Models DS-10, DS-10F
Drain Separator
Operation Manual

Thank you very much for choosing a Yoshitake product.
To ensure correct and safe operation of this product, please read this instruction manual carefully before using it.
Please keep this manual in a safe place for future reference.
The instruction manual for this product can also be downloaded from: https://www.yoshitake.co.jp

日本語

汉语

－－－The following safety symbols are used in this manual.－－－

⚠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

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1. Specifications

Model	DS-10	DS-10F
Nominal size	15～50A	15～65A
Application	Steam, air and other non-hazardous gases *1	
Maximum pressure	2.0MPa *2 (Air and other non-hazardous gases: less than 1.0 MPa)	
Maximum temperature	220℃ *2	
Connection *3	JIS Rc ,NPT	JIS 10KFF(15A～65A), EN PN25RF (15A～50A)
Drain discharge port *4	JIS Rc1/2(15A～32A) , JIS Rc1(40A～65A)	
Mounting orientation	Horizontal	
Body material	Stainless steel	

*1: Please contact us when using flammable fluids.
*2: The relationship between operating pressure and operating temperature shall comply with JIS B2220 Pressure-Temperature Ratings and BS EN 1092-1.
When the connection is JIS 10K FF flange, the maximum allowable pressure is 1.0 MPa
*3: For connection methods other than those specified above, please contact us.
*4: When the connection is NPT, the drain outlet and plug connections will also be NPT.

⚠WARNING

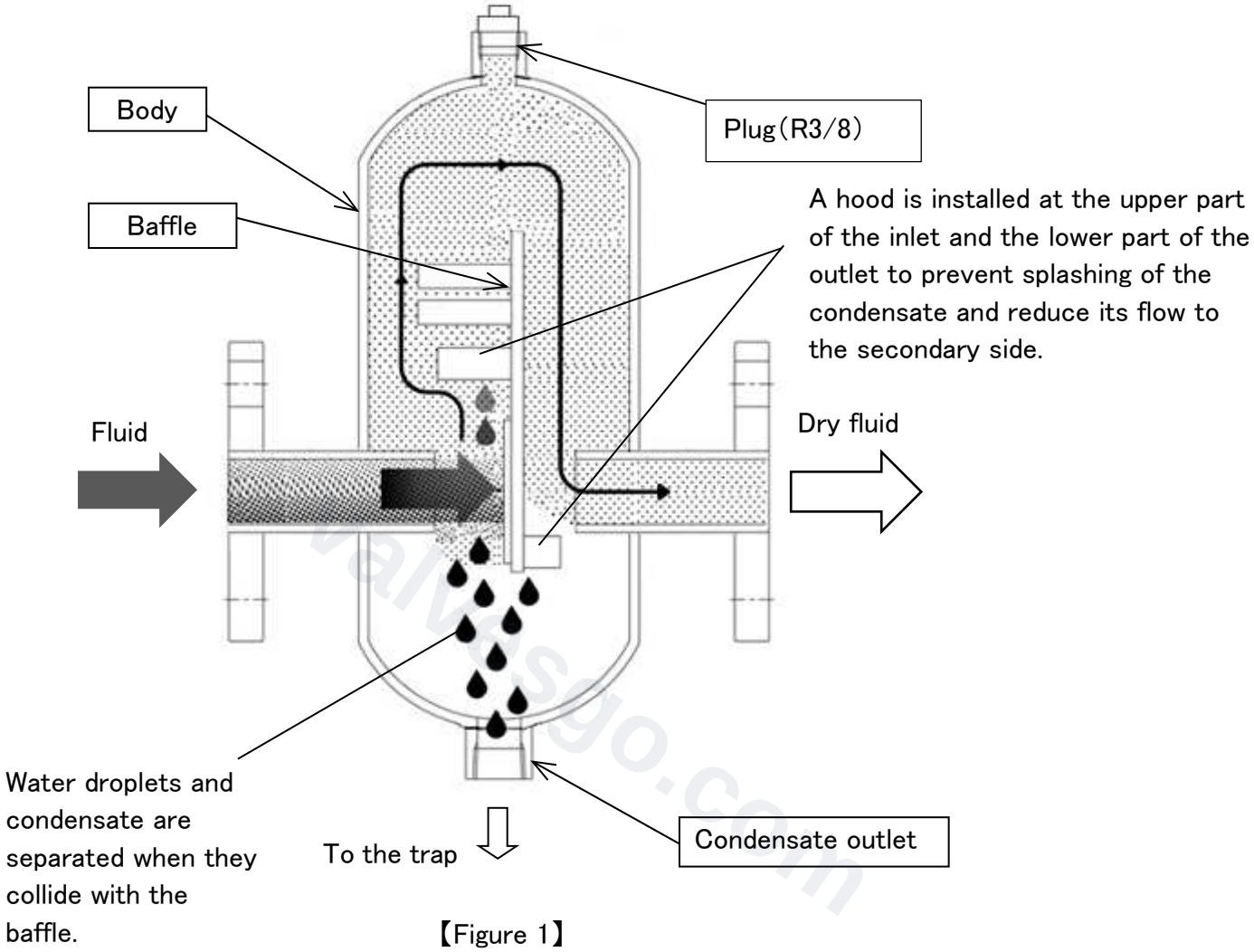
(1)Do not modify the product by drilling holes, welding directly, or making any other alterations.

