AMIAD Water Systems Ltd.

SAF-6000 FILTER

Serial number:	_____
Order number:	_____
Catalog number:	_____
Filtration degree:	_____
Tested by:	_____

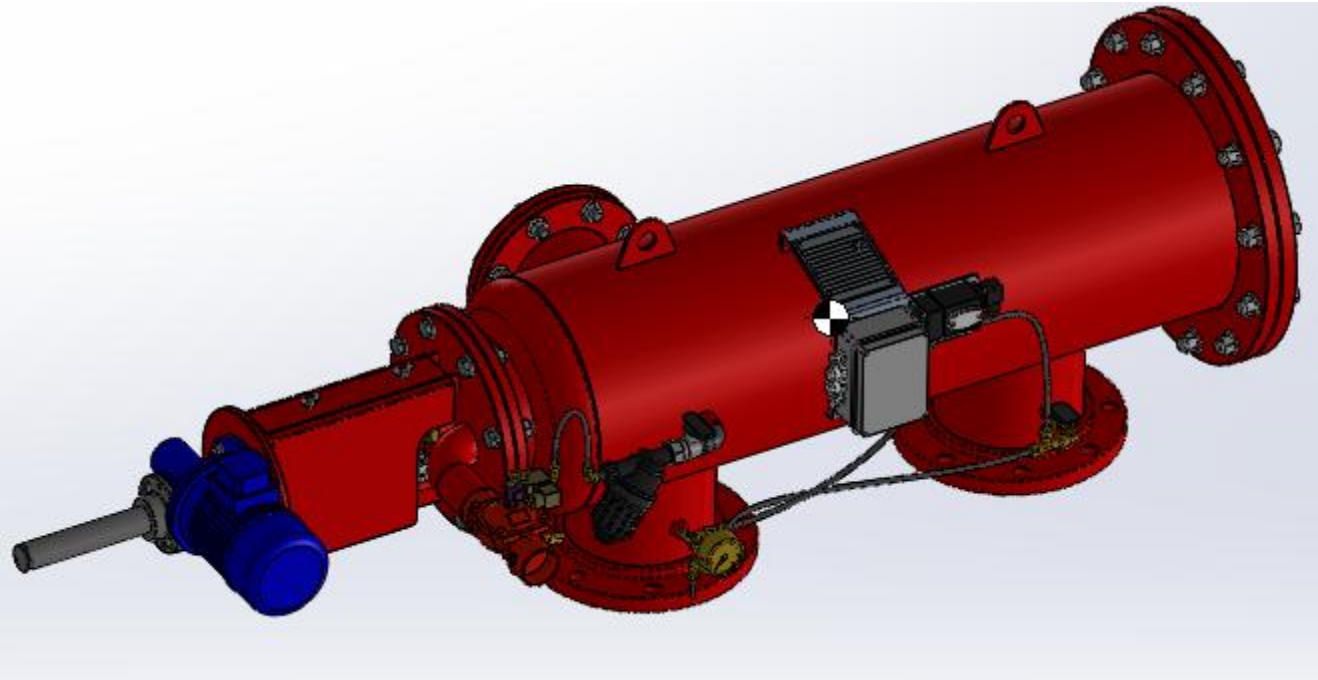
Installation, Operation and Maintenance Instructions

CE

Ref: 910101-000107 / 02-2019
Original Instructions

AMIAD Water Systems Ltd.

SAF-6000 FILTER - User Manual



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With any inquiry please quote Filter Serial Number, located on the filter housing.

Technical Specifications

General

Maximum flow rate	150-300 m^3/h		Consult manufacturer for optimum flow according to filtration degree and water quality
Min. working pressure	2.0 bar	30 psi	
Max. working pressure	10 bar	150 psi	
Filter area	6000 cm^2	930 in^2	
Inlet/Outlet diameter	150-200 mm	6"-10"	
Filter housing diameter	350 mm	14"	
Max. working temp.	60°C	140°F	
Weight	315 Kg	695 lb.	

Flushing data

Exhaust valve	50 mm	2"	
Flushing cycle time	40 seconds	40 seconds	
Flushing water per cycle	280 liter	74 gallon	at 2 bar (30 psi)
Minimum flow for flushing	25 m^3/h	110 USgpm	at 2 bar (30 psi)

Control and electricity

Control voltage	24V AC / 24V DC
Electric motor	1/3 HP 50 / 60 Hz, 35 / 42 Gear output R.P.M.
Rated operation voltage	3 phase 220 / 380 / 440 V, 50 / 60 Hz
Current consumption	0.8 Amp. (with 3 phase 380 / 440 V)

Construction materials

Filter housing and lid	Coated Carbon Steel 37-2
Screens	Stainless Steel 316
Cleaning mechanism	Stainless Steel 316, POM
Exhaust valve	Ductile Iron
Seals	NBR
Control system	Nylon, Brass , Aluminum

Standard filtration degrees

			Stainless Steel Weave Wire Screen								
micron	500	300	200	130	100	80	50	40	30	20	10
mm	0.5	0.3	0.2	0.13	0.1	0.08	0.05	0.04	0.03	0.02	0.01

Safety Instructions

General Safety Instructions

- Amiad filtration products always 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.
- Prior to installation, operation, maintenance or any other type of action carried out on the filter, read carefully the safety, installation and operation instructions.
- During installation, operation or maintenance of the filter all conventional safety instructions should be observed in order to avoid danger to the workers, the public or to property in the vicinity.
- Please note: The filter enters into a flushing mode automatically, without prior warning.
- No change or modification to the equipment is permitted without a written notification given in advance by the manufacturer or by its representative, on the manufacturer's behalf.
- Always observe standard safety instructions and good engineering practices whilst working in the filter's vicinity.
- Use the filter only for its intended use as designed by Amiad, any misuse of the filter may lead to undesired damage and may affect your warranty coverage. Please consult with Amiad prior to any non-regular use of this equipment.

Installation

General

- Install the filter according to the detailed Installation Instructions provided with the filter by the manufacturer and according to the description given in this manual.
- Make sure to leave enough clearance so as 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.
- The user should arrange suitable platforms, ladders and safety barriers to enable easy and safe access to the filter without climbing on pipes and other equipment. The user should verify that any platform, barrier, ladder or other such equipment is built, installed and used in accordance with the relevant local authorized standards.
- Check and re-tighten all bolts during commissioning and after the first week of operation.
- Use only appropriate standard tools and equipment operated by qualified operators when installing, operating and maintaining the filter.
- When installation is required in hazardous environment sites, underground or high above ground, make sure that the site design and the auxiliary equipment are appropriate and that installation procedures are carried out in accordance with the relevant standards and regulations.
- Ensure walking areas about the installation are slip free when wet.

Shipment 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.

Electricity

- Electric wiring should be performed by an authorized electrician only, using standardized and approved components.
- Install a **lockable** main power cut-off switch close to the control panel.
- If due to site constraints, the control panel is installed without a clear line-of sight of the filter, an additional **lockable** power disconnect cut-off switch should be installed near each filter unit.
- Installation of the filter should be performed so as to avoid direct water splashing on the electrical components or on the control panel.

Pneumatics

- Install a **lockable** main cut-off switch, **featured with a pressure release mechanism,** on the compressed air supply line close to the control panel.
- If the control panel is installed far away and there is no eye contact with the filter, a **lockable** compressed air cut-off switch, **featured with a pressure release mechanism,** should be installed near each filter unit.
- The user should make sure that the compressed air supplied to the filter never exceeds the maximum designated pressure for this filter. An air-pressure reduction valve should be installed on the compressed air supply line upstream of the filter's pneumatic inlet port.

Hydraulics

- Extra safety devices should be installed on hot water applications to avoid skin burn danger.
- The user should install a manual Water Cut-off Valve next to the filter's inlet port.
- In cases where the downstream piping network downstream of the filter is pressurized an additional manual Water Cut-off Valve should be installed next to the filter 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 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, if needed a Pressure Reduction Valve should be installed upstream of the filter's water inlet port.
- Please note that the maximum working pressure indicated at the filter's specifications table includes the pressure caused by fluid hammer and pressure surge effects.

Civil Engineering

- Make sure that the filter installation is done by Amiad qualified technicians.
- Make sure that any civil engineering work at the installation site such as construction, lifting, welding, etc. is done by qualified workers / technicians / contractors and in accordance with the relevant local standards.
- While using lifting equipment, make sure that the filter or the lifted part is chained securely and in a safe manner.
- Do not leave lifted equipment if there is no necessity. Avoid working below lifted equipment.
- Wear a safety helmet while using lifting equipment.
- Make sure that the flooring is sloped for drainage and to avoid accumulation of liquids.

Commissioning

- Read carefully the Commissioning and the First Start-up Operation instructions 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 Startup and First Operation procedures exactly as described in this manual.
- Commissioning the filter should be done by an authorized Amiad technician, do not attempt to commission the filter unaccompanied since this may lead to undesired damage and may affect your warranty coverage.

