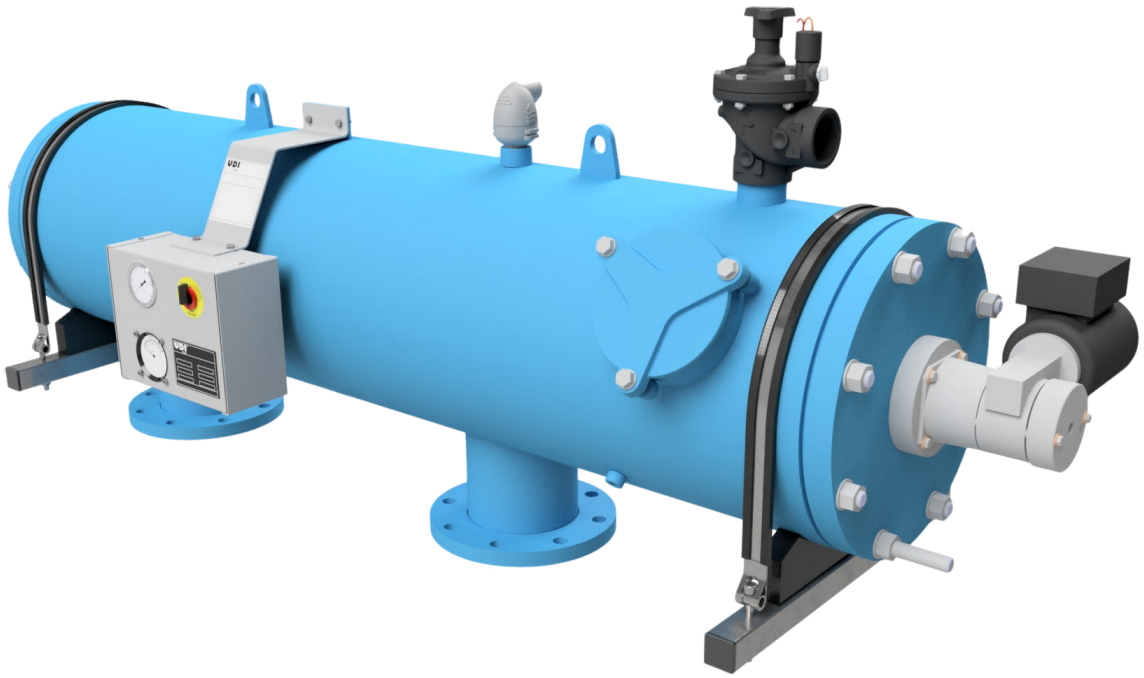
Maintenance Manual - 6Matic

UDI® filters

Automatic Screen Filter 6-Matic

Installation- Operation- and Maintenance Manual

Serial Number



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INDEX MANUAL 6MATIC

1 - SAFETY FIRST

UVAR believes that the safety of personnel working with and around our equipment is the most important consideration. Please read all safety information below and any other relevant source before attempting to perform any maintenance function. Comply with all approved and established precautions for working with your type of equipment and/or environment. Authorized personnel should perform all maintenance tasks.
Prior to performing a procedure, read it through to the end and understand it. If anything is not clear, ask the appropriate authority. When performing a procedure, follow the steps in succession without omission.

Availability of the latest version:

EN:

NL:

Manuals are subject to changes; The online version on our website www.uvar.nl is the most recent version. When using a printed version, always check, through the QR-codes, for the latest on our website or consult your local representative.

Link to interactive maintenance instruction:

EN:

NL:

2 - TECHNICAL SPECIFICATION

Screen Area & Maximum Flow Rates

Model	In-/Outlet diameter		Max. Flow Rate (*)	Flush Flow rate (**)	Screen area
	inch	mm	m³/h	m³/h	cm²
706M002	2"	50	25	8	2500
706M003	3"	80	40	8	2500
706M034	4"	100	80	8	2500
706M004	4"	100	80	10	4000
706M006	6"	150	150	10	4000
706M086	6"	150	150	12	6000
706M008	8"	200	300	12	6000
706M128	8"	200	300	14	8000
706M012	12"	300	600	14	8000

* The maximum flow rate refers to screens over 200 microns/ less than 80 mesh and good water (TSS < 10ppm).

** The flush flow rate is based on: screens over 200 microns/less than 80 mesh and ± 2 bar pressure difference > P1 - (1,8-2,5 bar) see chapter 12.

Screen Grades

Micron	10	25	30	40	50	80	100	130	200	300	400	800
Mesh	1500	600	500	400	300	200	150	120	80	50	40	20

For a finer filtration degrees consult our representative.

Electrical Data

motor

Voltage	1 phase 110 VAC	1 phase 230 VAC*	230/400 - 276/480 VAC	3 phase 346/600 VAC
Frequency	50 Hz	50 / 60 Hz	50 HZ - 60 Hz	60 Hz
Current	4,2 A	2,2 / 2,0 A	1,33 A - 0,77 A	1,0 A / 0,6 A
Power	0,25 kW	0,25 kW	0,25 kW	0,25 kW

* Default motor. For other motors consult our representative.

Specifications of the supplied motor might differ.

Materials

Filter housing : Carbon Steel, electrostatic powder coating (Optional - Stainless Steel)
Filtration Screens : Sintered multi-layer screen. - Stainless Steel 316
Gaskets : SBR (Synthetic Rubber)

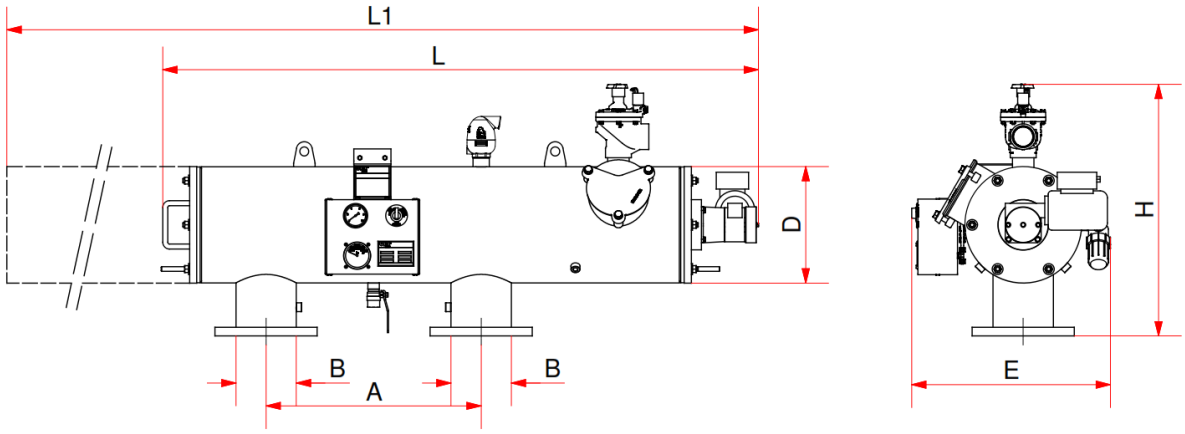
(Optional - other materials please contact our representative)

Type		706M002	706M003	706M034	706M004	706M006	706M086	706M008	706M128	706M012
Connection - B	inch	2"	3"	4"	4"	6"	6"	8"	8"	12"
Diameter - D	inch	12"	12"	12"	12"	12"	16"	16"	16"	16"
Flange (ISO 7005 PN10)		50	80	100	100	150	150	200	200	300
Pitch	mm	125	160	180	180	240	240	295	295	400
Bolt holes	mm	4x Ø18	8x Ø18	8x Ø18	8x Ø18	8x Ø22	8x Ø22	8x Ø22	8x Ø22	12x Ø22
Weight	kg	177	179	183	214	217	310	314	335	350
Length - L	mm	1480	1480	1480	1660	1660	1925	1925	2225	2225
C-C flanges - A	mm	430	430	430	600	600	780	780	990	990
Drain valve	inch	1½"	1½"	1½"	2"	2"	2"	2"	2"	2"
Screen area	cm²	2500	2500	2500	4000	4000	6000	6000	8000	8000
Max. pressure	bar	10	10	10	10	10	10	10	10	10
Min. flush press.	bar	2	2	2	2	2	2	2	2	2
Flush cap. min. *	m³/h	8	8	8	10	10	12	12	14	14
Flushing water **	ltr	67	67	67	83	83	100	100	117	117
Motor	1 phase 230V/50Hz (other voltages on request)									
Size E	mm	540	540	540	540	540	575	575	575	575
Size H	mm	650	650	650	650	650	780	780	780	780
Size L1	mm	2480	2480	2480	2780	2780	3280	3280	3830	3830

Specification of larger sizes upon request

* The flush flow rate is based on ± 2 Bar pressure difference: P1 - (1,8-2,5 bar) see chapter 12.

** The amount of flushing water is based on ± 2 Bar pressure difference: P1 - (1,8-2,5 bar) see chapter 12.



Type	B	D	A	E	H	L	L1
	mm	inch	mm	mm	mm	mm	mm
2"	50	12"	430	540	650	1480	2480
3"	80	12"	430	540	650	1480	2480
4"	100	12"	600	540	650	1660	2780
6"	150	12"	600	540	650	1660	2780
6"L	150	16"	780	575	780	1925	3280
8"	200	16"	780	575	780	1925	3280
8"L	200	16"	990	715	780	2225	3830
12"	300	16"	990	715	780	2225	3830

