

# Installation & Operation Manual



**4"/6"/8" Sigma Pro**





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## Legend



Push



Pull



Screw



Unscrew



Measure



Water  
pressure



Attention



Apply



Caution



Read



Center



Sigma Pro  
multi-tool



Rotate

## Technical Specification

General data	4" Sigma Pro	6" Sigma Pro	8" Sigma Pro
Max. flow rate* (130μ) in average water quality	120 m <sup>3</sup> /h (528 GPM)	180 m <sup>3</sup> /h (792 GPM)	280 m <sup>3</sup> /h (1233 GPM)
Min. operating pressure when cleaning	1.5 bar (22 psi) - electronic controller		
Max. operating pressure	10 bar (145 psi)		
Max. operating temperature	60°C (140°F)		
Filtration area	6000 cm <sup>2</sup> (930 in <sup>2</sup> )	8000 cm <sup>2</sup> (1240 in <sup>2</sup> )	
Inlet/Outlet diameter	4" (100 mm) Flange & Grooved coupling	6" (150 mm) Flange & Grooved coupling	8" (200 mm) Flange
Weight	Empty: 75 kg (165 lb) Full: 145 kg (320 lb)	Empty: 110 kg (243 lb) Full: 225 kg (496 lb)	Empty: 120 kg (264 lb) Full: 235 kg (518 lb)

\* Maximum flow rates depends on water quality and micron size.

Electronic controller	
Control power supply	4 X AA type 1.5V batteries / External 7-14V DC
Solenoid operation data	12-9V DC latching solenoid
DP switch	Integral sensors

Flushing data		
Exhaust valve	2" (50mm)	
Flushing time	10 seconds	
Reject water volume per flush cycle	75 liters (20 gallons)	90 liters (23 gallons)
Min. flow for flushing (at 1.5 bar/22 psi)	34 m <sup>3</sup> /h (150 GPM)	36 m <sup>3</sup> /h (158 GPM)

Construction materials	
Filter housing and lid	RPP (reinforced polypropylene) RPA (reinforced polyamide)
Screens	Molded weavewire stainless steel 316L
Cleaning mechanism	PBT (Polybutylene)
Exhaust valve	Polymeric
Seals	EPDM
Control command tubing	PE (Polyethylene)

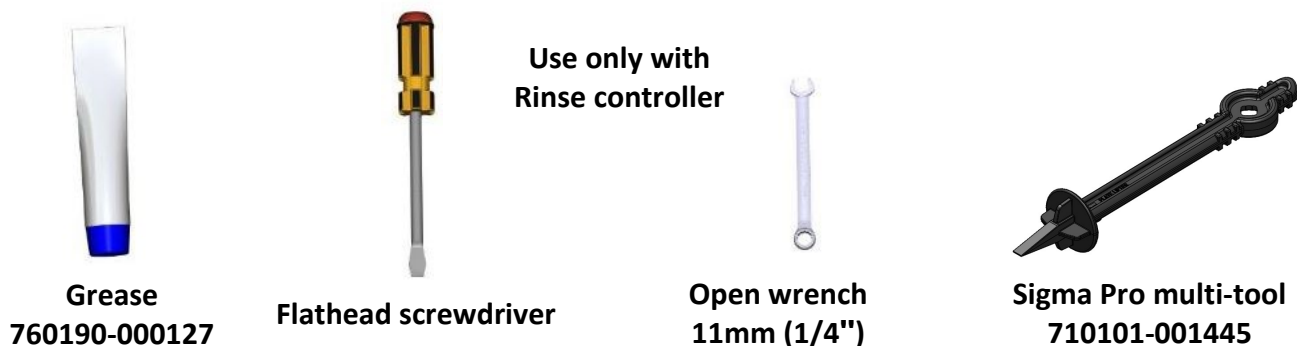
Standard filtration degrees						
Micron	500	300	200	130	100	80
mm	0.5	0.3	0.2	0.13	0.1	0.08

## General Safety Instructions

- Amiad Water Systems Ltd. ("Amiad") filtration products operate as components in a larger system. It is essential for the system designers, installers, and operators to comply with all the relevant safety standards and regulations, including the use and wear of appropriate safety equipment.
- Prior to installation, operation, maintenance, or any other type of action carried out on the filter, carefully read the safety, installation, operation and warranty instructions.
- During installation, operation, commissioning, or maintenance of the filter, all conventional safety instructions should be observed to avoid danger to any person, including the workers performing the said activity, or to property in the vicinity.
- Please note: the filter enters a flushing mode automatically, without warning.
- Manual cleaning of filter element using high water pressure or steam should be performed in accordance with the cleaning system instructions, the local standards, and regulations.
- Manual cleaning of filter element using acid or other chemical agents should be performed in accordance with the relevant material safety instructions, the local standards, and regulations.

**Observe and act according to the requirements detailed in the safety stickers on the filter, if any.**

### Tools needed for installation



Use only appropriate standard tools and equipment operated by qualified operators when installing, operating and maintaining the filter.

\*Amiad supplies the Sigma Pro multi-tool only.



## Installation

### General

- Install the filter according to the detailed Installation Instructions provided with the filter by Amiad.
- Make sure to leave enough space (height 70 cm/ 27") to enable easy access for future treatments and safe maintenance operations.
- The user should arrange suitable lighting at the area of the filter to enable good visibility and safe maintenance.
- Check and retighten all bolts during commissioning and after the first week of operation.
- Use only appropriate tools and equipment or recommended tools and equipment, if any, all operated by qualified operators when installing, operating, and maintaining the filter.

### Civil Engineering

- While using lifting equipment, make sure that the filter is lifted in a safe manner.
- Do not leave equipment lifted if not necessary. Avoid working below lifted equipment.

### Shipping and Transporting

- Shipping and transporting the filter must be done in a safe and stable manner and in accordance with the relevant standards and regulations.
- For shipping, lifting and positioning the filter, use only approved lifting equipment and authorized employees and contractors.
- Whenever lifting the filter is required, connect suitable hoisting equipment to the filter's clamps at both sides of the filter, connect the ropes to a crane hook and carefully lift the filter.



## Hydraulics

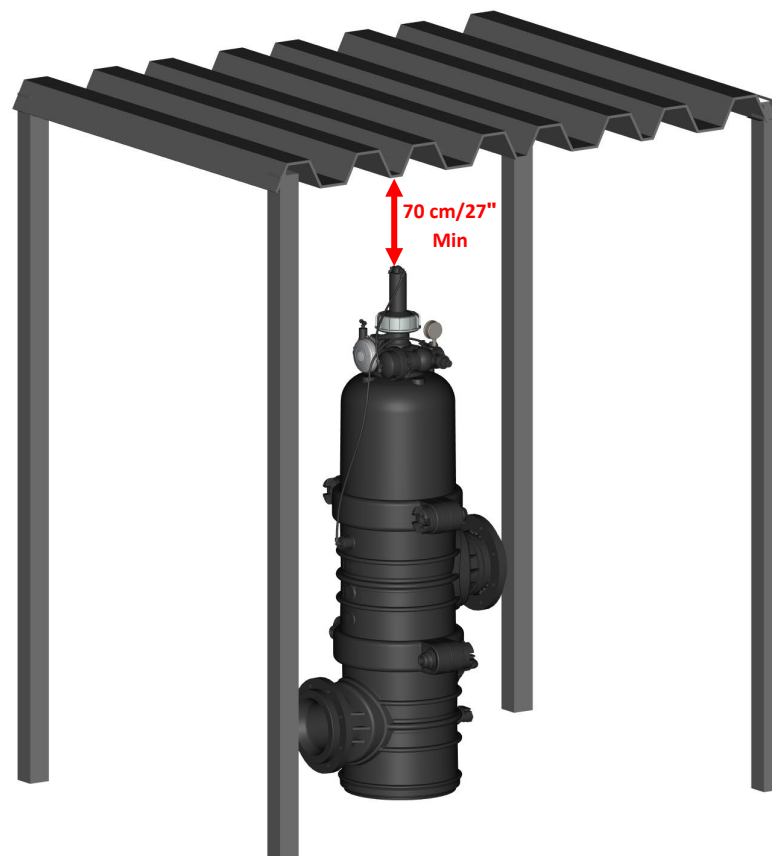
- The user should install a manual water cut-off valve next to the filter's inlet port.
- In installations where the piping network downstream of the filter is pressurized, an additional manual water cut-off valve should be installed next to the filter's outlet port.
- The user should make sure that the system includes a pressure release / drainage valve to enable release of residual pressure prior to any maintenance procedure is performed on the filter.
- The user should make sure that the filter is never exposed to water pressure exceeding the maximum designated pressure for this filter. When necessary, a pressure reduction valve should be installed upstream of the filter's water inlet port.
- Please note that the maximum working pressure indicated in the filter's specifications table includes the pressure caused by fluid hammer and pressure surge effects.
- If possible, prior to installing the filter, thoroughly flush the main line at the connection point in order to remove large objects that may damage the filter's internal mechanism.

## Important installation note

- Install the filter vertically. Please note that a minimum clearance of 70 cm (27") is required in order to disassemble the unit.

## Attention

- Ensure that the direction of the flow is aligned with the arrows marked on the filter housing.
- To prevent static backpressure or reverse flow through the filter, it is recommended to install a non-return valve.



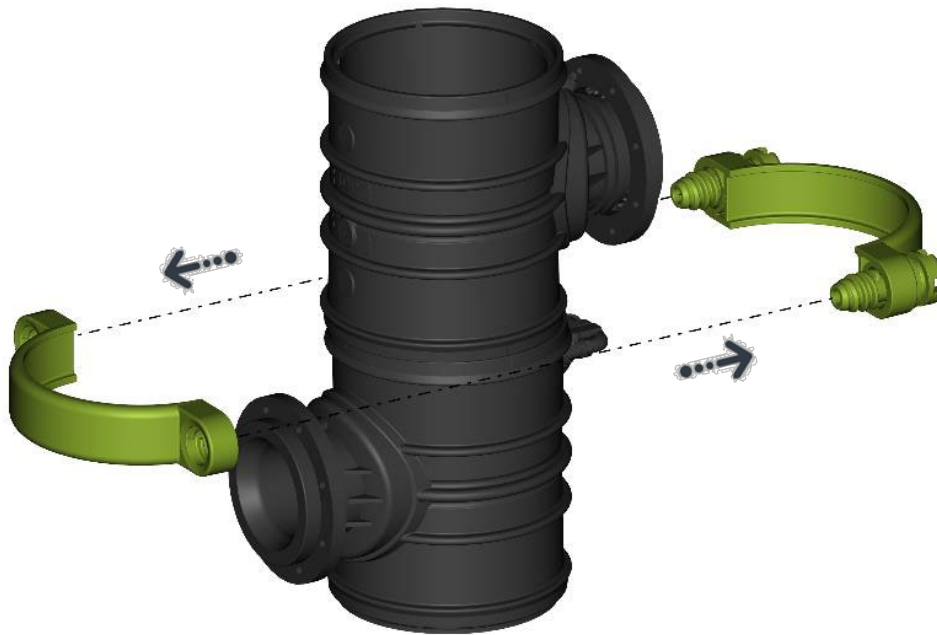
## Changing Installation Configuration

Changing the inlet/outlet direction:

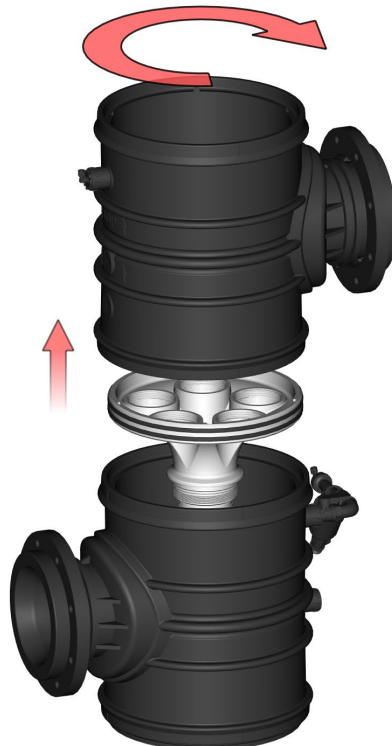
If the original configuration does not match the required installation position, the lower body can be rotated 360°.

In order to change the configuration of the filter, follow these steps:

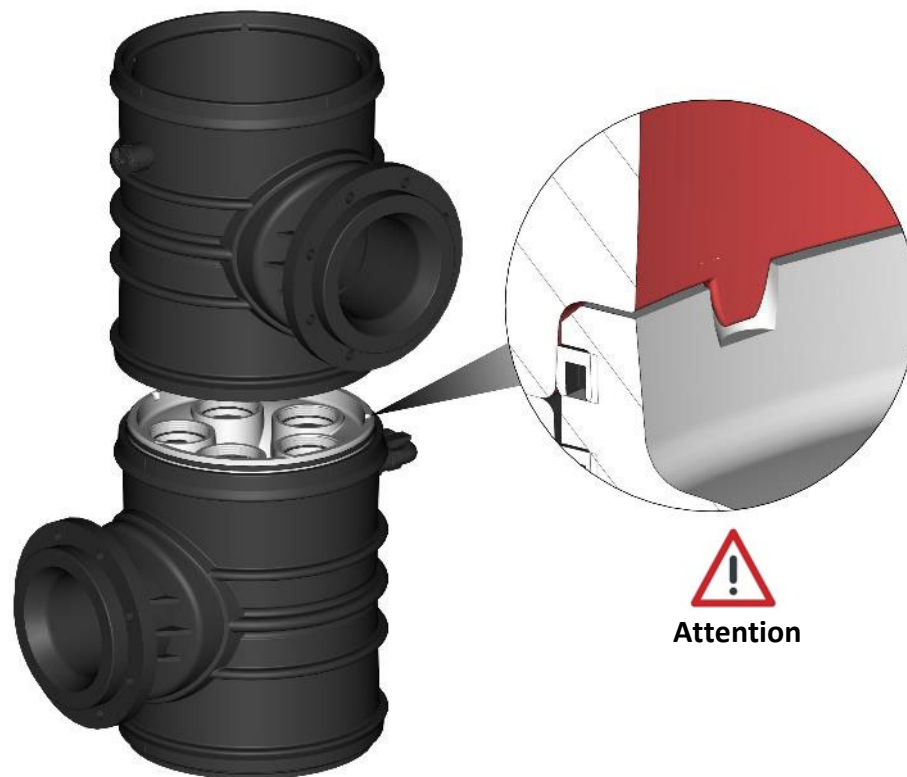
1. Disassemble the filter according to "Basic Maintenance Disassembly" (on page 14)
2. Disconnect the pipeline from the Sigma lower body
3. Remove the clamps that connect the Sigma body to the lower body



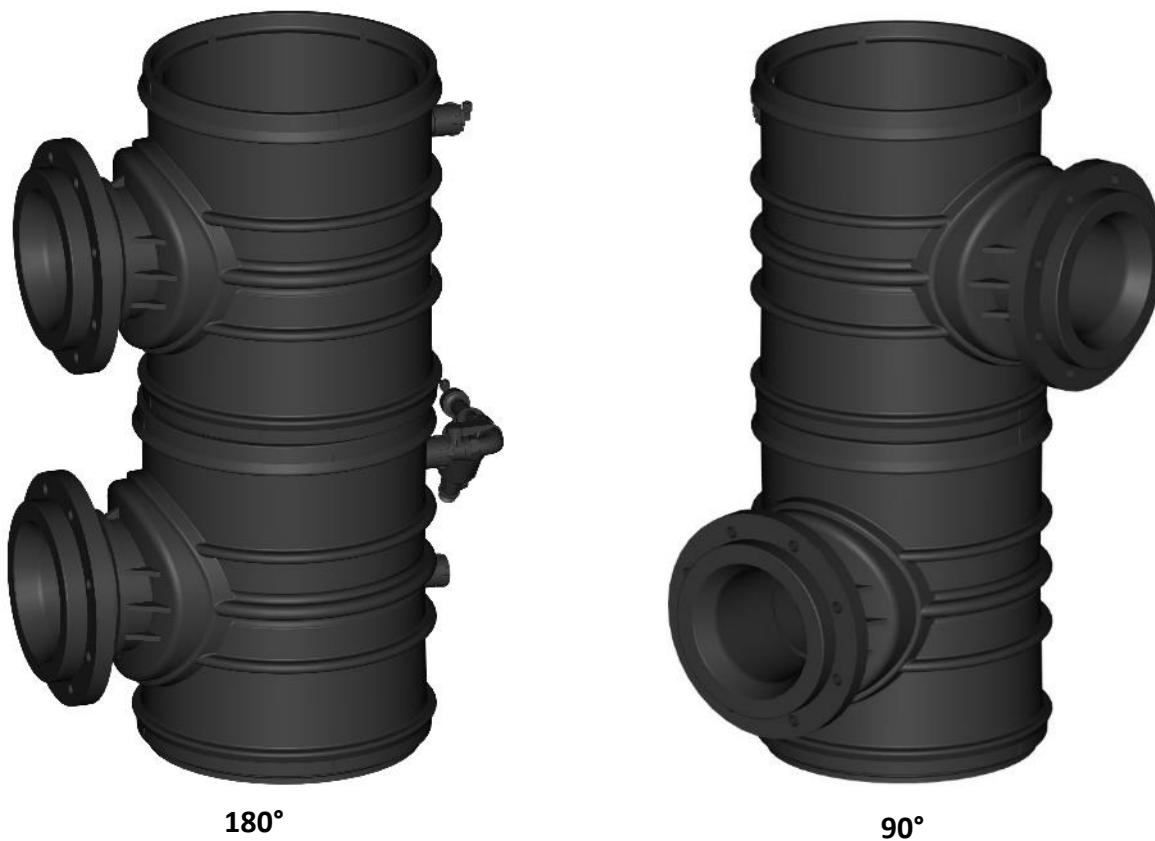
4. Lift and rotate the Sigma body and plate to the desired position



