



**INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.**

# FanEx Heat Exchanger

**S**outhgate  
Process Equipment, Inc.

**Standard Xchange**  
a xylem brand

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# Table of Contents

<b>Introduction and Safety</b> .....	2
Introduction.....	2
Safety.....	2
Safety terminology and symbols.....	2
Hazard levels and categories.....	3
User Safety.....	3
Product warranty.....	4
<b>Product Description</b> .....	6
General description.....	6
Function.....	6
<b>Installation</b> .....	7
Mounting.....	7
Piping.....	7
Motor.....	7
<b>Operation</b> .....	9
Startup and shutdown procedures.....	9
<b>Storage</b> .....	10
Storage.....	10
<b>Maintenance</b> .....	11
Motors.....	11
Fluid Side.....	11
Air Side.....	11

# Introduction and Safety

## INTRODUCTION

The purpose of this manual is to provide necessary information for:

- Installation
- Operation
- Maintenance



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### CAUTION:

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damages to property and may void the warranty.

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### NOTICE:

Save this manual for future reference, and keep it readily available at the location of the unit.

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## SAFETY



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### WARNING:

- The operator must be aware of safety precautions to prevent physical injury.
  - Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious injury, or damage to the equipment. This includes any modification to the equipment or use of parts not provided by Xylem. If there is a question regarding the intended use of the equipment, please contact a Xylem representative before proceeding.
  - Do not change the service application without the approval of an authorized Xylem representative.
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### CAUTION:

You must observe the instructions contained in this manual. Failure to do so could result in physical injury, damage, or delays.

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## Terminology and symbols

It is extremely important that you read, understand, and follow the safety messages and regulations carefully before handling the product. They are published to help prevent these hazards:

- Personal accidents and health problems
- Damage to the product
- Product malfunction

## Hazard levels



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**DANGER:**

A hazardous situation which, if not, avoided, will result in death or serious injury

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**WARNING:**

A hazardous situation which, if not, avoided, could result in death or serious injury

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**CAUTION:**

A hazardous situation which, if not, avoided, could result in minor or moderate injury

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**NOTICE:**

-A potential situation which, if not avoided, could result in undesirable conditions  
-A practice not related to personal injury

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## Hazard categories

Hazard categories can either fall under hazard levels or let specific symbols replace the ordinary hazard level symbols.

These are examples of other categories that can occur. They fall under the ordinary hazard levels and may use complementing symbols:

- Crush hazard
- Cutting hazard
- Arc flash hazard

## USER SAFETY

### General safety rules

Applicable general safety rules:

- Always keep the work area clean.
- Pay attention to the risks presented by gas and vapors in work area.
- Avoid all electrical dangers and pay attention to the risks of electric shock or arc flash hazards.
- Always bear in mind the risk of drowning, electrical accidents, and burn injuries.

## Safety equipment

Use safety equipment according to the company regulations. Use this safety equipment within the work area:

- Hard hat
- Safety goggles, preferably with side shields
- Protective shoes
- Protective gloves
- Gas mask
- Hearing protection
- First-aid kit
- Safety devices

NOTICE:

Never operate a unit unless safety devices are installed. Also see specific information about safety devices in other chapters of this manual.

## PRODUCT WARRANTY

### Coverage

Xylem undertakes to remedy defects in products from Xylem under these conditions:

- The faults are due to defects in design, materials, or workmanship.
- The faults are reported to a local sales and service representative within the warranty period.
- The product is used only under the conditions that are described in this manual.
- All service and repair work that is done by Xylem authorized personnel.
- Genuine Xylem parts are used.

### Limitations

Warranty does not cover defects caused by:

- Deficient maintenance
- Improper installation
- Modifications or changes to the product and installation that are made without consulting a Xylem authorized representative
- Incorrectly executed repair work
- Normal wear and tear

Xylem assumes no liability for the following situations:

- Bodily injury
- Material damages
- Economic losses

## Warranty claim

Xylem products are high quality products with expected reliable operation and long life. However, should the need for a warranty claim arise, contact your local sales representative or the manufacturer.