Operation and Control

- Do not operate the filter before reading carefully and being familiar with its operation instructions.
- Observe the safety stickers on the filter and never perform any operation contradicting the instructions given.
- Never operate or use the filter for purposes other than its original design and operational envelope.

Maintenance

Before any maintenance or non-regular operation please read the following:

- Servicing the filter should be done only by technicians authorized by Amiad.
- Disconnect the filter from the power supply and lock the Main Power Switch.
- Disconnect the compressed air supply, release the residual pressure and lock the Pneumatics Main Valve.
- 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 also.
- Release the residual water pressure by opening the Pressure Release / Drainage Valve.
- Empty the filter by opening the Drainage Valve.
- In hot water systems wait till the filter components cool off to a safe temperature.
- Place warning signs around the work area as required by the local standards and procedures.
- Inspect the filter's safety stickers and replace any damaged or faded sticker.

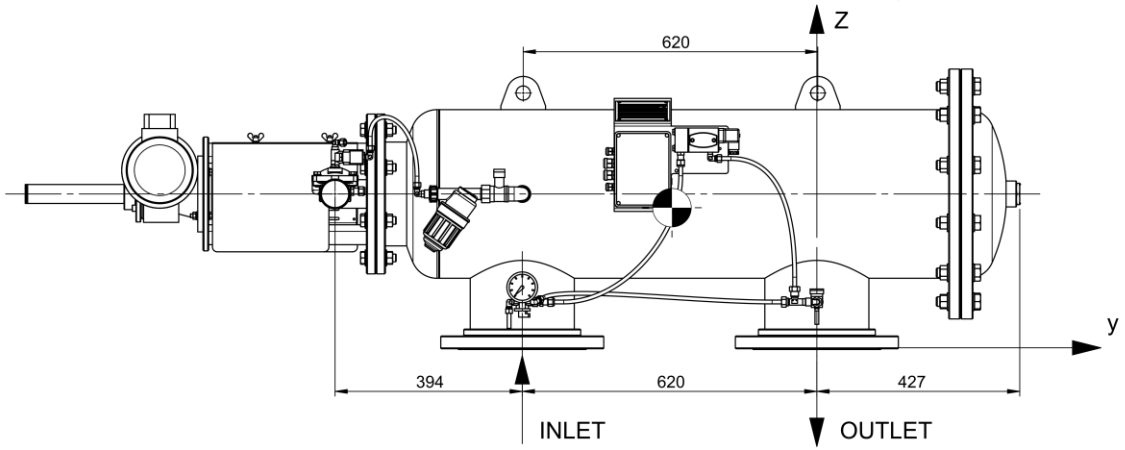
Mechanical

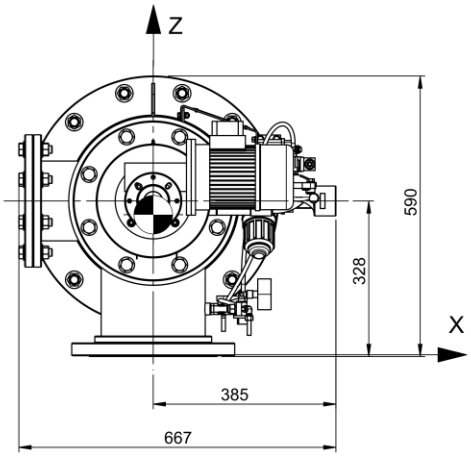
- When working on the filter use only appropriate standard tools.
- Always open and close valves slowly and gradually.
- Remove grease and fat material residues in order to avoid slipping.
- Before disconnecting the filter from the water supply, electricity and pneumatics and before releasing the filter's residual pressure do NOT:
    - loosen or unscrew bolts
    - remove any protection cover
    - open any service port flange
- Avoid splashing and water leakage so as to minimize slippage, electrification or damage to the equipment, caused by moisture.
- While using lifting equipment, make sure that the filter or the lifted part is chained securely and in a safe manner.
- Do not leave lifted equipment if there is no necessity. Avoid working below lifted equipment.
- Wear a safety helmet, goggles, gloves, and any other personal safety equipment required by the local standards and regulations.
- Human entry into a filter must be done in accordance with the relevant local safety instructions, standards and regulations for working in hazardous environment.
- Manual cleaning of filter media using high water pressure or steam should be performed in accordance with the cleaning system instructions, the local standards and regulations and without endangering the operator or the vicinity
- 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 and without endangering the operator or his vicinity.

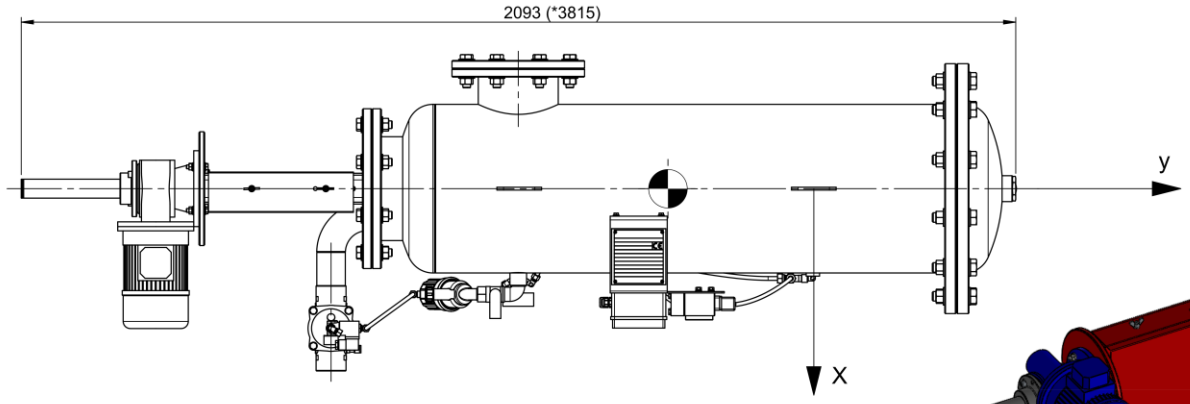
Before returning to regular operation

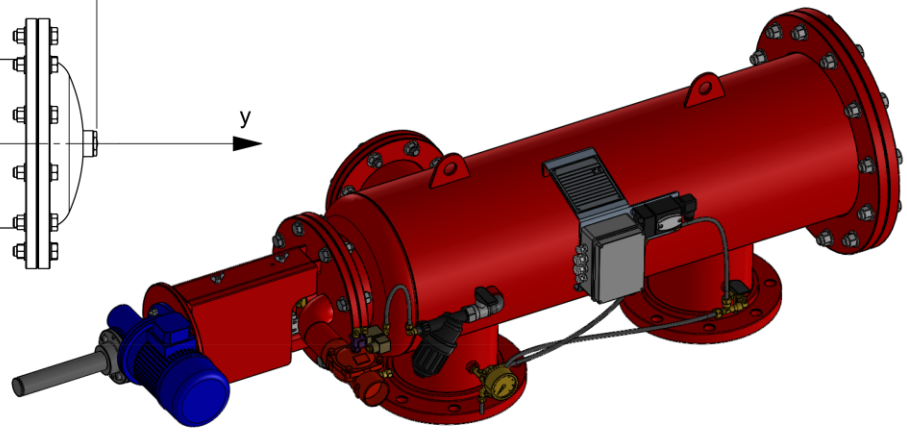
- Re-assemble any protection covers or protection mechanisms removed during service or maintenance operations.
- Make sure that all the tools, ladders, lifting devices, etc. used during the maintenance procedures are taken away from the filter area and stored
- In order to return the filter to regular operation, follow the First Start-up Operation instructions as detailed in your user manual.
- For filters used in potable water systems it is required to disinfect the filter according to the local water authority standards and regulations before putting it back to service.

Dimensional Drawing









POUNDS	KG
662.2	301
CENTER OF GRAVITY	
AXIS	INCH	MM
X	0	0
Y	-12.01	-305.1
Z	11.7	297.3

* APPROX. LENGTH REQUIRED FOR MAINTENANCE

	NAME	DATE
DRAWN	ITAIZ	09/04/2014
CHECKED		
APPROVED		

SUBJECT/PROJECT: SAF-6000 C/St Filter Scanner

PART NAME/TITLE: SAF-6000 C/St Filter Scanner

MATERIAL:

CAT. NO: 041018-XXXXXX

DRW. NO: 041018-XXXXXX

Rev. 0

SCALE: 1:10 | SIZE: A3 | SHEET 1 OF 4

amiad WATER SYSTEMS | ARKAL | FILTOMAT | AMIAD

REV.	DATE	DESCRIPTION	NAME

Description of Filter Operation

Filtering process:

The SAF-6000 is a sophisticated yet easy-to-operate automatic filter, with a self-cleaning mechanism driven by an electric motor. The SAF-6000 is designed to work with various types of screens in filtration degrees from 10 to 500 micron, and is available in 6", 8" and 10" inlet/outlet diameter.

