

Arkal Semi-Automatic Suction Screen Filters 4" - 6" Twin

| |
|--------------------|
| Order number: |
| Catalog number: |
| Filtration degree: |

Installation and Maintenance Instructions



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SAFETY INSTRUCTIONS

General

1. Prior to installation or any treatment given to the filter, read carefully the installation and operation instructions.
2. While lifting, transporting and treating 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.
3. No changes or modification to the equipment are permitted without a written notification given by the manufacturer or by its representative, on the manufacturer behalf.

Installation

1. Prior to installation, make sure that the line pressure matches the filter's operational pressure.
2. Install the filter according to the installation instructions detailed in this manual.
3. Check that all filter flanges are secured properly.
2. Make sure to leave enough clearance so as to enable easy access for future treatments and safe maintenance operations.
4. Extra safety devices should be installed on hot water applications to avoid skin burn danger.
5. Confirm that the total filter weight meets the support construction requirements.
6. During filter maintenance use original parts only.

Operation and Maintenance

1. Do not perform any maintenance activities other than those specified in this manual.
2. Loosening or unscrewing bolts should be done only after the pressure in the filter had been released.
3. Avoid splashing and water leaking so as to minimize slipping danger or damage to the equipment caused by moisture.
4. Always open and close valves slowly and gradually.
5. Remove grease and fat material residues in order to avoid slipping.
6. After treatment has been completed, re-assemble the protection covers.
7. Manual cleaning of filter element using high water pressure or steam should be performed in accordance with the cleaning system instructions and without endangering the operator or his vicinity.
8. Manual cleaning of filter element using acid or other chemical agents should be performed in accordance with the relevant material safety instructions and without endangering the operator or his vicinity.

Use of Lifting Equipment

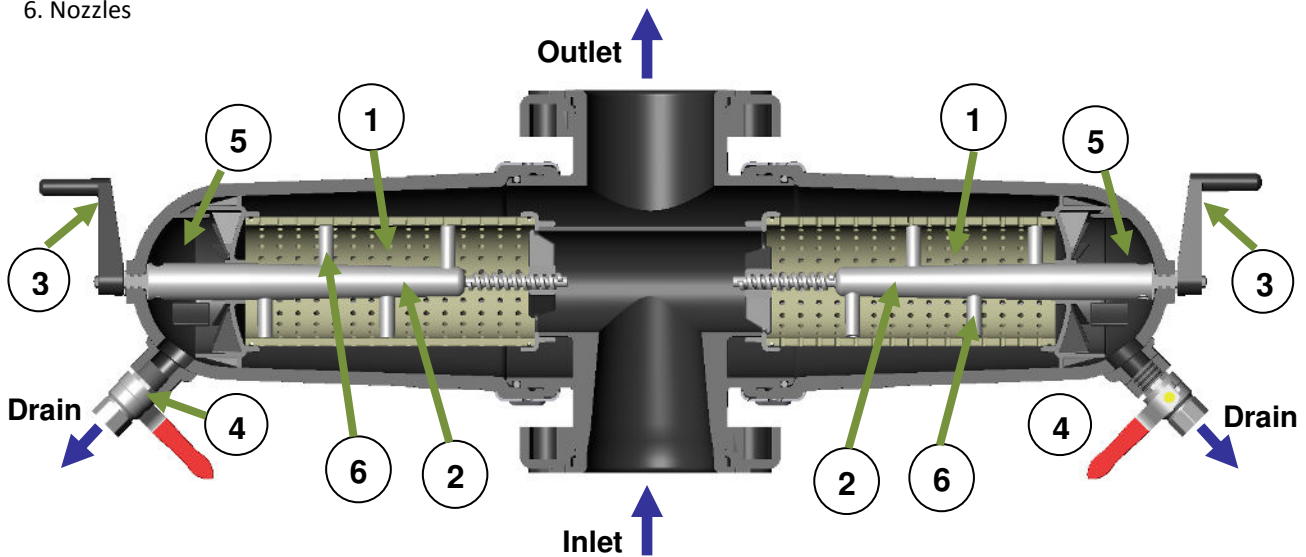
1. While using lifting equipment, make sure that the filter or the lifted part is chained securely and in a safe manner.
2. Do not leave lifted equipment if there is no necessity. Avoid working below lifted equipment.
3. Wear a safety helmet while using lifting equipment.

