



Manufacturer

TLV CO., LTD.

Kakogawa, Japan

is approved by LRQA Ltd. to ISO 9001/14001



Instruction Manual

Strainer **Y8F**

Contents

Introduction	1
Safety Considerations	2
Installation & Operational Considerations	3
1. Product Description.....	3
2. Requirements for Maintenance Staff	3
3. Transport and Storage	4
4. Function	4
5. Application.....	4
6. Configuration.....	5
7. Installation	5
8. Maintenance.....	6
9. Service and Repair.....	6
10. Troubleshooting	7
11. Disposal	7
12. TLV EXPRESS LIMITED WARRANTY	8
Service	10

Introduction

Thank you for purchasing the TLV Strainer.

This product has been thoroughly inspected before being shipped from the factory. When the product is delivered, before doing anything else, check the specifications and external appearance to make sure nothing is out of the ordinary. Also be sure to read this manual carefully before use and follow the instructions to be sure of using the product properly.

If detailed instructions for special order specifications or options not contained in this manual are required, please contact TLV for full details.

This instruction manual is intended for use with the model(s) listed on the front cover. It is necessary not only for installation but for subsequent maintenance, disassembly/reassembly and troubleshooting. Please keep it in a safe place for future reference.

Safety Considerations

- Read this section carefully before use and be sure to follow the instructions.
- Installation, inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.
- The precautions listed in this manual are designed to ensure safety and prevent equipment damage and personal injury. For situations that may occur as a result of erroneous handling, three different types of cautionary items are used to indicate the degree of urgency and the scale of potential damage and danger: DANGER, WARNING and CAUTION.
- The three types of cautionary items above are very important for safety: be sure to observe all of them as they relate to installation, use, maintenance, and repair. Furthermore, TLV accepts no responsibility for any accidents or damage occurring as a result of failure to observe these precautions.

Symbol



Indicates that there is a possibility of injury or equipment/product damage

	Install properly and DO NOT use this product outside the recommended operating pressure, temperature and other specification ranges. Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents. Local regulations may restrict the use of this product to below the conditions quoted.
	Take measures to prevent people from coming into direct contact with product outlets. Failure to do so may result in burns or other injury from the discharge of fluids.
	When disassembling or removing the product, wait until the internal pressure equals atmospheric pressure and the surface of the product has cooled to room temperature. Disassembling or removing the product when it is hot or under pressure may lead to discharge of fluids, causing burns, other injuries or damage.
	NEVER attempt to modify the product in any way. Failure to observe these precautions may result in damage to the product and burns or other injury due to malfunction or the discharge of fluids.
	Do not use excessive force when connecting threaded pipes to the product. Over-tightening may cause breakage leading to fluid discharge, which may cause burns or other injury.
	Use only under conditions in which no freeze-up will occur. Freezing may damage the product, leading to fluid discharge, which may cause burns or other injury.
	Use only under conditions in which no water hammer will occur. The impact of water hammer may damage the product, leading to fluid discharge, which may cause burns or other injury.

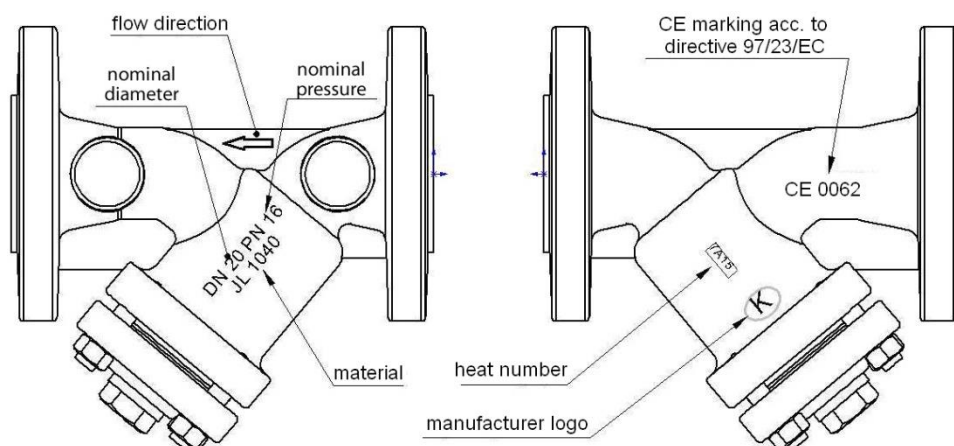
Installation & Operational Considerations

