



## Discfilter HSF2200 - 1/2C - PFC

*Operation and maintenance manual*

Revised: 2021-02-09

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# 1. INTRODUCTION

This manual contains instructions for the operation and maintenance of Hydrotech Discfilter in the HSF2200 series.

Pay attention to all warning symbols that appear in this manual. If this information is ignored it may result in serious personal injury and/or damage to equipment.

The manual must always be available to personnel working with the equipment.

It is important that:

- ▶ The manual and other applicable documents must be kept for the entire duration of the equipment's lifespan. The manual and other relevant documents are included as part of the equipment.
- ▶ All relevant personnel must read the manuals carefully.

## 2. SAFETY INSTRUCTIONS

Hydrotech Discfilters in the HSF2200 series are designed for safe operation provided that they are installed correctly and used in accordance with the enclosed instructions. The equipment must be installed correctly and adapted in accordance with local regulations. This equipment is designed for use by one or more operators. You must read the relevant sections of this manual before using the equipment or carrying out maintenance work.

- ▶ Pay attention to all warning symbols that appear in this manual. If this information is ignored it may result in serious personal injury and/or damage to equipment.
- ▶ Assume all electrical equipment to be live.
- ▶ Assume all hoses and pipes to be pressurised.
- ▶ Before carrying out maintenance work, the main power switch (see Figure 2.3) must be turned to the OFF (0) position and locked with a padlock.
- ▶ Maintenance and service may only be performed by authorised personnel.
- ▶ Adequate lighting should be used when operating the filter and when working in close proximity to the filter.

### 2.1 Warning symbols



Figure 1



Figure 2.1

Warning symbols are used in this manual to draw attention to potentially dangerous situations:

*Information that warns you of a potential risk of personal injury and/or damage to equipment.*

Warning stickers (see Figure 2.1) are affixed to the filter to warn personnel and act as reminders to keep hands and fingers away from the filter's moving parts.

### 2.2 CE marking



Figure 2.2

This equipment is CE marked (see Figure 2.2), which guarantees that the equipment is designed, manufactured and described in accordance with the requirements set out in the EU Machinery Directive.

### 2.3 Conversion

The CE marking does not extend to any components that are not approved by Hydrotech AB and that are used in conversion/reconstruction of the equipment. The warning symbols and CE marking must be attached in such a way that they are fully visible. If any part of the equipment with a warning symbol is replaced, a new symbol must be attached in the same position. Damaged symbols and CE markings must be replaced immediately.

## 2.4 Personnel requirements

In order to avoid personal injury and damage to the equipment, service and maintenance may only be carried out by personnel that have been trained to use the equipment and are conversant in local regulations. Service and maintenance personnel may only handle those parts of the equipment they have been trained for.

The operator may need to work inside the safety barrier and in the safety zone during maintenance and set-up before operation.

## 2.5 Emergency stop

The filter is equipped with a main power switch (see Figure 2.3).

To perform an emergency stop, turn the main power switch to the OFF (0) position.

In the event of a power failure, turn the main power switch to the OFF (0) position to prevent the filter drum from unintentionally starting to rotate when the power is reconnected.

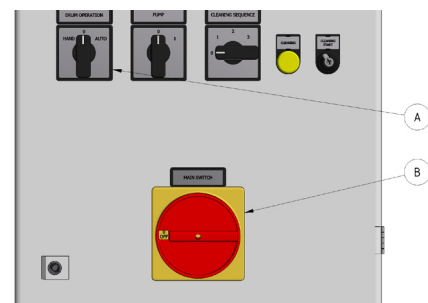


Figure 2.3  
A. Mode selector  
B. Main power switch

## 2.6 Electrical safety

Electrical installation must be carried out by a qualified electrician and in accordance with local regulations. Also see Appendix D.

The filter tank or the frame must be connected to ground. Also see section 4.4.

The main power switch/emergency stop must be fitted in accordance with applicable regulations.

## 2.7 Safety instructions

The filter is activated by turning the main power switch to the ON (1) position and then selecting HAND or AUTO with the mode selector on the front of the control cabinet. The filter stops if the mode selector is turned to the 0 (OFF) position.

NB See instructions in section 5.1.



*Turn the main power switch to the OFF (0) position and lock it with a padlock before performing any work on the filter.*



*Access to the filter by unauthorised persons is strictly prohibited. Outdoor installations must be fenced in.*



*The drum can start rotating without warning if automatic control is activated. Moving parts must not be touched.*

Safety guards are fitted around the power transmission. Make sure these are secured and correctly fitted.



*The aerosols from the backwash water may contain harmful substances.*

Measured noise levels from the filter are less than 74 dB (A). Personnel should use appropriate protection, when necessary, in accordance with local regulations.



## 3. HYDROTECH DISCFILTER HSF2200 SERIES

### 3.1 Reception

Once the equipment has been delivered and received it must be checked for transport damage. Document any transport damage before further handling of the equipment.

The consignment note, manual and spare part kit are attached to the equipment.

Check all parts against the consignment note. Some parts may be delivered unassembled. Handle fragile parts with care. Before lifting the equipment, see section 4.1.

### 3.2 Storage

Some precautions must be taken to prevent damage to equipment if a long storage time is necessary (several weeks or more):

- ▶ The equipment should preferably be stored indoors, in a frost-free area.
- ▶ The filter must be protected against direct sunlight if stored outdoors. Heat and UV radiation can damage the filter panels.
- ▶ If the filters are delivered inside plastic covered wooden crates, a special type of corrosion can occur if stored outdoors, especially in coastal areas. The moisture inside the plastic acts as an anode and the exposed dry components as a cathode. In these areas, the filters must therefore be unpacked immediately upon delivery.

## 3.3 Overview

### 3.3.1 HSF2200 type 1, filter with tank

NB Also see section 3.3.2 (HSF2200 type 2, filter without tank) where several filter parts are shown.

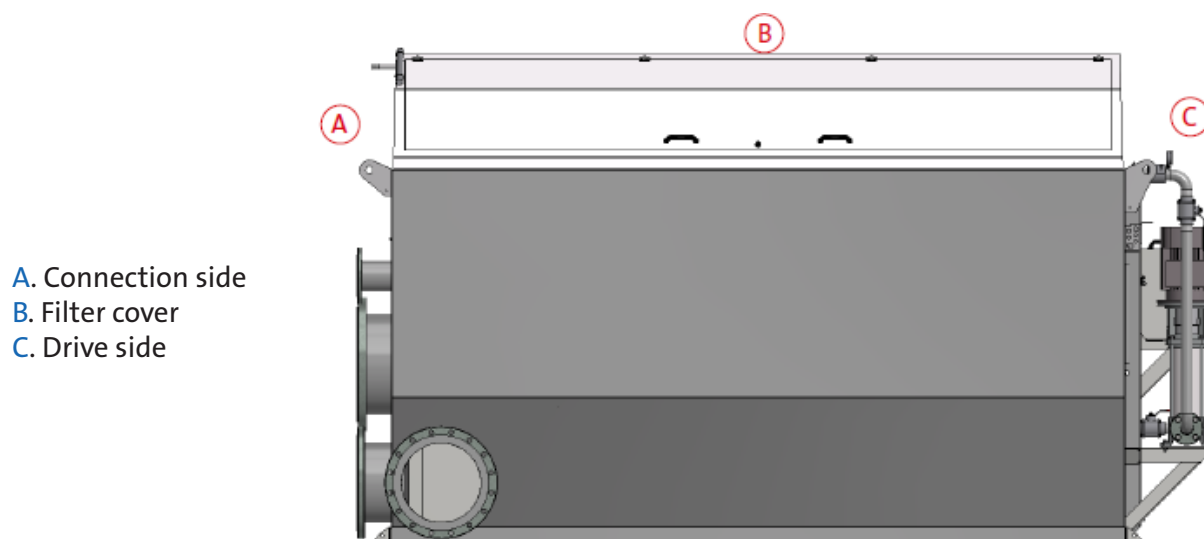


Figure 3.1 Hydrotech Discfilter in HSF2200 series type 1F (side view).

