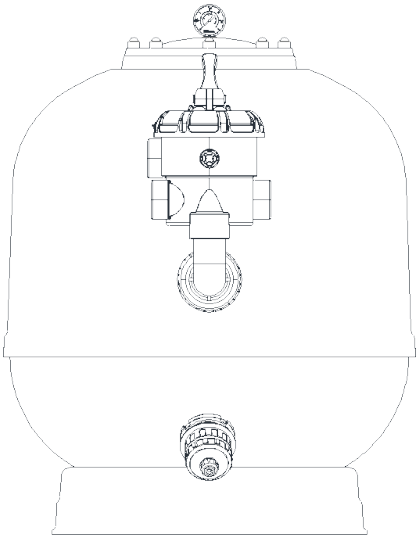
ZODIAC®

MS FILTER

Instructions for installation and use - English
Filter
Translation of the original instructions in French

EN



More documents on:
www.zodiac-poolcare.com

H0648400_REVB - 2018/09

WARNINGS

GENERAL WARNINGS

- Failure to respect the warnings may cause serious damage to the pool equipment or cause serious injury, even death.
- Only a person qualified in the technical fields concerned (electricity, hydraulics or refrigeration) is authorised to perform any servicing or repairs to the appliance. The qualified technician working on the appliance must use/wear personal protective equipment (such as safety goggles and protective gloves, etc.) in order to reduce the risk of injury occurring when working on the appliance.
- Before handling the machine, ensure that it is switched off and isolated from the power supply.
- The appliance is intended to be used for pools and spas for a specific purpose; it must not be used for any purpose other than that for which it was designed.
- This appliance is not intended for use by persons (including children) having a physical, sensory or mental disability, or by persons lacking experience or knowledge of the appliance, unless they are first instructed or are supervised during the use of the appliance by a person responsible for their safety.
- Keep the appliance out of the reach of children.
- The appliance must be installed according to the manufacturer's instructions and in compliance with local and national standards. The installer is responsible for installing the appliance and for compliance with national installation regulations. Under no circumstances may the manufacturer be held liable in the event of failure to comply with applicable local installation standards.
- For any work other than the simple user maintenance described in this manual, the product should be referred to a qualified professional.
- Incorrect installation and/or use may cause serious damage to property or serious injuries (possibly causing death).
- All equipment, even postage and packing paid, travels at the risks and perils of the recipient. The latter shall issue reserves in writing on the carrier's delivery slip if damage is detected, caused during transport (confirmation to be sent to the carrier within 48 hours by registered letter). In the event that an appliance containing coolant has been turned on its side, mention your reservations in writing to the carrier.
- If the appliance suffers a malfunction, do not try to repair it yourself; instead contact a qualified technician.
- Refer to the warranty conditions for details of the permitted water balance values for operating the appliance.
- Deactivating, eliminating or by-passing any of the safety mechanisms integrated into the appliance shall automatically void the warranty, in addition to the use of spare parts manufactured by unauthorised third-party manufacturers.
- Do not spray insecticide or any other chemical (inflammable or non-inflammable) in the direction of the appliance, as this may damage the body and cause a fire.
- Zodiac® heat pump, filter pump and filter appliances are compatible with the most commonly used types of pool water treatment systems.
- Do not touch the fan or moving parts and do not place objects or your fingers in the vicinity of the moving parts when the appliance is in operation. Moving parts can cause serious injury or even death.

WARNINGS CONCERNING SAND FILTERS

- The filter is not a water disinfection system. Use a water treatment system complementary to filtration.
- Use only suitable filter medium (special swimming pool filtration glass or sand).
- Do not operate the filter without water.
- Switch off and disconnect the filter pump electrically then then close the isolation valve before working on the filter or the multiway valve.
- Never open the filter when the filter pump is in operation.
- It is strictly prohibited to handle the multiway valve when water is flowing in it.
- Do not immerse the appliance in water (with the exception of cleaners) or mud.
- Check that there is no air in the filter before turning it on; the presence of pressurised air could damage the filter.
- The proof pressure of the filter is 2.5 bar (36 psi); never operate the filter above this pressure.

