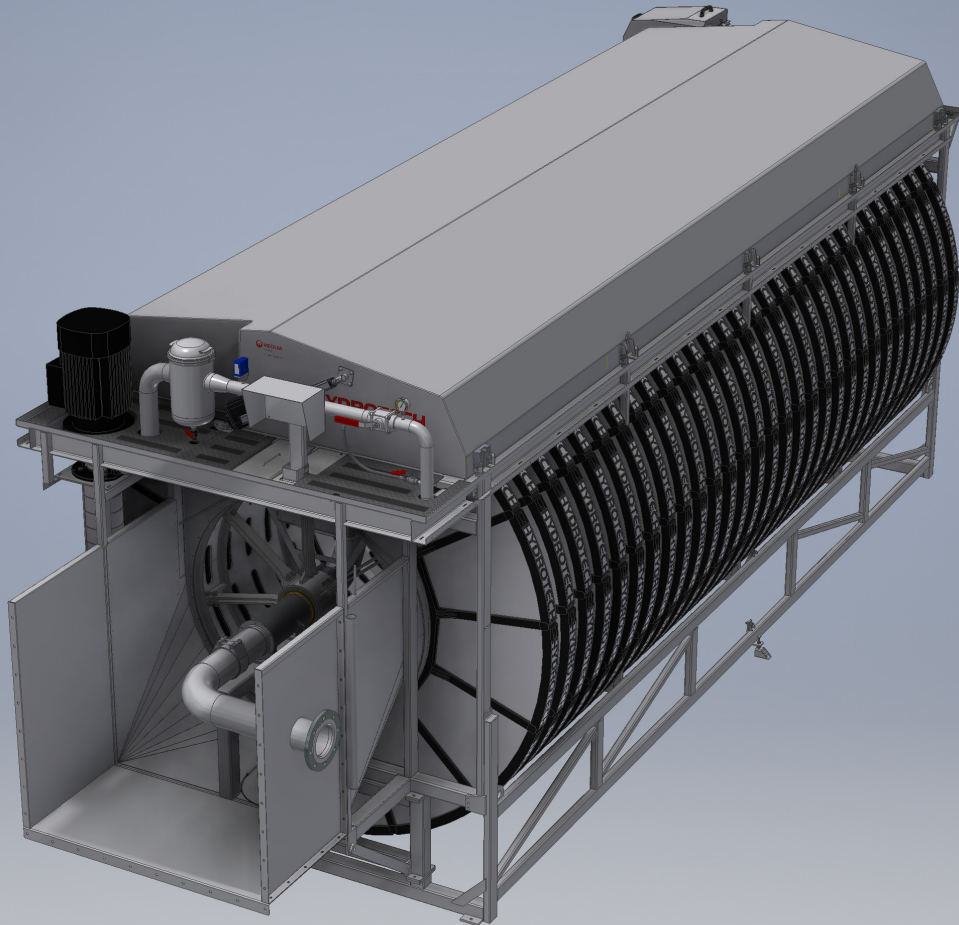


HYDROTECH



Discfilter HSF 26 - 2-3F series with PFLC
Operation and maintenance manual

Revised: 2020-08-10



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1. INTRODUCTION

This manual contains instructions for the operation of Hydrotech Discfilters in the HSF2600 series, types 2F and 3F (filter with frame).

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 relevant documents are kept throughout the life of the equipment. The manual and other relevant documents are a part of the equipment.

The following documents (manuals) are a part of the equipment:

- ▶ Handling & Installation Manual
- ▶ Operation & Maintenance Manual
- ▶ Automation manual
- ▶ All applicable personnel must read the manuals carefully.

2. SAFETY INSTRUCTIONS

Hydrotech Discfilters in the HSF2600 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. The machine equipment is intended for use by multiple operators. You must read the applicable chapters in this manual prior to using the equipment or performing maintenance.

- ▶ 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 pressurized.
- ▶ 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 while operating the filter and when working in close proximity to the filter.

2.1 Warning symbols



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 attached to the filter to warn personnel and act as a reminder 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 include any components that are not approved by Hydrotech AB and which are used in conversion/reconstruction of the equipment.

The warning symbols and CE marking must be attached where 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 Demands on personnel

Only personnel trained for the equipment and conversant with local regulations may perform service and maintenance, in order to avoid personal injury and damage to the equipment. 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 an emergency stop and a main switch, see Figure 2.3.

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

2.6 Electrical safety

Electrical installation must be carried out by a qualified electrician and in accordance with local regulations. Also see Appendix A in the “Automation manual”.

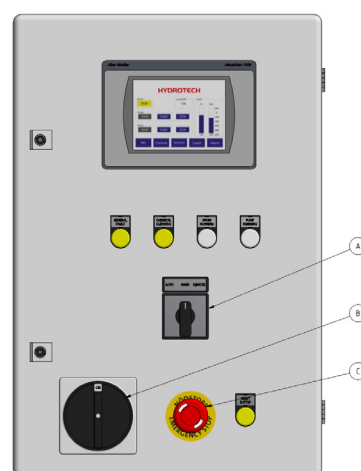


Figure 2.3 Elskåp
A. Driftlägesomkopplare
B. Huvudbrytare
C. Nödstopp

The filter frame must be connected to earth, see section 6.4 in the “Handling” & Installation Manual”.

The main power switch/emergency switch 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 position (1), then selecting AUTO, REMOTE or HAND mode using the mode selector located on the front of the electrical cabinet.

NOTE! See instructions in section 4.1.



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 unauthorized persons is strictly prohibited. Outdoor installations

must be fenced in.



The filter 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.



Spray 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 HSF2600 SERIES

3.1 Overview

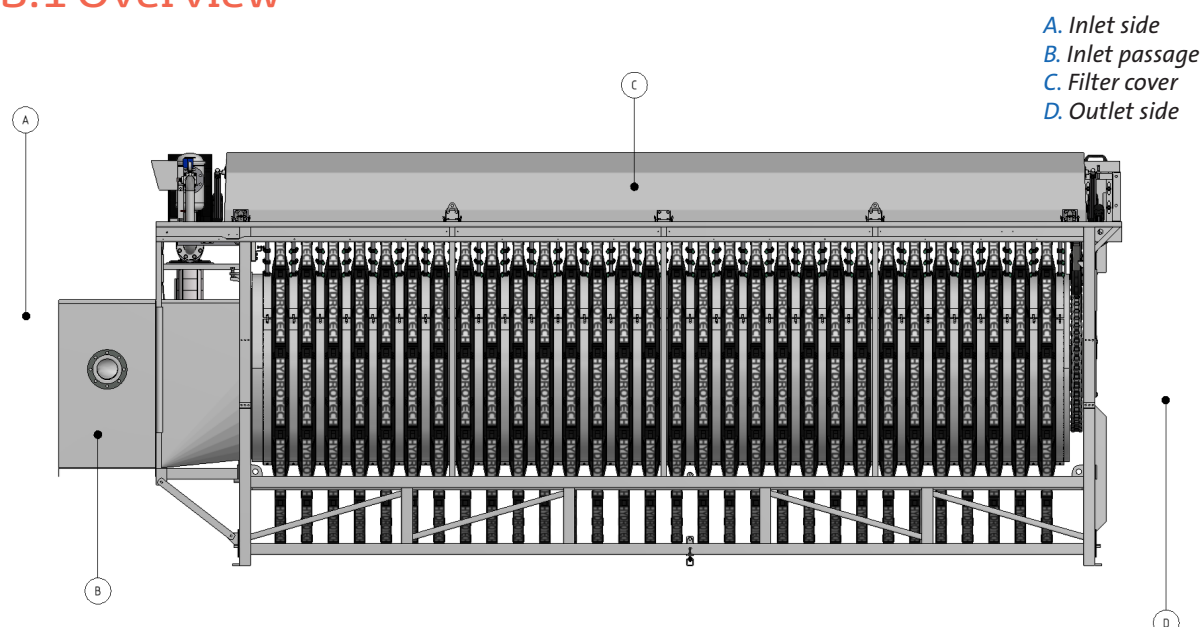


Figure 3.1 Hydrotech Discfilter in HSF2600 series type 1F (side view).

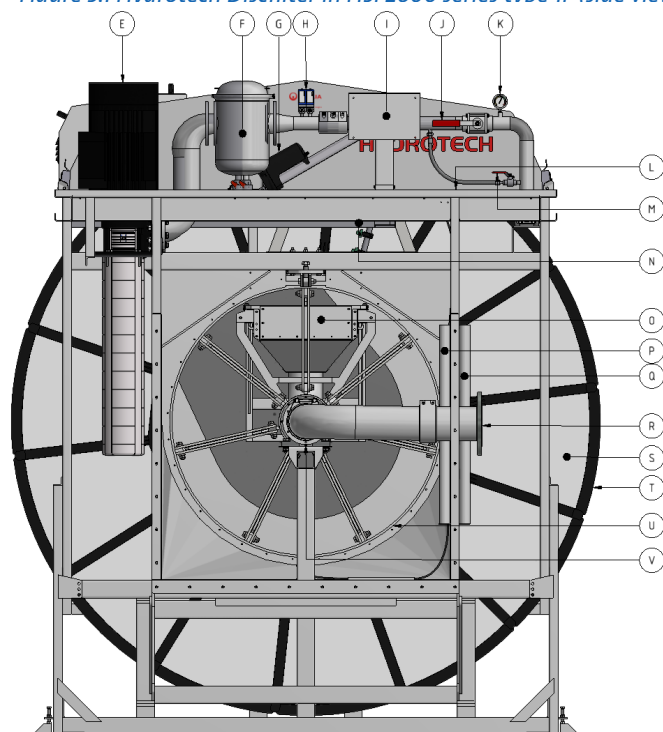


Figure 3.2 Hydrotech Discfilter in HSF2600 series type 2F (from inlet side).

