

YAMIT FILTRATION

AF-9800 Series Electric Hydraulic Self-Cleaning Screen Filter

SERVICE & MAINTENANCE MANUAL

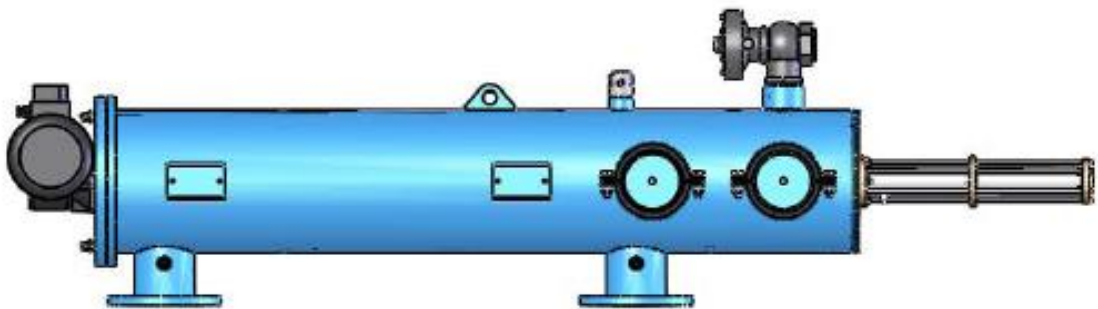


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1. Introduction

General

YAMIT Filtration & Water Treatment Ltd. (hereinafter **YAMIT**) congratulates you on purchasing the new **AF-9800 SERIES** self-cleaning filter. This filter now joins the wide family of filters produced and supplied by **YAMIT** or agriculture, municipal water and sewage systems, and all types of industrial applications. All products manufactured by **YAMIT** are easy to install, use and service and don't require special skills to operate them.

For operation and maintenance of the filter please follow the instructions in this manual.

2. Safety Instructions

1. It is necessary to use a noise protection device while the filter is in operation.
2. In the model with 12V DC power supply use the device which is provided by YAMIT or equivalent (with certifications and power rating).
3. Verify that the control panel is grounded. Also verify that the AC power cord is connected to the control panel through 3 x 6A-fuse protector.
4. Verify that the filter housing is grounded to the appropriate location.
5. Confirm AC power disconnection prior to service.
6. Confirm filter draining prior to service.
7. Take precautions while lifting, transporting or installing the filter.
8. Installation and operation of the filter should be performed so as to avoid direct water splashing on the control unit.
9. Confirm that filter weight, when full, meets the support construction requirements.
10. Prior to installation confirm line pressure matches filter's operational pressure.
11. During installation, use standard flanges and connections only.
12. Check that all filter flanges bolts are properly secured.
13. Please note, the filter enters a flushing mode automatically, without prior warning.
14. Use original parts only, while servicing the filter.
15. No changes or modifications to the equipment are allowed.
16. Do not perform any maintenance activities other than those given in this manual.

3. Description & Operation

Filter Assembly General Description

The **AF-9800** Hydro electric self-cleaning screen filter enables high quality filtering at filtering degrees of 10-3000 micron from different types of fluid sources such as sewage, reservoirs, rivers, lakes, and wells.

The **AF-9800** SERIES filter contains the following parts:

- | | |
|---------------------|---------------------|
| 1. INLET | 6. Flushing chamber |
| 2. Coarse screen | 7. Dirt collector |
| 3. Fine screen | 8. Suction nozzle |
| 4. Flushing valve | 9. Electric motor |
| 5. Hydraulic piston | 10. Outlet |

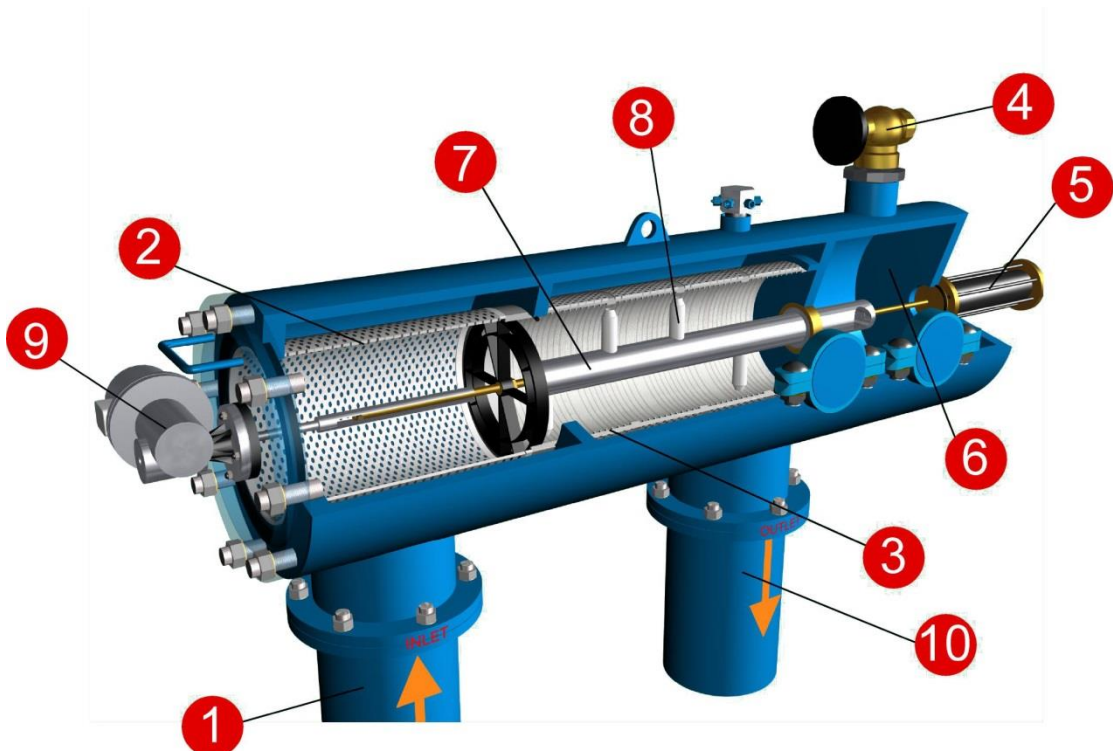


Figure 1: filter assembly

Filter Operation General Description

Filtration

Water enters the filter through the “Inlet” (1) and passes through the coarse screen (2) that functions as a “first stop” for rough particles. Water then reaches the fine screen (3), which further purifies the flow by separating smaller particles from the water. As more water flows through, impurities build up on the fine screen. As impurities on the screen accumulate, a pressure imbalance is built up between the internal section of the fine screen (3) and its external section.

Cleaning Process

When the difference in pressure (ΔP) reaches the preset value on the differential pressure indicator, Or when the preset time in the controller arrives, a series of events is triggered while water continues to flow to the system units. The controller transmits a signal for a 15 second flushing cycle. The solenoid opens the flushing valve (4), and release the pressure from the hydraulic piston (5). Water flows outside from the flushing valve (4). Pressure in the hydraulic chamber (6) and the dirt collector (7) is significantly lowered resulting in a suction process via the suction nozzles (8) to the dirt collector (7) and from there to the hydraulic chamber (6) through the flushing valve (4) outside. The electric motor (9) simultaneously rotates the dirt collector (7) around its axis. The pressure is released from the piston (5) and the high pressure inside the filter causes linear movement of the dirt collector. The combination of the linear movement and rotation efficiently cleans the entire internal screen (3) surface.

At the end of the 15 second cycle the flushing valve (4) closes and the operation of the electric motor (9) is stopped. The increased water pressure returns the hydraulic piston (5) to its initial position. The filter is now ready for the next cycle, with clean and filtered water flowing through the “Outlet” (10).

The 15 second flushing cycle resumes operation whenever the difference in pressure reaches the preset pressure value set on the differential pressure indicator. Or when the preset time in the controller is triggered on. If the pressure difference remains unchanged after one cycle, another cycle will start after a delay of 10 seconds

4. Technical Data

Standard Features

- Minimum operating pressure: 1.5 bar (21.8 psi)
- Maximum operating pressure: 10 bar (145 psi)
- Clean filter pressure loss: 0.1 (2 psi)
- Maximum water temperature: 65°C (149°F)
- Filtration range: 50-3000 micron
- Electric motor: 110V, 220V or 380-440V 3-phase, 0.5HPDC, 24V AC
- Flush water consumption (at minimum working pressure): 80 liters (21 gallons)
- Filter housing materials: carbon steel coated w/baked on epoxy \

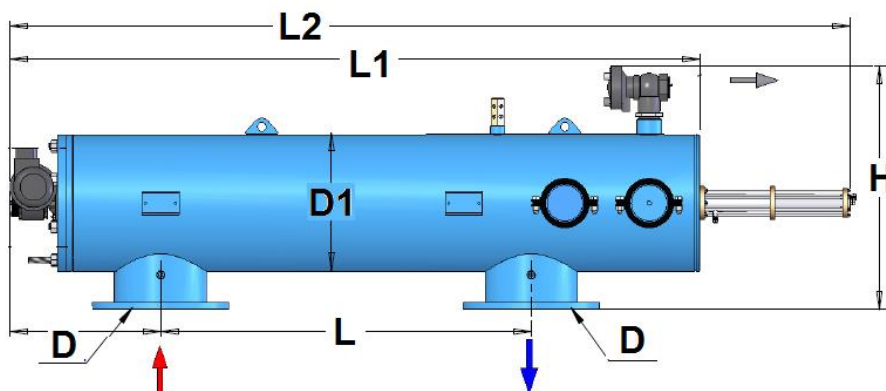
Measurements & Weight

Model	In/Out D		D1 (in)	H		L		L1		L2		Shipping Weight		Packing Volume LxWxH	
	(mm)	(in)		(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(kg)	(lb)	(m)	(ft)
AF9810X	250	10	16	720	28.35	1100	43.31	2787	109.72	3233	127.28	423	932	1.0x0.83x3.4	3.28x2.72x11.0
AF9812R	300	12	16	655	25.79	1100	43.31	2787	109.72	3233	127.28	428	944	1.0x0.83x3.4	3.28x2.72x11.0
AF9814R	350	14	18	770	30.31	1270	50.00	2787	109.72	3233	127.28	500	1102	1.0x0.83x3.4	3.28x2.72x11.0
AF9816R	400	16	18	770	30.31	1270	50.00	2787	109.72	3233	127.28	518	1142	1.0x0.83x3.4	3.28x2.72x11.0
AF9816X	400	16	24	925	36.42	1270	50.00	2787	109.72	3233	127.28	713	1572	1.2x0.98x3.4	3.94x3.22x11.0

R = Parallel X = Extra-long filter with extra-large filtration area

* Flow rate data is for high quality water at filtration grade of 120 microns.

