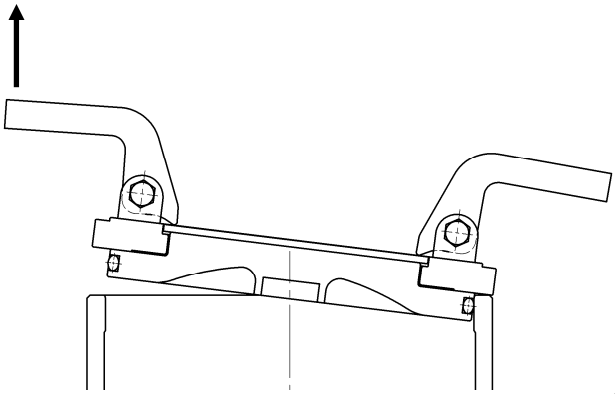
*1 If the stopper ring is not turned smoothly, lift the handle strongly.
The cover is pushed down and the stopper ring can be turned smoothly.



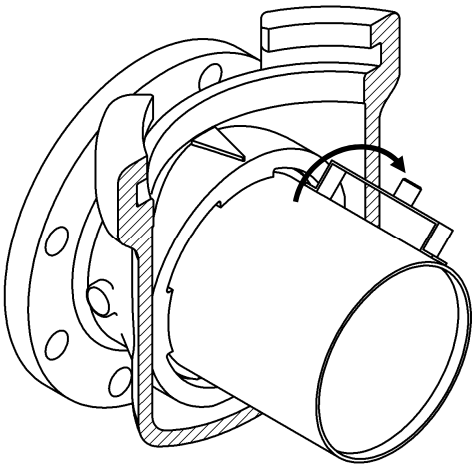
(5) Detach the cover. *2



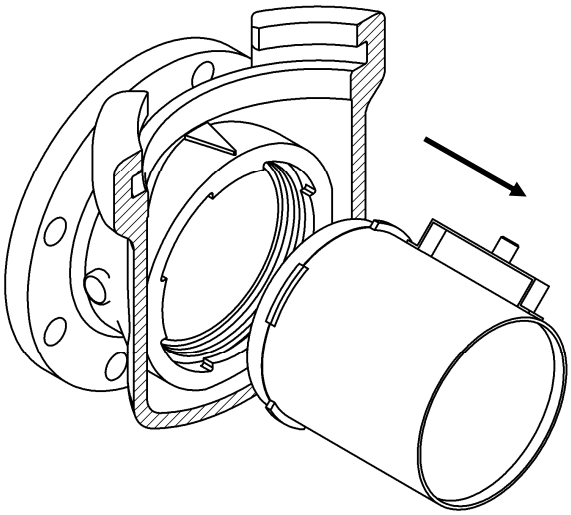
*2 To remove the cover, do not lift the both handles at the same time but lift them one by one. This will reduce the resistance of the O-ring and facilitate removal of the cover.



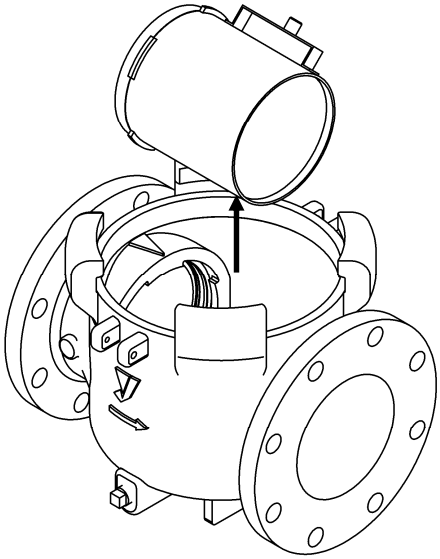
(6) Rotate the screen by 45°.



(7) Pull out the screen.