The water enters through the inlet pipe into the coarse screen from outside in, and through the fine screen from inside out. The "filtration cake" accumulates on the fine screen surface and creates head loss to develop.

The coarse screen is designed to protect the cleaning mechanism from large dirt particles. Usually, it does not accumulate large quantities of suspended solids and is not cleaned automatically.

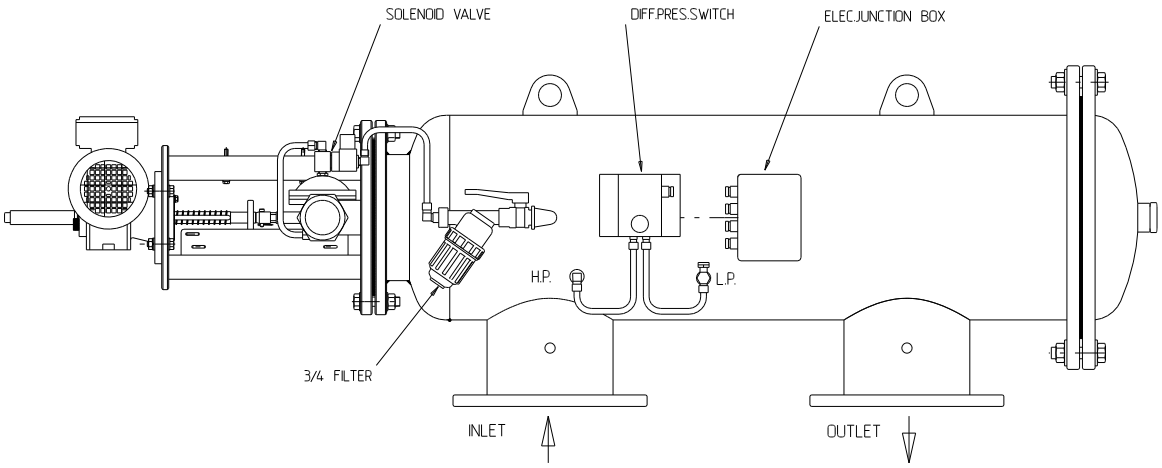
Self-cleaning process:

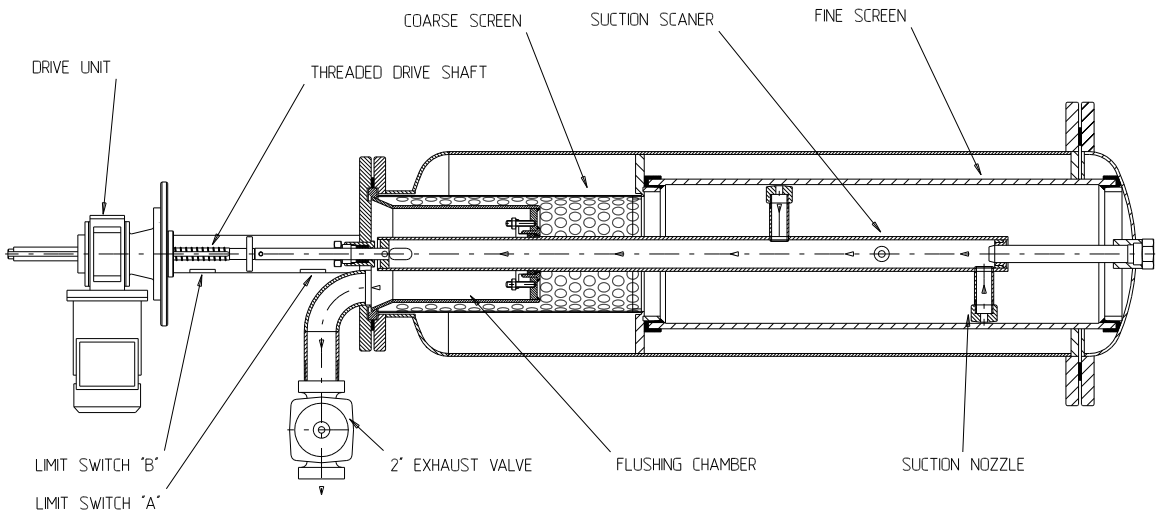
The SAF-6000 initiates the self-cleaning process when either the pressure differential across the screen reaches a pre-set value or the flush timer reaches its preset timed interval.

The fine screen filter element is cleaned by the suction scanner, which rotates in a spiral movement while removing the filtration cake from the screen, and expels it out through the exhaust valve.

A 2-way (fwd/rev) drive unit that is attached to the scanner by a threaded shaft rotates the scanner and provides the linear movement.

The exhaust valve is activated for the duration of the cleaning cycle by a 3-way solenoid. During the 20 seconds self-cleaning process, filtered water continues to flow downstream.





System Operation modes:

The filtration system may be found in one of the following modes:

1. Filtering mode: This is the normal operating status. The flush mode is idle and the power light on the control board is lit.
2. Flush mode: The motor and exhaust valve activate according to the previously described self-cleaning process.
3. Continuous flushing mode: It is possible to activate the self-cleaning mechanism continuously by setting the SW1 switch in the control board to "CONT." position.
4. Malfunction mode: If the filter malfunctions, the self-cleaning operation stops, the malfunction light on the control board is turned on and a 24V AC external output is activated.

The filtration system enters a malfunction mode under any of the following conditions:

1st. A continuous signal from the pressure differential switch longer than the PD fault time-out (default value=15 minutes) indicates that the filter is unable to clean itself.

2nd. The motor Over Load protector was activated, either manually or due to actual over load.

3rd. Limit Switch malfunction - (usually, simultaneous activation of both limit switches).

Initiation of self-cleaning:

The filter initiates the self-cleaning process under any one of the following conditions:

1. PD flush - The Pressure Differential Switch (PDS) closes a free potential contact signal when the pressure differential across the screen reaches the pre-set value (usually 0.5 bar =7 psi). The control board registers the signal and activates the flushing cycle.
2. Test flush - Manually pressing the "TEST" push button on the control board door activates a single flushing cycle.
3. Timed flush - SW1 must be in the DP/Time position. The T1 timer in the control panel activates the flushing cycles at time intervals, regardless of the pressure differential. The timer resets after every flushing cycle. The PD flush mode is active in this mode as well.
4. Continuous flush - SW1 must be in cont position. In this mode the filter flush continuously. This mode is for use in extraordinary circumstances and for a limited time. Please consult with the manufacturer regarding the uses of this mode.

Control system:

Two types of control boards are available: PLC Type and Relay Type. See Appendix A or B for details.

Installation

Design recommendations:

1. Often, flow increases and pressure drop dramatically during fill-up of a water system. In this case, a pressure-sustaining valve installed downstream of the filter will ensure the minimum required pressure for the filter and a controlled filling-up of the line.
2. If constant water flow is required even during maintenance, it is recommended that a manual or automatic by-pass be installed. Isolating valves will be used to isolate each filter unit.
3. In applications where the water quality periodically worsens, it is possible to operate an emergency flush program. In order to do so, an automatic Down Stream valve must be installed. For details, please consult the manufacturer.

Installation instructions:

1. Install the filter horizontally in a manner that will allow convenient access and enough space to dismantle the filter for maintenance purposes.
2. Check the direction of flow according to the arrows marked on the filter housing.
3. It is recommended to install a mechanical non-return valve downstream of the filter.
4. The exhaust line (minimum 2" diameter) should be designed so that it creates minimal resistance to flow of 11 m3/h (50 USgpm).
5. If the system is designed to operate with working pressure higher than 6 bar (85 psi), it is recommended that a manual throttling valve be installed on the exhaust line, in order to enable regulation of the flushing flow rate.
6. The user should arrange suitable lighting at the area of the filter to enable good visibility and safe maintenance.
7. The user should arrange suitable platforms and safety barriers to enable easy access to the filter without climbing on pipes and other equipment.

IMPORTANT !!

- Prevent static back-pressure or reverse flow through the filter.
- Install a manual or a hydraulic valve downstream of the filter.

Electric wiring

1. Install the control board in a dry and protected place (It is possible to order a special control board for severe out-door installation).

   For single phase or DC power supply, please refer to the electrical drawing inside the control board.

2. **Power connection to the control board:**
   a. Connect a three-phase power source through a semi-automatic switch, or 16 Amp. fuse to the L1 L2 L3 connectors at the terminal strip in the control board.
   b. Ground the control board.
3. **Power connection to the motor** Connect the drive unit to the control panel by means of a cable of 4 x 1.5mm2 for a distance of up to 5m. For distance of up to 10m a cable of 4 x 2.5mm2 should be used.

   Use a long enough cable to allow the drive unit to be removed and placed near the filter for maintenance, without having to disconnect it from the cable. (It is recommended that this installation meets or exceeds local or national electrical codes, this is a "high" voltage connection)**.**
4. **Control wiring:** Connect the terminals between the junction box and the control panel using 6 x 1.5 mm (16 AWG) wires in flex-conduit. The numbers on the terminals in the board correspond with those in the junction box.