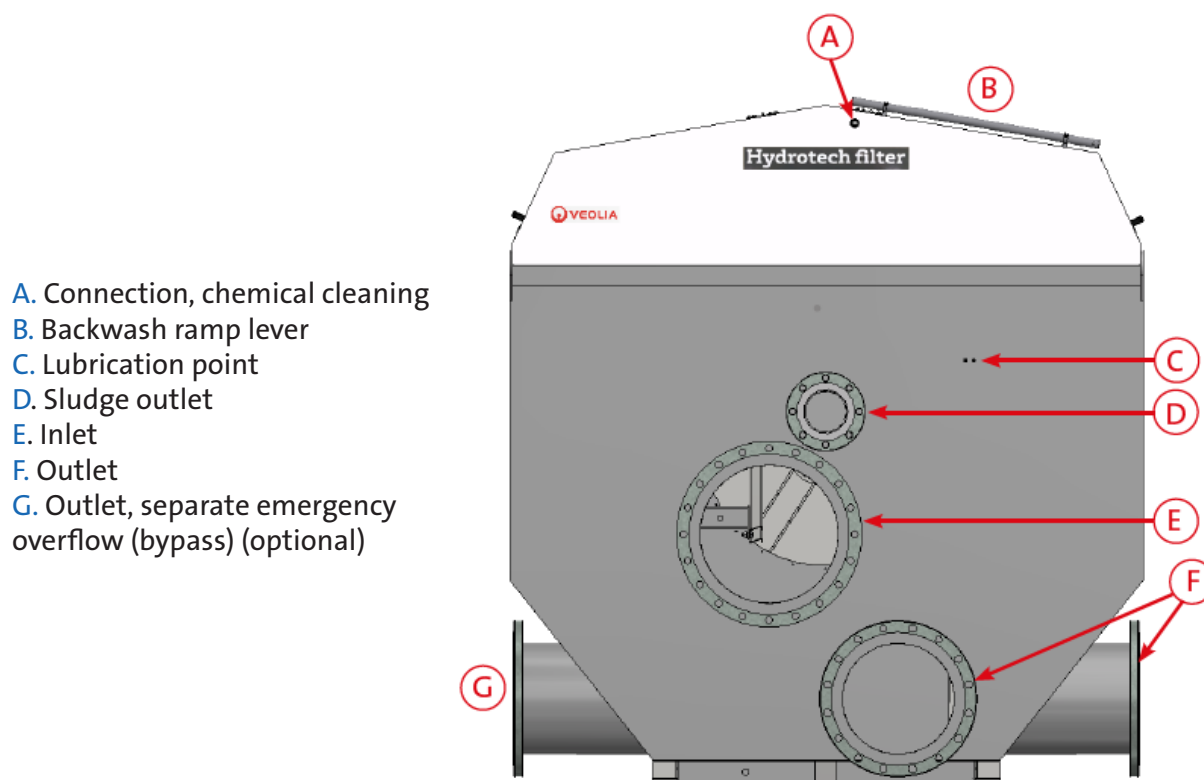


Figure 3.2 Hydrotech Discfilter in HSF2200 series type 1C (inlet side).

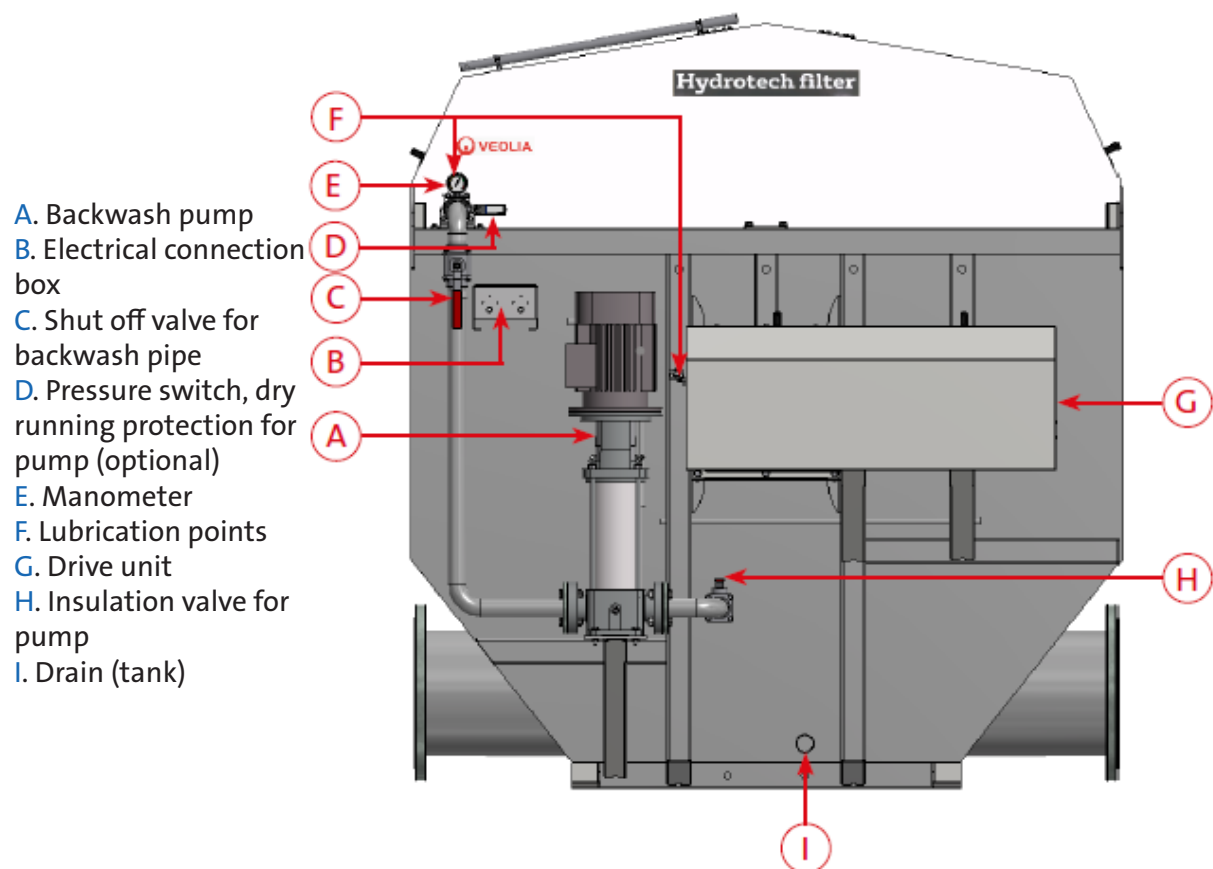


Figure 3.3 Hydrotech Discfilter in HSF2200 series type 1C (drive side).

### 3.3.2 HSF2200 type 2, filter without tank

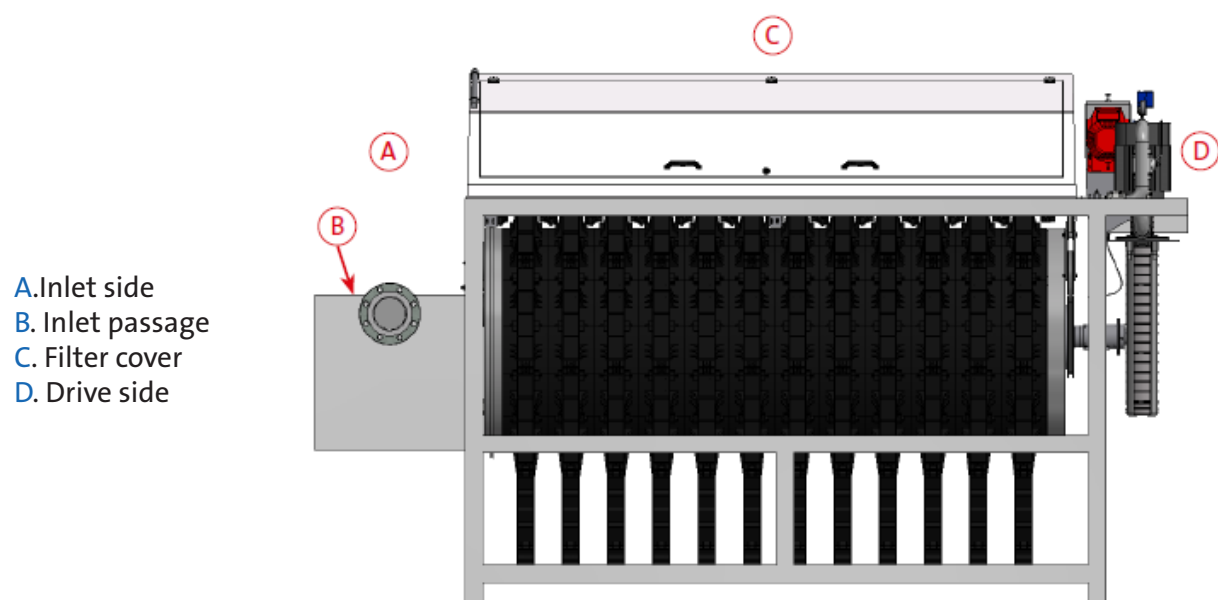


Figure 3.4 Hydrotech Discfilter in HSF2200 series type 2C (side view).

- A. Connection, chemical cleaning
- B. Backwash ramp lever
- C. Support wheel, lubrication points
- D. Sludge outlet
- E. Inlet
- F. Filter panel
- G. Sludge trough

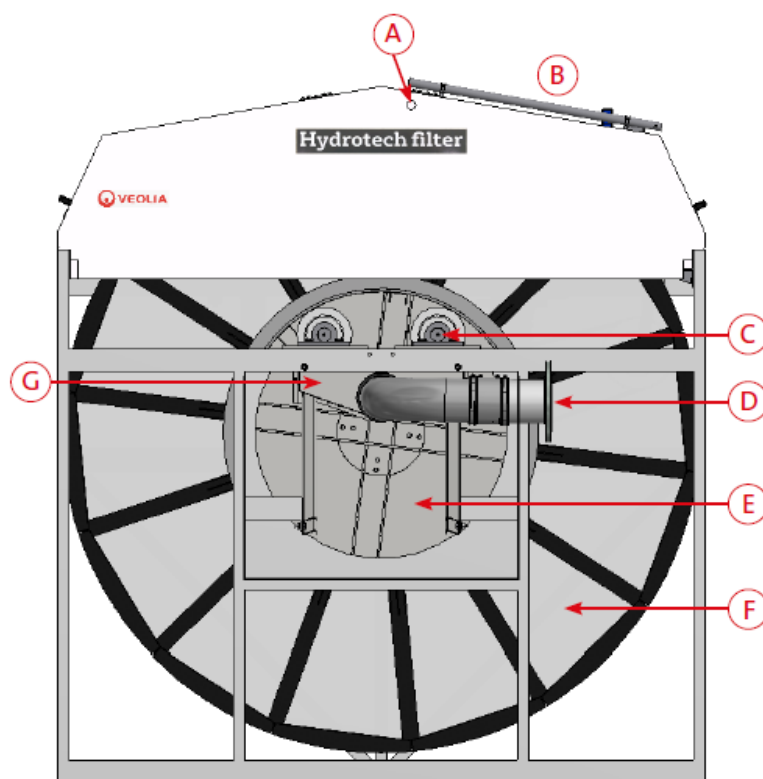


Figure 3.5 Hydrotech Discfilter in HSF2200 series type 2C (inlet side).

