

# Models SU-20/20S/20C

## 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 oil, cooling water and industrial water.

## 1. Features

1. This strainer has a large filtering area which keeps sufficient flow.
2. Strainer cover is easily removable just by taking off a bolt (SU-20S).  
Means easy maintenance.
3. Outside and inside of the body is Nylon 11 coated and enables superior corrosion-proof.

## 2. Specifications

### ●Model SU-20-20C

Applicable Fluid	Water·Oil·Non-corrosive fluids		
Size	20~150A		
Maximum Pressure	1.0MPa		
Maximum Temperature	220°C※		
Material	Body	Ductile Cast Iron	
	Screen	Stainless Steel	
Connection	JIS 10K FF Flange		

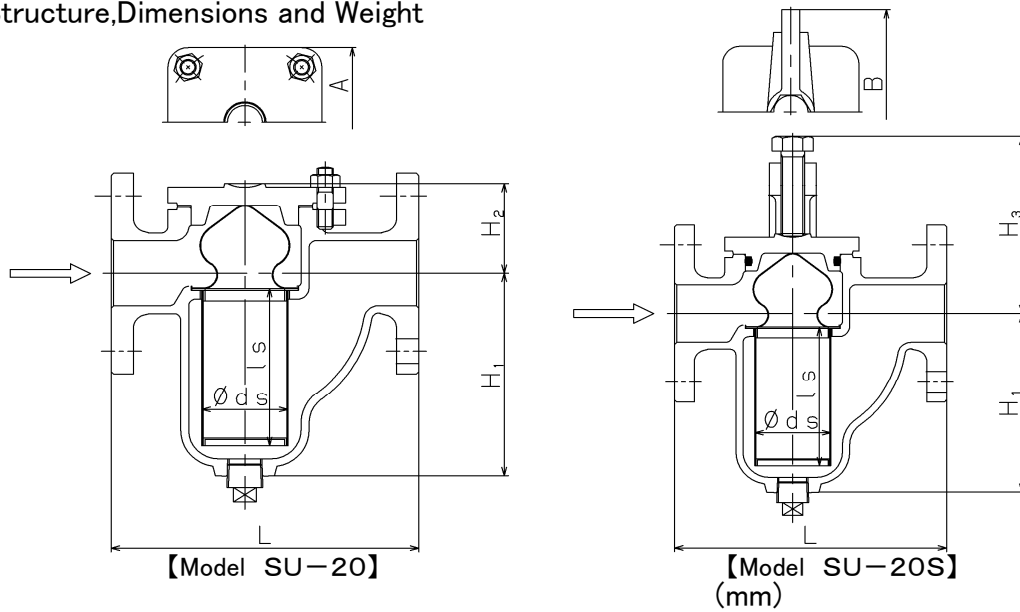
※Maximum temperature is 60°C for SU-20C.

### ●Model SU-20S

Applicable Fluid	Water·Oil·Non-corrosive fluids		
Size	20~100A	125A	150A
Maximum Pressure	1.0MPa	0.7MPa	0.5MPa
Maximum Temperature	80°C		
Material	Body	Ductile Cast Iron	
	Screen	Stainless Steel	
Connection	JIS 10K FF Flange		

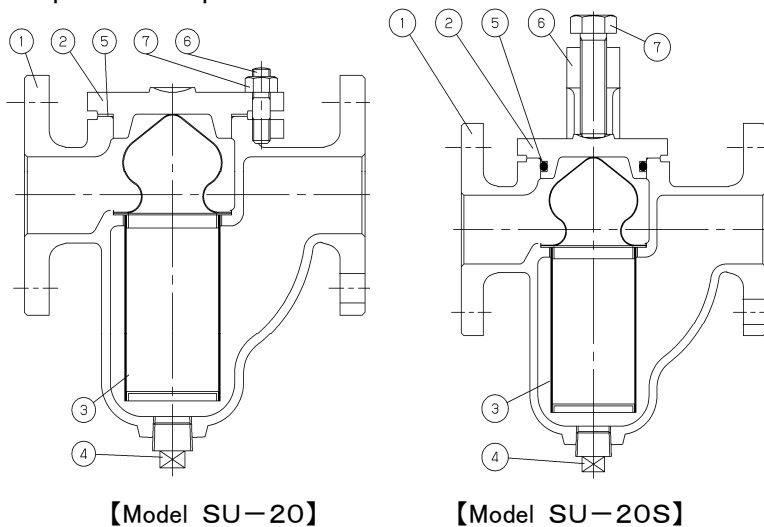
- Galvanizing for corrosion-proof is available.
- Standard Screen perforated sheet  $\phi 6 - 1.42$ holes/cm<sup>2</sup>  
Mesh 60Mesh
- Screens from 20~250 mesh is available.