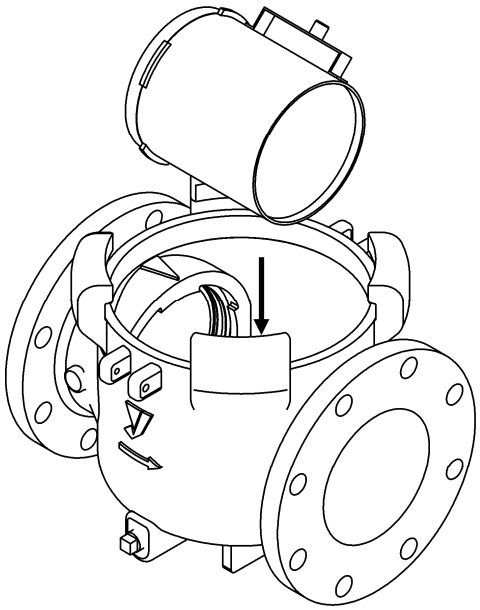
(8) Detach the screen.
Clean the screen using compressed air or a detergent.



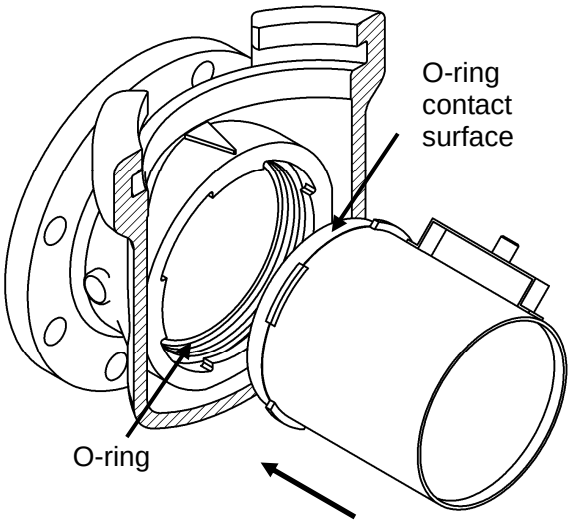
7.4 Reassembly

⚠ Caution
1. Clean the O-ring and its contact surface to remove foreign substances. * Residual foreign substances may cause outside leakage. 2. Apply grease to the O-ring or its contact surface after wiping the old grease (recommended grease: G-501 by Shin-Etsu Chemical Co., Ltd.). * Failure to follow this notice may cause the O-ring to be damaged. 3. If the screen is deformed or damaged, replace it with a new one. * Failure to follow this notice may keep the product from functioning properly. 4. If the O-ring is damaged or deteriorated, replace it with a new one. * Failure to follow this notice may cause outside leakage. 5. Watch your fingers not to be caught between the body and the cover when installing the cover.

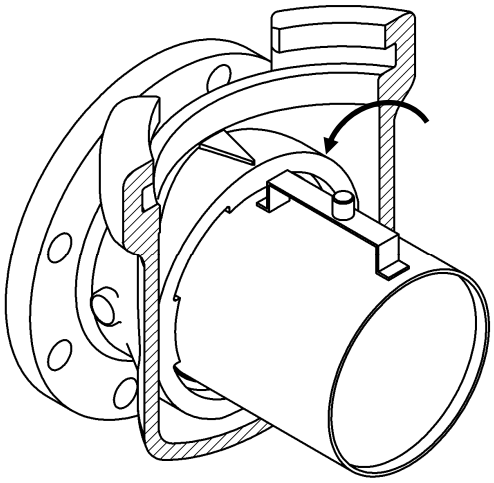
(1) Put the screen into the body.



(2) Insert the tabs of the screen between the grooves on the body. At this time, wipe the old grease and apply new grease to the O-ring or its contact surface.

