

Models SU-50/50H/50S

Strainer

Instruction Manual

Thank you for purchasing the Yoshitake product. It is important that you carefully read through this manual before using it. Keep this manual in convenient place so you can refer to it as you need.

----- Please note the following caution icons and conventions used in this manual. -----

Warning

This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It is also used to alert against property damage.

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Purpose

This product is mainly used for removing dust from cooling and industrial water.

1. Specifications

Model		SU-50H	SU-50	SU-50S
Nominal Size		50A, 65A, 80A, 100A, 150A		
Applicable Fluids		Cold and hot water, Oil, Other non-dangerous fluids		
Maximum Pressure		2.0 MPa	1.0 MPa	
Applicable Temperature		80°C		
Connection		JIS 20KRF Flange	JIS 10KFF Flange	
Material	Body	Ductile Cast Iron		
	Screen	Stainless Steel		
Screen	Perforation	$\phi 6 - 1.42 \text{ holes/cm}^2$		
	Mesh	Standard 60 mesh		

※ We can customize 20~250 mesh net strainers upon request.

⚠ Cautions

(1) Please confirm that the indications on the product plate coincide with the specifications of the ordered model. Also confirm that the conditions for usage coincide with the Specifications (in the chart above).

※ In case they do not coincide, do not use the product and contact us.

2. Structure, Dimensions, and Weight

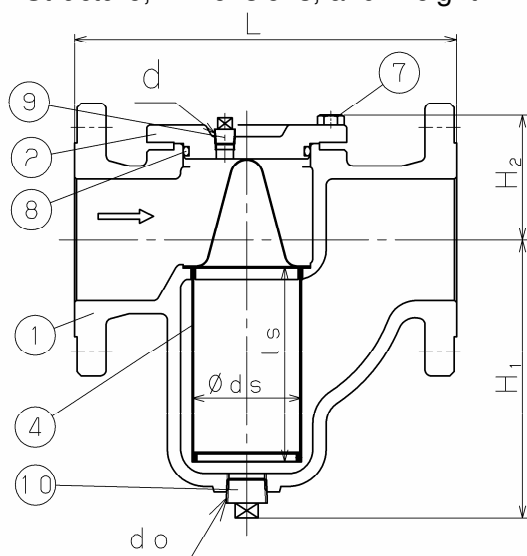


Fig.1 Model SU-50·50H

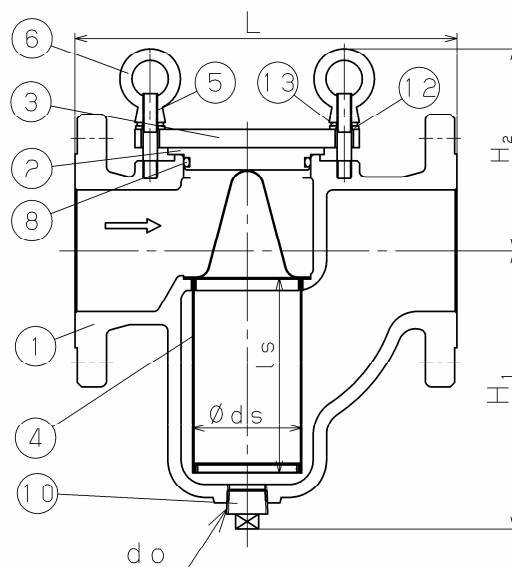


Fig.2 Models SU-50S

Chart 1 Name of Parts

No.	Part	No.	Part	No.	Part
1	Body	7	Bolts	13	Spring Washers
2	Cover	8	O-Ring	14	Plate
3	Arms	9	Plug		
4	Screen	10	Plug		
5	Stud Bolts	11	Screws		
6	Eye Nuts	12	Plain Washers		

Alien matter contained in the fluid entered from the strainer inlet is removed by screen④.