⚠CAUTION

(1)Check that the information on the nameplate attached to the product matches the specifications of the ordered model
*If they do not match, do not use the product and contact Yoshitake.

2. Operation

When steam or air containing water droplets enters the drain separator, it collides with the internal baffle and the condensate is separated.
Heavier condensate and particles fall downward and are guided to the drain discharge port.
Meanwhile, dry steam or air flows through the upper part of the baffle and exits from the outlet side.



【Figure 1】

3. Selection of Nominal Size

To use the drain separator most effectively and to fully satisfy the operating conditions, please consider the following points.

Select a drain separator with the same nominal diameter as the piping.
(Piping nominal diameter = Drain separator nominal diameter)
If a smaller nominal diameter is used, the pressure loss of the drain separator will increase, and the required pressure may not be maintained at the inlet side of the equipment. Please take note of this.

【Table 1】 Fluid flow velocity

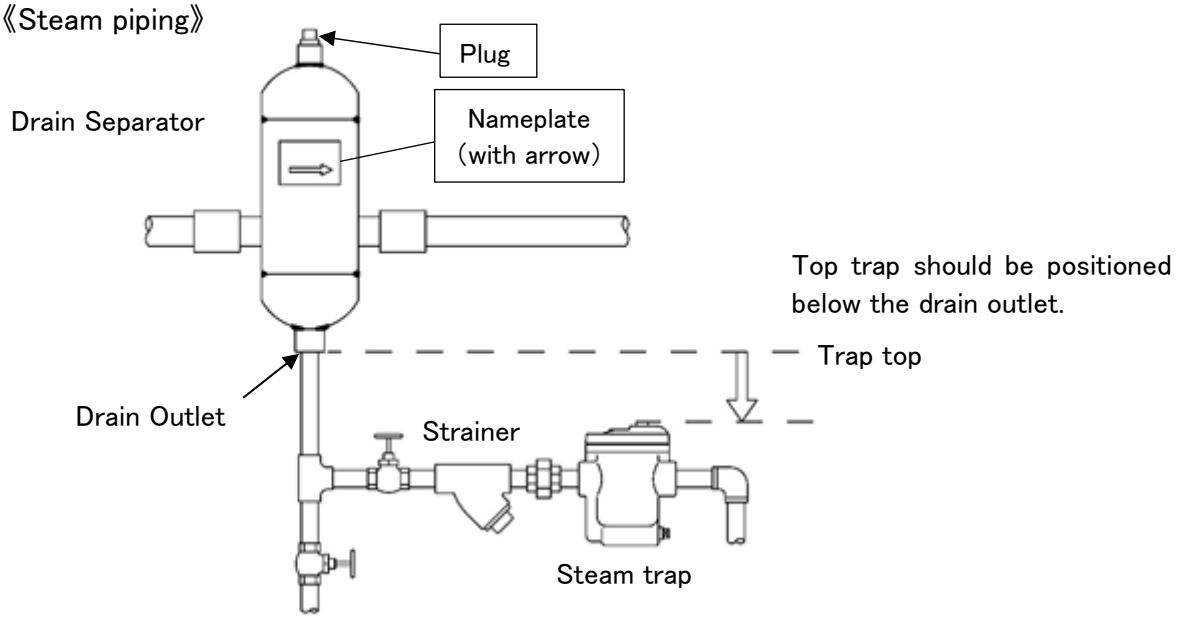
Fluid	Flow velocity
Steam	30m/sec. or less
Air	15m/sec. or less

*Please use at a flow velocity below the values shown in the table above.
*If the flow velocity is too high, the condensate may not be properly separated.

