MODEL TA-22ML
AIR VENT VALVE
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

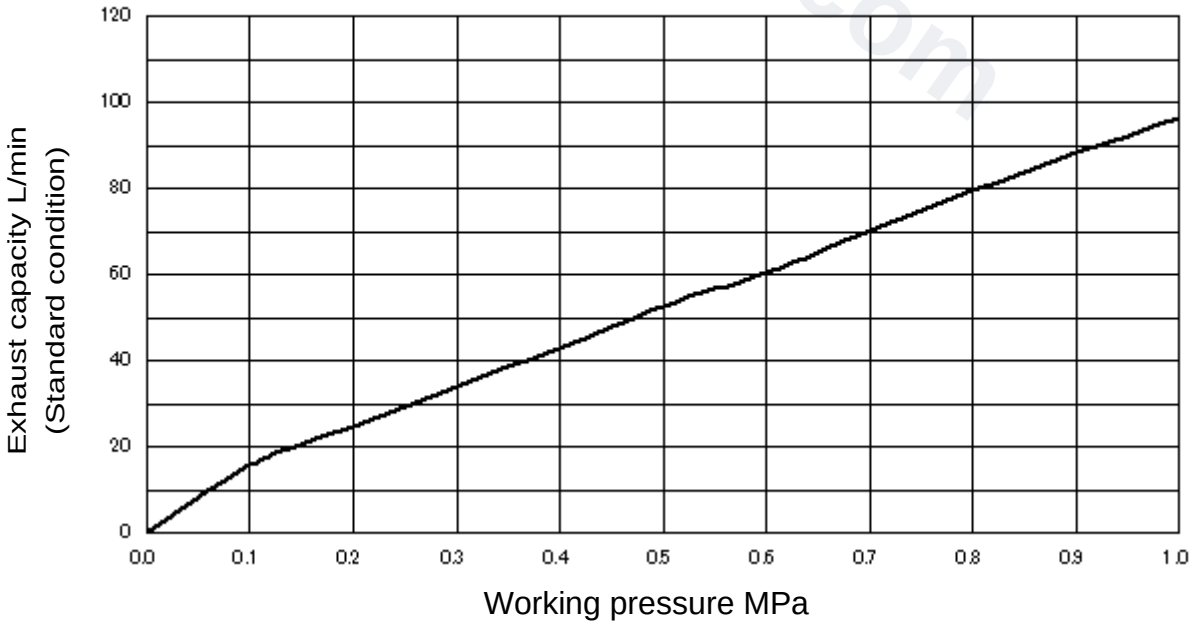
■EPDT-273b■

1. Specifications and Capacities

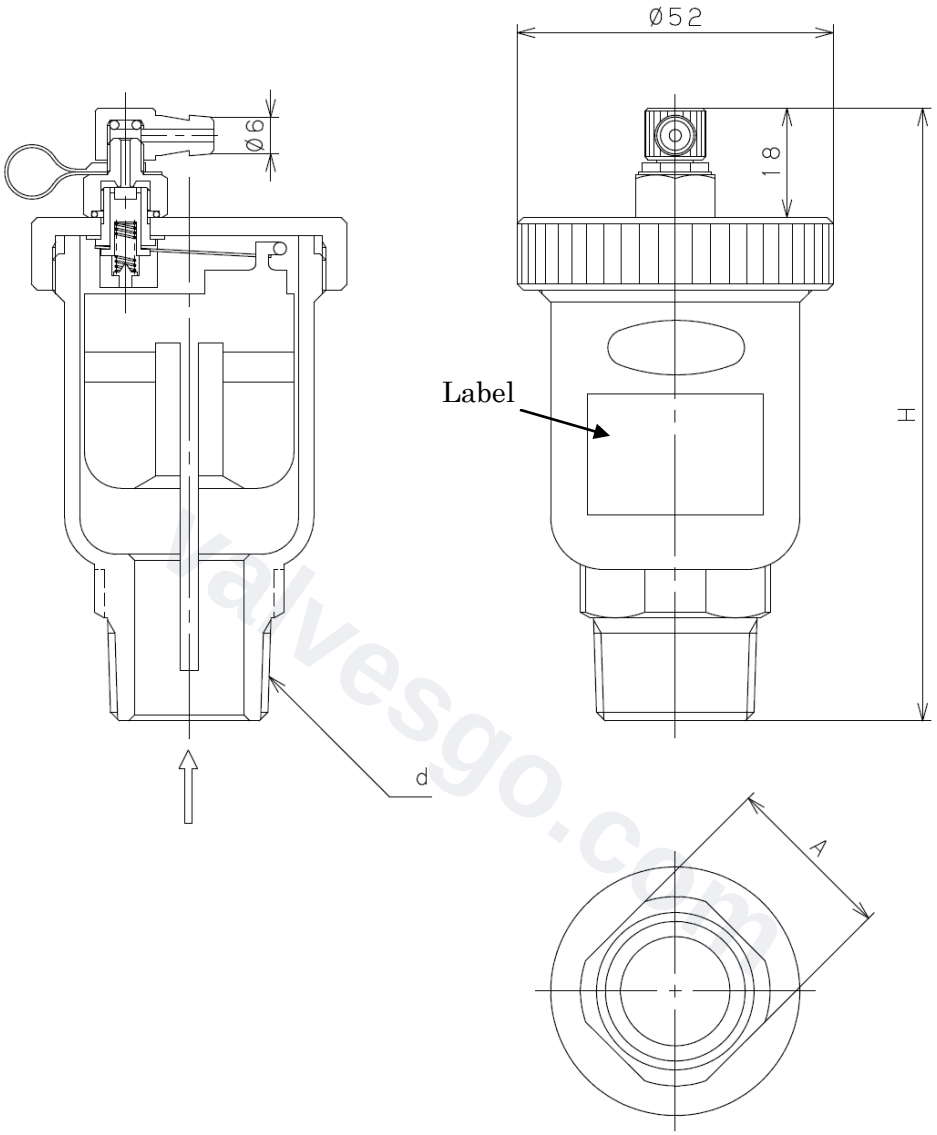
Nominal size		15-25A
Application		Cold and hot water
Working pressure		0.01-1.0 MPa
Maximum temperature		100°C
Material	Body, cover	Bronze
	Disc	Synthetic rubber
	Float	High temperature resin
Connection	Inlet	JIS R screwed
	Outlet	Hose fitting (Φ6)
Coating		Nickel coating