### 3. Structure,Dimensions and Weight



Size	L	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	B	ds	ls	Plug Size	Weight(kg)	
										SU-20	SU-20S
20A	175	97.5	54	107.5	87	131	40	70	R 3/8	5.0	5.6
25A	175	97.5	54	107.5	87	131	40	70	R 3/8	6.1	6.7
32A	230	146	67.5	151	115	179	64.5	108	R 3/4	11.1	12.5
40A	230	146	67.5	151	115	179	64.5	108	R 3/4	11.8	13.2
50A	230	156	69.5	153	115	179	64.5	120	R 3/4	12.4	13.8
65A	290	182	70	153.5	134	208	77	140	R 1	18.7	20.8
80A	300	197.5	88.5	189	185	249	90	160	R 1	23.8	27.1
100A	365	262	118.5	253	220	334	120	210	R 1 1/4	41.3	48.6
125A	425	340.5	134.5	269	248	362	140	270	R 1 1/2	61.4	69.4
150A	505	378	158.5	293	305	414	175	300	R 2	98.4	108.3

### 4. Operation explanation



No.	Parts Name
1	Body
2	Cover
3	Screen
4	Plug
5	Gaskets (SU-20·20C)
	ORing (SU-20S)
6	Stat Bolts (SU-20·20C)
	Armu (SU-20S)
7	Nuts (SU-20·20C)
	Bolts (SU-20S)

※Flat washer is under the nut⑦ for SU-20C.

Dust, scale and other foreign matter are removed by the screen③.

### 5. 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.1: Loss of Pressure.)

Screen: Strain pipes  $\phi 6 - 1.42 \mu / \text{cm}^2$  Mesh 60 Mesh  
 Fluid : Water