<div style="border: 1px solid black; padding: 2px; display: inline-block;"> CAUTION </div>	Before installing the product, blow out the piping to remove any piping scraps, dirt, oil and scale. Failure to do so may lead to early clogging due to an initial heavy load of foreign material in the piping.
	Do not remove the product from its box or protective covering until just prior to installation. Remove any plugs or seals just prior to installation. The protective covers keep damage causing foreign material out of the product.
	Do not use a wire-brush or other hard devices to clean the screen. Doing so may damage or detach the meshed screen.

1. Product Description

Y strainers are provided with cast markings according to the requirements of the PN-EN19 standard. The markings facilitate technical identification and contain:

- nominal diameter DN (mm),
- nominal pressure PN (bar),
- body and cover material,
- arrow indicating medium flow direction,
- manufacturer,
- heat number,
- CE marking, for products subject to the 97/23/EC directive. CE marking starts from DN32

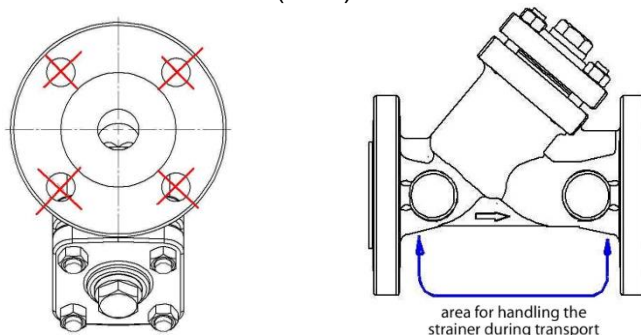


2. Requirements for Maintenance Staff

The staff assigned to assembly, operation and maintenance tasks should be qualified to carry out such jobs. During operation parts of the strainer, for example the cover or body, may become hot and the user should take the appropriate measures to prevent burns.

3. Transport and Storage

Transport and storage should be carried out at temperatures between -20 and 65 °C. Strainers should be protected against the influence of external forces and destruction of the paint layer as well. The aim of the paint layer is to protect the strainers against rust during transport and storage. Strainers should be kept in clean, dry rooms and protected against the influence of atmospheric conditions. A drying agent or heating should be applied in damp rooms to prevent condensate formation. Strainer weights are indicated on the relevant specification data sheet (SDS).



Do not fit lifting devices to connecting holes.

4. Function

Strainers are designed to remove solid particles from the medium flowing through them. Their task is to protect the most sensitive plant components such as pumps, control valves, flow and heat meters from debris. The strainer will remove solid particles which are larger than the size of the holes in the screen mesh. In order to remove magnetic debris from the medium it is recommended to use a magnetic cartridge located in the centre of the filter screen. The type of working medium may make some materials unsuitable for use. Strainers are designed for normal working conditions.

Working pressure should be adapted to the maximum temperature of the medium according to the table below:

Model	Material	PN	-20	-10	50	100	120	150	200	250	300	350	400	Temp. (°C)
Y8F-16	EN-GJL-250	16	---	16	16	16	16	14.4	12.8	11.2	9.6	---	---	Maximum Operating Pressure (barg)
Y8F-25	EN-GJS-400-18-LT	25	---	25	25	25	25	24.3	23	21.8	20	17.5	---	
Y8F-40	GP240GH	40	30	40	40	37.1	36.3	35.2	33.3	30.4	26.7	25.7	23.8	

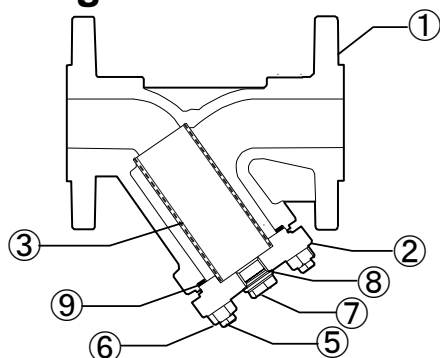


The plant designer is responsible for selecting a strainer that is suitable for working conditions.