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.

Exhaust capacity chart



2. Dimensions and Weights



(mm)

Size	d	A	H	Weight (kg)
15A	R 1/2	23	95.5	0.36
20A	R 3/4	28	101	0.4
25A	R 1	35	104	0.46

3. Operational description

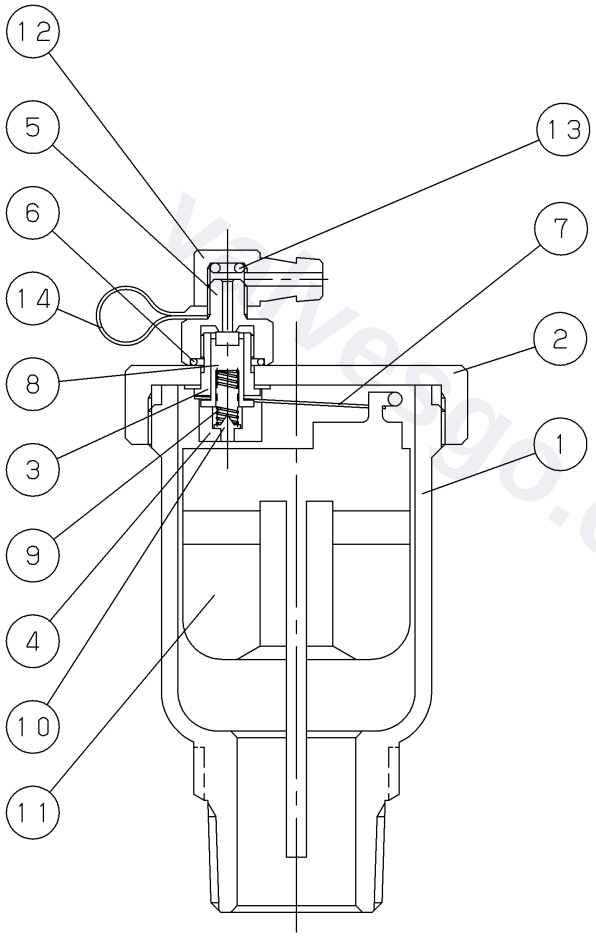
1. After installation, air exists in the product, and float [11] is lowered by its own weight. In this condition, since valve [8] is kept open by lever [7], air is discharged outside by internal pressure of the system.