Chart 2 Dimensions & Weight (mm)

Nominal Size	L	H ₁	H ₂		ds	ls	d	do	Weight (kg)	
			SU-50·50H	SU-50S					SU-50·50H	SU-50S
50A	243	166	88	140	64.5	108	R1/4	R3/4	13.0	13.0
65A	254	166	88	140	64.5	108	R1/4	R3/4	15.0	15.0
80A	300	204	98	163	77	140	R3/8	R1	20.0	20.0
100A	315	230	103	166.5	90	160	R3/8	R1	29.0	28.0
150A	455	385	137	211	140	270	R3/8	R1-1/2	73.5	72.0

3. Selection of nominal size

The nominal size of the strainer should be the same as that for the piping. (Nominal size of piping = Nominal size of strainer). Please note that if the nominal size of the strainer is smaller than that for the piping, the pressure loss of the strainer may grow, resulting in failure to maintain the required pressure at the inlet of the strainer. (See Fig.3: Loss of Pressure.)

The Japan Industrial Standards (JIS) designates the standard flow velocity for piping by type and features of the fluid and pipe size. Please refer to this in selecting the appropriate nominal size of the strainer.

Chart 3 Standard flow velocity by fluid

Fluid	Standard flow speed
Water & Oil	2 m/s (2~4)

※The standard flow velocity in this chart have been calculated based on the requirements in JIS F 7101(Pipes of Ship's Machinery: Standard Velocity of Flow, 1999).

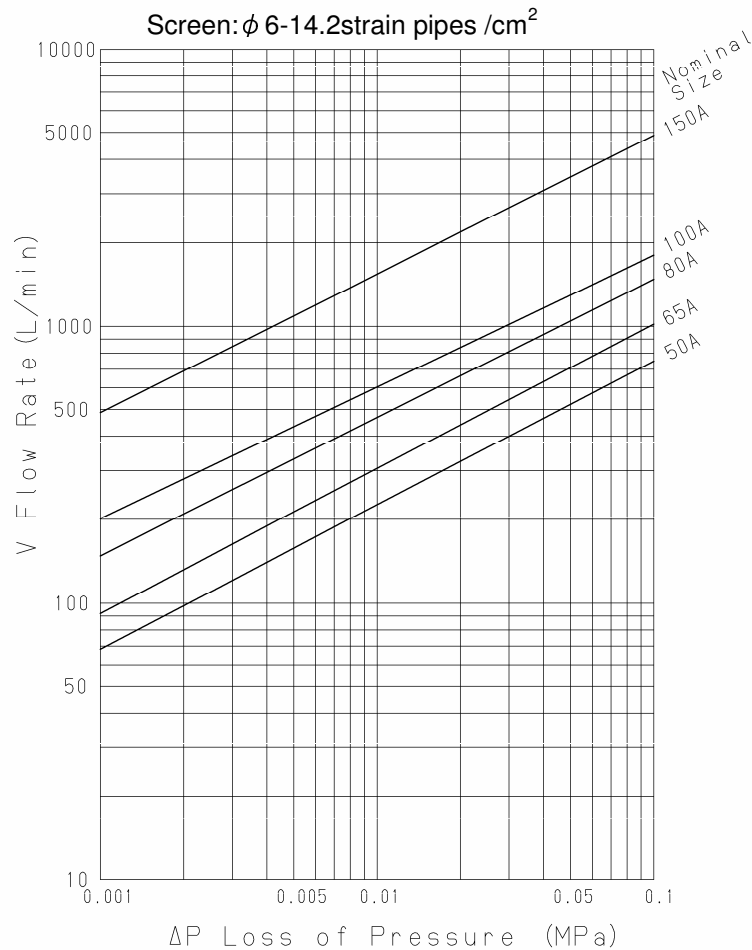


Fig. 3 Loss of Pressure (Fluid : Water)

4. Installation

4.1 Example of piping

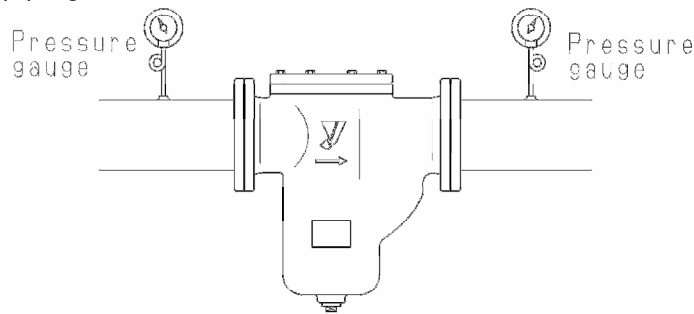


Fig.4 Example of Piping

- (1) Installation of pressure gauges at either end of the strainer will enable you to tell the clogging condition of the strainer by looking at the loss of pressure.
- (2) Upon installation, make sure that cover② comes at the top.
- (3) If you are using the strainer outdoors, please coat the strainer for rust prevention.

