

## Semi-Automatic Suction Screen Filters 3"-4" Angle



## **Safety Instructions**

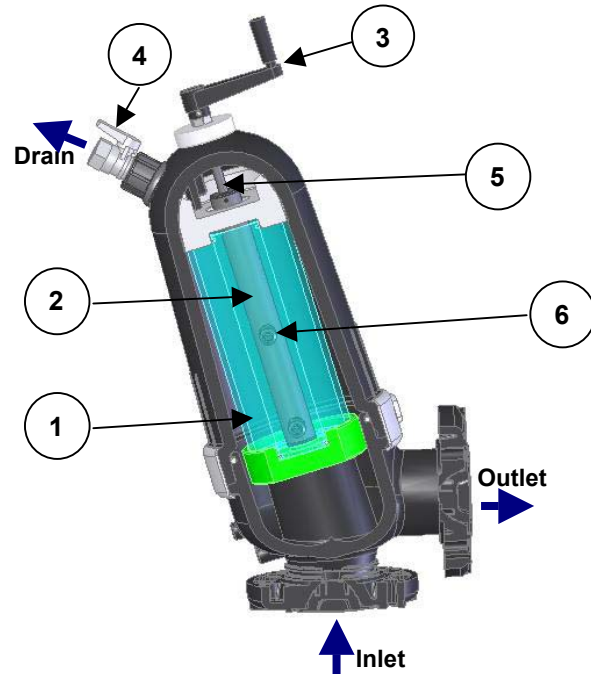
**Prior to installation or handling of the filter, read the Installation and Operation Instructions carefully.**

1. Take safety precautions while lifting, transporting or installing the filter.
2. Confirm that the total filter weight meets the support construction requirements.
3. Prior to installation, make sure that the line pressure matches the filter's operational pressure.
4. Check that all filter flanges are secured properly.
5. Make sure that the filter is drained prior to servicing.
6. During filter maintenance use original parts only.
7. Changes or modifications to the filtration equipment are not allowed.
8. Do not perform any maintenance activities other than those specified in this manual.

## Description

The Arkal's 3" - 4" Super Angle Semi-Automatic filters consists of the following major parts:

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



## Operation Description

### **Filtration Mode**

Water enters the filter through the "Inlet". Water then reaches the screen (1), which purifies the flow by separating smaller particles from the water. As more water flows through, impurities build up on the screen. As the impurities on the screen accumulate, a pressure imbalance is built up between the internal section of the screen (1) and the external section of the screen.

### **Cleaning Process in Suction Type Filter**

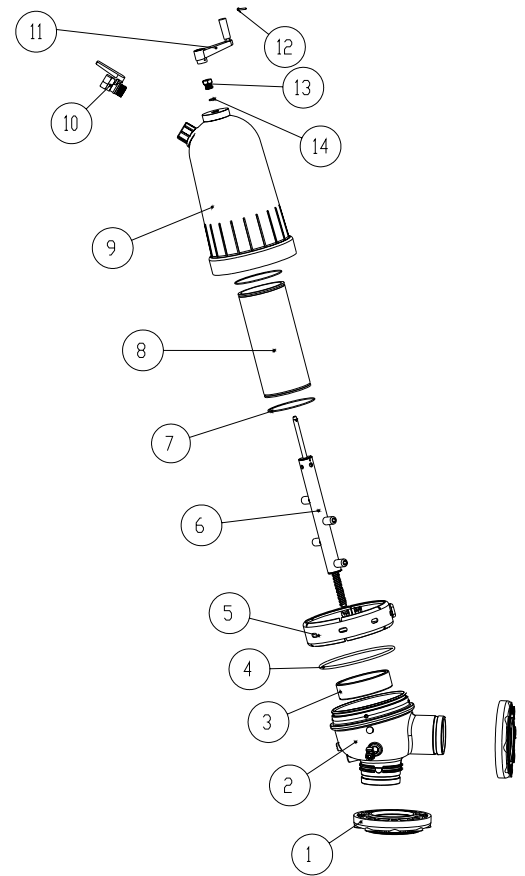
When the differential pressure ( $\Delta P$ ) reaches the determined value (no more than 0.8 bar), or according to the timetable specified by the operator, a series of events occurs while the water continues to flow into the system's units.

