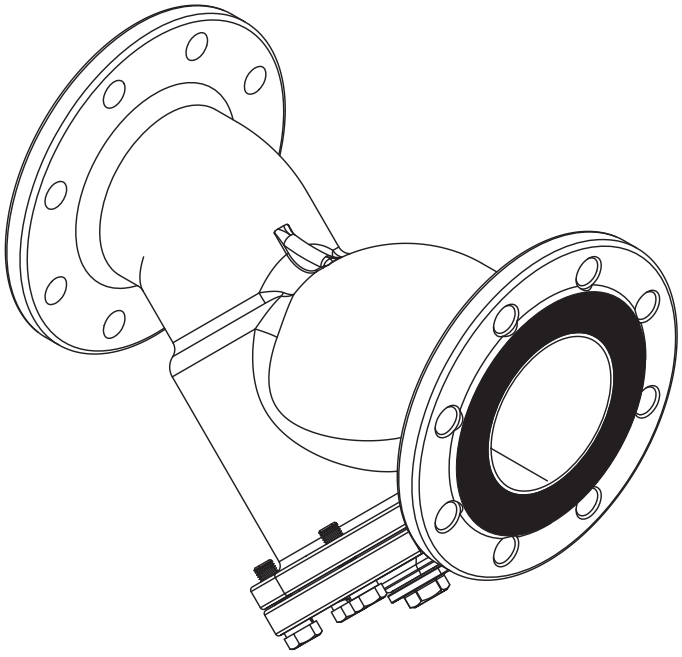
KLINGER
Die Erste

Flanged Cast Steel Y-Strainer

KFD-YSF

Installation, Operation, & Maintenance Manual



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CERTIFIED ISO 9001
UKAS MANAGEMENT SYSTEMS 001

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Chapter I Introduction

The manual is provided to ensure proper installation, operation & maintenance for KFD-YSF Flanged Cast Steel Y-Strainer, manufactured and supplied by KLINGER DIE ERSTE INDUSTRY CO., LTD. The y-strainers are identified by marking on the body or on a name plate or both.

1.1 Contact Information

For information concerning warranties, or for questions pertaining to installation, operation or maintenance of KLINGER Die Erste products, contact:

KLINGER DIE ERSTE INDUSTRY CO., LTD.
5F-1, No.936, Sec. 4, Wen-Xin Road,
Taichung City, Taiwan 406

Phone: +886 4 22310059
Fax: +886 4 22360236
Email: sales@die-erste.com

To order replacement parts, contact KLINGER Die Erste sales at address listed above.

1.2 General Notes

The following instructions refer to KFD-YSF Flanged Steel Y-Strainer as described in the KLINGER Die Erste current catalog.

KFD-YSF Y-Strainer is based on the mechanical structure and gravity to automatically perform the filtering function. It is a device installed in the pipeline to remove dirt and other unwanted debris from the fluid. Straining of the pipeline flow is accomplished via a perforated or mesh lined screen, internal to the strainer.

Certain ferrous Y-Strainer contain phosphate material, and are oil dipped during the course of manufacture. However, the processes used are completely non-toxic.

1.3 Precautions and Warnings

Choose the correct material of y-strainer for different applications before obtaining the y-strainer. The user should be aware of the operating situation, fluid properties, and the possible outcomes when implementing y-strainer into the pipeline system. KLINGER Die Erste suggests that the user should make estimation beforehand.

Fluid undergoes property changes with respect to outside factors, particularly fluid left inside the body. When temperature and pressure exceed allowable value, the y-strainer failure may occur. Users should be also aware of that excessive pressure and temperature at nearby pipeline system can also cause the y-strainer failure as well.

The density of the screen will affect the flow rate and velocity. The user needs to size the appropriate the screen perforation. In general, the size of the sieve holes should be slightly smaller than the smallest particles to be filtered. If the screen perforation size is too small, the pipeline may be clogged with high frequency, and the user may need to overclean the filter. Conversely, if the screen hole size is too large, the filtering function of the pipeline may be lost, causing damage to downstream equipment.

For safety concern, unstable fluid should not be used in the pipeline system, unless otherwise specified with the category III in Declaration of conformity.

⚠ CAUTION:

Before removing strainer from pipeline, operator should be aware of that: media flowing through the strainer may be corrosive, toxic, flammable, or of a contaminant nature. Where there is evidence of harmful fluids having flowed through the strainer, the utmost care must be taken. It is suggested that the following safety precautions should be taken when handling strainers.

1) Always wear eye shields.
2) Always wear gloves and footwear.
3) Wear protective headgear.
4) Ensure that running water is readily accessible.
5) Fire extinguisher must be obtainable if media is flammable.

Check the line gauge to ensure that no pressure is present at the strainer. Ensuring media is released by operating strainer slowly.