- | | |
|---|--|
| E. Backwash pump (option) | O. Sludge trough |
| F. Backwash water filter | P. Holder for level sensor, inlet water |
| G. Actuator for opening cover | Q. Holder for level sensor, outlet water |
| H. Pressostat (protects pump from running dry) (option) | R. Sludge outlet |
| I. Junction box | S. Filter panel |
| J. Shut-off valve, backwash pipe | T. Filter segment |
| K. Manometer | U. Drum |
| L. Lubrication point | V. Drum bearing, inlet side |
| M. Bypass valve for nozzle check | |
| N. Connection, chemical cleaning | |

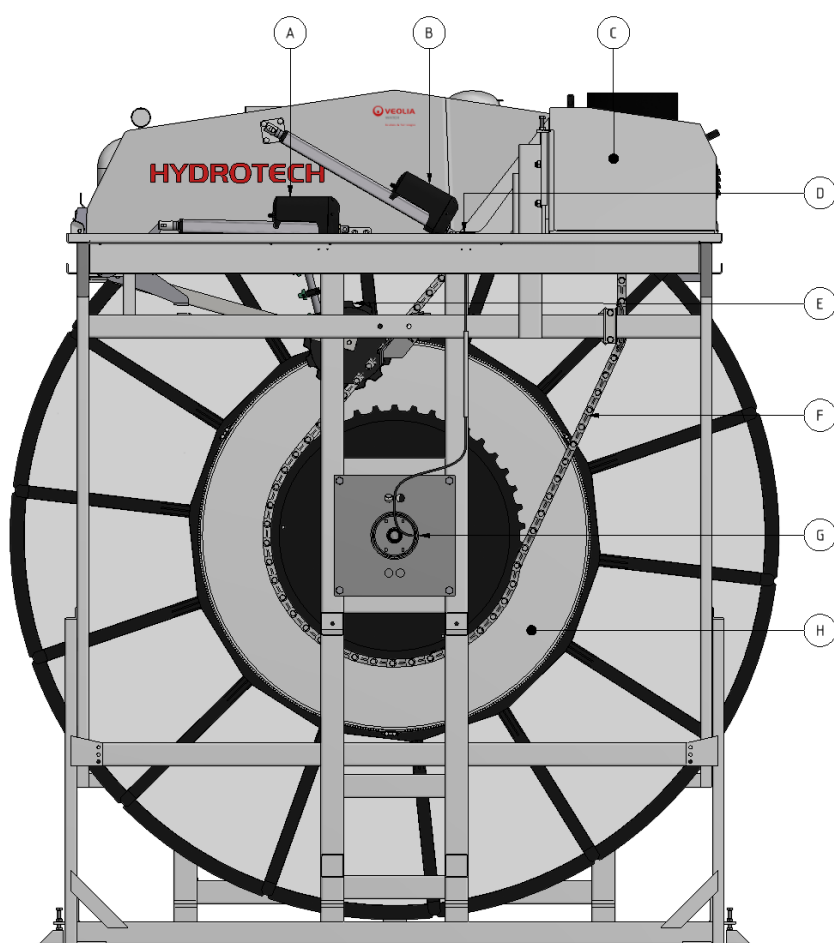


Figure 3.3 Hydrotech Discfilter in HSF2600 series type 2F (from inlet side).

- A. Actuator for backwash system servicing
- B. Actuator for opening cover
- C. Drive unit
- D. Lubrication point
- E. Backwash pipe drive
- F. Drive chain
- G. Drum bearing, outlet side
- H. Drum

Two drum lifters are supplied unassembled for each installation, see Figure 3.4. These are only used when servicing drum bearings. The supplier should be contacted when servicing bearings.

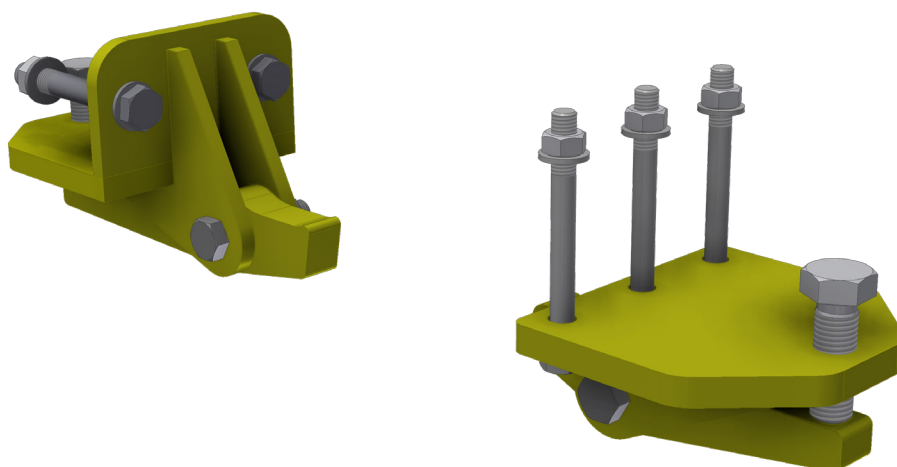


Figure 3.4 Drum lifter.

3.2 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.

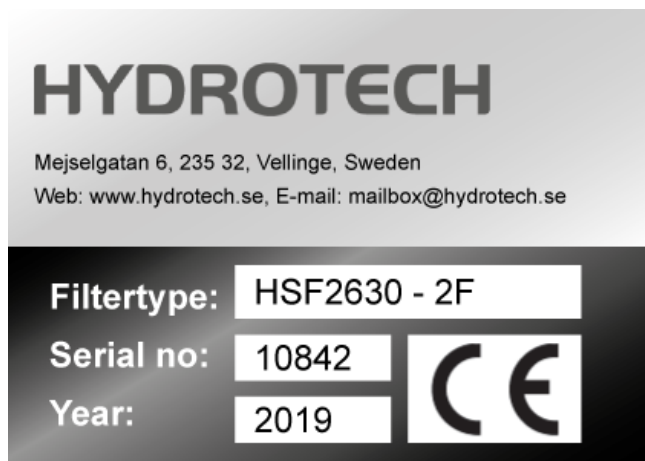
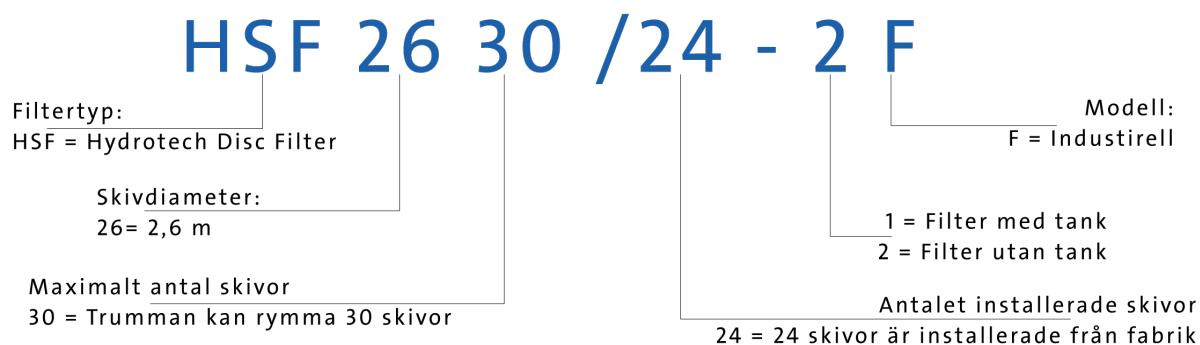


Figure 3.5 Filter marking plate

Definition of filter designation:



4. START UP AND OPERATION

4.1 Check procedures during start-up

1. Check that the drive unit cover is installed correctly.
2. Set the mode selector to the HAND position (see F in Figure 4.2)

3. Set the main power switch to the ON (I) position (see I in Figure 4.2)

4. Start drum rotation on the operator panel main menu (see Figure 4.1 and Figure 4.2).

5. Open the water supply a little so that the water can slowly run into the filter drum. Make sure that the difference in water level between the inside and outside of the filter drum does not exceed 450 mm (see section 4.2.1). If the filter cloth becomes clogged, it may be necessary to fill the filter basin with water from an external source or to remove a filter panel and allow unfiltered water to fill the filter basin.

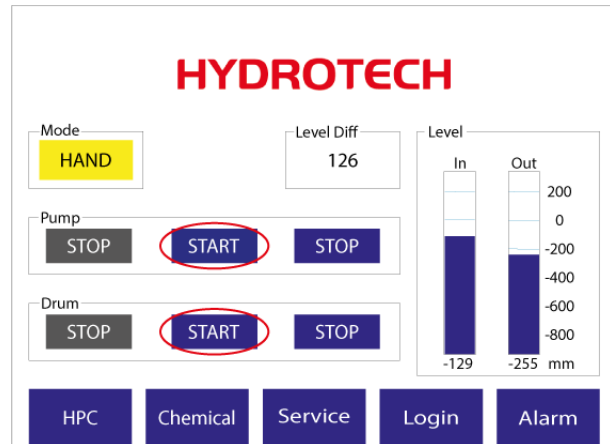


Figure 4.1 Main menu on electrical cabinet operator panel.

6. When the water level inside the filter tank is above the pump suction pipe (or, if a CRK or MTR pump has been installed, the pump), the pump must be started by pressing “Start” on the operator panel main menu (see Figure 4.1). NOTE Also read section 2.7 (Safety instructions).

7. If the water level inside the filter tank reaches the overflow wall, set the mode selector to either REMOTE or AUTO (see section 4.2).