Introduction:

The Semi-Automatic Suction Screen Filters provide an excellent method of manually cleaning the filter screen without removing the screen itself.

Arkal's 4" - 6" Twin Semi-Automatic filters consist of the following major parts:

1. Screen
2. Dirt Collector
3. Handle
4. Flushing Ball Valve
5. Flushing Chamber
6. Nozzles



Installation

1. Remove the complete product from the box.
2. Install the filter at the user's water system and connect the inlet and the outlet ports of the filter to the system; make sure that the flow-direction is correct (see the above picture).
3. Connect drainpipes to the flush ball valves outlets openings (at least 32 mm or 1" diameter and 5m long). Make sure that water runs freely out of the drainpipes.
4. Check that all connections are secured properly.

Operation instructions:

Filtration Mode

Water enters the filter through the "Inlet" and flows to the inner surfaces of the screens [1], which purify the flow by separating smaller particles from the water. Clean water flows out of the filter through its "outlet" port. As more water flows through the screens, a "filtration cake" accumulates on the inner screens surfaces; causes head loss to develop between the internal-section of the screens (1) and their external section.

Operation-

Important: Since the filter is of a Twin type, the following instructions should be performed on the two filter-spines one after the other.

1. Gradually open the filter's inlet valve (If an outlet valve is installed, then make sure it is open).
2. Check the filter assembly and its connections for leaks.
3. Turn the handle counterclockwise until it stops and then do the same in the opposite direction (don't use force).
4. Perform a manual flush cycle as described below.
5. After the filter is cleaned, make sure that the differential pressure between inlet and the outlet does not exceed 0.1 bars.

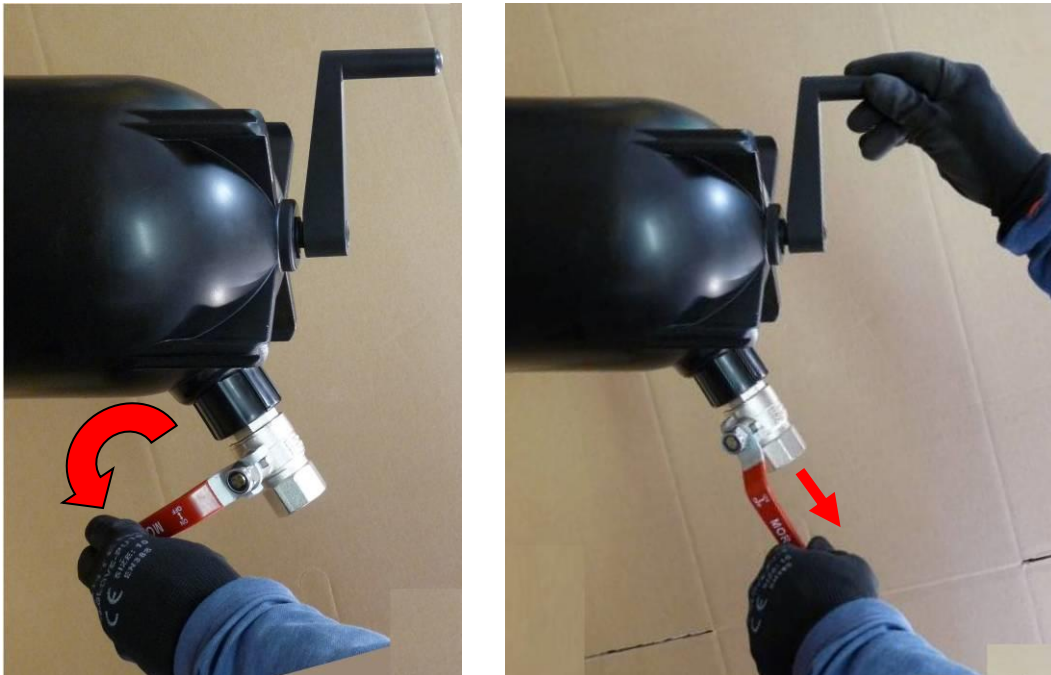
Cleaning Process of the Suction Type Filter

Important: Since the filter is of a Twin type, the following instructions should be performed on the two filter-spines one after the other.