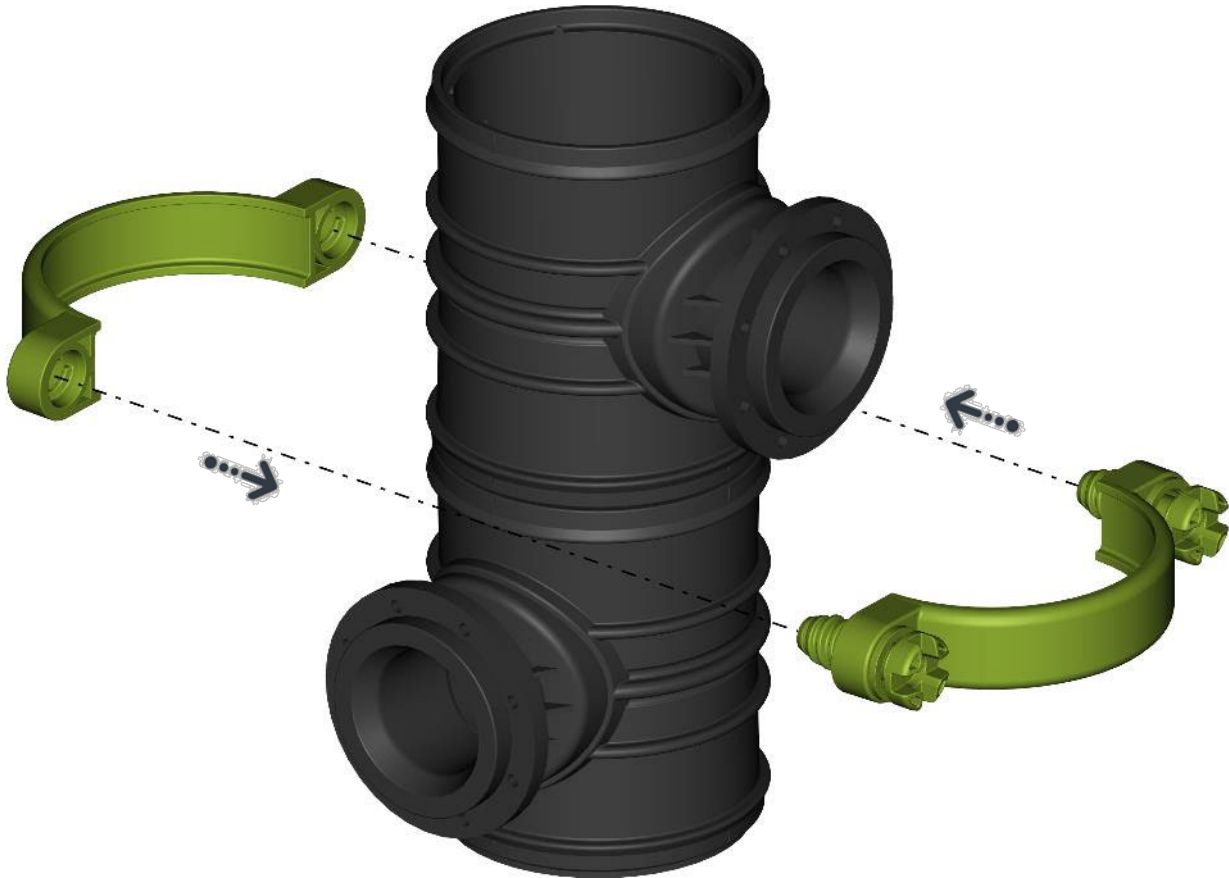
5. Make sure that the fittings on the Sigma body are set in place with the lower body



6. Connect the Sigma body to the lower body in the desired position



7. Connect the clamps and tighten the bolts using the Sigma multi-tool



8. Assemble the filter according to chapter "Basic Maintenance assembly" (on page 22).

## Initial Operation

### At the beginning/end of the growing season, or, in case of malfunction:

- Carefully read this Installation & Operation manual prior to any attempt to operate the filter.
- In order to achieve maximum performance and smooth operation of the filter, it is crucial to perform the start-up and first operation procedures exactly as described in this manual.
- An authorized technician should commission the filter. Do not attempt to commission the filter unaccompanied as it will affect your warranty coverage.
- Open the inlet valve while the outlet valve remains closed.
- Open the outlet valve slowly.
- Make sure there are no leaks in the filter.
- Perform a manual flush two times.
- If flow increases and pressure drops dramatically for a long period of time during network filling-up, it is recommended that a pressure sustaining valve be installed downstream of the filter. The pressure sustaining valve ensures a controlled filling-up of the line.
- If continual water flow is essential even during maintenance period, it is recommended that a manual or automatic bypass valve be installed together with the isolating valves that can be used to isolate each filter unit.

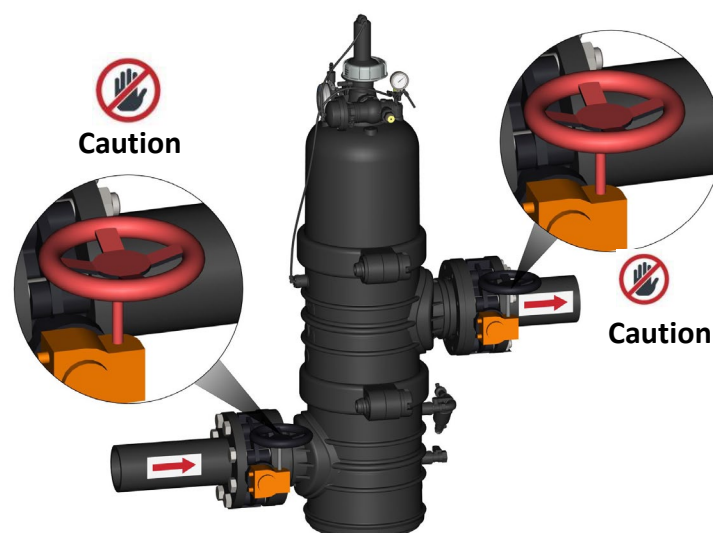
### Before any maintenance operation, please read the following:

- Installation, operation and maintenance should be done by technicians acting strictly in accordance with Amiad's instructions and in accordance with this manual. Other service should only be done by technicians authorized by Amiad.
- Disconnect the filter from the water system by closing and securing the manual inlet valve. In cases where the downstream piping network is pressurized, close and secure the manual outlet valve.
- Release the residual water pressure by opening the pressure release / drainage valve.
- Empty the filter by opening the drainage valve.
- Place warning signs around the work area as required by the local standards and procedures.
- Please note the requirements on filter's safety stickers, if any.

### Before disconnecting the filter from the water supply and before releasing the filter's residual pressure,

#### DO NOT:

- Loosen or unscrew bolts
- Remove any protection cover
- Open any service port flange



## Maintenance

### General inspection

A general inspection of the filter operation should be done regularly and prior to any scheduled maintenance procedure. This includes pre-season, post-season, and seasonal check-ups.

The maintenance requirements of automatic Self-Cleaning Filters are directly related to their Flushing frequency. Flushing frequency depends on flow rate and water quality (Suspended Solids type, load, and Chemistry). Therefore, the frequency of scheduled routine maintenance activities should be determined during the commissioning and first few months of operation.

It is essential to follow the flushing frequency and the trend of DP build-up, to react on time when an un-usual change is recognized.

It is recommended to include the filters in the routine equipment inspection “tours” of the plant, and to treat any leakage or damage as early as possible.

### Routine inspection procedure:

1. Initiate a flushing cycle.
2. Check that the exhaust valve opens and closes normally.
3. Visually check the filter housing and valves for leakage.
4. Check Controller battery power (via. ADI-BLE App).

### Annual maintenance

A thorough overhaul maintenance is recommended once every year or when the filter has completed about 50,000 flush cycles.

Before beginning any maintenance procedure, carefully read the safety instructions and make sure that the staff is fully aware of and complies with these and any other relevant local safety instructions.

The thorough maintenance operation will include the following:

1. Perform a flushing cycle (if possible, with a closed downstream valve).
2. Release pressure from the filter and drain it.
3. Filter disassembly.
4. Visual inspection and evaluation of screen. Thorough cleaning instructions can be found next. Replacement is required only if there are signs of mechanical damage to the screen.
5. Replacement of the annual maintenance kit.
6. Filter re-assembly.
7. Replacement of the controller batteries.
8. Reset the controller flushing counters via. ADI-BLE App.
9. Restart the filter as per instructions given in this manual.

### Sigma Pro Spare parts Kit for annual maintenance

CAT. NO.	DESCRIPTION
700194-000033	4"/6"/8" SIGMA PRO SPARE PARTS KIT

## Screen COP (Clean-Out-of-Place)

Screen cleaning is required as part of the maintenance procedure or in case the filtration system is significantly clogged. In most cases cleaning with a pressure washer is sufficient.

1. Wash the Screens with a pressure washer.
2. Rinse the Screens from outside-in, and then rinse their interior surface.
3. Check the Screens for clogged surface and any mechanical damage.

## Mineral Scaling/precipitation

If the Screen is clogged with scale or precipitants that cannot be removed by the pressure washing, chemical treatment is required.

Chemical or detergent selection depends on precipitants origin - Mineral or Organic.

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***WARNING!** Chemicals are harmful to people and equipment. Read and follow manufacturer's instructions and MSDS. Use ALL precautions and protective gear when working with Chemicals to prevent contact with skin, eyes & mouth.*

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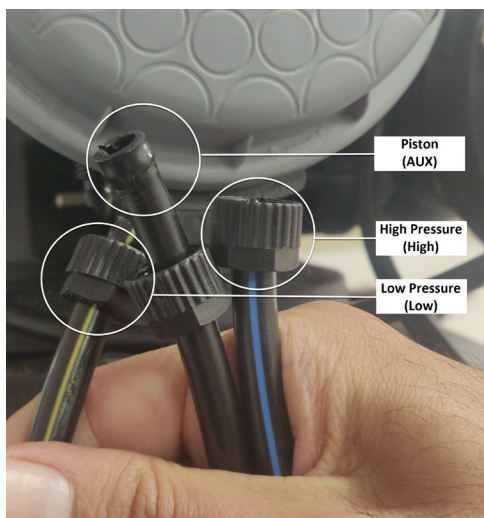
## Avoid damage due to frost

To avoid damages or breakages in the filter, the filter must be drained prior to periods of frost, including the cylinder and command tubes.

### Winterization

To avoid damages or breakages in the filter, the filter must be drained prior to periods of frost, including the cylinder and command tubes.

A step by step instructions:



1. Initiate a manual flush to make sure that your screen will be clean for the shutoff period.
2. Close the isolation valves (inlet and outlet).
3. Initiate an additional manual flush to release the pressure inside the filter.
4. Open the drainage valve.
5. Disconnect the 2 tubes that supply water to the filter piston.
6. Release the gray nut that tightens the piston in place.
7. Pull out the piston and drain the water from the piston.
8. Re-assemble the piston.
9. Mark the tubes that are linked to the ADI-P controller and disconnect it from the controller for the duration of the winter season.

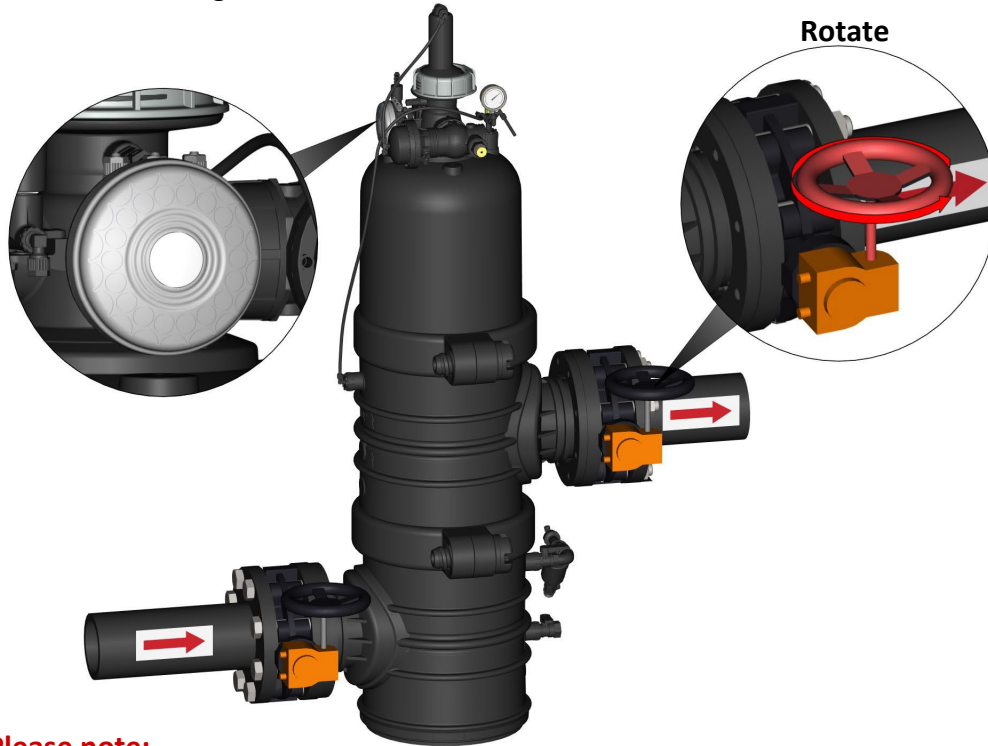
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- Release the residual water pressure by opening the pressure release/ drainage valve.
- Empty the filter by opening the drainage valve.



## Basic Maintenance - Disassembly

1. Perform manual flush (please see **ADI-P** manual):
  - a. Close the filter's outlet valve
  - b. Perform a manual flushing with the controller



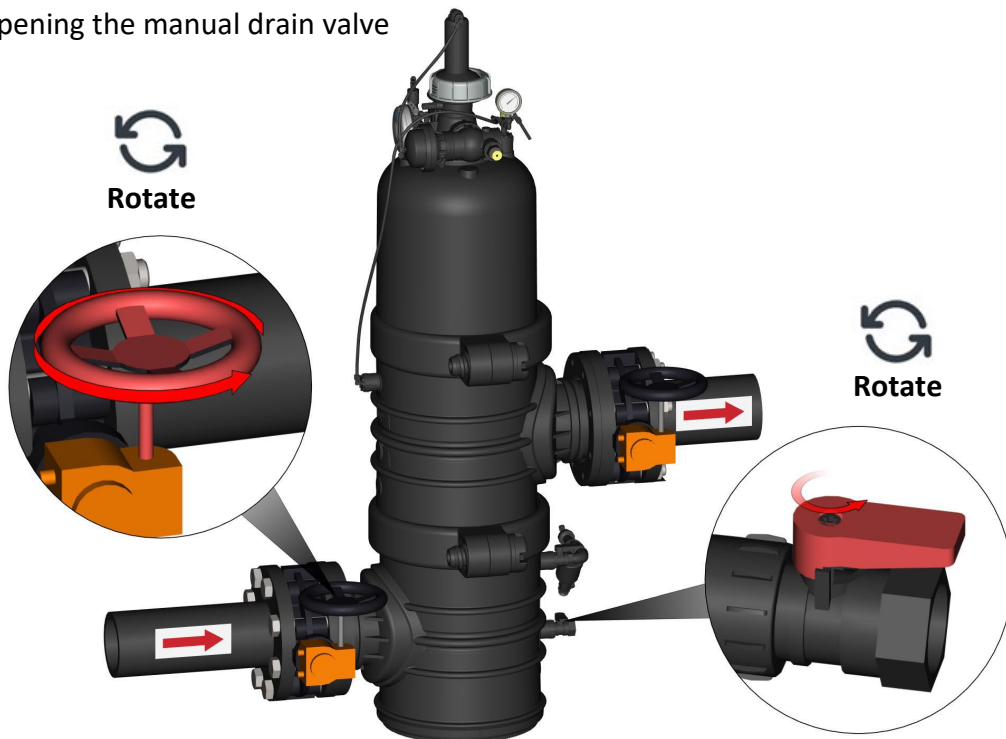
**Attention**

**Please note:**

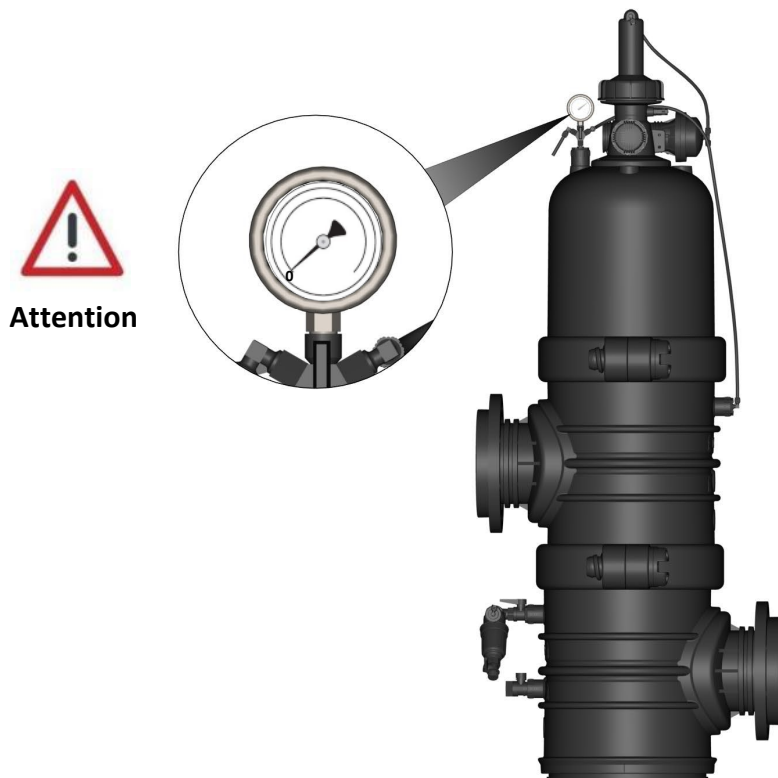
**Always open and close the valves slowly and gradually!**