8. Open the water supply fully.

If the filter is operated using automatic level control, it may be necessary to calibrate the level sensor in order for the filter to be run optimally (see “Automation manual HSF2600”).

4.2 Automatic settings

The control system for the HSF2600 series must always be equipped with a frequency converter for the drive unit. This is factory calibrated if delivered from Hydrotech. To perform a soft start of the drive motor, the frequency converter settings must be min. 5 sec “ramp up” and min. 3 sec “ramp down”. The filter works with 50 Hz as standard.

If the filter is equipped with a Hydrotech standard control, the filter has three operating modes:

1. Automatic level control (AUTO mode).

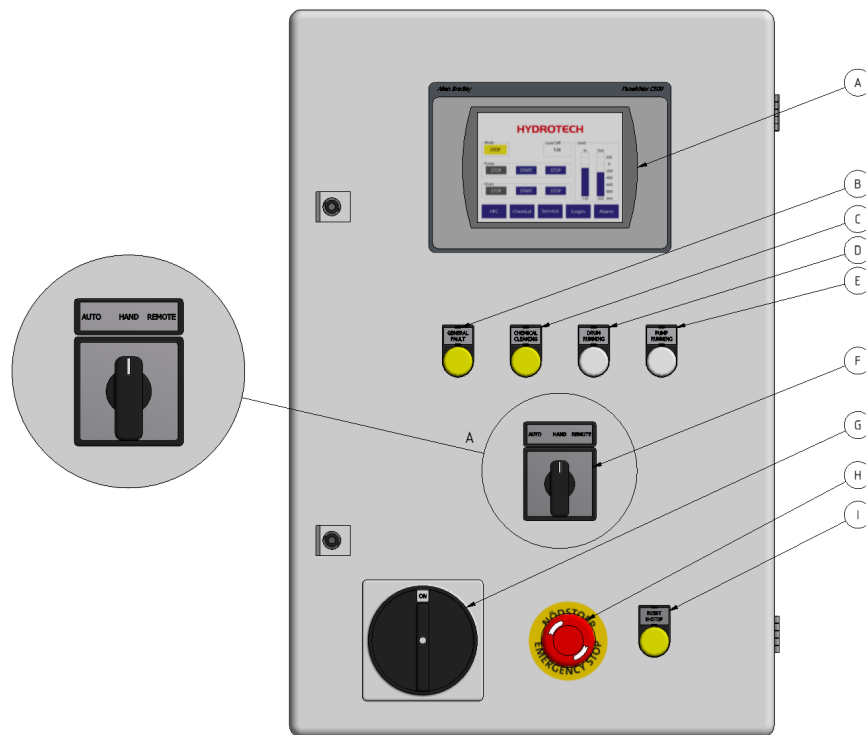


Figure 4.2 Front side of electrical cabinet.

- A. Operator panel
- B. Warning lamp: Fault indicator
- C. Warning lamp: Chemical cleaning
- D. Indicator lamp: Drum operation
- E. Indicator lamp: Pump operation
- F. Operation mode switch (Auto/Hand/Remote)
- G. Main power switch
- H. Emergency stop
- I. Reset button following emergency stop

2. Remote control (REMOTE mode).

3. Service mode (HAND mode).

Turn the mode selector to select the appropriate operating mode (see Figure 4.2, detail F).

4.2.1 Level differences

The maximum permitted difference between the water levels inside and outside the drum is 250 mm during normal operation (see Figure 4.3). The recommended level difference is 100-200 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 450 mm.



The filter shall be operated so that the level difference during normal operation does not exceed 250mm.



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

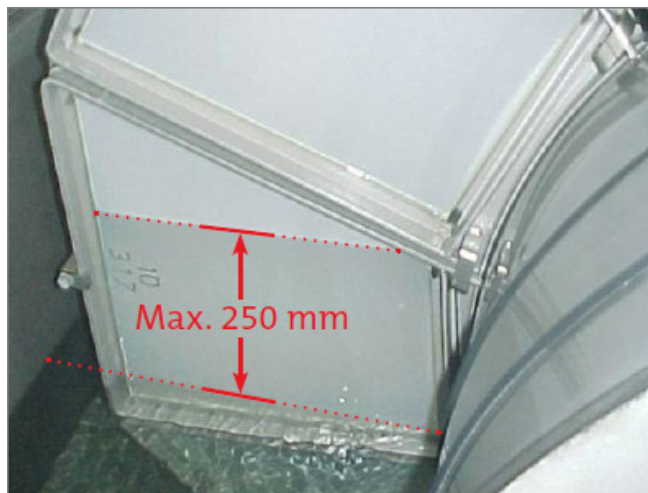


Figure 4.3 Maximum permitted level difference during level-controlled operation.

4.2.2 Operating mode AUTO – Automatic level control

With automatic level control, drum rotation and the backwash pump are activated once the level difference between filtered and unfiltered water exceeds an adjustable value. The filter is force-started if the filter has stood still for an extended period of time. If an external backwash water supply is used, the level sensor controls 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 the level difference between filtered and unfiltered water becomes too high.

4.2.3 Operating mode REMOTE – Remote control

In REMOTE operating mode, the filter can be controlled remotely. In remote control mode, the filter can either be controlled as if in AUTO operating mode or using an external controller, see the “Automation manual”.

4.2.4 Service mode HAND

HAND is only a service mode.

In order to operate the filter in HAND mode, the following steps must be implemented:

1. Turn the mode selector shown in Figure 4.2 to the HAND position.
2. Once the mode selector has been turned to HAND, "HAND" will be shown in the operator panel main menu, see Figure 4.4. Press the drum "Start" button - see Figure 4.4.
3. Press the pump "Start" button - see Figure 4.4.

The operator panel main menu also shows the water levels of unfiltered (In) and filtered water (Out), as well as the level difference between them (Level Diff).

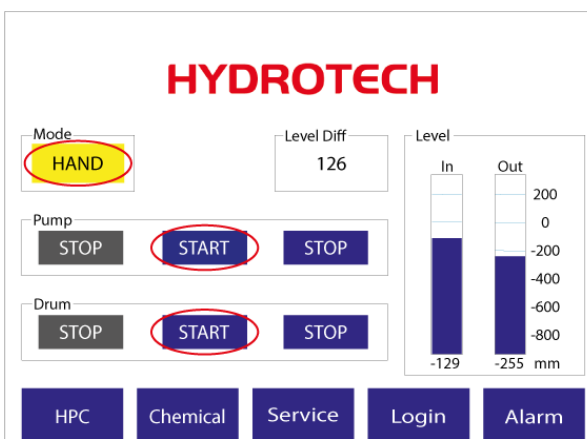


Figure 4.4 Main menu on electrical cabinet operator panel.

4.3 Backwash system

NOTE! Prior to servicing, read section 2.7.

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

Newly connected pipe systems for external backwash water should be rinsed through before they are connected to the filter. Thoroughly check that the nozzles are not blocked, see section 6.3.

5. FUNCTION

5.1 Intended use

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

No particles larger than 1 mm shall enter the Discfilter.

5.2 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.

5.3 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.

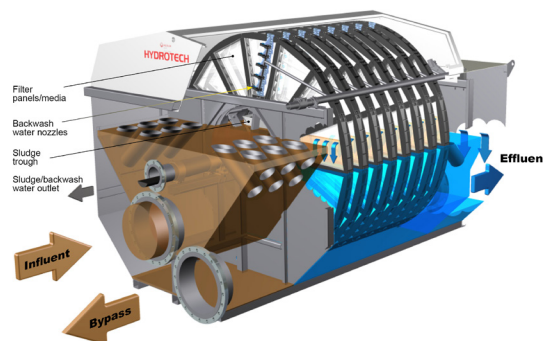


Figure 5.1 Disc filter function.

2. Solid particles are separated from the water using a filter medium attached to both sides of the filter segments, whilst clean water passes through the filter medium to the outside of the filter segment.

3. Operating mode AUTO – The solid particles trapped on the inside of the filter medium gradually reduce the water flow through the filter panel. The water level on the inside of the drum begins to rise. Once the water reaches the level sensor, drum rotation and backwashing begin. Operating mode REMOTE – The filter is controlled as in AUTO operating mode or using external control (e.g. time-controlled drum rotation and backwashing). Service HAND – Drum rotation and backwashing are started manually.

4. The backwash nozzles spray wash water on the outside 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.

6. MAINTENANCE/SERVICE

This chapter describes how maintenance and servicing is to be carried out. Chapter 7 describes how often the various components require servicing.

6.1 Filter cover

NOTE! Prior to servicing, read section 2.7. The filter cover for the Hydrotech Discfilter HSF2600 series is controlled from the operator panel and can be opened from two directions, depending on which side of the filter needs to be accessed.

6.1.1 Hinge

Before the filter cover is operated from the operator panel, its hinge must be locked on the correct side. The locking pin (A) must lock the hinge lock (B) securely as shown in Figure 6.1a below.



Make sure that the filter cover is completely closed and that the hinge lock (B) shown in Figure 6.1a surrounds the shaft (C) in Figure 6.1b.

The locking pin (A) and the hinge lock (B) must ALWAYS sit on the two outermost hinges (E), as shown in Figure 6.2 or on the opposite side depending on which direction you want the cover to open in.