4.2 Warning and cautions upon installation

⚠ Warning

- (1) As this product is heavy, please use a hanging device to securely support the product upon connection to the piping. For hanging Models SU-50S and , you may use eye nuts⑥. (Please refer to Chart 2 for the weight of each product.)
※Please note that falling of the product can result in injuries.

⚠ Cautions

- (1) Please confirm that the direction of the fluid flow and the arrow on the product coincide before installing the product.
※The product will not function if it is installed in the wrong direction.
- (2) Please support the piping and fix on the product securely.
※The product may deform from too much stress from the piping.
- (3) Upon installation, please secure sufficient space as shown in Fig. 5 and 6 for maintenance and inspection (including cleaning of the screen).
※You will be unable to maintain (including cleaning of the screen) and inspect the product if there is not enough space.
- (4) Upon piping, please make sure that unnatural force, bending, or vibrations will not be transmitted to the product.
※Inadequate piping can result in leakages.
- (5) Please make sure that the connections with the piping are secure.
※Inadequate connections can result in physical damages due to fluid outflow caused by vibrations and other reasons.
※Inadequate connections can result in fluid outflow.

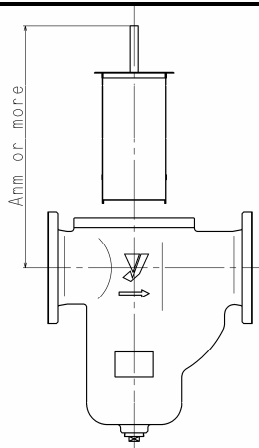


Fig. 5 Space required above the strainer for removal of the screen

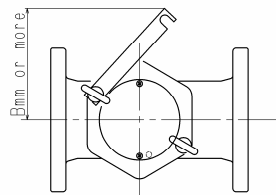


Fig.6 Space required beside the strainer for removal of the screen (for SU-50S only)

Chart 4 Dimensions required for removal of the screen

Nominal Size	A(mm)	B(mm)
50, 65A	300	180
80A	350	210
100A	400	220
150A	600	280

5. Operation

5.1 Warning and caution upon operation

⚠ Warning

- (1) Please make sure that there is no danger at the pipe end before pouring the fluid.
- ※You may get scalded in case hot fluid spouts out.
 - ※Physical damage may occur from fluid outflow.

⚠ Caution

- (1) This product should be used only when the maximum pressure loss is 0.1MPa or less. Please also clean the screen regularly.
- ※Neglect can result in damage of the screen.

6. Maintenance

6.1 Troubleshooting

Condition of failure	Causes	Measures and treatment
Fluid does not flow.	1. Screen ④ is clogged. 2. The stop valves at either end of the strainer are closed.	1. Disassemble the strainer and clean screen ④. 2. Open the stop valve(s).
Loss of pressure is great.	1. Screen ④ is clogged. 2. The pressure gauge is out of order. 3. The nominal size is too small for the actual flow volume.	1. Disassemble the strainer and clean screen ④. 2. Exchange the pressure gauge. 3. Use a strainer with a larger nominal size,. (Refer to Fig. 3 : Loss of Pressure)
Alien matter is not removed.	1.Screen ④ is damaged.	1.Disassemble the strainer and exchange screen ④. In case quick valves are installed at either end of the strainer, do not open them immediately since this may result in damage of the water hammer.
Cover ② cannot be removed upon exchange of screen.	1.The inside of the product is vacuum. 2.Cover ② and body ① are stuck together.	1.Break the vacuum inside the pipe and remove cover ②. 2. Refer to 6.3 Removal of the screen.
Outer leakage occurs.	1.O-ring ⑧ is damaged. 2.Cover ② is not assembled properly.	1. Install a new O-ring. 2.Assemble properly by referring to 6.4 Assembly after disassembly.