**The filter enters a flushing mode automatically, without warning.**

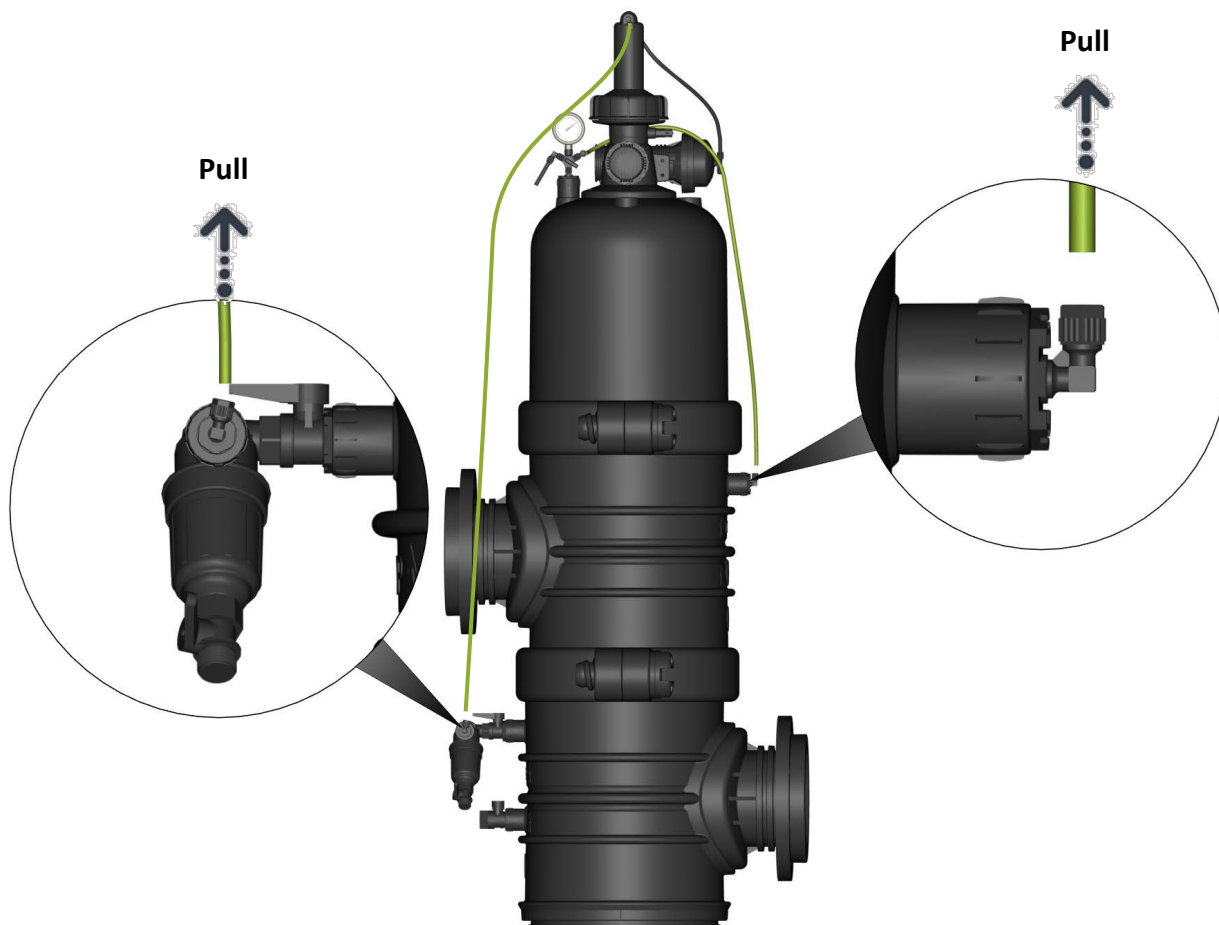
2. Close the filter's inlet valve
3. Drain the filter by opening the manual drain valve



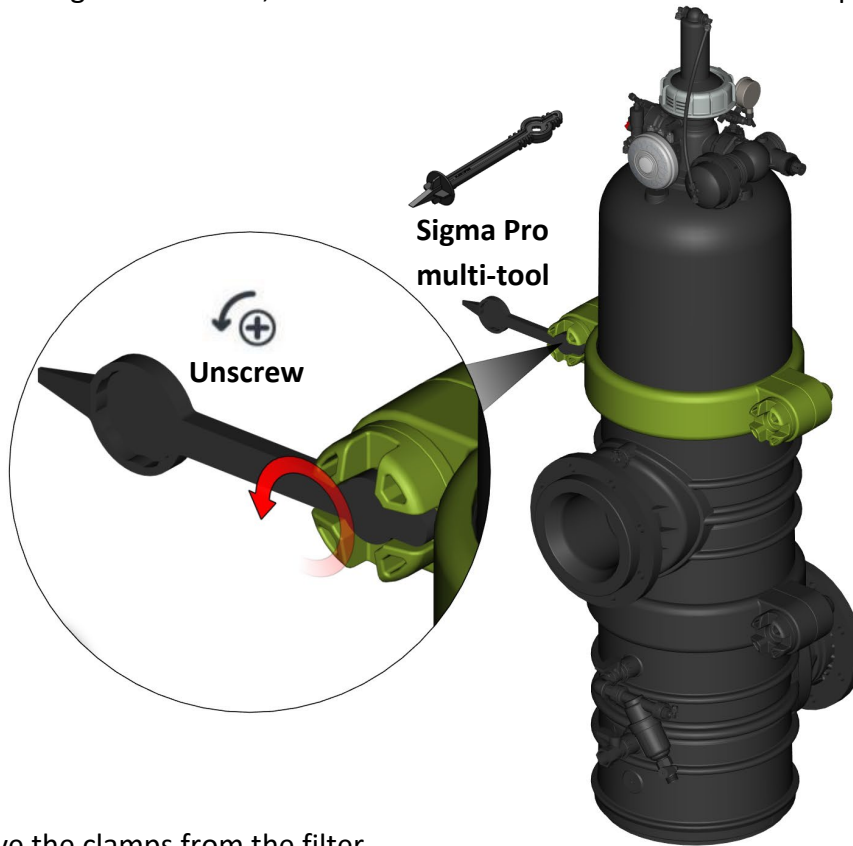
4. Make sure that the pressure gauge is on zero!



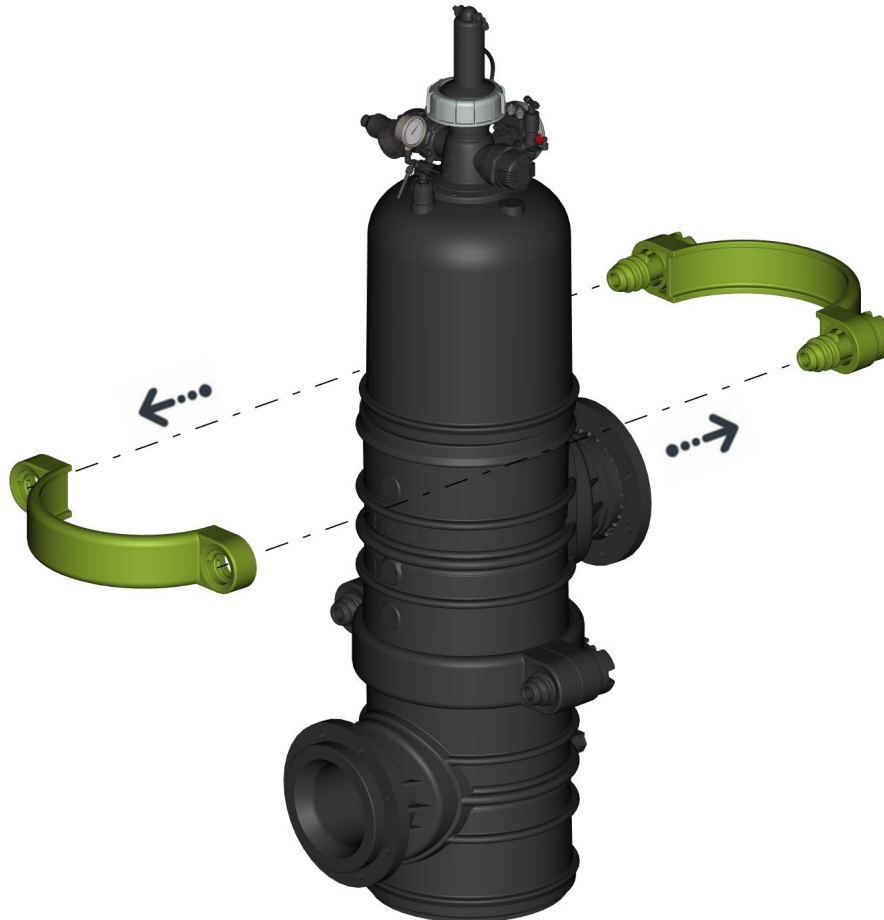
5. Disconnect the command tubes:  
a. Pull up the command tube



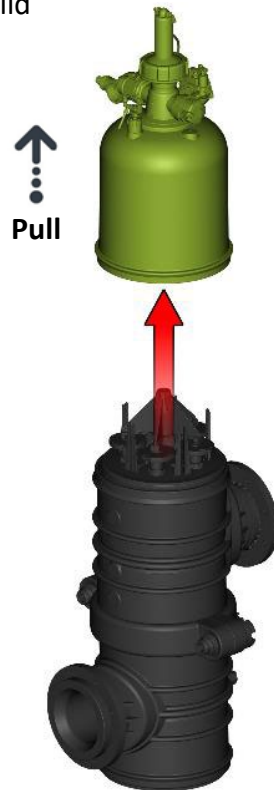
6. Release the upper clamp:
  - a. Using the Sigma multi-tool, unscrew the bolts at both sides of the clamps



- b. Remove the clamps from the filter

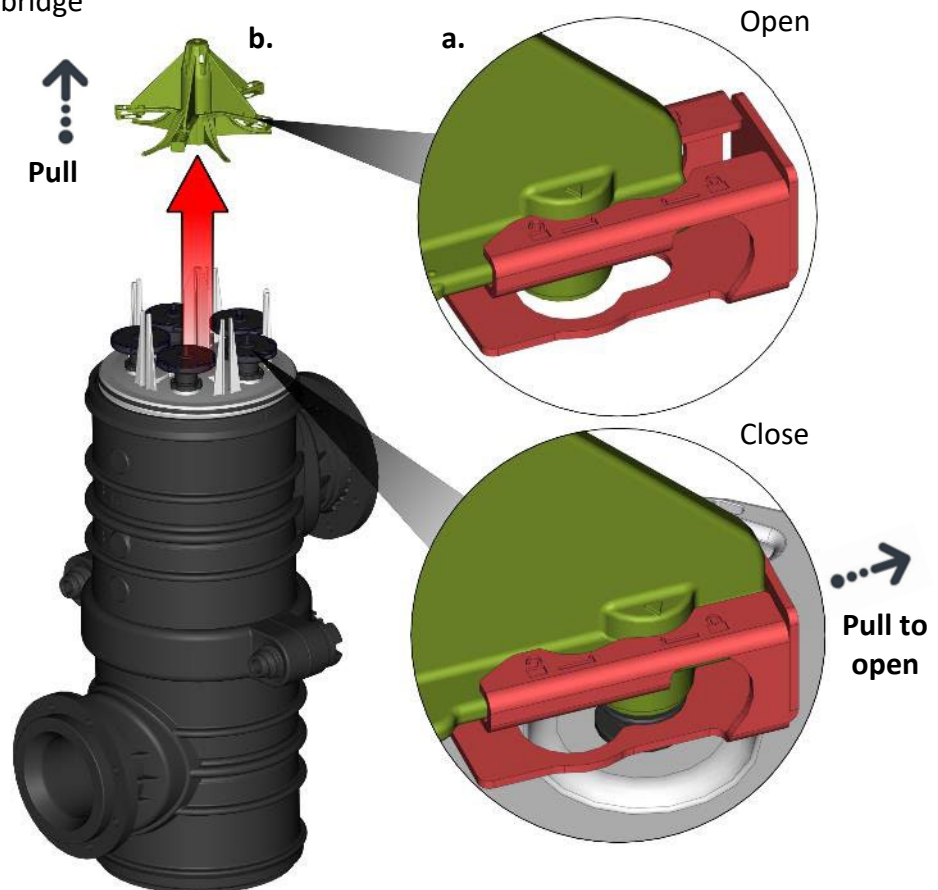


7. Pull up and remove the filter's lid



8. Pull up and remove the bridge according to the following steps:

- a. Slide open the bridge clip x5 to disconnect the bridge from the turbine
- b. Pull up and remove the bridge

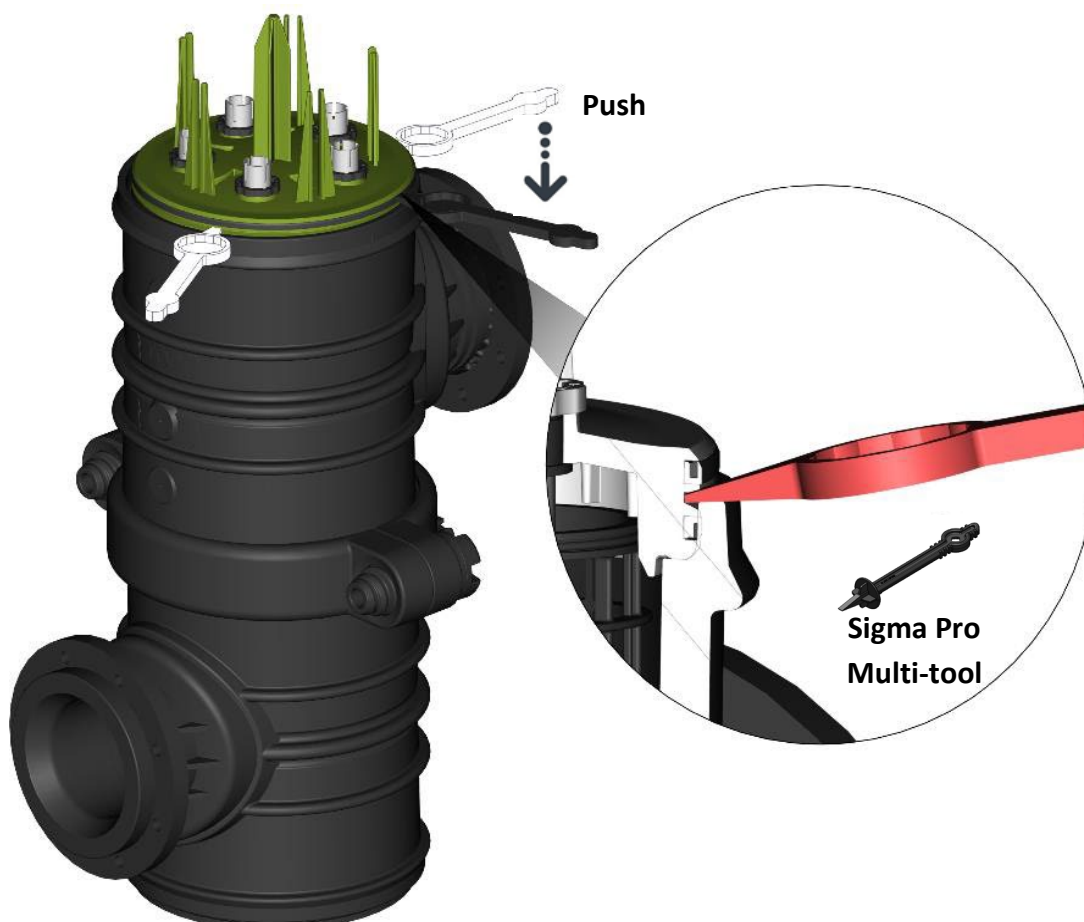


9. Remove the turbine from the five suction-scanner's upper shaft



10. Remove the suction-scanner's top plate:

- a. Place the Sigma multi-tool between the top plate grooves
- b. Gently press down on the Sigma multi-tool and lift the top plate

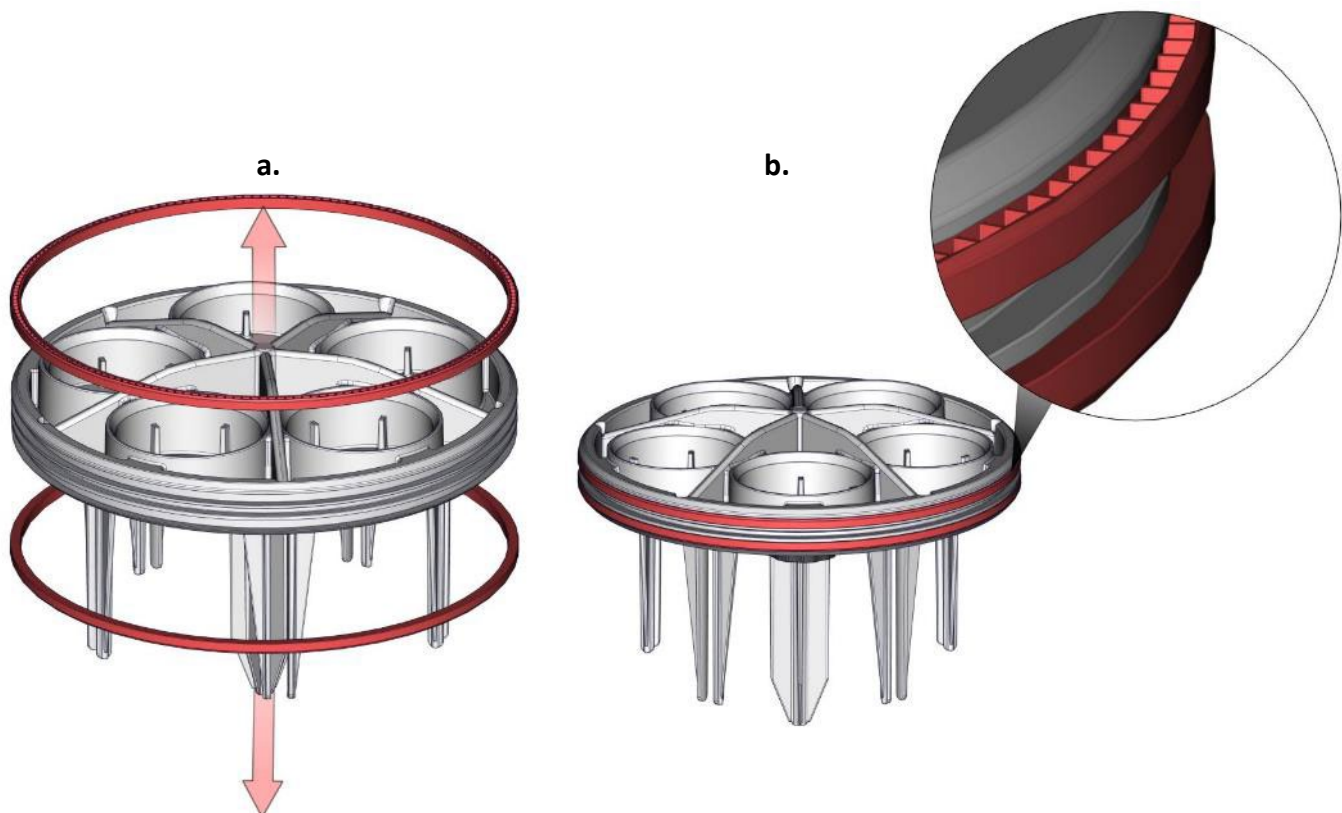


c. Remove suction-scanner's top plate



11. Replace the gaskets if needed

- a. Remove the used gaskets
- b. Insert new gaskets, making sure that the open side of the gaskets are turned out as shown

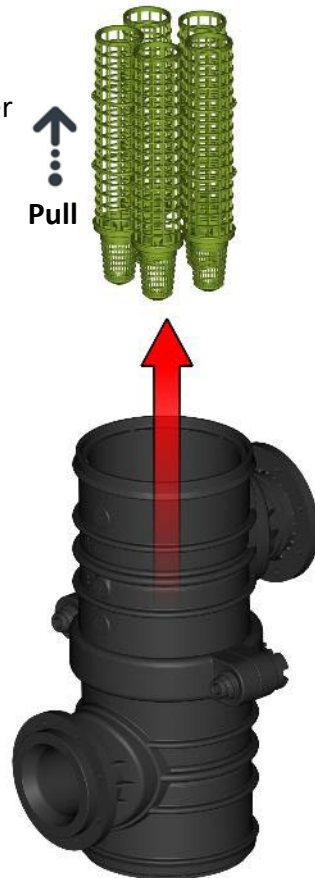


12. Remove the five suction-scanners out of the screens:



13. Remove the five screen units:

- Coarse and fine screen together

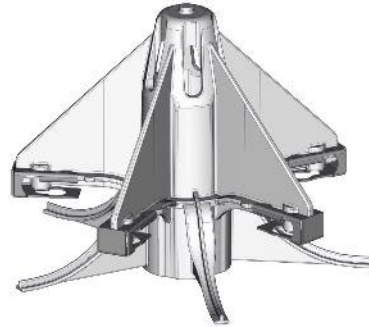


**Before the re-assembly:**

- a. Make sure that all parts below are undamaged
- b. Replace dry or damaged gaskets and o-rings
- c. Make sure that the coarse screen is clean
- d. Apply silicon grease on the o-rings (760190-000127 – tube of grease PG-21)