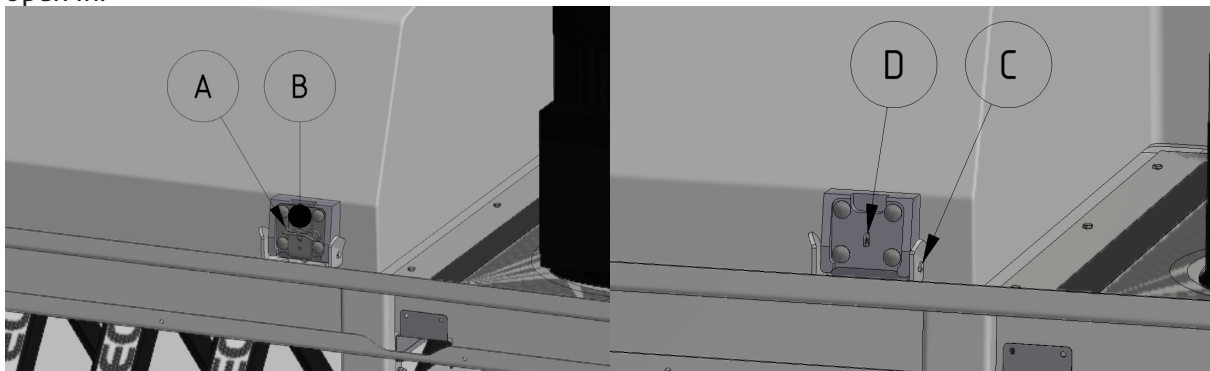


Figure 6.1 a Locked hinge, b Open hinge

In order to access the backwash pipe, the hinges must be locked (E in Figure 6.2) on the side of the cover on which the drive unit (F) sits (see Figure 6.2), and the hinges must be open (see Figure 6.1b) on the opposite side, i.e. the backwash pipe side.

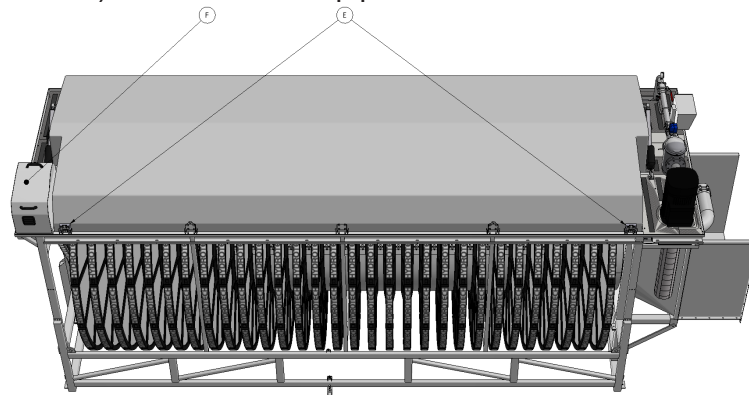


Figure 6.2 Shows the location of the lockable hinges and the drive unit.

6.1.2 Operating the filter cover

1. In order to operate the filter cover, the mode selector shown in Figure 6.3 must be in the “HAND” position. When in HAND mode, “HAND” is shown in the operator panel main menu, see Figure 6.4 below.

2. Select “Login” (if the user is not already logged in) and log in using your user name and password, see Figure 6.5 below.

3. Select “Service”.

4. Select “Cover & Spray”, see Figure 6.5.

5. In the “Service Cover, Spray bar” window, there are 5 position sensors B3.1-B3.3 and B7.1-B7.2, which indicate the position of the cover, see Figure 6.7. When the cover is closed, the “B3.1 - B7.1 Cover Closed” lights come on. In order to lift the filter cover, press the “Open” button until the cover is completely open.



Check that the hinges are fully locked before opening the filter cover, see section 6.1.1 “Hinges”.

6. When the cover is completely open on the backwash pipe side, the “B3.2 - B7.2 Cover Open” and “B3.3 Cover Open Service” lights come on, making it possible to extend the backwash pipe. If the cover is fully open on the other side, only the “B3.2 – B7.2 Cover Open” light will come on. When this is the case, the backwash pipe cannot be extended.

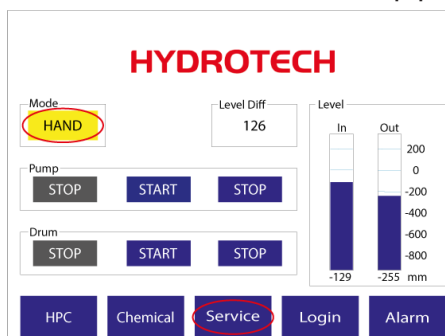


Figure 6.4 Main menu on electrical cabinet operator panel.

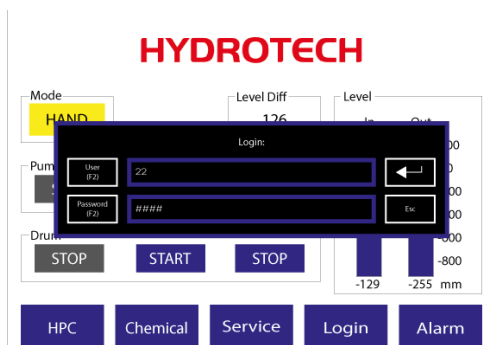


Figure 6.6 Login for service functions.

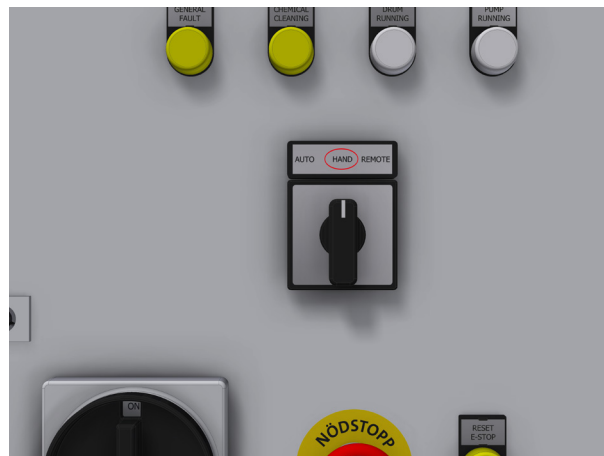


Figure 6.3 Mode selector

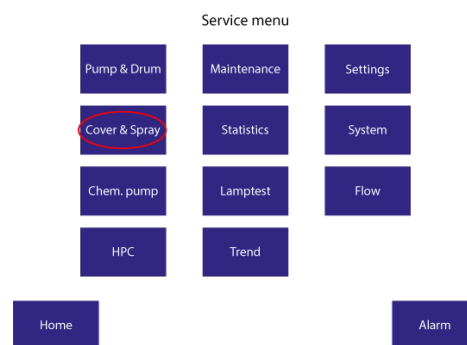


Figure 6.5 Service menu.

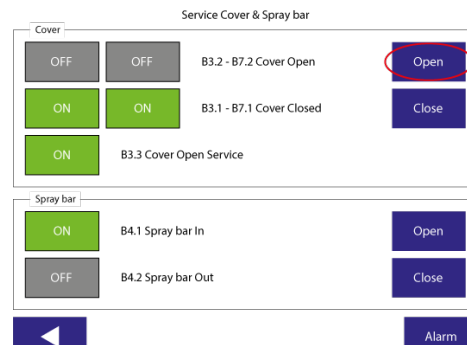


Figure 6.7 Service Cover & Spray bar menu.

6.2 Extend the backwash pipe

NOTE! Prior to servicing, read section 2.7.

1. Turn the mode selector to “HAND” and lift the filter cover on the backwash pipe side, see section 6.1.

2. When the cover is fully opened on the backwash pipe side, B3.2, B3.3 and B7.2, as shown in Figure 6.7 will be on. The backwash pipe can now be extended, keep the “Out” button as shown in Figure 6.7 pressed until the “B4.2 Spray bar Out” light comes on.

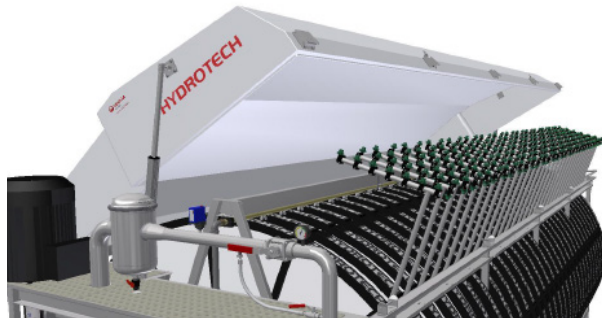


Figure 6.8 Filter cover open and backwash pipe extended.

6.3 Backwash system

NOTE! Prior to servicing, read section 2.7.

The most common cause of disruption in the backwash system is nozzle clogging. Clogging is caused by particles in the wash water and/or by e.g. biological fouling in the pipe system.

6.3.1 Servicing nozzles

1. Open the cover on the side of the rinser header according to section 6.1.
2. Open the bypass valve (B), see Figure 6.9.
3. Click the Back arrow to go back a step, see Figure 6.10.
4. Select “Pump & Drum”, see Figure 6.11.



Maintain a safe distance from the filter whilst the drum is rotating.

5. Select “Start” in the “Drum” window, see Figure 6.12.

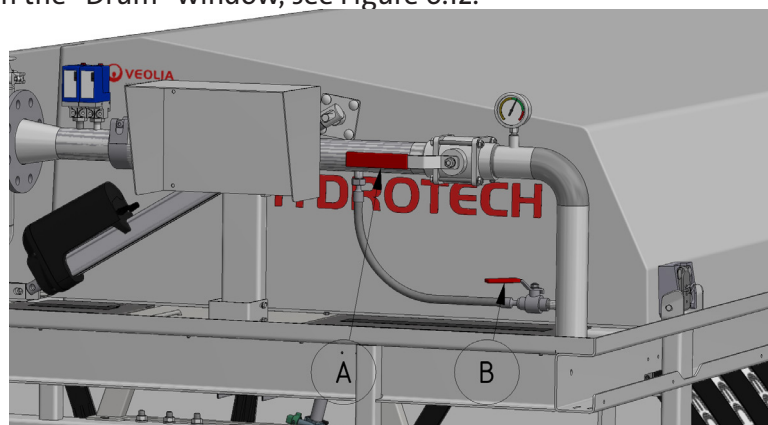


Figure 6.9 Main valve A and bypass valve B.