** Flushing flow rate data is for minimum operational pressure (1 bars / 15 psi).



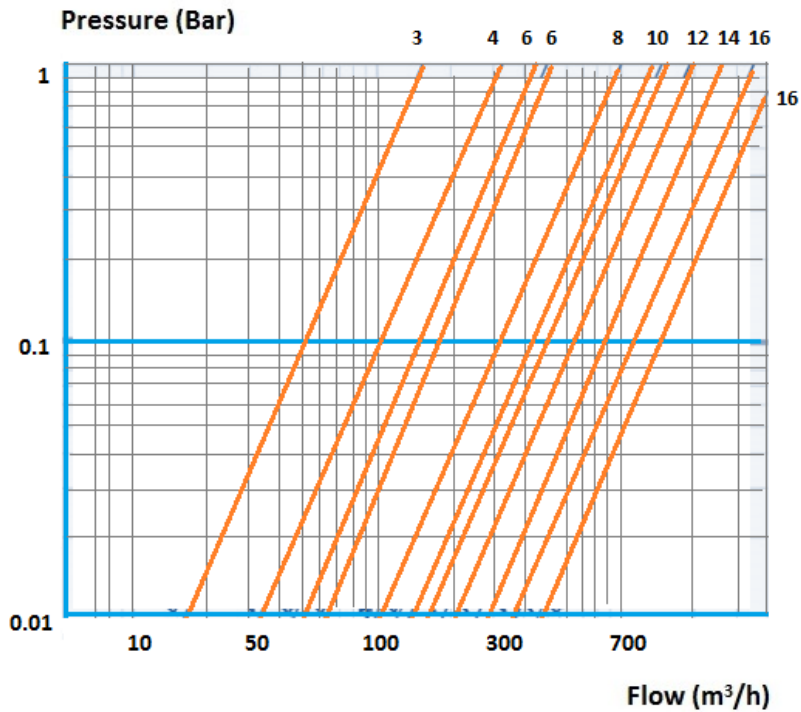
Flow Rate

Model	Int/Outlet ØD		Max. Flow Rate		Screen area		Flushing Flow rate		Flushing Volume	
	(mm)	(in)	(m ³ /h)	(gpm)	(cm ²)	(in ²)	(m ³ /h)	(gpm)	(m ³)	(gal)
AF9810X	250	10	400	1760	8410	1304	30	132	0.0833	22.0
AF9812R	300	12	600	2640	11710	1815	30	132	0.0833	22.0
AF9814R	350	14	900	3960	12990	2013	30	132	0.0833	22.0
AF9816R	400	16	1100	4850	12990	2013	30	132	0.0833	22.0
AF9816X	400	16	1500	6600	17020	2638	30	132	0.0833	22.0

Filtration Grade Conversion Table

Micron	50	80	100	120	150	200	300	400	500	800	1000	1500	2000	3000
Mesh	300	200	150	120	100	80	55	40	30	20	15	10	8	5

Pressure Loss at 200 micron



Head loss

5. Initial Installation & Operation

General

The filter assembly is protectively packed with all parts assembled.

Installation

1. Take the filter assembly out of the wood platform.
2. Install the filter assembly to the inlet line and outlet line.
3. Connect a drainpipe to the hydraulic flushing valve outlet opening (at least 63 mm or 2" diameter and no longer than 5m). Confirm that water runs freely out of the drainpipe.
4. Position the control panel in such a way as to be protected against humidity and solar radiation.
5. Connect the control panel to the power source.
6. Check that all connections are properly secured.
7. Check that all bolts and nuts on filter periphery are properly tightened and secured.

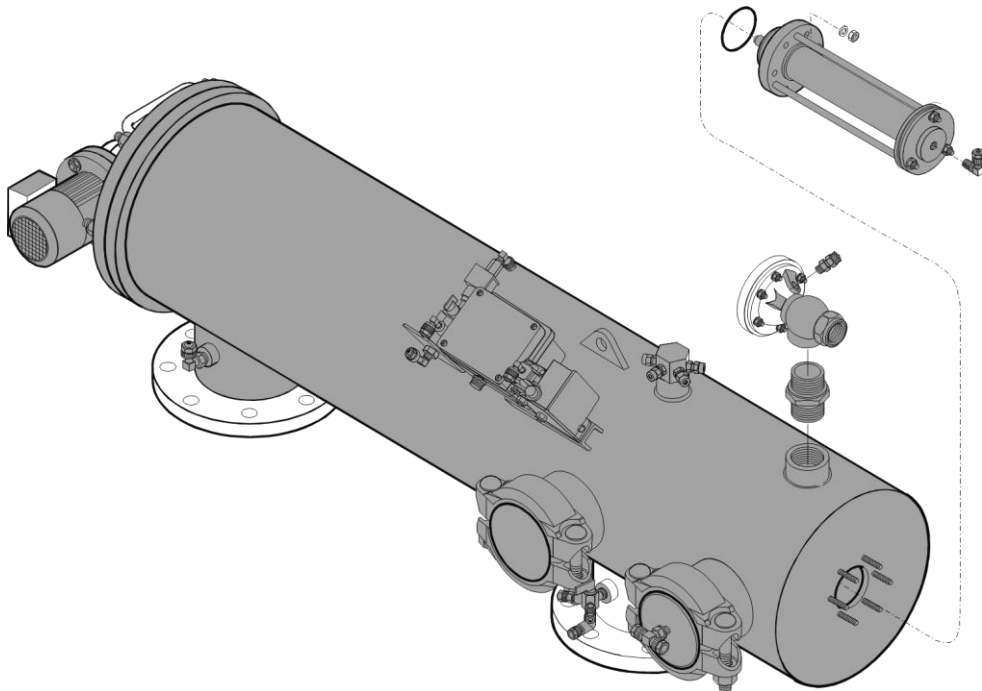


Figure 2: Initial Filter Installation

Initial Operation

1. Gradually open the inlet valve (make sure that the outlet valve, if installed, is open).
2. Check the filter assembly and its connections for leaks.
3. Perform a flushing cycle by disconnecting the low pressure tube from the differential pressure indicator (closing of the electrical circuit) – re connect it immediately as flushing start.
4. Verify that the hydraulic flushing valve closes after 10 seconds.
5. Verify that the hydraulic piston fully extends during back flush.
6. When the filter is clean, verify that the differential pressure between inlet and outlet does not exceed 0.1 bar.
7. Check that the differential pressure is set to 7 psi or 0.5 bar in the controller (see appendix no 1).
8. Perform an additional flushing cycle manually by pushing the manual bottom (M on the screen display). (See Figure 3).

6. Maintenance & Periodical Checks

6.1 – Electric Motor Removal & Installation

1. Close the inlet and the outlet line valves.
2. Set the main switch at the control panel to "0" position.
3. Verify that filter is drained prior to service.
4. A qualified technician will carry out the electrical connections.
5. Disconnect the electric motor from the electrical power source. Prior to removal, mark the electrical wiring connections (according to colors) on the new motor.
6. Remove the screw in the rear part of the motor.
7. Remove the four nuts and washers attaching the motor assembly to the filter assembly.
8. Carefully remove the old motor assembly. Verify existence of splint on the motor axis groove.
9. Remove the splint out of the old motor axis groove.
10. Carefully slide the new motor assembly into the filter assembly.
11. Install the splint into the new motor axis groove.
12. Install the four nuts and washers attaching the motor assembly to the filter assembly and the screw to the rear part of the motor.
13. Connect the electric motor to the electrical power source according to the marking previously made in step 5.
14. Set the main switch at the control panel to "1" position.
15. Open the inlet and the outlet line valves.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

16. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.
17. Verify that the motor is spinning clockwise and the hydraulic flushing valves close after 15 seconds.
18. Check for leaks.

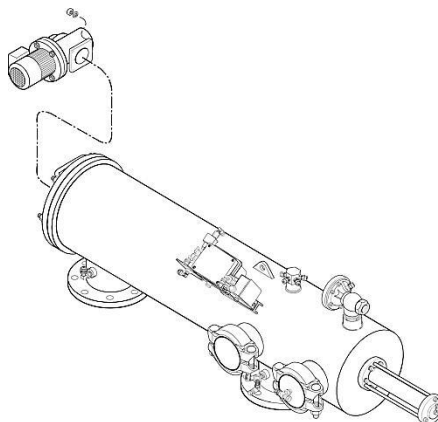


Figure 4: Electric Motor Removal & Installation

6.2 - Solenoid Removal & Installation

The solenoid hydraulically controls the flushing valve's operation.

1. Remove the upper cover, disconnect and remove the 4 x 1.5V batteries.
2. Disconnect the solenoid control tubes.
3. Remove the fittings from the damaged solenoid.
4. Disconnect the 2 electrical wiring from the control card terminals.
5. Remove the nut from the solenoid lower section.
6. Pull the solenoid out of the control assembly.
7. Insert a new solenoid into the control assembly.
8. Install the nut on the solenoid lower section.
9. Install the fittings on the ports of the new solenoid.
10. Connect the 2 electrical wiring to the control card terminals (See Figure 5).
11. Connect the solenoid control tubes.
12. Connect the 4 X 1.5V batteries according to the correct polarity and close the electronic control unit cover.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

13. Perform a flushing cycle by disconnecting the low pressure tube from the differential pressure indicator (closing of the electrical circuit) – re-connect it immediately as flushing starts.
14. Verify that the hydraulic flushing valve closes after 10 seconds.
15. Perform an additional flushing cycle manually by pushing the manual bottom (M on the screen display). (See Figure 3)

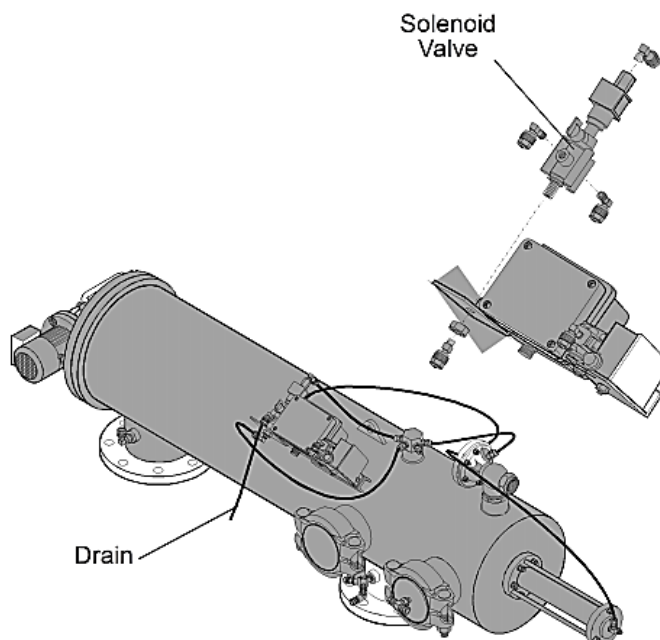


Figure 5: Solenoid Removal & Installation

6.3 – DP Indicator Removal & Installation

The differential pressure indicator supplies data to the electronic control unit, which controls the filter's self-cleaning process.

1. Set the main switch at the control panel to "0" position.
2. Close the inlet and outlet valves of the filter and verify that filter is drained prior to service.
3. Disconnect the two control tubes from the differential pressure indicator.
4. Remove the 4 screws attaching the electric connection box.
5. Disconnect the electrical wiring from the electric terminal in the connection box.
6. Remove the two nuts located at the bottom of the electronic control unit assembly and remove the screws.
7. Pull the differential pressure indicator out of the control assembly.
8. Insert a new differential pressure indicator into the control assembly.
9. Install the two screws and nuts at the bottom of the electronic control unit assembly.
10. Connect the two control tubes to the differential pressure indicator [note that the high pressure and the low pressure connected to the right fittings.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

11. Connect the electrical wiring to terminals D and P on the electric terminal connection box.
12. Set the main switch at the control panel to "1" position.
13. Perform a flushing cycle by disconnecting the low pressure tube from the differential pressure indicator (closing of the electrical circuit) – re-connect it immediately as flushing start.
14. Verify that the hydraulic flushing valve closes after 15 seconds.
15. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.

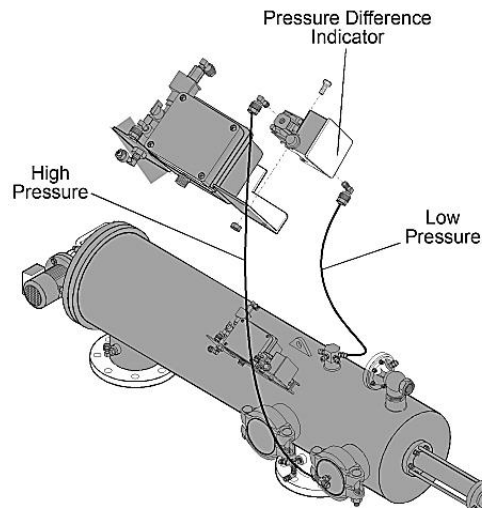


Figure 6: DP Indicator Removal & Installation

6.4 – Hydraulic Piston Assembly Removal & Installation

The hydraulic piston enables the linear movement of the dirt collector.