Before opening the flushing valve (4) the operator should check:

- That the dirt collector (2) is fully returned to the rear by turning the handle (3) clockwise until it stops.
- When the flushing valve (4) opens, water flows out.
- Pressure in the flushing chamber (5) and the dirt collector (2) is significantly reduced, which will cause suction through the collector's nozzles (6).
- Rotating the dirt collector (2) by the handle will cause full scanning of the screen (1) by the nozzles (6).
- The combination of linear movement and rotation cleans the whole internal screen (1) surface.
- The flushing cycle will take only a few seconds.

### Spare Parts List 4"

No.	Cat. No.	Description	Material
1	2253 0425	4" Universal flange assembly	RPA
2	2247 1001	4" Angle filter body assembly	PP
3	5076 5001	Lower seat	PVC
4	5005 0004	4" Cover seal	EPDM
5	5042 0060	Clamp	SS
6	2254 9060	Dirt collector	PVC+SS
7	5002 2250 250	Screen seal	EPDM
8	5052 0822	120 micron screen	PVC+316 SS
	5052 0825	200 micron screen	PVC+316 SS
9	2202 0060	Cover assembly	PP
10	5054 0017	1" ball valve	BRASS
11	5076 5006	Handle	RPP
12	5040 1031	M4*35 screw	SS
	5040 8024	4mm steel nut	SS
13	5076 5009	Suction shaft bushing	PVC
14	5003 1203	Shaft seal	EPDM



### General Technical Data

Max Pressure: 10 bar / 145 psi

Max. Temperature: 60 °C / 140 °F

Filtration Grades (currently): 400µ, 200µ, 120µ

Model Number	Conn. Size ØD (Inch)	Screen Area (Cm <sup>2</sup> )	* Max. Flow Rate (M <sup>3</sup> /h)	L (Mm)	H (Mm)	Weight (Kg)
AKSP3LT	3	1250	60	825	509	12
AKSP3LV	3	1250	60	789	509	12
AKSP3LF	3	1250	60	789	509	13
AKSP4LV	4	1250	90	789	509	12
AKSP4LF	4	1250	90	789	509	14

AKSP = Arkal Semi Automatic Polypropylene

L = Angel Filter Connection.

T = Threaded Filter Connection.

V = Victaulic Filter Connection.