- A. Manometer
- B. Pressure switch (dry running protection for pump) (optional)
- C. Backwash pump (optional)
- D. Drive unit
- E. Lubrication point
- F. Drive chain
- G. Drum bearings
- H. Filter drum

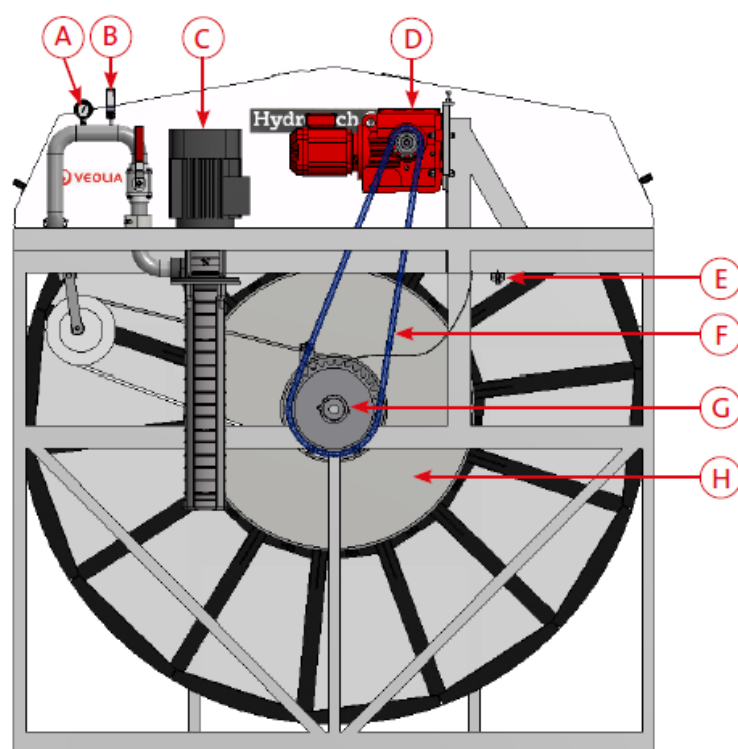


Figure 3.6 Hydrotech Discfilter in HSF2200 series type 2C (drive side).

## 3.4 Identifying the filter

Filter type, serial number and year of manufacture are stated on the marking plate. The filter type and serial number are also stated on the front of this manual.



Figure 3.7 Filter marking plate.

### 3.4.1 Definition of filter type

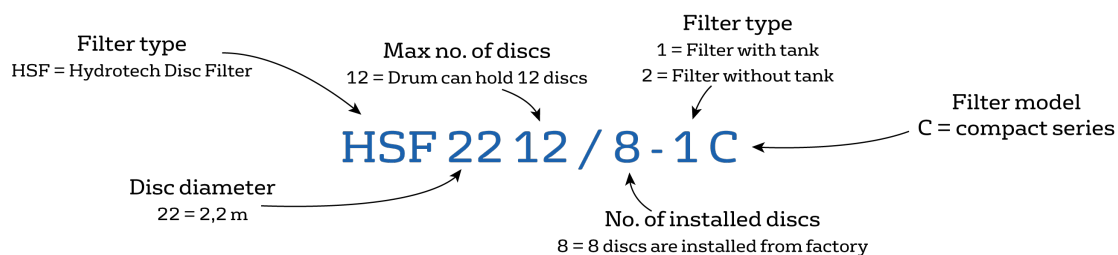


Figure 3.8 Definition of filter type

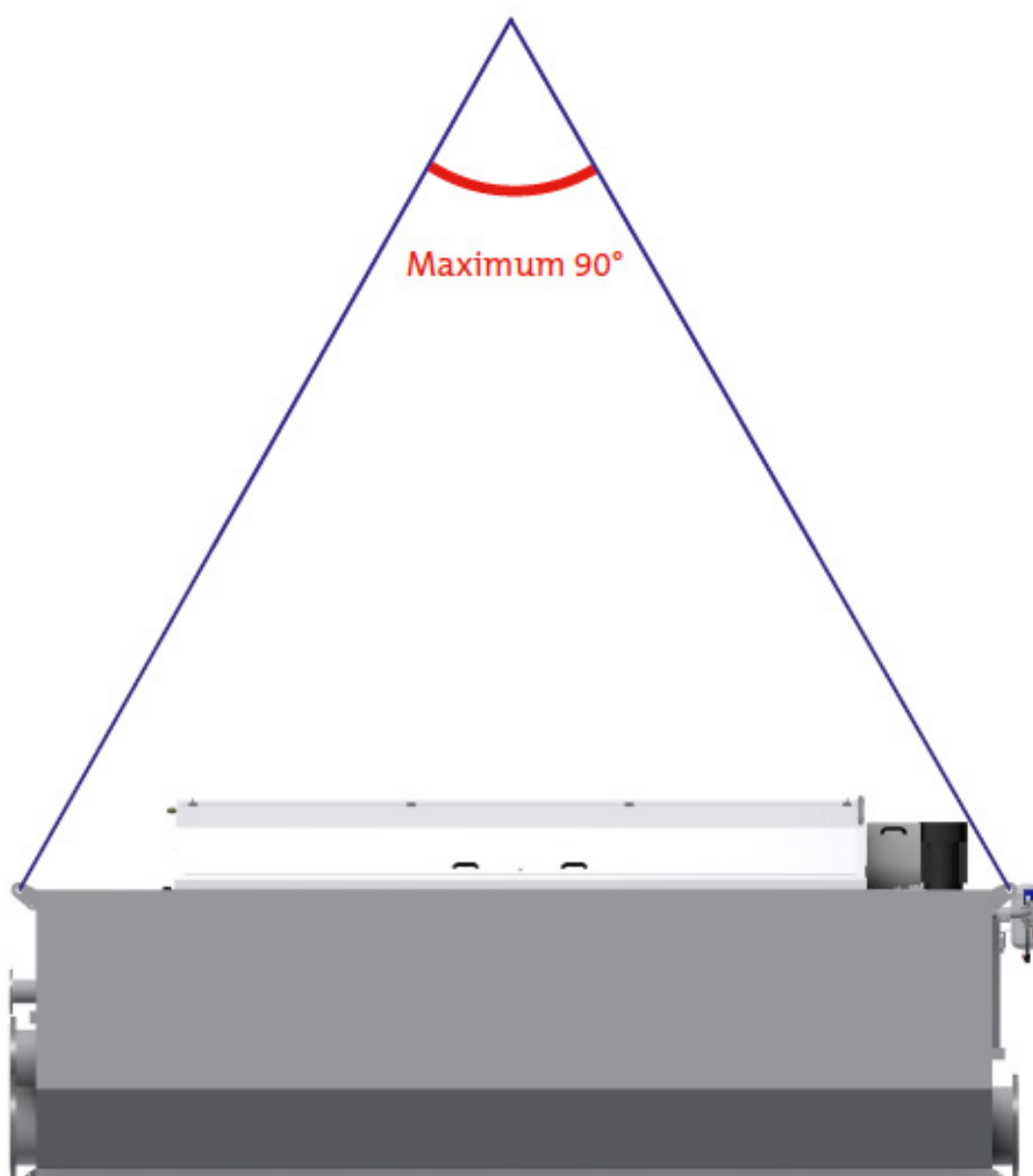
## 4. GENERAL INSTALLATION INSTRUCTIONS

### 4.1 Lifting the equipment

- ▶ A forklift truck with long forks must be used when lifting filters in wooden crates.
- ▶ Filters with a tank can be lifted using a crane or overhead crane by using the filter's lifting lugs, or with a forklift truck.

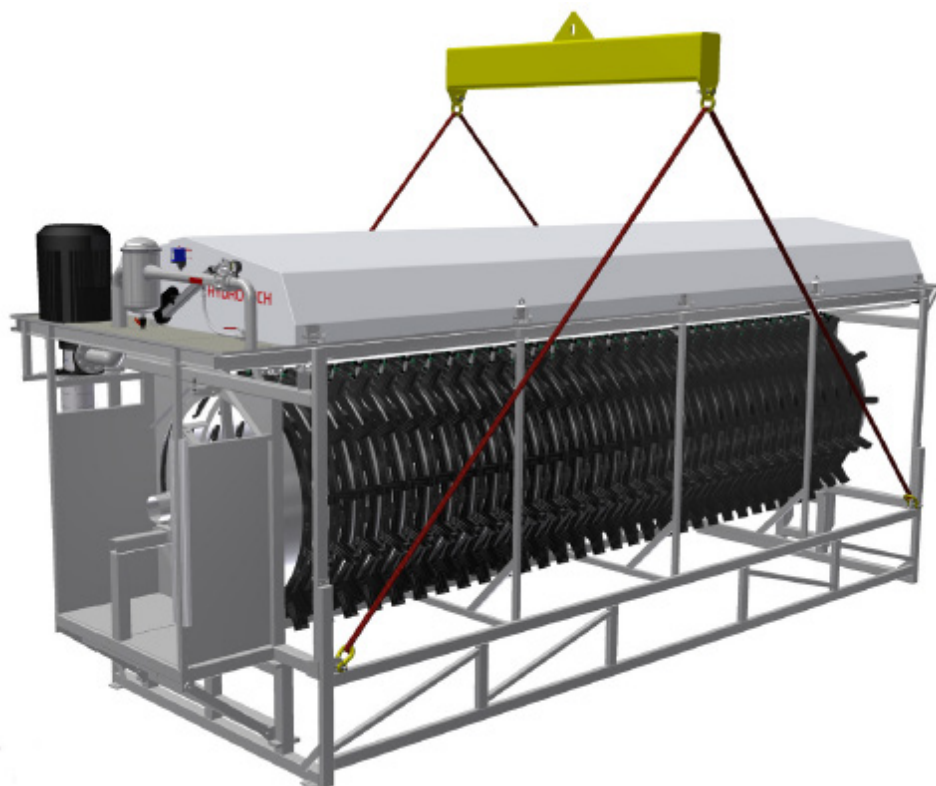


**WARNING!** The work area must be fenced off before unloading, in accordance with local regulations, to prevent unauthorised access.