1. Set the main switch at the control panel to "0" position.
2. Close the inlet and outlet valves of the filter and verify that filter is drained prior to service.
3. Disconnect the control tube from the piston assembly aft section.
4. Remove the six nuts and washers connecting the piston assembly to the filter housing.
5. Carefully remove the piston assembly.
6. Remove the seal from the old piston assembly forward section.
7. Position the forward seal into the new piston assembly.
8. Lubricate forward seal with silicon grease.
9. Carefully slide the new piston assembly into the filter housing.
10. Install the six nuts and washers connecting the piston assembly to the filter housing.
11. Connect the control tube to the piston assembly aft section.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

12. Set the main switch at the control panel to "1" position.
13. Open the inlet and the outlet line valves.
14. Check for leaks.
15. Perform a flushing cycle by disconnecting the low pressure tube from the differential pressure indicator (closing of the electrical circuit) – re-connect it immediately as flushing start.
16. Verify that the hydraulic flushing valve closes after 15 seconds.
17. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.

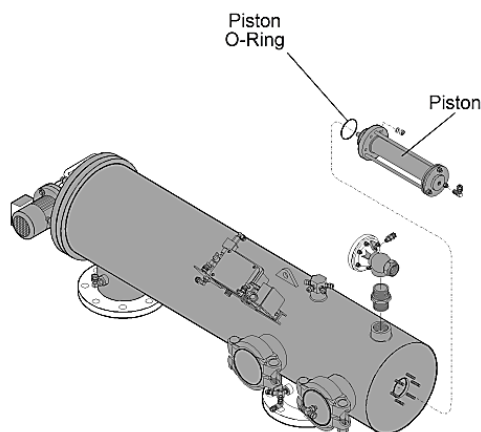


Figure 7: Retrait et installation du vérin hydraulique

6.5 - Coarse Screen Removal & Installation

1. Close the inlet and the outlet line valves.
2. Set the main switch at the control panel to "0" position.
3. Verify that filter is drained prior to service.
4. Remove the nuts and washers attaching the cover to the filter housing.
5. Remove the cover with the motor assembly and the motor's dirt collector axis housing.
6. Remove the body seal from the cover groove.
7. Pull the old coarse screen out of the fine screen assembly
8. Slide the new coarse screen into the fine screen assembly.
9. Verify that the straight side of the body seal fits into the groove located in the cover.
10. Put the cover into it's place on the filter. (Take care that the motor's dirt collector axis housing is slide on the dirt collector axis).
11. Install the nuts and washers attaching the cover to the filter housing.
12. Set the main switch at the control panel to "1" position.
13. Open the inlet and outlet line valves.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

14. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.
15. Check for leaks.

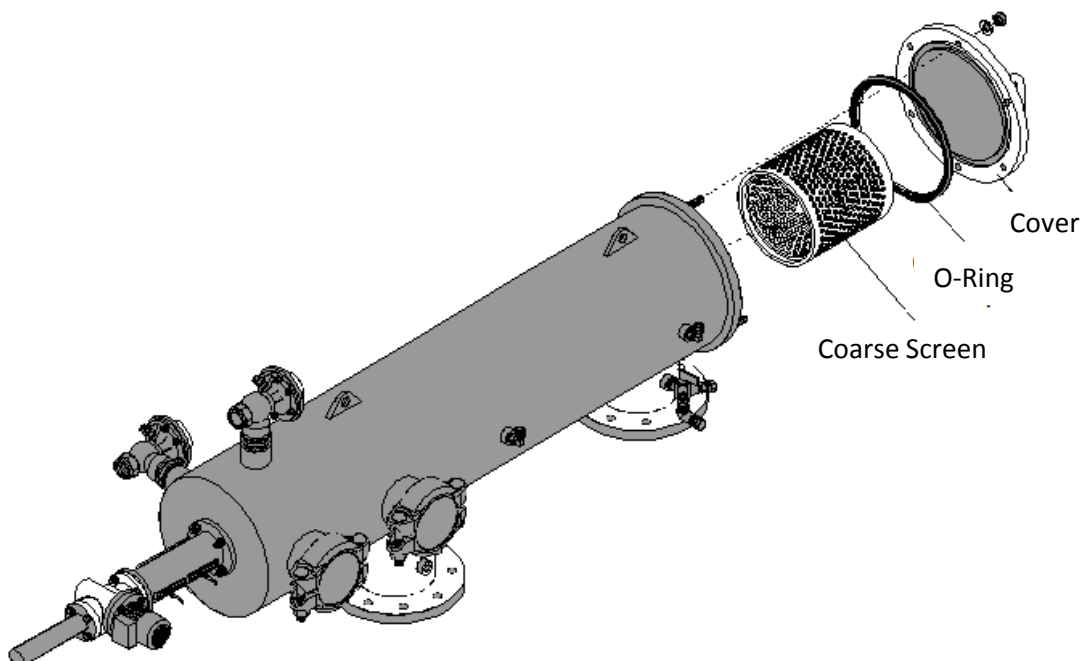


Figure 8: Coarse Screen Removal & Installation

6.6 - Fine Screen Assembly Removal & Installation

1. Close the inlet and the outlet line valves.
2. Set the main switch at the control panel to "0" position.
3. Verify that filter is drained prior to service.
4. Remove the nuts and washers attaching the cover to the filter housing.
5. Remove the cover with the motor assembly.
6. Remove the body seal from the cover groove.
7. Pull the coarse screen out of the fine screen assembly
8. Unscrew the leading screw from the end of the dirt collector axis.
9. Pull the old fine screen assembly with the dirt collector out of the filter housing assembly
10. Remove the dirt collector from the fine screen.
11. Remove the seals from the old fine screen assembly.
12. Position both upper and lower seals into the new fine screen assembly.
13. Lubricate upper and lower seals with silicon grease.
14. Slide the dirt collector into the new fine screen.
15. Install the screw on the top of the dirt collector axis.
16. Slide the new fine screen assembly with the dirt collector into the filter housing assembly.
17. Slide the coarse screen into the fine screen assembly.
18. Verify that the straight side of the body seal fits into the groove located in the cover.
19. Put the cover into its place on the filter. (Take care that the motor's dirt collector axis housing is slide on the dirt collector axis)
20. Install the nuts and washers attaching the cover to the filter housing.
21. Set the main switch at the control panel to "1" position.
22. Open the inlet and outlet line valves.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

23. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.
24. Check for leaks.

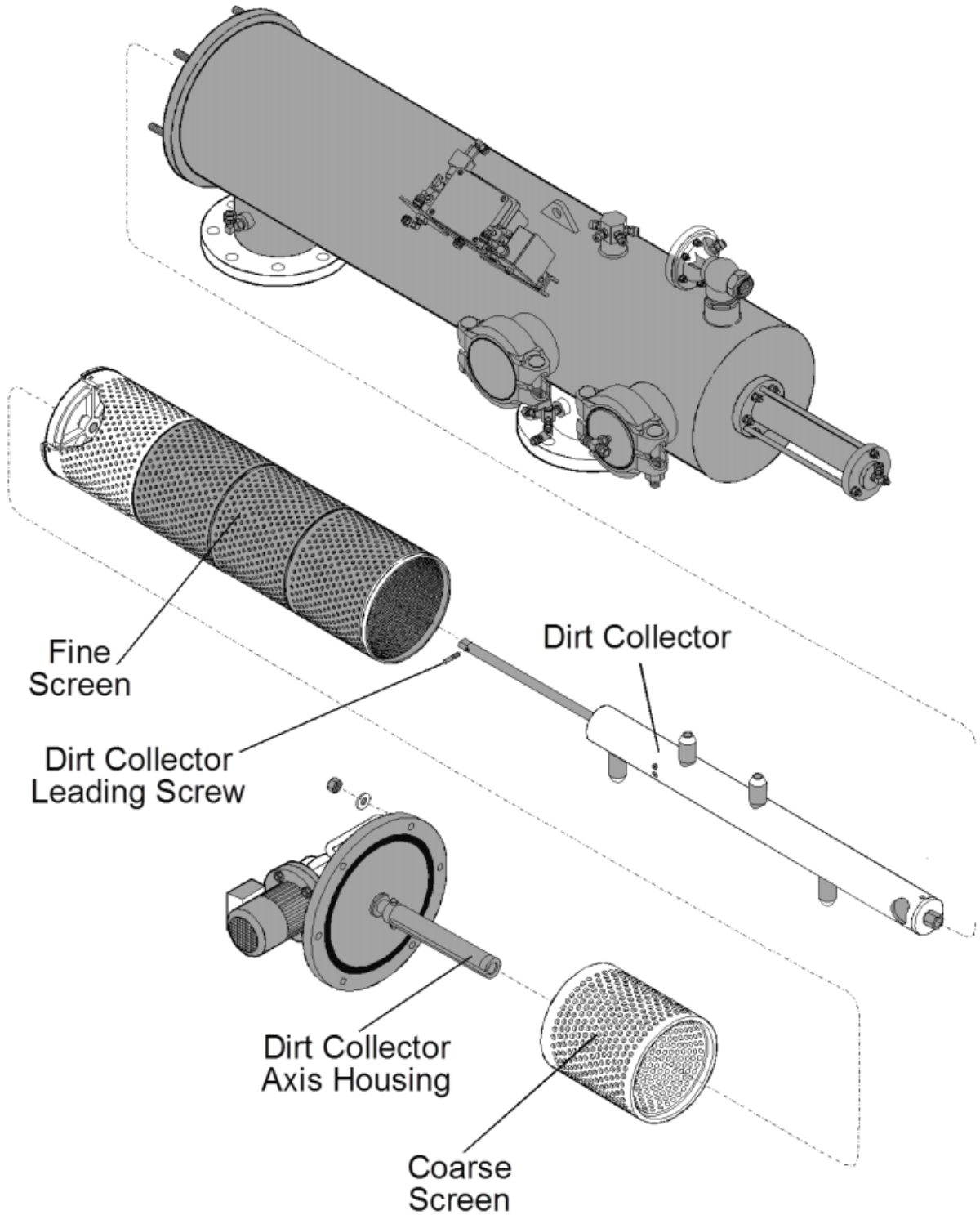


Figure 9: Fine Screen Assembly Removal & Installation

6.7 - Dirt Collector Removal & Installation

1. Close the inlet and the outlet line valves.
2. Set the main switch at the control panel to "0" position.
3. Verify that filter is drained prior to service.
4. Remove the nuts and washers attaching the cover to the filter housing.
5. Remove the cover with the motor assembly.
6. Remove the body seal from the cover groove.
7. Pull the coarse screen out of the fine screen assembly
8. Unscrew the screw from the end of the dirt collector axis.
9. Pull the fine screen assembly with the dirt collector out of the filter housing assembly
10. Remove the old dirt collector form the fine screen.
11. Lubricate upper and lower seals with silicon grease.
12. Slide the new dirt collector into the new fine screen.
13. Install the screw on the top of the dirt collector axis.
14. Slide the fine screen assembly with the new dirt collector into the filter housing assembly.
15. Slide the coarse screen into the fine screen assembly.
16. Verify that the straight side of the body seal fits into the groove located in the cover.
17. Put the cover into it's place on the filter. (Take care that the motor's dirt collector axis housing is slide on the dirt collector axis).
18. Install the nuts and washers attaching the cover to the filter housing.
19. Set the main switch at the control panel to "1" position.

WARNING

Take precautions while operating the filter as the filter may enter a flushing mode automatically, without prior warning.

20. Open the inlet and outlet line valves.
21. Perform a flushing cycle by pressing the MANUAL FLUSH switch at the control panel.
22. Check for leaks.