**Clamps**



**Bridge**



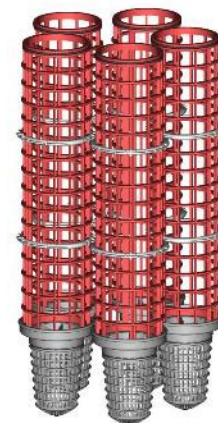
**Top plate**



**Turbines**



**Scanners and  
Nozzles**

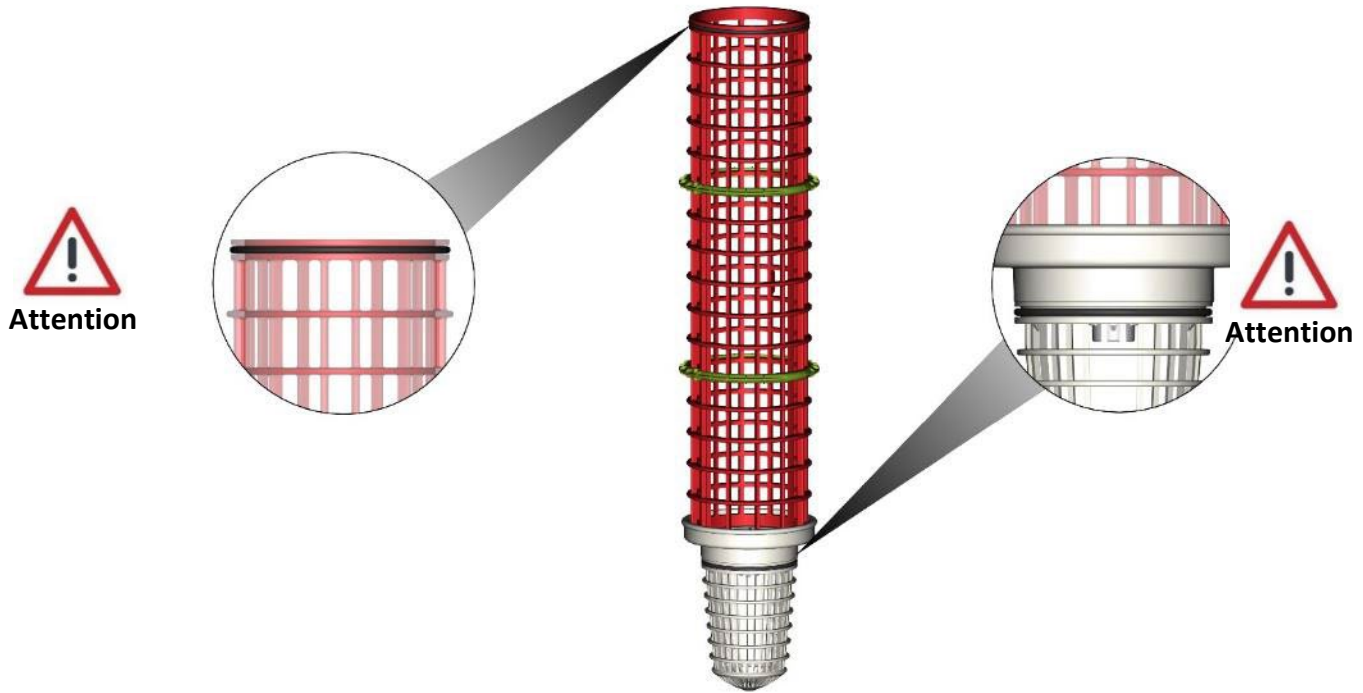


**Fine and  
Coarse Screen**

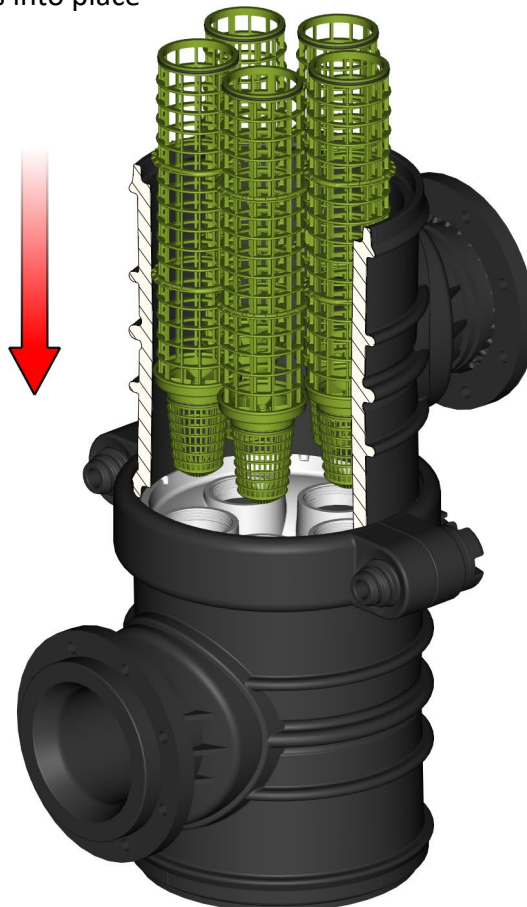


## Basic Maintenance - Assembly

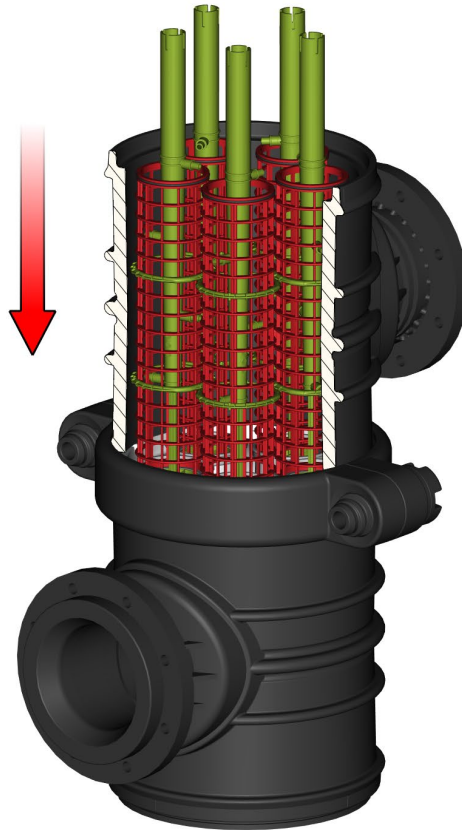
1. Insert the five screens into the filter housing:
  - a. Make sure that the o-ring is in place



- b. Insert the five screens into place



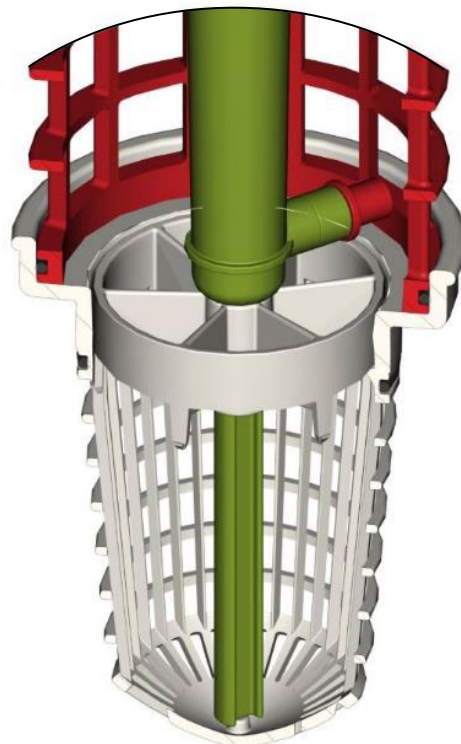
2. Insert the five suction-scanners into place



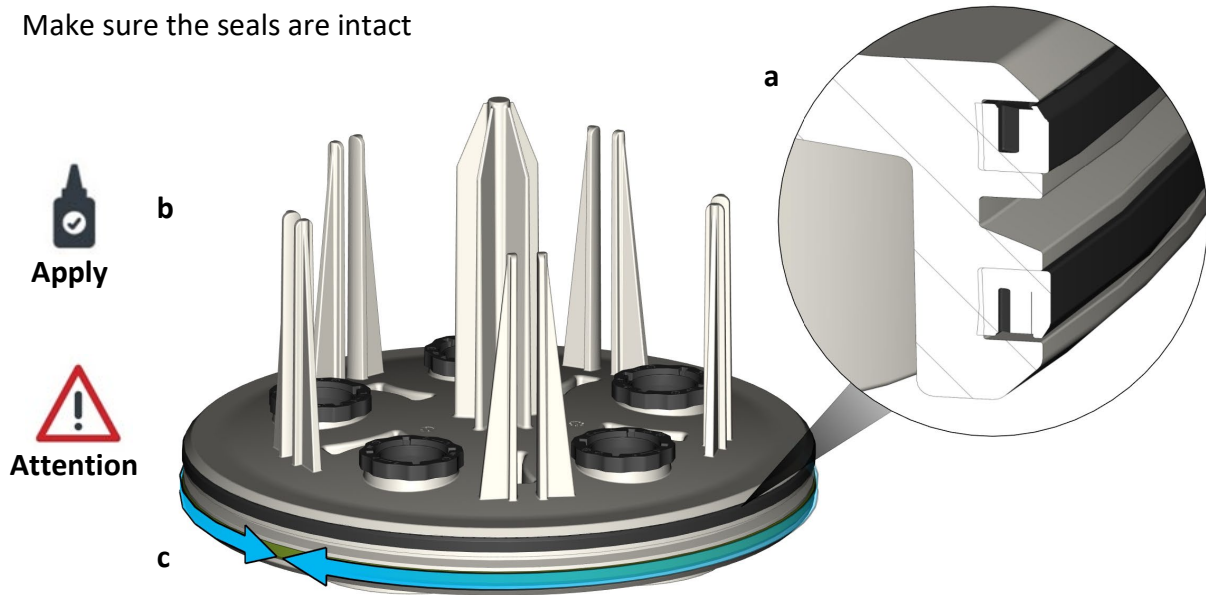
Make sure that each scanner shaft passes through its socket at the center of its designated coarse screen.



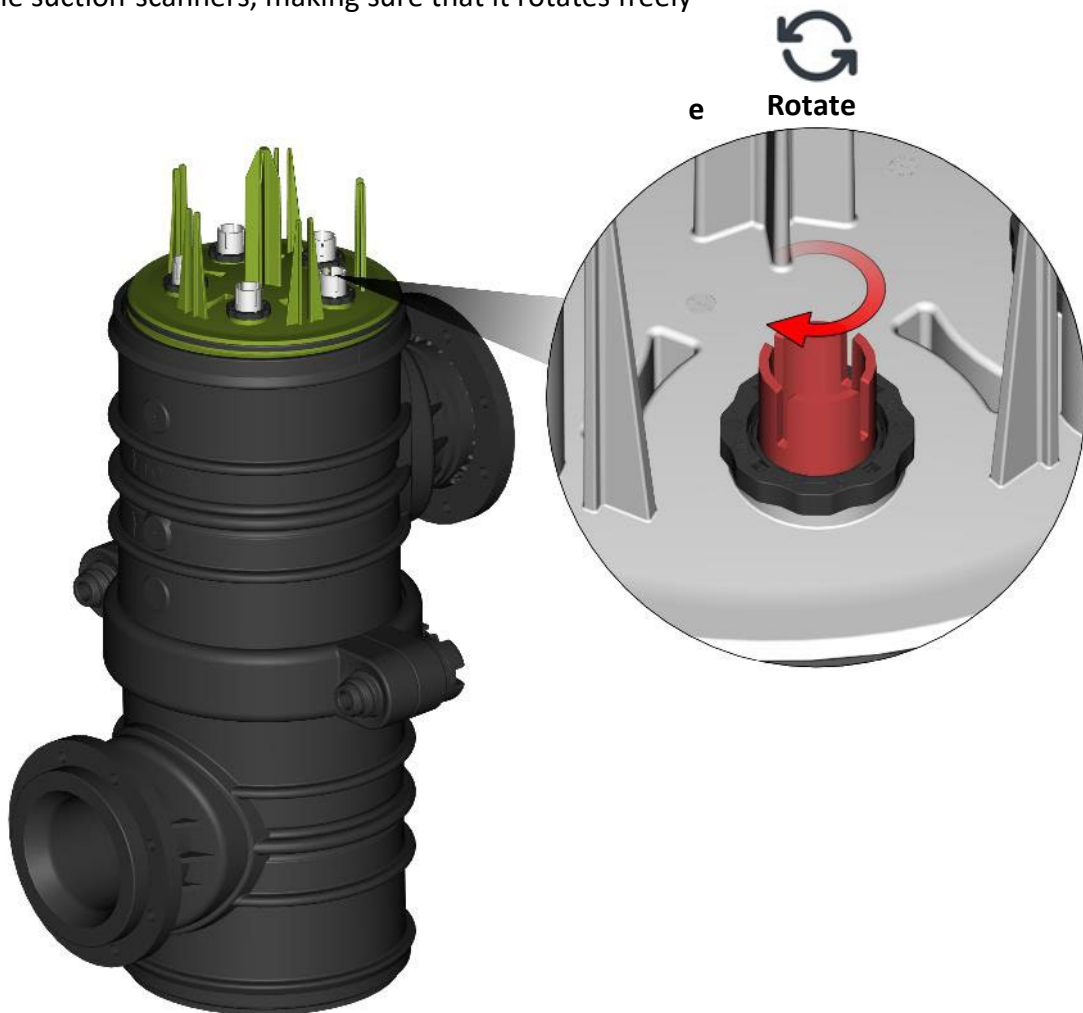
Center



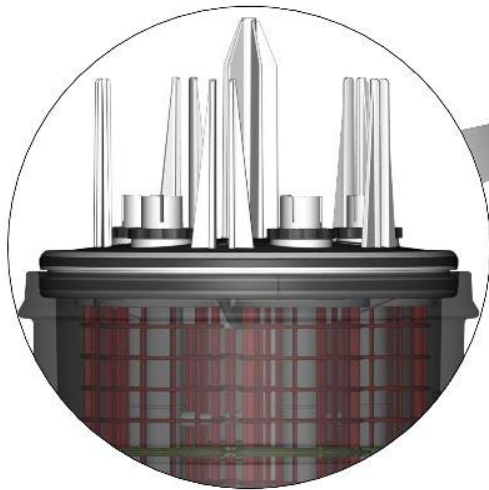
3. Re-install the suction-scanner's top plate:
  - a. Make sure the seal is in place and the open side of the seals turn out as shown
  - b. Apply 760190-000127 grease to the seals
  - c. Make sure the seals are intact



- d. Avoid damaging the seal during plate insertion
- e. Rotate the suction-scanners, making sure that it rotates freely



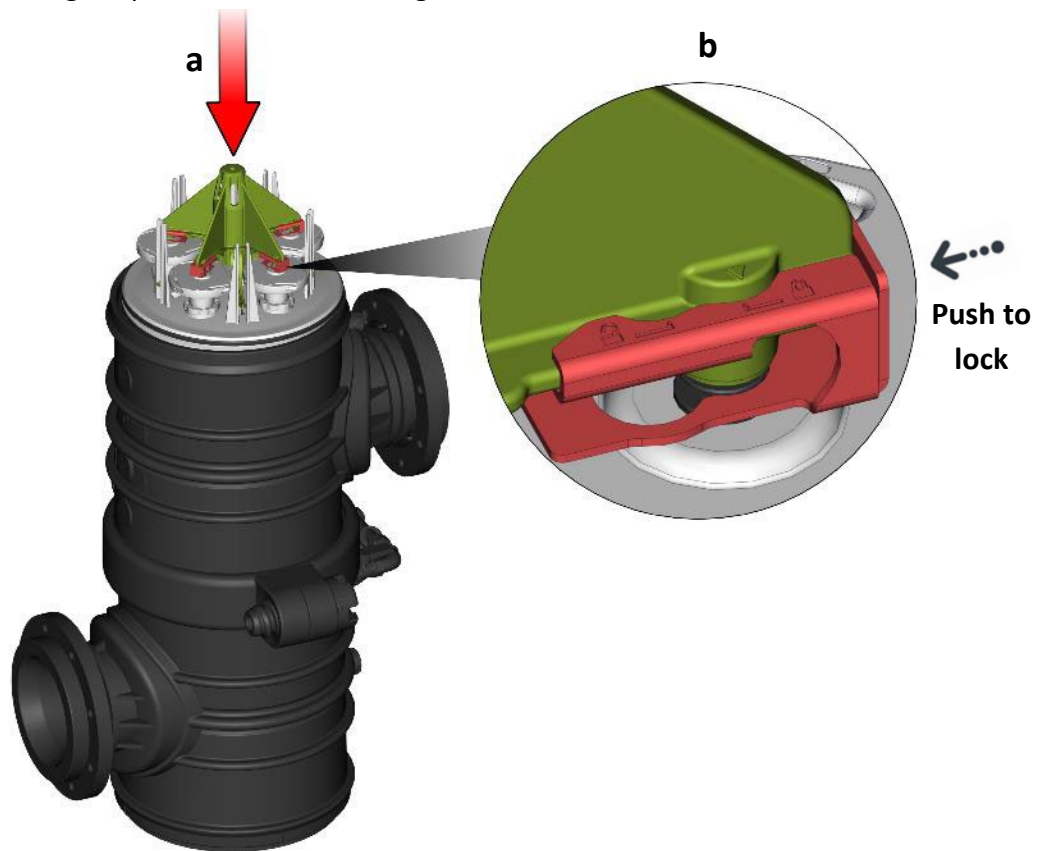
- f. Make sure that the plate is inserted correctly and creates a caulking between the bottom and the top