2. When air is discharged, hot or cold water flows into the product to make float [11] come up on buoyancy and force that keeps valve [8] open through lever [7] is lost. Then valve [8] is closed by spring [9] and pressure to valve [8].

3. When air bubbles are generated in the system and collected into the product, water level inside the product drops, and float loses buoyancy and opens valve [8] to discharge air.

4. Then the operation goes back to the above process 2. Repeating the processes 2 and 3, air in the system can be removed.

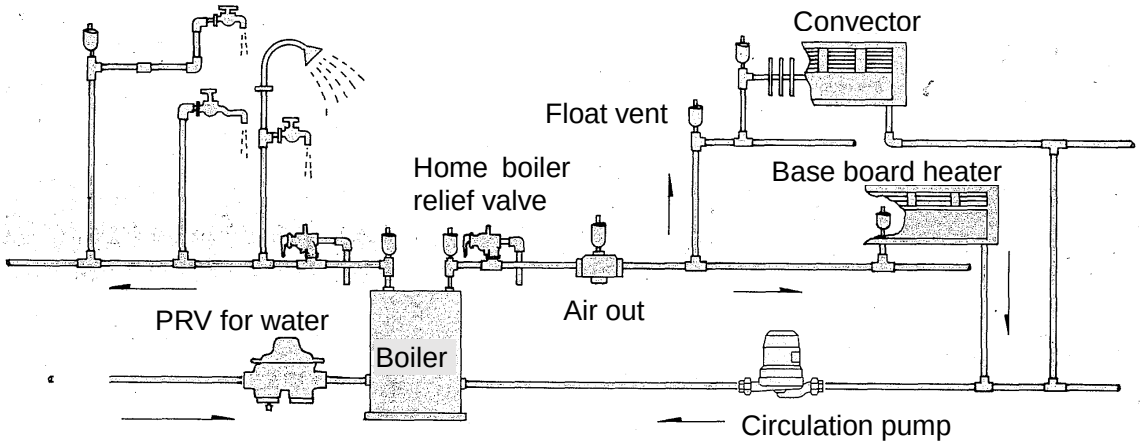
Structural view



No.	Parts name
1	Body
2	Cover
3	Guide
4	Hanger metal
5	Valve seat
6	O ring
7	Lever
8	Valve
9	Spring
10	Spring tray
11	Float
12	Elbow cap
13	O ring
14	Stopper

4. Installation

4.1 Piping example



If using the product with AO-2 air out (air separator), higher performance can be obtained.

4.2 Warning and Caution before use

⚠ Warning

1. Make sure that end of piping or tube of the product outlet make space of 50mm over from the flood level rim of the vent.
   * Failure to follow this notice may contaminate the surroundings, result in burns for high-temperature fluid or cause bodily injury or damage to the property when valve leakage happens.
2. Make sure to attach joint and hose to outlet of the product, and lead them to drain ditch.
   Do not remove the top of the cap stopper [Pic. 2] when operation.
   *Fluid leaks because foreign substance exist on valve disc and seat when elbow cap is loosen, leakage of liquid to outside from elbow cap may happen. Do not use the product around the place where leaked liquid can wet another equipment.
   *Leakage of liquid result in burns for high-temperature fluid or cause bodily injury or damage to the property when valve leakage happens.