Start-up and first operation

1. Make sure all the electric wiring is correct, according to the enclosed drawings.
2. Turn on control power and 24VAC but leave OL protector off. Verify that the limit switches are wired correctly by manually toggling them. Monitor the appropriate inputs according to the wiring diagram accompanying the control panel. Proceed to next step only after verifying correct wiring of all limit switches in the system.
3. **CHECK ROTATION:** The suction scanner shaft should turn clockwise (CW) and move towards the filter housing until it reaches limit switch "A". If the motor rotates in the opposite direction (CCW), **turn off the electricity immediately** and change the direction of the motor rotation by changing between two phases.
4. The motor must stop when the limit switch plate reaches limit switch "A" (opening the NC circuit).
5. Operate a "dry" flushing cycle by pressing on the "TEST" push button. Check that the flushing cycle runs as described in the "Self-cleaning process" paragraph in this manual.
6. Open the inlet valve to the filter, leaving the outlet valve closed or with an open by-pass valve (This will keep the flow through the filter to a minimum), and operate a flushing cycle.
7. Check that the exhaust valve opens and all stages of the flushing cycle perform properly. Attend to leakage, if any.
8. Close the 1/4" valve at the low pressure sensing port of the pressure differential switch for 5 seconds. The PDS hand will move to the red area and the filter will start the flushing process. **Re-open** the 1/4" valve.
9. Gradually open the outlet valve and/or close the by-pass valve. Operate the filter under the designed hydraulic conditions.
10. Set the flushing interval timer (T1) for 6-8 hours.
11. Check and re-tighten all bolts after the first week of operation.

* When using Control board type "C" (Relay type) it is necessary to press the "Test" push button in order to start the motor operation for the first time.

Maintenance

General inspection

Initiate a flush cycle by closing the 1/4" valve at the low pressure sensing port of the pressure differential switch for 5 seconds. Check that the exhaust valve opens, that the scanner moves properly, and when it reaches the limit switch - verify that the exhaust valve closes.

Weekly maintenance:

1. Check that the filter operates properly, following a general inspection.
2. Clean the 3/4" filter (close the 3/4" valve and operate a flushing cycle in order to release pressure and then open the bowl).
3. Check that there is grease on the drive shaft, and drive bushing. Add grease if necessary.
4. Take care of any leakage from the scanner shaft. If necessary, tighten the sealing nut (17 on page 24) or replace the sealing nut internal O-ring (18 on page 24)

Changing the sealing nut internal O-ring:

1. Close the inlet valve to the filter and release the pressure.
2. If the Suction Scanner is in the outer position, operate a flushing cycle and bring it to the inner position.
3. Remove the Split pin (13) and pull out the connecting pin (12).
4. Operate a flushing cycle.
5. Stop the motor operation when the drive shaft reaches half way of its movement. The drive shaft is now separated from the Suction Scanner.
6. Unscrew the sealing nut (17 on page 24).
7. Remove the used internal O-ring and clean the O-ring seat.
8. Insert a new O-ring (18 on page 24)
9. Tighten the sealing nut (17 on page 24).
10. Re-connect the drive shaft to the suction scanner shaft.
11. Operate the control board and open the filter inlet valve.

Maintenance prior to long term shutdown (end of season):

The following must be done if the filter will not operate for more than a month.

1. Operate flushing cycle (If possible, with a closed downstream valve).
2. Disconnect the control board from the power.
3. Release pressure from the filter.
4. Grease the drive shaft and the drive bushing.
5. Clean the 3/4" control filter.
6. Clean the coarse screen through the service port.

Maintenance prior to renewing filter operation:

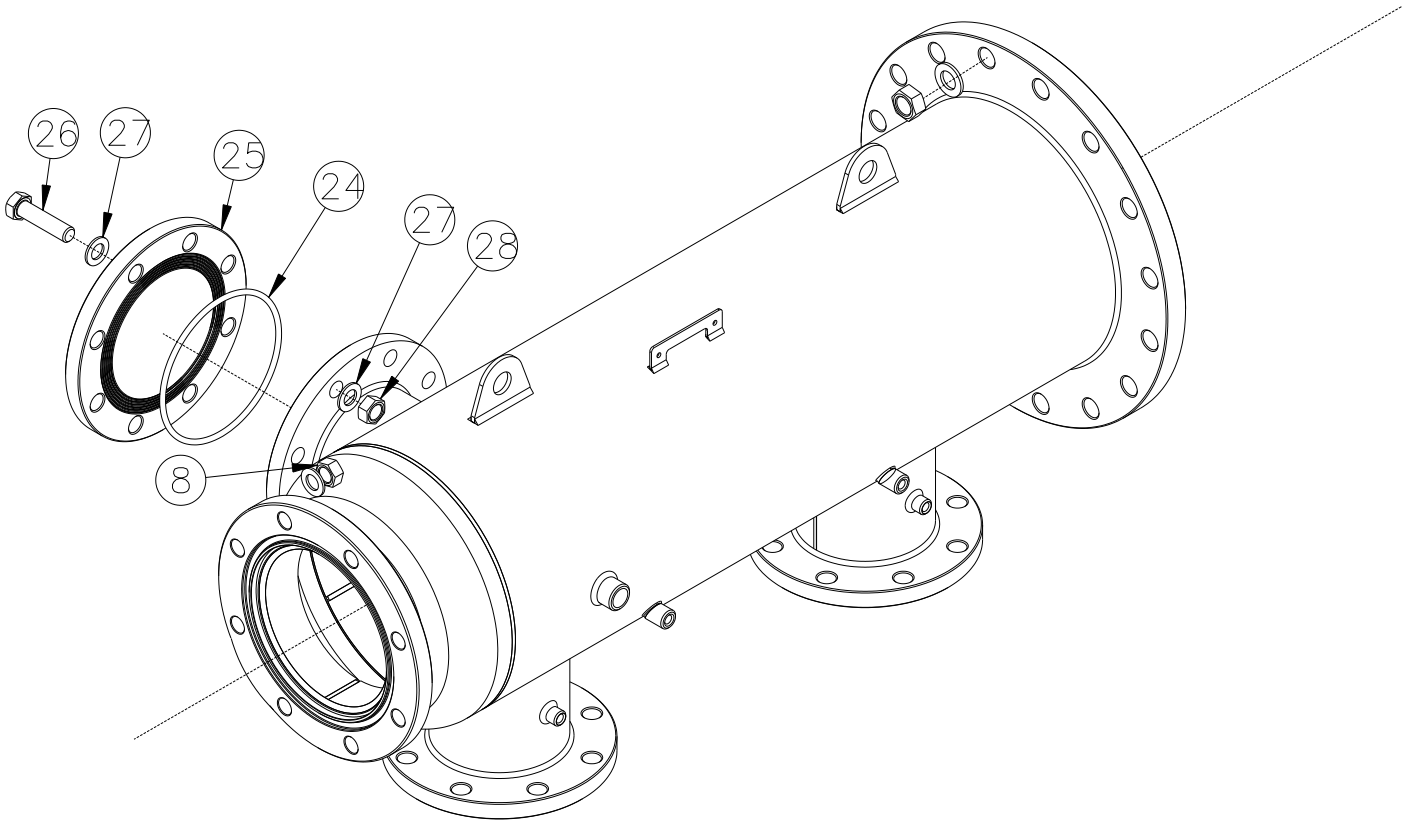
1. Connect the control board to the mains.
2. Check proper operation of the filter.
3. Grease the drive shaft and the drive bushing.
4. If necessary change the sealing nut internal O-ring.

IMPORTANT!!

THE DRIVE SHAFT MUST BE LUBRICATED WITH HEAVY-DUTY, WATER RESISTANT GREASE THAT WILL NOT OXIDIZE. (SHELL, DARINA EP-2 OR SIMILAR).

Cleaning the coarse screen: (See drawing on this page)

1. Close the filter inlet valve.
2. Release pressure from the filter by operating a flushing cycle.
3. Remove the service lid (25) by disconnecting the bolts (26) from the nuts (28)
1. Clean the coarse screen:
    a. To remove large particles, insert your hand into the coarse screen area.
    b. To remove fine particles and organic matter, rinse the screen. Afterwards, partially open the inlet valve and let water flow out.



Troubleshooting

Before beginning any troubleshooting, carefully read the safety instructions chapter of this document and make sure that all the workers at the filtration site are fully aware of and comply with these and any other local safety instructions.