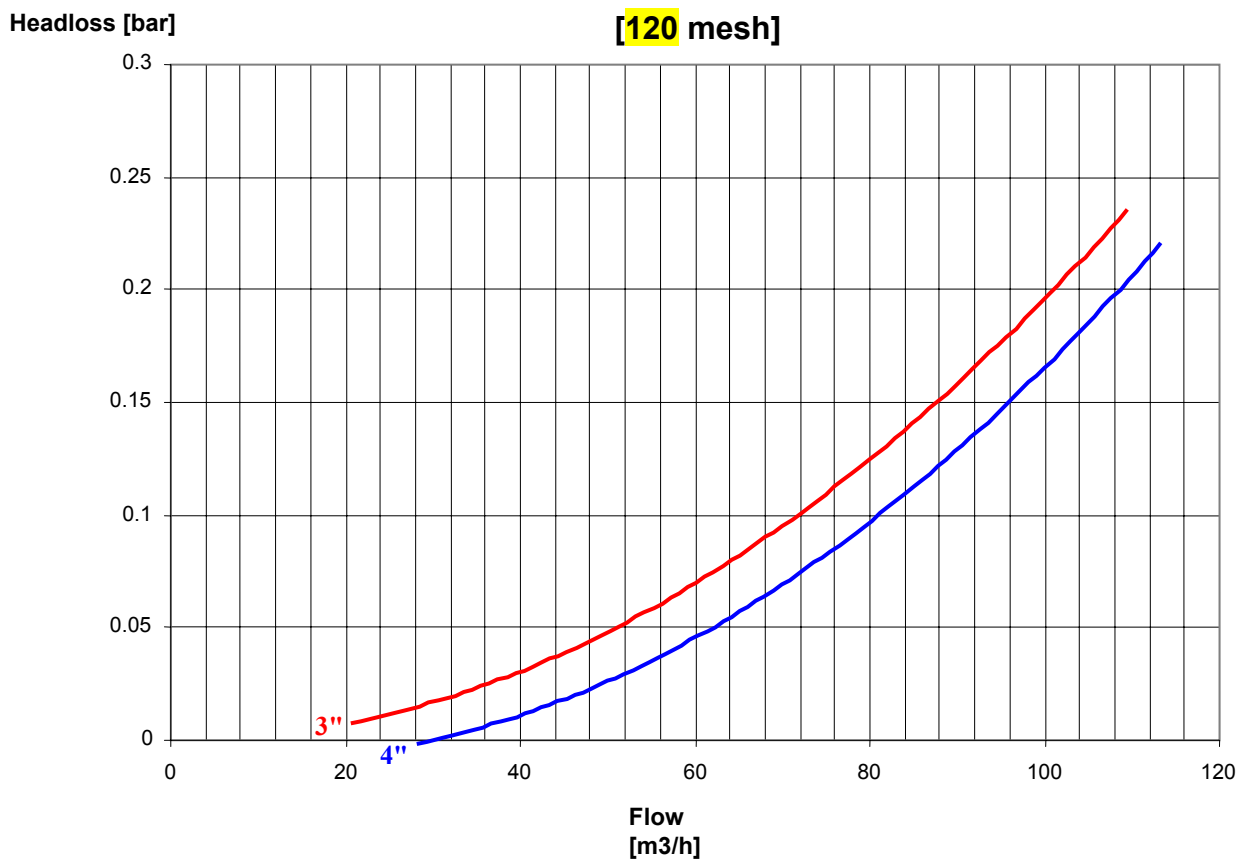
F = Flanged Filter Connection.

**Filtration Grade Conversion Table**

Micron	120	200	400
Mesh	120	80	40

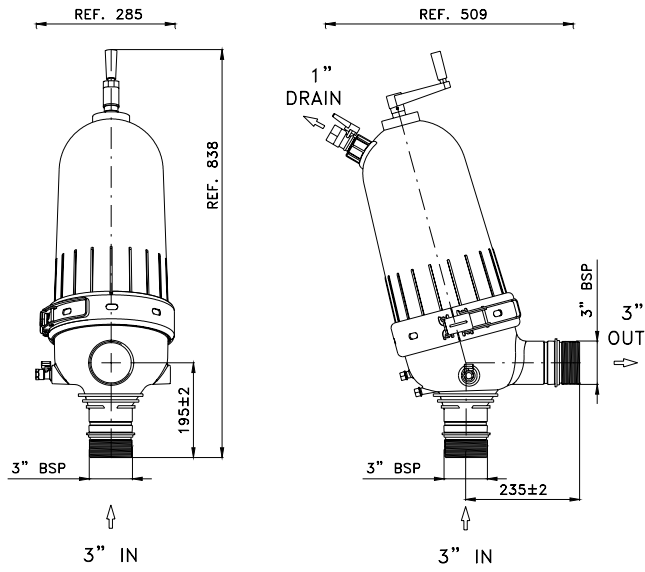
	Blue	Yellow	Red	Black
Color Code	Blue	Yellow	Red	Black
Micron	400	200	130	100
Mesh	40	80	120	140
PP				
Nylon				