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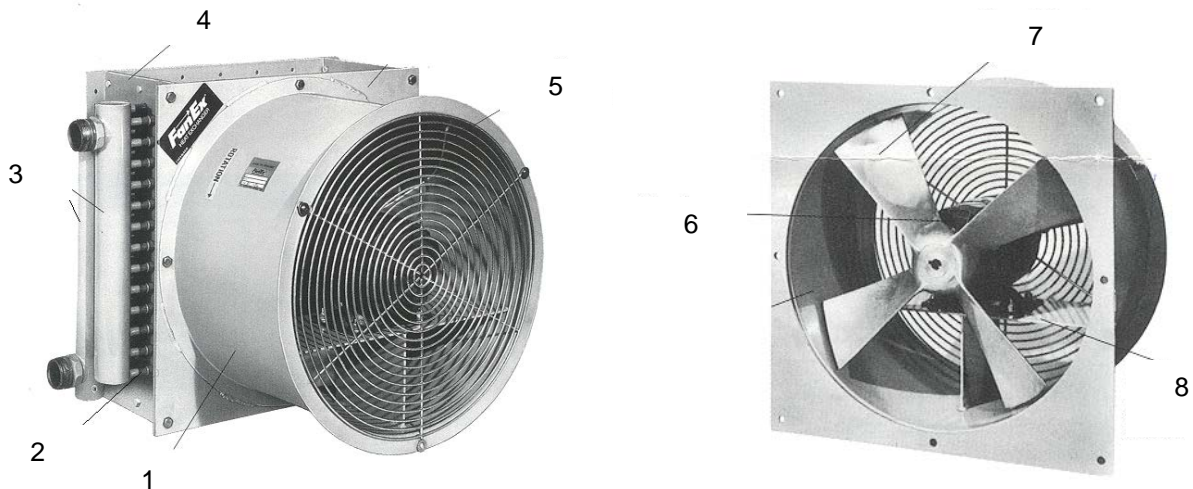
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# PRODUCT DESCRIPTION

In FanEx heat exchangers, heat is transferred from one fluid medium to the ambient air. Air is blown across a coil (core) section via electric motor driven fans while the fluid medium travels inside of tubes. The core is constructed of formed plate fins across the tubes.

Below are the components of a FanEx heat exchanger.



**1. Fan tube**

Encloses the fan blade and motor.

**2. Tubes**

Fluid medium flows inside of (tube side).

**3. Headers**

Inlet and outlet for the fluid medium and where tubes are connected to.

**4. Casing**

Outer casing that encloses the plate fins and tubes.

**5. Finger guard**

Provides protection against the moving fan blade.

**6. Motor**

Drives and rotates the fan blade

**7. Fan Blade**

When powered by the motor, provides the air flow. Also known as a propeller.

**8. Fan Panel**

Attaches the fan assembly to the core.

There are two main assembly components. The core or coil section and the fan assembly.

The core or coil section includes the tubes, headers, fins and outer casing.

The fan assembly consists of the fan tube, finger guard, motor, fan blade and fan panel.

# INSTALLATION

**DANGER:**

Care to be taken in handling this equipment. Wear hard hats, safety shoes and other safety equipment as required. Always use proper rigging to handle the weights of the equipment.

1. On receipt of heat exchanger, inspect for any damage. If damage is evident, notify the freight carrier immediately and file a claim.
2. Provide adequate space around the heat exchanger for unrestricted flow of air at entrance to the fan and discharge from the coil.

**NOTICE:**

Recommended minimum clearance is four feet at both the air inlet and outlet.

3. When installing, set the heat exchanger level and square. Mount only in the orientation the heat exchanger is designed for.

**DANGER:**

Ensure the heat exchanger is mounted securely to avoid injury.

4. Before piping, inspect openings for foreign material and remove if necessary.
5. Provide valves and bypasses in the piping system so that the tube side may be isolated for inspection, cleaning and repairs.
6. Provide adequate supports for mounting the heat exchanger so that connections will not have any loads on them.
7. Connect tube side fluid inlet at bottom of the side opposite the fan, unless otherwise indicated on the drawing., to insure proper venting and performance.
8. Wire the motor and provide proper fusing according to the motor manufacturer's instructions.

**DANGER:**

Always comply with local electrical codes.