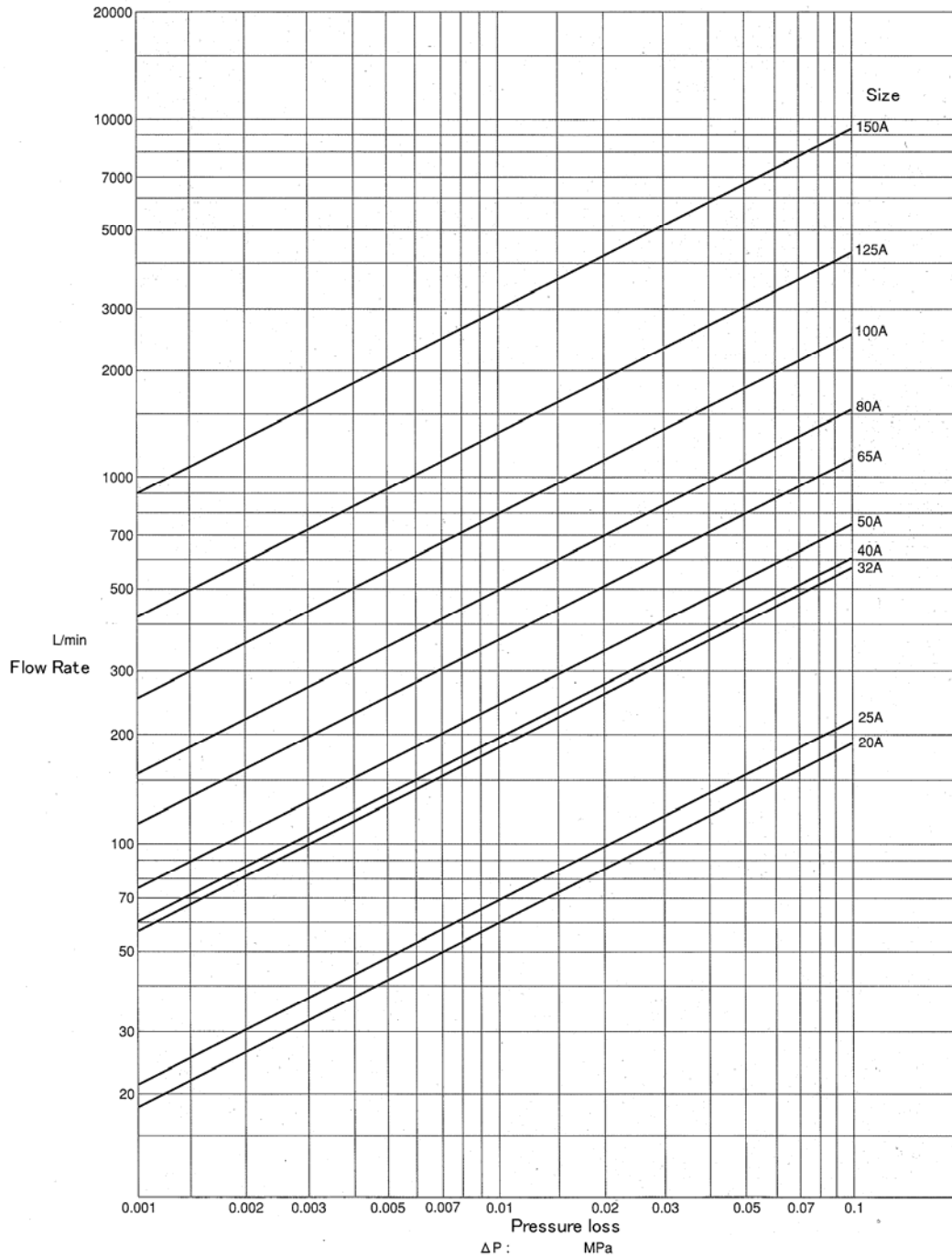


Fig.1: Loss of Pressure.

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.

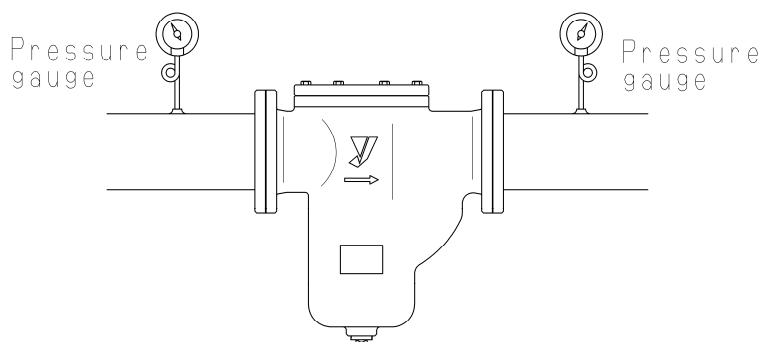
Chart 3 Standard flow velocity by fluid

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, 2002).

## 6. Installation

### 6. 1 Example of piping



### 6. 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. (Please refer to Chart 3 for Structure,Dimensions and 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. 2 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.