5. Application

- Steam, water, air and other fluids*
(*Do not use for toxic, flammable or otherwise hazardous fluids.)
- Industrial technologies, power industry, heat industry, HVAC plants, etc.

6. Configuration



No.	Part Name
1	Body
2	Cover
3	Screen
4	Supporting Basket*
5	Cover Bolt
6	Cover Nut
7	Drain Plug
8	Drain Plug Gasket
9	Cover Gasket

*DN 150 and larger (not shown)

7. Installation

During the installation of the strainer the following steps should be observed:

- Visually inspect the strainer initially to ensure it is undamaged and also ensure that it is suited to the medium and working conditions used in the plant.
- Remove dust caps if supplied.
- Check that the strainer body is free of solid particles.
- Steam pipelines should be fitted in such a way as to avoid condensate collection; in order to avoid water hammer, a steam trap should be installed.
- Protect the strainer during installation from debris and excessive temperature conditions.

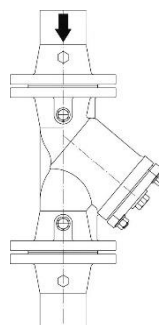
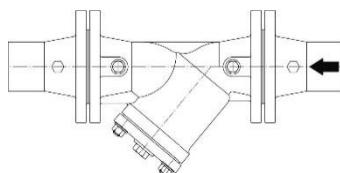


The pipeline where the strainer is fitted should be arranged in such a way that the strainer body is not subjected to any bending or stretching forces. Bolted joints on the pipeline must not cause additional stress resulting from excessive tightening, and fastener materials must comply with the working conditions of the plant.

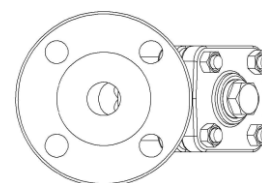


Install the strainer in such a way that flow direction matches that of the arrow placed on the body.

- The strainer body throat with screen should be positioned downwards in order to allow any sludge to collect there.



- If there is a risk of water hammer caused by condensate formation, the strainer body throat should be installed in the horizontal position.



- The plant designer should ensure space to take the screen out of the strainer body for cleaning.
- Use expansion pipe joints to reduce the influence of pipeline thermal expansion.
- Flush out the pipeline before plant startup, especially after repairs are carried out.

8. Maintenance

During maintenance the following rules should be observed:

- Startup process – Sudden changes of pressure and temperature should be avoided when starting the plant.
- Strainers – Wire mesh filters do not contain moving parts and do not require any maintenance, with the exception of screen cleaning.
- Strainer screens require regular cleaning – Screen cleaning intervals should be established by the user depending on how dirty the medium is.



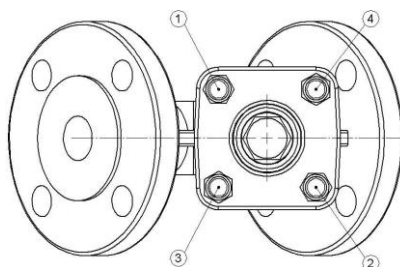
Before taking up any service jobs make sure that the medium supply to the pipeline has been cut off, the pressure has been decreased to ambient pressure, the medium has been removed from the pipeline, and the plant has cooled down.

- Cleaning or replacement of the screen is possible when body / cover bolt nuts are unscrewed and the screen is taken out of the strainer. Remove sludge from the screen by washing it in water, without using metal tools.
- Some of the sludge can be removed by unscrewing the plug from the cover if the strainer is provided with a plug.
- Before strainer reassembly remember to replace the body / cover gasket.



Precautions should be taken when touching the gasket between the body and the strainer cover. The gasket contains a metal core which may cause injury,

- Tighten the hexagon nuts of the cover bolts evenly and crosswise using a torque wrench.