Construction

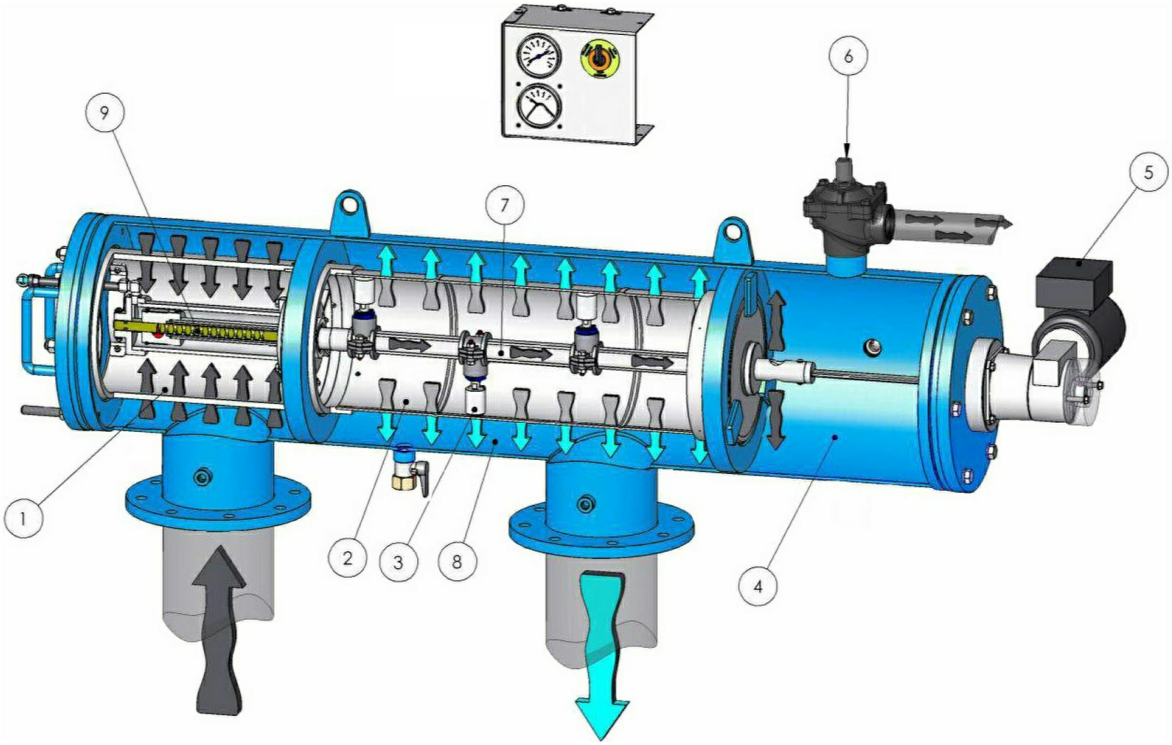
The standard housing of the filter is made of carbon steel with a 120 micron protective coating of extra durable polyester, applied electro-statically and oven cured on a zinc-phosphate layer, for maximum anti-corrosion protection both internally and externally.

Access to the internal parts of the filter is through the removable bolted cover.

All immersed parts are made of either plastic materials or non-corrosive metals to ensure many years of trouble free operation.

For special applications; contact our representative for more information.

3 - Operating principle



A. Filtration mode
The raw water enters the filter inlet and passes through the coarse screen (1), the first stage of filtration. This prevents passage of any large particles, which may damage the filter internals.

The water then flows through the inside of the filter to the inner side of the fine screen (2). The water passes through the screen from inside out to the filtered water chamber (8) and flows out through the outlet.
As the water passes through the fine screen, the solids accumulate creating a cake of dirt on the inner surface of the screen; as a result the pressure drop across the screen increases, and when it reaches a preset level (0.5 bar / 7.5 psi) the filter controller* activates the self cleaning process.

*Controller is optional !

B. Flushing mode
When flushing command is activated, the controller activates the flushing valve (6) and the gear motor (5).
The pressure differential between the pressure inside the filter and at the open valve to the atmosphere on the flushing chamber (4) creates a backflow effect at the unique SA nozzles (3), removing accumulated solids from the screen to the drain.
The unique design of the SA nozzles achieves an increased suction and significantly decreasing the water consumption during flushing, due to accurate contact point between the unique SA nozzle and the screen.
The spiral motion of the nozzles cleans all the area of the screen.
The collector assembly is driven by electrical motor which rotates in one direction. The electrical motor is connected through the collector (7) to a reversing mechanism (9) which enables a continuous linear movement (back and forth) of the collector assembly.

The flushing cycle will be activated on pressure differential, time or manual:

1. When the predetermined differential pressure between inlet and outlet of the filter is reached (as preset on the D.P. Switch, usually 0.5 bar / 0.75 psi).

2. Time interval between one flushing to the next one (prefixed at the controller – can be changed by the operator) - guarantees that the time passed from the last self-cleaning process will not be longer than the pre-set value determined by the operator.

3. Manually initiated flushing by pressing a button on the controller.

Testing the pressure differential switch

When functioning correctly, creating a pressure drop by means of closing the valve (75*) on the outlet side of the filter, will result in a flushing cycle of the filter. Please note that during the closing of the test valve a small amount of water will be released.

*Part numbers refer to the illustrated parts breakdown in chapter 11

C. Continuous flushing

The fine sintered screen is flushed continuously, through the suction nozzles. The flushing valve and the worm-gear motor are activated continuously.
The "Continuous Flushing" is selected manually by the operator; the selector is located on the electrical board.

4 - OPERATING MODES

This efficient filter is automatic and easy to operate.
When the optional PLC controller is installed the operating modes are as follows:

1. **Filtration** - The normal function of the filter

2. **Automatic Flushing** – Flushing of the screen through the suction nozzles, activated by time or DP. The gear-motor and the flushing valve are activated simultaneously by the controller.
   The Yellow Flushing light (on the control board) is ON.
   The timer activates the flushing cycle according to pre-set time in the controller.

3. **Continuous Flushing -** Back flushing of the screen through the suction nozzles. The gear motor and the flushing valve are activated continuously and the Yellow Flushing light is ON. This manual mode is selected by the operator.

4. **Malfunction mode –** This mode takes place when the electric motor's overload is tripped. Then the RED Fault Light (on the electrical board) is turned ON.

5 - Installation procedures

5.1 - Assembly prior to installation

The filter is normally supplied fully assembled.

⚠ **Electrical connections will be done by authorized personnel only.**

The filter may be installed in any position, although for ease of maintenance, horizontal installation is recommended.

5.2 - Filter installation

1. For best results, the filter should be installed as near as possible to the system it is required to protect. However, if low filter inlet pressure is a concern, either before or during flushing, the filter may need to be installed closer to the pressure source.
2. Ensure that the upstream pipe size from the pressure source to the filter is equal to or greater than the filter's inlet size.
3. It is strongly recommended to install an isolation valve at the filter's inlet, and a check valve, or an isolation valve at the filter's outlet.
4. An inlet isolation valve must be installed in situations where the pressure source cannot be shut down for maintenance.
5. Inlet/outlet and by-pass valves must be installed in situations where a constant supply of water is required downstream during filter servicing.
6. Ensure that the filter is mounted in the proper flow direction, as indicated by the arrows on the filter housing. As a check, the inlet is closer to the cover end of the filter.
7. If a fixed drain pipe is installed on the auxillairy filter, use a funnel or other means so it will be visible if the valve is opened or closed.
8. The mounting of the delivered 1"airvalve is strongly advised.
9. Ensure that sufficient space is provided around the filter for maintenance.
10. ⚠ When the screen element is disassembled, reassembly as follows. Insert the screen element inside the filter body. Open the service port cover (6) in order to get easy access to place the collector assembly in place. The drive shaft (39) must be inserted into the shaft guide (19). Before doing so apply grease to the drive shaft.
11. When an acid-base injection is installed the injection location should be downstream from the filter.

Part numbers refer to the illustrated parts breakdown in chapter 11

5.3 - Drain line installation

A drain line should be attached to each flushing valve, as follows:

- The back pressure at the flush valve outlet should not exceed 0.3 bar (4.5 psi)
- Piping should be installed level or pitch down to avoid back-pressure.
- The open end of piping should be securely mounted to avoid vibrations during flushing cycle.

5.4 - Electrical installation

Technical electrical specifications:

- Reduction motor, see chapter 2 (Technical Specification). The electralmotor needs to installed with a current overload protection acc. to EN 60204-1.
- DP-switch: SPST 25W max 0,5 A + max. 240 VAC/VDC.
- Solenoid(s): 24 VAC-D 50/60 Hz 2,2W

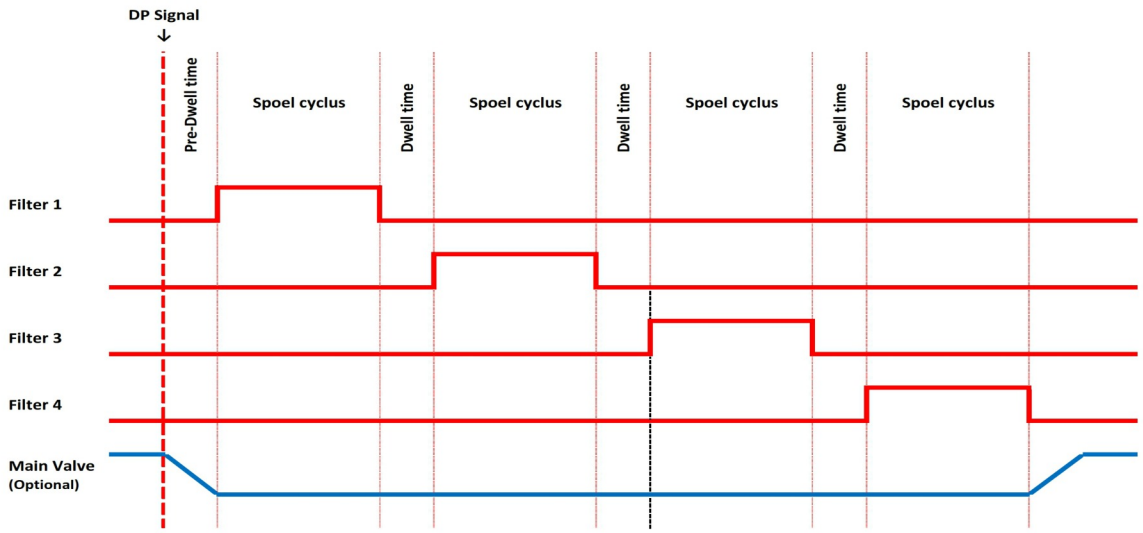
Filter control:

- Flush modes:
  - ❑ Automatic (triggered by pressure difference and by time)
  - ❑ Manual

Automatic flush mode

- The flushing of the filter will be initated by de DP-switch (ΔP > 0.5 Bar)
- After approx. 10 seconds a flushing cycle needs to be started (Pre-Dwell time)
- If applicable, first close the mainvalve installed after the filter. The flushing cycle may start if the mainvalve is fully closed. The time needed for the closure is depending on the type of valve installed.
- The flush cycle will be started when both the eletrical motor and the solenoid on the flushing valve are activated. A flushing cycle needs to be at least 30 seconds. After this time the electrical motor and the solenoid valve need to be decativated.
- If more than one filter is installed the pressure difference over all installed filters need to be monitored by means of one DP-switch. The DP switch need to be installed into the combined in- and outlet line.
- If multiple filters are installed the flushing needs to be preformed one after another. Between the changeover of the filters a dwell time of 5-10 seconds needs to be taken into account.
- In case an electric valve is installed on the auxilairy filter, we recommend to activate this electrical valve every 30 flushing cycles for approximatly 5-10 seconds.

⚠ The flushing of the auxilairy filter may <u>never</u> be done during a regular flushing cycle of the 6Matic filter.



Manual flush mode

- For each installed filter there needs to be a possibility to manualy flush the filter.
- The manual flush cycle needs to be identical to the automatic flushing cycle.