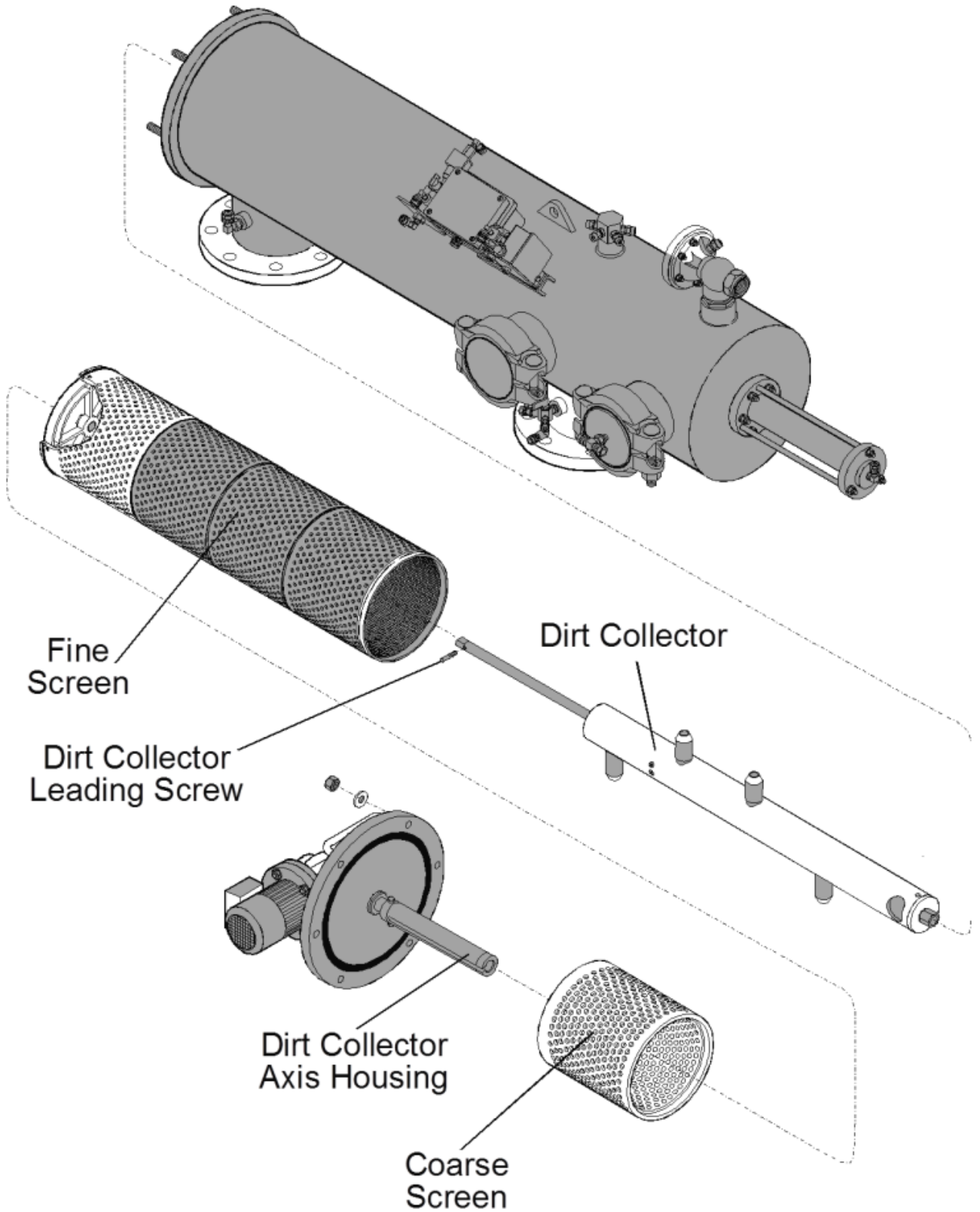


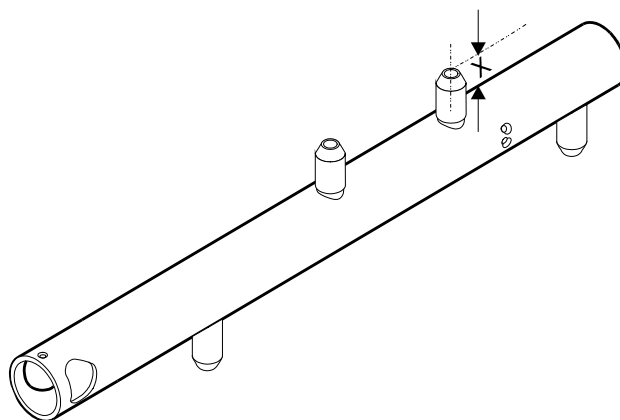
Figure 10: Dirt Collector Removal & Installation

6.8 - Periodical Checks

Perform yearly Periodical Checks at the beginning of the season, according to the following instructions:

1. Check the condition of the coarse screen. If defective, replace according to "Coarse Screen Removal & Installation".
2. Check the condition of the fine screen assembly. If defective, replace according to "Fine Screen Assembly Removal & Installation".
3. Check seals condition. Lubricate with silicon grease.
4. Remove the dirt collector according to "Dirt Collector Removal & Installation" and check the dirt collector suction nozzles height (see table). If defective, screw out the nozzle and replace with a new one.
5. Check condition of the bearings, replace if damaged or deformed.
6. Remove the Piston according to "piston removal & installation" check its condition, clean it from sediments and replace seals if required.
7. Check existence of grease on the motor axis.
8. Check the filter housing for paint damage and corrosion. If required, clean area with sandpaper and apply a thin layer of basic + epoxy paint.
9. Check for leaks.

Dirt Collector Suction Nozzles Height Table



<u>Type Number</u>	<u>X(Nozzle Height)</u>
AF9803LOPR	71 mm
AF980/6/8 /10 LOPR	63 mm

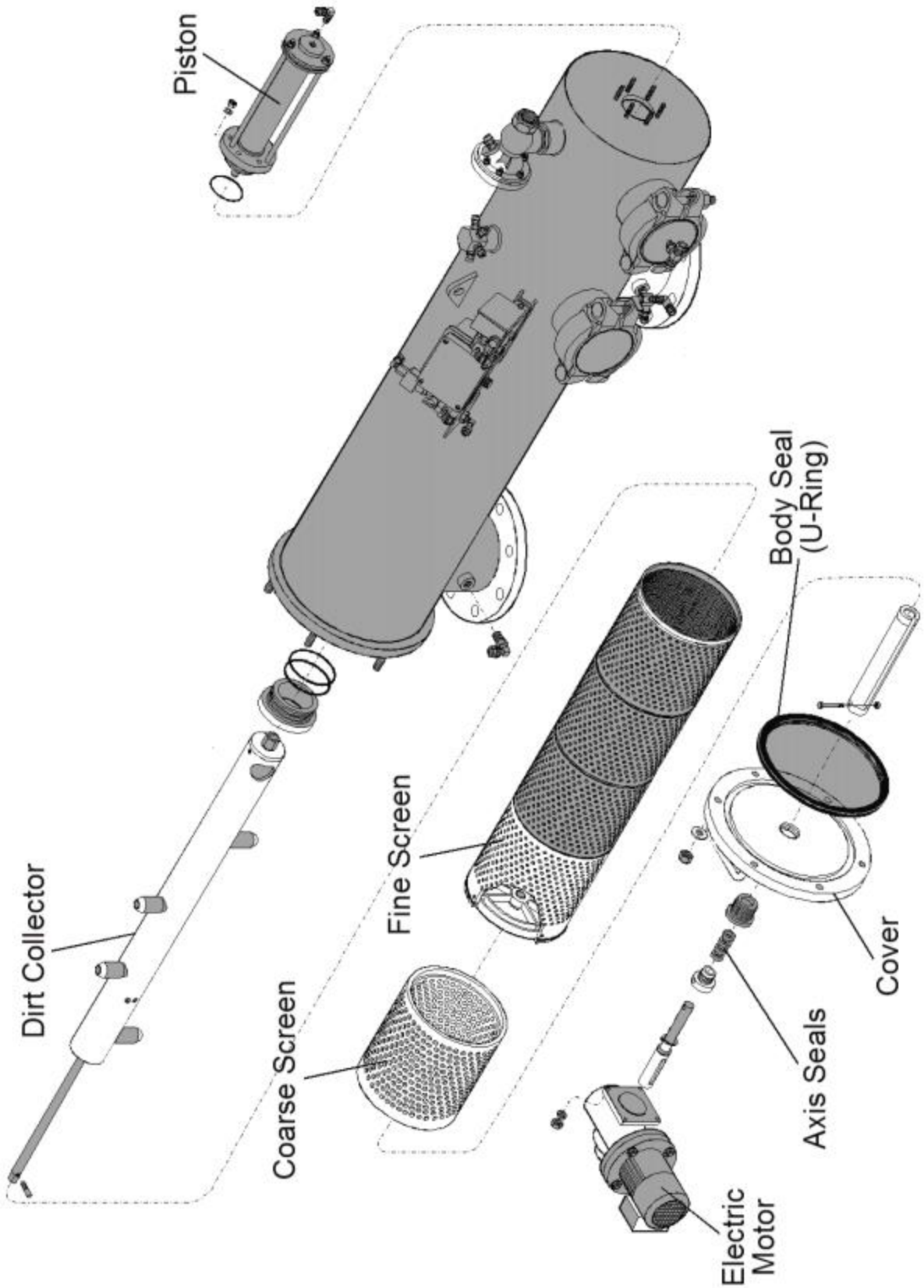
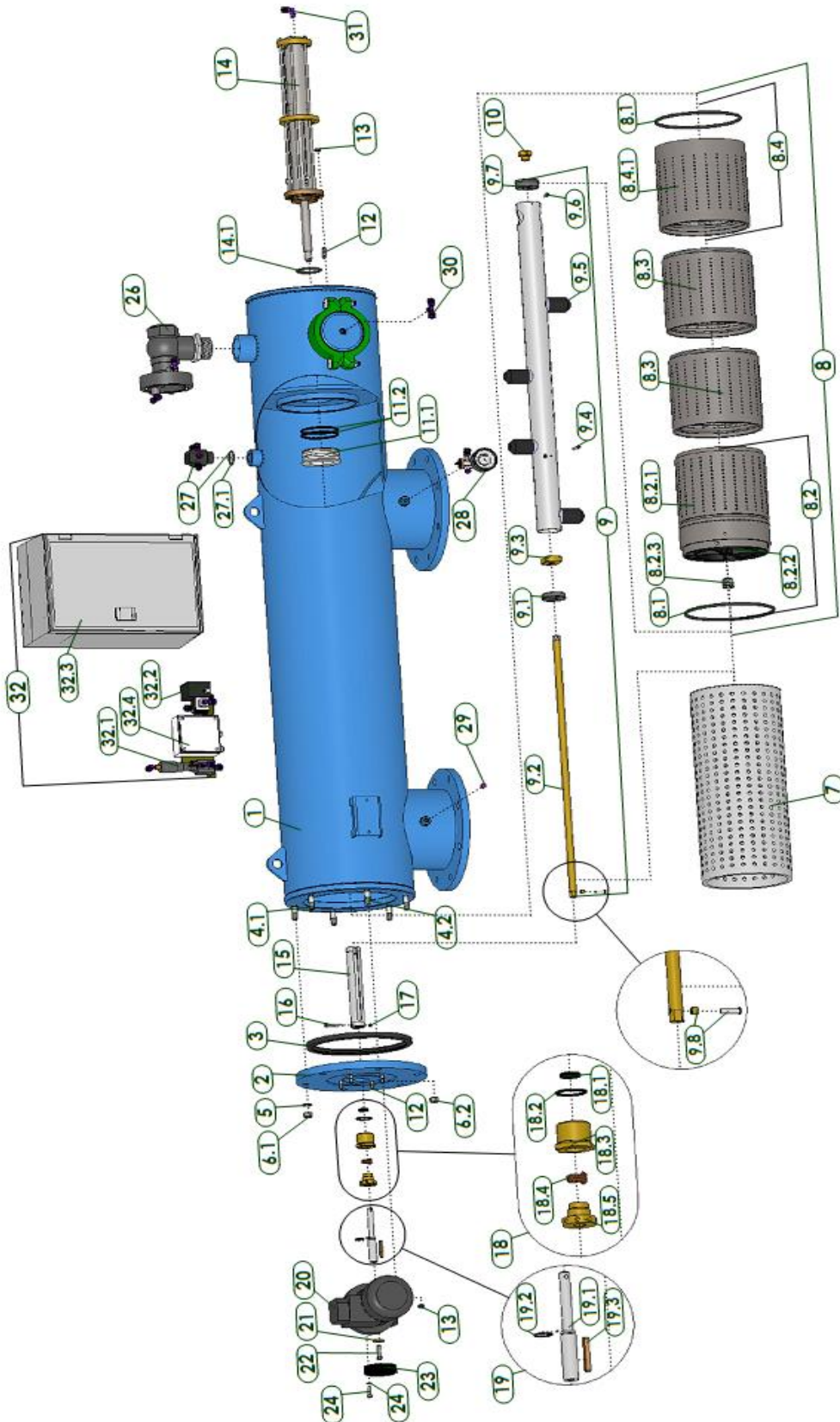