Recycling

This symbol means that your appliance must not be thrown into a normal bin. It will be selectively collected for the purpose of reuse, recycling or transformation. If it contains any substances that may be harmful to the environment, these will be eliminated or neutralised. Contact your retailer for recycling information.

- **Before handling the appliance, it is essential that you read this installation and user manual, as well as the "warnings and warranty" booklet delivered with the appliance. Failure to do so may result in material damage or serious or fatal injury and will void the warranty.**
- **Keep these instructions for future reference for operation and maintenance works.**
- **The distribution or modification of this document in any way is prohibited, without prior authorisation from Zodiac®.**
- **Zodiac® is constantly developing its products to improve their quality. The information contained herein may therefore be modified without notice.**

CONTENTS

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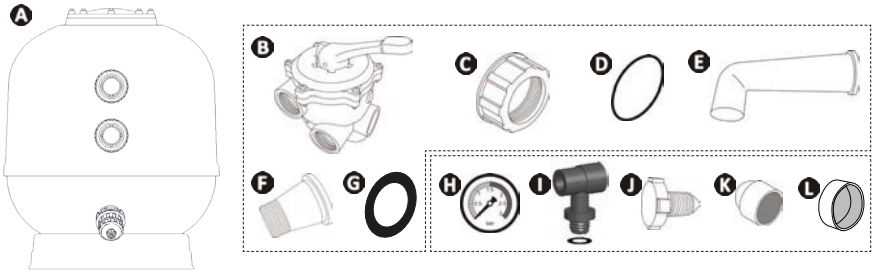
Tip: to make it easier to contact your retailer

- Write down your retailer's contact details to help you find them more easily and fill in the "product" information on the back of the manual; your retailer will ask you for this information.

1 Specifications

1.1 I Description



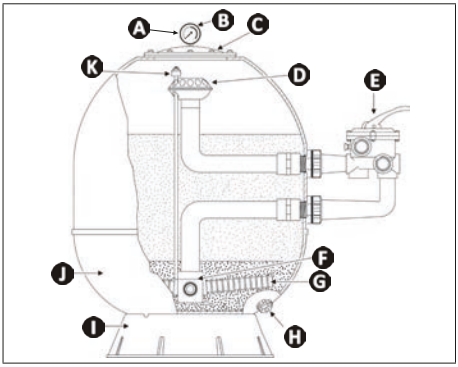
A	Boreal Expert filter
B	Multiway valve
C	Clamping ring (x2)
D	O-ring (x2)
E	Bent pipe
F	Straight pipe
G	Gasket for straight pipe
H	Pressure gauge
I	T-connector + gasket
J	Air bleed screw
K	Caps (x8)
L	Protective cap (filling the filter)

1.2 I Technical specifications

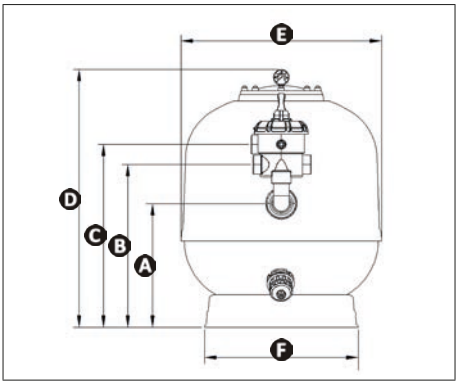
Model		D470	D530	D650	D800	D950
Filtering area	m²	0.16	0.20	0.32	0.47	0.66
Filter media capacity on kg	Sand 0.4 - 0.8 mm	85	100	160	310	485
	Thick glass 1.0 - 3.0 mm*	15	15	30	45	60
	Thin glass 0.7 - 1.3 mm*	60	75	105	225	345
Flow rate (m³/h)	40 m³/h/m²	6.4	8.2	12.7	18.6	26.6
	50m³/h/m²	8.0	10.2	15.8	23.3	33.2
Connections	Ø	1" 1/2	1" 1/2	1" 1/2	2"	2"
Weight	kg	15	18	21	36	58
Maximum filtration rate		50 m³/h/m²				
Working pressure		0.5 - 1.4 bar (7 - 20 psi)				
Test pressure		2.5 bar (36 psi)				
Operating temperature range (water)		2 °C - 40 °C				