4. Installation procedures

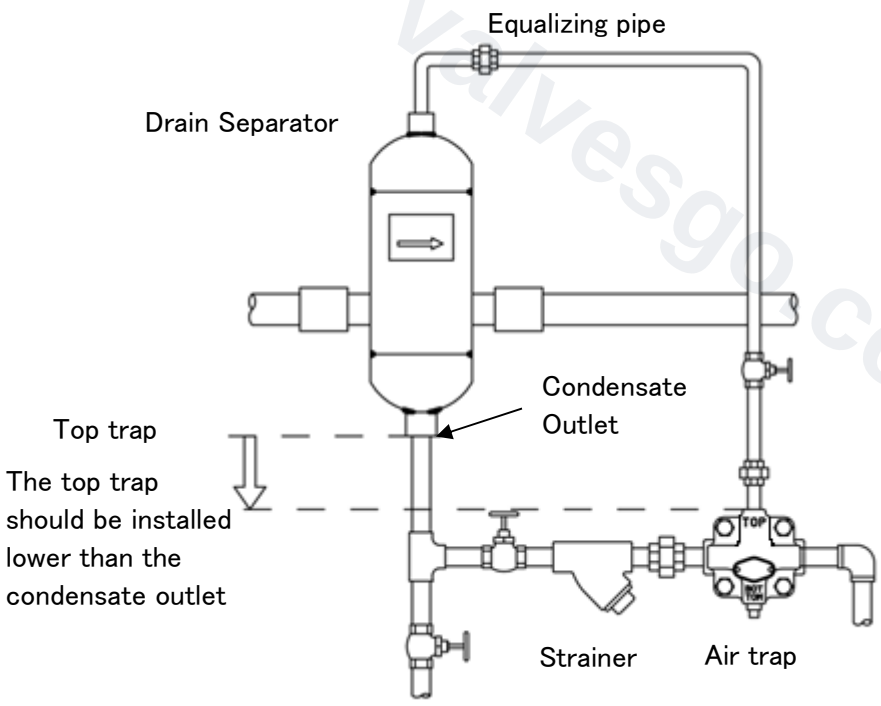
4.1 Piping example

《Steam piping》

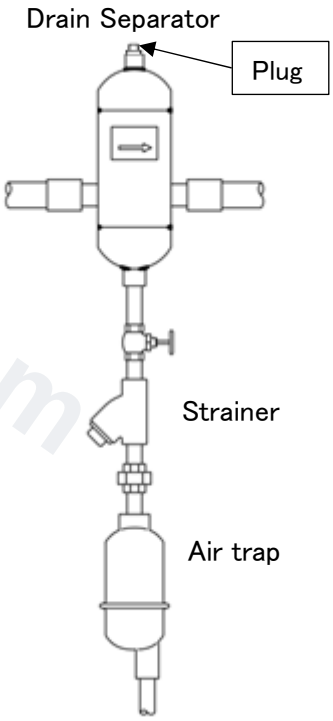


【Figure 2】

《Air piping》



【Figure 3】



【Figure 4】

4.2 Cautions in installation

⚠WARNING

(1) This product is heavy. When installing it on the piping, be sure to support the product securely using lifting equipment such as a hoist. *There is a risk of injury if the product falls.
(2) Connect piping to the trap outlet and lead the drain to a safe location.
*Fluid is continuously discharged from the drain outlet, which may contaminate the surrounding area or cause injury or burns.