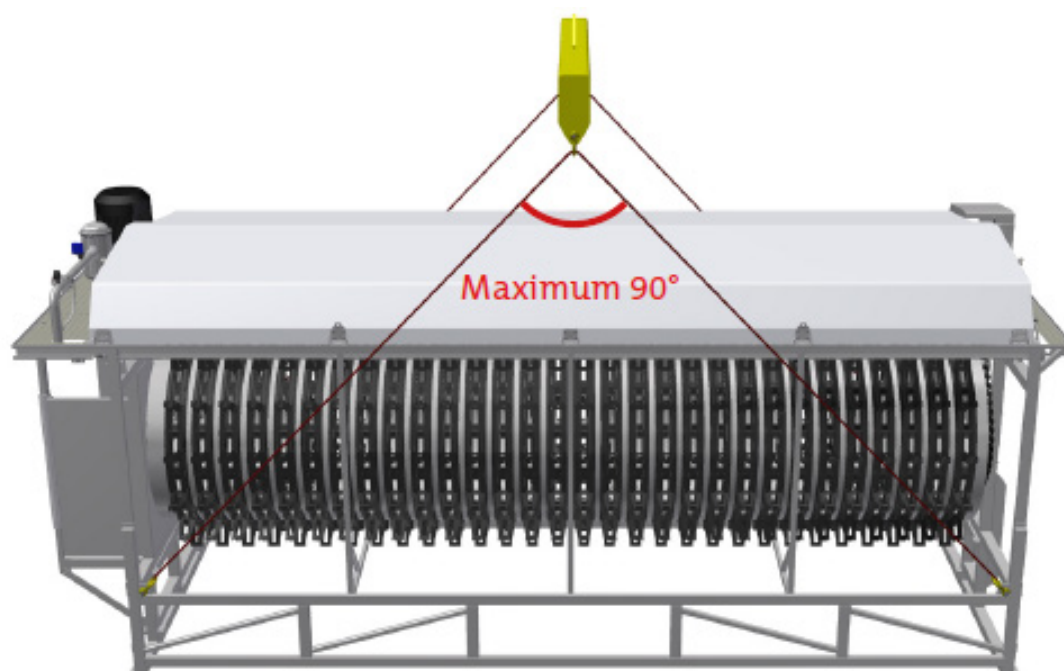


Figur 4.1 Lyft av Hydrotech Discfilter i HSF2200-serien typ 1 (med tank,).

- Filters without a tank can be lifted using a crane or overhead crane by using the filter's lifting lugs.



*Figure 4.2 Shows how lifting devices are attached (filter without tank).*



*Figure 4.3 Lifting Hydrotech Discfilter in HSF2200 series type 2 (without tank).*

## 4.2 Installation site

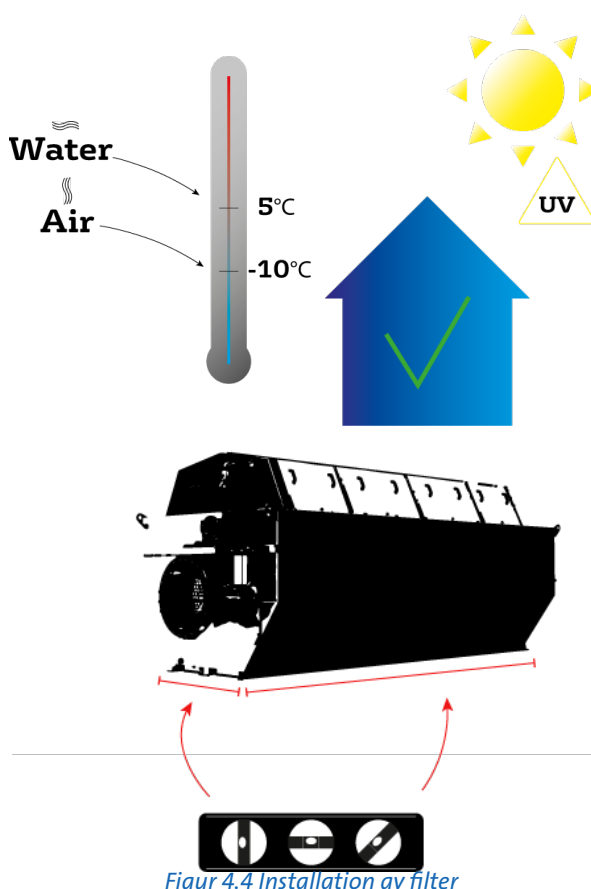
### I.1.1 Outdoor installation

In the event of outdoor installation it is important to protect the filter panels against direct sunlight, as heat and UV radiation otherwise can cause damage to the filter panels.

The equipment must be protected against temperatures below freezing point. At water temperatures above +5 °C and air temperatures above -10 °C the filter cover provides sufficient protection. At lower water and air temperatures, filter installation should be indoors.


### I.1.2 Foundations

- ▶ The filter must be installed on a flat surface that offers sufficient load bearing capacity.
- ▶ The filter is to be bolted to the foundation.
- ▶ The filter must be level in both directions (see figure 4.4).
- ▶ 600 mm wide aisles should be laid out around the filter to permit easy access to the filter during service work.
- ▶ The gap between the filter and the concrete structure must be sealed for safety reasons and to keep out foreign objects that can cause blockages in the backwash system.



Figur 4.4 Installation av filter

## 4.3 Electrical connection

 *Qualified electricians must perform all electrical work.*

Electrical connection must be done in accordance with local regulations. Check that the settings on the motor protection correspond with the motor data.

 *Section 4.5 must be read before starting the filter's drum rotation.*

## 4.4 Equipotential bonding

The Hydrotech Discfilter and associated equipment should be protected with a suitable system for equipotential bonding. This is very important to prevent galvanic corrosion. Ideally use a cable with a cross section of 10-16 mm<sup>2</sup>. The cable should be connected to the same electrical potential as the drive system.



## 4.5 Checking drum rotation

Start drum rotation and check that the drum rotates in the same direction as the rotation arrow on the drive unit cover.

## 4.6 Pipe connections

Piping for reject should have a minimum inclination of 1%.

## 5. START UP AND OPERATION

### 5.1 Check procedures during start-up

1. Check that the drive unit cover is installed correctly.
2. Turn the pump switch to the OFF (0) position (see F in Figure 5.1).
3. Set the main power switch to the ON (1) position (see J in Figure 5.1).
4. Set the mode selector to the HAND position (see E in Figure 5.1).
5. Open the water supply partially so that water slowly flows into the filter drum. Make sure that the difference in water level between the inside and outside of the filter drum does not exceed 550 mm (see section 5.2.1).

If the filter cloth becomes clogged, it may be necessary to fill the filter tank/chamber with water from an external source or to remove a filter panel and fill the filter tank/chamber with unfiltered water.



**WARNING!** *A difference in water level between the inside and outside of the filter drum greater than 550 mm will damage the filter.*

6. When the water level inside the filter tank/chamber reaches the pump suction pipe (or the pump if a CRK or MTR pump is installed), the pump switch must be set to 1 (ON) position. NB Also read section 2.7.



**WARNING!** *The backwash pump must not be started until the water level has reached the suction pipe (or pump if a CRK or MTR pump is installed), otherwise the pump will run dry and fail.*

7. When the water level inside the filter tank/chamber reaches the overflow wall, the mode selector switch should be turned to AUTO mode.
8. Open the water supply fully. The filter is now run in the mode for automatic level control. It may be necessary to adjust the level sensor so that the filter can be run optimally (see section 5.2.4).

## 5.2 Automatic settings

The control system for the HSF2200 series must be equipped with a frequency converter on the drive unit. This is factory calibrated if delivered from Hydrotech. The setting on the frequency converter must be set for a minimum of 5 seconds “ramp up” and a minimum of 3 seconds “ramp down” to give soft start on the drive motor. The filter works with 50 Hz as standard.

If the filter is equipped with a Hydrotech control system, the filter has two operation modes:

1. Continuous rotation (HAND mode)
2. Automatic level control (AUTO mode).

Turn the mode selector to select the operating mode (see E in Figure 5.1).