The filtration system may enter a malfunction mode in the following cases:

Symptom	Remarks and Actions
Fault due to continuous signal from the pressure differential switch for duration of more than 15 minutes. The fault indication lamp is lighted in red	This fault means that the self-cleaning process is not successful. This fault may be caused by one of the following reasons: A. The filter is clogged due to heavy dirt load or too high water flow rate. Close the filter's downstream valve. Press the reset button to reset the fault mode. The fault indication lamp is turned off. Perform few consecutive manual flush cycles and monitor the PD signal. Once the filter is clean gradually open the downstream valve and monitor the PD and the flow-rate. Make sure that the filter doesn't exceed its designated flow-rate. B. The PD switch is faulty. Ask your qualified electrician to check the PD connections and operation. Replace the switch if found faulty.
The motor protector was activated The fault indication lamp is blinking in red	This fault means that the motor was operated under too high load **Note:** All the following checks and actions should be done by a qualified electrician only. A. Check the motor power consumption when not loaded. B. Check the limit switches for correct operation and verify that each one of them stop the motor at its designated point. C. Verify 3 phase 380VAC power supply to the control board and the motor. D. Disconnect the drive unit from the suction scanner shaft and verify free turning of the suction scanner. **Note:** If during this fault a request for flushing is received (Manual, Time or DP) the blinking lamp switches to constant red.
Malfunctioning limit switches The fault indication lamp is blinking in red	Faulty limit switch may not stop the motor at the right point and therefore the motor protection may be activated. Receiving signal from both limit switches at the same time causes fault A. Check that the limit switches are not mechanically stuck. B. Ask your qualified electrician to check the wiring and the functionality of the limit switched. **Note:** If during this fault a request for flushing is received (Manual, Time or DP) the blinking lamp switches to constant red.
The fault indication lamp is blinking in red after the reset button is pressed	This means that the mechanical/electrical fault still exists. (Overload or Limit Switches faults)

Dismantling and Assembling the Filter Components

Prior to opening the filter perform a flush cycle by pressing the "TEST" push button.

The Fine screen

Dismantling:

1. Close the filter inlet and outlet valves and release the pressure.
2. Press the "TEST" push button and disconnect the power when the scanner is in the middle of its track (When the limit switch disc is half-way between the two limit switches).
3. Release the lid bolts (17) from their nuts.
4. Locate the centering sleeves, remove them from their holes and remove the lid (16).
5. Remove the seal (9) from the screen (10) and pull it out of the filter housing.
6. Remove the second seal from the screen.

Assembly:

1. Put the screen seal (9) on one end of the screen (10).
2. Insert the screen (10) into the filter housing (1). Make sure the screen is correctly positioned, all the way in.
3. Put the second seal (9) on the other end of the screen.
4. Assemble the lid on the filter housing. Make sure the screen and seal are correctly positioned in the lid seating.
5. Insert the centering sleeves into two opposite holes in the lid flange.
6. Insert bolts (17) with the discs on the lid side.
7. Place the discs and the nuts on bolts (8) on the housing side. Do not tighten them yet.
8. Tighten the bolts (17) in a controlled and balanced method.
9. Open the filter inlet and outlet valves and operate the control board.
10. Check proper operation of the filter.

The suction scanner:

Dismantling:

1. Begin the dismantling procedure as per 1-6 in the chapter "dismantling the fine screen".
2. Partially release the tightening nut (17 on page 24).
3. Pull out the drive shaft connecting pin (12) by first removing the split pin (13).
4. Pull the suction scanner (11) in a spiral movement out of the filter housing.

Assembly:

1. Insert the suction scanner (11) into the screen (10). Make sure that the scanner shaft (2 on page 25) passes through the tightening nut (17 on page 24).
2. Insert the suction shaft (2 on page 25) into the drive shaft (6 on page 24). Make sure the holes in the above shafts are parallel.
3. Insert the connecting pin (12) to the parallel hole of the suction shaft (2 on page 25) and the drive shaft (6 on page 24) and lock it with the split pin (13).
4. Put the screen seal (9) on the end of the screen.
5. Continue to assemble the parts as per 1-10 in the chapter "Assembling the fine screen".

The drive shaft housing and coarse screen:

Dismantling:

1. Close the inlet and outlet valves of the filter and release pressure.
2. Disconnect power supply from the control board.
3. Remove the cover (34) from the drive shaft housing (5) by unscrewing the wing nuts. Pull out the plug from the solenoid coil, remove the limit switch sling (9 on page 24) from the drive shaft housing by unscrewing the bolts (14 on page 24).
4. Carefully put the limit switch sling near the filter to avoid any damage to the electrical wires.
5. Disconnect the pilot tube from the solenoid valve and connector.
6. Disconnect the drainpipe from the exhaust valve.
7. Remove the drive unit (28) from the drive shaft housing (5) by unscrewing the nuts from the bolts (29). By doing so, the drive shaft key (27) will be pulled out.
8. Pull out the connecting pin (12) by first removing the split pin (13).
9. Turn the drive shaft (6 on page 24) using a suitable spanner in order to release it from the scanner shaft (2 on page 25).
10. Partially release the tightening nut (17 on page 24).
11. Dismantle the drive shaft housing (5) from the filter housing (1) by unscrewing the bolts (6).
12. Pull out the flushing chamber (3) and the coarse screen (2).

Assembly:

1. Insert the coarse screen (2) into its place in the filter housing.
2. Apply some grease on the O-ring and insert the flushing chamber into its place. Make sure the scanner pipe enters into its bearing.
3. Install the drive shaft housing (5) into the filter housing (1) with the bolts (6) and tighten them.
4. Connect the drive shaft (6 on page 24) to the scanner shaft by using the connecting pin (12) and split pin (13).
5. Make sure that the drive shaft key (27) is fitted properly in the gearbox. Thread the drive shaft through the drive unit and note that the drive shaft groove is adjusted in accordance with the drive shaft key.
6. Connect the drive unit (28) to the drive shaft housing (5) with the bolts (29) and tighten them.
7. Connect the pilot tube between the solenoid valve (66) and the connector.
8. Assemble the limit switch sling in its place and push in the plug of the solenoid coil.
9. Connect the drainpipe to the exhaust valve.
10. Operate the control board and make sure the filter is operating properly.
11. Open the inlet and outlet valves and recheck filter operation.

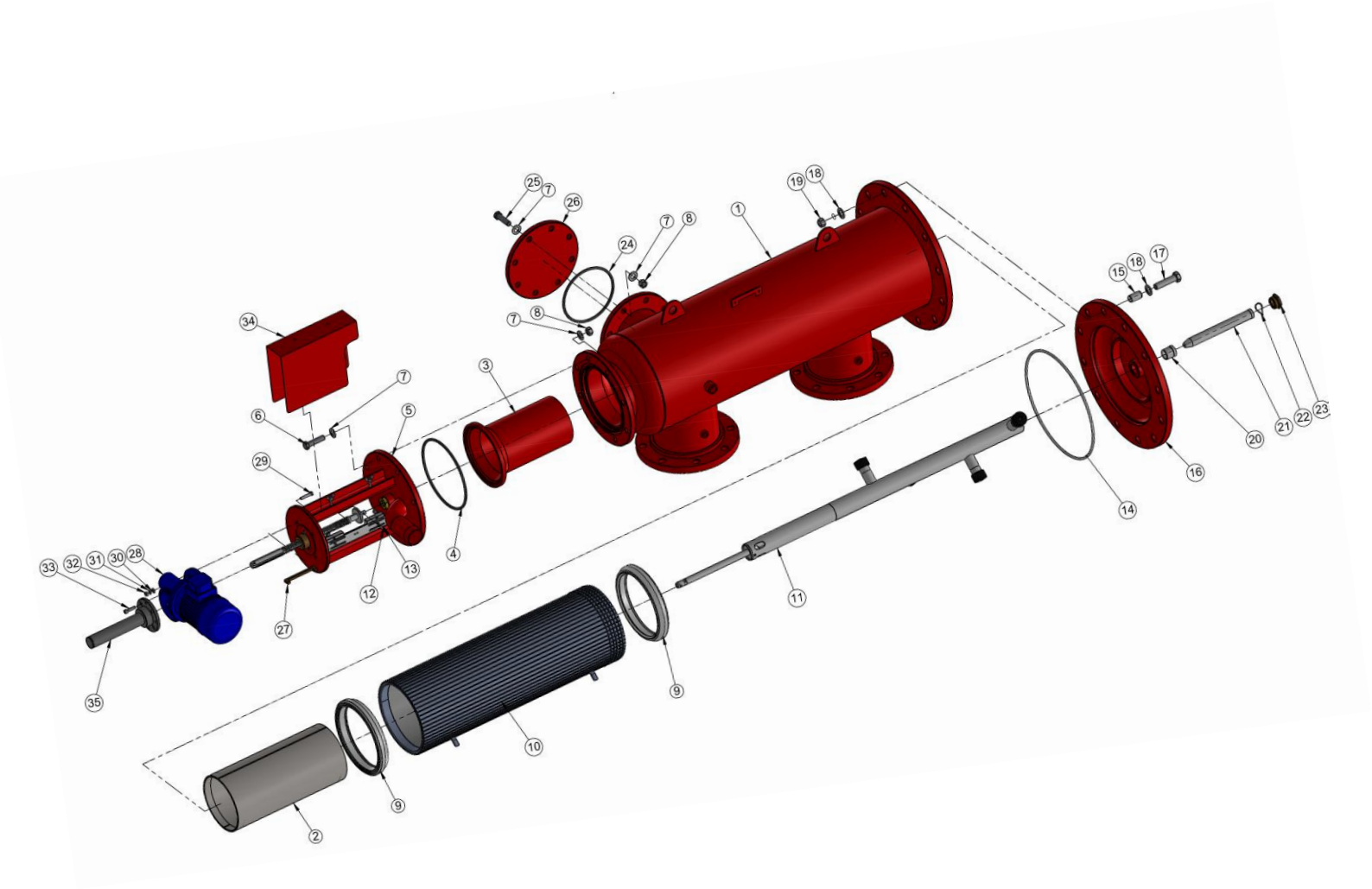
Parts Schedule – Saf-6000 Filter Section 1