Tighten sequence of body - cover bolt nuts



In order to assure safe performance, each strainer (especially those that are rarely used) should be surveyed on a regular basis. Inspection frequency should be determined by the user, but should not be less than once per month.

9. Service and Repair

All service and repair jobs should be carried out by authorized staff using suitable tools and original spare parts. Before removing the strainer from the pipeline or before service, the pipeline should be out of operation. During service and repair jobs:

- The pressure should be decreased to 0 bars and strainer temperature to ambient temperature.
- Appropriate personal protective gear should be used at all times.
- After strainer removal it is necessary to replace the flange connection gaskets between the strainer and pipeline.
- Tightening torques for body / cover bolts

Screw	M8	M10	M12	M16	M24
Torque (N.m)	15 – 20	35 – 40	65 – 70	140 – 150	350 – 400

- Before reinstalling the strainer in the pipeline it is necessary to check strainer operation, and tightness of all connections. A tightness test should be carried out with a water pressure of 1.5 times the nominal pressure of the strainer.

10. Troubleshooting



When troubleshooting the strainer, all safety rules should be strictly obeyed

Fault	Possible reason	Remedy
No flow	Flange dust caps were not removed	Remove dust caps from flanges
Poor flow	Dirty screen	Clean or replace the screen
	Clogged pipeline	Check the pipeline
Broken connecting flange	Bolts tightened unevenly	Replace the strainer with new one

11. Disposal

Obsolete and dismantled strainers must not be disposed of with household waste. This product is made of materials which can be re-used and should be delivered to designated recycling centers.

12. TLV EXPRESS LIMITED WARRANTY

Subject to the limitations set forth below, TLV CO., LTD., a Japanese corporation (“**TLV**”), warrants that products which are sold by it, TLV International Inc. (“**TII**”) or one of its group companies excluding TLV Corporation (a corporation of the United States of America), (hereinafter the “**Products**”) are designed and manufactured by TLV, conform to the specifications published by TLV for the corresponding part numbers (the “**Specifications**”) and are free from defective workmanship and materials. The party from whom the Products were purchased shall be known hereinafter as the “**Seller**”. With regard to products or components manufactured by unrelated third parties (the “**Components**”), TLV provides no warranty other than the warranty from the third party manufacturer(s), if any.

Exceptions to Warranty

This warranty does not cover defects or failures caused by:

1. improper shipping, installation, use, handling, etc., by persons other than TLV, TII or TLV group company personnel, or service representatives authorized by TLV; or
2. dirt, scale or rust, etc.; or
3. improper disassembly and reassembly, or inadequate inspection and maintenance by persons other than TLV or TLV group company personnel, or service representatives authorized by TLV; or
4. disasters or forces of nature or Acts of God; or
5. abuse, abnormal use, accidents or any other cause beyond the control of TLV, TII or TLV group companies; or
6. improper storage, maintenance or repair; or
7. operation of the Products not in accordance with instructions issued with the Products or with accepted industry practices; or
8. use for a purpose or in a manner for which the Products were not intended; or
9. use of the Products in a manner inconsistent with the Specifications; or
10. use of the Products with Hazardous Fluids (fluids other than steam, air, water, nitrogen, carbon dioxide and inert gases (helium, neon, argon, krypton, xenon and radon)); or
11. failure to follow the instructions contained in the TLV Instruction Manual for the Product.

Duration of Warranty

This warranty is effective for a period of one (1) year after delivery of Products to the first end user. Notwithstanding the foregoing, asserting a claim under this warranty must be brought within three (3) years after the date of delivery to the initial buyer if not sold initially to the first end user.

ANY IMPLIED WARRANTIES NOT NEGATED HEREBY WHICH MAY ARISE BY OPERATION OF LAW, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY EXPRESS WARRANTIES NOT NEGATED HEREBY, ARE GIVEN SOLELY TO THE INITIAL BUYER AND ARE LIMITED IN DURATION TO ONE (1) YEAR FROM THE DATE OF SHIPMENT BY THE SELLER.