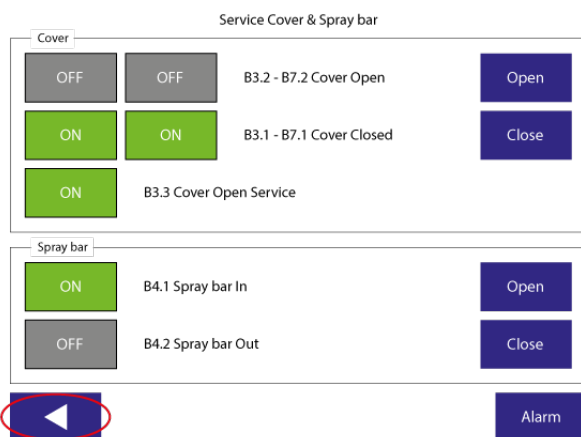


Figure 6.10 Service Cover & Spray bar menu.

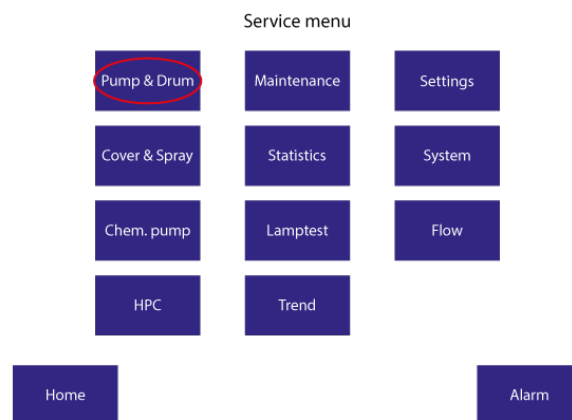


Figure 6.11 Service menu.

6. Select “Start” in the “Pump” window, see Figure 6.12.

7. Close the main valve (A), see Figure 6.9.

8. Adjust the backwash water flow using the bypass valve so that there is a small but constant flow through the nozzles. This makes it easy to identify which nozzles need to be cleaned.

9. Press the back arrow

10. Select “Cover & Spray”, see Figure 6.12.

11. Extend the wash ramp as described in section 6.2, item 2.

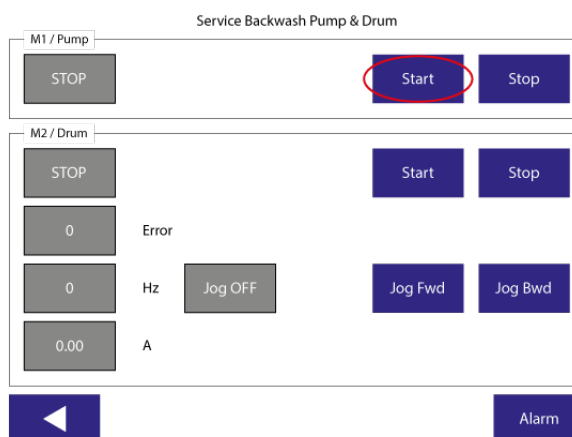


Figure 6.12 Service Backwash Pump & Drum window.



The operating time in this mode must be minimised in order to not risk the pump overheating.

12. Fully or partially clogged nozzles must be cleaned.

13. Remove the nozzle nut by turning it a ¼ turn anticlockwise. Do not lose the rubber seal

14. Clean the nozzle using compressed air or a plastic brush. Never use a steel brush or metal pins as these may damage the nozzle.

15. Fit the nozzle in reverse order. Check that the nut has reached the stop position once it has been tightened a ¼ turn clockwise.

16. Stop drum rotation, (the pump stops automatically).

17. Open the backwash water main valve and close the bypass valve.

18. Reset the backwash pipe to operating mode.

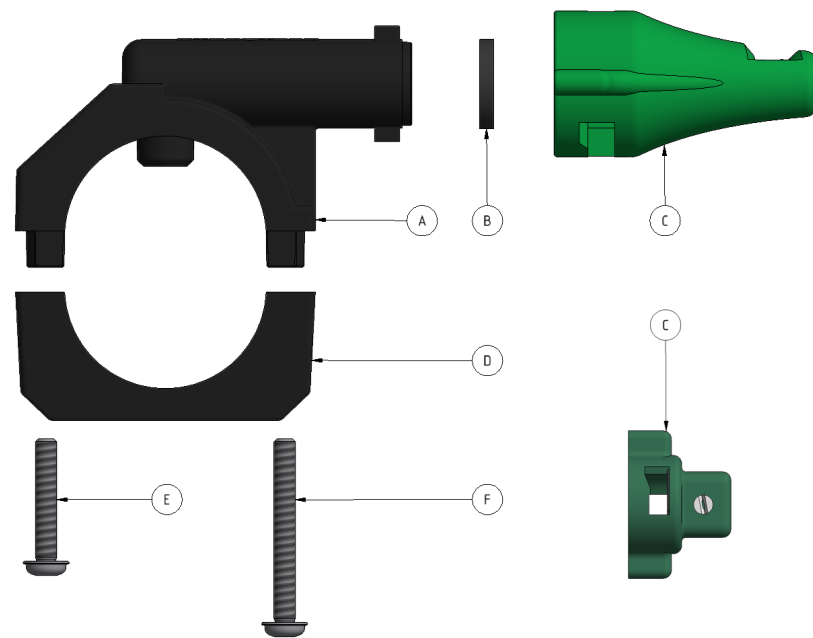


Figure 6.13 Hydrotech backwash nozzles.

A. Top nozzle attachment

B. Rubber seal

C. Top: Nozzle nut, self cleaning (optional)

Bottom: Standard nozzle

D. Bottom nozzle attachment

E. 20 mm screw

F. 30 mm screw

19. Close the filter cover

20. Start operation again as set out in section 4.1.

6.4 Backwash pipe position

NOTE! Prior to servicing, read section 2.7.

6.4.1 Checking backwash pipe position

1. Turn the mode selector to “HAND” and lift the filter cover on the backwash pipe side, see section 6.1.

2. Select “Start” for the drum on the operator panel, see Figure 6.14.



Maintain a safe distance from the filter whilst the drum is rotating.

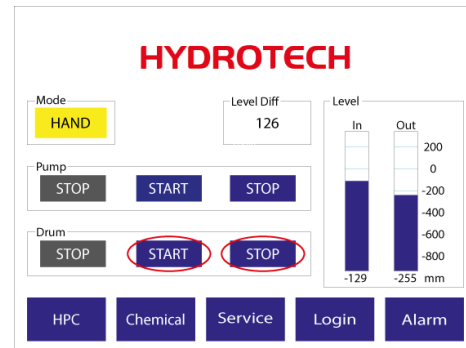


Figure 6.14 Main menu in operator manual.

3. When the drum rotates, the backwash pipe moves slowly. Stop drum rotating when the backwash pipe is in its lowest position.

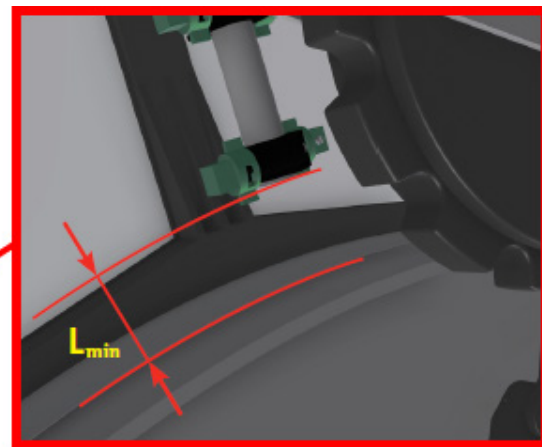
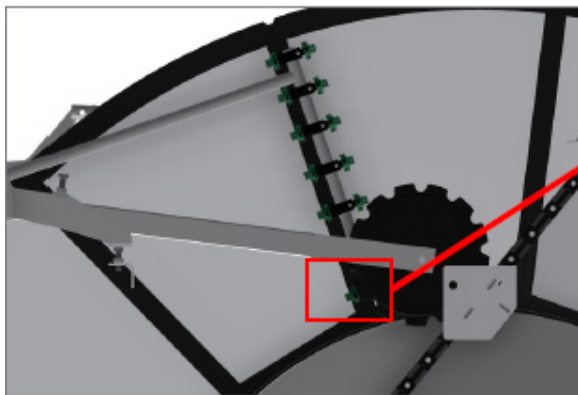


Figure 6.15 Lowest position of backwash pipe during operation.

4. Check that the distance L min is not less than 55 mm, see Figure 6.15.



If the distance L min is less than 55 mm, the equipment may suffer serious damage.

5. If necessary, adjust the position of the backwash pipe in accordance with section 6.4.2.

6. Adjust the backwash pipe safety stop in accordance with section 6.4.2.

7. Close the filter cover.

8. Start operation again as set out in section 4.1.

6.4.2 Checking backwash pipe position

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Undo the nut (B), see Figure 6.16.
3. Adjust the position of the backwash pipe using the screw (A).

