

5. Characteristics and design standards

The tank thickness and resistance were calculated in accordance with the BS-4994 regulation. The filter operation standard was based on the NSF for a maximum working pressure of 2.5 bars. The filter was only designed for use in pools with a maximum temperature of 40°C with pH and disinfectant levels within the limits stated in the corresponding regulations. Which are as follows:

pH	6,8 - 8
Free residual chlorine	0,4 - 1,5mg/l
Bromine	1-3 mg/l

It is also appropriate for use in salt water pools with a maximum salt concentration of 4%. The filter IS NOT SUITABLE for working with ozone.

SAFETY VALVE

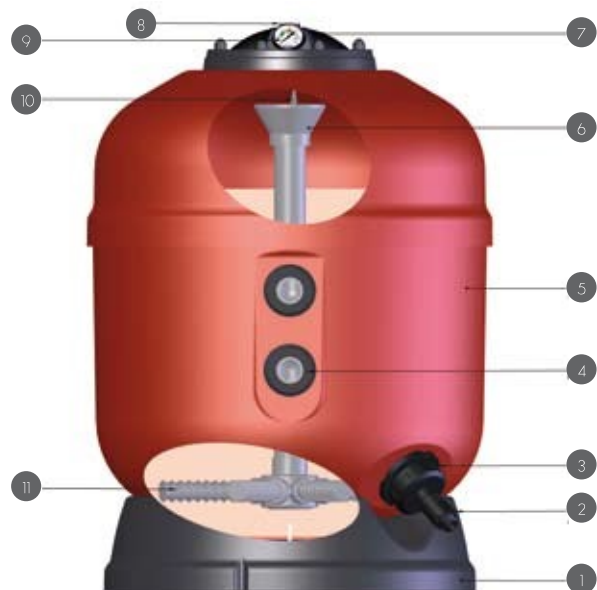
The Atlas filter is supplied with a safety valve to avoid the possible effect of over-pressure.

The valve is activated if the pressure in the filter container exceeds the maximum working pressure, and responds by emptying the water.

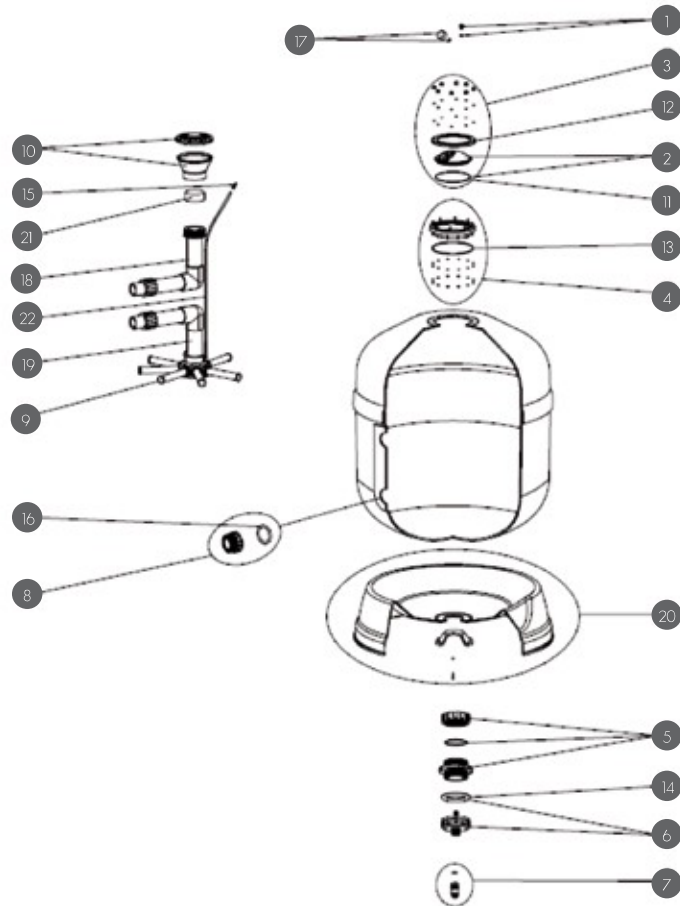
The valve has an evacuation outlet with a 3/4" thread. Keep in mind that if the valve is activated, water will be released, in which case the technical unit has to have the corresponding drainpipe.