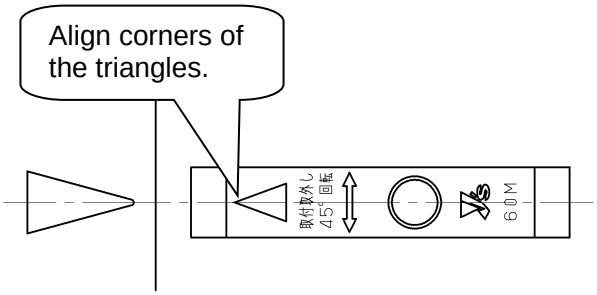


(3) Rotate the screen by 45°. *3

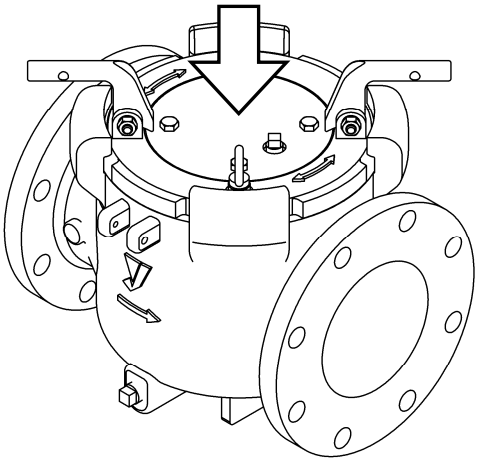


Caution

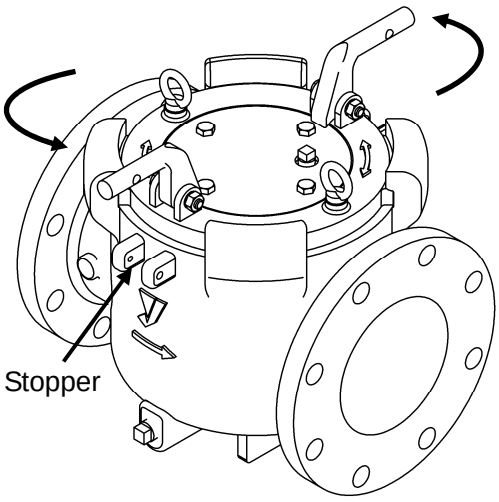
*3 Rotate the screen until the top (left) corner of the triangle embossed on the body is aligned with the top (right) corner of the triangle printed on the screen handle.
If these triangles are not aligned with each other, the screen may come off during use.



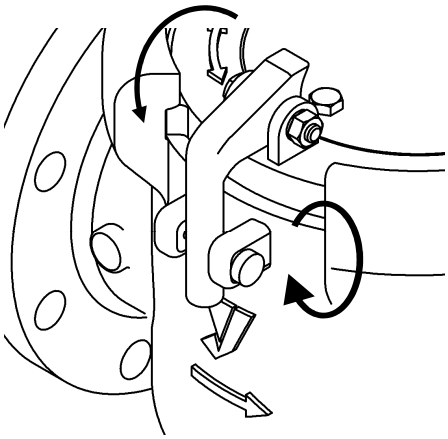
(4) Install the cover to the body.
Push in the cover strongly until the stopper ring tab comes in contact with the body.
At this time, wipe the old grease and apply new grease to the O-ring or its contact surface.



(5) Rotate the stopper ring until each handle reaches the stopper.



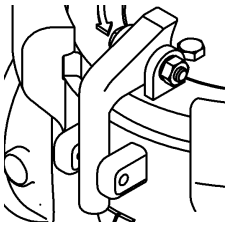
(6) Lower each of the handles between the stopper and install the thumbscrew. *4



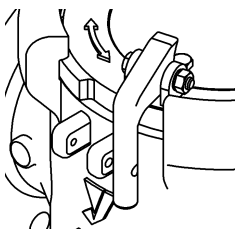
Warning

*4 Before using the product, make sure to lower each of the handles between the stopper and install the thumbscrew.
It is very dangerous to use the product in the following conditions. Failure to follow this notice may cause the cover to come off.