1. Cleaning of the filter must be done when pressure differential across the screen reaches to more than 0.8-bar.
2. **Cleaning the filter must be done while the filter is under pressure.**
3. Before opening the flushing ball valve the operator should check:
That the dirt collector is fully returned inward to the rear side of the filter by turning the handle clockwise until it stops (don't use force).



4. Open the flushing ball valve gradually.



Water starts to flow out to the drain.

5. Turn the dirt collector handle counterclockwise until a full scanning of the screen is performed (don't use force).



The combination of linear movement and rotation cleans the whole internal surface of the screen.



7. Return the dirt collector inward to the rear side of the filter by turning the handle clockwise until it stops (don't use force).



8. In case that the filter is still clogged, repeat the above while the downstream valve of the filter is closed.
In most cases this should clean the screen; however, if necessary, close the filter's upstream valve, drain the filter and clean it manually as described in the maintenance section of this manual.

Maintenance:

Important:

- Since the filter is of a Twin type, the following instructions should be performed on the two filter-spines one after the other.
- Detailed disassembly instructions of the filter appear at the end of this chapter!

At the beginning of each season:

1. Check that the filter operates properly, following a general inspection.
2. If necessary, take care of any leak found.
3. Check the condition of the handle bearing and sealing. Replace any defective (oval) bearing with a new one.
4. Check the condition of the screen; if defective replace the screen.
5. Check the length of the dirt collector suction nozzles; if defective replace.
6. In case of reduction in cleaning ability of the filter, remove the screen and the dirt collector mechanism and visually check the condition of these parts.

Troubleshooting

Leakage from the nut handle:

1. Check if the sealing tightening nut handle is turned to the end (without force).
2. If necessary, replace the sealing "O-ring".

The handle does not turn:

1. Open the filter cover. See the detailed disassembly instructions below.
2. Check for foreign objects trapped under the nozzles, release if necessary.
3. Check the condition of the handle sealing and the tightening nuts, release if necessary.

The handle turns but the filter is not clean:

1. Open the filter. See the detailed disassembly instructions below.
2. Check the length of the suction nozzles. If the nozzles are damaged, replace the dirt collector.
3. Remove the dirt collector and check the hexagon hole in its upper side. If damaged, replace the dirt collector.

Check the spiral thread on the upper side of the dirt collector. If it is damaged, replace the dirt collector.

Screen Removal and disassembly

1. Shut off the inlet water supply.
2. Open the drain ball valve and the flushing valve in order to release the pressure.
3. Return the dirt collector inward to the rear side of the filter by turning the handle clockwise until it stops (don't use force).



4. Pull the safety pin, turn the handle to the flush valve direction, open the clamp and remove it.





5. Holding the cover with two hands, shake it gently to the right and left and separate it from the body. Pull the cover (with the screen and the dirt collector) away from the filter body.



6. Remove the handle.



7. Remove the centralized seat and then the dirt collector.



8. Remove the screen clean it with water jet.



Screen and cover assembly

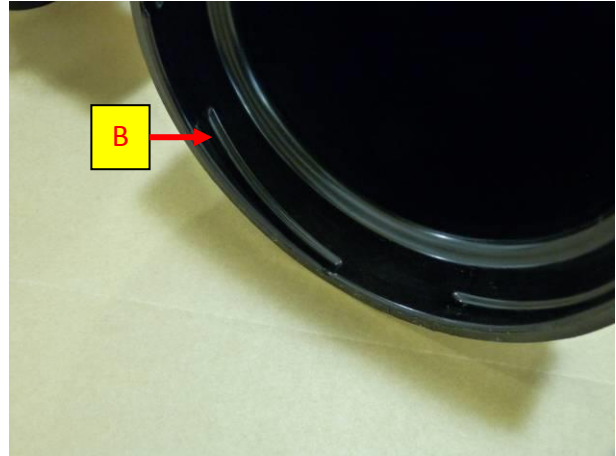
1. Place the screen firmly in its lower seat. Make sure that the seals are positioned right.