Figure 10: Periodical Checks

7. IPB



IPB	Filters	Catalogue No	Part Breakdown
1	AF9800	N/A	Filter body
2	AF9800	N/A	Filter cover
3	AF9810X	5311400100	U-Ring for Cover 16"
	AF9812R		
	AF9814R	5311450100	U-Ring for Cover 18"
	AF9816R		
	AF9816X	5311600100	U-Ring for Cover 24"
AF9818X			
4.1	AF9810X	5292183001-073	Stud 3/4"NC*73 SS304
	AF9812R		
	AF9814R		
	AF9816R		
	AF9816X	5292183001-080	Stud 3/4"NC*80 SS304
AF9818X			
4.2*	AF9810X	5292183001-060	Stud 3/4"NC*60 SS304
	AF9812R		
	AF9814R		
	AF9816R		
5	AF9810X	4121203001	Washer M20 SS304
	AF9812R		
	AF9814R		
	AF9816R		
	AF9816X		
AF9818X			
6.1	AF9810X	4112180401	Nut 3/4"NC
	AF9812R		
	AF9814R		
	AF9816R		
	AF9816X		
AF9818X			
6.2**	AF9810X	4112180401-01	Nut 3/4"NC
	AF9812R		
	AF9814R		
	AF9816R		
7	AF9810X	E7006600301-01	Coarse screen PVC280 AF9810X-12R
	AF9812R		
	AF9814R	E7007600301-01	Coarse screen PVC315 AF9814R-16R
	AF9816R		
	AF9816X	E7008600301-01	Coarse screen PVC400 AF9816X-18X
AF9818X			
8	AF9810X	E7006606000-02##	Fine screen PVC280 AF9810X-12R
	AF9812R		
	AF9814R	E7007606000-02##	Fine screen PVC315 AF9814R-16R
	AF9816R		
	AF9816X	E7008606001-02##	Fine screen PVC400 AF9816X-18X
AF9818X			

IPB No	Filters	Catalogue No	Description
8.1	AF9810X	4081266100-450	O-Ring 450
	AF9812R		
	AF9814R	4081291100-452	O-Ring 452
	AF9816R		
	AF9816X	4081380100-459	O-Ring 459
AF9818X			
8.2	AF9810X	E5006600100-01##-02	Fine screen Upper Section PVC280 ASSM A9810R-12R
	AF9812R		
	AF9814R	E5007600100-01##-02	Fine screen Upper Section PVC315 ASSM AF9814R-16R
	AF9816R		
	AF9816X	E5008600100-01##-02	Fine screen Upper Section PVC400 ASSM A9816X-18X
AF9818X			
8.2.1	AF9810X	W5006600100-01###	Fine screen Upper Section PVC280
	AF9812R		
	AF9814R	W5007600100-01###	Fine screen Upper Section PVC315
	AF9816R		
	AF9816X	W5008600100-01###	Fine screen Upper Section PVC400
AF9818X			
8.2.2	AF9810X	5021010600-P	Screen wheel 280 STEEL
	AF9812R	5021010700-P	Screen wheel 315 STEEL
	AF9814R		
	AF9816R	5021010800-P	Screen wheel 400 STEEL
	AF9816X		
AF9818X			
8.2.3	AF9800	5172301700	Screen bearing for shaft AF9/800/500B/700/9800N
8.3	AF9810X	W5006600300-01###	Fine screen middle section PVC280
	AF9812R		
	AF9814R	W5007600300-01###	Fine screen middle section PVC315
	AF9816R		
	AF9816X	W5008600300-01###	Fine screen middle section PVC400
AF9818X			
8.4	AF9810X	E5006600200-01##-01	Fine screen lower section PVC280 ASSM
	AF9812R		
	AF9814R	E5007600200-01##-01	Fine screen lower section PVC315 ASSM
	AF9816R		
	AF9816X	E5008600200-01##-01	Fine screen lower section PVC400 ASSM
AF9818X			
8.4.1	AF9810X	W5006600200-01###	Fine screen lower section PVC280
	AF9812R		
	AF9814R	W5007600200-01###	Fine screen lower section PVC315
	AF9816R		
	AF9816X	W5008600200-01###	Fine screen lower section PVC400
AF9818X			
9	AF9810X	E7103300601-01	Dirt collector 2" SS304 6 NOZZLE AF9810X/12R
	AF9812R		
	AF9814R	E7103300602-01	Dirt collector 2" ST304 6 NOZZLE AF9814R/16R
	AF9816R		
	AF9816X	E7103300604-01	Dirt collector 2" SS304 6 NOZZLE AF9816X/18X
AF9818X			

IPB No	Filters	Catalogue No	Description
9.1	AF9803	5113610104	Dirt collector 2" UPPER PLUG AF9800
9.2	AF9810X	5131391708	Dirt collector shaft 17mm AF9810X-16X
	AF9812R		
	AF9814R		
	AF9816R		
	AF9816X		
	AF9818X		
9.3	AF9800	5113390301	Dirt collector 2" middle plug AF9800
9.4	AF9810X-18	4102043002-019	Attachmetn screw NC10*3/4" SS304
9.5	AF9810X	5121610305	Suction nozzle AF9810R-12R
	AF9812R	5121610306	Suction nozzle AF9814R-16R
	AF9814R		
	AF9816R		
	AF9816X	5121610307	Suction nozzle AF9816X-18X
	AF9818X		
9.6	AF9800	4102043003-019	Attachment scre NC10*3/4" SS304
9.7	AF9800	5113610204	Dirt collector 2" lower plug AF9800
9.8	AF9800	E6163101001-01	Drive bolt AF9800/9800N
10	AF9800	W5173390003-01	Dirt collector head bearing brass AF9800
11	AF9810X-18X	E5172626002	Collector bearing ASSM AF906-16X/9810R-16X
11.1	AF9810X-18X	5172626002	Collector bearing AF906-16X/9810R-16X
11.2	AF9810X-18X	4081081100-339	O-Ring 339
12	AF9800	5292113001-029	Stud 5/16"NC*29 SS304
13	AF9800	4112113901	Nut 5/16"NC BRASS
14	AF9800	E7160403000	Hydraulic piston 40 SS304 AF803/9800
14.1	AF9800	4081056100-331	O-Ring 331
15	AF9800	W6073001001-01	Drive tube AF9800/9800N
16	AF9800	6163100503	Bolt M5*40 SS316 AF9800/9800N
17	AF9800	4111053002	Nylock nut M5 SS304
18	AF9800	E5182391300-01	Sealing rope housing-BRASS AF5/75/98
18.1	AF9800	4082013100	U-Ring 12.7*20.63*5.5
18.2	AF9800	4081030100	O-Ring 30*3
18.3	AF9800	5182391300	Sealing rope housing AF5/75/98
18.4	AF9800	5319000900	Sealing rope
18.5	AF9800	5181391300	Tightening nut for sealing rope – Brass AF5/75/98
19	AF9800	E5133301901-01	Comp. Gear drive shaft SS304 AF9800
19.1	AF9800	5133301901	Gear drive shaft 18.9mm SS304 AF9800
19.2	AF9800	4133205001	EXTERNAL RETAINING RING J-20-DIN471 SST420
19.3	AF9800	5203390602	GEAR KEY BRASS AF9800/9800N
20	AF9800	E4060251000	Motor 3 Phase 0.25Hp 1500rpm 1:10 AF9800
21	AF9800	6143902301	Washer 23 BRASS AF9800/9800N
22	AF9800	4102113001-020	Bolt 5/16"NC*3/4" SS304
23	AF9800	5331630001	Motor cover DELRIN AF9800/9800N
24	AF9800	4101063001-025	Bolt M6*25 SS304
25	AF9800	4121063001	Washer M6 SS304
26	AF9800	E4510020003-07-1M	Hydraulic valve DOROT GALIL 09AN 2"BSP
27	AF9800	E5412036301-01	Short distributor DELRIN ASSM
27.1	AF9800	4081034100-126	O-Ring 126
28	AF9800	CS11010015	Pressure gauge AF800/9800/500
29	AF9800	4640314002	Plug ¼« plastic
30	AF9800	4640214082	Male Branch T 8*1/4"*8 plastic
31	AF9800	4640618082	Male Elbow 1/8"*8 plastic
32	AF9800	CSE0200114403	Controller ELI-02 AF9800/9800N
32.1	AF9800	4430030901	Solenoid AC GALSOL 24V
32.2	AF9800	4410000004	DP pressure switch unit 24-15384
32.3	AF9800	8500010100-03	Control board ELI-02 AF9800/9800N
32.4	AF9800	8500010801	Junction Box for ELI-02 controller

8. Appendix

8.1 –ELI 02 Controller & Electrical Wiring (V-08-2019)

Warning - Do not operate the system without checking the motor rotation.

Summary of Abbreviations

DP = Differential pressure switch which measures the differential pressure across the filter, And activates the flushing mechanism above a set point.
(Normally set to 0.5 bar)

SV = Flushing solenoid , Which activates the flush filter hydraulic mechanism.

TP = DP sw. On/Off Delay time.

Note that The internal on delay timer is provided to assure that accidental DP switch vibrating will not activate the flushing mechanism.

TD = Flush Interval time. (Factory set to. , 9999 min. , can be adjust by the user)

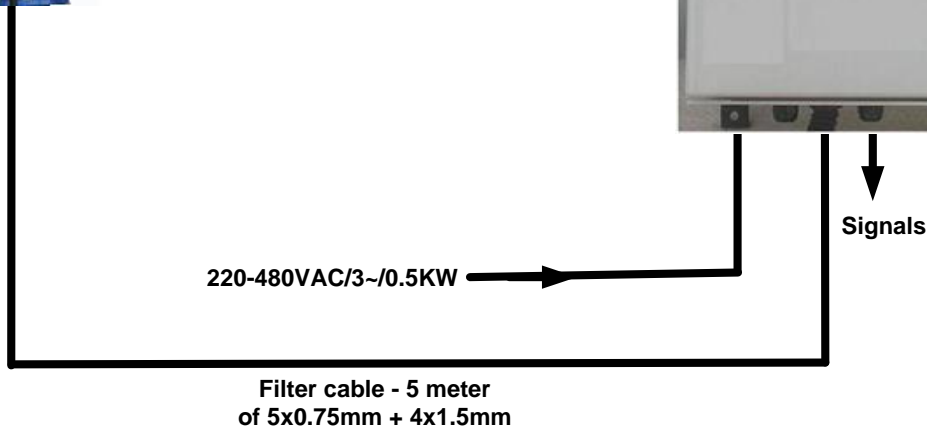
TF = Flush time. (Factory set to 5 sec., can be adjust by the user)

TC = Differential pressure check time after DP flush.