No.	CAT. No.	Description	Qty	Material
1	710105-XXXXXX	SAF-6000 Housing	1	ST. 37-2
2	700101-000982	Coarse Screen (SAF-6000)	1	S/ST316L
3	700190-XXXXXX	Flushing Chamber Assembly SAF-6000	1	Various
4	770102-000174	O-Ring P2-448 SAF-6000 Drive Unit Adaptor	1	NBR
5	700190-XXXXXX	Drive Shaft Assembly SAF-6000	1	Various
6	760101-000329	HEX BOLT PARTIAL THR M16X65 Z.PLT C/ST	8	Z.Plated C/ST
7	760103-000069	Flat Washer M16 DIN125 Zinc Plated C/St	32	Z.Plated C/ST
8	760102-000067	Hex Nut M16 Zinc Plated C/St DIN934	16	Z.Plated C/ST
9	770104-000075	Hydraulic Seal AM-03 NR (SAF Screen)	2	NBR
10	700101-XXXXXX	Weavewire St316 6000sq.cm Screen XXXmic for SAF-6000	1	S/ST 316
11	700190-002473	Scanner Assembly Improved SAF-6000	1	S/ST 316
12	710103-002230	Connecting Pin (SAF-6000)	1	ST.37-2
13	760105-000038	Split Pin 2X20 DIN 94 S/ST304	1	S/ST 304
14	770102-000182	O-Ring Seal P2-459 (SAF-6000 Lid) NBR	1	NYLON
15	710103-002274	Centering Sleeve Housing-Lid (SAF)	2	S/ST 316L
16	710105-XXXXXX	SAF-6000 Lid	1	ST.37-2
17	760101-000355	Hex Bolt Partial Thrd M20x80 Z.Plated c/st DIN931	12	Z.Plated C/ST
18	760103-000070	Flat Washer M20 DIN125 Zinc Plated C/ST	24	Z.Plated C/ST
19	760102-000068	Hex Nut M20 Zinc Plated C/ST DIN934	12	Z.Plated C/ST
20	710103-002238	Upper Bearing Insert	1	Delrin
21	710103-002241	Leading Shaft SAF-6000	1	S/ST 316L
22	770102-000095	O-Ring Seal P2-128 (Sealing Insert)	1	NBR
23	710103-002234	Tightening Plug (Leading Shaft) SAF-6000	1	Brass
24	770102-000172	O-Ring Seal P2-443 (6" Service Lid)Nbr	1	NBR
25	760101-000328	Hex Bolt Partial Thread M16X60 Z.PLT C/ST	8	Z.Plated C/ST
26	740103-XXXXXX	Smooth Blind Flange 6" BSTD Coated	1	ST.37-2
27	710103-002237	Drive Shaft Key (SAF)	1	Brass
28	720201-000013	Drive Unit SAF-6000 220/440VAC 3Ph 0.25KwX1400 RMI50 1/49 71 B5	1	Various
29	760101-000308	Hex Bolt Full Thrd M8x40 Z.Plated c/st DIN933	4	Z.Plated C/ST
30	760103-000075	Flat Washer M8 DIN125 Zinc Plated C/St	8	Z.Plated C/ST
31	760103-000085	Spring Washer M8 DIN127 Zinc Plated C/St	4	Z.Plated C/ST
32	760102-000063	Hex Nut M8 Zinc Plated C/St DIN934	4	Z.Plated C/ST
33	760101-000522	Socket Head Cap Screw M8x20 S/St304 DIN912	2	S/ST 304
34	710105-XXXXXX	SAF-6000 Drive Shaft Housing Cover	1	ST.37-2
35	700190-002427	Drive Shaft Cover (PVC) SAF	1	PVC
36	900103-000020	Aluminum Amiad Nameplate, CE, EN	1	Aluminum
37	760105-000036	Rivet Blind 3x6 DIN7337 S/ST316	4	S/ST 316

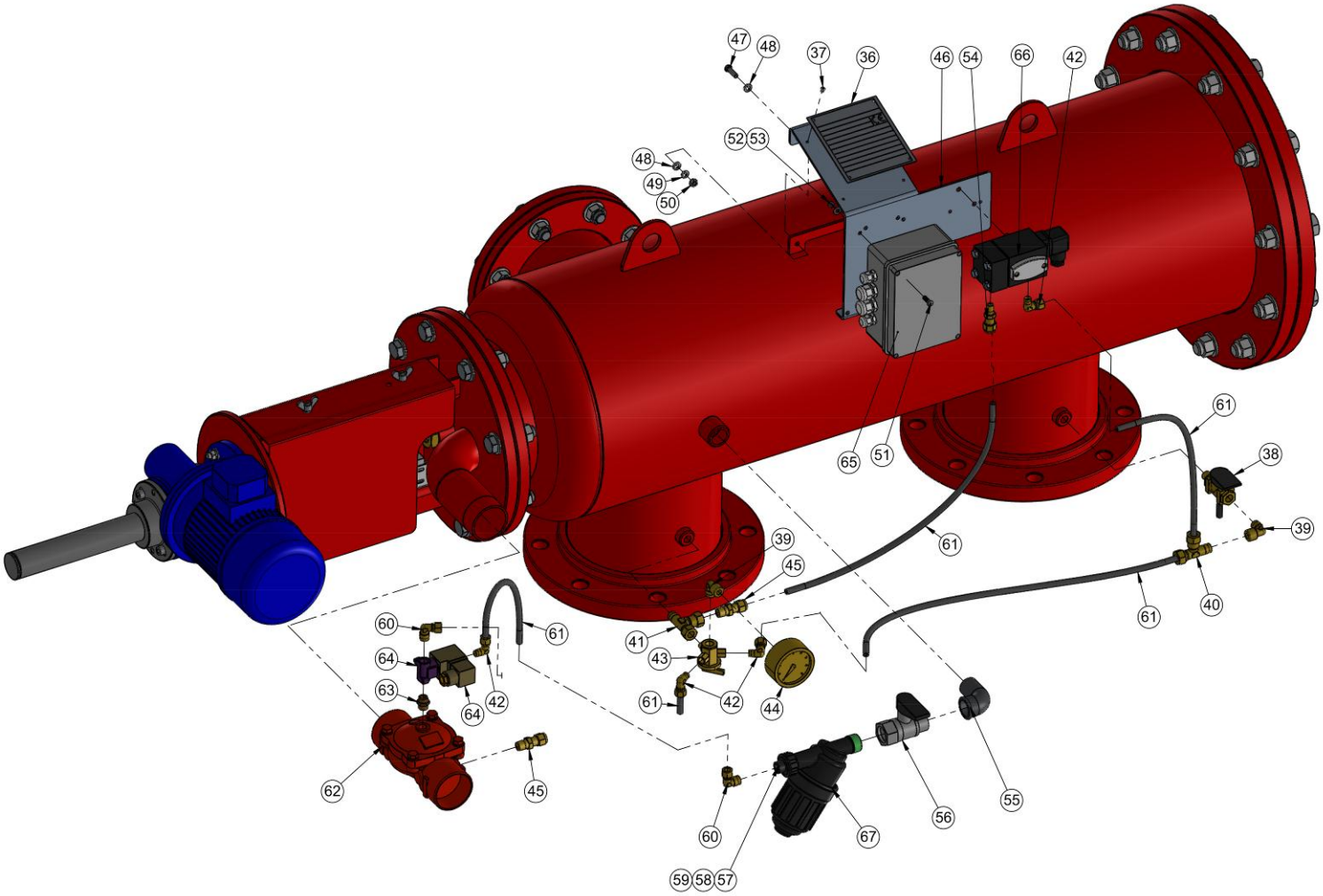
No.	CAT. No.	Description	Qty	Material
38	700190-002336	Manometer Valve 1/4" W/ Drain	1	Various
39	720501-000218	L-Connector 1/4"FX1/4"M Nickel Plated	2	Brass
40	720501-000261	T Connector 1/4"X5/16"X5/16" Brass	1	Brass
41	720501-000214	T-Connector 1/4" FxFxM (Brass)	1	Brass
42	720501-000204	L-Connector 5/16"X1/8"	4	Brass
43	730104-000202	Valve 3-Way 1/4"	1	Brass
44	720301-000043	Pressure Gauge 16 Bar 1/4" Back Inlet	1	Brass
45	720501-000206	Connector 5/16"x1/4"	2	Brass
46	710103-002074	Insrtumentation Combined Bracket SAF	1	S/ST 304
47	760101-000444	Hex Bolt Full Thread M6x20 S/St304 DIN933	2	S/ST 304
48	760103-000094	Flat Washer M6 DIN125 S/ST316	4	S/ST 316
49	760103-000109	Spring Washer M6 DIN127 S/ST316	2	S/ST 316
50	760102-000085	Hex Nut M6 S/ST316 DIN934	2	S/ST 316
51	760101-000531	Phillips Pan Machine Screw M5x16 S/St304 DIN7985	4	S/ST 304
52	760103-000093	Flat Washer M5 DIN125 304	4	S/ST 304
53	760102-000084	Hex Nut M5 304 DIN934	4	S/ST 304
54	720501-000213	Connector 5/16"x1/8"	1	Brass
55	780101-000789	L-Connector 3/4" F/M Galvanized	1	Galvanized
56	730104-000220	Ball Valve 3/4" M/F (BRASS)	1	Brass
57	710103-002569	Raccord Nipple 1/4" for 3/4" Filter	1	Delrin
58	770102-000082	O-Ring Seal P2-112 NBR	1	NBR
59	710103-002570	Raccord Nut 3/4" for 3/4" Filter	1	ABS
60	720501-000202	L-Connector 5/16"X1/4"	2	Brass
61	720502-000036	Control Tube 5/16" Nylon Air Brake	1	Nylon
62	730103-XXXXXX	Hydraulic Valve	1	ST.37-2
63	710103-000591	Pressure Check Point Connector 1/4"X1/4"	1	Brass
64	720103-XXXXXX	Solenoid	1	Various
65	700190-002421	Electrical Junction Box (SAF)	1	Various
66	700190-002618	Presostat SUB-AS. Midwest W/O Fitting	1	Various
67	010000-000041	3/4"Black Filter AC,W/O Valve, Nylon Screen 130 Mic	1	Various