General

- When the system, in which the filter is installed, is not operational, it may not start an automatic flushing cycle.
- Make sure that the filter is flushed based on operational uptime. The manual flush cycle needs to be identical to the automatic flushing cycle. No matter how the flushing cycle was started the interval to the next cycle will start to be measured again after each ending of a flushing sequence.
- Connect de DP-switch directly to the IO board of the PLC of computer (without routing through a relay).

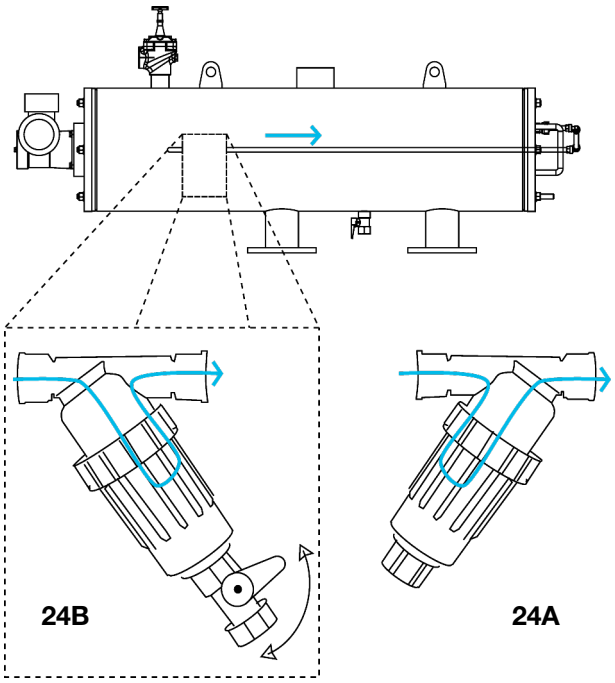
Advise

- Generate an alarm if a flushing cycle is repeated directly after another multiple times (for instance 3 times).
- Make sure that the amount of flushing cycles per day are logged. It is recommended to distinguish the various possiblies that can initiate a flushing cycle
- Make sure the following parameters are changable:
  - ❑ Pre-Dwell time (sec.)
  - ❑ Length of flushing cycle (sec.)
  - ❑ Dwell time (sec.)
  - ❑ Time interval for flushing cycle (hrs)
  - ❑ Amount of filters installed
  - ❑ Main valve installed (Yes/No)
  - ❑ Main valve time delay (Sec.)
- Flush the filter before or after a duty cycle. (Clean start and clean stop)
- Use an UDI controller for standalone applications.

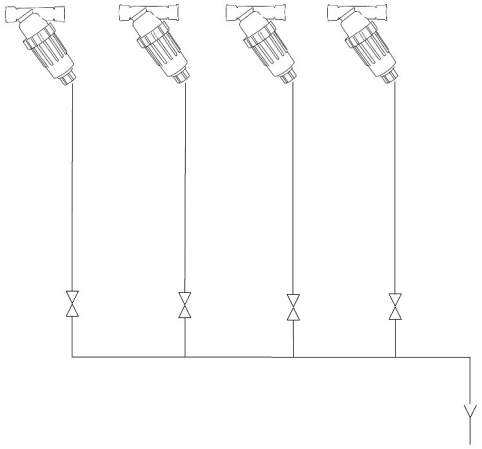
5.5 - Auxiliary filter

For the reversing mechanism to run smoothly, a similar pressure on both sides is required. The pressure is equalized by means of the pressure equalizing bypass. The filter in the bypass serves to keep the reversing mechanism clean.
The filter can be fitted with a screen filter element or a disc filter element. The screen filter is fitted standard with 24B - older versions may still have a discfilter installed (24a).

Assembly seen from the rear of the 6Matic:
Position and view side auxiliary filter in dashed line.



Screen filter (standard) **Disc filter**

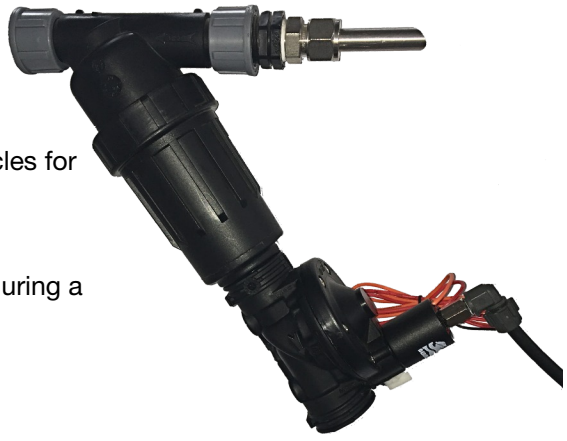


Make sure the manual valve(s) for flushing the auxiliary filters are easily accessible.

If needed change valve position and/or combine the flushing lines.

Screen filter:
If drainage is to be installed under the manual valve, use a funnel or other means so it will be visible when the valve is left open.

Automatic flushing of the auxiliary filter:
It is possible to automate the flushing of the auxiliary filter (24B), if required the maual valve needs to exchanged by a 3/4"elecltrical valve. Our advise is to activate this electrical valve after every 30 flushing cycles for approximatly 5-10 seconds.



Important:
⚠ The flushing of the auxilairy filter may never be done during a regular flushing cycle of the 6Matic filter.

6 - FIRST COMMISSIONING AND ROUTINE START-UP

NOTE: The notes below are based on the optional PLC controller.

NOTE: The differential pressure switch and timers have been preset to the proper settings. Do not adjust prior to start-up.

6.1 - Filter initial pre-sets

1. The differential pressure switch is set to 0.5 bar (7 psi) maximum, do not adjust.
2. It is recommended to set the flushing duration to 30 seconds.
3. Flushing interval (time between one flush to the next one) should be set according to water conditions

6.2 - First commissioning

Check prior to to start-up the following and adjust when required.

1. Check that the line pressure will always be at least 2 bar (29 psi) at the filter inlet during the flushing cycle.
2. Check that there are no restrictions upstream in the pipeline .
3. Check that the filter is mounted in the correct flow orientation, as indicated by the arrows on the body.
4. Check that the flushing valve is mounted properly.
5. Check that the tubing connections are installed correctly.
6. Check that power is available to the electrical board and that the main switch on the electrical board is in the "OFF" position.
7. Check that the flushing valve drain lines are installed.
8. Check that the upstream and downstream isolation valves are closed.
9. Check that adequate space is available around the filter for maintenance.

6.3 - Start-up

1. Slowly open the inlet valve to the filter allowing the filter to pressurize.
2. Check for any external leakage and eliminate if needed .
3. Slowly open the outlet valve of the filter (if installed).
4. Turn the main switch ON.
5. Verify that all power supply and all machine elements are connected.
6. Turn the operation mode switch to "AUTO" position.
7. Initiate a manual flushing cycle, the filter will perform its first flush and stops.
8. During filter flushing:
    1. Observe the movement of the screw through the indicating sight on the gear motor protection cover.
    2. Ensure that the filter inlet pressure is higher than 2 bar (29 psi).
    3. The flushing chamber pressure should be 1.8 - 2.5 bar (26 - 36 psi) below inlet pressure.

NOTE: *At any given time pressing the manual flushing push button will cause one flushing cycle. The duration of the flushing cycle can be adjusted via the controller. Recommended flushing time is a minimal of 30 seconds.*

7 - PLC CONTROLLER (OPTION)

When operational, the filter will be in one of the following modes.

7.1 - Automatic operation

The filter will perform a flushing cycle after time interval that is preset in the flushing controller or the filter will perform a flushing cycle due to the pressure differential switch command (D.P.), whichever is first.
If the pressure differential remains on, the filter will continue its flushing, read chapter 10 "Trouble shooting".

7.2 - Continous flush

In this mode the filter will flush continuously.

7.3 - Fault

The fault condition (RED light on) is generated in case of a motor fault. In the UDI PLC-controller the overcurrent protection is set to 1.6 Ampère.

8 - SHUT DOWN & DRAINING PROCEDURES

8.1 - Shut down procedure

NOTE: Before shutting down or draining the filter, perform two cycles of manual flush, verify that head loss on the filter does not exceed 0.1 - 0.2 bar (1.5 - 3.0 psi).

1. Close the isolating valve on the outlet of the filter if equipped.
2. Initiate a manual flushing.
3. Switch off the pump and close the isolating valve on the inlet of the filter
4. Initiate an additional manual flushing cycle to relieve the pressure in the filter, or open the manual drain valve (22).

8.2 - Drainage procedure

Prior to accessing the filter internals, it is necessary to drain the filter. Note that uncontrolled draining of the filter may result in excessive water spillage in the area around the filter.
In order to prevent any damage to surrounding equipment or property it is advised to install a drain connection to the manual drain valve (22) installed on the filter.

To empty the filter:
1. Perform the shutdown procedure as described in chapter 8.1
2. Reduce pressure to ‘0’.
3. The air valve will let air into the filter.
4. Open the manual drain valve (22) on the drain line to drain the filter.

Part numbers refer to the illustrated parts breakdown in chapter 11

9 - PREVENTIVE MAINTENANCE & INSPECTIONS

General notes:

1. Before filter shut down or draining, perform two cycles of manual flushing, verify that head loss on the filter does not exceed 0.1 - 0.2 bar (1.5 - 3.0 psi) (see chapter 8).

2. (__) refers to the breakdown drawings of chapter 11.

3. On moving mechanical parts, which are directly in contact with water, apply “Ocean W7”or equivalent grease (unless otherwise noted).

4. Before installing seals and O-rings, apply silicone grease ‘OKS 1110/0’ or equivalent grease (unless otherwise noted)**.**

5. Before installing bolts back, apply ‘Molykote G-n Plus Paste’ or equivalent.

⚠ 6. Do not tighten / untighten bolt of the covers while the filter is pressurized.

Following is a schedule of preventive maintenance and inspections based on average filtration duty, and should be used as a guideline only. For best results, a maintenance schedule should be compiled based on gained experience from using the filter. A maintenance kit (which consists of paint, Ocean W7 grease and OKS 1110/0 Silicon grease) is standard delivered with the filter.

9.1 - Daily

Repair any damage to the protective coating of the filter without delay. Prior to application of protective paint, thoroughly clean the damaged spot with wire brush.

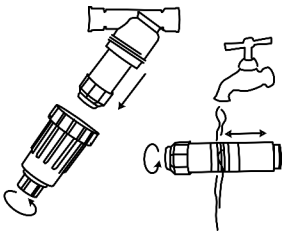
9.2 - Bi-weekly

Every two weeks clean the auxiliary filter (24A/B).

Manual filter with disc element (24A) (Filter points to the left and has no valve)

Perform the following actions when the system is without pressure.

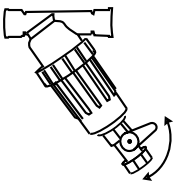
1. Unscrew the filter cap and remove the filter element.
2. Turn the black cap to loosen the discs.
3. Thoroughly rinse the discs under the tap .
4. Tighten the discs, assemble the filter element with the **purple O-ring on top** and tighten the filter cap.