**Headloss for ARKAL Semi Automatic Screen Filter**

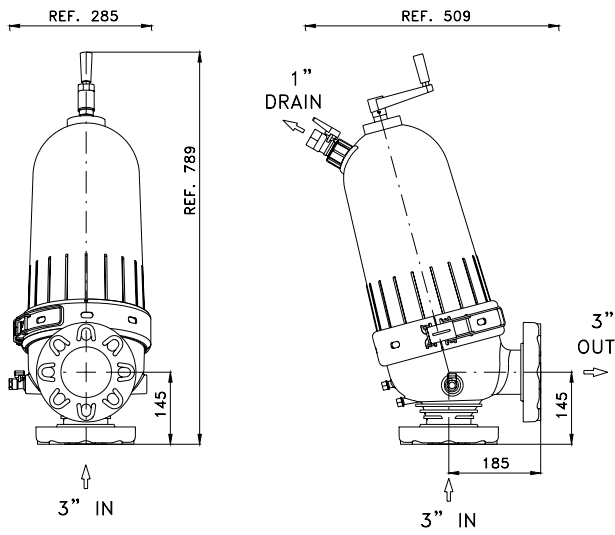


\* Flow rate data is for high quality water at a filtration grade of 200 micron.

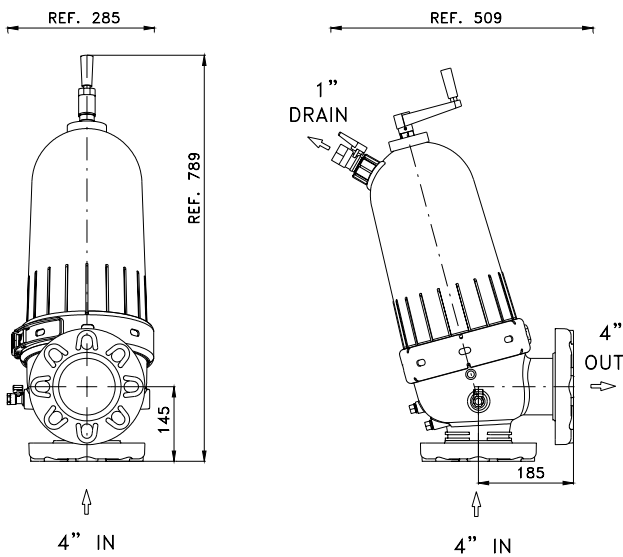
**3" Threaded**



**3" Flange**



**4" Flange**



## **Installation**

1. Remove the assembled filter from the box.
2. Install the assembled filter on the inlet line and outlet line.
3. Connect the drainpipe to the flush valve outlet opening (at least 32 mm or 1" diameter and 5 m long). **Make sure that water runs freely out of the drainpipe.**
4. Check that all connections are secured properly.

## **Operation**

1. Gradually open the inlet valve (If the outlet valve is already installed, then make sure that 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. Start the flush cycle by opening the flush valve and turn the handle until the dirt collector comes to a stop (don't use force). When the dirt collector stops, the flushing valve can be closed.
5. After the filter is cleaned, make sure that the differential pressure between inlet and outlet does not exceed 0.1 bars.

## **Screen Removal and Assembly**

1. Shut off the inlet water supply.
2. Open the drain valve in order to release the pressure.
3. Open and remove the clamp.
4. Turn the handle counterclockwise until the cover is separated from the filter body and the screen from its lower seat.
5. Remove the screen and wash the inner side of the screen with a water jet.
6. Place the screen firmly on its lower seat. Make sure that the seals are positioned right.
7. Assemble the cover to the filter body. Make sure that the screwing rod is in the center of the lower seat.
8. Turn the handle clockwise until it stops. Press down the filter cover towards the filter body.
9. Secure the clamp.
10. Close the flushing valve.
11. Perform a flushing cycle to ensure that there are no leaks.

## **Periodic Checks**

### **Periodically check the following at the beginning of each season:**

1. Check for leaks.
2. Check the condition of the handle bearing and sealing. If any of the bearings are defective, (oval), replace the defective bearing with a new one.
3. Check the condition of the fine screen assembly. If defective, replace the fine screen.
4. Check the height of the dirt collector suction nozzles. If defective, replace according

## **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.
2. Check that hard particles are not trapped under the nozzles, release if necessary.
3. Check the condition of the sealing handle and the tightening nuts, and if necessary replace it, if necessary.

### **The handle turns but the filter is not clean:**

1. Open the filter.
2. Check the height of the suction nozzles, if the nozzles are damaged, replace the dirt collector.
3. Remove the dirt collector
4. Check the hexagon hole in the upper side of the dirt collector. If it is 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.**

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