If the valve is activated it is essential that the pressure in the container descends to 1.5 bars for it to return to its original position.

- 1 Base
- 2 Security valve
- 3 Sand and water drain
- 4 Conections
- 5 Body filter
- 6 Difuser
- 7 Lid
- 8 Air drain
- 9 Manometer
- 10 Automatic air drain
- 11 Colector



6. Exploded View



- | | | | | | |
|----|------------|--------------------------------------|----|------------|-----------------------------|
| 1 | 4404290101 | 1/4" Unnamed drain cap | 14 | 4404180108 | Flat filter gasket |
| 2 | 4404290102 | Premium cover + gasket | 15 | 4404040108 | Air relief valve |
| 3 | 4404290103 | Set, premium cover | 16 | 4404040115 | O'ring D. 60X8 |
| 4 | 4404290104 | Set, neck frame | 16 | 4404040211 | O'ring D. 70X5 |
| 5 | 4404290105 | 2 1/2" Inner double discharge thread | 17 | 4404010103 | 1/8" 3 kg/cm pressure gauge |
| 6 | 4404290106 | Outer discharge thread | 18 | 34322R0410 | Diffuser set, D. 500 |
| 7 | 4404290107 | Safety valve | 18 | 34323R0410 | Diffuser set, D. 600 |
| 8 | 4404040103 | 1 1/2" Body union outlet + o'ring | 18 | 34324R0410 | Diffuser set, D. 750 |
| 8 | 4404040112 | 2" Body union outlet + o'ring | 18 | 34325R0410 | Diffuser set, D. 900 |
| 8 | 4404290108 | 2 1/2" Body union outlet + o'ring | 19 | 34322R0420 | Collector set, D. 500 |
| 9 | 4404300917 | 1" 110 mm collector arm | 19 | 34323R0420 | Collector set, D. 600 |
| 9 | 4404300915 | 1" 175 mm collector arm | 19 | 34324R0420 | Collector set, D. 750 |
| 9 | 4404300916 | 1" 225 mm collector arm | 19 | 34325R0420 | Collector set, D. 900 |
| 9 | 4404290109 | 1" 265 mm collector arm | 20 | 36596R0102 | Filter base D. 500 ATLAS |
| 10 | 4404290110 | 1 1/2" diffuser cone | 20 | 36597R0102 | Filter base D. 600 ATLAS |
| 10 | 4404290111 | 2" - 2 1/2" diffuser cone | 20 | 36598R0102 | Filter base D. 750 ATLAS |
| 11 | 4404260106 | Mounting hoop valve gasket | 20 | 36599R0102 | Filter base D. 900 ATLAS |
| 12 | 4404160849 | Mounting hoop cover | 21 | 36596R0001 | 1 1/2" FILLING CAP |
| 13 | 4404020116 | 225X4 o'ring | 21 | 36596R0002 | 2" - 2 1/2" FILLING CAP |

7. Recommendations

7.1. PACKAGING:

The ATLAS filter is delivered adequately packed in a sealed cardboard box on which positioning and stacking logistic information for palleting is indicated.

Any failure to comply with this information can result in damage to the product.

Due to the dimensions and weight, the 900 diameter filter is supplied on its own pallet so that it can be handled with a forklift truck or pallet jack.

The components that should be found in the packaging are indicated in the instructions manual.

7.2. STORAGE:

The filter can be stored in any kind of warehouse protected from harsh weather conditions. UV rays or direct contact with water could deteriorate the packaging.

Maximum storage temperature: 50 °C

Minimum storage temperature: -5°C

7.3. TRANSPORT:

The filter boxes should be transported on adequately secured pallets.

Once at the installation, transport the filter to its final location inside the packaging. If for any reason this is not possible, the filter should be handled with maximum care.

Any friction, bumps or contact with rough surfaces can cause damage to the exterior finish.