1.4 Storage

If the strainers are not to be installed immediately, please store the y-strainers carefully before installation, preferably indoors in a dry and clean place.
Also, the y-strainers ports should be sealed by plastic caps to prevent dirt from entering and damaging inner parts.
It is the purchaser's responsibility to take the necessary precautions for the protection of strainer in storage.
All KLINGER Die Erste cast carbon steel and alloy steel cast strainers are shipped from the factory with painting on un-machined surfaces and with a rust preven- tative sprayed on machined surfaces. In addition, plastic end protectors are installed on both end connections for protection from damage and to pre- vent entrance of foreign materials into the strainer. Strainers received in the above condition and in their original shipping containers may be stored for up to one (1) year with no additional protection; provided they are stored indoors, above floor level, and in a low humidity atmosphere.
If strainers are to be stored indoors for a longer period of time in a high humidity atmosphere, it is suggested that each item be periodically inspected every four to six (4-6) month, inside and out, for rust and/ or corrosion.

Chapter II Installation

Flush the pipeline carefully before installing the y-strainer.

Dust or debris or welding particles may cause clogging of the filter. Also, before installing, check all y-strainer and mating flanges to ensure gasket surfaces are free from defects.

⚠ **CAUTION:**
Do not exceed the strainer performance limitation.

⚠ **CAUTION:**
Before installing, make sure the line pressure has been relieved, and any hazardous fluids have been drained or purged from the system.

2.1 General Notes

1) Direction

The y-strainer are designed with a preferred flow direction. Install the y-strainer according to the direction marked on the body. The y-strainer installed with reversed flow direction will not filter properly.

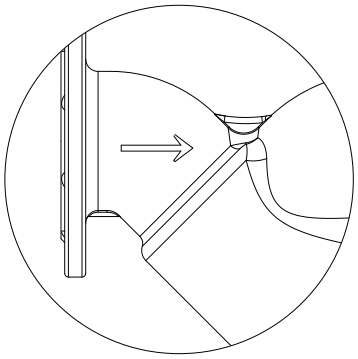


Figure 2.1 Direction arrow on body

2) Position

Install the y-stainer with the drain in the lowest position. The flow must flow downwards into the inlet of the filter to obtain appropriate operation in a vertical pipeline installation.

Make sure to provide enough space for opening the cover and removing the screen.

Note:
We recommend to install a compatible y-strainer on the cover for safe drain and quick clean out .

3) Fittings

Select the correct size of fittings according to the pipeline specification. Tighten the y-strainer to the pipeline adequately with appropriate threads or bolts. Do not attempt to correct pipeline misalignment by means of flanged bolting.

4) Systems hydrostatic test

Before delivery, the y-strainers are tested 1.5 times the allowable pressure at ambient temperature for shell test. However, after installation, the piping system may subject to system tests, as condition not to exceed the marking pressure.

5) Pre-Installation Wash

Before the y-strainer installation, clean the pipeline system to remove any foreign deposits by water. Clean the connecting flanged end surfaces as well to ensure tight sealing.

2.2 Installation of Flanged Ends

1. Before installing the y-strainers, make sure the flanges and the pipe are free from grit, dirt or burrs.
2. The flanges must be aligned and parallel with the correct distance to allow the y-strainers face-to-face dimension and gaskets to fit between.
3. Tighten the flange bolts in a crossover pattern, with a torque values determined by the gasket manufacturer, other variables like gasket type and material, bolt, flange and lubricant affect the tightening torque values.
4. Note that the bolts tightening must be uniform in order to create a parallel movement of the two flanges and uniform deformation of the gasket in between them.

Note:
Do not fasten supports to the flange bolting.

Chapter III Operation

To Start

To start the system, open the control gradually. This is crucial in flow control.

To Shut Down

Gradually close the fluid on both sides. To relieve the pressure, the user should open the drain. The strainer must be drained and pressure must be relieved before any further actions.

3.1 Handling

During the y-strainer installation, it must follow the procedure to handle at the both side of the bodies. If using cable for big y-strainer, make sure the cable must be strong enough to ensure the safety during the installation.

3.2 Cleaning

Even though the y-strainer were transported under a clean environment, operator must check if there is any foreign body or dusts inside the bore. If yes, clean the y-strainer before installation. Operator may clean the y-strainer by water, compression air, or steam. For cleaning operation, first step is put the y-strainer bore perpendicular to the ground and clean, ensure all the dusts are be removed from the bore. The second step is to check and clean all the connecting pipe bore and connection area. No flush, rust and foreign bodies are allowed to avoid the blocking and leakage.

Chapter IV: Maintenance

> ⚠ **CAUTION:**
> Do not dismantle the y-strainer or remove it from the pipeline while the y-strainer is pressurized.

4.1 General Note

KLINGER Die Erste strainers have a long, trouble free life, and maintenance is seldom required. However, when necessary, strainers may be refurbished, using a minimal number of components, none of which require machining. KLINGER Die Erste strainers are designed for easy service and assembly in the field.

Before maintenance, user should check availability of the service kit for KFD-YSF. KLINGER Die Erste strongly recommends using the genuine service kit produced directly from the KLINGER Die Erste. For more information, please contact our representatives.

4.2 Maintenance Frequency

The maintenance frequency is determined based upon the application of the strainer. User should consider the following factors when determining the maintenance time interval: fluid type, flow velocity, operation frequency, pressure, and temperature.