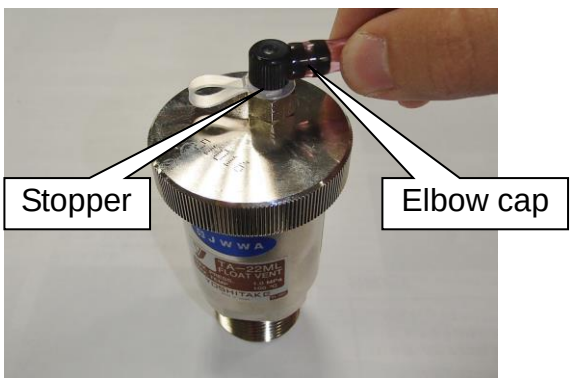


Fig. 1

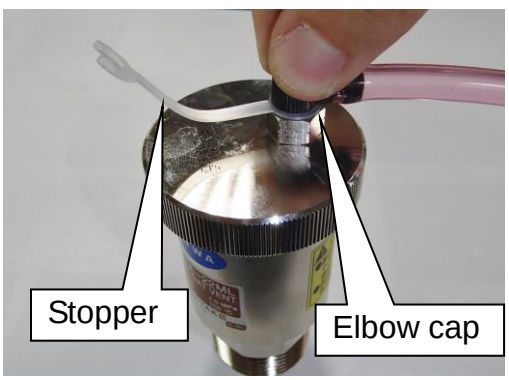


Fig. 2

⚠ Caution

1. Install the product to a place where check and handle can be done easily in aim of tightening the elbow cap when leakage happens.
   *Leakage of liquid result in burns for high-temperature fluid or cause bodily injury or damage to the property when valve leakage happens.
2. Install the product vertically to a place where air is easy to accumulate.
   *Failure to follow this notice may prevent the product from functioning properly.
3. Before installing the product, remove foreign substance and scale（seal material ect.)from the piping.
   *Failure to follow this notice may prevent the product from functioning properly.
4. Tighten the product by hand into piping. Install the product by proper tool like wrench by hexagonal place on the body. And do not tighten the product excessively.
   *Failure to follow this notice may cause deformation of the body and malfunction.
5. Install the product to a place where maintenance and inspection easily.
   Prevent the product from excess of the pressure e.g. water hammer.
6. When test operation for hot water generator, check there is no leakage by means of inspection of connection and float vent etc.
7. When leakage of liquid happens because of foreign substance like dust on the valve disc and seat, please clean the valve seat (see 6.3 Troubleshooting). As immediate action, remove top pf the cap and tighten the elbow cap to stop the leakage. (Fic.2)
   Tighten the elbow cap after removing hose. After tightening please clean valve seat and disc.
   Because elbow cap is made of plastic, it's consumable parts.
   The elbow cap will be damaged if it is tightened with excessive force(Tightening torque：0.5 N・m more).
8. Install the product vertically(tolerance angle 5°) to a place where air is easy to accumulate.
   * Failure to follow this notice may prevent the product from functioning properly.
9. If there is a possibility of freezing or the product is not used for an extended period,completely discharge fluid 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.
10. If the piping is under negative pressure, it draw in outside air.
11. Install a stop valve(valve cock or gate valve) at the inlet of the air vent valve for maintenance and inspection.
12. At brass parts, corrosion can be generated depending on the water quality and it cause malfunction. For the place where corrosion can be expected, select the product made of suitable material like stainless steel.
13. In case ingredient giving negative influence to internal parts is contained in the liquid and environment, deterioration of internal parts can be speeded and it cause leakage and malfunction.
14. In case liquid is accumulated in the product for long-term, moving parts can be sticky and cause malfunction.
15. Nominal size selection chart shows reference value. Suitable size differ according to piping and environment, so around 20% safety factor is necessary for the selection of the size.
16. To avoid potential difference, do to connection different metal parts otherwise corrosion product or parts can happen.

5. Operation

5.1 Warning and Caution for use

Warning	Do not touch the product with bare hands in case of high-temperature fluid. * Failure to follow this notice may result in burns.