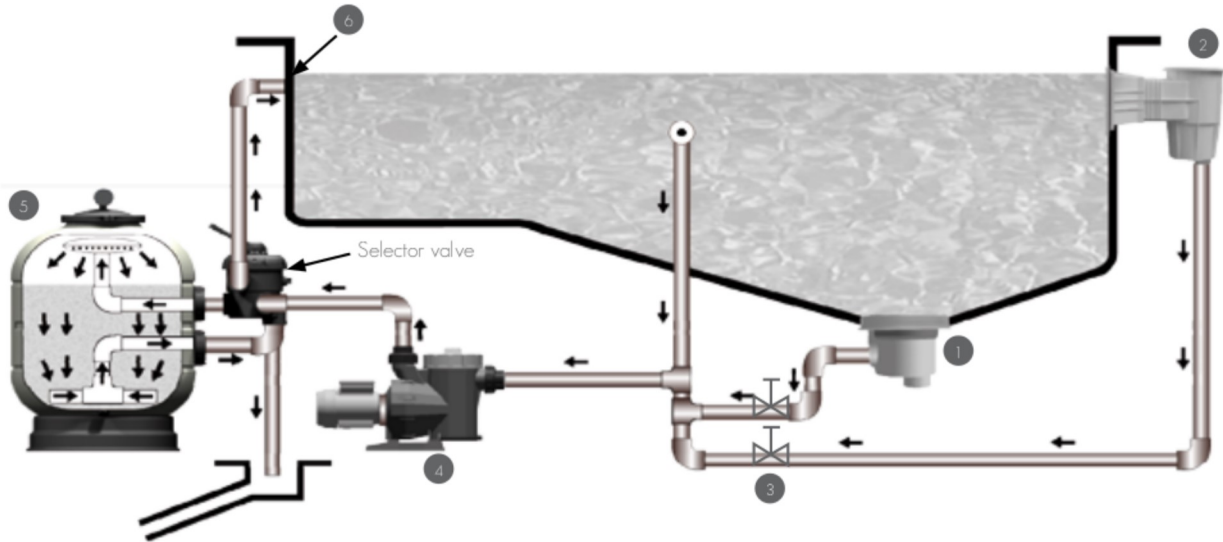
7.4. LOCATION:

The filter must be installed as close to the pool as possible, preferably within 50 metres of the surface of the pool. Be sure there is a drainpipe in the spot where the filter will be located. This drainpipe must be adequately sized to the installation flow.

Be sure the surface area where the filter is installed is horizontal, stable, resistant to the weight of the filter, as indicated in the table of characteristics, and is completely clean.

There must be enough space in the area around the filter so that the required inspections and maintenance throughout the life of the pool can be carried out.

7.5. STARTING UP PROCESS

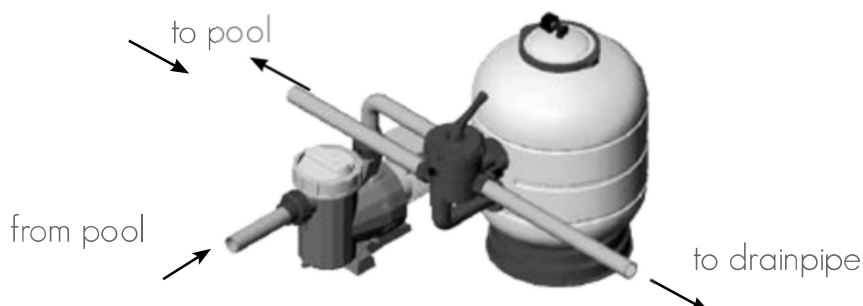


The water is drawn in from the bottom of the pool through the drain ① and from the surface using the skimmers ②, and is carried through the pump ④ to the filter ⑤ by separate conduction passages fitted to their corresponding valves ③ and returned to the pool through distributors (⑥, jet propulsion nozzles). The nozzles are installed on the side opposite the drain and skimmers, thus completing renewing the pool water.

The actual filter is composed of the silicon sand load through which the water is circulated in a descending motion, thereby retaining the material suspended in the pool to be filtered. Once the filtration cycle begins, the filter will have to be cleaned after a certain time, since the sand will have become blocked with dirt, thus preventing the passage of water.

When the filter pressure has reached a level above 1.3 Kg/cm^3 , it is time for a cleaning cycle. The backwash reverses the circulation motion of the water in the filter and in doing so expels the filtered materials out to the drainpipe.

Keeping this important information in mind, the operating instructions found below should not be difficult to follow.