AF 7xx



Control unit ELI-02/PLC



A. PANEL CONTROLS DESCRIPTION.

1. **MAIN** , Toggle switch 0-1.
Enable Connection of the MAIN voltage supply to the control unit.
Light indicator (Green) – indicates 24VDC internal supply.
2. **FLUSH** , Push-button switch (Yellow) , Enable manual flushing.
Note that **FLUSH** indicator will lit during flushing process.
3. **FAULT** , Push-button switch (RED) , Pressing this switch in FAULT state (While red indicator illuminates) will reset the control unit.

B. INTERNAL CONTROLS DESCRIPTION.

1. **PLC** , Programmable logic controller.
(CROUZET XD10 /24VDC , Cat. No. 88 974 144).
2. **PS1** , Low voltage 24VDC Power Supply.
3. **OL1** , Motor over load protection 1.0-1.63 amp. with aux. contacts.
4. **C1** , power relay which controls filter motor.
5. **F1** , 1ampK. Half Automate Circuit breaker which serve as a main protect for PS1.
6. **F2** , 1ampK. Half Automate Circuit breaker which protect against accidental short circuit on the PLC / SV solenoids/outlets. (24VDC)
7. **FPLC** , 1.6ampT Fuse which protect against accidental short circuit on the PLC.
8. **FOUT** , 1.6ampT Fuse which protect against accidental short circuit on the solenoid/outlets. (24VDC)

C. TERMINAL CONNECTIONS.

- TB 1-4 L1/L2/L3+ Gnd , 115-230-380-420-440-480V , 50/60 hz. supply voltage inlets.
- TB 5-8 U/V/W 230 -380-420-440-480V + GND, 3 phase,50/60 hz. motor supply voltage outlets.
- TB 9 / 10 SV, Flushing Solenoid outlet. (24VDC/10W)
- TB 11 / 12 DP, Differential Pressure switch contacts inlets. (N.O)
- TB 19 / 20 REM , Remote flush inlets. (N.O. Pulse activated , Voltage free contacts inlets.)
This inlet is pulse activated through voltage free external contacts with pulse duration of at least 100 msec.
- TB 22 / 23 FLUSH , Aux. Flush signal contacts outlets. (N.O)
- TB 24 / 25 FAULT , Aux. Fault signal contacts outlets. (N.O)

- WARNING**
1. Aux. Inlets REM are connected to PLC inputs.
BE SURE to connect Voltage free Contacts or switches to this inlets.
In case of signaling through remote system outlets, use auxiliary relays (K) to isolate between remote system voltage and PLC inputs.
 2. **FLUSH** and **FAULT** aux. signal is voltage free N.O. contacts that withstand max. of 230V / 2Amp. That must be protectors accordingly.

D. INSTALLATION

General – The control unit & Filter junction box are supplied with 5 meters cables in flexible conduit.

The user must connect only the line supply cable through a PG-13.5 mm conduit.

Requirements : 5 x 1-1.5mm supply cable.

1. Connect the line supply cable (5 x 1-1.5mm) to the control unit terminals :

IMPORTANT ! 1x2-4amp protectors **MUST** protect line supply.

- TB GND - GND Wire.
- TB1 - N Natural wire.
- TB2 - L1 Line phase supply.
- TB3 - L2 Line phase supply.
- TB4 - L3 Line phase supply.

Control board

Filter Junction box

TB5 - Motor GND. wire. _____	TB5
TB6 - Motor U phase wire. _____	TB6
TB7 - Motor V phase wire. _____	TB7
TB8 - Motor W phase wire. _____	TB8
TB9 – SV flushing solenoid common. _____(1)_____	TB9
TB10 – SV flushing solenoid , live _____(2)_____	TB10
TB11 – DP switches common _____(3)_____	TB11
TB12 – DP switch live _____(4)_____	TB12

2. Motor synchronization

Motor synchronization must be carried out as follows :

Switch the **MAIN** switch to **START** position and Verify that **ON (L1)** indicator lit.
 Press push button **FLUSH** momentarily and Verify that **FLUSH** indicator lights and the motor activated simultaneously.
 Check the motor axis rotation (Which drives the filter dirt collector) ,

The rotation must be at the same arrow label direction.

If not , switch the **MAIN** switch to **STOP** position , and exchange between two of the Motor phase and check again.(e.g. Between motor connection to TB 6<>7 or TB 7<>8 in the control board or in the filter junction box.)

E. FLUSHING PROCESS.

General – A Filter flush cycle is activated by the PLC which cause the flushing solenoid (SV) and the motor (M) to switch on for preset time (TF).

When the solenoid is in ON position , hydraulic command is applied to the filter flushing Valve causing it to open while the hydraulic piston starts it's movement across the screen. After TF elapsed time the solenoid will returned to it's OFF position causing the filter flushing valve to close while the filter internal pressure will restored the hydraulic piston to it's starting position.

NOTE that the practical flushing time is the time required for the hydraulic piston to complete it's movement due to a given line pressure.

In order to minimize the flushing time/waste of flushed water set TF respectively.

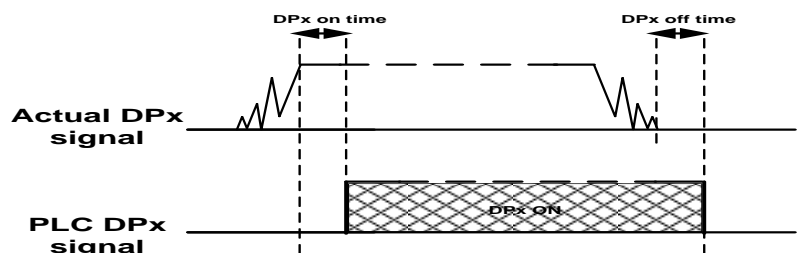
1. NON-DP FLUSH Is activated in three conditions :

1. Pressing the **FLUSH** switch.
2. Interval Timer **TD** (Internal) - If set by the operator.
Note that setting TD hrs/min is set to 0 , will disable this option.
3. Transition from OFF to ON.
(Applying short circuit for min. of 0.1 sec.at REMOTE inlets.)

2. DP FLUSH cycle.

A DP flush is caused by a differential pressure across the filter.

Signal at DP inlet for **DP ON TIME** (Factory set to 5 sec., can be adjust by the user) will activates the DP FLUSH mechanism while a DP signal absence for more than DP OFF TIME is consider as no DP signal.



Once a DP signal is registered , the flushing mechanism will execute a **FLUSHING** cycle by activating the motor and SV solenoid for TF preset time.

After flush cycle completion the control unit will check the DP signal for TC preset time.

- If DP signal is removed after TC preset time the system will return to normal state.
- If the DP is still signaling after TC preset time , 2nd flush cycle will be executed.
- If after X consecutive flushes , (Preset by NFL , Factory set to 3 times) , The DP signal is not removed the system will enter a fault state - **FLUSH FAULT** state is declared (FAULT Indicator lit constantly) and any further flushes are inhibited.

Note that entering 0 on one or both the above parameters will disable the DP FLUSH ALARM.

--- Pressing the FAULT switch will reset the fault state and resume operation.

F - CROUZET – XD-10 Controller

The first LCD display to appear is the Input/Output image table and the Real Time clock. An i/o no. indicates inactive i/o while a darkened i/o no. indicates an active i/o.



- PLC inputs display.
- PLC outputs display.
- Time display.
- PLC run indication.(rotating)
- PLC operation keys

Updating time & date.

1. press **OK** key.
2. Move to **MISCELLANEOUS** line by pressing [-] key **twice** and press [**OK**] key.
3. Move to **CLOCK** line by pressing [-] key and press the [**OK**] key.
4. On **DATE/HOUR SETUP** press the [**OK**] key and move to the required field using [-]/ [+] keys.

When the required field blinking and darkened , Press the [**OK**] key - the field is blinking but not darkened, in this state use the [-]/ [+] keys to change the field value.

When done, press the [**OK**] key to enter the new value - the field is blinking and darkened again.

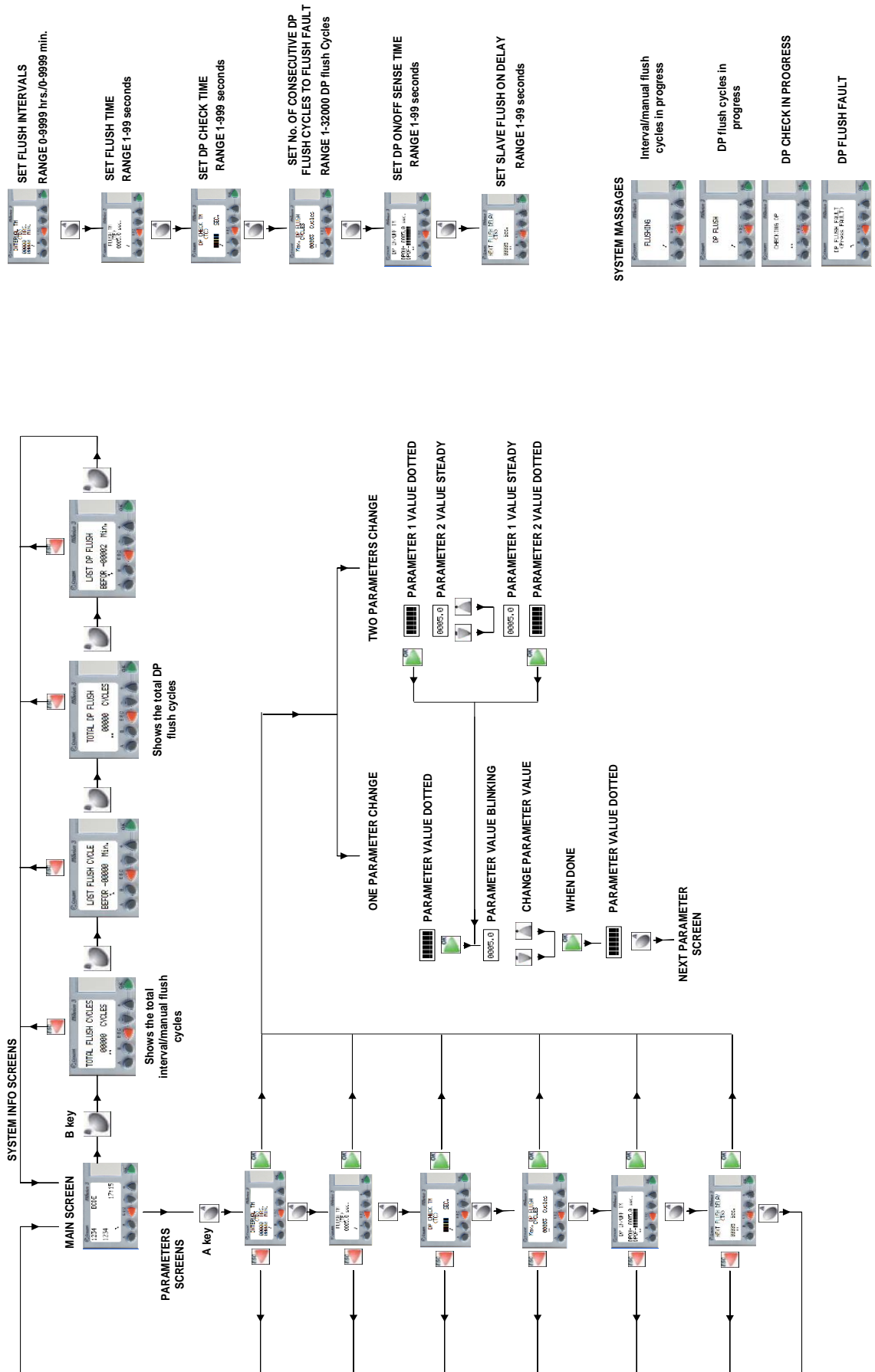
5. Move to other fields or exit to the main screen by pressing the [**ESC**] key until the main Screen appears.