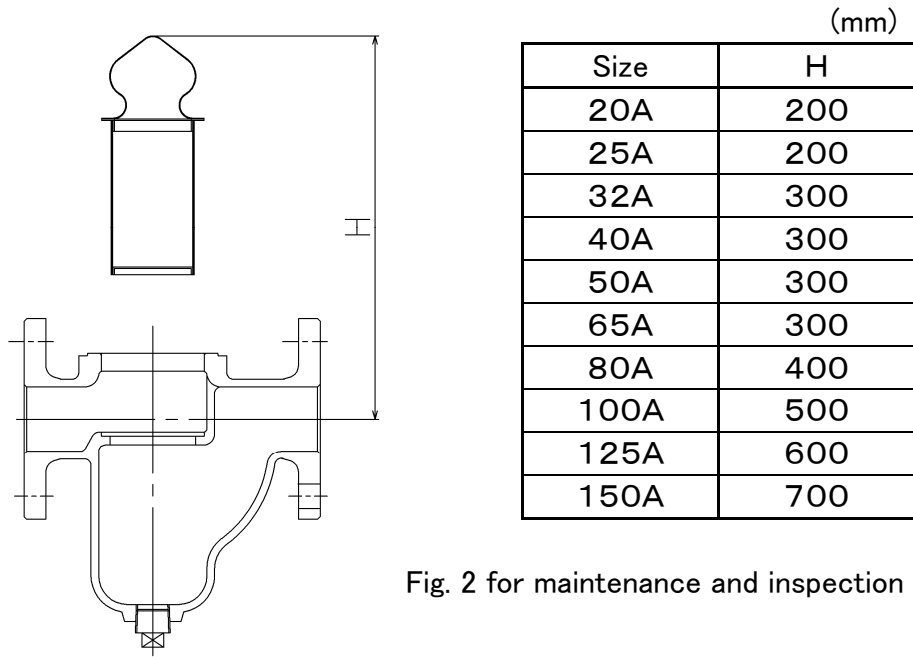


Fig. 2 for maintenance and inspection

## 7. Operation

### 7.1 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.

- (1) Installation of pressure gauges at either end of the strainer enables to check the clogging of the strainer. Refer to 6.1 Example of piping.

## 8. Maintenance

### 8.1 Troubleshooting

Condition of failure	Causes	Measures and treatment
Fluid does not flow.	<ol style="list-style-type: none"> <li>1. Screen ③ is clogged.</li> <li>2. The stop valves at either end of the strainer are closed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disassemble the strainer and clean screen ③.</li> <li>2. Open the stop valve(s).</li> </ol>
Loss of pressure is great.	<ol style="list-style-type: none"> <li>1. Screen ③ is clogged.</li> <li>2. The pressure gauge is out of order.</li> <li>3. The nominal size is too small for the actual flow volume.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disassemble the strainer and clean screen ③.</li> <li>2. Exchange the pressure gauge.</li> <li>3. Use a strainer with a larger nominal size., (Refer to Fig.3: Loss of Pressure)</li> </ol>
Alien matter is not removed.	<ol style="list-style-type: none"> <li>1. Screen ③ is damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disassemble the strainer and exchange screen ③. 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.</li> </ol>
Cover ② cannot be removed upon exchange of screen.	<ol style="list-style-type: none"> <li>1. The inside of the product is vacuum.</li> <li>2. Cover ② and body ① are stuck together.</li> </ol>	<ol style="list-style-type: none"> <li>1. Break the vacuum inside the pipe and remove cover ②.</li> <li>2. Refer to 6.3 Removal of the screen.</li> </ol>
Outer leakage occurs.	<ol style="list-style-type: none"> <li>1. O-ring ⑤ is damaged.</li> <li>2. Cover ② is not assembled properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install a new O-ring.</li> <li>2. Assemble properly by referring to 6.4 Assembly after disassembly.</li> </ol>

### 8. 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.

(1) Do not take the screen off by force if the brim of screen is stuck. It makes deformation of the screen.

### 8. 3 Disassemble and Cleaning

After checking the pressure gauge so that there is no pressure inside the product, remove the nut ⑦ (for SU-20, 20C) or the bolt ⑦ (for SU-20S), cover ② and screen ③. Clean up the screen by air or detergent.

### 8. 4 Assembly after disassembly

#### **⚠ Caution**

(1) Clean up the seating surface of gasket on the body and cover, or sealing portion of O-ring.

※Insufficient cleaning can result in outer leakage and injuries or scalding.

(2) Use a new gasket at assembly.

※Used gasket may result in outer leakage.

(3) Apply grease onto a O-ring.

※There is a possibility of damaging O-ring in case grease is not applied on to O-ring.