Exclusive Remedy

THE EXCLUSIVE REMEDY UNDER THIS WARRANTY, UNDER ANY EXPRESS WARRANTY OR UNDER ANY IMPLIED WARRANTIES NOT NEGATED HEREBY (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE), IS **REPLACEMENT**; PROVIDED: (a) THE CLAIMED DEFECT IS REPORTED TO THE SELLER IN WRITING WITHIN THE WARRANTY PERIOD, INCLUDING A DETAILED WRITTEN DESCRIPTION OF THE CLAIMED DEFECT AND HOW AND WHEN THE CLAIMED DEFECTIVE PRODUCT WAS USED; AND (b) THE CLAIMED DEFECTIVE PRODUCT AND A COPY OF THE PURCHASE INVOICE IS RETURNED TO THE SELLER, FREIGHT AND

TRANSPORTATION COSTS PREPAID, UNDER A RETURN MATERIAL AUTHORIZATION AND TRACKING NUMBER ISSUED BY THE SELLER. ALL LABOR COSTS, SHIPPING COSTS, AND TRANSPORTATION COSTS ASSOCIATED WITH THE RETURN OR REPLACEMENT OF THE CLAIMED DEFECTIVE PRODUCT ARE SOLELY THE RESPONSIBILITY OF BUYER OR THE FIRST END USER. THE SELLER RESERVES THE RIGHT TO INSPECT ON THE FIRST END USER'S SITE ANY PRODUCTS CLAIMED TO BE DEFECTIVE BEFORE ISSUING A RETURN MATERIAL AUTHORIZATION. SHOULD SUCH INSPECTION REVEAL, IN THE SELLER'S REASONABLE DISCRETION, THAT THE CLAIMED DEFECT IS NOT COVERED BY THIS WARRANTY, THE PARTY ASSERTING THIS WARRANTY SHALL PAY THE SELLER FOR THE TIME AND EXPENSES RELATED TO SUCH ON-SITE INSPECTION.

Exclusion of Consequential and Incidental Damages

IT IS SPECIFICALLY ACKNOWLEDGED THAT THIS WARRANTY, ANY OTHER EXPRESS WARRANTY NOT NEGATED HEREBY, AND ANY IMPLIED WARRANTY NOT NEGATED HEREBY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DO NOT COVER, AND NEITHER TLV, TII NOR ITS TLV GROUP COMPANIES WILL IN ANY EVENT BE LIABLE FOR, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST PROFITS, THE COST OF DISASSEMBLY AND SHIPMENT OF THE DEFECTIVE PRODUCT, INJURY TO OTHER PROPERTY, DAMAGE TO BUYER'S OR THE FIRST END USER'S PRODUCT, DAMAGE TO BUYER'S OR THE FIRST END USER'S PROCESSES, LOSS OF USE, OR OTHER COMMERCIAL LOSSES. WHERE, DUE TO OPERATION OF LAW, CONSEQUENTIAL AND INCIDENTAL DAMAGES UNDER THIS WARRANTY, UNDER ANY OTHER EXPRESS WARRANTY NOT NEGATED HEREBY OR UNDER ANY IMPLIED WARRANTY NOT NEGATED HEREBY (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) CANNOT BE EXCLUDED, SUCH DAMAGES ARE EXPRESSLY LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT. THIS EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES, AND THE PROVISION OF THIS WARRANTY LIMITING REMEDIES HEREUNDER TO REPLACEMENT, ARE INDEPENDENT PROVISIONS, AND ANY DETERMINATION THAT THE LIMITATION OF REMEDIES FAILS OF ITS ESSENTIAL PURPOSE OR ANY OTHER DETERMINATION THAT EITHER OF THE ABOVE REMEDIES IS UNENFORCEABLE, SHALL NOT BE CONSTRUED TO MAKE THE OTHER PROVISIONS UNENFORCEABLE.

Exclusion of Other Warranties

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED.

Severability

Any provision of this warranty which is invalid, prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity, prohibition or unenforceability without invalidating the remaining provisions hereof, and any such invalidity, prohibition or unenforceability in any such jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

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