

# MODEL LD-51 GAS TRAP

## 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.

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# YOSHITAKE

# 1. Specifications and Capacities

## 1.1 Specifications

Model		LD-51
Nominal size		15A
Application		Air, Other non-dangerous fluid, Hydrogen Gas*1
Working pressure		0-100 kPa
Working temperature		5-80°C
Material	Body, Cover	Stainless steel
	Valve disc	FKM (Fluororubber)
	Valve seat	Stainless steel
	Float	Heat-resistance plastic & FKM (Fluororubber)
Connection	Inlet	JIS R 1/2 screwed
	Outlet	Hose joint $\Phi 6$

\*1: If the application fluid is Hydrogen Gas, please contact us.



### Caution

Please confirm that the indications on the product correspond with the specifications of the ordered product model before use.  
\* If they are different, do not use the product and contact us.

## 1.2 Maximum Continuous Discharge Capacity Chart

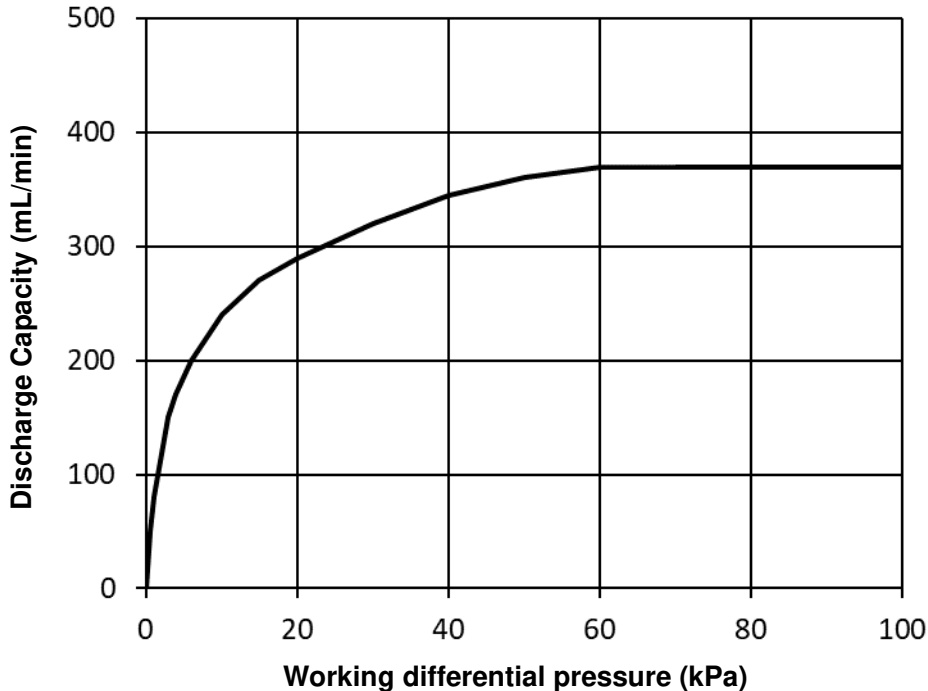
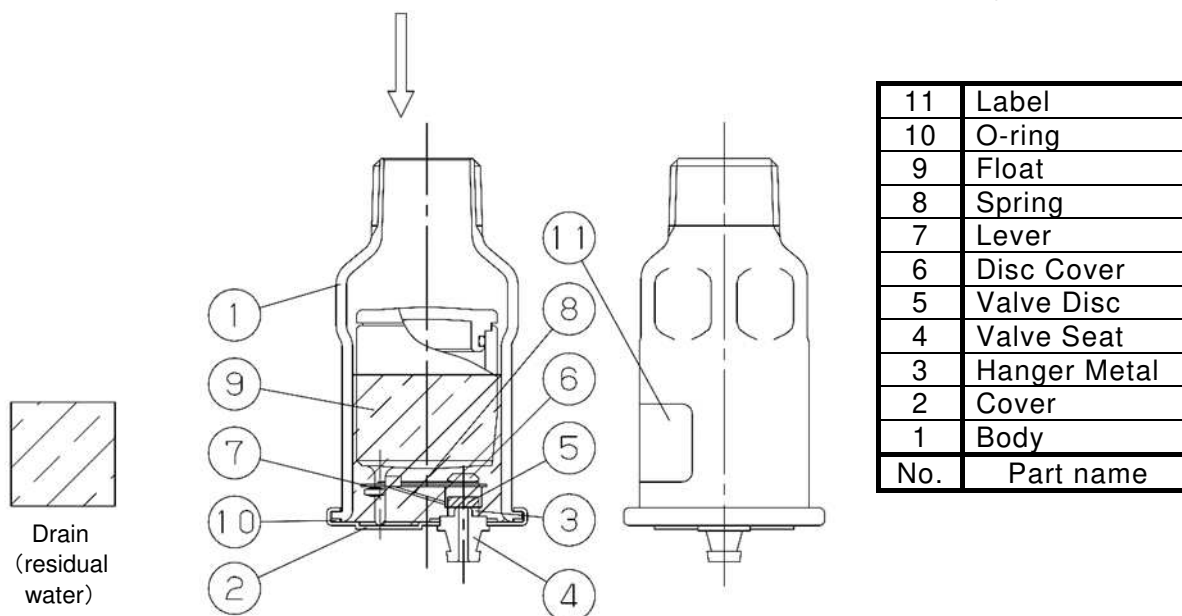