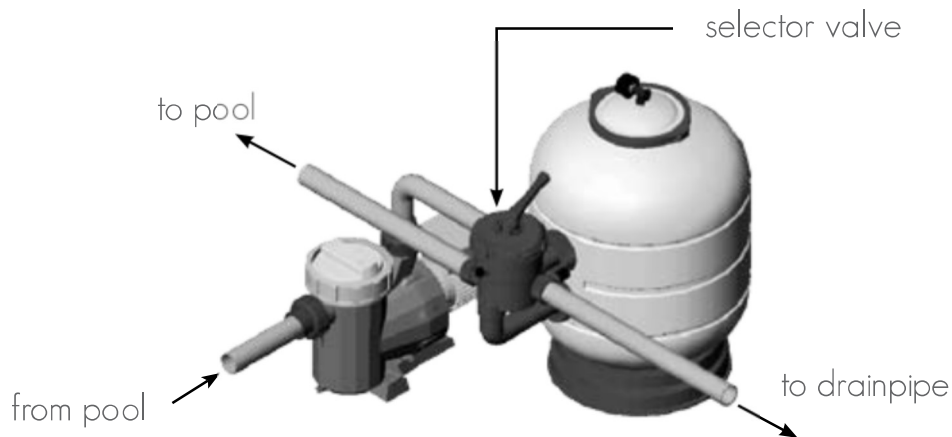


7.6. INSTALLATION:

7.6.1. INSTALL THE FILTER IN ITS FINAL LOCATION

Install the selector valve in the filter, ensuring that the gaskets between the valve and the filter are correctly positioned.

Make the three connections needed for the selector valve: pump tubing to the valve, from the valve to the drainpipe and from the valve to the side of the pool. Each of the three outputs are identified on the valve.



IMPORTANT: Do not use for the iron and hemp selector valve tubing connection. Plastic accessories and Teflon tape must be used. These terminal connections bolted at 1 1/2" and 2" and rubber gaskets, are available from your distributor.

Assemble the pressure gauge and the air releasing cap (see exploded view). Install the safety valve. Connect the valve to the thread from the sand drain by hand.



PRESSURE GAUGE ASSEMBLY



SAFETY VALVE ASSEMBLY

7.6.2. LOADING SAND

To get maximum performance out of this filter, it must be filled with silica sand with a particle size from 0.4 to 0.8 mm. With the quantity indicated in the table of characteristics, proceed as follows:

1. Carry out the loading once the filter is placed in its location and the joining tubing is installed.
2. Loosen the nuts on the cover and remove the cover and O-ring seal.
3. To prevent sand from escaping into the internal components, dismantle the upper diffuser cap and replace it with the cover supplied in the packaging.
4. Fill the filter with water up to the half way point.
5. Pour the necessary quantity of sand into the filter. See table of characteristics or technical characteristic at the beginning of the document.
6. Clean the area around the cover seal.
7. Repeat the previous operation in the opposite order, remove the diffuser tubing filling cap and put the diffuser cover back on.
8. Position and hold the filter cover in place. It is very important that the surface area around the O ring seal is completely free from sand. Place the O ring seal in its location, position the upper cover and fix the corresponding nuts in place.

The nuts must be tightened cross-wise a couple of times to approximately 2-3 Nm. Once everything is tightened, check it a second time to ensure all the nuts are correctly tightened.

7.6.3. COMMISSIONING

Once the filter is filled with sand it is necessary to carry out a wash cycle. Proceed in the following way:

1. Fill the filter and the installation tubing with water, removing all the air that might be there using the air drain in the upper cover of the filter.
2. Place the selector valve in the "WASH" position.
3. Open the valves that control the pool vacuum tubing and connect the pump. Throughout this process the water from the pool enters the filter through the collector arms, comes out through the diffuser and is sent to the drainpipe. In order to throw out the least amount of water, look through the valve viewfinder to see when the water becomes transparent and is no longer cloudy.
4. Stop the pump, place the valve in the "RINSE" position and rinse for about 30 seconds. In this phase, the water enters via the diffuser, leaves through the collector and is sent to the drainpipe. The purpose of this phase is to finish removing any particles in suspension and stabilise the sand to ensure that in the next filtration phase, the water is returned the pool in perfect condition.