(4) In case O-ring is damaged or deteriorated, change to new o-ring and apply the grease on it.

※There is a possibility of leakage in case o-ring is damaged or deteriorated.

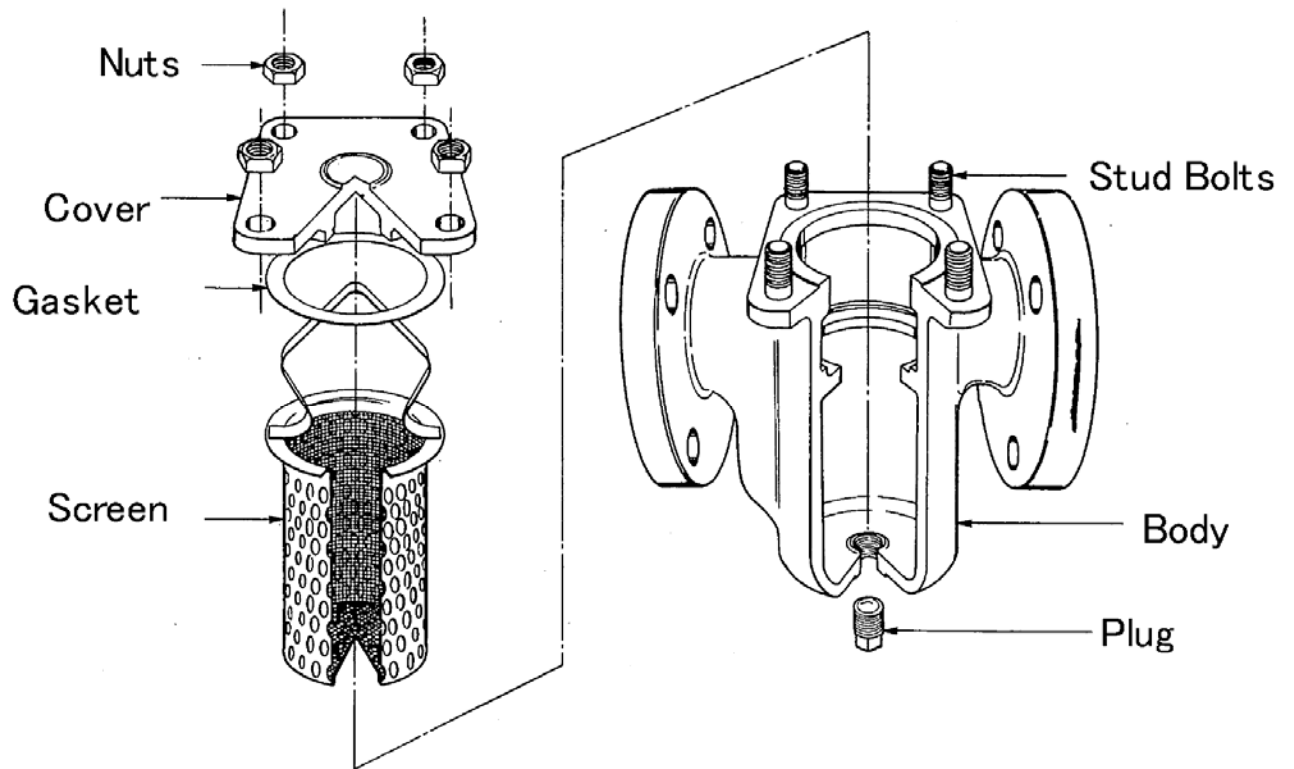
(1) Cleaning the body①, gasket⑤ at cap②, or the seating portion of O-ring⑤, and install new gasket or O-ring⑤. At this time, apply the grease on to O-ring.

(2) Install cleaned screen③ into body①, close the cap② and nut⑦ (for SU-20·20C) or tighten the bolt for arm⑦ (for SU-20S).



9. Exploded drawing

●SU-20 (The structure for SU-20S and 20C is a different.)



※marked are consumable parts on above exploded view.

Parts Name	Time of replacement
Gasket	At disassembly