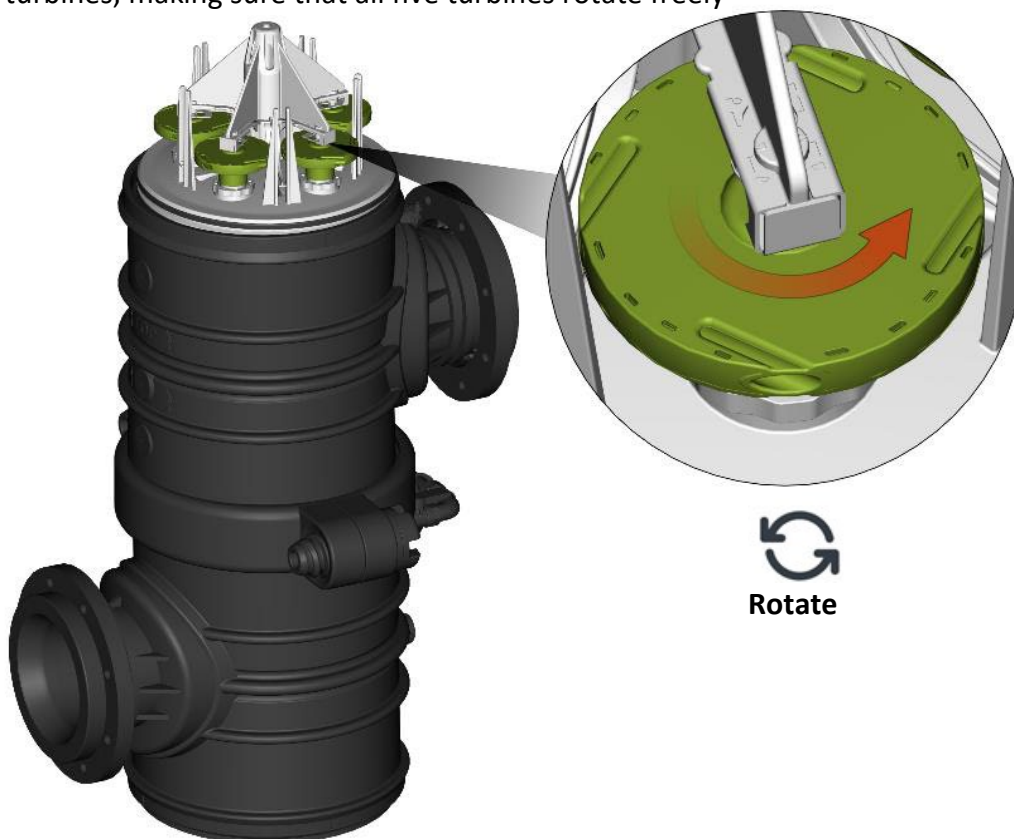
- 4. Install the turbine on the scanners



5. Install the bridge according to the following steps:
  - a. Insert the bridge on the top plate
  - b. Lock the five bridge clips on the turbine's edges



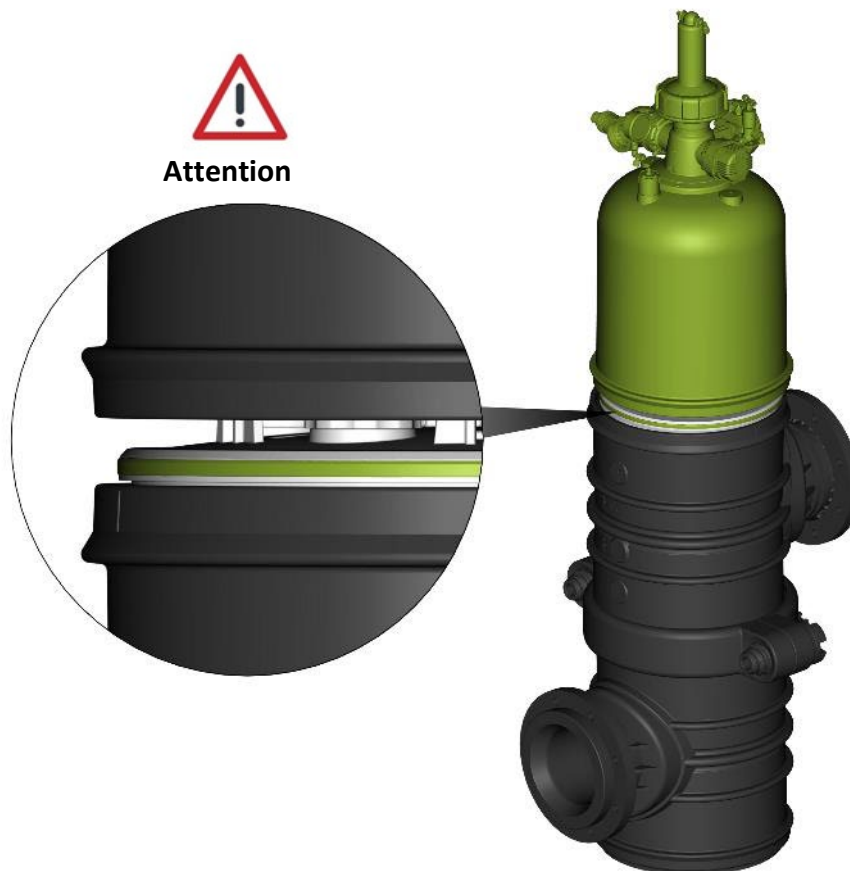
6. Rotate the turbines, making sure that all five turbines rotate freely



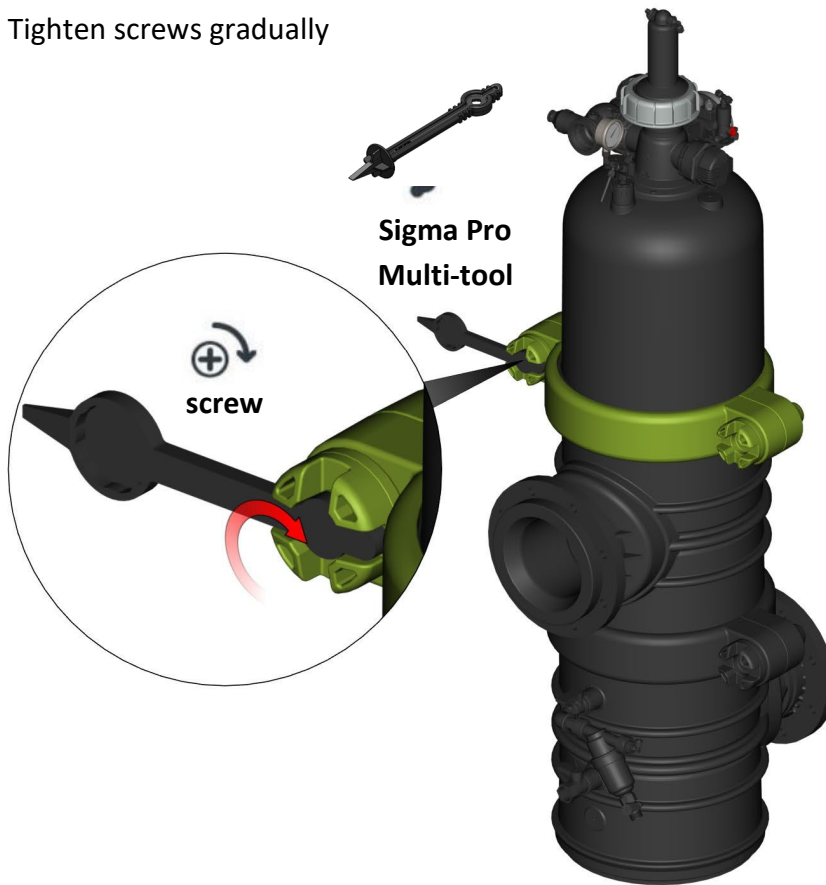
- Lift the bridge up and down to make sure all turbines connect to the bridge and the scanners move freely



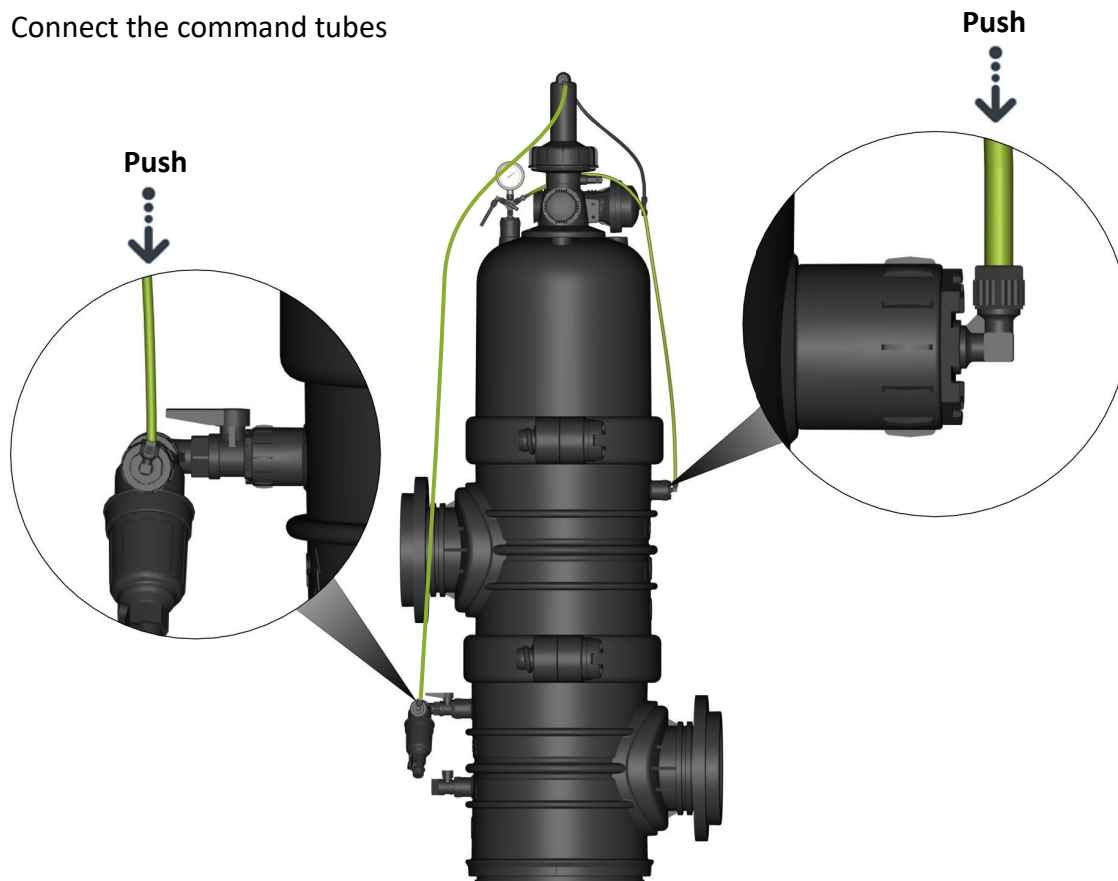
- Re-install the filter cover:  
**Paying attention** to not damage the seal during the cover installation



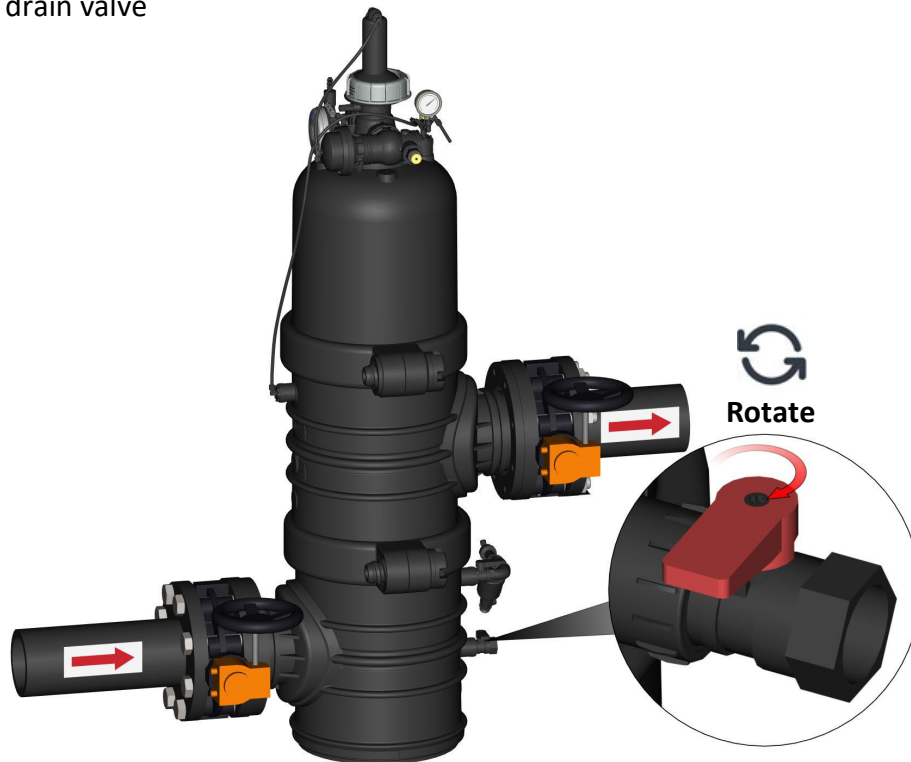
9. Re-install the upper clamp:  
- Tighten screws gradually



10. Connect the command tubes

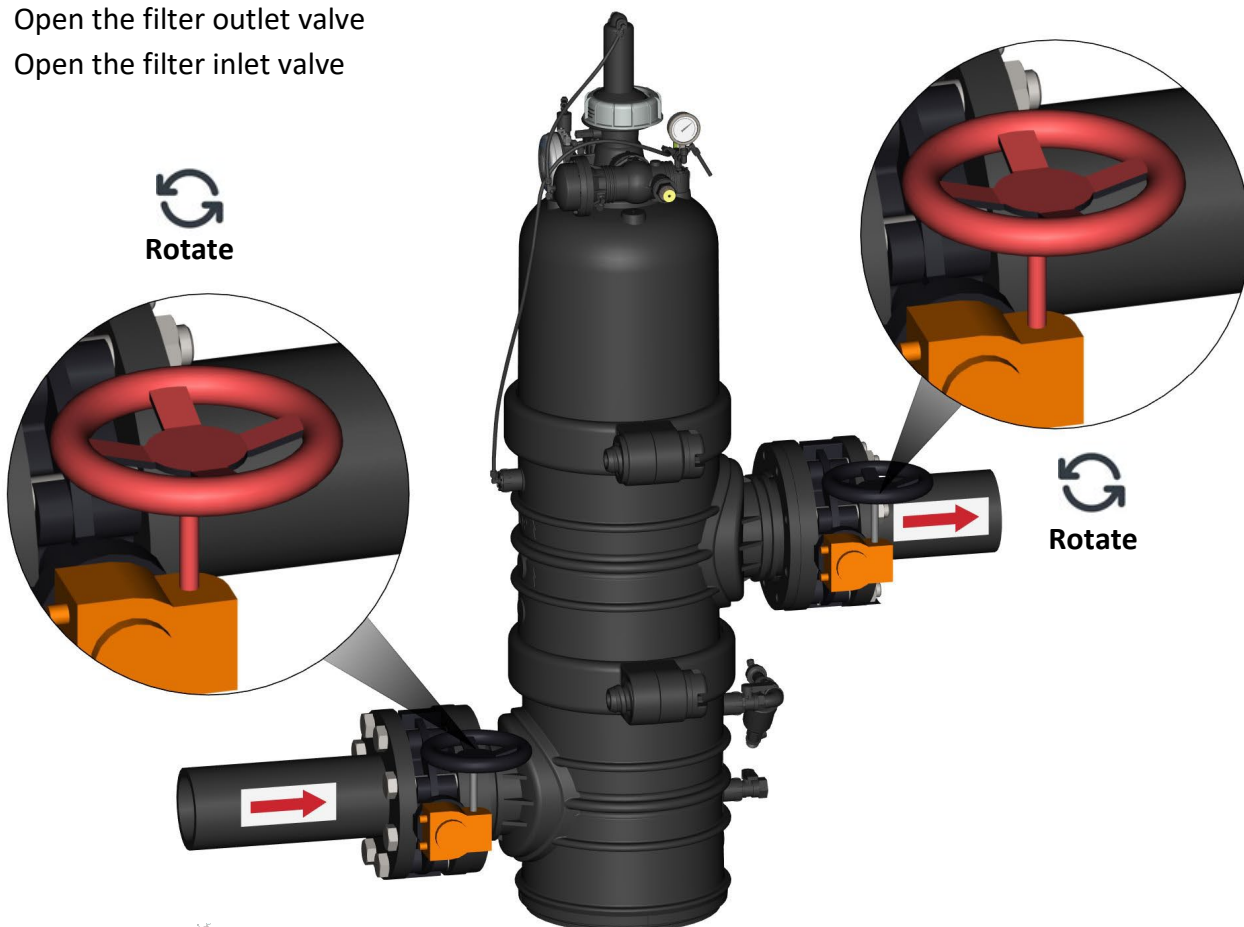


11. Close the manual drain valve



12. Open the filter outlet valve

13. Open the filter inlet valve

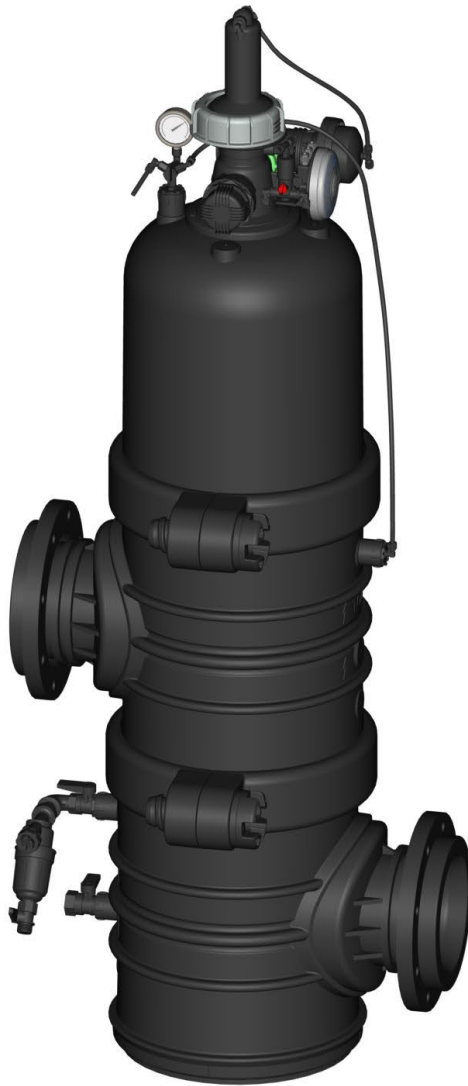


**ways open and close the valves slowly and gradually!**



14. Operate the Sigma filter

- See "Initial Operation" (on page 11)

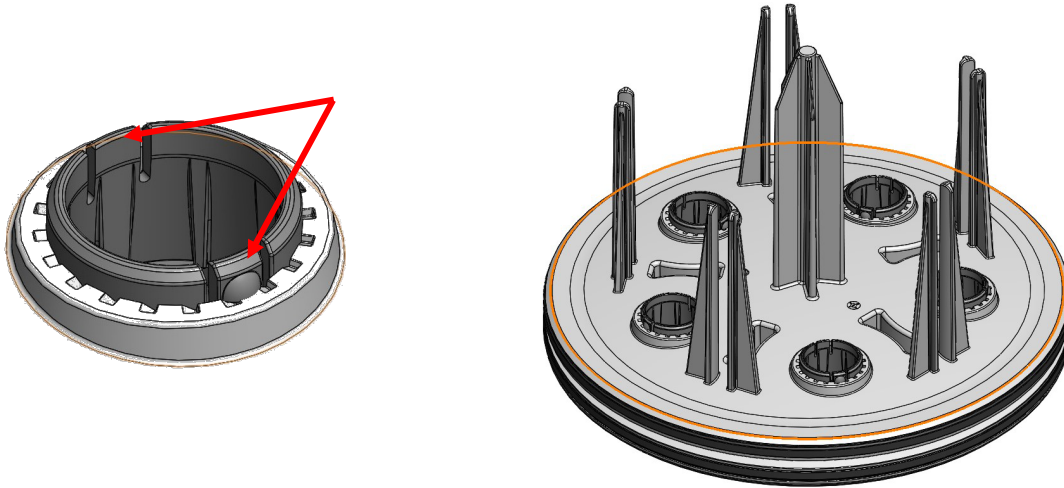


## Bushing Replacement

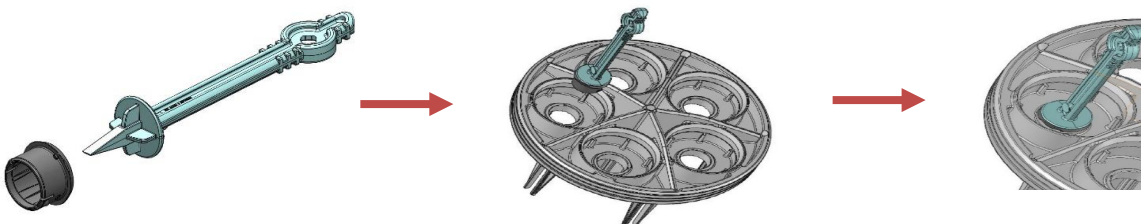
Following extensive use, the bushings may be worn out and should be replaced.