- A. DRUM DRIVE TRIPPED. LED that indicates when the frequency converter has tripped.
- B. PUMP TRIPPED. LED that indicates when the backwash water pump's motor protection device has tripped,
- C. DRY RUNNING. LED that indicates when the dry running protection device for the backwash water pump has tripped.
- D. RESET DRY RUNNING. Resetting the dry running protection for the backwash water pump.
- E. OPERATION MODE. Mode selector.
- F. PUMP. Pump switch.
- G. CLEANING START. Chemical wash switch, key operated.
- H. CLEANING. LED that indicates when the chemical cleaning wash is in progress.
- I. CLEANING SEQUENCE. Selector for the number of sequences, chemical cleaning.
- J. Main power switch.

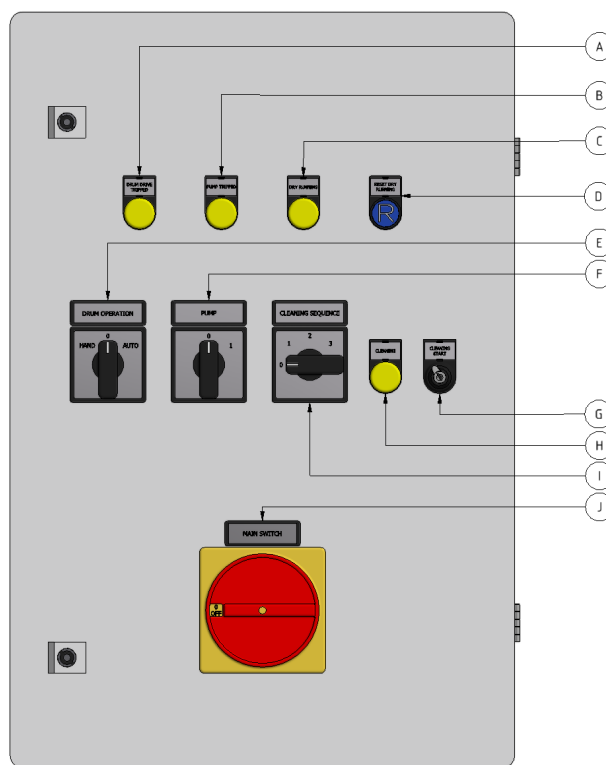


Figure 5.1 Front of the control cabinet.

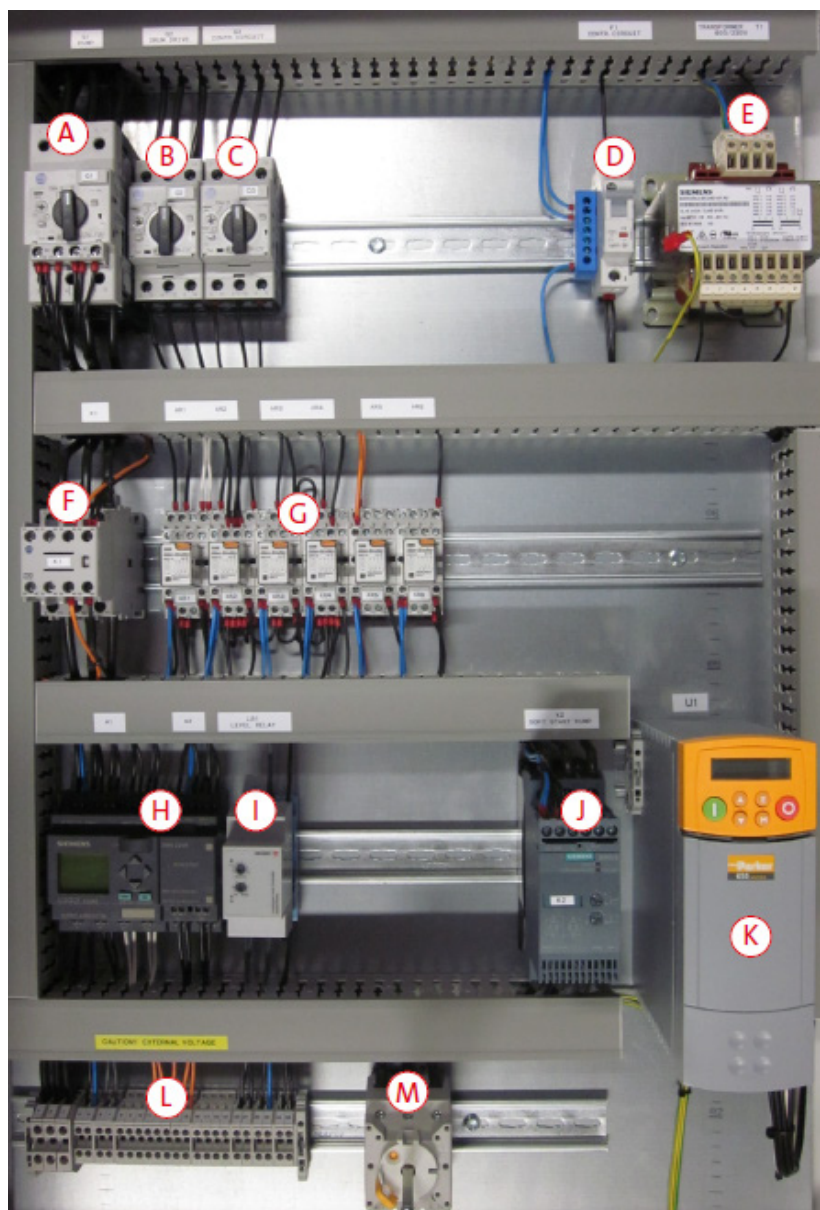


Figure 5.2 Component parts of the Hydrotech control cabinet.

- A. Motor protection switch, pump.
- B. Motor protection switch, drive unit.
- C. Fuse.
- D. Fuse.
- E. Transformer.
- F. Contactor.
- G. Relays.
- H. Logic module.
- I. Level relay.
- J. Soft start.
- K. Frequency converter.
- L. Terminal block.
- M. Main power switch.

### 5.2.1 Level differences

The maximum permitted difference between the water levels inside and outside the drum is 350 mm during normal operation (see Figure 5.3). The recommended level difference is 150-250 mm.

If an even flow after the filter is required, the filter must be run with a small level difference.



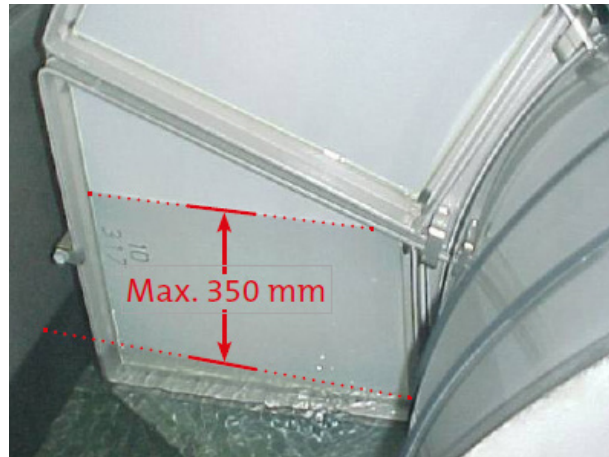
*The filter must be installed so that the level difference in the event of operating disturbances under no circumstances exceeds 550mm.*



*The filter must be run so that the level difference during normal operation does not exceed 350mm.*



*Prolonged operation with a greater level difference will significantly shorten the life of the filter panels and other vital parts.*



*Figure 5.3 Maximum permitted level difference during operation.*

### 5.2.2 Operating mode HAND – Continuous rotation/backwash

Operation with continuous drum rotation and backwash. In this mode, the water level inside the drum is kept virtually constant.

The level sensor and the automatic level control are disabled when

HAND operating mode has been selected.

### 5.2.3 Operating mode AUTO – Automatic level control

With level control enabled, drum rotation and the backwash pump are activated when the water level inside the drum reaches the level sensor. If an external backwash water supply is used, the level sensor can control a solenoid valve instead of a pump.

The water level inside the drum will vary when AUTO mode has been selected. The water level is at its lowest immediately after a backwash cycle and then rises until it reaches the level sensor

### 5.2.4 Adjusting the level sensor

NB Prior to servicing, read section 2.7.

Place the level sensor 50–100 mm below the overflow wall. The optimal placement depends on the turbulence of the water surface (see Figure 5.4)

### 5.2.5 Setting of level relay

NB Prior to servicing, read section 2.7.

The sensitivity of the level sensor can be set from MIN to MAX on the level relay's upper adjusting screw.

The lower adjusting screw must always point to the side marked EMPTY, on this side there are three different sensitivity ranges, H, S and L. If appropriate sensitivity cannot be set using the selected sensitivity range, another sensitivity range can be chosen.



*Figure 5.4 Adjusting the level sensor.*

## 5.3 Backwash system

NB Prior to a service, read section 2.7.

The system pressure for backwashing must be set to 7-9 bar.

Newly connected pipe systems for external wash water should be flushed before they are connected to the filter.

## 6. FUNCTION

### 6.1 Intended use

The filter is designed and manufactured to remove solid particles in unpressurised water flow systems. The filter is not a pressure vessel.

### 6.2 Non-intended use

Unless approved in writing by Hydrotech, the filter must not be used to filter liquids other than water. The filter must not be installed in an environment with an explosive atmosphere or another risk of explosion, such as high concentrations of dust.

### 6.3 Filtration and backwash process

A brief description of the process is given below.

1. The water to be filtered flows with gravity from the inside of the filter drum out to the filter segments.
2. Solid particles are separated from the water with the help of filter media attached to both sides of the filter segments, while the clean water passes through the filter media to the outside of the filter segments.