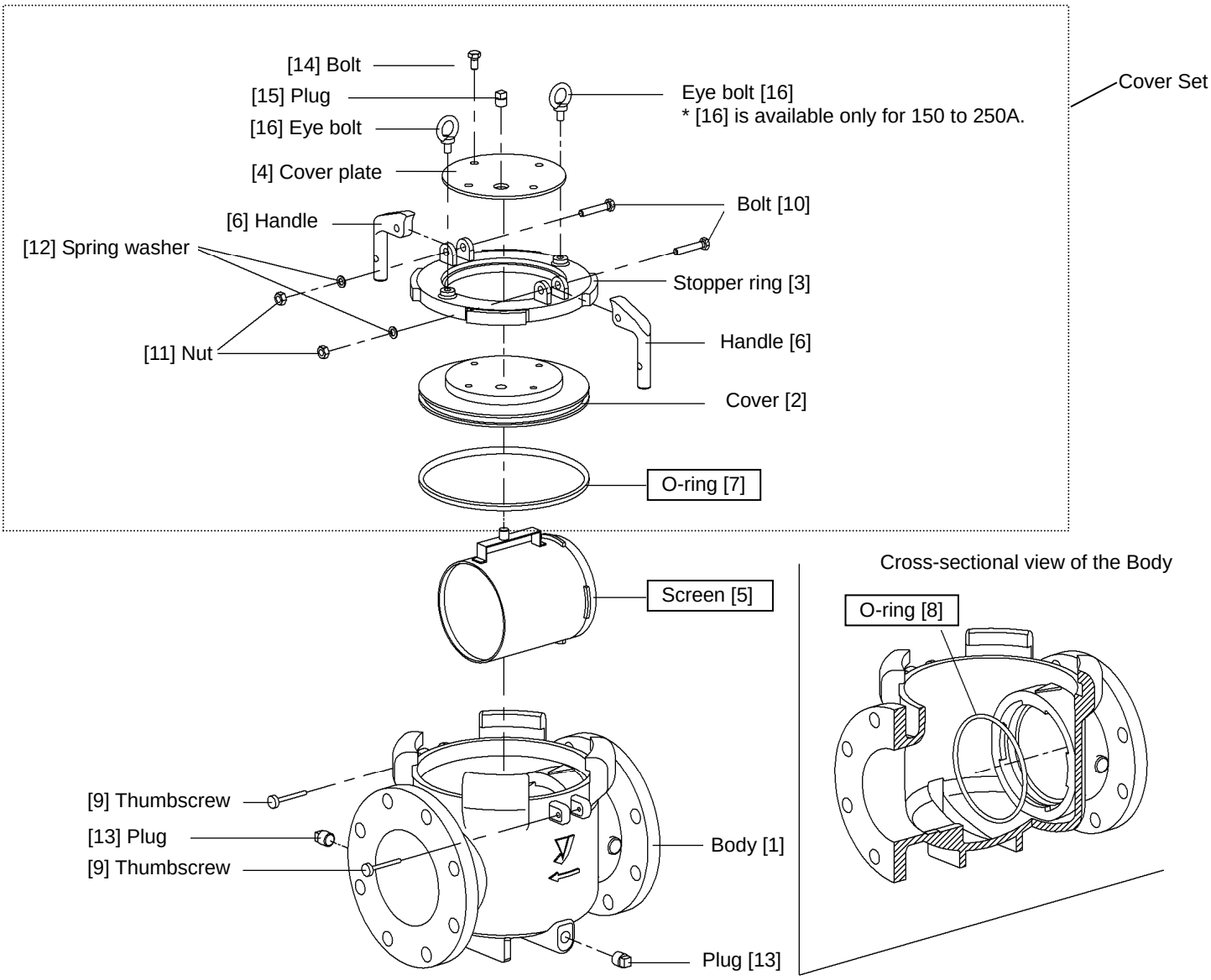
NG The handle is not engaged with the stopper by the thumbscrew.



NG The handle is not between the stopper.



7.5 Exploded View



- The parts shown in the rectangle boxes are available as consumable supply.

  For service life of each product, see the following table. (Due to the differences on the using environments, the service life listed on table below is only reference)

No.	Parts name	Service life (reference)
7	O-ring	3 years
8	O-ring	3 years
5	Screen	5 years