For maximum efficiency, a differential gauge installed across the inlet and outlet will indicate pressure loss due to clogging and may be used as a guide to determine when cleaning is required. Normally, when differential pressure reaches 5 to 10 psi, screen must be cleaned.

> **Note:**
> For the KFD-YSF Flanged Cast Steel Y-Strainer, KLINGER Die Erste recommends inspecting the y-strainer at least every (1) year.

4.3 Disassembly

1. Depressurized and empty the seal up fluid before disassembly. Be cautious of the fluid inside the strainer as they can be poisonous and flammable.
2. Remove the DRAIN PLUG (6) and drain the fluid.
3. Remove the COVER NUTS (8), COVER (4) and GASKET (3) from the BODY (1).
4. Remove the SCREEN (2) from the BODY (1). Wash the SCREEN (2) thoroughly from both sides.
5. Inspect the SCREEN (2) holes to see if there is any damage.
6. If the damage is substantial that leads to malfunctions of the strainer, the SCREEN (2) should be replaced.
7. Inspect the sealing surface.
8. All the components should be stored in a clean place.

4.4 Reassembly

Before reassembly, inspect the strainer for any damage on all internals. Damaged internals can be replaced by genuine KLINGER Die Erste strainer part from the service kit. It is recommended to keep the service kit stock.

1. Place the new SCREEN (2) or cleansed screen back into the strainer.
2. Place a new GASKET (3) if it is deformed or damaged.
3. Re-tighten COVER STUDS (7) on the BODY (1). Place the COVER (4) back on by tighten the COVER NUTS (8).
4. Finally place the smaller PLUG SEAL (5) and the DRAIN PLUG (6) top back on and tighten it up to the COVER (4).
5. Test the y-strainer as required, and place the it back into service.

4.5 Troubleshooting

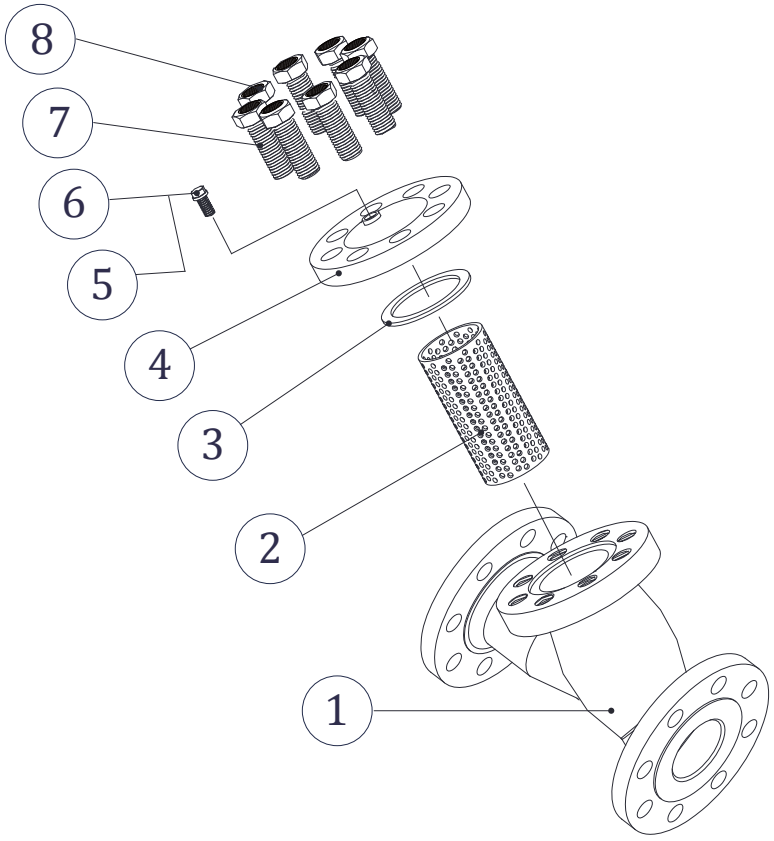
The following table lists the possible malfunctions.

Table 4.1 Troubleshooting Table

Symptom	Possible fault	Actions
External leaks at gaskets	Damaged gasket	Replace the gasket
Internal / External corrosion	Strainer material not compatible with the fluid	Valuate for compatibility and replace the strainer with a compatible one.
Frequent clogging	Filtration level too fine	Replace element provided with the correct filtration level
Frequent bursting of element	Unrealistic maintenance schedules	Install differential pressure gauges and follow above maintenance procedures

4.6 Technical Data and Product Information

KFD-YSF



NO	PART NAME	MATERIAL
1	BODY	GS-C25
2	SCREEN	SS 316 (40 Mesh)
3	GASKET	SS304 + Flixible Graphite
4	COVER	GS-C25

NO	PART NAME	MATERIAL
5	PLUG SEAL	PTFE
6	DRAIN PLUG	AISI 1025
7	COVER STUD	A193 B7
8	COVER NUT	A194 2H