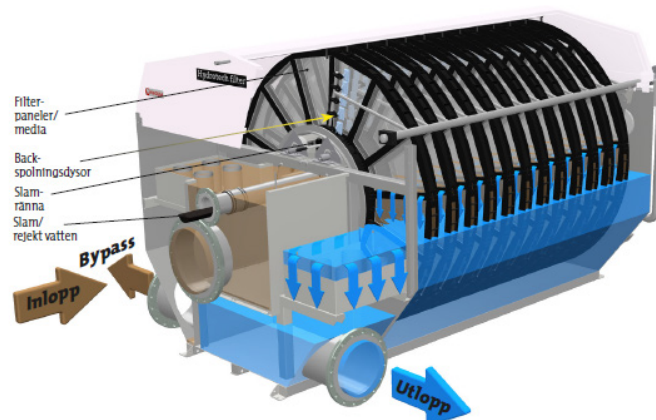


Figure 6.1 Function of the discfilter.

3. Operating mode AUTO – The solid particles that accumulate on the inside of the filter media gradually reduce the water flow through the filter panel. The water level on the inside of the drum begins to rise. When the water reaches the level sensor, drum rotation and backwash start.

Operating mode HAND – Drum rotation and backwash are started manually.

4. The backwash nozzles spray wash water on the exterior of the filter panels. The solid particles that accumulate are washed from the filter panels to the sludge channel, at the same time as the drum rotates.

5. The removed particles and backwash water flow with gravity out of the filter.



## 7. MAINTENANCE/SERVICE

### 7.1 Backwash system

Clogged nozzles can result in operating disruptions in the backwash system. Clogging is caused by particles in the wash water and/or by e.g. biological fouling in the pipe system.

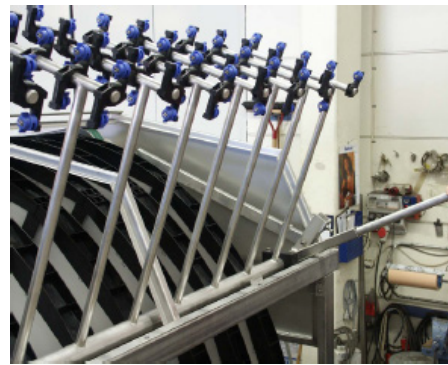
The filter is equipped with self-cleaning nozzles which, under normal conditions, do not require maintenance. The nozzles are accessible when the backwash pipe is extended, see below:

#### 7.1.1 Servicing nozzles

1. Turn the operating mode switch to 0 (OFF).
2. Open the cover on the side where the backwash pipe is located.
3. Fold out the backwash ramp with the loose lever (see Figure 7.1).



*Figure 7.1 Place the loose lever in the bracket.*



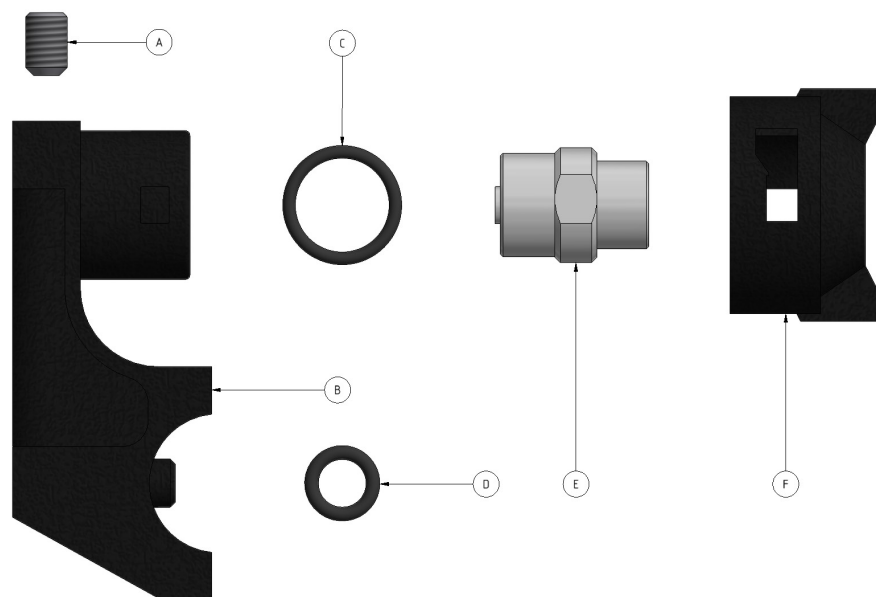
*Figure 7.2 Place the loose lever in the bracket.*

4. Once servicing is completed, place the backwash ramp in its original position with the help of the lever.
5. Close and lock the cover.
6. Start operation again by turning the operating mode switch to position AUTO.



## 7.1.2 Self-cleaning nozzle

Figure 7.2 below shows a self-cleaning nozzle.



*Figur 7.2 Nozzle details, self cleaning nozzle.*

- A. Set screw*
- B. Nozzle attachment*
- C. O-ring*
- D. O-ring*
- E. Nozzle tip*
- F. Nozzle nut*

## 7.2 Bearings

NB Prior to servicing, read section 2.7.

Stickers indicating the lubrication points are attached to the filter, see Figure 7.3.



Figure 7.3

### 7.2.1 Lubrication of swivel

The swivel makes up the bearing between the backwash pipe and the connecting pipe for the backwash water (see Figure 7.4).

The swivel's lubrication points are shown in Figure 3.3 and Figure 3.5.

Check the old grease that comes out during lubrication; if it contains traces of water e.g. white-grey discolouration, the swivel must be replaced.



Figur 7.4 Swivel

## 7.2.2 Lubricating drum bearings

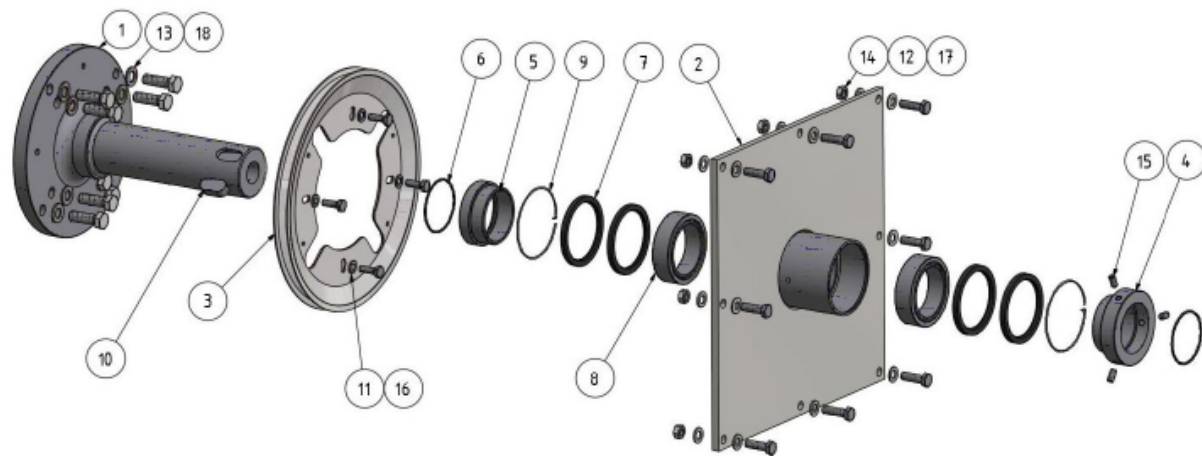
The drum bearings consist of the rear drum bearing and the support wheel bearings.

The bearings' lubrication nipples are fitted on the exterior of the filter and on the support wheel brackets. The drum must be rotating when the bearings are lubricated.

Check the old grease that comes out during lubrication; if it contains traces of water e.g. white-grey discolouration, the seals must be replaced and the bearings must be inspected/replaced.

Lubricate the drum bearings according to the recommendations in chapter 8. The lubrication points are shown in Figure 3.2, Figure 3.3, Figure 3.5 and Figure 3.6.

The rear drum bearing's component parts are shown below.



18	8	Screw
17	8	Screw
16	4	Screw
15	3	Set screw
14	8	Nut
13	8	Washer
12	16	Washer
11	4	Washer
10	1	Key steel
9	2	Retaining spring
8	2	Roller bearing
7	4	Shaft sealing radial
6	2	O-sealing
5	1	Spacer
4	1	Retaining collar
3	1	Pully for spraybar drive
2	1	Bearing house
1	1	Drive Shaft HSF21
Pos. no.	Qty	Name

Figure 7.5 Rear drum bearing.

### 7.2.3 Drum lifter

The filter is equipped with a drum lifter which allows the drum to be lifted during servicing and bearing replacement. The drum lifter must be screwed into the filter, after which the drum can be lifted. The drum's inlet end can be lifted by means of a hydraulic jack on one of the attached brackets. The drum's drive end can be lifted by attaching a screw/nut to the rear drum lifter. The cover must be detached before the rear drum lifter can be mounted.