PARAMETERS CHANGE/UPDATE PROCEDURE.

When a desire parameter screen displayed , it's value is darkened with black dots. (In case of parameter with two fields like DP ON/OFF TM use the [-]/ [+] keys to move between them.)

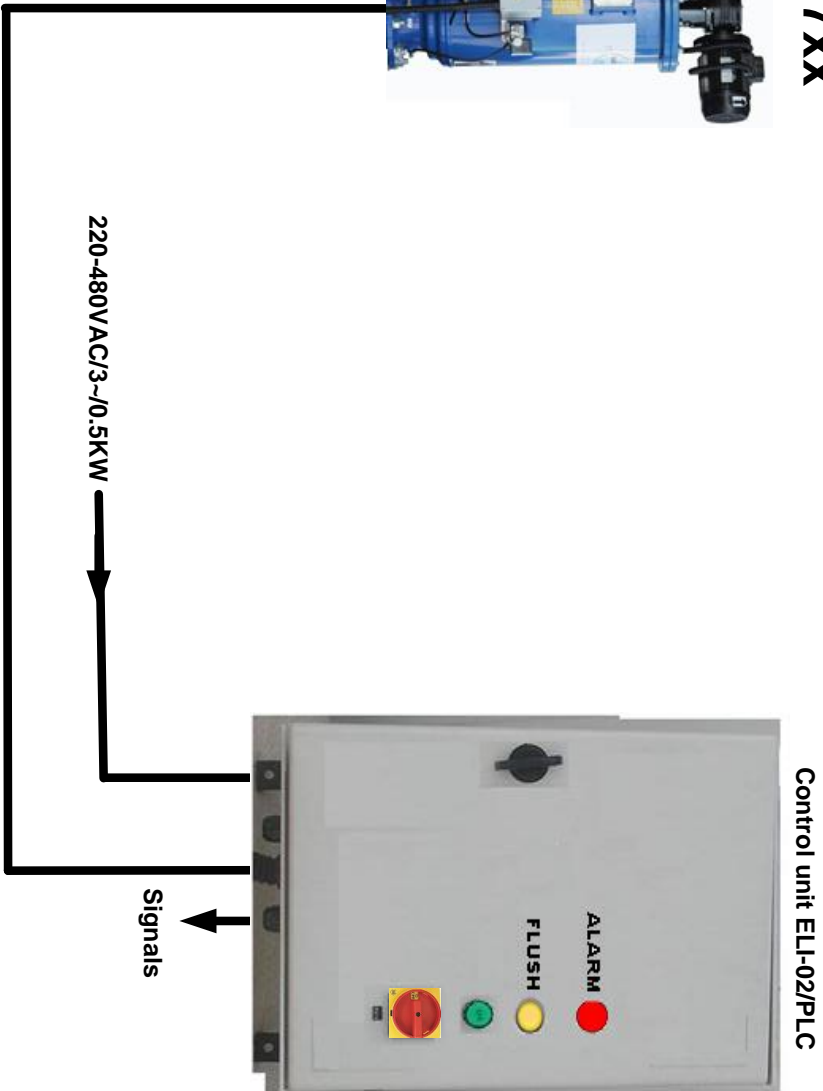
To change a value –

- A. Press the [**OK**] key > the value is blinking without the darkened dots.
- B. Change the value by pressing the [-]/ [+] keys.
(Note that you can hold the [-]/ [+] keys for fast change or to click them for slow change.)
- C. When done press the [**OK**] key to enter the new value > the new value is darkened with black dots again.
- D. Move to the next parameter by pressing the [**A**] key again or exit by pressing the [**ESC**] Key.