⚠ CAUTIONS

(1) When installing, check the flow direction of the fluid and the inlet/outlet of the product before installation. (There is an arrow on the nameplate. Install the product in accordance with the fluid flow direction.) (Refer to 4.1 Piping Example.) *If installed incorrectly, the product will not function properly.
(2) Ensure that the piping is properly supported and that the product is securely fixed. *Excessive piping stress may cause deformation of the product.
(3) Make sure the connection with the piping is secure. *If the connection is insufficient, fluid may leak due to vibration. Depending on the fluid, there is a risk of burns.
(4) Always install the drain separator in a horizontal position, with the drain outlet facing downward. *If installed incorrectly, the product will not function properly.
(5) Always install a trap device below the condensate outlet. *If a trap is not installed, steam or air will be continuously discharged together with the condensate.
(6) The top of the trap must be located below the condensate outlet of the drain separator. (Refer to 4.1 Piping Example.) *If the top of the trap is above the condensate outlet of the drain separator, condensate may accumulate.
(7) Arrange the piping so that excessive load, bending, or vibration is not transmitted to the product. *Excessive load, bending, or vibration may cause malfunction or significantly shorten the service life of the product.
(8) If the product is subjected to sudden pressure fluctuations, such as water hammer, the product or its components may be damaged.
(9) If the product is installed in a closed piping system, an increase in fluid temperature may cause thermal expansion of the fluid in the piping, which may damage the product.
(10) When installing the product in the piping, be sure to remove foreign matter, scale, etc. inside the piping.
Also ensure that seal tape, liquid sealant, or similar materials used for pipe connections do not enter the piping.
Foreign matter, scale, or sealant entering the piping may cause malfunction.
(11) If there is a possibility of freezing, take measures to prevent the fluid from freezing. *If the fluid freezes, the product may be damaged.
(12) Do not use dissimilar metal piping that may cause a potential difference.
This may result in corrosion of the product or its components.

5. Operation Procedures

5.1 Caution in operation

⚠ WARNING

(1) Before allowing the fluid to flow, confirm that it is safe for the fluid to discharge from the end of the piping and the condensate outlet.
*If high-temperature fluid is discharged, there is a risk of burns.
*There is also a risk of property damage due to fluid leakage.

6. Maintenance procedures

6.1 Periodic self-inspection

Carry out a periodic self-inspection once every year for the following items:

(1) Check for external leakage.

If any abnormality is found during the inspection, refer to "6.2 Troubleshooting" and replace the product or the relevant parts.

6.2 Troubleshooting

Problem	Cause	Remedy
Fluid leaks from the outside of the product.	Leak from plug	Remove the plug, replace the plug or seal tape with a new one, and reassemble
	Fluid leaks from the body	Replace the product
Poor condensate separation	The fluid flow velocity in the pipe is too high	Review the piping so that the flow velocity becomes as shown in [Table 1]
	The installation direction is incorrect.	Reinstall the piping correctly
	The baffle is damaged.	Replace the product

6.3 Caution in disassembly

⚠WARNING

(1) When disassembling, be sure to confirm that the pressure inside the product and piping has been reduced to atmospheric pressure.
If the fluid is at a high temperature, allow the product body to cool until it can be touched with bare hands before starting the work.
*Residual pressure in the product or piping may cause injury or burns.
(2) If the product is used with high-temperature fluid, do not touch the product directly with bare hands.
*There is a risk of burns.

7. Disposal

When disposing of the product, refer to the delivery drawing, confirm the material of each component, and dispose of them separately according to regulations.

Warranty Information

1. Limited warranty

   This product has been manufactured using highly-advanced techniques and subjected to strict quality control. Please be sure to use the product in accordance with instructions on the manual and the label attached to it.

   Yoshitake warrants the product to be free from any defects in material and workmanship under normal usage for a period of one year from the date of receipt by the original user, but no longer than 24 months from the date of shipment from Yoshitake's factory.

2. Parts supply after product discontinuation

   This product may be subject to discontinuation or change for improvement without any prior notice. After the discontinuation of the product, Yoshitake supplies the repair parts for 5 years otherwise individually agreed.

3. This warranty does not cover the damage due to any of below:
   (1) Valve seat leakage or malfunction caused by foreign substances inside piping.
   (2) Improper handling or misuse.
   (3) Improper supply conditions such as abnormal water pressure/quality.
   (4) Water scale or freezing.
   (5) Trouble with power/air supply.
   (6) Any alteration made by other than Yoshitake.
   (7) Use under severe conditions deviating from the design specifications (e.g. in case of corrosion due to outdoor use).
   (8) Fire, flood, earthquake, thunder and other natural disasters.
   (9) Consumable parts such as O-ring, gasket, diaphragm and etc.

   Yoshitake is not liable for any damage or loss caused by malfunction or defect of the product.

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