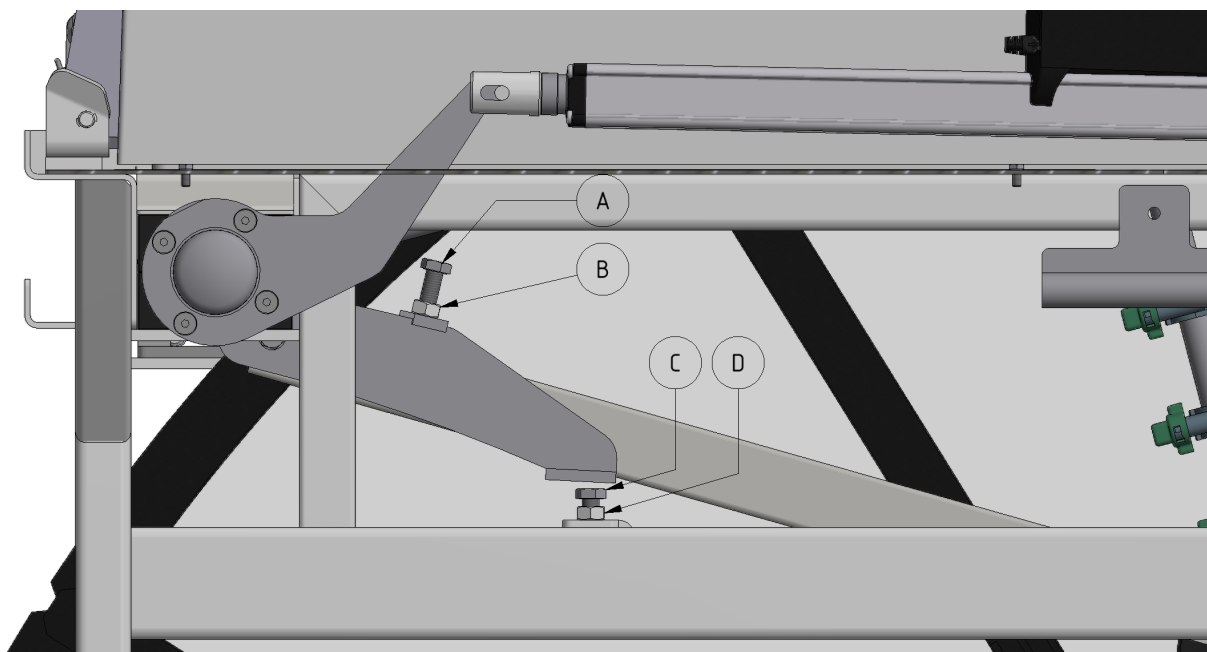


Figure 6.16 Screw and nut for adjustment of backwash pipe position and backwash pipe safety stop.

4. Secure the screw (A) using the nut (B).
5. Check backwash pipe position in accordance with section 6.4.1.
6. Adjust the backwash pipe safety stop in the corresponding way using the screw (C) and nut (D). The screw must be set so that the distance L in Figure 6.15 cannot, under any circumstances, be less than 55 mm.
7. Close the filter cover
8. Start operation again as set out in section 4.1.

6.5 Cleaning the backwash water filter

NOTE! Prior to servicing, read section 2.7.

If the pressure gauge indicates a pressure that is more than 0.5 bar below normal pressure, it's time to clean the backwash water filter.

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Drain the backwash water filter by opening the valve (A), see Figure 6.17.
3. Loosen the wing nut (B) and remove the clamp ring.
4. Lift off the backwash water filter cover (C).
5. Pull up and clean the filter insert.
6. Place the filter insert in the cover.
7. Refit the cover/filter insert and the clamping ring.
8. Close the drain valve (A).
9. Start operation in accordance with section 4.1.



Figure 6.17 Hydrotech spolvattenfilter.

- A. Lock
- B. Vingmutter
- C. Dränering

6.6 Bearings

NOTE! Prior to servicing, read section 2.7.

6.6.1 Lubrication of swivel

The swivel, the backwash pipe bearing, is located under the cover and connects the piping with the backwash pipe, see Figure 6.18.

When lubricating the swivel, the instructions below must be followed:

1. Turn the mode selector to “HAND” and lift the filter cover on the backwash pipe side, see section 6.1.
2. Turn the main power switch to the OFF (0) position and lock with a padlock.
3. Lubricate the swivel using the recommended grease (see chapter 7).

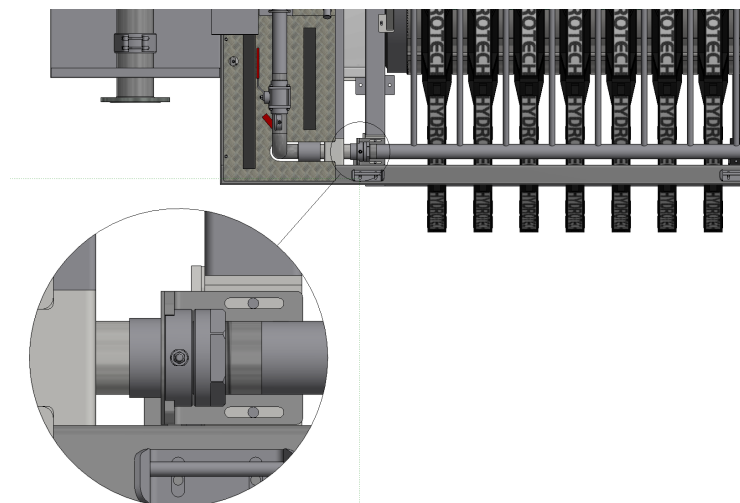


Figure 6.18 Swivel.

4. Close the filter cover.
5. Start operation in accordance with section 4.1.

6.6.2 Lubricating drum bearings

The bearings' lubrication nipples are fitted on the outside of the filter. Decals indicating the lubrication points are attached to the filter, see Figure 6.19. The lubrication points are also marked in Figure 3.2 and 3.3.

The drum must be rotating when the bearings are lubricated.

Lubricate the bearings using the recommended grease (see chapter 7).

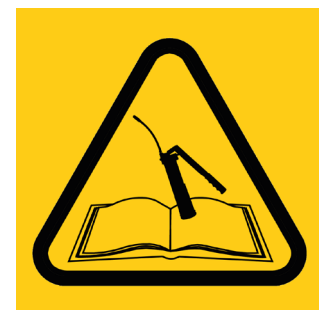
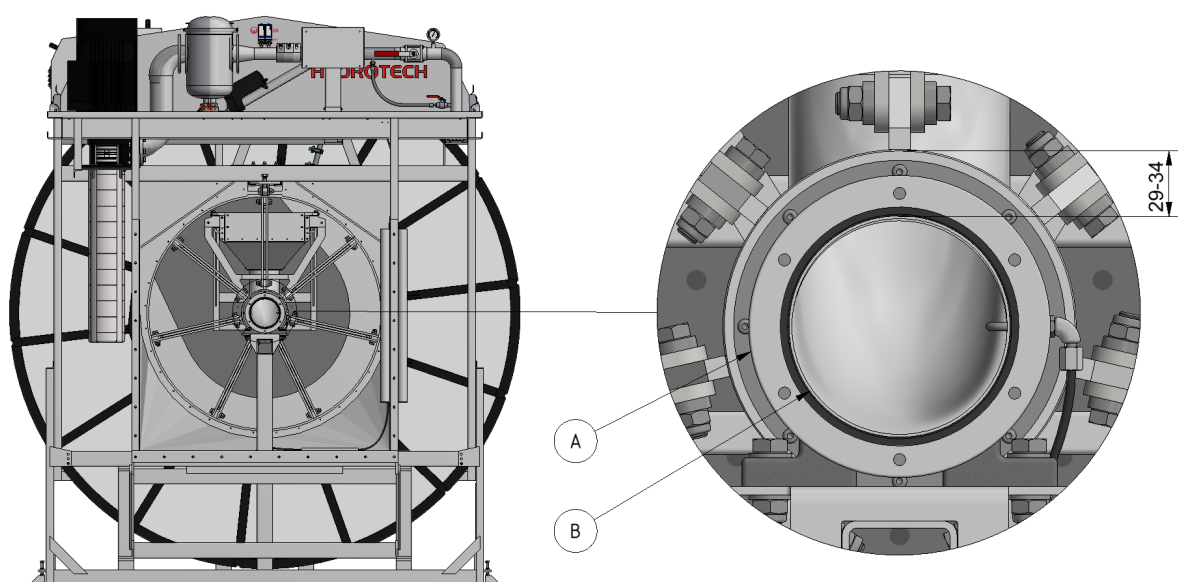


Figure 6.19

6.6.3 Checking drum bearing wear

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Drain the filter basin.
3. Check the drum bearings for wear. If the distance between the bearing housing (A) and the shaft (B) is less than 29 mm (see Figure 6.20), the drum bearing must be replaced.
4. Contact your supplier if the drum bearing needs to be replaced.
5. Start operation again in accordance with section 4.1.



*Figure 6.20 Drum bearing on inlet side.
A. Bearing housing
B. Shaft*

6.7 Filter panels

NOTE! Prior to servicing, read section 2.7.

6.7.1 High pressure cleaning

It may be necessary to manually clean the filter panels. It may be obvious that manual cleaning is required as automatic backwashing starts on a more frequent basis. Manual cleaning can be done using a high pressure washer.

1. Turn the mode selector to “HAND” and lift the filter cover on the backwash pipe side, see section 6.1.
2. Turn the main power switch to the OFF (0) position and lock with a padlock.
3. Clean the filter medium with water under high pressure.



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.

4. Close the filter cover.
5. Start operation again as set out in section 4.1.

An automatic high pressure washer, controlled from the operator panel, is available as an optional extra. Contact your Hydrotech reseller.

6.7.2 Chemical cleaning of filter panels

Long-term clogging of the filter media can be caused by, among others, 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 can cause damage to equipment.



If HCl and NaClO mix, toxic chlorine gas forms. HCl and NaOH are highly corrosive. For safety advice, see applicable local regulations.

For more detailed instructions, please contact your supplier.