Fig1.1 Maximum Continuous Discharge Capacity Chart

## 2. Operation

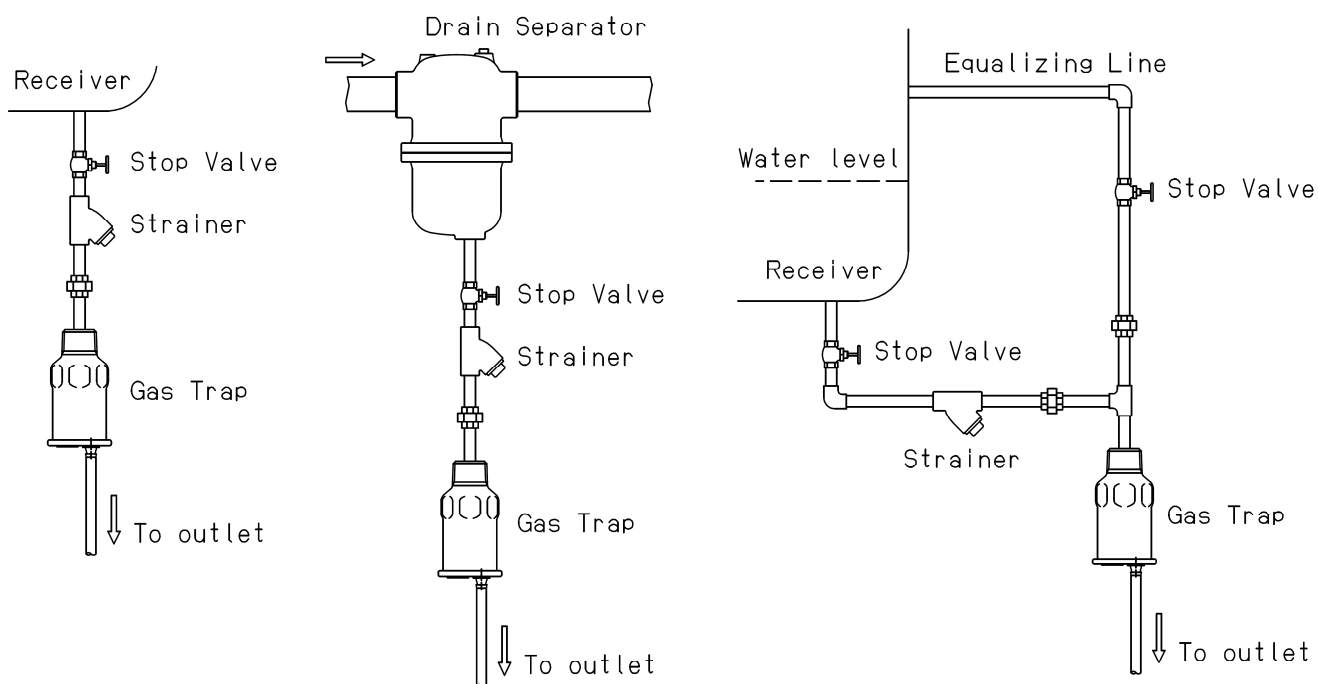
1. When the product is installed, air exists inside the product and float [9] is lowered by its own weight, causing the valve disc [5] to remain closed via the lever [7].
2. When condensate enters the product, float [9] gains buoyancy and rise, then valve disc [5] opens via the lever [7] to discharge the condensate.
3. After the condensate is discharged, the liquid level drops, buoyancy of the float [9] decreases and valve disc [5] closes. At this point, condensate (residual water) accumulates as shown in Figure 2.1.
4. Thereafter, the operations of 2. and 3. is repeated, enable continuous discharge of the condensate.



**Fig2.1 Operating Diagram**

## 3. Installation

### 3.1 Piping example



**Fig3.1 Piping example1**

**Fig3.2 Piping example2**

**Fig3.3 Piping example3**

### 3.2 Precaution for installation



#### Warning

1. The product outlet side should be led to a safe location, even if condensate is discharged. Additionally, maintain a clearance of at least 50 mm between the end of the tube or piping and the overflow edge of the drainage system.  
\* Failure to follow this notice may result in damage to surrounding areas, or may cause scalds and property damage in case that fluid is hot.