Follow these steps to replace the bushing:

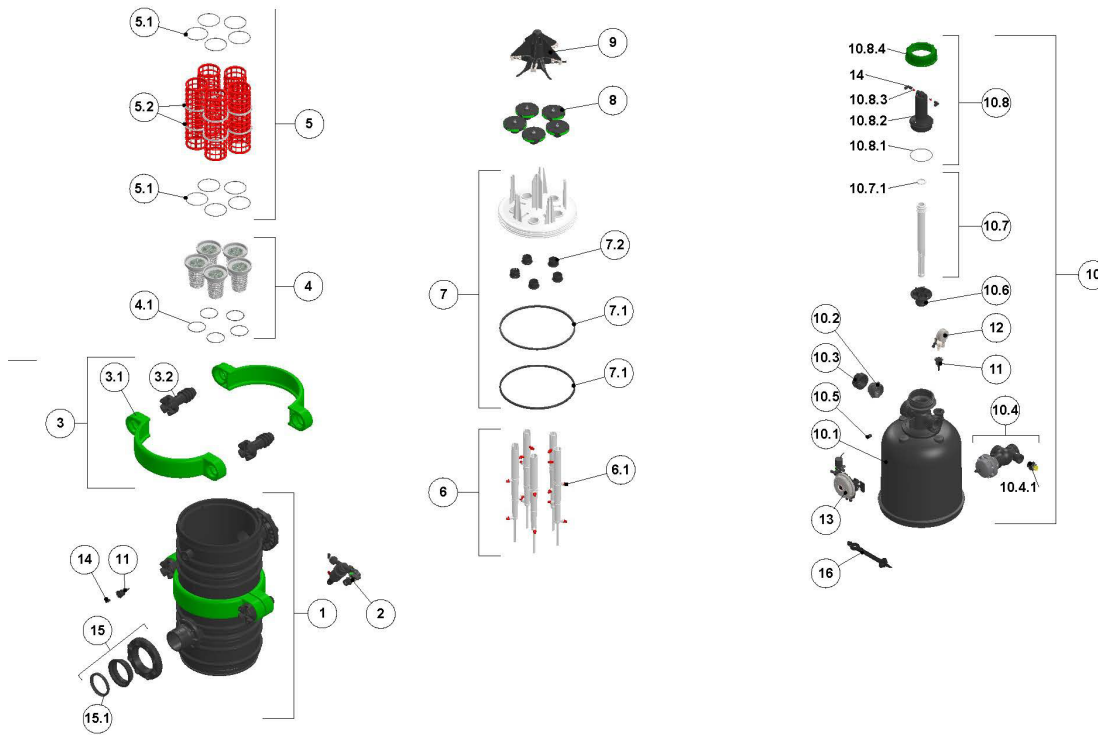
1. Disassemble the top plate, see "Basic Maintenance - Disassembly" (on page 14)
2. Press the two snap tabs, push the bushing downwards and pull to remove.



3. To assemble, attach the new bushing to the Sigma Pro multi-tool and insert into top plate. Rotate and click to lock.



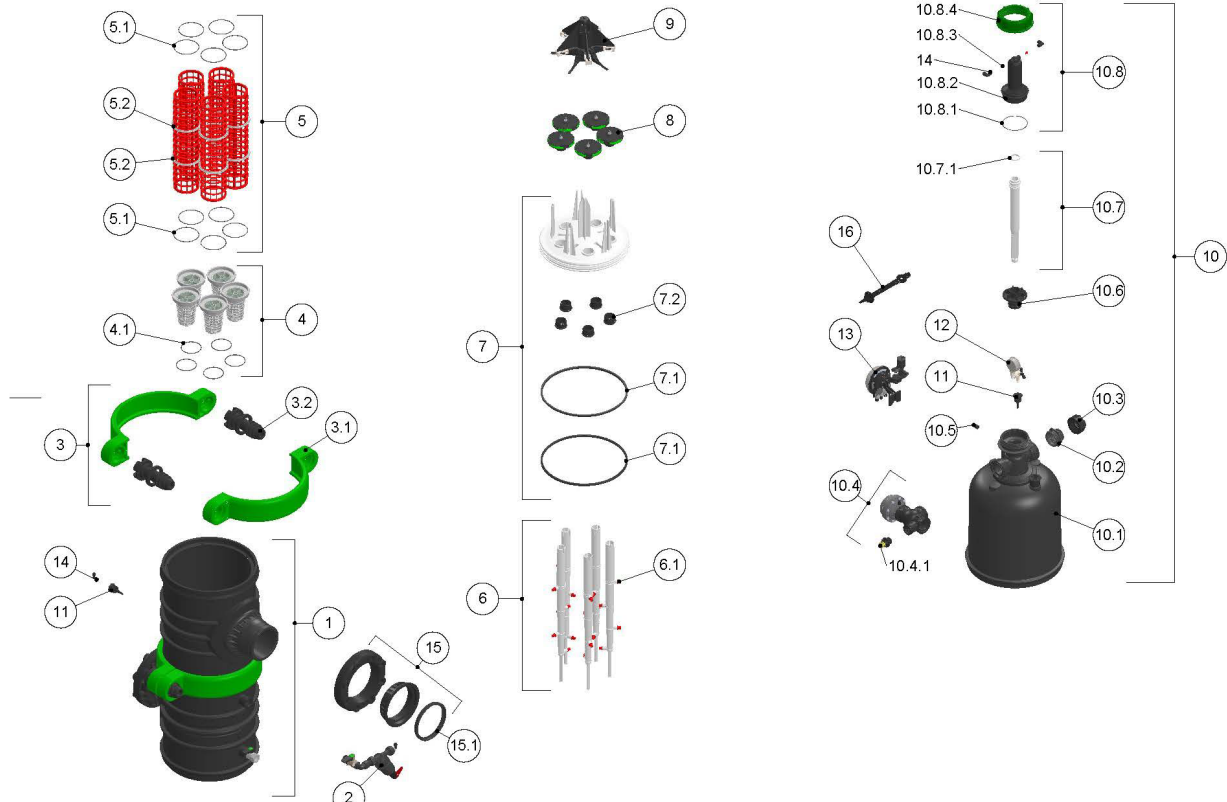
## Bill of Materials – 4" Electronic



ITEM NO.	PARTNUMBER	DESCRIPTION	QTY.
1	700190-006721	SIGMA PRO 4" BOTTOM SLEEVE ASSEMBLY	1
2	700190-004877	1" CONTROL FILTER ASSEMBLY 8MM TF F/SIGMA	1
3	700190-006737	CLAMP ASSEMBLY FOR SIGMA PRO	1
3.1	710101-001766	SIGMA PRO CLAMP RPA GREEN	2
3.2	700190-005415	SET SCREW WASHER F/CLAMP SIGMA ASSY	2
4	700190-004222	BOTTOM W/PRESCREEN ASSEMBLY F/4" SIGMA	5
4.1	770102-000034	PARKER O-RING 2-237 EPDM 70 SHORE YELLOW DOT	1
5	700101-002659	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 50MIC SIGMA PRO EPDM SEALS	5
5	700101-002658	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 80MIC SIGMA PRO EPDM SEALS	5
5	700101-002657	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 100MIC SIGMA PRO EPDM SEALS	5
5	700101-002654	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 130MIC SIGMA PRO EPDM SEALS	5
5	700101-002656	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 200MIC SIGMA PRO EPDM SEALS	5
5	700101-002660	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 300MIC SIGMA PRO EPDM SEALS	5
5	700101-002661	MOLDED WEAVEWIRE SCREEN S/ST316L 1200SQ.CM 500MIC SIGMA PRO EPDM SEALS	5
5.1	770102-000384	PARKER O-RING 2-244 EPDM 70 SHORE YELLOW DOT	2
5.2	710101-001380	SIGMA SCREEN SUPPORT RING RPP GREY	4
6	700190-005106	SCANNER 375 ASSEMBLY W/STRAIGHT NOZZLE 8MM F/SIGMA 4"	5
6.1	700190-005419	SET STRAIGHT NOZZLE 8MM PE RED F/SIGMA PRO SINGLE SCRANNER ASSY	1
7	700190-005418	UPPER PLATE ASSEMBLY F/SIGMA PRO	1
7.1	770104-000311	HYDRAULIC SEAL EPDM YELLOW DOT SIGMA	2
7.2	710101-001444	SIGMA PRO BUSHING PBT BLACK	5
8	700190-005150	TURBINE ASSEMBLY F/MINI AND PRO SIGMA	5
9	700190-005416	BRIDGE ASSEMBLY W/CLIPS F/SIGMA PRO	1

ITEM NO.	PARTNUMBER	DESCRIPTION	QTY.
10	700190-004641	FLUSHING ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.1	700190-004685	COVER W/DRAIN BODY ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.2	700190-000195	ADAPTOR ASSY NUT+SEALS	1
10.3	700190-001241	CAP ASSEMBLY 2" T BSP	1
10.4	700190-004807	POLYMERIC FLUSH VALVE ASSEMBLY 2" NC BSP STD	1
10.4.1	700190-003406	1" VACUUM BREAKER (ARKAL/SIGMA) ASSEMBLY	1
10.5	720501-000134	STRAIGHT CONNECTOR 1/4" F X 8MM BSPT RPP BLACK TEFEN	1
10.6	700190-005420	PISTON BUSHING ASSEMBLY W/O-RINGS F/SIGMA PRO	1
10.7	700190-005441	PISTON W/U-CUP SEAL F/SIGMA PRO ASSY	1
10.7.1	770105-000011	U-CUP SEAL NBR OD50MM ID40MM H7MM 70 SHORE	1
10.8	700190-005421	ASSEMBLY PISTON CYLINDER F/SIGMA PRO ASSY	1
10.8.1	770102-000027	PARKER O-RING 2-156 EPDM 70 SHORE YELLOW DOT	1
10.8.2	710101-001295	SIGMA PISTON CYLINDER PBT BLACK	1
10.8.3	710101-001308	SIGMA PISTON NOZZLE 1.2 MM PP RED	2
10.8.4	710103-010273	PISTON HOUSING EXTERNAL NUT SIGMA PRO RPA GREEN	1
11	700190-000206	1"*1/4" BUSHING+SEAL ASSY	2
12	700190-001980	PRESSURE GAUGE ASSEMBLY F/2" 8MM TEF.	1
13	700103-001749	ADI-P DC KIT PACKAGE ONE SOLENOID NO	1
14	720501-000139	L-CONNECTOR 1/4" M X 8MM BSPT ACETAL BLACK TEFEN	3
15	700190-000227	4" AKF UNIVERSAL ASSEMBLY	2
15.1	770104-000253	GASKET 4" EPDM YELLOW DOT 70 SHORE QUICK FLANGE	1
16	710101-001445	WRENCH F/SIGMA PRO RPA BLACK	1

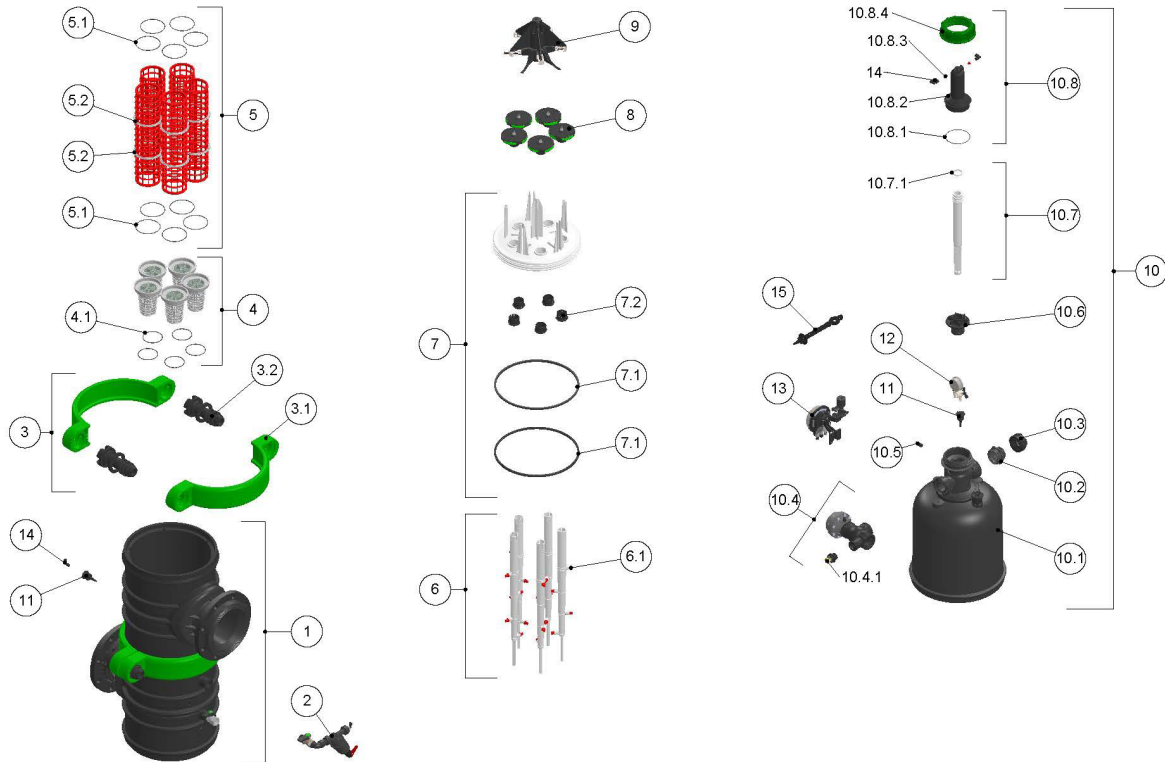
## Bill of Materials – 6" Electronic



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	700190-005116	BODY W/SLEEVE ASSEMBLY F/SIGMA 6"GRV	1
2	700190-004877	1" CONTROL FILTER ASSEMBLY 8MM TF F/SIGMA	1
3	700190-006737	CLAMP ASSEMBLY FOR SIGMA PRO	1
3.1	710101-001766	SIGMA PRO CLAMP RPA GREEN	2
3.2	700190-005415	SET SCREW WASHER F/CLAMP SIGMA ASSY	2
4	700190-004222	BOTTOM W/PRESCREEN ASSEMBLY F/4" SIGMA	5
4.1	770102-000034	PARKER O-RING 2-237 EPDM 70 SHORE YELLOW DOT	1
5	700101-002363	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 50MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001603	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 80MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001604	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 100MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001534	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 130MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001605	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 200MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001606	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 300MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001633	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 500MIC 6"-8" SIGMA EPDM SEALS	5
5.1	770102-000384	PARKER O-RING 2-244 EPDM 70 SHORE YELLOW DOT	2
5.2	710101-001380	SIGMA SCREEN SUPPORT RING RPP GREY	4
6	700190-005105	SCANNER 500 ASSEMBLY W/STRAIGHT NOZZLE 8MM F/SIGMA 6"/8"	5
6.1	700190-005419	SET STRAIGHT NOZZLE 8MM PE RED F/SIGMA PRO SINGLE SCRANNER ASSY	1
7	700190-005418	UPPER PLATE ASSEMBLY F/SIGMA PRO	1
7.1	770104-000311	HYDRAULIC SEAL EPDM YELLOW DOT SIGMA	2
7.2	710101-001444	SIGMA PRO BUSHING PBT BLACK	5
8	700190-005150	TURBINE ASSEMBLY F/MINI AND PRO SIGMA	5
9	700190-005416	BRIDGE ASSEMBLY W/CLIPS F/SIGMA PRO	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
10	700190-004641	FLUSHING ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.1	700190-004685	COVER W/DRAIN BODY ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.2	700190-000195	ADAPTOR ASSY NUT+SEALS	1
10.3	700190-001241	CAP ASSEMBLY 2" BSP	1
10.4	700190-004807	POLYMERIC FLUSH VALVE ASSEMBLY 2"NC BSP STD	1
10.4.1	700190-003406	1" VACUUM BREAKER (ARKAL/SIGMA) ASSEMBLY	1
10.5	720501-000134	STRAIGHT CONNECTOR 1/4"F X8MM BSPT RPP BLACK TEFEN	1
10.6	700190-005420	PISTON BUSHING ASSEMBLY W/O-RINGS F/SIGMA PRO	1
10.7	700190-005441	PISTON W/U-CUP SEAL F/SIGMA PRO ASSY	1
10.7.1	770105-000011	U-CUP SEAL NBR OD50MM ID40MM H7MM 70 SHORE	1
10.8	700190-005421	ASSEMBLY PISTON CYLINDER F/SIGMA PRO ASSY	1
10.8.1	770102-000027	PARKER O-RING 2-156 EPDM 70 SHORE YELLOW DOT	1
10.8.2	710101-001295	SIGMA PISTON CYLINDER PBT BLACK	1
10.8.3	710101-001308	SIGMA PISTON NOZZLE 1.2 MM PP RED	2
10.8.4	710103-010273	PISTON HOUSING EXTERNAL NUT SIGMA PRO RPA GREEN	1
11	700190-000206	1"*1/4" BUSHING+SEAL ASSY	2
12	700190-001980	PRESSURE GAUGE ASSEMBLY F/2" 8MM TEF.	1
13	700103-001749	ADI-P DC KIT PACKAGE ONE SOLENOID NO	1
14	720501-000139	L-CONNECTOR 1/4"M X8MM BSPT ACETAL BLACK TEFEN	3
15	700190-000238	6" AKF UNIVERSAL ASSY	2
15.1	770104-000036	GASKET 6" EPDM YELLOW DOT 70 SHORE QUICK FLANGE	1
16	710101-001445	WRENCH F/SIGMA PRO RPA BLACK	1