2. Reassemble the dirt collector and the centralized seat.



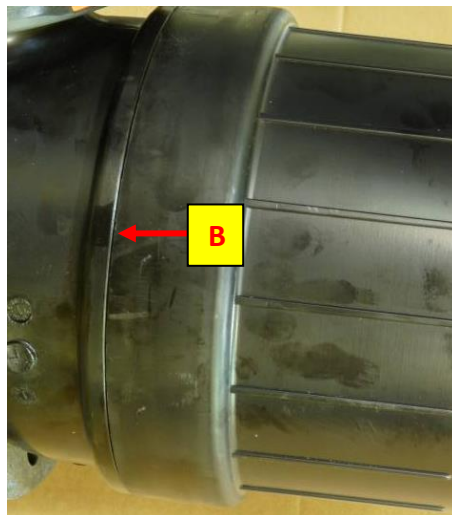
Important: the connection of the cover to the body is of a bayonet type. In order for the cover to be correctly connected to the body, three half ball shapes on the body's outer circumference [A] must be inserted to their designated grooves in the cover's internal circumference [B].



4. Hold the cover (with the screen, the dirt collector and centralized seat) over the body

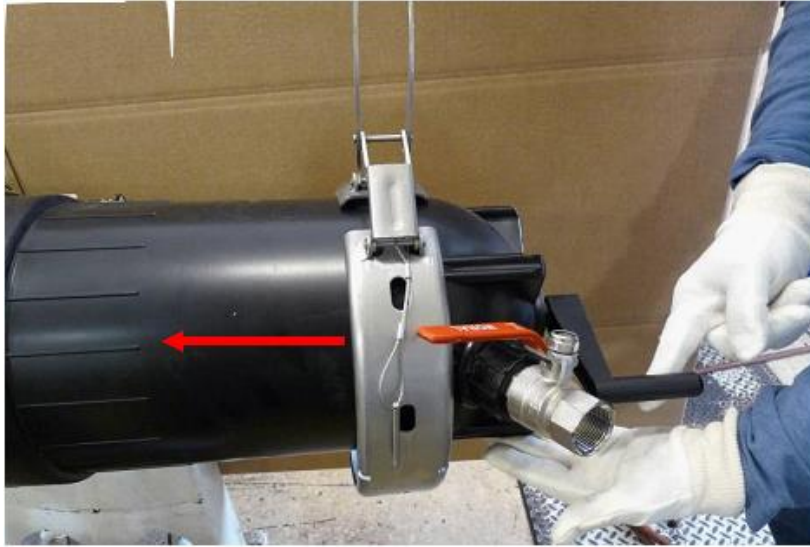


5. Hold the cover with two hands, turn it over the body in order to secure the bayonet connector [A], make sure the cover is correctly locked on the body [B].