* Zodiac® Crystal Clear glass granulometry

1.3 I Dimensions and marking



A: Air bleed screw (on the back of the pressure gauge)
B: Pressure gauge
C: Cover + seal
D: Diffuser
E: Multiway valve
F: Manifold
G: Strainers
H: Drain plug
I: Base
J: Tank
K: Automatic air release



Dimension in mm	D470	D530	D650	D800	D950
Clearance below valve	310	320	375	390	420
A	340	350	405	430	460
B	465	475	530	660	690
C	529	539	594	736	766
D	705	745	815	984	1027
E (external)	475	532	645	798	950
E (internal)	450	510	635	770	920
F	347	400	490	625	705

Filter for indoor use or under a shelter.

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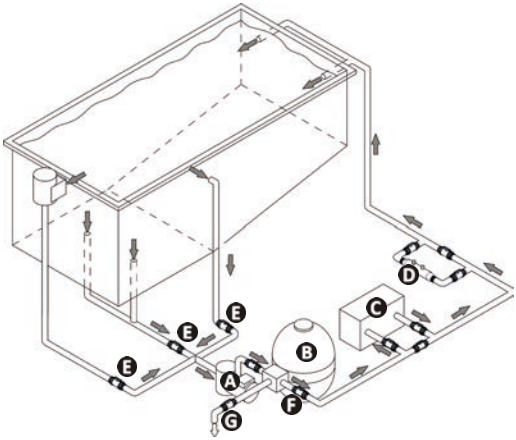
2 Installation

2.1 I Selecting the location

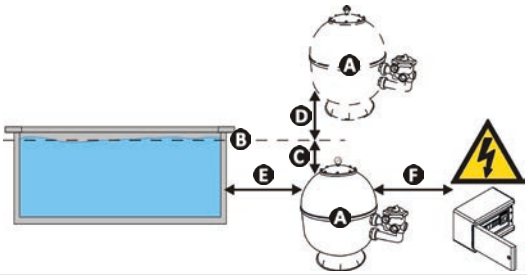
- The filter must be installed:
  - after the circulation pump (see image 1),
  - before the heating and/or water treatment system (see image 1),
  - ideally 0.5 metres below the water level (see image 2: C),
  - ideally less than 5 metres from the pool (see image 2: E),
  - in a dry ventilated equipment room protected against frost.
- The filter must not be installed:
  - in an area subject to flooding, splashing, rain or exposed to direct sunlight,
  - more than 1.5 metres above the water level (see image 2: D),
  - near a heat source or source of flammable gas,
  - in an equipment room where chemicals are stored, since the emanations could damage the filter.
- Easy access is required for maintenance work (cover, hydraulic connection, valves, draining).
- The hydraulic circuit before the filter must be as short as possible to prevent air pockets from becoming lodged in the pipes, and with the fewest obstacles possible (bends, other appliances), to avoid head loss.
- Place on a stable, level and solid surface (e.g. concrete floor).
- Secure the filter to the ground using stainless steel screws (not included).
- Check that the filter is installed more than 1.5 metres from the pool switch box (see image 2: F) in order to be able to stay clear when turning on.
- We strongly recommend fitting a check valve if the filter is installed above the water level.
- Installation of valves upstream and downstream from the filter is mandatory if it is installed below the water level.