Manual filter with screen filter element (24B) (filter with ball valve points to the right.)

Perform the following actions when the system is pressurized and the 6Matic is not flushing. Flushing the auxiliary filter is not allowed during the flushingcycle of the 6Matic!

1. If necessary place a bucket under the valve.
2. Open the valve and close the valve after 5 - 10 seconds.
3. If needed switch off the pump and thoroughly rinse the auxilairy filter screen element



⚠ **Ball valve should always be closed, unless cleaning auxiliary filter.**

9.3 - Monthly

On units equipped with by-pass valve, the by-pass valve should be engaged at least once a month. This will clean the valve seat of any accumulated dirt, as well as ensuring proper by-pass operation.

9.4 - Quarterly

Visual inspection and lubrication of the drive shaft (39):

1. Switch off the filter and drain the water (see chapter 8)
2. Remove the service cover (6) and start the motor manually; If the dirt collector unit (9) is fully seated in the filter (the drive shaft (39) is then fully visible), interrupt the power supply of the motor with the main switch
3. Apply a thin layer of Ocean 7W or equivalent grease to the drive shaft (39) .
4. Place the service cover (6) including the rubber cover (5).
5. Re-commision the filter (see chapter 6). If multiple filters are installed, these steps must be performed separately on all filters.

Filter with screen filter element (24B) (Filter with Electrical valve points to the right.)

Perform the following actions when the system is without pressure.

1. Unscrew the filter cap and remove the filter element.
2. Thoroughly rinse the element under the tap .
3. Assemble the filter element and tighten the filter cap.

9.5 - Intermediate maintenance cycle (annual)

1. Perform minor maintenance and replace the parts listed in the revision table.

Refer to chapter 9.1, 9.2, 9.3 and 9.4 for the complete maintenance scope.

		Partcode set: 4S7863R02300	Partcode set: 4S7863R08301	Partcode set: 4S7863R12300
#	Description	Model: 4U706M002 / 4U706M003 / 4U706M034 / 4U706M004 / 4U706M006	Model: 4U706M086 / 4U706M008	Model: 4U706M128 / 4U706M012
8/4	Fine Screen Element Seal	4S7851B9160	4S71500804	4S71500804
8/6	O-ring Dirt Collector Bearing	4S71500302	4S71500302	4S71500302
8/9	Shaft Seal	4S7863R020089	4S7863R080089	4S7863R080089
8/10	Shaft Seal	4S7863R020810	4S7863R080810	4S7863R080810
10	Shaft Seals (set)	4S71510381	4S71510381	4S71510381
11	O-ring For Seal	4S71510380	4S71510380	4S71510380
13/2	O-ring Reversing Housing	4S7851B9163	4S7851B9163	4S7851B9163
14/6	O-ring Shaft Reversing Unit Ass.	4S7863R020146	4S7863R020146	4S7863R020146
72	Gasketseal Cover	4S70600072	4S70600072	4S70600072
12	PE Hose 12 mm	4S7863R00012A (25 cm.)*	4S7863R00012A (25 cm.)*	4S7863R00012A (50 cm.)*

* (cut to the right length)

A -Removing the fine screen and the drive unit for inspection and replacement of above mentioned parts:

1. Switch off the filter and drain the water (see chapter 8)
2. Disconnect the connector of the stainless steel pipe (65) near the front cover (3) by loosening knee (66) and disconnect the PE adapter (69), turn and remove the stainless steel pipe.
3. Disconnect the PE tube (12) by removing the clamp nut (70), clamp ring (71) and seal (72).
4. Open the front cover (3) by loosening the bolts.
5. Carefully pull out the complete screen assembly (Item 7, 8, 9 &13) using the two handles inside the coarse screen.
6. Place the screen assembly on a clean working surface in order not to damage the screen.
7. Remove large particles from the coarse screen (7) and clean if necessary.
8. Check the fine screen (8/1) for any markings of the suction nozzle (9/2) and check the nozzles on the collector unit (9) for wear.
9. Visually inspect the fine screen (8/1) for wear and tear, inside and out.
10. Clean the complete screen by means of a high-pressure cleaner. Refer to chapter 9.7 for more cleaning instructions.
11. Remove the screen seals (8/4)
12. Remove the bolts (35) from the shaft guide (19)
13. Remove the bolts (8/12) to dismount the guide base (8/7)
14. Remove the bolts from the coarse screen to disconnect the coarse screen (7) from the fine screen (8).
15. Dismount the reverse housing assembly (13) by means of the following steps:
    - Remove nut (13/6) and remove bolt (13/5) from the housing
    - Remove bolts (13/3) and remove the housing of the reversing mechanism (13/1)

- Remove the bolts from the housing (14/5) and remove the housing (14/5) from collector unit (9/1)
- Remove the O-ring/Stopper (14/2) and remove the cover of the drive pawl (14/3)
- Dismount the drive pawl (14/4) from the housing (14/5) and remove the drive screw (14/1)

16. Check the drive pawl (14/4) and the drive screw (14/1) for any signs of wear and tear. Also check suppleness of the actual reversing of the unit by turning by hand.

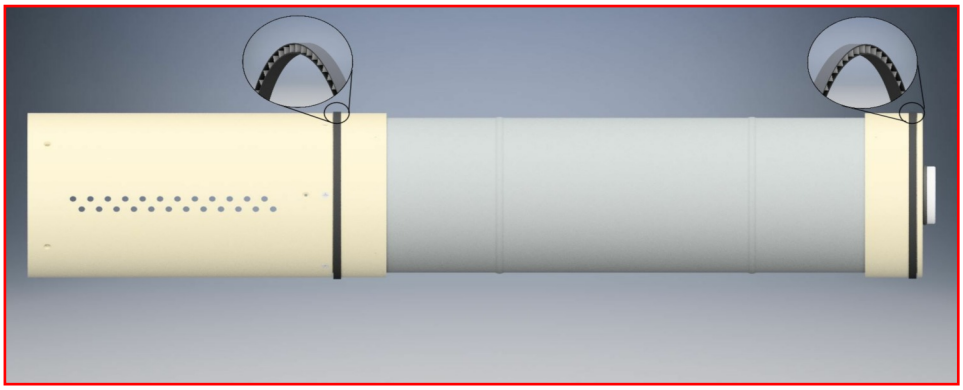
⚠ **<u>! Replace the reversing unit if necessary or after 100.000 backflush cycles !</u>**

Thoroughly clean the drive pawl (14/4) and the drive screw (14/1) and place them back into the housing as followed:

- Replace O-ring (14/6) on shaft of the reversing mechanism (14/1).
- Apply Ocean 7W or equivalent to the shaft of the reversing mechanism (14/1).
- Place the shaft of the reversing mechanism (14/1) in the drive pawl housing (14/5).
- Place the drive pawl (14/4) into the housing (14/5)
- Slide the cover (14/3) over the housing and place the O-ring / Stopper (14/2)

17. Pull out the dirt collector in the direction of the guide base from the screen.
18. Remove the guide base (8/7) by sliding it over the collector shaft.
19. Replace in the collector lower guide (8/5), the O-ring for the guide stopper (8/6) and the wiper seal (8/10).
20. Replacing upper guide seal (8/9) of the collector upper guide.
21. Reinstall the collector unit back into the screen through the upper guide base.
22. Place the collector upper guide (8/2) in the upper guide base.
23. Place the guide base (8/7) over the collector shaft.
24. Mount the guide base (8/7) back into the screen and tighten the screws (8/12).
25. Reinstall the bolts (35) to the shaft guide (19)
26. Place the reversing mechanism on the dirt collector (9) and mount the housing (14/5) using the bolts.

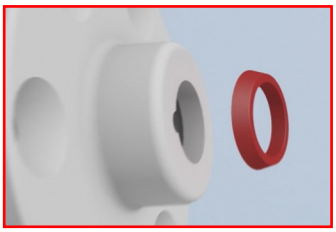
⚠ 27. Replace the O-ring (13/2) and apply lubricant to the O-ring
28. Place the housing of the reversing unit (13/1) over the shaft of the reversing mechanism
29. Connect the shaft to the housing using bolt (13/5) and nut (13/6). Mount the nut and then loosen it slightly.
30. Mount the housing (13/1) to the upper guide base (8/3) using bolts (13/3). Before mounting the bolts apply some grease on the bolts.
31. Rotate the whole collector unit manually and check that it is running smoothly and the changing of the direction is smooth.



⚠ 32. Place the new screen seals (8/4) onto the filter element assembly. Pay attention to the direction of the seal. (See picture above)
33. Use silicon grease on the new screen seals (8/4)
34. Mount back the coarse screen (7) back onto the fine screen (8), using the screws.

B - Replacing shaft seal set (10) and shaft guide seal (11):

1. Electrically disconnect the electric motor (51).
2. Remove the service cover (6)
3. Remove the plastic protection cover (54) on the gear motor, by means of removing the bolts (55/56)
4. Remove the shear pin/nut (52/53) and the spacer ring (57)
5. Dismantle the worm gear motor by removing the attaching bolts (49/50) and pull-out the worm gear motor over the drive shaft adapter (45).
6. Place the worm gear motor on a clean working surface.
7. Dismantle the shaft guide (43) by removing the attaching bolts (44) and pull out the guide shaft.
8. Replacing shaft seal set (10) and shaft guide seal (11); pay attention to direction of installation of these items; lubricate the new seals with silicone grease.



9. Insert the drive shaft adapter in the shaft guide and install the shaft guide (43) back and tighten the attaching bolts (44).
10. Install back the worm gear motor over the drive shaft adapter (45) and tighten the bolts (49/50).
11. Place the spacer ring (57) and mount the shear pin/nut (52/53); pay attention to the connection between the drive shaft adapter (45) and the drive shaft sleeve (46).
12. Place the plastic protection cover (54) on the gear motor, tighten the bolts (55/56)
13. Electrically reconnect the electric motor (51).

C - Placing back the complete screen assembly (7, 8, 9 &13) into the filter housing:

1. Apply a thin layer of Ocean 7W or equivalent grease to the drive shaft (39).
2. Place the complete screen assembly in the filter housing.
3. Pay attention: The drive shaft (39) must be inserted into the shaft guide (19).
4. Close the service cover (6) and tighten the bolts (77/78), apply grease to the bolt before reassembly.
5. Check that the adapter (13/4) and PE pipe (12) are firmly attached to the housing of the reversing mechanism (13).
6. Apply silicone grease to the lid seal (2).
7. Fit the PE pipe (12) trough the nipple (73) of the the front cover (3)
8. Mount the front cover (3) and tighten the bolts.
9. Install the components of the glad for the PE pipe. Replace the seal (72). Connect the stainless steel pipe (65) and attach connector (26).
10. Clean the auxiliary filter (see chapter 9.2)
11. Re-commission the filter unit as mentioned in chapter 6.2.