Caution

1. Do not use the product over working pressure range or over maximum working temperature.
   *Failure to follow this notice damages the product or leads to air exhaust defect.
2. On test operation of water heater, conduct inspection for connection part of float vent, and check that there is no leakage.
3. If there is a possibility of freezing or the product is not used for an extended period,completely discharge fluid 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.
4. A small amount of water may blow out with air at air discharge for initial operation.
   * This is not a failure of the product.
5. If the piping is under negative pressure, it draw in outside air.
6. When on operation foreign substance such as dust adheres to valve and valve leakage occurs, clean the valve (see 6.3 Troubleshooting).

6. Maintenance

6.1 Warning and Caution for maintenance and inspection

Warning	Completely discharge internal pressure of the product, piping and equipment. Cool down the product prior to disassembling or maintenance in case of high-temperature fluid. *Failure to follow this notice may result in scalds or bodily injury due to residual pressure.

Caution

1. Conduct daily inspection and regular inspection to maintain function and performance of the product.
   * If defect is found, ask professionals.
2. Disassembly and inspection shall be performed by an experienced professional or valve manufacturer.
3. When the product is not used for an extended period, conduct operational check before operation.
   * If defect is found, ask professionals.

6.2 Daily and Periodic inspection

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

●**Daily inspection**（1time/day）

item	How to inspect	actions to be taken
Working state	Make sure the air is venting.（However, the valve is closed when there is no air inside.）	See **6.3** Troubleshooting.
Valve seat leakage	Please check visually.	See **6.3** Troubleshooting.
external leakage	Please check visually.	See **6.3** Troubleshooting.

●**Periodic inspection**（1time/year）

item	How to inspect	actions to be taken
Valve Disc	Disassemble and check visually.	If scale such as dust to the Valve Disc, clean it. If there is any damage, replace the valve set.
Valve seat O ring	Disassemble and check visually.	If scale such as dust to the Valve seat, clean it. If there is any damage, please replace the product. If the O ring is damaged, replace it.

●**Recommended replacement year**

Body(Internal parts),Cover,Guide,Valve disc cannot be disassembled.

It is recommended to replace the product every 3 to 5 years after conducting Daily and Periodic inspection.

6.3 Troubleshooting

Trouble	Cause	Remedy
No air discharge	1. It is difficult for air to accumulate.	1. Install it in a place where air tends to accumulate.
	2. Internal piping pressure is more than the appropriate value.	2. Lower the internal piping pressure, or replace the valve by one for high pressure.
	3. Top of cap stopper comes off.	3. Put the cap stopper. [See 4.2 Pic. 1, 2]
Valve seat leakage.	1. Foreign substances exist on the valve disc and seat.	1. Remove and clean the valve disc and seat. [See 6.4 Disassemble]
External leakage	1. Damage or deformation of the body or cover due to abnormal pressure rise.	1. Replace the product.
	2. O ring is damaged.	2. Replace the O ring.

6.4 Disassembly

1. Stop driving of heat source (hot water boiler, electrical water heater, etc) and pump.
2. Remove pressure inside piping.
3. Remove valve seat with spanner (nominal size: 12mm) (see Fig.3).
4. By removing valve seat, seal surface of valve and valve seat can be cleaned. Clean off scale and dust adhering to valve and valve seat with waste cloth. (see Fig. 4)