*Position a wooden wedge between the drum and the frame beam prior to lifting with the rear drum lifter to prevent the drum from moving towards the filter's inlet end and to prevent drum lifter play!*

The drum lifters are shown below:

- A. Hydraulic jack
- B. Bracket
- C. Mounting screws

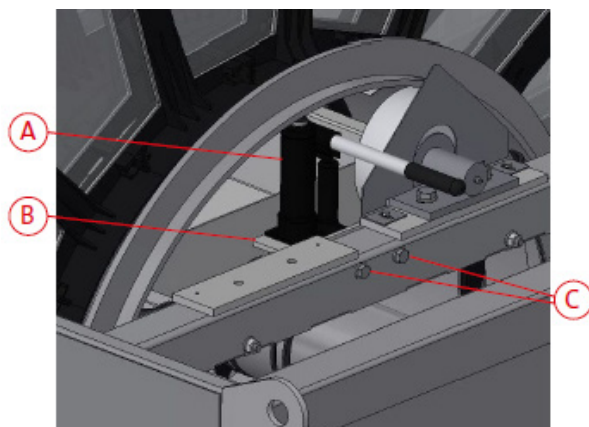


Figure 7.6 Front drum bearing.

- A. Rear drum lifter
- B. Drum lifter nuts
- C. Mounting screws

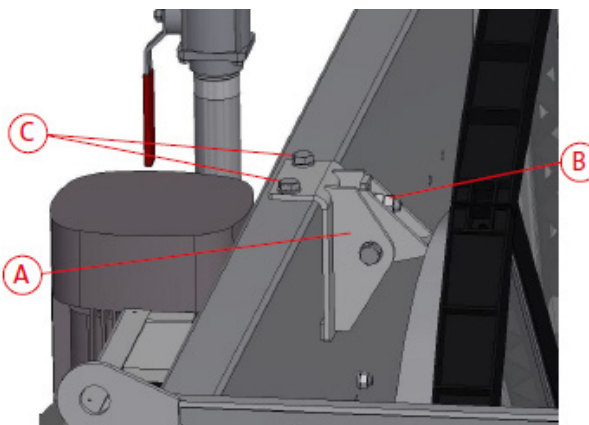


Figure 7.7 Rear drum lifter, filter type 1C.

- A. Rear drum lifter
- B. Drum lifter screws
- C. Mounting screws

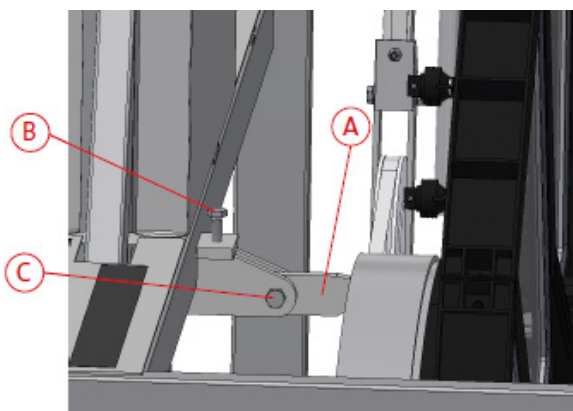


Figure 7.8 Rear drum lifter, filter type 2C.

## 7.3 Filter panels

NB Prior to servicing, read section 2.7.

### 7.3.1 High pressure cleaning

It may be necessary to manually clean the filter panels. The need of manual cleaning becomes clear if the frequency of automatic backwash starts increases. Manual cleaning can be performed with a high pressure washer.



*When using a high pressure washer a wash pressure of max. 80 bar may be used. Maximum allowed water temperature is 60 °C. Never hold the cleaning nozzle directly against the filter media.*

### 7.3.2 Chemical cleaning of filter panels

Long-term clogging of the filter media can be caused by, among other things, iron, calcium or organic fouling. This clogging can normally be removed through chemical cleaning. Three proven products that do not affect the life of the filter media are dilute hydrochloric acid (HCl), dilute sodium hypochlorite (NaClO) and dilute sodium hydroxide (NaOH).



*The use of other types of cleaning agents may cause damage to equipment.*



*The cleaning products must not be mixed. If, for example, HCl and NaClO are mixed this produces toxic chlorine gas. HCl and NaOH are highly corrosive. For safety advice, see applicable local regulations.*

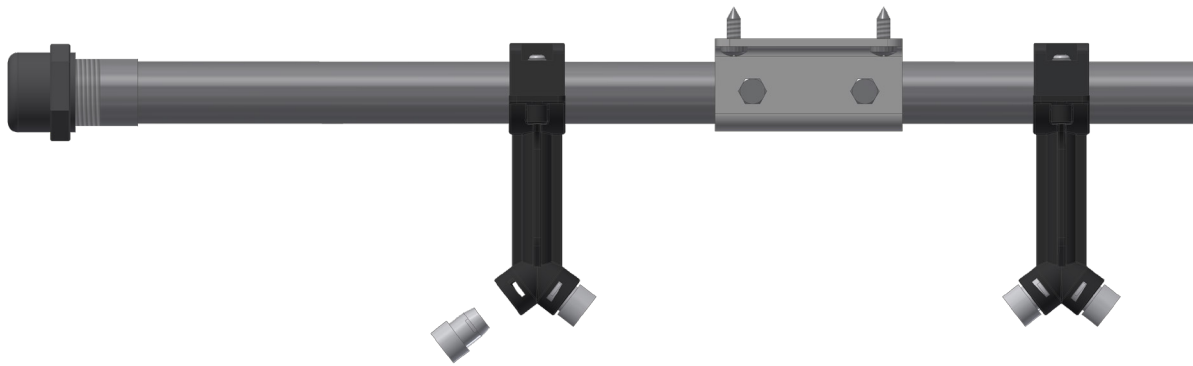
For more detailed instructions, please contact your supplier.

Hydrotech Discfilters in the HSF2200 series as standard are prepared with a chemical ramp to make removal of long-term clogging of the filter media possible.

The Hydrotech chemical trolley HCT (option) is connected to the chemical ramp connection (see Figure 3.2 and Figure 3.5). The control system is prepared and programmed for connection of a dosage system. After completing electrical and mechanical connection, chemical cleaning is started as follows:

1. Turn the mode selector to AUTO mode (see Figure 5.1).
2. Set the number of cleaning sequences with the CLEANING SEQUENCE selector (see Figure 5.1).
3. Start chemical cleaning with the CLEANING START switch (see Figure 5.1).

Once cleaning is completed the filter automatically returns to normal operation in AUTO mode. If necessary clean the chemical ramp's nozzles as set out below:



*Figure 7.9 Nozzles on chemical ramp.*

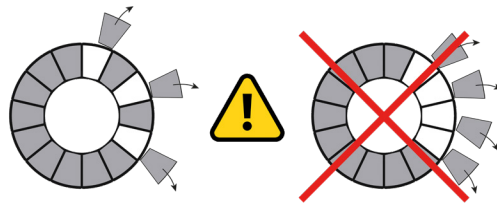
1. Remove the nozzle by turning it  $\frac{1}{4}$  turn anticlockwise (see Figure 7.9).
2. Clean the nozzle with compressed air or a plastic brush. Never use a wire brush, metal rods or similar as these can damage the nozzle.
3. Refit the nozzle.

### 7.3.3 Changing filter panels

When replacing the filter panels it is important to maintain the balance of the drum. Remove/refit every other filter panel. This prevents unintentional rotation of the drum and reduces the load on the drive chain and gearbox.



*NEVER remove or refit all the filter panels only on ONE side of the disc (see figure 7.10).*



1. Turn the main power switch to the OFF (0) position and lock with a padlock. *Figure 7.10 Correct way of installing filter panels.*



*Figure 7.11 The filter segment cover is removed.*

2. Undo the filter segment cover screws and remove the cover, see Figure 7.11).
3. Pull out the filter panel (see Figure 7.12).



*Figure 7.12 The filter panel is pulled out.*

4. Insert a new filter panel and slide it in until it bottoms.

NB Filter panels with steel frames must be positioned with the filter cloth facing inwards (see Figure 7.13).



*Incorrect installation of the filter panels can cause damage to the filter segments.*

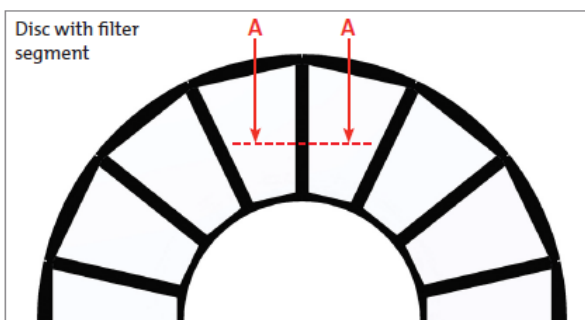
5. Replace the filter segment cover and tighten the screws.



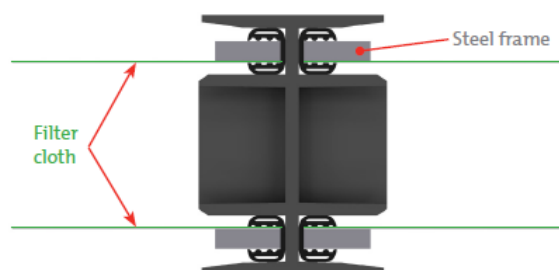
*Maximum tightening torque of 3 Nm.*

6. Fit the remaining filter panels and covers in the same manner.

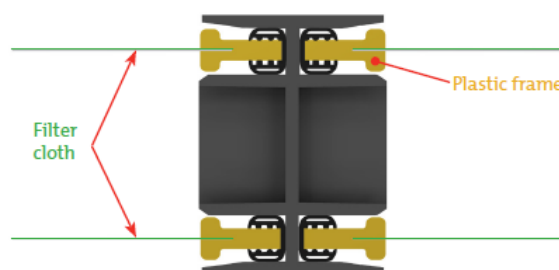
7. Start operations again as set out in section 5.1.



Cross section A-A: Placement of the filter panel with **steel frame**



Cross section A-A: Placement of the filter panel with **plastic frame**





## 7.4 Drive chain

NB Prior to a service, read section 2.7.