1



A: Pump
B: Filter
C: Heating system
D: Water treatment system
E: Suction valves (suction outlets valves, skimmers, suction ports)
F: Discharge valve to the pool
G: Drainage valve to the drainage system

2



A: Filter
B: Pool water Level
C: Ideal distance from the filter relative to the water level (0.5 m)
D: Maximum distance above the water level (1.5 M)
E: Ideal distance from the pool (between 0.4 and 5 m)
F: Minimum compulsory distance between the filter and any switch box (1.5 m)

2.2 I Assembling the filter

2.2.1 Assembling the pressure gauge and air release

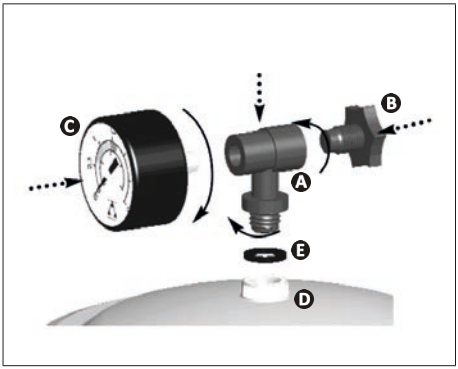
- **Only tighten parts by hand.**

- Screw the T-connector provided (A) into the central orifice (D) of the translucent cap. Use the gasket provided (E) to seal. Do not use Teflon tape.
- Screw the air release (B) onto the large threaded orifice of the T-connector (A).

Tip: installing the bleed screw
The bleed screw already contains its own seal; do not use Teflon tape to seal.

- Screw the pressure gauge (C) onto the small threaded orifice of the T-connector (A).

Tip: installing the pressure gauge
Teflon tape (not included) may be required to improve the sealing of the pressure gauge on the T-connector.



A: T-connector
B: Bleed screw
C: Pressure gauge
D: Central orifice
E: Gasket

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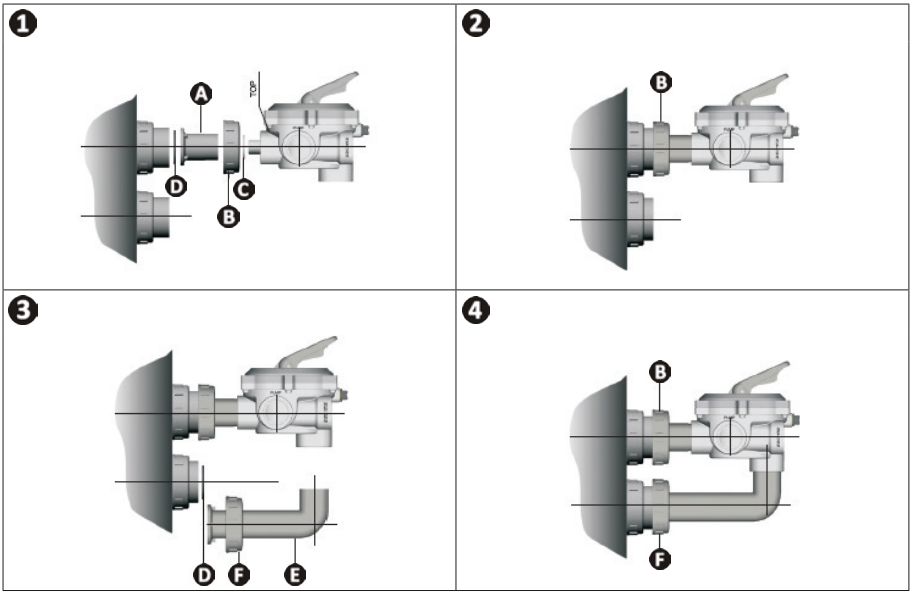
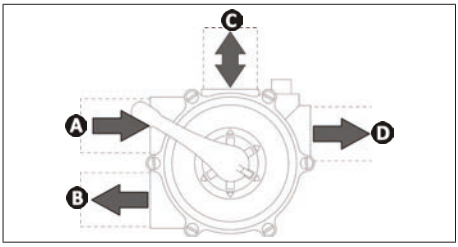
2.2.2 Installing the multiway valve