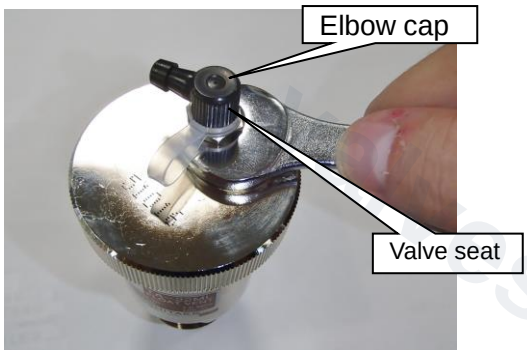


Fig.3

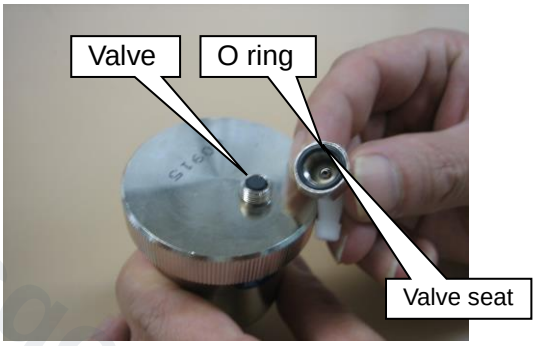
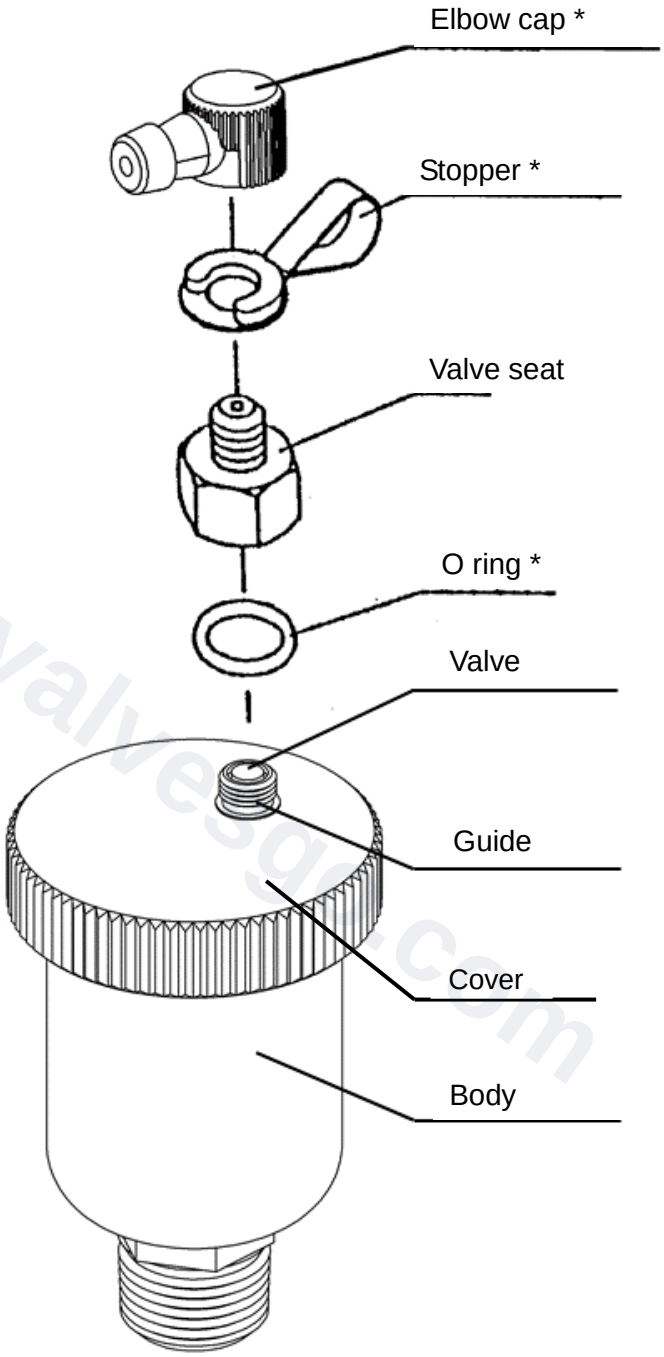


Fig. 4

5. After cleaning, apply O ring (S9) to ditch of valve seat and screw it, then tighten it with spanner. O ring and elbow cap are treated as consumable supply (Tightening torque: approximately 3 N・m).

6.5 Exploded view

*Elbow cap is made of resin, it is treated as consumable supply.



Parts marked with an asterisk (*) are consumable parts.

⚠ Caution
Cover cannot be removed. *If removed, the function and performance of the product cannot be maintained.

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.

YOSHITAKE

INTERNATIONAL DEPT.
955-5, Miyamae, Irukadeshinden, Komaki, Aichi, 485-0084, Japan
Phone: +81-568-75-4432 Fax: +81-568-75-4763
E-mail: Intntl@yoshitake.co.jp

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