6. Secure the clamp and the safety pin.

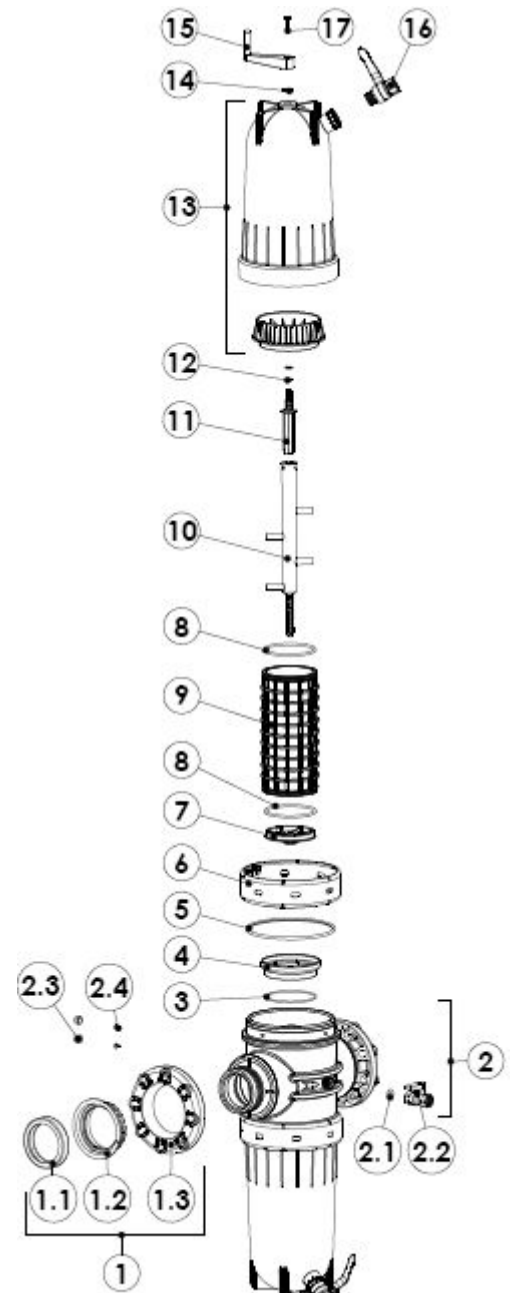




7. Perform a flushing cycle to ensure that there are no leaks.

8. Spare Parts List 4"

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---------------|---|------|
| 1 | 700190-000227 | 4" A.K. Flange Complete | 2 |
| 1.1 | 770104-000253 | 4" Seal for Q/F | 2 |
| 1.2 | 710101-000431 | 4" A.K. Flange Ring Stopper | 2 |
| 1.3 | 710103-004932 | 4" AK FLANGE | 2 |
| 2 | 710103-000135 | 4"*445mm Machined Body Assembly +A.K. Flanges | 2 |
| 2.1 | 770102-000043 | 2*311 O-Ring | 1 |
| 2.2 | 730104-000231 | 3/4" Ball Valve F/F | 1 |
| 2.3 | 710101-000148 | Gauge Ports Nut with Hole 3mm | 2 |
| 2.4 | 770104-000045 | Gauge Port Seal | 2 |
| 3 | 770102-000041 | O-Ring 2-249 | 2 |
| 4 | 710101-001347 | SCREEN SEAT | 2 |
| 5 | 770104-000254 | 3-4" Hydraulic Seal | 2 |
| 6 | 760108-000135 | 4-6" Clamp for Super Leader | 2 |
| 7 | 710101-001332 | Centralized Scanner | 2 |
| 8 | 770101-000101 | O-Ring 129.2X5.7 | 4 |
| 9 | 710101-000910 | ARKAL Mold. S/ST Cylinder 130 Micron | 2 |
| 10 | 710101-000415 | Dirt Collector | 2 |
| 11 | 710101-000100 | Dirt Collector Axis | 2 |
| 12 | 770101-000017 | O-Ring 14*3 | 4 |
| 13 | 700190-000043 | 700190-000043 | 2 |
| 14 | 710101-000137 | Circlip F/A.K. Semi-Auto Filter | 2 |
| 15 | 710101-000175 | Handle | 2 |
| 16 | 730104-000009 | 1" Ball Valve F/M | 2 |
| 17 | 760101-000034 | Phillips Pan Tap SCRW #14X1 1/2" 304 | 2 |



Materials:

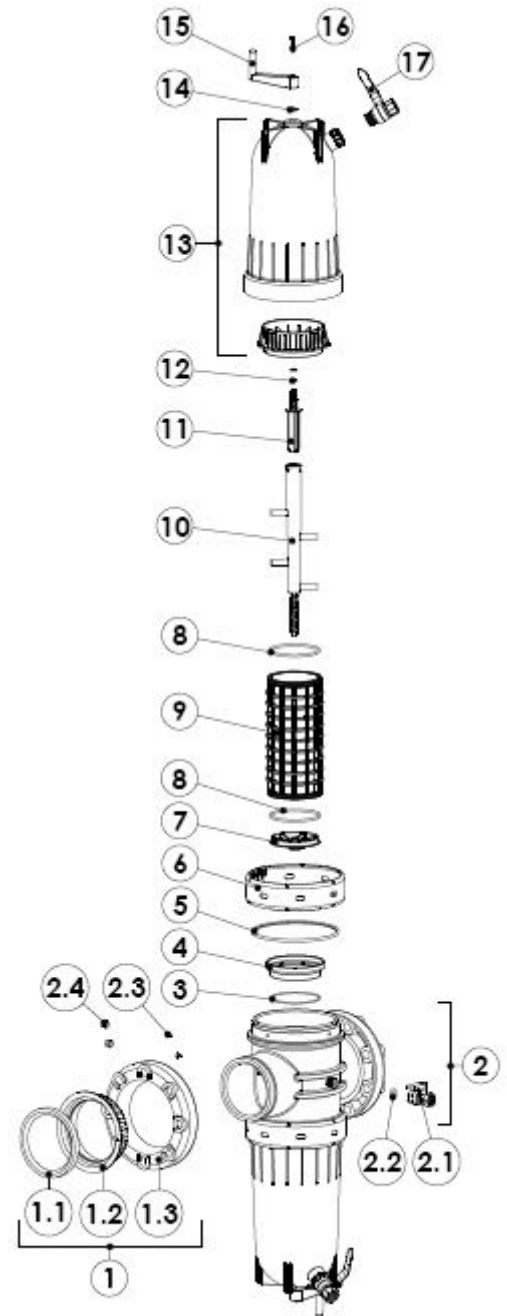
RPP – Reinforced Polypropylene

PP – Polypropylene

RPA – Polyamide

POM – Polyacetal

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---------------|--------------------------------------|------|
| 1 | 700190-000238 | 6" A.K. Flange Assembly | 2 |
| 1.1 | 770104-000036 | 6" Quick Flange Gasket | 2 |
| 1.2 | 710101-000861 | Injected 6" Cone Ring | 2 |
| 1.3 | 710101-000900 | 6" A.K. Flange | 2 |
| 2 | 700190-000140 | 6" Filter Body Complete | 1 |
| 2.1 | 730104-000231 | 3/4" Ball Valve F/F | 1 |
| 2.2 | 770102-000043 | 2*311 O-Ring | 1 |
| 2.3 | 770104-000045 | Gauge Port Seal | 2 |
| 2.4 | 710101-000148 | Gauge Port Nute With Hole 3mm | 2 |
| 3 | 770102-000041 | O-Ring 2-249 | 2 |
| 4 | 710101-001347 | SCREEN SEAT | 2 |
| 5 | 770104-000254 | 3-4" Hydraulic Seal | 2 |
| 6 | 760108-000135 | 4-6" Clamp for Super Leader | 2 |
| 7 | 710101-001332 | Centralized Scanner | 2 |
| 8 | 770101-000101 | O-Ring 129.2X5.7 | 4 |
| 9 | 710101-000910 | ARKAL Mold. S/ST Cylinder 130 Micron | 2 |
| 10 | 710101-000415 | Dirt Collector | 2 |
| 11 | 710101-000100 | Dirt Collector Axis | 2 |
| 12 | 770101-000017 | O-Ring 14*3 | 4 |
| 13 | 700190-000043 | 700190-000043 | 2 |
| 14 | 710101-000137 | Circlip F/A.K. Semi-Auto Filter | 2 |
| 15 | 710101-000175 | Handle | 2 |
| 16 | 760101-000034 | Phillips Pan Tap SCRW #14X1 1/2" 304 | 2 |
| 17 | 730104-000009 | 1" Ball Valve F/M | 2 |



Materials:

RPP – Reinforced Polypropylene

PP – Polypropylene

RPA – Polyamide

POM – Polyacetal

General Technical Data

Max Pressure: 10 bar / 145 psi

Max. Temperature: 60 °C / 140 °F

Filtration Grades (currently): 100µ, 130µ, 200µ, 400µ

| Model Number | Conn. Size ØD (Inch) | Screen Area (Cm ²) | * Max. Flow Rate (M ³ /h) | L (Mm) | H (Mm) | Weight (Kg) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------|--------|-------------|
| AKSP4S | 4 | 2500 | 110 | 445 | 1368 | 26 |
| AKSP6S | 6 | 2500 | 140 | 445 | 1368 | 28 |