6.2 Warning and caution upon inspection

⚠ Warning

- (1) Remove all pressure within the product, piping, and equipment before disassembly and inspection.
- In case of hot fluid, cool down the product body so you can touch it with your bare hand before disassembly and inspection.
- ※Residual pressure in the product or piping can result in injuries or scalding.

⚠ Caution

- (1) Please clean the screen regularly since if waste and scales clog the strainer, the area for fluid flow decreases, thereby obstructing smooth flow.
※Neglect will result in too much pressure loss leading to damage of the screen and piping system.

6.3 Removal of the screen

Check the pressure gauge so that there is no pressure inside the product.

● Model SU-50·50H

- (1) Remove bolts ⑦.
- (2) Remove cover ②. In case you cannot remove the cover, screw in M8 bolts in the two holes on the cover until the cover comes up. (See Fig. 7), and then remove the cover. Remove the M8 bolts after removing the cover.
- (3) Remove screen ④ from the body ①, and clean with compressed air and cleaning agents.

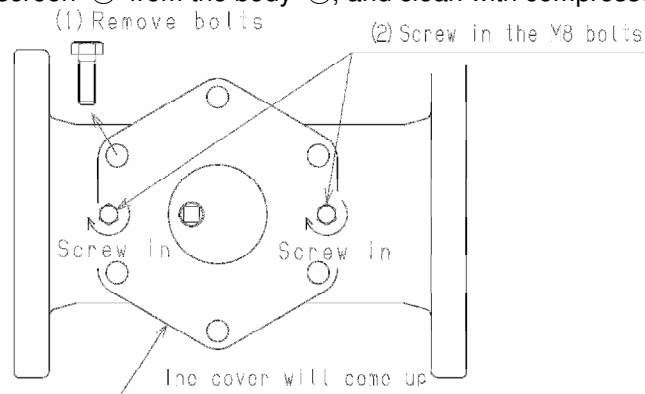


Fig.7 Removal of cover for Model SU-50·50H (Above diagram)

● Models SU-50S

- (1) Loosen eye nuts ⑥ with a screw driver.
- (2) Move arm ③ away from cover ② so that it does not touch it. (See Fig.8) In case of 150A, move both arms away.
- (3) Remove cover ②. If you cannot remove the cover, move one of the screws ⑪ on the cover to the other side, and screw in the two screws evenly until the cover comes up. (See Fig. 8) Return the screws to their original positions after removing the cover
- (4) Remove screen ④ from the body ①, and clean with compressed air and cleaning agents.

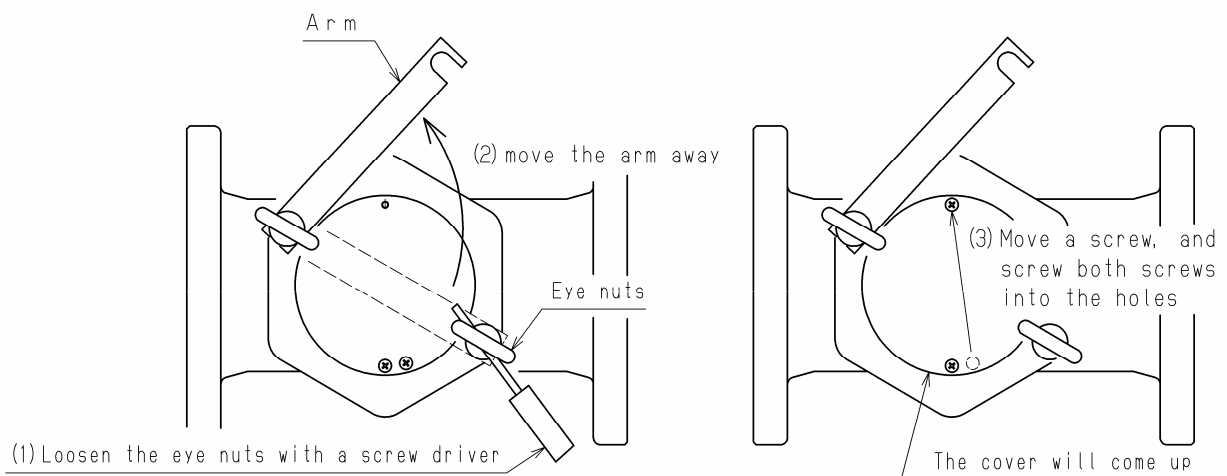


Fig. 8 Removal of covers for Models SU-50S (Above diagram)