9. After initial wiring, start the fan momentarily and disconnect it. Observe the rotation of the fan blade to be sure rotation is in the proper direction. Do not allow the fan to run backward except momentarily. If rotation is in the wrong direction, correct as required.



**WARNING:**

Never remove the fan guard except when power is disconnected and motor /fan are not running.



**WARNING:**

During times of shutdown, volumetric expansion can occur. It is recommended to install properly sized relief valves on both sides of the heat exchanger.

**NOTICE:**

To prevent plugging, be sure entire system is clean before starting operation. If fluids are “dirty”, a filter or strainer or some other means should be installed at the inlets prior to the heat exchanger to avoid potential plugging.

# OPERATION



**CAUTION:**

The heat exchanger must never be subjected to pressure greater than the maximum differential or design pressure or to temperatures below or above those stated on the nameplate and drawing.

1. Ensure the entire system is clean before starting operation to prevent plugging of the tubes or fin passages. The use of filters, strainers, etc. prior to the heat exchanger is recommended.
2. Open vents prior to start up.
3. Start operating gradually. Start the fan first. Then start the tube side fluid.
4. When shutting down, shut down the tube side fluid first and then the fan.
5. After the tube side system is completely full and the air has been vented, close all vent connections.

**NOTICE:**

Ensure no debris from the system enters the heat exchanger at start-up. It may be necessary to bypass the heat exchanger until system is flushed clean.



**CAUTION:**

Fluids must be gradually introduced to the unit. Failure to do so can cause damage.



**WARNING:**

Ensure there are no leaks as fluid temperature and pressure may cause harm.



**WARNING:**

Never remove the fan guard except when power is disconnected and motor /fan are not running.



**WARNING:**

Use protective hearing aids when in the area of the FanEx heat exchanger



**CAUTION:**

Ensure no vibration to the heat exchanger. Vibration can cause damage.

# STORAGE

1. Equipment should be protected from the elements and not subject to extreme cold or heat. A dry area with constant temperature is recommended.
2. If equipment needs to be stored for over a month prior to installation and operation, it is recommended to charge the fluid side with a low pressure (1-3 psig) inert gas, such as nitrogen, and seal it.
3. Short term shutdowns typically do not require draining the coil if the temperature surrounding the equipment is above the freeze point and below the boiling point, and the fluid is free of oxidizing dissolved air.
4. For long term shutdown, draining ,and possibly flushing, is required. To drain, open the air vent at the top of the coil, or at the highest point in the return line, and open the drain fitting or the lowest fluid connection. Some fluid will remain in the unit due to surface tension. If there is concern of freezing of this fluid, compressed air can be blown into the highest coil connection or air vent to remove the remaining fluid.
5. If the fluid inside the tube, either by itself or when mixed with air, can become corrosive, then flushing of the unit may be necessary.
6. It is advisable to clean and coat the fin surface if dew or condensation could develop on the exterior during the shutdown period. The protectant coating needs to be compatible with the materials of construction and be easily washed off leaving no residue.



**CAUTION:**  
Always use proper care and safety equipment.

# MAINTENANCE



**DANGER:**

Always ensure power is disconnected and locked out and heat exchanger is drained and depressurized prior to servicing.

1. Motors with provisions for lubrication should be lubricated periodically according to the motor manufacturer's instructions. Motors with no provision for lubrication are equipped with sealed bearings and should not require maintenance.

**NOTICE:**

Contact the motor manufacturer for specific instructions on motor maintenance.

**NOTICE:**

Operation above the rated ambient temperature of the motor may decrease operating life.

2. Inspect the product regularly for corrosion and dirty or clogged heat transfer surfaces.
3. To clean the fluid side, flush out the tubes using a solvent compatible with the fluid and materials of construction. It may help to blow the unit out with compressed air.

**NOTICE:**

Do not rod or attempt to push through as this can damage the internals.

4. To clean the air side, low pressure compressed air may be used to remove accumulated dirt or debris. More thorough cleaning can be accomplished by removing the coil from the assembly and flushing at low pressure with a solvent compatible with the materials of construction. Dry completely before restarting for operation.
5. Fins that are flattened or bent can sometime be combed back into position. This may require removal of the coil section from the fan assembly

**NOTICE:**

Care should be taken not to damage the fins.



**CAUTION:**

Always use proper care and safety equipment.



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