* Catalogue numbers may differ according to filter diameter, flange standards or electric specifications.

Parts Drawing Section 1



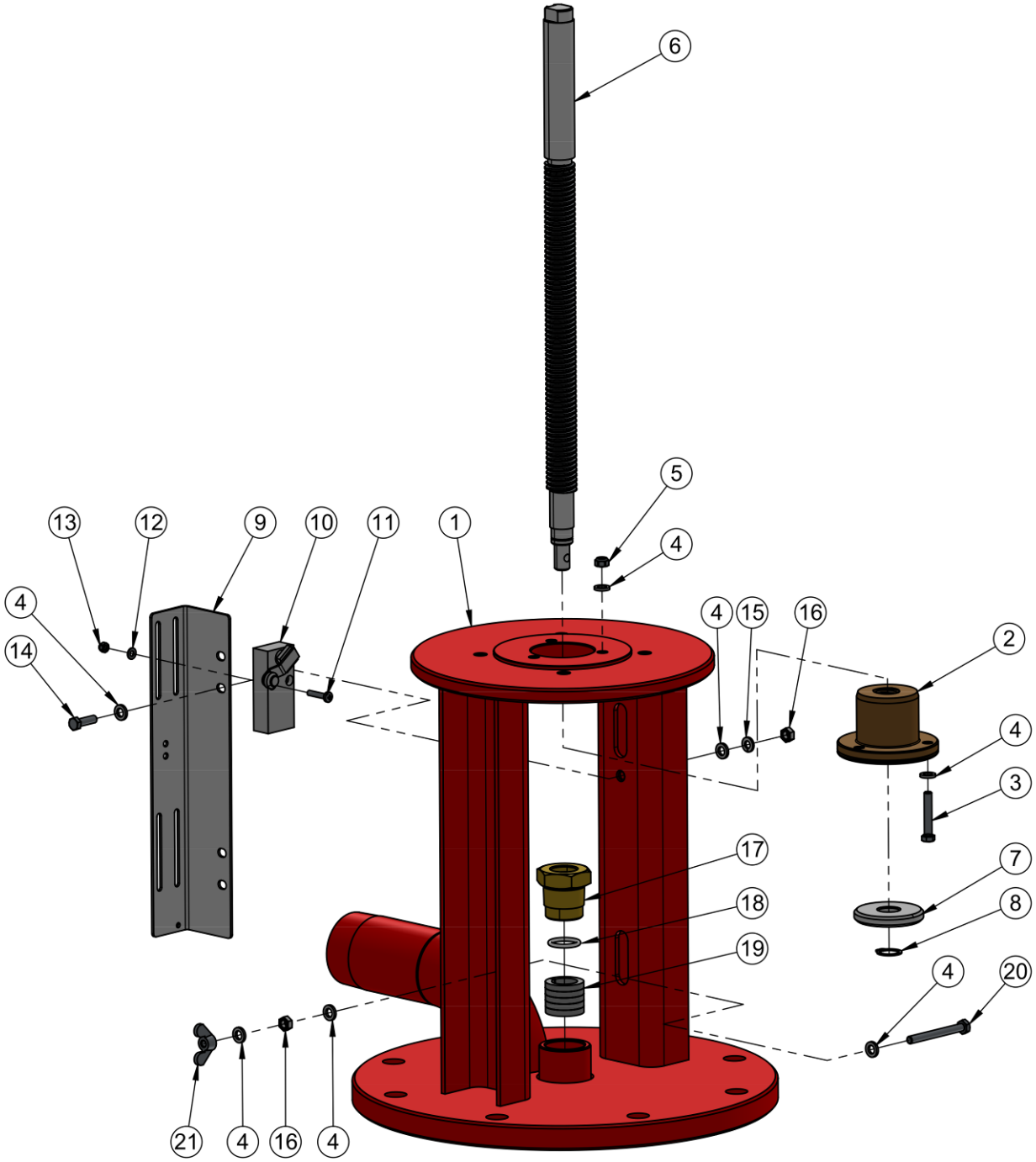
Parts Drawing Section 1 (Page 2)



Parts Schedule Section 2

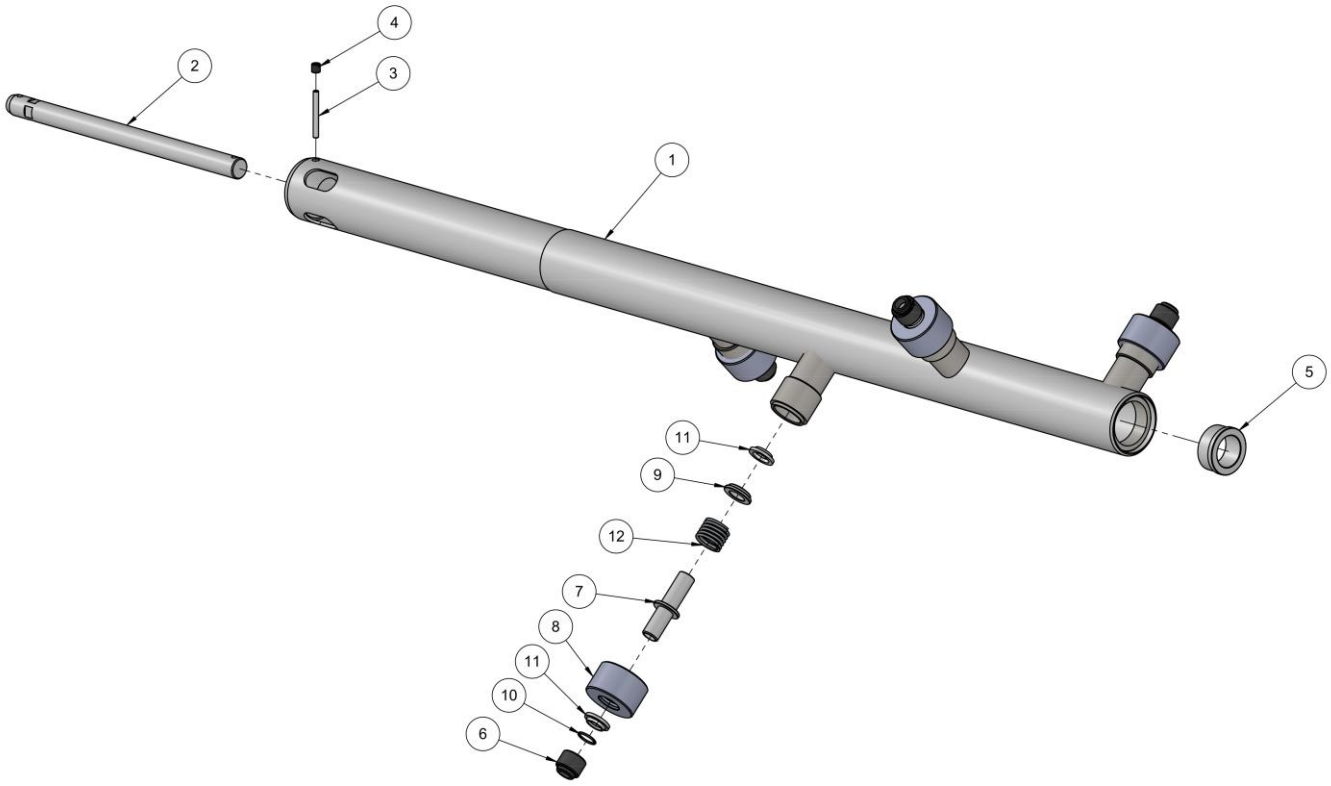
No.	CAT. No.	Description	Qty	Material
1	710105-003961	Drive Shaft Housing SAF-6000 PKPK-3002	1	ST.37-2
2	710103-002233	Drive Bushing (SAF)	1	Phosphor Bronze
3	760101-000447	Hex Bolt Full Thread M6x35 DIN933 S/St 304	3	S/ST 304
4	760103-000094	Flat Washer M6 DIN125 S/ST316	16	S/ST 316
5	760102-000101	Nylon Insert Lock Nut M6 S/ST304 DIN985	3	S/ST 304
6	710103-002257	Drive Shaft (SAF-6000)	1	S/ST 303
7	710103-002308	Limit Switch Plate (SAF) HD	1	S/ST 316L
8	760106-000022	EXT RETAINING RING 17MM S/ST304 DIN471	1	S/ST 304
9	710103-002309	HD Limit Switch Sling (SAF)	1	S/ST 316L
10	720302-000004	Limit Switch NC (EBS,SAF) FA 4131-2DN	2	Various
11	760101-000511	Phillips Pan Machine Screw M4x20 DIN7985	4	S/ST 304
12	760103-000092	Flat Washer M4 DIN125 S/ST304	4	S/ST 304
13	760102-000099	Nylon Insert Lock Nut M4 S/ST304 DIN985	4	S/ST 304
14	760101-000444	Hex Bolt Full Thread M6x20 S/St304 DIN933	2	S/ST 304
15	760103-000109	Spring Washer M6 DIN127 S/ST316	2	S/ST 316
16	760102-000085	Hex Nut M6 S/ST316 DIN934	4	S/ST 316
17	710103-002258	Tightening Nut (SAF-6000)	1	Brass
18	770101-000028	O-Ring Seal 20x3 (Tightening Nut SAF)Nbr"S"	1	NBR
19	770104-000290	Sealing Rope Set SAF-6000	1	PTFE
20	760101-000450	Hex Bolt Full Thrd M6x60 S/St 304 DIN933	2	S/ST 304
21	760102-000107	Wing Nut M6 304 DIN315	2	S/ST 304