5. Afterwards, stop the pump and place the selector valve handle in the “FILTRATION” position. In this position, the filter is preparing to work, the water from the pool enters via the diffuser, leaves through the collector and is returned to the pool.
6. Check the hydraulic circuit pressure. The optimum working pressure of the filter with clean sand is 0.8-1Kg/cm². Depending of the number of side nozzles and the diameter of the ball, this pressure may vary.

Once this operation is complete, the filter will be ready to begin filtering the pool water.

IMPORTANT: Always change the position of the selector valve handle while the pump is disconnected.

7.7. FILTRATION AND WASH

7.7.1. FILTRATION

Filtration is only one part of maintaining a clean swimming pool, and it is inseparable from the chemical treatment; one without the other will not produce the desired result. Here, we would like to point out that with only the filter, nothing will be achieved if it is not accompanied by good chemical treatment.

A common misconception is that when you acquire an installation, it will do everything, so much so that we call this the “purifier” when really it is only a filter. In fact the purification process consists of a perfect combination of the two treatments; chemical and physical. With the pump stopped, move the selector valve handle to “FILTRATION”.

Turn on the pump.

While it is operating, it is best to periodically observe the pressure gauge, where the filter saturation degree is indicated. When the pressure is at 1.3 kg/cm², it will carry out a “WASH”. The valves at the bottom of the pool and the skimmers will be regulated according to the amount of floating material that is found on the surface of the water.

Remember that the suction from the skimmers will be low when the drain valve is completely open. If a more powerful removal effect from the skimmer is desired, decrease the aperture of the drain opening.



0,8 kg/cm² - 11,4 PSI:

Normal pressure at that to begin a filtration cycle



1,3 kg/cm² - 18,5 PSI:

This pressure indicates it is necessary to proceed with the WASH

These pressures are guidelines for typical installations; the working pressure may vary depending on the design. It is important to remember that the working pressure depends on whether the sand is clean. An increase to this pressure of 0.5 bars would indicate the need to carry out a wash.

7.7.2. WASH

Every load of sand forms thousands of passage channels, which collect all the materials that are contained and retained in the filter sand, therefore the number of available channels and the passage of water is constantly decreasing. For this reason, the pressure progressively rises until it reaches 1.3 kgs/cm². This indicates that the filter sand cannot accept more dirt and it must be cleaned before the next session:

The selector valve should be positioned at “WASH”, and the pump should be put into operation with the drain and side valves open. Carry out this process until you can see transparent water running past the valve viewfinder. All the dirt that was obstructing the filter will be dumped into the drain through this operation.

Warning: keeping the valve in the “WASH” position for a long period of time may cause damage to the collector arms. Do not empty the pool using the “WASH” function



7.7.3. RECIRCULATION

In this position the selector valve makes the water pass from the pump directly into the pool, without passing through the inside of the filter.



7.7.4. DRAINING

If the pool cannot drain directly to the sewer system because there is no drain at the bottom of the pool, it can be emptied using the filter pump. To carry out this operation, the selector valve should be in the “DRAIN” position. The open drain valve should be connected to the motor. The prefilter and all of the drain water pipes have to be kept full of water in order for the pump to take in the water.

Before connecting the drain, be sure the skimmers and pool floor cleaning valves are closed.



7.7.5. RINSE

After having carried out a filter “WASH” and put the installation in the “FILTRATION” position, the water will be cloudy for a few seconds as it flows to the pool. Use the “RINSE” function on the selector valve to avoid the cloudy water from circulating to the pool. Operate as follows: Immediately after the “WASH”, put the valve in the “RINSE” position and connect the pump for 1 minute; after this time has passed, stop the pump, and put the valve in the “FILTRATION” position.

This position sends the filtered water directly to the drainpipe.



7.8. MAINTENANCE AND SAND DRAINAGE

To clean the filter, use soap and water as the shine can disappear or the filter can become damaged.

When necessary, replace deteriorated pieces and gaskets.

Carry out the necessary washes and rinses according to the operating instructions.

Clean the sand every year with ASTRAL Filnet solid or Filnet liquid for best results. Changing the sand approximately every 3 years is recommended.

If a pressure lower than normal is observed on the pressure gauge, the state of the skimmers basket and pump prefilter should be checked.