If multiple filters are installed, these steps must be performed separately on all filters.

9.6 - Full maintenance cycle (multi-year*)

*Depending on usage load

Perform full maintenance and replace - if needed ! -the following parts listed in the following table:

		Partcode set: 4S7863R02400	Partcode set: 4S7863R08401	Partcode set: 4S7863R12400
#	Description	Model: 706M002 / 706M003 / 706M034 / 706M004 / 706M006	Model: 706M086 / 706M008	Model: 706M128 / 706M012
2	Cover Gasket	4S78519103	4S71500833	4S71500833
5	Service Port Gasket	4S420209	4S420209	4S420209
8/2	Collector Upper Guide	4S7863R020082	4S7863R080082	4S7863R080082
8/4	Fine Screen Seal	4S7851B9160	4S71500804	4S71500804
8/5	Collector Lower Guide	4S7863R020085	4S7863R080085	4S7863R080085
8/6	Guide Stopper	4S71500302	4S71500302	4S71500302
8/9	Seal	4S7863R020089	4S7863R080089	4S7863R080089
8/10	Wiper	4S7863R020810	4S7863R080810	4S7863R080810
9/2.1	Suction Nozzle	4S7863R0207	4S7863R0807	4S7863R0807
10	Shaft Seal (set)	4S71510381	4S71510381	4S71510381
11	Seal	4S71510380	4S71510380	4S71510380
12	PE-Tube 12x8 mm	4S7863R00012A (25 cm.)*	4S7863R00012A (25 cm.)*	4S7863R00012A (25 cm.)*
13/2	Seal	4S7851B9163	4S7851B9163	4S7851B9163
13/4	Adapter 3/8” x 12mm	4S70600314	4S70600314	4S70600314
13/5	Bolt M4	4S70600013	4S70600013	4S70600013
13/6	Nut M4	4S70600052	4S70600052	4S70600052
14	Reversing Unit Assy.	4S7863R04015	4S7863R04015	4S7863R04015
14/6	Seal	4S7863R020146	4S7863R020146	4S7863R020146
24B	Filter screen (180 mic) ¾”	4S7863R00024B1	4S7863R00024B1	4S7863R00024B1
24B	Ballvalve for ¾” filter	4S7863R00023	4S7863R00023	4S7863R00023
43	Shaft Guide	4S7863R00043	4S7863R00043	4S7863R00043
52	Nut M4	4S70600052	4S70600052	4S70600052
53	Shear Pin	4S70600053	4S70600053	4S70600053
72	Seal	4S70600072	4S70600072	4S70600072

* (cut to the right length)

Refer to chapter 9.1, 9.2, 9.3 and 9.4 for the complete maintenance scope.

A -Removing the fine screen and the drive unit for inspection and replacement of above mentioned parts:

1. Switch off the filter and drain the water (see chapter 8)
2. Disconnect the connector of the stainless steel pipe (65) near the front cover (3) by loosening knee (66) and disconnect the PE adapter (69), remove the stainless steel pipe.
3. Disconnect the PE tube (12) by removing the clamp nut (70), clamp ring (71) and seal (72).
4. Open the front cover (3) by loosening the bolts.
5. Carefully pull out the complete screen assembly (Item 7, 8, 9 &13) using the two handles inside the coarse screen. (A specially made tool is available to push out the assembly!)
6. Place the screen assembly on a clean working surface in order not to damage the screen.

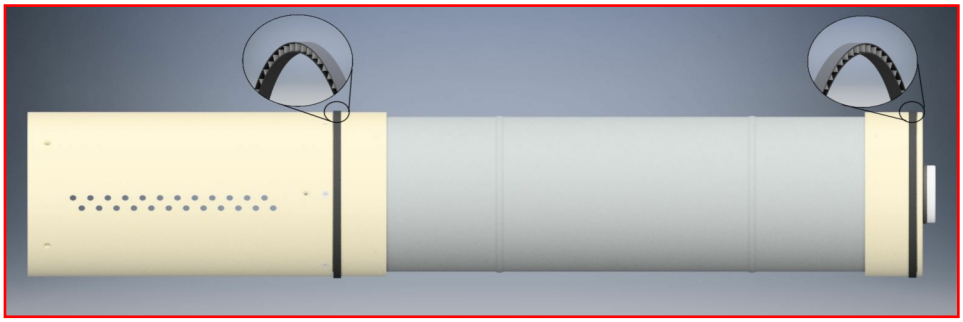
7. Remove large particles from the coarse screen (7) and clean if necessary.
8. Check the fine screen (8) for any markings of the suction nozzle (9/2) and check the nozzles on the collector unit (9) for wear.
9. Clean the complete screen by means of a high-pressure cleaner. Refer to chapter 9.7 for more cleaning instructions.
10. Remove the screen seals (8/4)
11. Remove the bolts (35) from the shaft guide (19)
12. Remove the bolts (8/12) to dismount the guide base (8/7)
13. Remove the bolts from the coarse screen to disconnect the coarse screen (7) from the fine screen (8).
14. Dismount the reverse housing assembly (13) by means of the following steps:
    - Remove nut (13/6) and remove bolt (13/5) from the housing
    - Remove bolts (13/3) and remove the housing of the reversing mechanism (13/1)
    - Remove the bolts from the housing (14/5) and remove the housing (14/5) from collector unit (9/1)
    - Remove the O-ring/Stopper (14/2) and remove the cover of the drive pawl (14/3)
    - Dismount the drive pawl (14/4) from the housing (14/5) and remove the drive screw (14/1)
15. Check the drive pawl (14/4) and the drive screw (14/1) for any signs of wear and tear. Also check suppleness of the actual reversing of the unit by turning by hand.

⚠ **! Replace the reversing unit if necessary or after 100.000 backflush cycles !**

Thoroughly clean the drive pawl (14/4) and the drive screw (14/1) and place them back into the housing as followed:

- Replace O-ring (14/6) on shaft of the reversing mechanism (14/1).
- Apply Ocean 7W or equivalent to the shaft of the reversing mechanism (14/1).
- Place the shaft of the reversing mechanism (14/1) in the drive pawl housing (14/5).
- Place the drive pawl (14/4) into the housing (14/5)

16. Pull out the dirt collector in the direction of the guide base from the screen
17. Remove the guide base (8/7) by sliding it over the collector shaft.
18. Visually inspect the surfaces on both the inside and on the outside of the fine screen (8/1).
19. Replace all nozzles (9/2.1) on the dirt collector unit.
20. Replace the collector lower guide (8/5) with a new O-ring for the guide stopper (8/6) and a new wiper seal (8/10).
21. Replace the collector upper guide (8/2) with a new guide seal (8/9).
22. Reinstall the collector unit back into the screen through the upper guide base.
23. Place the collector upper guide (8/2) in the upper guide base.
24. Place the guide base (8/7) over the collector shaft.
25. Mount the guide base (8/7) back into the screen and tighten the screws (8/12).
26. Reinstall the bolts (35) to the shaft guide (19)
27. Place the reversing mechanism on the dirt collector (9) and mount the housing (14/5) using the bolts.
28. Replace the O-ring (13/2) and apply lubricant to the O-ring
29. Place the housing of the reversing unit (13/1) over the shaft of the reversing mechanism
30. Connect the shaft to the housing using bolt (13/5) and nut (13/6). Mount the nut and then turn it slightly loose.
31. Mount the housing (13/1) to the upper guide base (8/3) using bolts (13/3). Handle the bolts, before mounting them, with grease.
32. Rotate the whole collector unit manually and check that it is running smoothly and the changing of the direction is smooth.
33. ⚠ Place the new screen seals (8/4) onto the filter element assembly. Pay attention to the direction of the seal. (See picture next page)
34. Use silicon grease on the new screen seals (8/4)
35. Mount back the coarse screen (7) back onto the fine screen (8), using the screws.



B - Replacing shaft seal set (10) and shaft guide seal (11):

1. Electrically disconnect the electric motor (51).
2. Remove the service cover (6)
3. Remove the plastic protection cover (54) on the gear motor, by means of removing the bolts (55/56)
4. Remove the shear pin/nut (52/53) and the spacer ring (57)
5. Dismantle the worm gear motor by removing the attaching bolts (49/50) and pull-out the worm gear motor over the drive shaft adapter (45).
6. Place the worm gear motor on a clean working surface.
7. Dismantle the shaft guide (43) by removing the attaching bolts (44) and pull out the guide shaft.
8. Remove the retaining nuts from the rear cover (4) and disassemble the rear cover.
9. Replace the lid seal (2) and apply silicone grease on the seal.
10. Mount the rear cover back (4) in place an thighten the nuts.
11. Replacing the guide shaft (43) with a new shaft seal set (10) and a new shaft guide seal (11); pay attention to direction of installation of the seals; lubricate the seals with silicone grease.
12. Insert the drive shaft adapter in the shaft guide and install the shaft guide (43) back and tighten the attaching bolts (44).
13. Install back the worm gear motor over the drive shaft adapter (45) and tighten the bolts (49/50).
14. Place the spacer ring (57) and mount the shear pin/nut (52/53); pay attention to the connection between the drive shaft adapter (45) and the drive shaft sleeve (46).
15. Place the plastic protection cover (54) on the gear motor, tighten the bolts (55/56)
16. Electrically reconnect the electric motor (51).

C - Placing back the complete screen assembly (7, 8, 9 &13) into the filter housing:

1. Apply a thin layer of Ocean 7W or equivalent grease to the drive shaft (39).
2. Place the complete screen assembly in the filter housing.
3. Pay attention: The drive shaft (39) must be inserted into the shaft guide (19).
4. Replace the seal rubber (5) of the service cover (6).
5. Close the service cover (6) and tighten the bolts (77/78).
6. Check that the adapter (13/4) and PE pipe (12) are firmly attached to the housing of the reversing mechanism (13).
7. Replace the lid seal (2) and apply silicone grease.
8. Fit the PE tube (12) trough the nipple (73) of the the front cover (3)
9. Mount the front cover (3) and tighten the bolts.
10. Install the components of the glad for the PE pipe. Replace the seal (72). Connect the stainless steel pipe (65) and attach connector (26).
11. Clean the auxiliary filter (see chapter 9.2)
12. Re-commission the filter unit as mentioned in chapter 6.2.

If multiple filters are installed, these steps must be performed separately on all filters.

9.7 - Instructions for cleaning the screen

It is recommended that the filter screen is removed annually for cleaning and checking, or sooner if the pressure drop does not decrease after three consecutive flushing cycles using the differential pressure switch.