## Bill of Materials – 8" Electronic

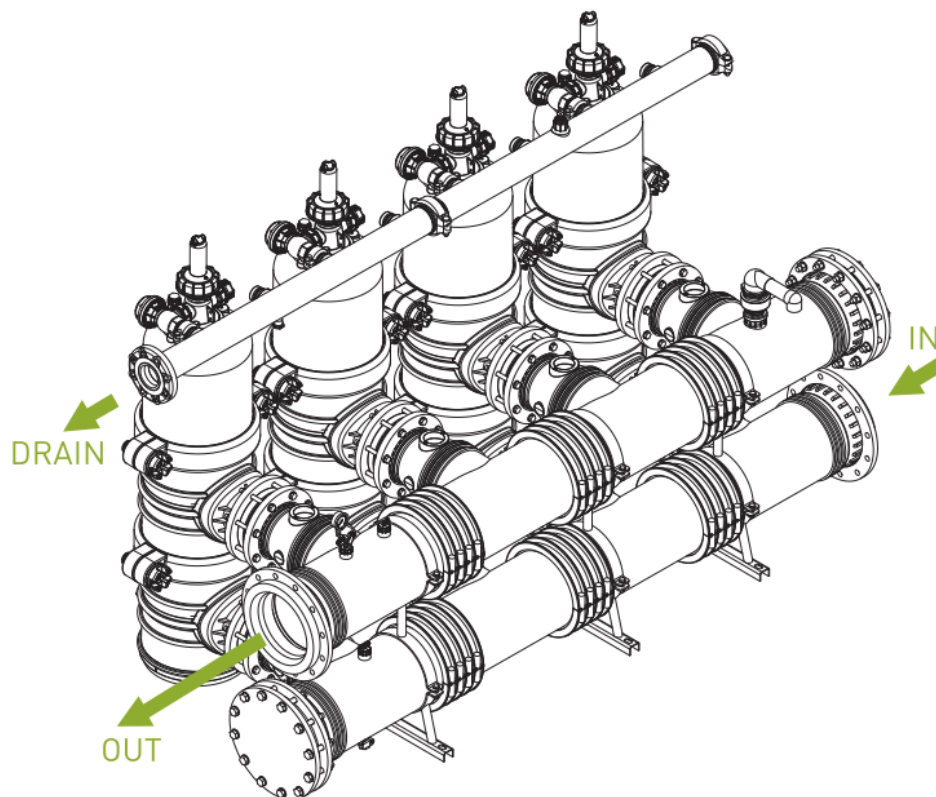


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	700190-004635	BODY W/SLEEVE ASSEMBLY F/SIGMA 8" ASA/ISO	1
1	700190-004636	BODY W/SLEEVE ASSEMBLY F/SIGMA 8"BSTD	1
2	700190-004877	1" CONTROL FILTER ASSEMBLY 8MM TF F/SIGMA	1
3	700190-006737	CLAMP ASSEMBLY FOR SIGMA PRO	1
3.1	710101-001766	SIGMA PRO CLAMP RPA GREEN	2
3.2	700190-005415	SET SCREW WASHER F/CLAMP SIGMA ASSY	2
4	700190-004222	BOTTOM W/PRESCREEN ASSEMBLY F/4" SIGMA	5
4.1	770102-000034	PARKER O-RING 2-237 EPDM 70 SHORE YELLOW DOT	1
5	700101-002363	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 50MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001603	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 80MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001604	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 100MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001534	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 130MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001605	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 200MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001606	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 300MIC 6"-8" SIGMA EPDM SEALS	5
5	700101-001633	MOLDED WEAWEWIRE SCREEN S/ST316L 1600SQ.CM 500MIC 6"-8" SIGMA EPDM SEALS	5
5.1	770102-000384	PARKER O-RING 2-244 EPDM 70 SHORE YELLOW DOT	2
5.2	710101-001380	SIGMA SCREEN SUPPORT RING RPP GREY	4
6	700190-005105	SCANNER 500 ASSEMBLY W/STRAIGHT NOZZLE 8MM F/SIGMA 6"/8"	5
6.1	700190-005419	SET STRAIGHT NOZZLE 8MM PE RED F/SIGMA PRO SINGLE SCRANNER ASSY	1
7	700190-005418	UPPER PLATE ASSEMBLY F/SIGMA PRO	1
7.1	770104-000311	HYDRAULIC SEAL EPDM YELLOW DOT SIGMA	2
7.2	710101-001444	SIGMA PRO BUSHING PBT BLACK	5

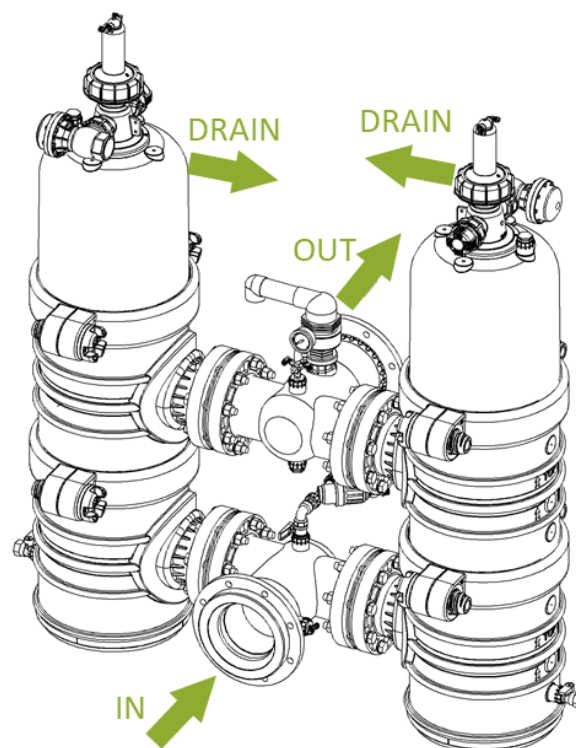
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
8	700190-005150	TURBINE ASSEMBLY F/MINI AND PRO SIGMA	5
9	700190-005416	BRIDGE ASSEMBLY W/CLIPS F/SIGMA PRO	1
10	700190-004641	FLUSHING ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.1	700190-004685	COVER W/DRAIN BODY ASSEMBLY F/SIGMA PRO 4"/6"/8"	1
10.2	700190-000195	ADAPTOR ASSY NUT+SEALS	1
10.3	700190-001241	CAP ASSEMBLY 2" T BSP	1
10.4	700190-004807	POLYMERIC FLUSH VALVE ASSEMBLY 2" NC BSP STD	1
10.4.1	700190-003406	1" VACUUM BREAKER (ARKAL/SIGMA) ASSEMBLY	1
10.5	720501-000134	STRAIGHT CONNECTOR 1/4" F X8MM BSPT RPP BLACK TEFFEN	1
10.6	700190-005420	PISTON BUSHING ASSEMBLY W/O-RINGS F/SIGMA PRO	1
10.7	700190-005441	PISTON W/U-CUP SEAL F/SIGMA PRO ASSY	1
10.7.1	770105-000011	U-CUP SEAL NBR OD50MM ID40MM H7MM 70 SHORE	1
10.8	700190-005421	ASSEMBLY PISTON CYLINDER F/SIGMA PRO ASSY	1
10.8.1	770102-000027	PARKER O-RING 2-156 EPDM 70 SHORE YELLOW DOT	1
10.8.2	710101-001295	SIGMA PISTON CYLINDER PBT BLACK	1
10.8.3	710101-001308	SIGMA PISTON NOZZLE 1.2 MM PP RED	2
10.8.4	710103-010273	PISTON HOUSING EXTERNAL NUT SIGMA PRO RPA GREEN	1
11	700190-000206	1"*1/4" BUSHING+SEAL ASSY	2
12	700190-001980	PRESSURE GAUGE ASSEMBLY F/2" 8MM TEF.	1
13	700103-001749	ADI-P DC KIT PACKAGE ONE SOLENOID NO	1
14	720501-000139	L-CONNECTOR 1/4" M X8MM BSPT ACETAL BLACK TEFFEN	3
15	710101-001445	WRENCH F/SIGMA PRO RPA BLACK	1

## Sigma Pro – Installations of Multiple Units

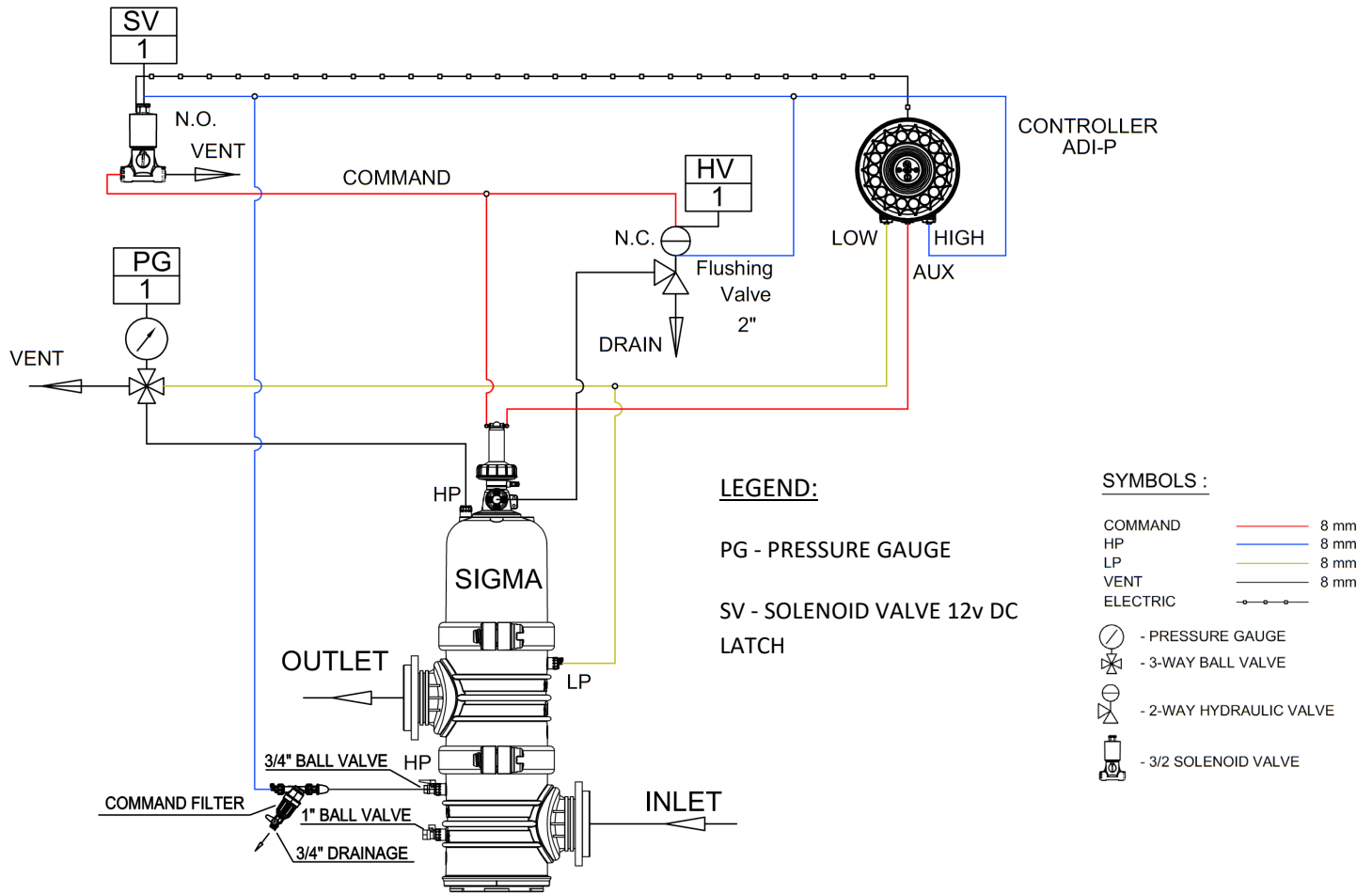
Sigma Pro 8" installation of 4 units with manifold,  
for flow rates up to 1,120 m<sup>3</sup>/h (4,932 gpm)



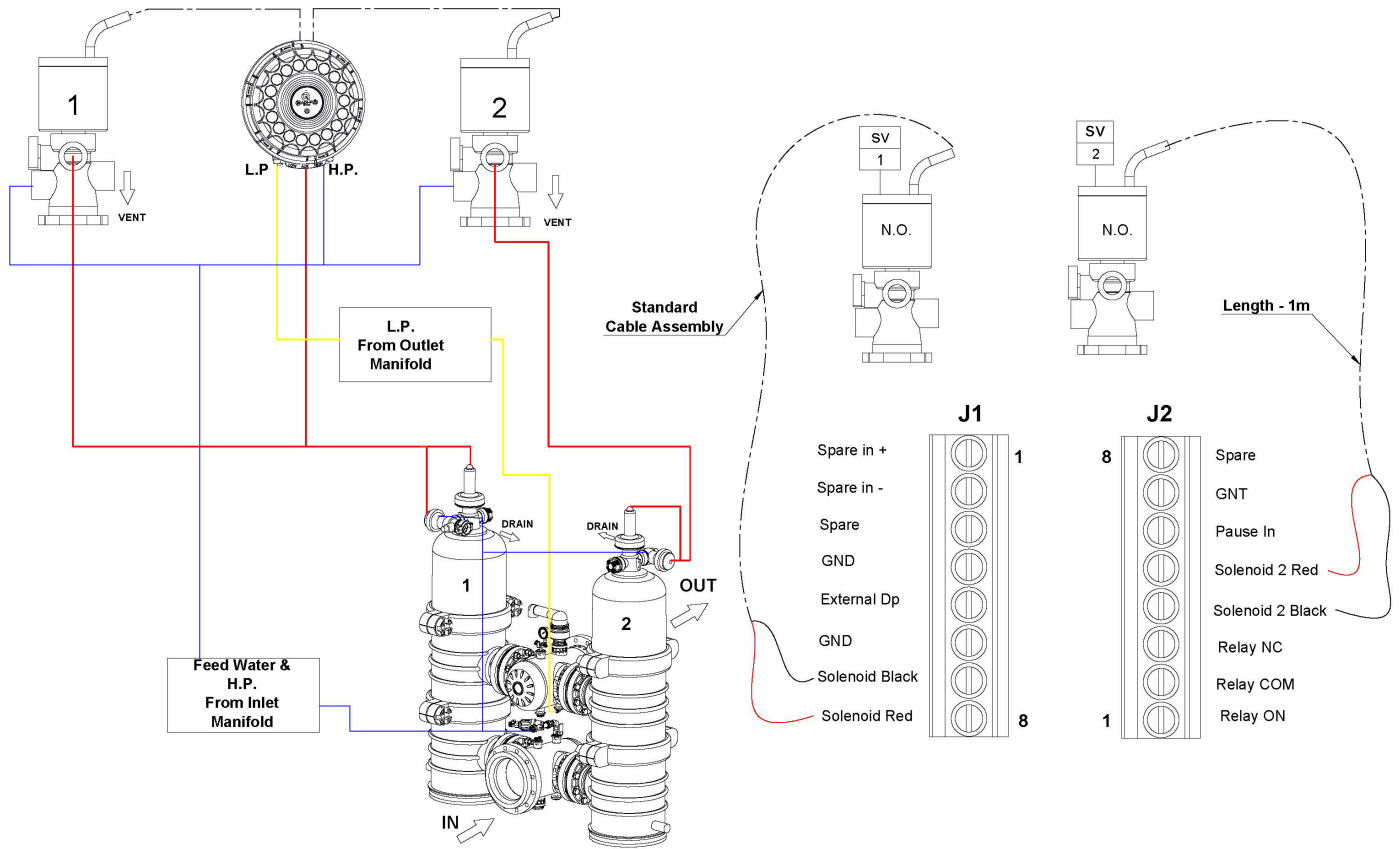
Sigma Pro 6" installation of 2 units with manifold,  
for flow rates up to 360 m<sup>3</sup>/h (1,584 gpm)