Hydrotech Discfilter HSF2600 is equipped with a chemical ramp to enable cleaning of longterm clogging of the filter panels.

The dosing equipment (option) must be connected to the chemical ramp connector, see Figure 6.21. The control system is prepared and programmed for connection of a dosage system. Once electrical and mechanical installation has been completed, the control system is to be operated as follows:

1. Turn the mode selector to “HAND”.
2. Select “Login” (if the user is not already logged in) and log in using your user name and password.
3. Select “Chemical” on the operator panel, see Figure 6.22.

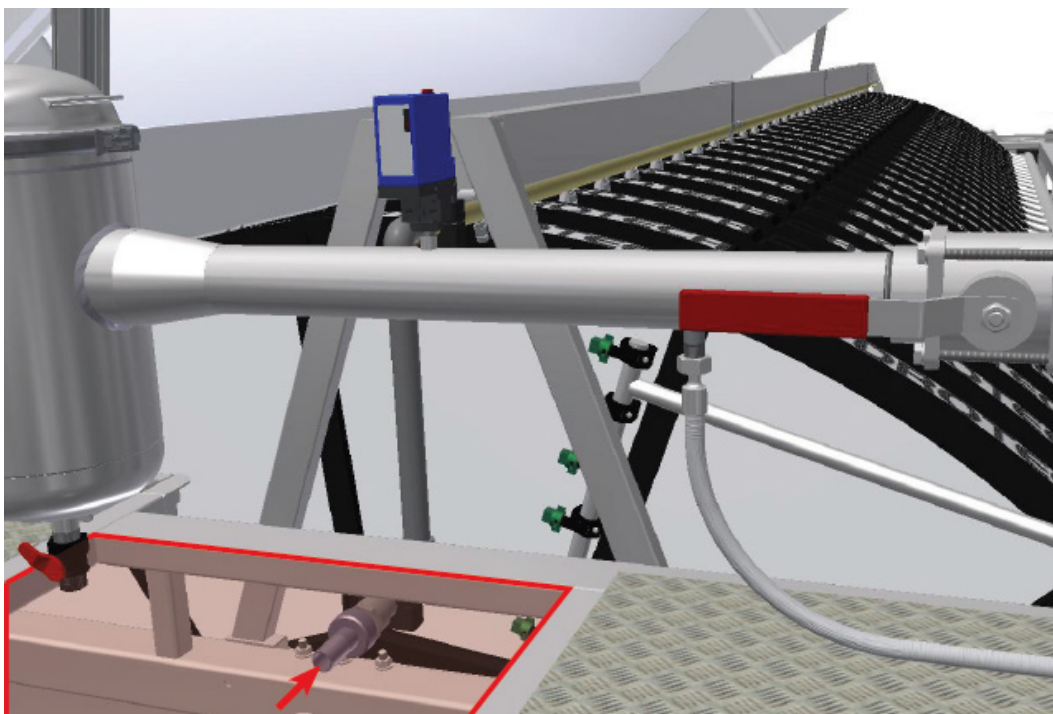


Figure 6.21 A floor plate must be lifted to access the connection to the chemical ramp.

4. Follow the instructions set out in section 4.2.2 of the “Automatic Control System Manual”.
5. Once chemical cleaning has been completed, re-start operation as described in section 4.1.

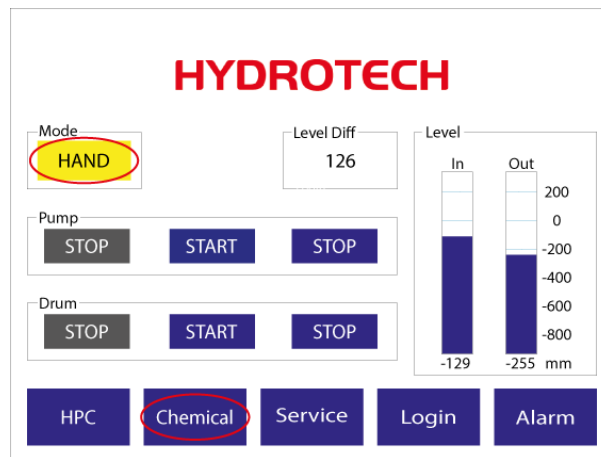


Figure 6.22 Main menu on electrical cabinet operator panel.

6.7.3 Changing filter panels

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

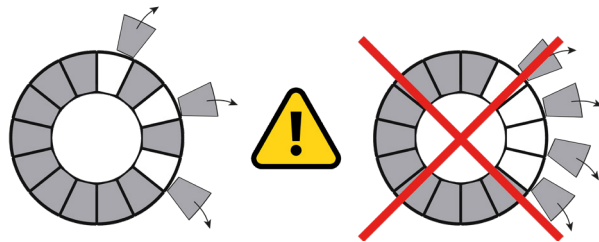


Figure 6.23 Correct way of changing filter panels.



NEVER remove or refit all the filter panels only on ONE side of the disc (see figure 6.23).

1. Turn the mode selector to “HAND” and lift the filter cover on the backwash pipe side, see section 6.1.
2. Select “Service” on the operator panel, see Figure 6.24.

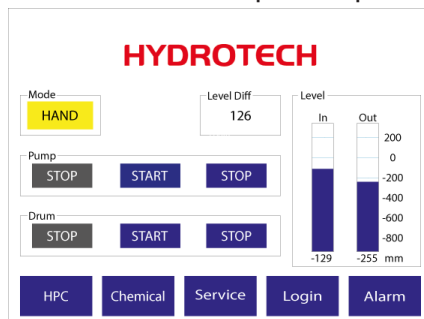


Figure 6.24 Main menu on electrical cabinet operator panel.

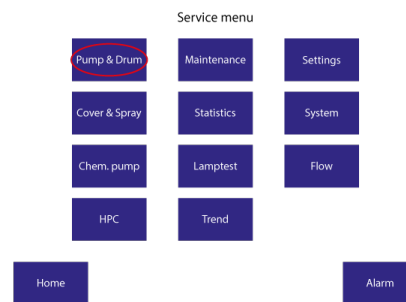


Figure 6.25 Service menu.

3. Select “Pump & Drum”, see Figure 6.25. Use the “Jog Fwd” and “Jog Bwd” buttons to set the drum in the desired mode, see Figure 6.26.
4. Turn the main power switch to the OFF (0) position and lock with a padlock.

5. Undo the filter segment cover screw and remove the cover, see Figure 6.27.

6. Pull out the filter panel.

7. Insert a new filter panel and press in until it touches the bottom.

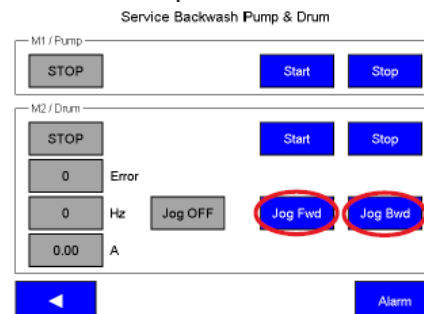


Figure 6.26 Service Backwash Pump & Drum window.



The filter panels **MUST** be installed with the filter medium inwards and the frame outwards as shown in Figure 6.28.

8. Re-fit the filter segment cover (see Figure 6.27) and tighten the screw.



Maximum tightening torque: 3 Nm.

9. Close the filter cover.
10. Start operation again as set out in section 4.1.

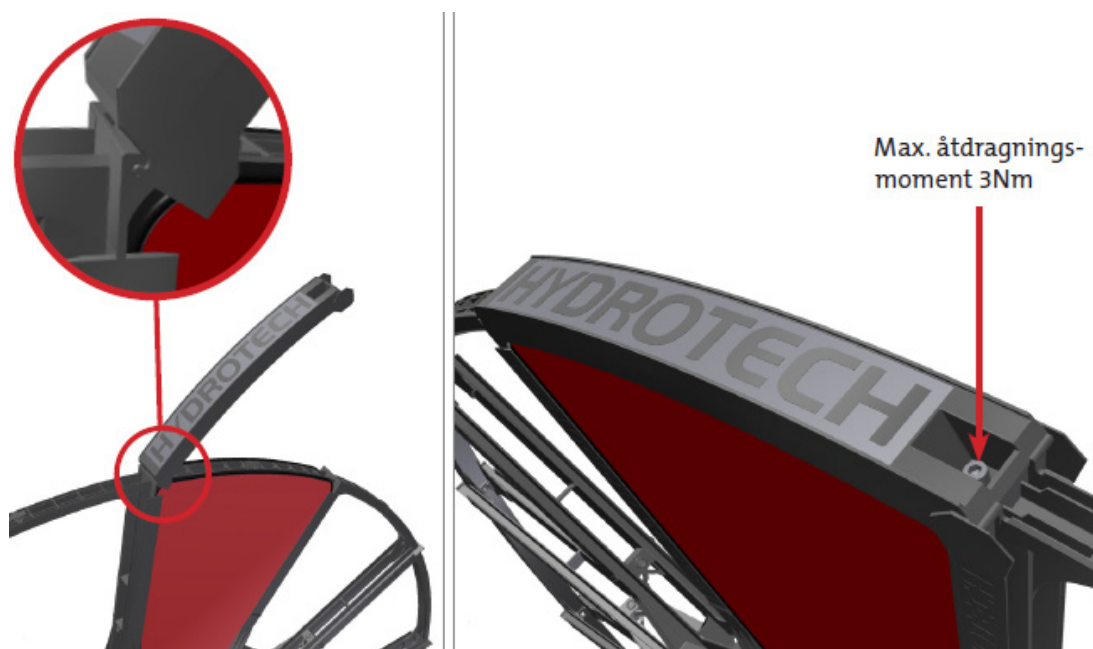


Figure 6.27 Montering av filtersegmentets lock.