Parts Drawing Section 2



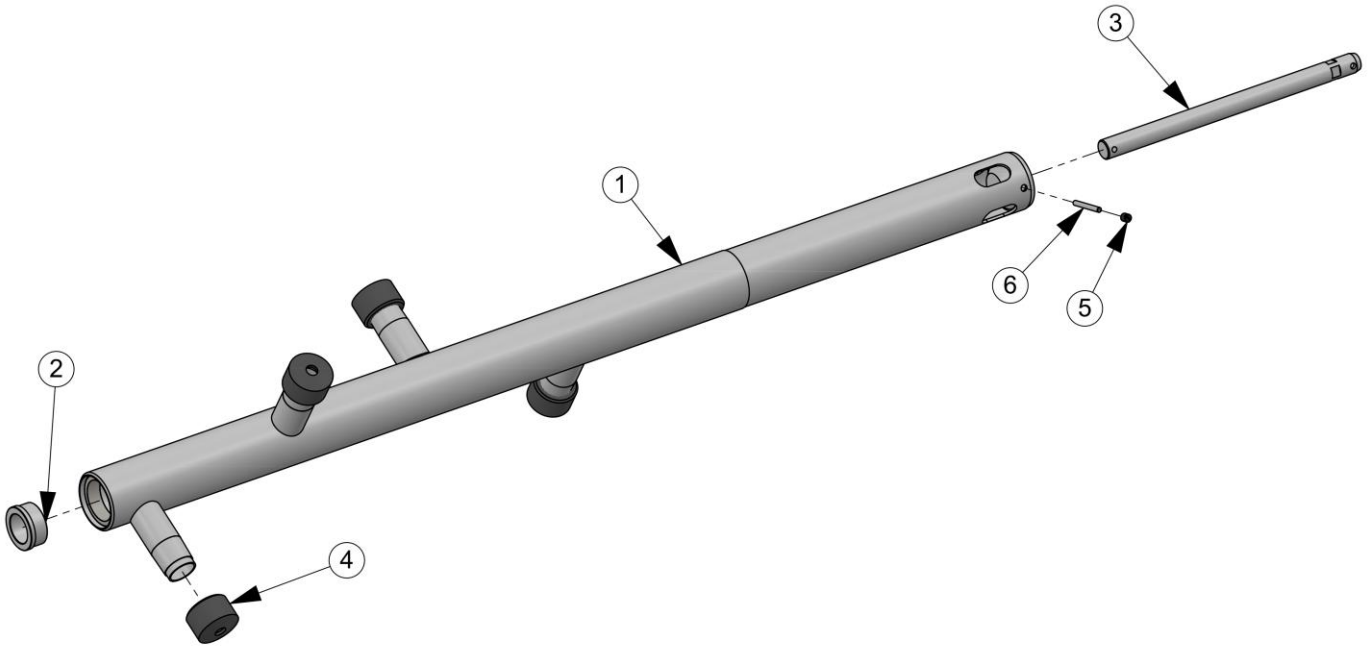
Parts Schedule & Drawing Section 3 (Page 1)
Suction Scanner- SLN Type

No.	CAT. No.	Description	Qty	Material
1	710103-002348	SLN Scanner Assembly SAF-6000 Machined	1	S/ST 316
2	710103-002259	Suction Scanner Shaft	1	S/ST 316L
3	710103-002520	Connecting Pin (Shaft To Scanner)	1	S/ST 316
4	710103-002501	Plug Threaded M8 for SAF-6000 PRO	1	Delrin
5	710103-002229	Lower Bearing Insert SAF-6000	1	Delrin
6	710103-002316	Spring Loaded Nozzle Cap SAF-6000	4	Polyurethane
7	710103-002318	Scanner Nozzle Body SLN Sc.SAF-6000	4	S/ST 316L
8	710103-002317	Tightening Nut for SLN Scanner SAF-6000	4	Delrin
9	710103-002315	Spring Seat Spring Loaded Nozzle SAF-6000	4	Delrin
10	770102-000064	O-Ring Seal 2-016 NBR	4	NBR
11	710101-001281	SLN Seal 16mm	8	Polyurethane
12	760107-000047	Spring For Loaded Nozzles Scanner SAF 6000	4	S/ST 302



Parts Schedule & Drawing Section 3 (Page 2)
Suction Scanner- Std. Type

No.	CAT. No.	Description	Qty	Material
1	710103-002349	Scanner Assembly Improved SAF-6000 Machined	1	S/ST 316
2	710103-002229	Lower Bearing Insert SAF-6000	1	Delrin
3	710103-002259	Suction Scanner Shaft	1	S/ST 316L
4	710103-002228	Suction Scanner Nozzle (SAF-6000)	4	Delrin
5	710103-002501	Plug Threaded M8 for SAF-6000 PRO	1	Delrin
6	710103-002520	Connecting Pin (Shaft To Scanner)	1	S/ST 316



Amiad Limited Warranty

This certificate applies to Amiad Products purchased by You from Amiad or an Amiad authorized Distributor ("**Distributor**"). This limited 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.

1. 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.
2. This warranty is enforceable for a period of 12 months after the date Bill of Lading or equivalent (the "**Warranty Period**").
3. In the event that during the Warranty Period the Distributor 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 customer complaint form. For the receipt of the customer complaint form, the submission of the complaint or any questions please contact your customer service representative.
4. Upon written demand by Amiad the Distributor shall return the Defective Products – or a sample thereof – to Amiad, at Amiad's cost. If the customer ships any such Product, Amiad suggests the customer 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 the warranty does not apply to such Product, Distributor 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 Distributor may not return the Defective Product unless such return was coordinate and approved by Amiad in advance.
5. Amiad's obligation under this warranty shall be limited to, at its 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 repaired or replacement 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 original Bill of Lading.
6. 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.
7. 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 customers are customarily insured;
   (ii) Fault, abuse or negligence of the customer;
   (iii) Customer's responsibilities, including the failure of the intake water to meet 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 customer, including the customer'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 customer of maintenance and other services other than by a trained and qualified advanced operator, or 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;
   (vi) Any alteration, modification foreign attachment to or repair of the Products, other than by Amiad or its authorized technical representatives.
8. In no event shall Amiad be liable to the customer or any third party for any damages, including indirect, special, exemplary, punitive or consequential damages, or lost profits 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.
9. 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.
10. The limited warranty set forth herein is the only warranty given by Amiad and is provided in lieu of any other warranties created by any documentation, packaging or otherwise.
11. Amiad makes no warranty whatsoever in respect of 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.