Cleaning with a high pressure cleaner:
Use a high pressure cleaner (100-120 Bar) with clean water.
Stainless Steel sintered screen:
Clean the screen from the outside by holding the lance of the high pressure cleaner **close** to the screen (± 1 cm.) and cleaning the screen with even movements. Ensure overlapping movements, so that all parts of the filter screen are cleaned evenly.
PVC-screen:
Clean the screen from the outside by holding the lance of the high pressure cleaner at a small distance from the screen (± 20 cm.) and cleaning the screen with even movements. Ensure overlapping movements, so that all parts of the filter screen are cleaned evenly.

Then clean the filter screen with the high-pressure cleaner from the inside to the outside.

If the cleaning of the filter element according to the above method does not give the desired result, we recommend chemical cleaning of the screen.

Chemical cleaning:
First of all, the filter screen must be fully dismantled, see instructions from chapter 9.5-A 1 to 9.

All mechanical parts such as the reversing mechanism, the dirt collector and all seals must be removed before the filter screen is chemically cleaned.

Always choose one of the cleaning methods below, never combine cleaning methods.
Only after thorough rinsing of the filter screen with clean water is it allowed to change the chemical cleaning method.

Always read the chemical manufacturer's safety instructions before use and observe all prescribed safety measures.

In the case of inorganic contamination (deposit of minerals):
This contamination can be removed by immersing the filter screen for a period of approximately 15 minutes in a solution of acid (for example nitric acid, HNO3) diluted to a pH 2 or a concentration of approximately 1%.

In the case of organic contamination (for example bio-film):
This contamination can be removed by immersing the filter screen for a period of approximately 30 minutes in a solution of alkaline (for example Sodium hypochlorite, NaOCl) with a maximum concentration of 0.1%. Sodium hydroxide (NaOH) can be used up to a pH of 12.

Never leave the filter screen immersed in a chemical solution for longer period than strictly necessary.

Rinse with clean water:
After chemical cleaning, rinse the filter strainer thoroughly with clean water.
Check:
Visually check if the filter screen is clean, if this is not the case, repeat the cleaning process.
Installation:
Place the filter element back into the filter housing according to the assembly instructions from chapter 9.5-C 1 to 9.
Commissioning:
Perform the start-up procedure for the filter as described in chapter 6.

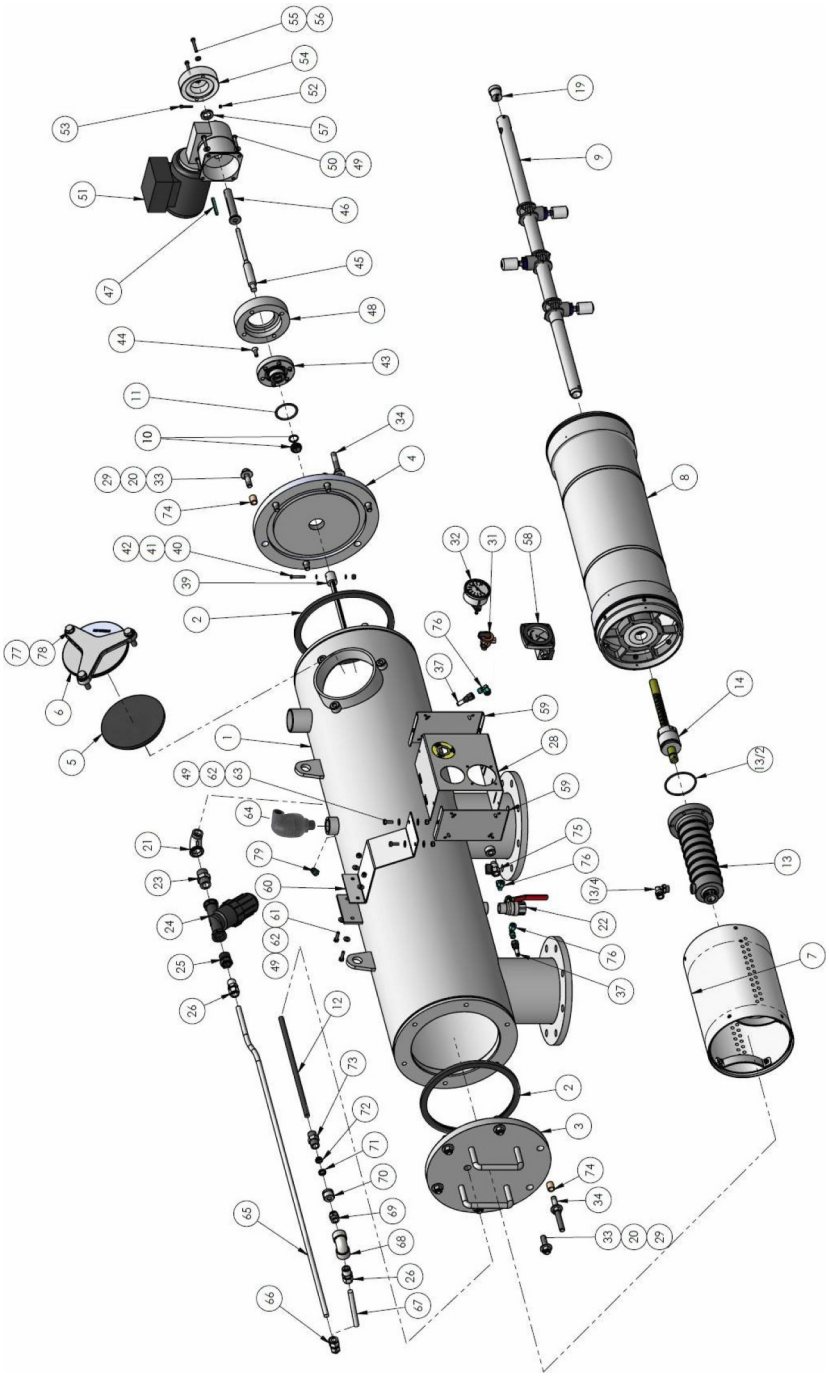
10 - TROUBLE SHOOTING

#	Problem	Check	If	Solution
1	System does not work	Power	Main switch OFF	Check main switch is ON Check Power supply is available (electricity). Check Fuses/overload
		Fault lamp	Main switch ON	Check for possible reason - remedy
2	No water flowing	Valve	Not open	Open valves
3	Flow rate is low or outlet pressure is low.	Water pressure (inlet) or line pressure	Pressure is low (usually below 2,4 bar / 35 psi)	Press Manual Flush button (when all required valves are open). Increase pressure to normal: -Water company -Pumps -Remote valves -Main Line blocking
			Normal	Go to next line
5	Pressure drop too high	Pressure drop on filter - difference in readings of pressure gage	D.P. is high, over 0.5 bar, (7 psi).	Trigger a flush cycle
6	D.P. remains high after a flush cycle			Check flow rate - if not excessive (higher than design flow rate).: Repeat the above mentioned (Manual Flush) and if D.P. is high: • Check for any disconnected or leaking control tubes and disconnected wires • Unusually high dirt load beyond design- call service meanwhile reduce flow rate. • Unusual Blocking of filter (close isolation valves) dismantle filter and clean screens (See chapter 9.7).
7	Flush valve does not close	Dirt on the valve's seat	Dirty	Close water entry - release pressure and clean valve.
8	Flush valve does not open	Solenoid valve lamp light not ON		Wiring problem - replace solenoid if faulty.
9	Flush cycles are too frequent	Raw water	Dirt load is high or "sticky" or a defect	Contact your installer.

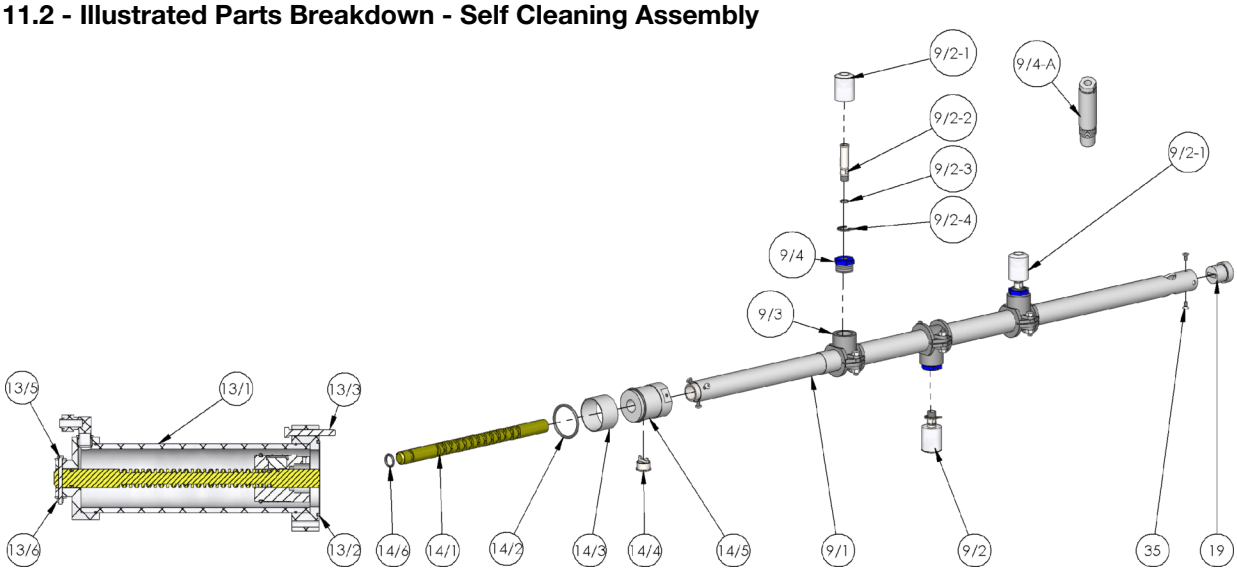
11 - SPARE PARTS

The following page depicts a typical filter assembly and indicates proper part description and location. Please refer to these descriptions (paragraph 11.4) when ordering spare parts.