6.4 Assembly after disassembly

- (1) Clean body ① and the portions on cover ② that come in contact with the O-ring.
- (2) Assemble screen ④ onto the cleaned body.
- (3) Apply silicone grease onto a new O-ring ⑧ and assemble it onto the slot on the cover ②, then assemble the cover onto the body.
- (4-1) For Model SU-50·50H, tighten bolts ⑦.
- (4-2) For Models SU-50S, return arm ③ to the position of stud bolts ⑤, then tighten the eye nuts ⑥. (Please confirm that the plain washers ⑫ and spring washers ⑬ have been fit onto the arm before this.)

⚠ Cautions

- (1) Clean body ① and the portions on cover ② that come in contact with the O-ring ⑧.
※Insufficient cleaning can result in outer leakages.
- (2) Please take care not to damage the O-ring ⑧ upon assembly onto the cover ②.
※Damage can result in outer leakages.
- (3) Use a new O-ring ⑧, and apply silicone grease onto it.
※A used O-ring may break and result in outer leakages. It may also become impossible to remove the cover.
- (4) In case screen ④ is deformed or damaged, exchange it to a new one.
※The product will not function with a deformed or damaged screen.
- (5) Securely assemble each part upon assembly.
※Insecure assembly may result in deformation or damage to the parts.
- (6) Upon assembly of Models SU-50S, confirm that the plain washers ⑫ and spring washers ⑬ have been fit onto the arm. (See Fig. 8.)
※Neglect can cause deformation of the cover and arm resulting in outer leakages or other damages.
- (7) Upon assembly, make sure that bolts ⑦ and eye nuts ⑥ are tightened evenly on either side.
Please be careful not to tighten the eye nuts too tightly. (Refer to the torque values in Chart 3.)
※Neglect can cause deformation of the cover and arm resulting in outer leakages or other damages.

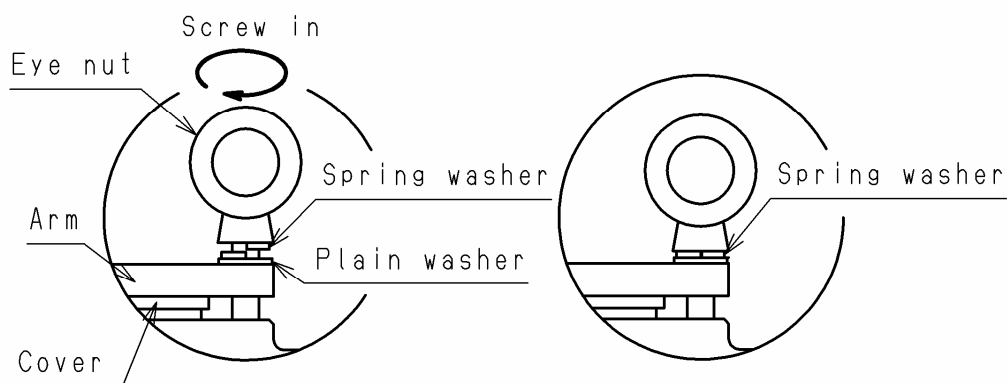


Fig.9 Position for parts on Models SU-50S

- ※Tighten the eye nuts till they come in close contact with the spring washers.
(Please be careful not to tighten the eye nuts too tightly.)