F. ELECTRICAL DRAWINGS.

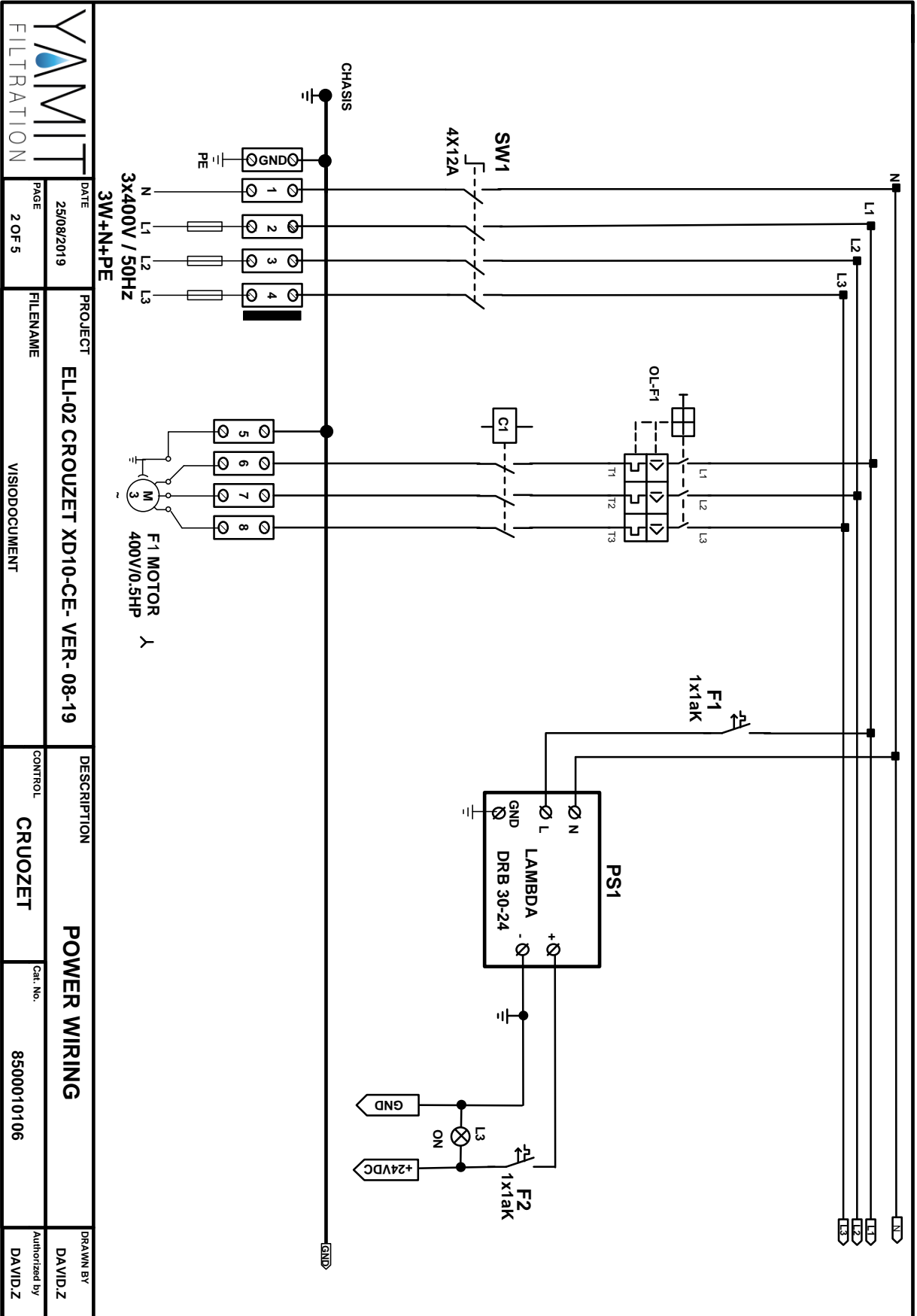
AF 7XX

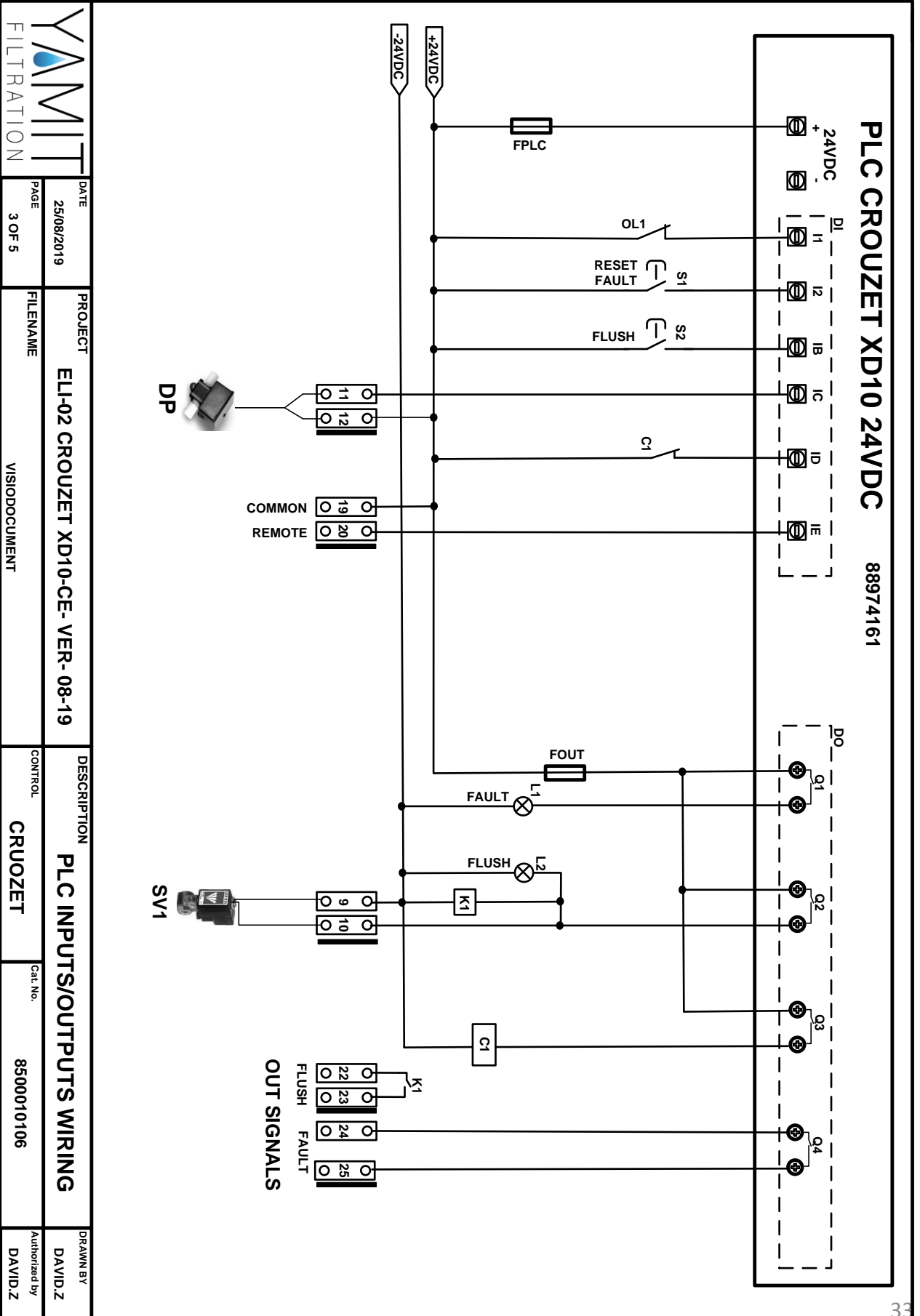


Filter cable - 5 meter
5X0.75mm + 4X1.5mm

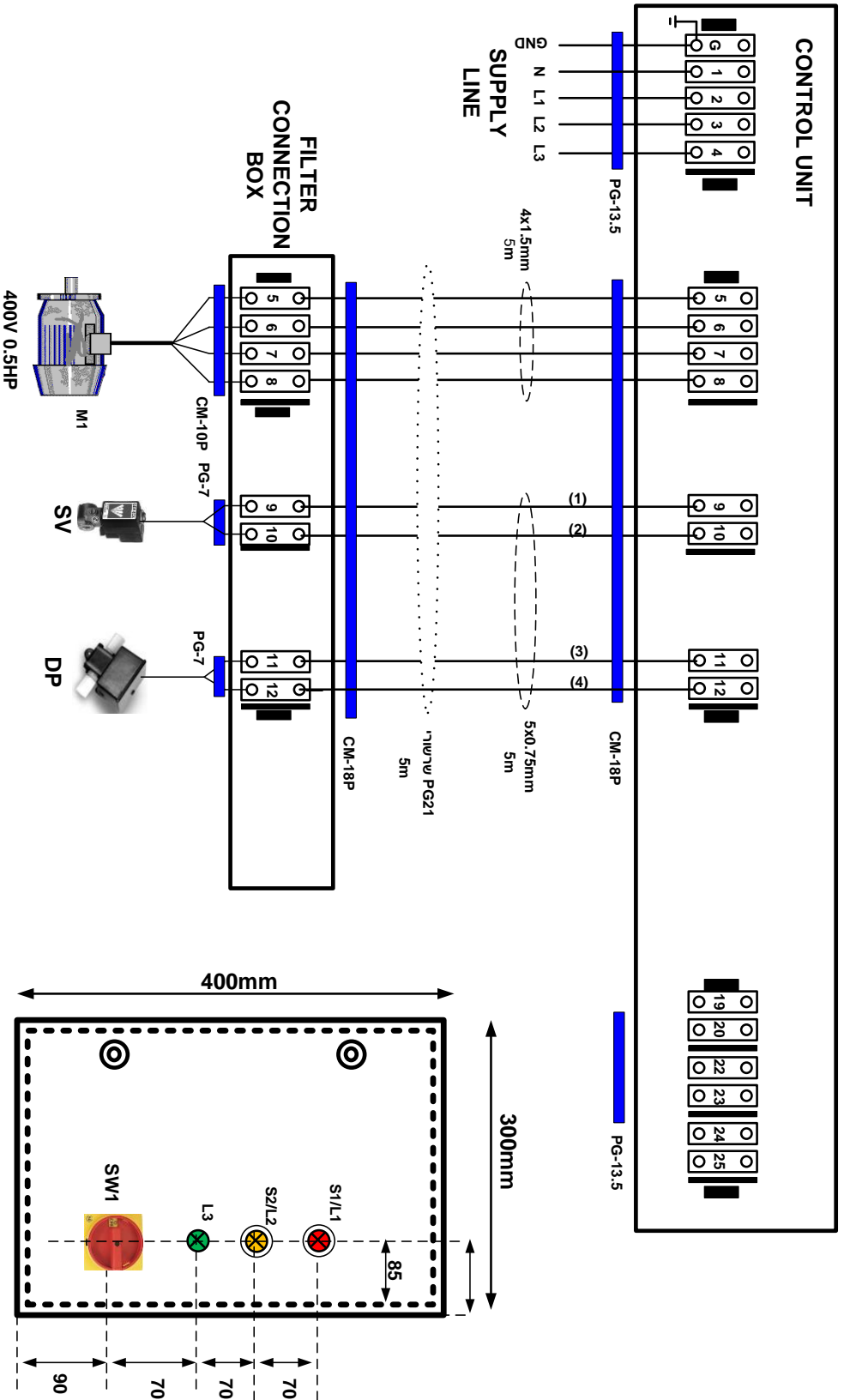
Control unit ELI-02/PLC

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PAGE	FILENAME	CONTROL	Cat. No.	Authorized by
1 OF 5	VISIDOCUMENT	CRUZET	8500010106	DAVID.Z





	DATE	25/08/2019	PROJECT	ELI-02 CROUZET XD10-CE- VER- 08-19	DESCRIPTION	PLC INPUTS/OUTPUTS WIRING	DRAWN BY	DAVID Z	
	PAGE	3 OF 5	FILENAME	VISIODOCUMENT	CONTROL	CROUZET	Cat. No.	8500010106	Authorized by



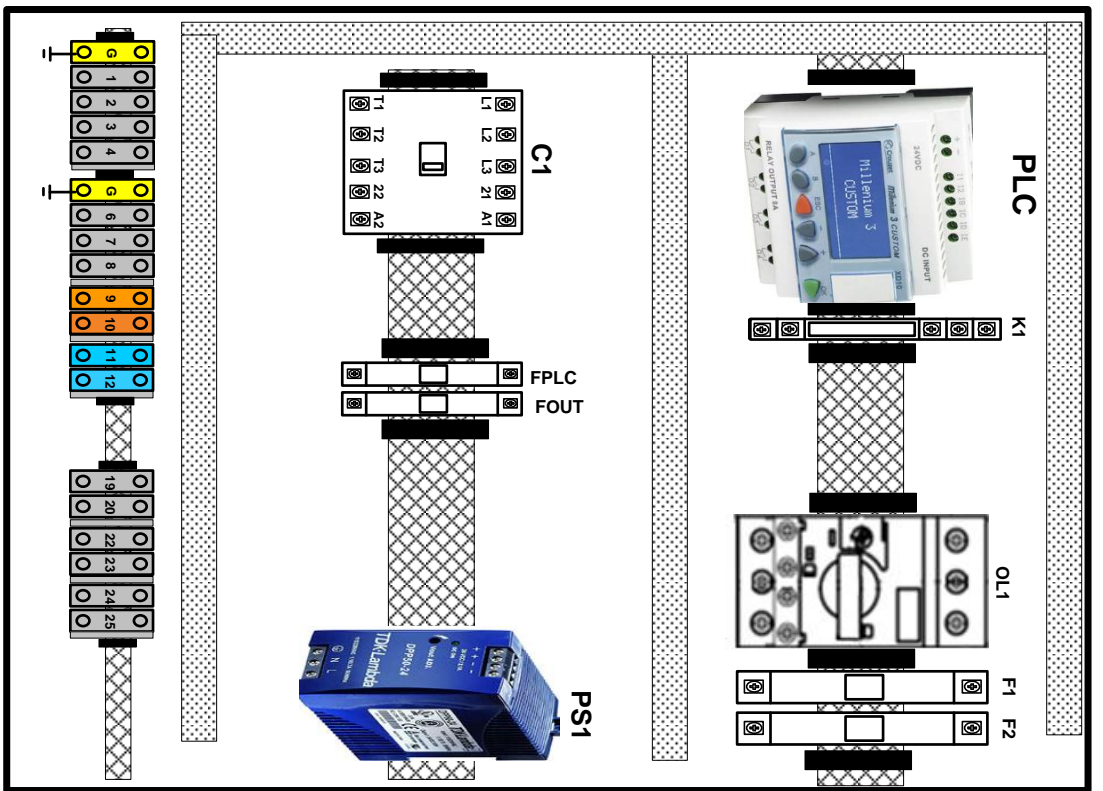
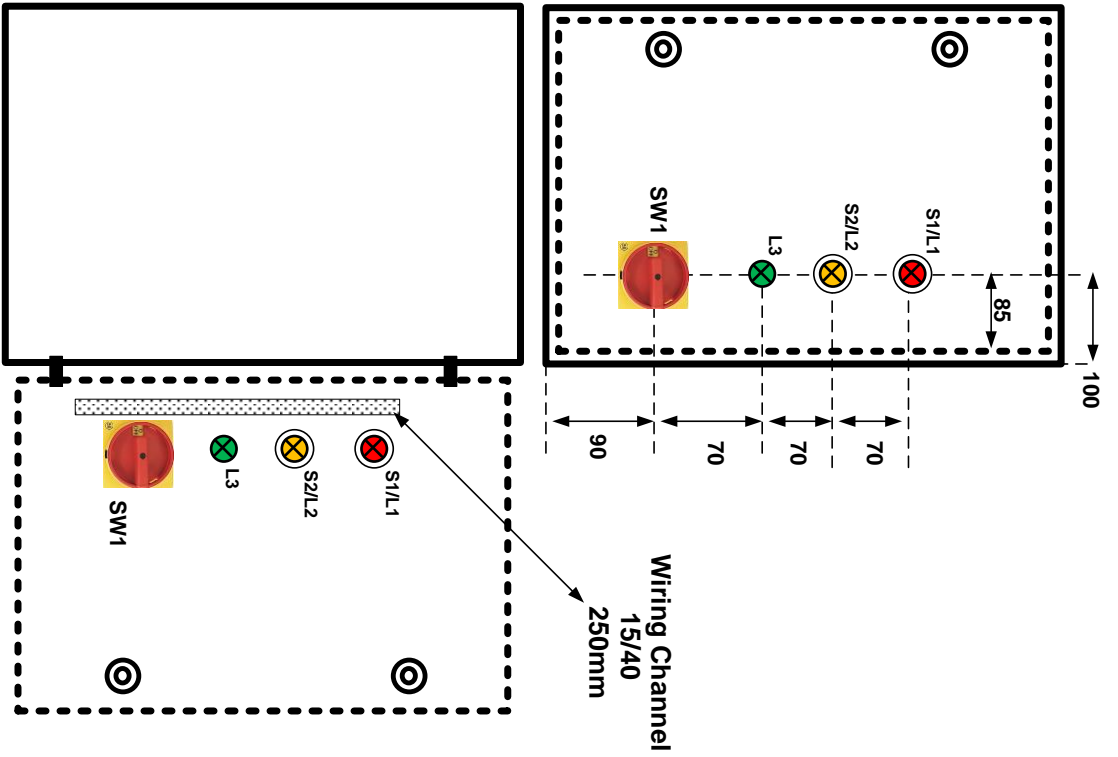
YAMIT
FILTRATION

DATE: 25/08/2019
PAGE: 4 OF 5
PROJECT: ELL-02 CROUZET XD10-CE-VER-08-19
FILENAME: VISIODOCUMENT

DESCRIPTION: SYSTEM WIRING
CONTROL: CRUOZET
Cat. No.: 8500010106

DRAWN BY: DAVID Z
Authorized by: DAVID Z

ARIA 400/300/170



10. STANDARD INTERNATIONAL WARRANTY

YAMIT Filtration & Water Treatment Ltd. (hereinafter -" **YAMIT**") guarantees to the customers who purchased **YAMIT**'s products directly from **YAMIT** or through its authorized distributors, that such products will be free from defect in material and/or workmanship for the term set forth below, when such products are properly installed, used and maintained in accordance with **YAMIT**'s instructions, written or verbal.

Should such products prove defective within one year as of the day it left **YAMIT**'s premises, and subject to receipt by **YAMIT** or its authorized representative, of written notice thereof from the purchaser within 30 days of discovery of such defect or failure - **YAMIT** will repair or replace or refund the purchase price, at its sole option, any item proven defective in workmanship or material.

YAMIT will not be responsible, nor does this warranty extend to any consequential or incidental damages or expenses of any kind or nature, regardless of the nature thereof, including without limitation, injury to persons or property, loss of use of the products, loss of goodwill, loss of profits or any other contingent liabilities of any kind or character alleged to be the cause of loss or damage to the purchaser.

This warranty does not cover damage or failure caused by misuse, abuse or negligence, nor shall it apply to such products upon which repairs or alterations have been made by other than an authorized **YAMIT** representative.

This warranty does not extend to components, parts or raw materials used by **YAMIT** but manufactured by others, which shall be only to the extent warranted by the manufacturer's warranty.

No agents or representatives shall have the authority to alter the terms of this warranty nor to add any provisions to it not contained herein or to extend this warranty to anyone other than **YAMIT**'s customers.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, EXCEPT THIS WARRANTY WHICH IS GIVEN IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