The filter is equipped with a chain drive. See Appendix A and F for technical data.

### 7.4.1 Checking the drive chain

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. To access the chain, detach the motor cover and, if necessary, the chain tray.
3. Stretch the chain by turning the drum by hand (in either direction).
4. On the chain's non-tensioned section, use a steel rule to check that measurement A is 5-15 mm, see Figure 7.14.
5. Adjust the chain setting, if necessary, according to section 7.4.2.

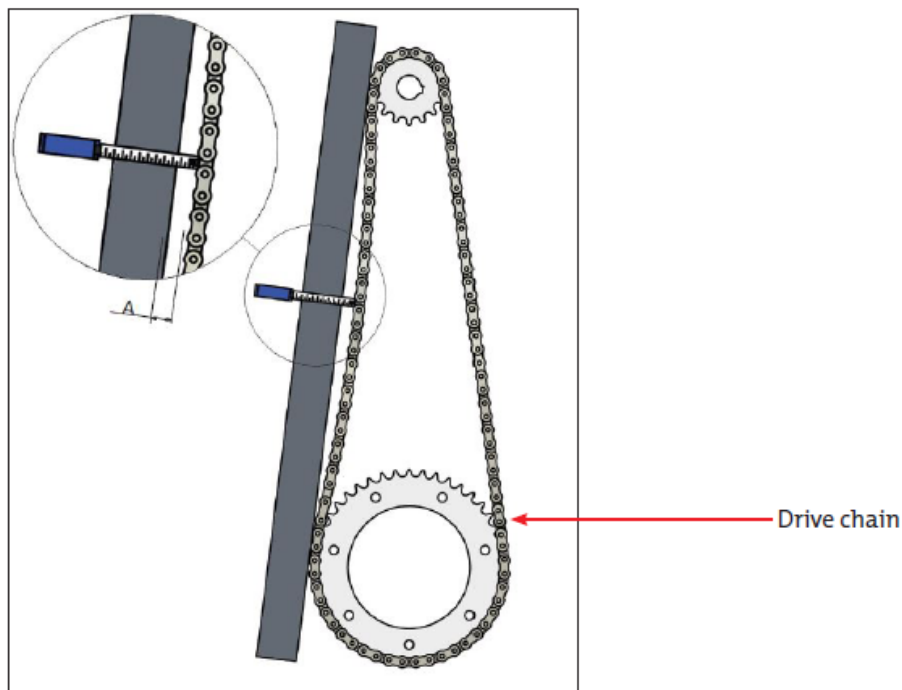


Figure 7.14 Checking drive chain tension

6. Start operations again as described in section 5.1.

## 7.4.2 Adjusting drive chain tension

Adjust the drive chain tension as follows:

1. Turn the main power switch to the OFF (0) position and lock with a padlock. 2. Loosen the four nuts (A) (see Figure 7.15 and Figure 7.16).

3. Loosen the nut/nuts (B).

4. Adjust the tension of the chain using the screw/screws (C).

5. Secure the screw/screws (C) using the nut/nuts (B).

6. Tighten the four nuts (A).

7. Restart operation as described in section 5.1.

When the drive chain cannot be adjusted any further, the chain is worn out and must be replaced (see section 7.4.3).

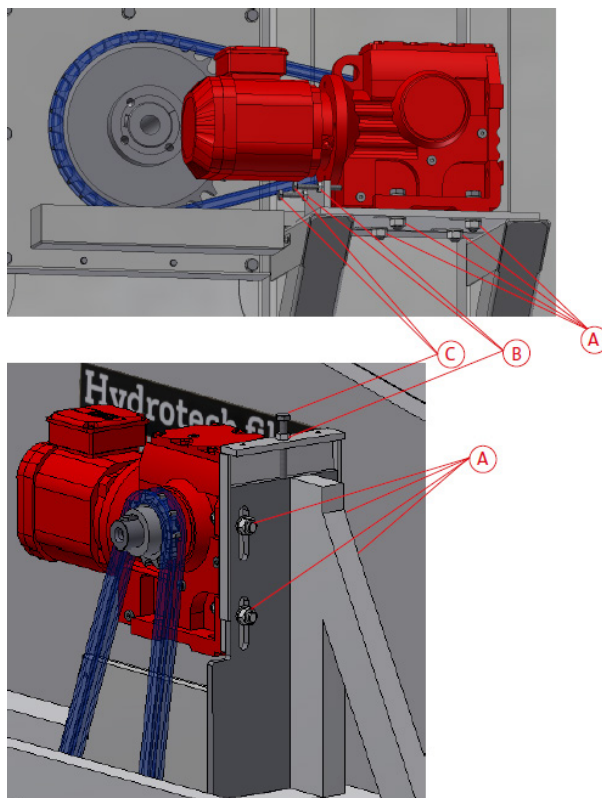


Figure 7.15 & 7.16 Chain drive filter type 1C

## 7.4.3 Replacing the drive chain

1. Turn the main power switch to the OFF position and lock with a padlock.

2. Adjust the drive unit to its end position, see section 7.4.2.

3. Remove the chain lock and chain.

4. Fit the new drive chain.

5. Adjust drive chain tension in accordance with section 7.4.2.

6. Start operations again as set out in section 5.1.

## 7.5 Drive unit

NB Prior to servicing, read section 2.7

For information about the drive unit, see Appendix F.

## 7.6 Inlet gasket

NB Prior to servicing, read section 2.7.

### 7.6.1 Checking the inlet gasket

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Reduce the water level in the filter until the whole inlet gasket is accessible.
3. Make sure the inlet gasket rests against the inside of the drum.
4. Inspect the inlet gasket for damage and wear (see Figure 7.17).
5. If necessary, replace the inlet gasket in accordance with section 7.6.2.




*Figure 7.17 Inlet gasket.*

6. Start operations again as set out in section 5.1.

### 7.6.2 Replacing the inlet gasket

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Reduce the water level in the filter until the whole inlet gasket is accessible.
3. Note how the inlet gasket is fitted before it is dismantled.
4. Loosen the screws and nuts holding the inlet gasket in position.
5. Remove the inlet gasket.
6. Fit a new inlet gasket.
7. Start operations again as set out in section 5.1.

## 8. MAINTENANCE SCHEDULE

Check/Action	Maintenance interval
<p>Check the filter panels for clogging and damage. See section 7.3.</p> <p>Unwashed, dark areas in the form of a ring that extends around the entire disc is indicative of a clogged nozzle(s). See section 7.1.</p>	Once a week, or at another interval based on experience from actual application.
<p>Inspect the inside of the filter: Make sure no large objects that can get caught in the drum, filter segments or sludge trough have entered the filter. Also check that the reject does not accumulate (sediment) in the sludge trough.</p> <p>NB Prior to servicing, read section 2.7. Remove large objects and rinse the sludge trough.</p> <p> <b>WARNING!</b> Turn the main power switch to the OFF position and lock with a padlock.</p>	Once a week or another interval based on experience from the application in question.
Rinse the metal surfaces of the filter structure with clean water. Clean (uncontaminated) metal surfaces minimise corrosion, particularly in salt water applications.	Twice a month or another interval based on experience from the application in question.
Lubricate the swivel to the backwash pipe using grease of the type NLGI:2 (e.g. Molykote Multilub, Rembrandt EP or equivalent grease). See section 7.2.1.	Twice a month with continuous drum rotation. Once a month with intermittent drum operation.
Lubricate the drum bearings (on the inlet and drive side) using grease of the type NLGI:2 (e.g. Molykote Multilub, Rembrandt EP or equivalent grease). See section 7.2.2.	Twice a month with continuous drum rotation. Once a month with intermittent drum operation.
Check drive chain tension and condition. See section 7.4.1	Four times a year with continuous drum rotation. Twice a year with intermittent drum rotation.
Check the oil level in the drive unit See section 7.5.	Twice a year.
Check the inlet gasket. See section 7.6.	Once a year.
Change the gearbox oil. Oil type: ISO viscosity VG 680 (e.g. Omala oil 680 (Shell) or equivalent gearbox oil). Also see appendix F.	See appendix F.
<p>Inspect the tension and condition on the belt for the backwash drive.</p> <p>Ensure that the spray pattern of the spraybar is correctly placed. If necessary adjust the screw that controls the location of the spraybar.</p>	<p>Once - twice a year or in connection with nozzle check up.</p> <p>Always change the belt for the spraybar when changing the bearings for the drum.</p>

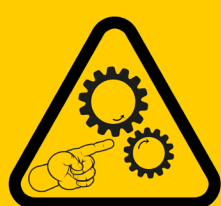
## Symbols used on Hydrotech filters



Symbol is displaying equipotential earth bonding points on the filter.



Symbol shown at lubrication points on the filter. Read the manual for further information about lubrication.



Symbol displaying moving parts. Negligence to comply with safety regulations may lead to injury.



This symbol is placed where certain attention is needed when handling the filter. Read the manual for further information.



Warning for high voltage. Always assume all electrical equipment to be live and



Used as a warning where corrosive fluids is used. Always use appropriate safety equipment when handling corrosive products.

## Manuals & technical information

For further information regarding Hydrotech filters or any other product used together with Hydrotech filters, please visit [www.hydrotech.se](http://www.hydrotech.se). Click on "Manuals & technical information".

Locate the desired product manual and select manual by clicking on one of the language options. The manual will open in a new browser tab where the option to save the manual also can be found.



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