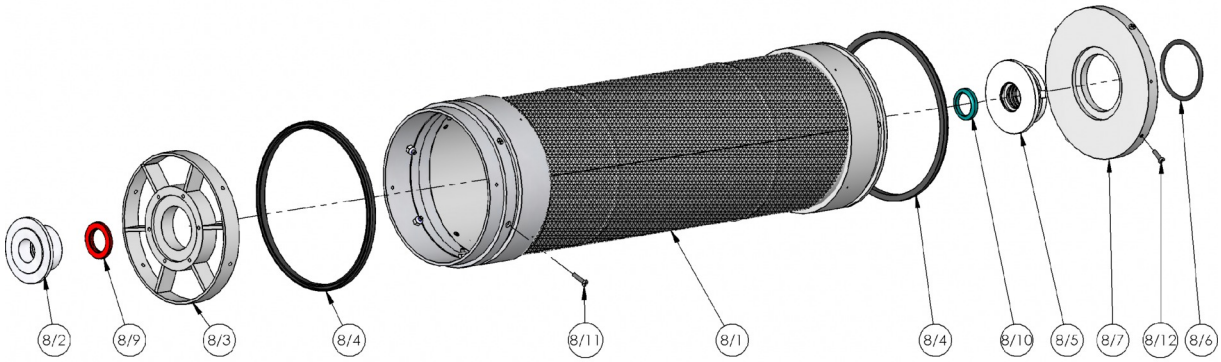
11.1 - Illustrated Parts Breakdown - General

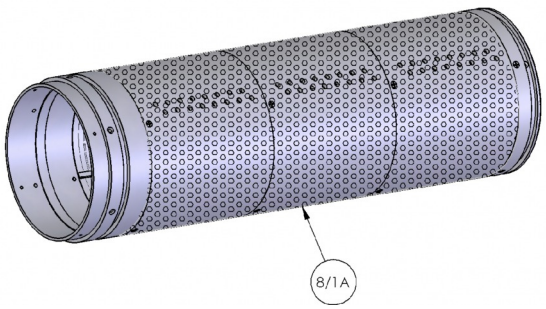


11.2 - Illustrated Parts Breakdown - Self Cleaning Assembly



11.3 - Illustrated Parts Breakdown - Screen





11.4 - Part list

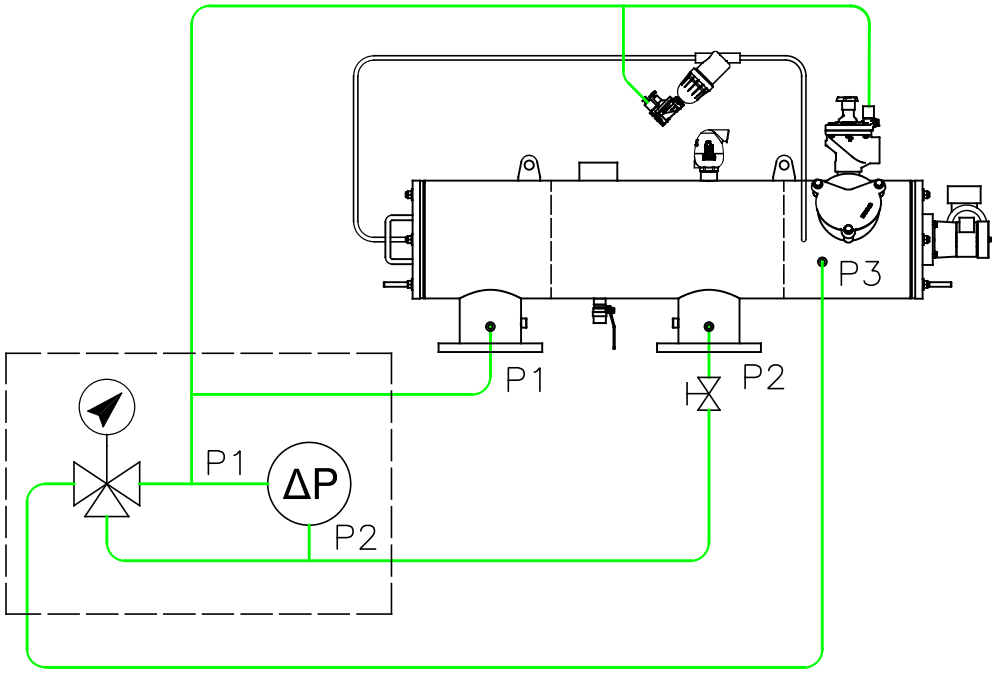
#	Omschrijving	706M002 / 706M003 / 706M034	706M004 / 706M006	706M086 / 706M008	706M128 / 706M012
1	Filter Body	A863U102F-25 A863U103F-25	A863U104F-40 A863U106F-40	A863U206F-60 A863U108F-60	A863U208F-60 A863U112F-60
2	Cover Gasket	4S78519103	4S78519103	4S71500833	4S71500833
3	Front Cover	4S7863R02003	4S7863R02003	4S7863R08003	4S7863R08003
4	Rear Cover	4S7863R02004	4S7863R02004	4S7863R08004	4S7863R08004
5	Service Port Gasket	4S420209	4S420209	4S420209	4S420209
6	Service Port Cover	4S4202081	4S4202081	4S4202081	4S4202081
7	Coarse Screen	4S7863R04001	4s7863R04001	4S7863R08001	E854003
8	Fine Screen Assy. Sinter	4S7863R0205xxx	4S7863R0405xxx	4S7863R0805xxx	4S7863R1205xxx
8A	Fine Screen Assy. PVC	4S7863R0215xxx	4S7863R0415xxx	4S7863R0815xxx	4S7863R1215xxx
8/1	Fine Screen Sinter	4S7863R0206xxx	4S7863R0406xxx	4S7863R0806xxx	4S7863R1206xxx
8/1A	Fine Screen PVC	4S7863R0216xxx	4S7863R0416xxx	4S7863R0816xxx	4S7863R1216xxx
8/2	Collector Upper Guide	4S7863R020082	4S7863R020082	4S7863R080082	4S7863R080082
8/3	Upper Guide Base	4S7863R020083	4S7863R020083	4S7863R080083	4S7863R080083
8/4	Fine Screen Seal	4S7851B9160	4S7851B9160	4S71500804	4S71500804
8/5	Collector Lower Guide	4S7863R020085	4S7863R020085	4S7863R080085	4S7863R080085
8/6	Guide Stopper	4S71500302	4S71500302	4S71500302	4S71500302
8/7	Guide Base	4S71530214	4S71530214	4S71530829	4S71530829
8/9	Seal	4S7863R020089	4S7863R020089	4S7863R080089	4S7863R080089
8/10	Wiper	4S7863R020810	4S7863R020810	4S7863R080810	4S7863R080810
8/11	Bolt 1” UNC	4S70600811	4S70600811	4S70600811	4S70600811
8/12	Bolt 3/4” UNC	4S70600812	4S70600812	4S70600812	4S70600812
9	Dirt Collector Assy.	4S7863R02002	4S7863R04002	4S7863R08002	E864004
9/1	Dirt Collector Body	E864005	E864006	E864007	E864008
9/2	Suction Nozzle Assy.	4S7863R0207	4S7863R0207	4S7863R0807	4S7863R0807
9/2-1	Suction Nozzle	4S7863R0071	4S7863R0071	4S7863R0071	4S7863R0071
9/2-2	Suction Nozzle Pipe	E863R2212	E863R2212	E863R2812	E863R2812
9/2-3	Nozzle Stopper	4S7863R0072	4S7863R0072	4S7863R0072	4S7863R0072
9/2-4	Spring Clip	4S7863R0073	4S7863R0073	4S7863R0073	4S7863R0073
9/3	Nozzle Base	4S7863R020074	4S7863R020074	4S7863R080074	4S7863R080074
9/4	Bushing ¾”x ¼”	4S7863R0075	4S7863R0075	4S7863R0075	4S7863R0075
10	Shaft Seal (Set)	4S71510381	4S71510381	4S71510381	4S71510381
11	Seal	4S71510380	4S71510380	4S71510380	4S71510380
12	PE Tube 12x8mm	4S7863R00012	4S7863R00012	4S7863R00012	4S7863R00012
13	Revers Housing Assy. (13/1-2-3-5-6)	4S7863R04070	4S7863R04070	4S7863R04070	4S7863R04070

#	Omschrijving	706M002 / 706M003 / 706M034	706M004 / 706M006	706M086 / 706M008	706M128 / 706M012
13/1	Reverse Housing	See 13	See 13	See 13	See 13
13/2	Seal	4S7851B9163	4S7851B9163	4S7851B9163	4S7851B9163
13/3	Bolt ¼" UNC	4S70600033	4S70600033	4S70600033	4S70600033
13/4	Adapter 3/8" x 12mm	4S70600314	4S70600314	4S70600314	4S70600314
13/5	Bolt M4	4S70600013	4S70600013	4S70600013	4S70600013
13/6	Nut M4	4S70600052	4S70600052	4S70600052	4S70600052
14	Reversing Unit Assy.	4S7863R04015	4S7863R04015	4S7863R04015	4S7863R04015
14/1	Reversible Drive Screw	4S7863R020141	4S7863R020141	4S7863R020141	4S7863R020141
14/2	Stopper	4S7863R00142	4S7863R00142	4S7863R00142	4S7863R00142
14/3	Cover*	4S7863R020143*	4S7863R020143*	4S7863R020143*	4S7863R020143*
14/4	Drive Pawl*	4S7863R020144*	4S7863R020144*	4S7863R020144*	4S7863R020144*
14/5	Housing*	4S7863R020145*	4S7863R020145*	4S7863R020145*	4S7863R020145*
14/6	Seal	4S7863R020146	4S7863R020146	4S7863R020146	4S7863R020146
	Flush Valve	2U1515A	2U1520A	2U1520A	2U1520A
	Solenoid on Flush Valve	2U205390	2U205390	2U205390	2U205390
19	Shaft Guide	4S7863R04022	4S7863R04022	4S7863R08022	4S7863R08022
20	Nut ½" UNC	4S70602020	4S70602020	4S70602020	4S70602020
21	Elbow ¾"	4S70600021	4S70600021	4S70600021	4S70600021
22	Ball Valve ¾"	4S102009S	4S102009S	4S102009S	4S102009S
23	Nipple ¾"	4S70600023	4S70600023	4S70600023	4S70600023
24b	Screen Filter ¾" 180 mic.	4S7863R00024B1	4S7863R00024B1	4S7863R00024B1	4S7863R00024B1
	Seal for auxiliary filter	4S7863R000241	4S7863R000241	4S7863R000241	4S7863R000241
	Ballvalve for ¾" filter	4S7863R00023	4S7863R00023	4S7863R00023	4S7863R00023
24c	Seal Aux. Filter Housing	4S7863R00024C	4S7863R00024C	4S7863R00024C	4S7863R00024C
25	Bushing ¾" x ½"	4S70600025	4S70600025	4S70600025	4S70600025
26	Connector ½" x 12mm	4S70600026	4S70600026	4S70600026	4S70600026
28	Control Box	4S715003121	4S715003121	4S715003121	4S715003121
29	Washer M12	4S70602029	4S70602029	4S70602029	4S70602029
31	3-Way Valve	2S2000093	2S2000093	2S2000093	2S2000093
32	Pressure Gauge	4S78519191	4S78519191	4S78519191	4S78519191
33	Stud ½" UNC	4S226013	4S226013	4S70608033	4S70608033
34	Long Stud ½" UNC	4S70602034	4S70602034	4S70608034	4S70608034
35	Screw Shaft Guide	4S7863R04035	4S7863R04035	4S7863R04035	4S7863R04035
37	Finger Filter plastic ¼"BU / 1/8"BI	4S7863R00027	4S7863R00027	4S7863R00027	4S7863R00027
39	Drive Shaft	4S70600039	4S70600039	4S70600039	4S70600039
40	Bolt M5	4S70600040	4S70600040	4S70600040	4S70600040
41	Nut M5	4S70600041	4S70600041	4S70600041	4S70600041

*not available separately!