AKSP = Arkal Semi-Automatic Polypropylene

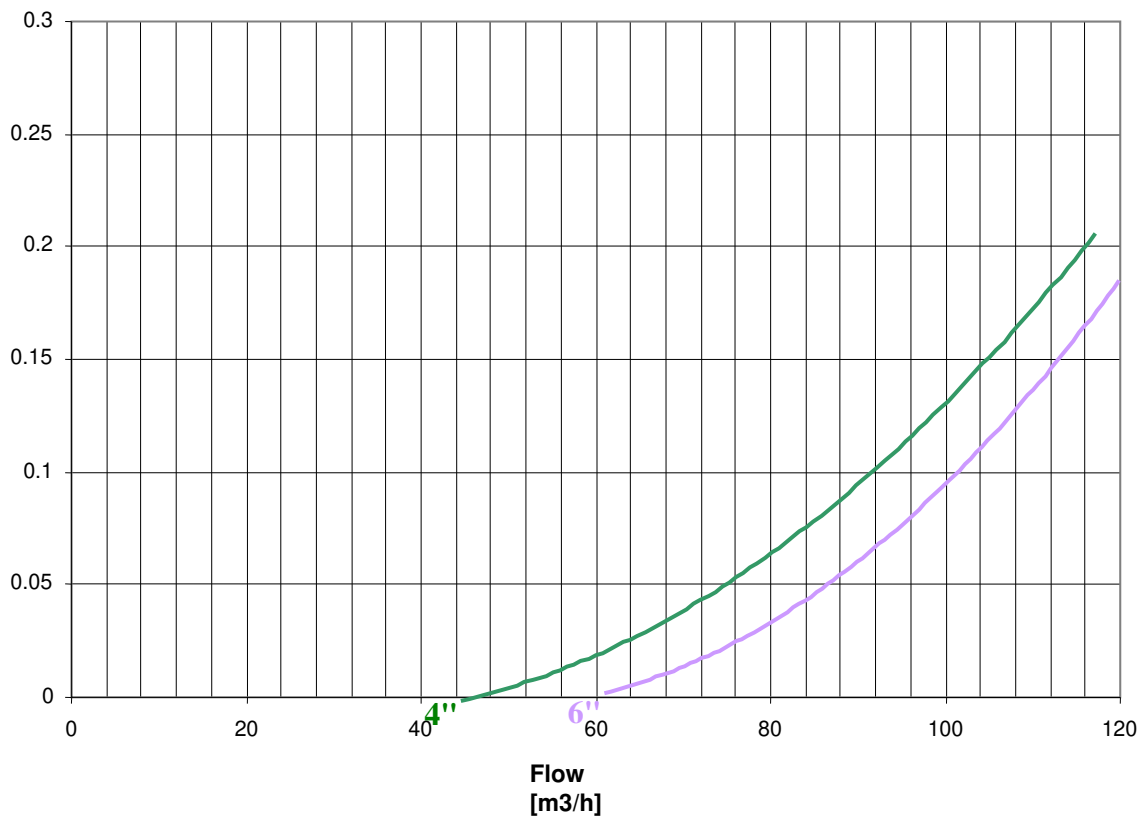
V = Victaulic Filter Connection.

F = Flanged Filter Connection.

S = Super Leader Filter (Inline Filter Connection)

Head-loss for ARKAL Semi Automatic Screen Filter

Head-loss [bar]



* Flow rate data is for high quality water at a filtration grade of 200 micron.

LIMITED WARRANTY

This certificate applies to The Manufacturer Products purchased by You from The manufacturer or from the manufacturer 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. The manufacturer hereby warrants that the Products are and will be free from defects in material and workmanship under normal use and service. The manufacturer 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 the manufacturer using the manufacturer’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 the manufacturer the Distributor shall return the Defective Products – or a sample thereof – to the manufacturer, at the manufacturer’s cost. If the customer ships any such Product, the manufacturer suggests the customer package it securely and insure it for value, as the manufacturer assumes no liability for any loss or damage occurring during shipment. Provided however that in the event the manufacturer determines that the warranty does not apply to such Product, Distributor shall promptly reimburse the manufacturer 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 the manufacturer in advance.
5. The manufacturer’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 the manufacturer’s instructions as expressed in the manufacturer’s instruction manuals and according to the technical limitations as stipulated in the manufacturer’s literature or as stated by a representative of the manufacturer.
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 the manufacturer 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 the manufacturer, as set forth in the manufacturer’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 the manufacturer;
 - (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 the manufacturer, 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 the manufacturer or its authorized technical representatives.
8. In no event shall the manufacturer 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. The manufacturer 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 the manufacturer and is provided in lieu of any other warranties created by any documentation, packaging or otherwise.
11. The manufacturer makes no warranty whatsoever in respect of accessories or parts not supplied by the manufacturer. In the event that the manufacturer is required to correct a defective Product or product not covered by this warranty, it will do so solely in consideration for additional fees.