## Control Schematic - Electronic Model








## Control Schematic - Electronic Model for 2 Units

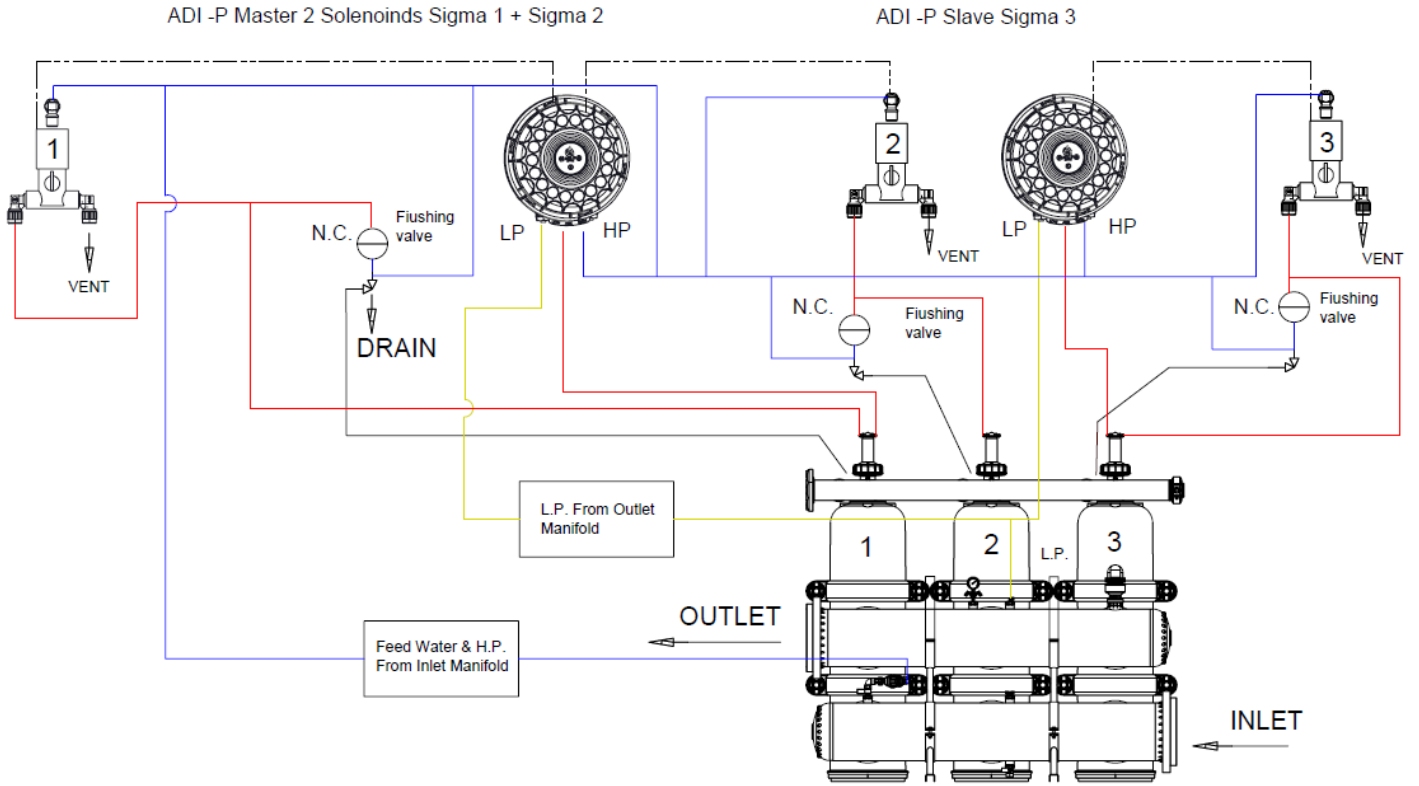




## Control Schematic - Electronic Model for 3 Units

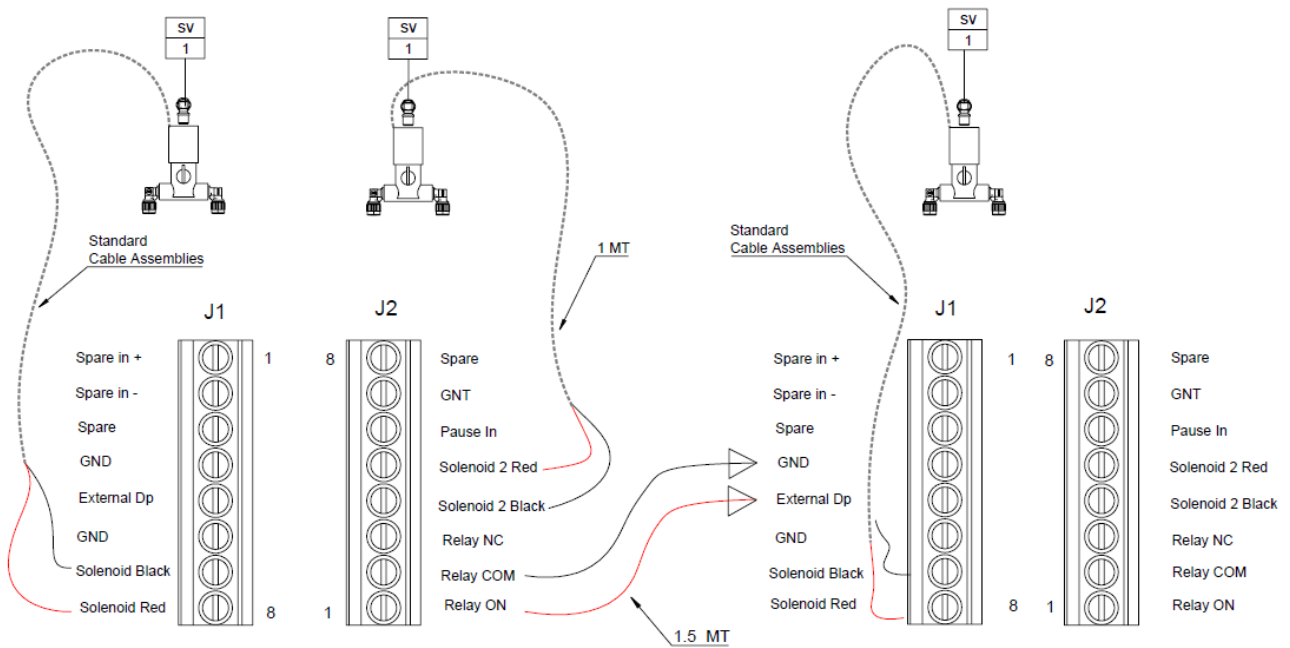
**SYMBOLS :**

COMMAND		8 mm
FEED WATER/HP		8 mm
LP		8 mm
VENT		8 mm
ELECTRIC		



Adi-p Master 2 solenoids

Adi-p slave



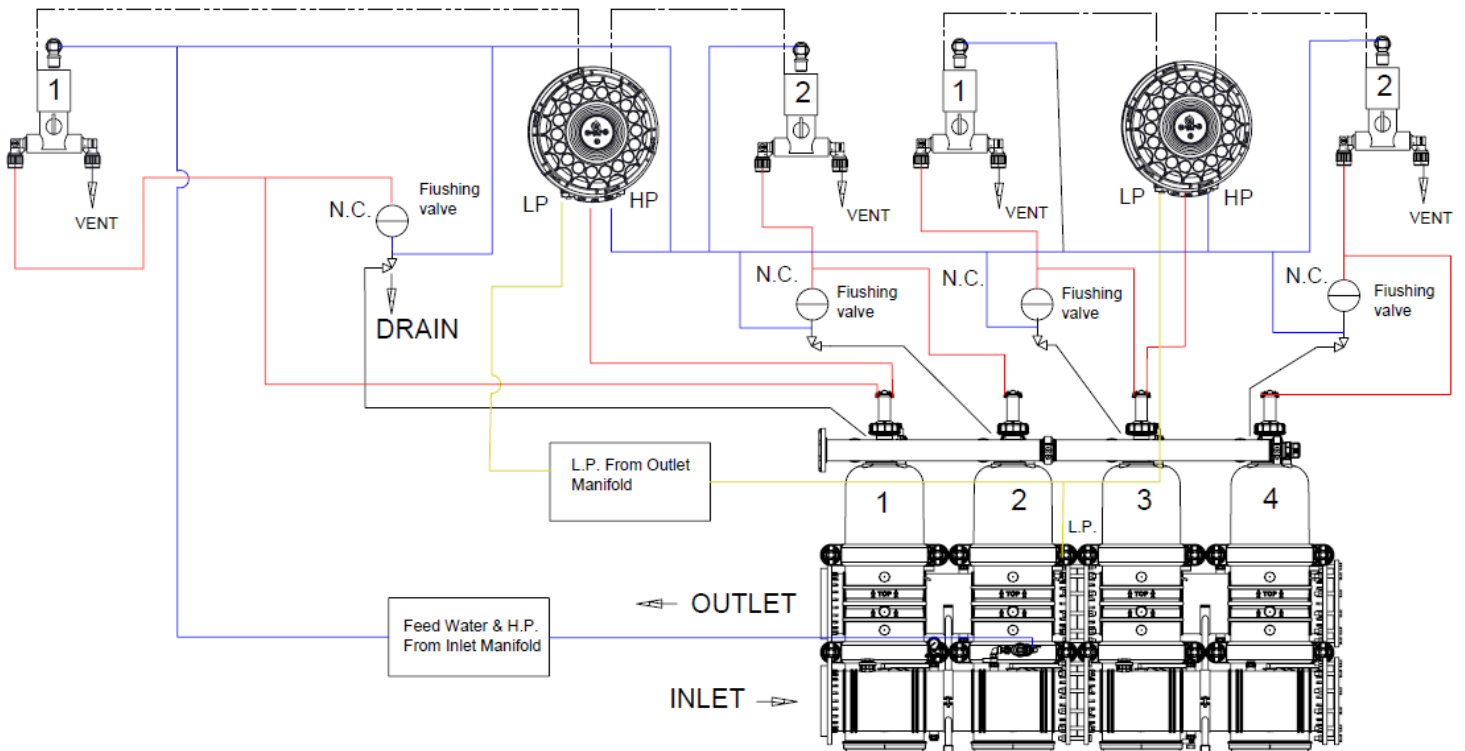
# Control Schematic - Electronic Model for 4 Units

### SYMBOLS :

COMMAND		8 mm
FEED WATER/HP		8 mm
LP		8 mm
VENT		8 mm
ELECTRIC		

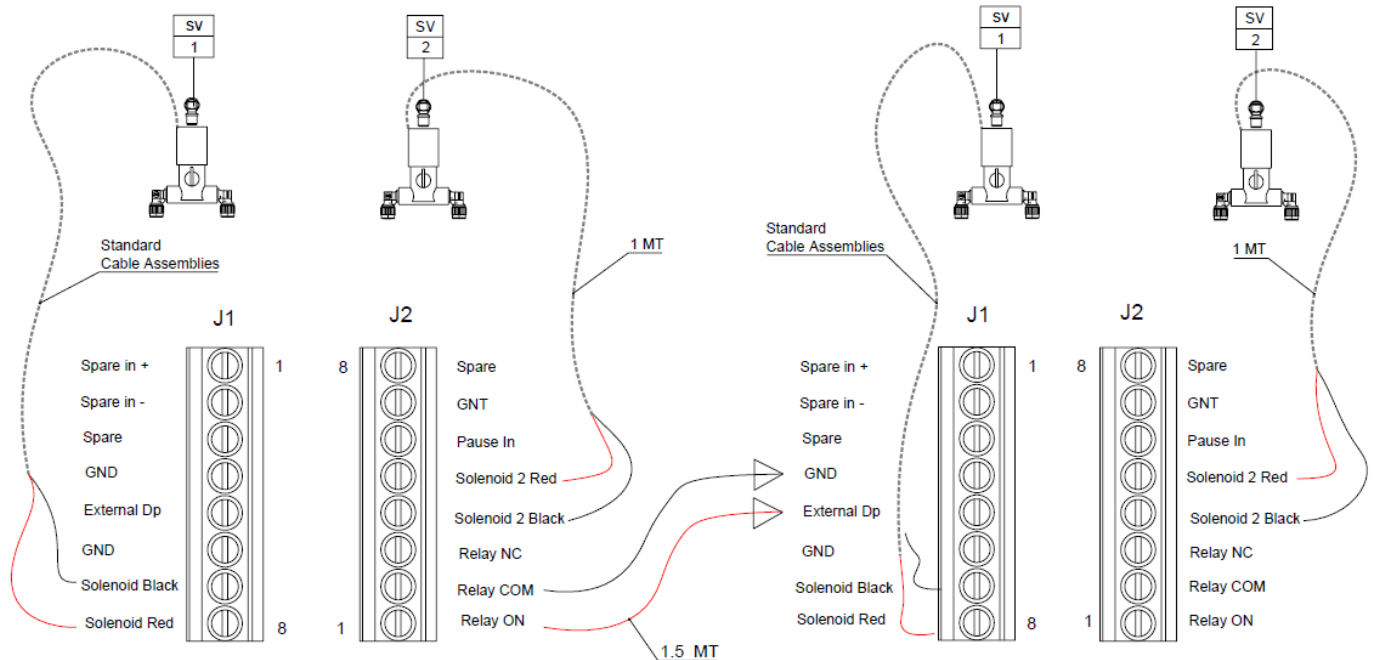
ADI -P Master 2 Solenoids Sigma 1 + Sigma 2

ADI -P Slave 2 Solenoids Sigma 3 + Sigma 4



ADI -P Master 2 Solenoids Sigma 1 + Sigma 2

ADI -P Slave 2 Solenoids Sigma 3 + Sigma 4



## Troubleshooting

No.	Symptom	Possible Causes	Required Action
1	High or elevated pressure differential between upstream and downstream	Coarse or fine screens are totally clogged	<ol style="list-style-type: none"> <li>1. Perform automatic flushing               <ol style="list-style-type: none"> <li>a. Close the downstream valve.</li> <li>b. Start a manual flush cycle using the flushing controller.</li> <li>c. Verify that the downstream pressure is equal or slightly lower than the upstream pressure.</li> <li>d. If symptom continues and the filter remains clogged, stop the operation and manually clean the fine screen.</li> </ol> </li> <li>2. Perform manual flushing               <ol style="list-style-type: none"> <li>a. Extract the coarse and fine screens. Clean manually with a high pressure wash before returning to regular operation. Please refer to filter disassembly instruction on page 21</li> <li>b. Verify that the downstream pressure is equal to or slightly lower than the upstream pressure</li> </ol> </li> </ol>
2	System flow rate seems to be lower than usual	Coarse screens are clogged	Manually clean the coarse screens: <ol style="list-style-type: none"> <li>a. Dismantle the coarse screens. Please refer to filter disassembly instruction on page 21</li> <li>b. Return to regular operation and check the filter's performance</li> </ol>
3	Frequent/excessive flush cycles	Water quality has changed	Check the source water quality for poor quality conditions (e.g. flood, heavy rain, works upstream of intake, new dam)
		Controller flush duration set-point too low (electronic control)	Check the "Flush Duration"- set-point 10 seconds
4	The filter doesn't flush automatically (electronic controller)	Controller batteries are dead, or power supply is isolated	Check battery status by ADI-P mobile app. Replace the controller's batteries if needed
		The solenoid is set in manual position	Switch the solenoid to "Auto" position
		No pressure on the main command tube line	Rinse and clean the command line filter (if it exists), otherwise check the finger filter for blockage and clean as required
		The controller is in "Fault" mode	Please see ADI-P controller manual "DP Fault" parameter is set to an appropriate value (AMC Controller)
5	The flush valve remains open	Air in the valve's command line or control tube is disconnected	<ol style="list-style-type: none"> <li>1. Bleed air from the control tubing</li> <li>2. Reconnect control tube</li> <li>3. Replace control tube if damaged</li> <li>4. Electronic controller – check the solenoid, bleed the command line, and verify that the controller is not in "Flushing" mode</li> </ol>
		The solenoid manual override is activated	Switch the solenoid to "Auto" position
		Controller programmed for a very long flush duration (electronic controller)	Check the "Flush Duration"- set-point 10 seconds
		Blocked flush port	Remove any blockage from the flush port

## Amiad Limited Warranty

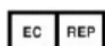
1. This certificate applies to Amiad Water Systems Ltd. ("**Amiad**") products purchased by you (the "**Buyer**") from Amiad unless specifically agreed otherwise in writing by Amiad. This Warranty extends only to the original purchaser, and is not transferable to anyone who subsequently purchases, leases, or otherwise obtains the product from the original purchaser.
2. Amiad hereby warrants that the products are and will be free from defects in material and workmanship under normal use and service. Amiad warrants that it will correct manufacturing defects in the products, in accordance with the conditions set out in this Warranty.
3. This Warranty is enforceable for a period of 12 months after the date upon which the products were delivered (the "**Warranty Period**").
4. In the event that during the Warranty Period the Buyer discovers a defect in material and/or workmanship in any product or part (the "**Defective Product**"), it shall submit a written complaint to Amiad using Amiad's standard Buyer Complaint Form. For the receipt of the Buyer Complaint Form, the submission of the complaint or any questions please contact your service representative.
5. Upon written demand by Amiad the Buyer shall return the Defective Product - or a sample thereof - to Amiad, at Amiad's cost. If the Buyer ships any such Defective Product, Amiad suggests the Buyer package it securely and insure it for value, as Amiad assumes no liability for any loss or damage occurring during shipment. Provided however that in the event Amiad determines that this Warranty does not apply to such product, Buyer shall promptly reimburse Amiad for such cost (including freight and customs). Any returned product or part must be accompanied by the Warranty certificate and the purchase invoice. It is clarified that the Buyer may not return the Defective Product unless such return was coordinated and approved by Amiad in advance.
6. Amiad's obligation under this Warranty shall be limited to, at Amiad's option, the repair or exchange, free of charge, of the product or any part which may prove defective under normal use and service during the Warranty Period. The provision of a repair or replacement of a product during the Warranty Period will result in an extension of the Warranty Period by an additional period of 12 months, provided that the total accumulated Warranty Period shall in any event be no more than 18 months from the date upon which the products were delivered.
7. This Warranty is valid on the condition that the products are installed according to Amiad's instructions as expressed in Amiad's instruction manuals and according to the technical limitations as stipulated in Amiad's literature or as stated by a representative of Amiad.
8. This Warranty will not apply to damaged or defective products resulting from or related to:
  - (i) Fire, flood, power surges or failures or any other catastrophe and/or unforeseen occurrence, such as but not limited to those for which the Buyer is customarily insured for, or any force majeure events;
  - (ii) Fault, abuse or negligence of the Buyer;
  - (iii) Intake water not meeting the agreed standards, as set forth in a written document, approved by Amiad, or improper storage;
  - (iv) Improper or unauthorized use of the product or related parts by the Buyer, including Buyer's failure to operate the product in conformity with the recommendations and instructions of Amiad, as set forth in Amiad's manuals and other written materials, the operation of the product other than by a trained and qualified operator, or improper installation of the product by a third party not authorized by Amiad;
  - (v) Performance by the Buyer of maintenance or operation other than in conformity with the recommendations and instructions of Amiad, or other than in accordance with procedures defined in the literature supplied for products (including the timely replacement of requisite parts), and for services provided other than by a trained and qualified advanced operator; or
  - (vi) Any alteration, modification, foreign attachment to or repair of the products, other than by Amiad or its authorized technical representatives.
9. In no event shall Amiad be liable to the Buyer or any third party for any damages to property, or for any intangible or economic loss, including loss of profits, loss of customers or damage to reputation, for any damages, including indirect, special, consequential damages, or punitive damage arising out of or in connection with this Warranty, or arising out of or in connection with the product's performance or failure to perform, even if it has been advised of the possibility of such damages.
10. Amiad will be excused for failure to perform or for delay in performance hereunder if such failure or delay is due to causes beyond its reasonable control or force majeure preventing or hindering performance.
11. This Warranty set forth herein is the only contractual warranty given by Amiad and is provided in lieu of any other warranties created by any documentation, packaging or otherwise.
12. Amiad makes no warranty whatsoever in respect to accessories or parts not supplied by Amiad. In the event that Amiad is required to correct a Defective Product or product not covered by this Warranty, it will do so solely in consideration for additional fees.
13. The parties will actively endeavor to amicably settle any dispute arising between them. In the event that the parties are unable to reach an equitable settlement of such dispute, any claim or lawsuit related to the Warranty, its validity execution, its performance be brought before only the courts of Tel-Aviv, Israel. Israeli law will govern the Warranty, to the exclusion of any conflict of law rules.



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