#	Omschrijving	706M002 / 706M003 / 706M034	706M004 / 706M006	706M086 / 706M008	706M128 / 706M012
42	Washer M5	4S70600042	4S70600042	4S70600042	4S70600042
43	Shaft Guide	4S7863R00043	4S7863R00043	4S7863R00043	4S7863R00043
44	Bolt	4S70600044	4S70600044	4S70600044	4S70600044
45	Drive Shaft Adapter	4S70600045	4S70600045	4S70600045	4S70600045
46	Drive Shaft + Key Assem.	4S70600046	4S70600046	4S70600046	4S70600046
47	See 46	0	-	-	0
48	Drive Base	4S70600048	4S70600048	4S70600048	4S70600048
49	Washer ¼”	4S70600049	4S70600049	4S70600049	4S70600049
50	Bolt ¼” UNC	4S70600050	4S70600050	4S70600050	4S70600050
51	Worm Gear Motor				
	1x 230 VAC 50 Hz	4S7863R0811	4S7863R0811	4S7863R0811	4S7863R0811
	1x 110 VAC 60 Hz	4S7863R08111	4S7863R08111	4S7863R08111	4S7863R08111
52	Nut	4S70600052	4S70600052	4S70600052	4S70600052
53	Shear Pin	4S70600053	4S70600053	4S70600053	4S70600053
54	Protection Cover	4S70600054	4S70600054	4S70600054	4S70600054
55	Washer M6	4S70600055	4S70600055	4S70600055	4S70600055
56	Bolt M6	4S70600056	4S70600056	4S70600056	4S70600056
57	Spacer	4S70600057	4S70600057	4S70600057	4S70600057
58	Differential Pressure Switch	1U05010142	1U05010142	1U05010142	1U05010142
59	Control Box Side Cover	4S70600059	4S70600059	4S70600059	4S70600059
60	Control Box Holder	E863A003	E863A003	E863A003	E863A003
61	Bolt ¼” UNC	L29106104025U	L29106104025U	L29106104025U	L29106104025U
62	Nut ¼” UNC	L1231140	L1231140	L1231140	L1231140
63	Bolt ¼” UNC	L29106104020U	L29106104020U	L29106104020U	L29106104020U
64	Airvalve 1”	2U5A1010D-SET	2U5A1010D-SET	2U5A1010D-SET	2U5A1010D-SET
65	SST Pipe 12 mm	4S70600065	4S70600065	4S70600065	4S70600065
66	SST Elbow 12 mm	4S70600066	4S70600066	4S70600066	4S70600066
68	SST Elbow ½”	4S70600068	4S70600068	4S70600068	4S70600068
69	Connector 1/2”x12mm	4S70600069	4S70600069	4S70600069	4S70600069
70	SST Cap ½”	4S70600070	4S70600070	4S70600070	4S70600070
71	Thightening Ring	4S70600071	4S70600071	4S70600071	4S70600071
72	Seal	4S70600072	4S70600072	4S70600072	4S70600072
73	Nipple ½”	4S70600073	4S70600073	4S70600073	4S70600073
74	Cover Centering Bushing	4S71500336	4S71500336	4S71500336	4S71500336
75	Valve ¼”	4S70600075	4S70600075	4S70600075	4S70600075
76	Plastic Elbow 1/8” x 8 mm + nut	2S2000028	2S2000028	2S2000028	2S2000028
77	Washer M12	4S420213	4S420213	4S420213	4S420213
78	Bolt ½” UNC	4S420212	4S420212	4S420212	4S420212
79	Plug ¼”	2S200034	2S200034	2S200034	2S200034

12 - HYDRAULIC CONTROL DIAGRAM



Measuring Point	Function	Value
P1	Inlet pressure	2-10 Bar
P2	Outlet pressure	P1 - 0.5 Bar (max.)
P3	Flushchamber pressure	P1 - (1.8-2.5 Bar)
ΔP	Pressure Difference	0.5 Bar (max.)

13 - HEAD LOSS / FLOW

13.1 - Application guideline

For selecting the right automatic filter it is important to take a number of variables into account.
The origin of the water to be used, the degree of contamination and the application for the filtered water.
A pre-filter can sometimes be necessary. For any additional questions contact your supplier.

All our recommendations are without obligation, and we cannot be held liable for any adverse consequences resulting from these recommendations.

Maximum flow in m³/h									
		Micron							
Filter element	Water quality	10*	25*	50*	80	100	130	200	≥ 300
2”-2500 cm²	Good	10	25	25	25	25	25	25	25
	Fair	-	17	25	25	25	25	25	25
	Contaminated	-	15	20	25	25	25	25	25
3”-2500 cm²	Good	10	25	40	40	40	40	40	40
	Fair	-	17	25	40	40	40	40	40
	Contaminated	-	15	20	33	40	40	40	40
4”-2500 cm²	Good	10	25	42	58	75	80	80	80
	Fair	-	17	25	42	50	59	75	80
	Contaminated	-	15	20	33	42	50	68	75
4”-4000 cm²	Good	16	40	67	80	80	80	80	80
	Fair	-	27	40	67	80	80	80	80
	Contaminated	-	21	32	53	67	80	80	80
6”-4000 cm²	Good	16	40	67	94	120	133	150	150
	Fair	-	27	40	67	80	94	134	134
	Contaminated	-	21	32	53	67	80	120	120
6”-6000 cm²	Good	24	60	100	140	150	150	150	150
	Fair	-	40	60	100	120	141	150	150
	Contaminated	-	32	50	80	100	120	150	150
8”-6000 cm²	Good	24	60	100	140	180	200	240	240
	Fair	-	40	60	100	120	141	200	200
	Contaminated	-	32	50	80	100	120	160	180
8”-8000 cm²	Good	32	80	133	160	250	270	300	300
	Fair	-	53	80	133	160	188	250	300
	Contaminated	-	43	64	106	133	160	220	250
12”-8000 cm²	Good	32	80	133	185	250	270	500	600
	Fair	-	53	80	133	160	188	268	270
	Contaminated	-	43	64	106	133	160	240	250

Sizes 10", 14", 16", 18" and 20" are upon request.

→ See chapter 13.2 The assessment and use of the application guideline

13.2 - The assessment and use of the application guideline

In the application guideline table the following water qualities are differentiated.:
- Good (Bassin-rainwater)
- Fair (Surfacewater)
- Contaminated (Re-circulationwater)

Above mentioned qualities are based on the following TSS values (Total Suspended Solids) in ppm:
- Good - TSS < 10ppm (mg/ltr)
- Fair - TSS < 30ppm (mg/ltr)
- Contaminated - TSS < 50ppm (mg/ltr)

Differentiation based on contamination type, organic and inorganic and partical size still needs to be preformed, also the fluctuations in water quality and the seasonal influences need to be taken into account.

An effective pre-filtration is recommended for a continuance filtration level.

* For a filter < 50 micron a pre-filtration of 200 micron or less is mendatory, this to ensure a reduction of 50% on the above mentioned quality level.

13.1 - Head loss table *

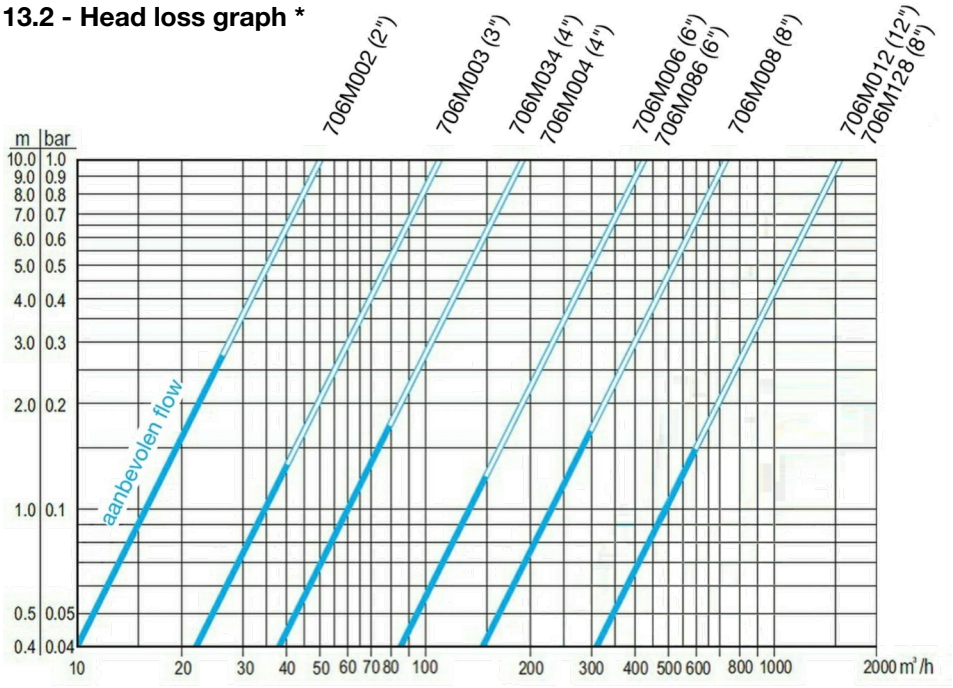
Head loss in bar for flow in m³/h

Model	Flow (m³/h)												
	15	20	25	50	75	100	125	150	200	250	300	350	400
	Head Loss (Bar)												
706M002	0,09	0,16	0,25	1,00									
706M003			0,05	0,21	0,46	0,83							
706M034				0,07	0,16	0,28	0,44	0,64	1,13				
706M004				0,07	0,16	0,28	0,44	0,64	1,13				
706M006						0,06	0,09	0,12	0,22	0,35	0,5	0,68	0,89
706M086						0,06	0,09	0,12	0,22	0,35	0,5	0,68	0,89

Model	Flow (m³/h)												
	200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000
	Head Loss (Bar)												
706M008	0,08	0,17	0,30	0,47	0,68	0,92	1,20						

Model	Flow (m³/h)												
	800	1000	1250	1500	1750	2000	2250	2500	2750	3000	3500	4000	4250
	Head Loss (Bar)												
706M012	0,07	0,11	0,15	0,21	0,27	0,34	0,42	0,56	0,68	0,81	1,1		
706M128	0,07	0,11	0,15	0,21	0,27	0,34	0,42	0,56	0,68	0,81	1,1		

13.2 - Head loss graph *



* For a clean filter and 130 micron screen