Cleaning the safety valve: If there is a leak in the safety valve, clean the area around the gasket in the following way:



1- Loosen body



2- Open valve



3- Clean gasket



4- Assemble body

7.8.1. THE WINTER PERIOD

To avoid damaging the filter over the winter period the following operations must be carried out:

Do a wash and rinse according the previous instructions.

Empty the water from the filter.

Remove the filter cover to keep it ventilated during the inactive period.

When necessary, put the filter back into operation by following the instructions for COMMISSIONING.

7.8.2. SAND DRAINAGE

The sand deteriorates depending on the volume of water and how often the pool is used, meaning that after a certain time has passed it will need to be changed. The recommended period for changing the sand is every 3 years.

To drain the sand:

- Empty the water from inside the filter. Put the selector valve in the closed position, open the upper cover and the water drain cap (safety valve).
- The filter has a 2" sand drain in the lower part. The sand can be emptied via this drain by removing the drain cap, or it can be released through the upper access by using some kind of tool.



1- Draining water



2- Sand drainage

IMPORTANT: Once it is emptied, VERY CAREFULLY clean the area around the drain cap gasket lock and cover it again.

If after the change a leak is observed in the safety valve, clean the area around the gasket to remove any sand particles that might have gotten stuck.

8. Chemical resistance table

Product	Concentration	Resistant
Free residual chlorine	1,8 mg/l	Yes
Combined chlorine	0,7 mg/l	Yes
Total bromine	3,5 mg/l	Yes
Isocyanuric acid	90 mg/l	Yes
Ammonia	0,6 mg/l	Yes
Nitrates	12 mg/l	Yes
Aluminium	0,35 mg/l	Yes
Copper	2,5 mg/l	Yes
Silver	11,5 mg/l	Yes

9. Troubleshooting

Problem	Possible Cause	Solution
The filter doesn't flow well	Blocked prefilter	Clean the prefilter
	Blocked suction or propulsion tubing	Clean them
The pressure rises rapidly during the filtration cycle	High water pH (cloudy water)	Decrease pH with Astral pH minor
	Lack of chlorine (greenish water)	Add
Pressure gauge violently oscillating	Air in the pump	Check for water leaks in the prefilter and suction tubing. Check skimmer basket cleanliness
	Suction vent semi closed	Check that the suction valves are completely open

10. "DO AND DO NOT"

	DO	DO NOT
Transportation and warehouse	<p>Check the state of the packaging and accompanying information about stacking</p> <p>Always transport inside the box</p>	<p>Do not leave the box in bad weather conditions or in a very humid warehouses.</p> <p>Do not roll the filter.</p> <p>Do not drag the filter</p>
Installation	<p>Install in a totally flat and stable location</p> <p>Install 0.5 m below the level of the pool</p> <p>Leave access for maintenance at a later stage</p>	<p>Do not use hemp or metal body unions</p> <p>Do not directly connect the filter to the water mains, since the pressure could be much higher and exceed the maximum working pressure of the filter.</p>
Commissioning	<p>Check for the correct state of the interiors before filling with sand.</p> <p>Fill the filter half way with water before putting in the sand.</p> <p>Carry out a wash cycle on the sand before putting it into operation</p>	<p>Do not use the equipment without water.</p> <p>Do not handle the filter or valve, without disconnecting it from the electricity supply.</p> <p>Do not directly throw away sand without checking the interiors or without water.</p> <p>Do not move the selector valve with the pump turned on.</p> <p>Do not disconnect the safety valve.</p>
Operation	<p>Check the pressure of the filter regularly</p> <p>Carry out the corresponding washes when necessary</p>	<p>Do not exceed the maximum working pressure of the filter</p> <p>Do not use chemical products in high concentrations that could damage the filter components.</p>

Do not use the equipment without water.

When handling the filter or valve, always disconnect it from the electricity supply.

Do not allow children or adults to sit on the equipment.

Do not directly connect the filter to the water mains, since the pressure could be much higher and exceed the maximum working pressure of the filter.

Do not clean the cover with any type of solvent, as it could lose its properties (shine, transparency,...)

As all the joints are covered by the gaskets, it is not necessary to excessively tighten the nuts, as this might cause the different plastic pieces to crack.

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