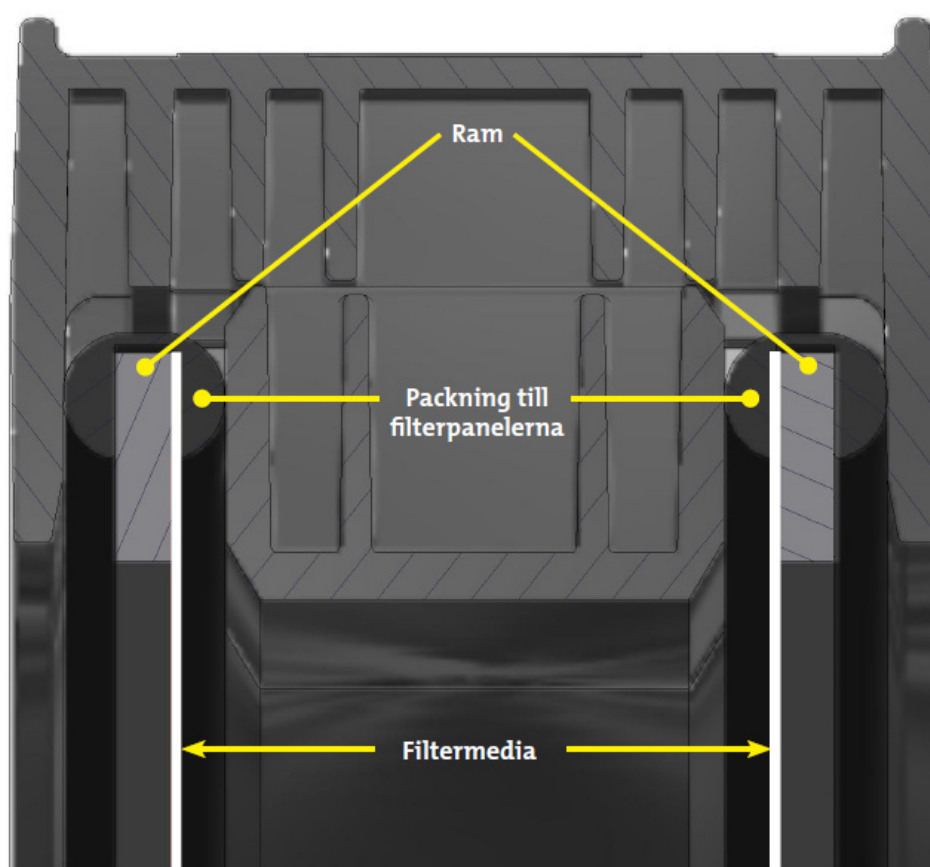


Figure 6.28 Filterpanelernas placering.

6.8 Drive chain

NOTE! Prior to servicing, read section 2.7.

The filter is equipped with a chain drive. For technical data, see Appendices A and D.

6.8.1 Checking the drive chain

1. Turn the mode selector to “HAND” and lift the filter cover on the same side as the drive unit, see section 6.1.
2. Turn the main power switch to the OFF (0) position and lock with a padlock.
3. Turn the drum by hand in the direction of rotation in order to stretch the chain.
4. Check the tension of the chain return; it must be possible to move it between 50-75 mm, see figure.

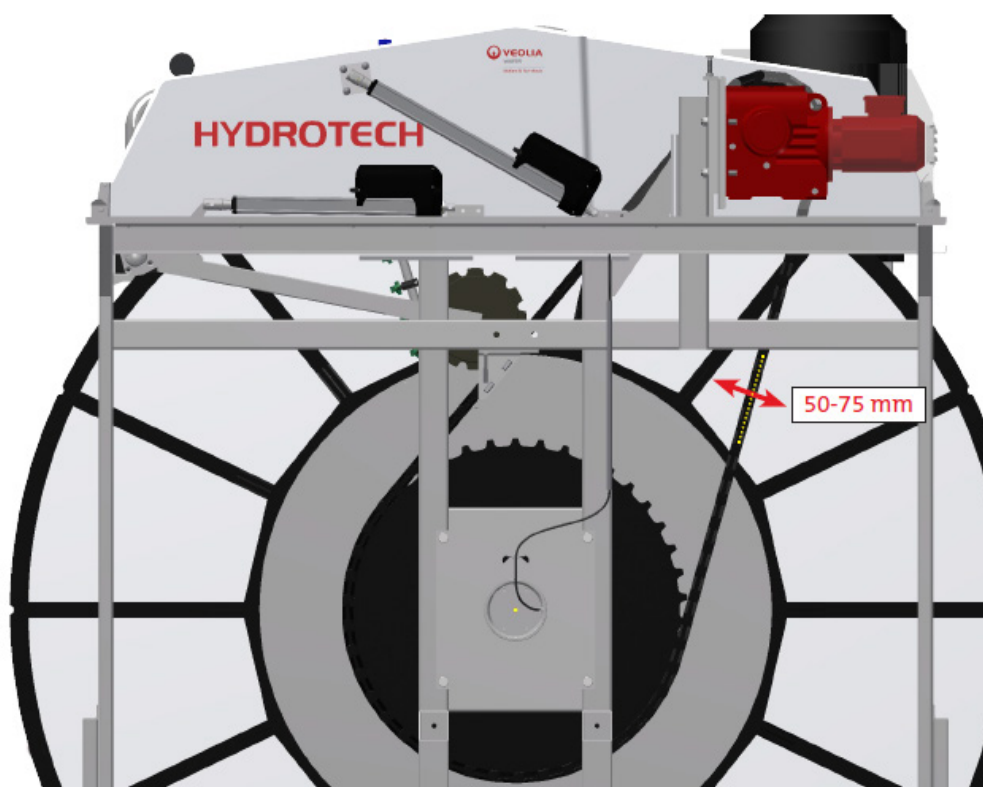


Figure 6.29 Filter drive unit.

5. If necessary, adjust the chain in accordance with section 6.8.2.
6. Close the filter cover.
7. Start operation again as set out in section 4.1.

6.8.2 Adjusting drive chain tension

Adjust 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 6.30.

3. Loosen the nut (B).

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

5. Secure the screw (C) using the nut (B).

6. Tighten the four nuts (A).

7. Close the filter cover

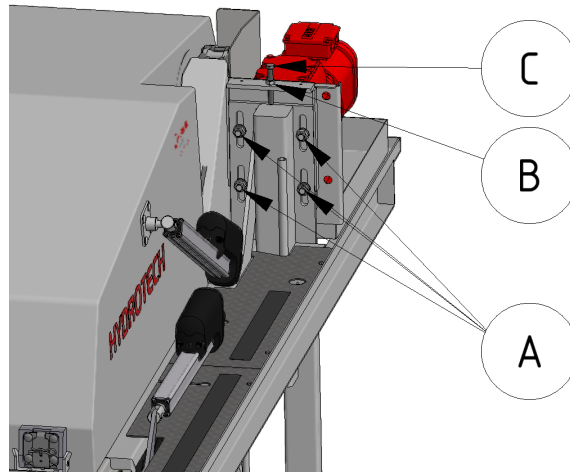


Figure 6.30 Engine suspension plate.

8. Start operation again as set out in section 4.1.

When the drive chain cannot be adjusted any more, the chain is worn and must be replaced, see section 6.8.3.

6.8.3 Replacing the drive chain

1. Turn the main power switch to the OFF (0) position and lock with a padlock.

2. Lower the drive unit to its lowest position, see section 6.8.2.

3. Split and remove the drive chain. The drive chain can be separated in all links.

4. Fit the new drive chain.

5. Adjust drive chain tension in accordance with section 6.8.2.

6. Start operation again as in section 4.1 (Check procedures during start-up).

6.9 Drive unit

NOTE! Prior to servicing, read section 2.7.

For information about the drive unit, see Appendix D.

When changing the drive unit oil, the oil should preferably be drained with pump.

6.10 Inlet seal

NOTE! Prior to servicing, read section 2.7.

6.10.1 Checking inlet seal.

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Lower the water level in the filter until the whole inlet gasket is accessible.
3. Check the inlet seal for damage and wear, see Figure 6.31.
4. If necessary, replace the inlet seal in accordance with section 6.10.2.
5. Start operation again as set out in section 4.1.

6.10.2 Replacing the inlet seal

1. Turn the main power switch to the OFF (0) position and lock with a padlock.
2. Lower 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 seal.
7. Start operations again as set out in section 4.1.



Figure 6.32 Drive unit drained with pump.



Figure 6.31 Check of inlet seal.

7. MAINTENANCE SCHEDULE

Check/Action	Maintenance interval
Check whether the backwash water filter is clogged. See section 6.5.	The interval is based on experience from the application in question. (When the wash water pressure drops 0.5 bar below the normal value.)
Check the filter panels for clogging and damage, see section 6.7.	Once a week, or at another interval based on experience from the application in question.
<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>NOTE! Prior to servicing, read section 2.7. Remove large objects and rinse the sludge trough.</p> <p> WARNING! 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 minimize corrosion, particularly in salt water applications.	Twice a month or another interval based on experience from the application in question.
Check the nozzles with respect to clogging. See section 6.3.	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 6.6.1.	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 6.6.2.	Twice a month with continuous drum rotation. Once a month with intermittent drum operation.
Check drive chain tension and condition. See section 6.8	Four times a year with continuous drum rotation. Twice a year with intermittent drum rotation.
Check backwash pipe position, see section 6.4.	Twice a year.
Check drive unit oil level, see section 6.9.	Twice a year.
Check drum bearing wear, see section 6.6.3.	Once a year.
Check inlet seal, see section 6.10.	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 D.	See Appendix D.

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. 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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