Chart 5 Tightening torque for the eye nuts (recommended values)

Nominal size	Tightening torque (N·m)
50, 65A	20
80 ~ 150A	30

6.5 Exploded drawing

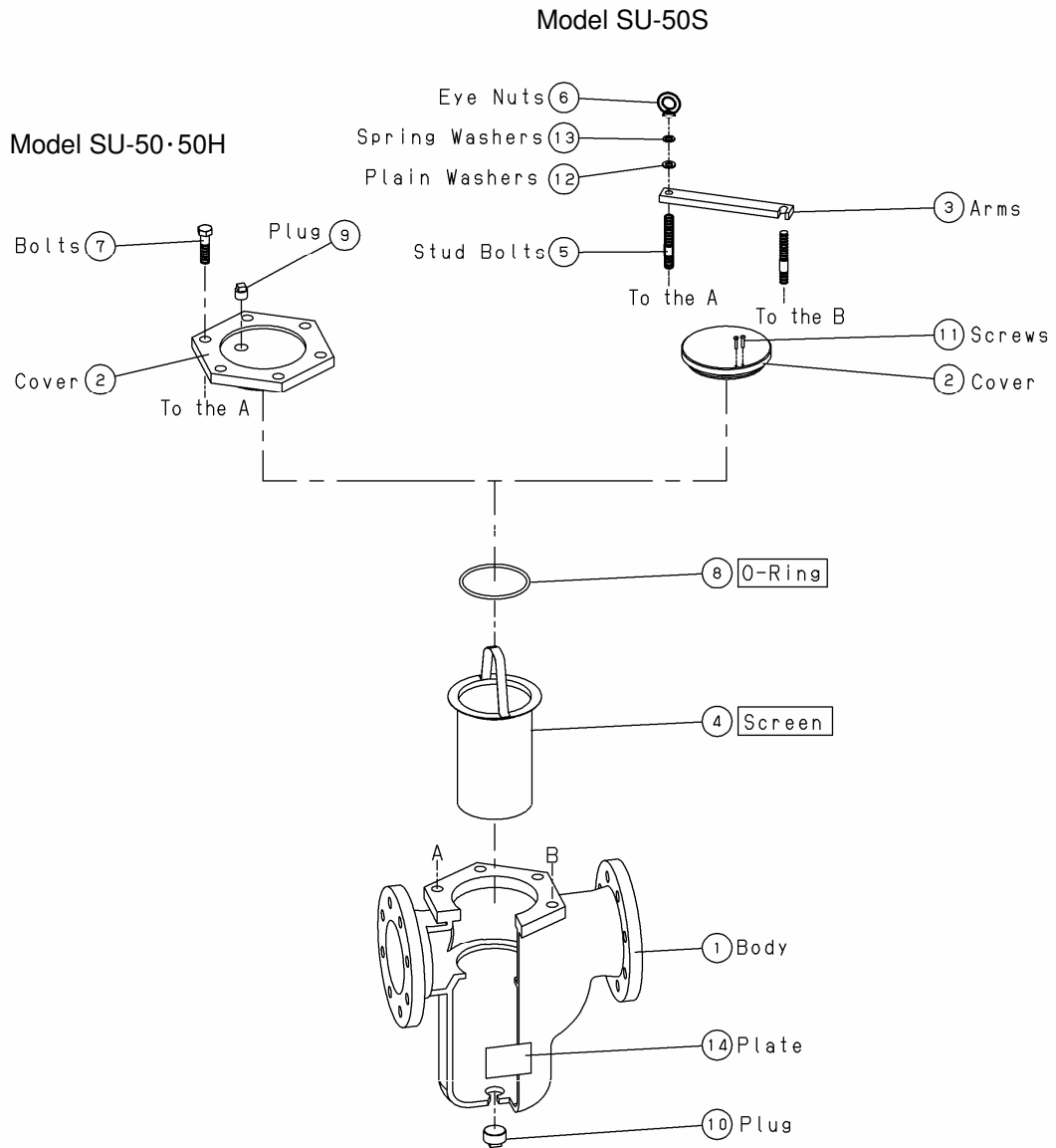


Fig.10 Exploded drawing

※The parts framed rectangle are consumable items. The timing of replacement are based on below chart.

No.	Name of parts	Durable (Rough standard)
⑧	O-Ring	When the cover② is replaced or 3 years.
④	Screen	5 years