#### Caution

1. Before installing the product, be sure to remove foreign substances and scale from the piping. Prevent seal tape or liquid seal agent for piping connection from entering inside of piping.  
\* This product cannot be disassembled, it is not possible to remove foreign substances inside the product.  
\* If foreign substance, scale, or seal agent enter the product, it may result in malfunction.
2. Install strainer (60 mesh) at inlet side of the product in order to prevent foreign substance or scale enter the product.  
\* If foreign substance, scale or seal agent enter the product, it may prevent the product from functioning properly.
3. Install a stop valve and union on inlet side of the product for maintenance and inspection.
4. If horizontal piping exists between the condensate outlet of pressure vessel and the product, install an equalizing pipe as shown in Figure 3.3.  
\* Connect the equalizing pipe above water level of pressure vessel.
5. When installing a separator, connect the product at a position lower than the inlet of the separator.  
\* Failure to follow this notice may prevent the product from functioning properly.
6. When installing the product, ensure it is correctly mounted by confirming the fluid flow direction and the orientation of the product's inlet and outlet ports. Also, install the product vertically (tolerance angle 5° ).  
\* Failure to follow this notice may prevent the product from functioning properly.
7. Install the product by tighten the hexagonal part of the body with a wrench. And do not tighten the product excessively. Do not tighten more than necessary (35N · m).  
\* Failure to follow this notice may cause deformation of the body and malfunction.
8. Avoid impacts caused by sudden pressure fluctuations, such as water hammer.  
\* Failure to follow this notice may result in malfunction due to damage to the float.
9. Ensure the outlet piping is arranged in a way that prevents backflow.
10. If there is a risk of freezing, apply insulation to prevent freezing.  
\* As condensate (residual water) accumulates as shown in Figure 2.1, freezing may lead to product damage.

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## 4. Operating Procedure

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### 4.1 Precaution for operating procedure

#### **Warning**

1. Before leading fluid, make sure that the product is securely connected to piping and that there is no loose.  
\* Failure to follow this notice may result in scalds or injury due to blow-off.
2. Do not touch the product with bare hands in case of hot fluid.  
\* Failure to follow this notice may result in scalds.

#### **Caution**

1. If there is a risk of freezing or the product is not operated for a long period, completely discharge condensate from the product and pipes, and close the stop valve.  
\* Failure to follow this notice may cause malfunction of the product due to rusting inside the product and the pipes or damaged by freezing.

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## 5. Maintenance

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### 5.1 Precaution for maintenance

#### **Warning**

1. Maintenance and inspection must be performed by a professional.
2. Be sure to completely release the internal pressure of the product, piping, and equipment when maintenance and inspection. In the case of hot fluid, please cool the product body until it can be touched with bare hands.  
\* Failure to follow this notice may result in scalds or injury due to residual pressure.
3. This product cannot be disassembled.

#### **Caution**

1. Conduct daily inspection in order to maintain the optimal performance of the product.  
\* See "5.3 Troubleshooting" on Page 5 if trouble is observed.
2. After leaving the product not operated for a long period, perform inspection before start-up of operation.  
\* See "5.3 Troubleshooting" on Page 5 if trouble is observed.

## 5.2 Daily inspections

Please carry out daily inspections to maintain product functionality and performance.

### ● Daily inspection (once a day)

Item	How to inspect	Actions to be taken
Working state	Please confirm that condensate is being discharged. (If no condensate is present internally, the valve will remain closed.)	See 5.3 Troubleshooting.
Valve seat leakage	Please check visually	See 5.3 Troubleshooting
Outside leakage	Please check visually	See 5.3 Troubleshooting

### ● Recommended Service Life

This product cannot be disassembled.

Although service life may vary depending on usage conditions, it is recommended to replacing the product every 3 to 5 years, along with daily inspections.

## 5.3 Troubleshooting

Trouble	Cause	Remedy
Condensate is not discharged.	1. Stop valve at inlet or outlet is closed.	1. Open the stop valve.
	2. Pressure difference is too high.	2. Reduce to appropriate pressure difference.
	3. Clogging of the valve seat hole due to foreign substances.	3. Replace the product and install a strainer on the inlet side.
	4. The float is damaged.	4. Replace the product.
	5. Damaged or deformed due to abnormal pressure increase caused by freezing or water hammer, etc.	5. Replace the product and use it within the working pressure range.
Condensate does not stop discharging.	1. Foreign substances or damage exist between valve disc and valve seat.	1. Replace the product.
	2. Product specifications are insufficient for usage condition.	2. Recheck the selection of the product.
Outside leakage.	1. Damaged or Deformed due to abnormal pressure increase caused by freezing or water hammer, etc.	1. Replace the product and use it within the working pressure range.
	2. O-ring is damaged.	2. Replace the product.

※If the issue is not resolved with the above measures, please contact us.

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## Warranty Information

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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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