- Insert the gasket (C) into the threaded orifice marked "TOP" of the multiway valve. Pass a nut (B) around the short pipe (A), then tighten the pipe firmly on the multiway valve to ensure sealing (see image 1).
- Place an O-ring (D) in the groove of the upper connection of the filter. Position the valve with its short pipe by gently tightening the nut (B) so that the assembly can still move (see image 1 and 2).
- Place an O-ring (D) in the groove of the lower connection of the filter. Pass a nut (F) around the bent pipe (E), then position the assembly without bonding in this step (see image 3).
- Gently tighten the nut (F) and firmly tighten the nut (B) to obtain perfect alignment between the multiway valve and the filter (see image 4).
- Remove the nut (F) and bent pipe (E). Prepare and coat the smooth end of the bent/curved section of pipe (E) with a non-toxic adhesive which is suitable for this application and the orifice marked "BOTTOM" of the multiway valve.
- Reposition the bent pipe/nut assembly and firmly tighten the nut (F). Allow the adhesive to dry before turning on the filter.





A: Pool suction

B: Pool discharge

C: Filter inlet or outlet

D: Discharge to the drainage system

2.2.3 Filling the filter

- Remove the bolts and washers holding the translucent cover shroud. Set aside.
- Remove the shroud, the cover and its seal. Set aside.
- Check that the diffuser, the manifold and its strainers are in good position and correctly positioned.
- Unscrew the diffuser and replace with the protective cap provided.
- Fill the filter with one third of water so as to cover the strainers.

Tip: protect the bolt threading
Cover the bolts with adhesive tape to protect them and make the cover easier to close.

- Carefully pour in the coarse grain filter media up to the required level (take care not to damage the manifold and its strainers).
- Level the filter media as it is poured in.
- Then pour in the fine grain filter media up to the required level.

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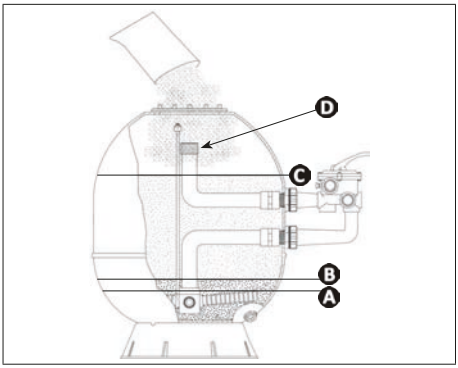
See the label on the filter for the amounts of filter media to use.



A: Initial wall fill level
B: Coarse grain filter media fill level
C: Fine grain filter media fill level
D: Protective cap

- Remove the protective cap and screw the diffuser back in place.
- Clean of any remaining filter media around the groove of the seal and the bolts (if necessary, take the protection off the bolts).
- Position the cover and its gasket on the opening.
- Fit the washers and nuts on the bolts. Tighten the 8 nuts diagonally to obtain a hermetic seal.
- Fit the protective caps provided on the nuts.

Order for tightening the cover

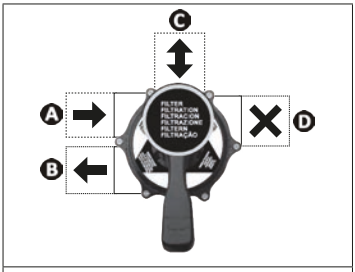
Tip: tightening the nuts
- The nuts must be screwed with a tightening torque of 6 to 7 nm.

3 Use

3.1 I Operating principle

The filter is essential for a swimming pool since it contributes to water treatment and ensures its clarity.
Water passes through the filter media in the filter vessel and impurities are removed.
The greater the accumulation of impurities, the more the pressure in the filter will increase. Identify the normal operating pressure on the pressure gauge when turning on. When the pressure reaches +0.3 to 0.5 bar (+4 to 7 psi) relative to the normal operating pressure , the filter media must be cleaned by backflushing.

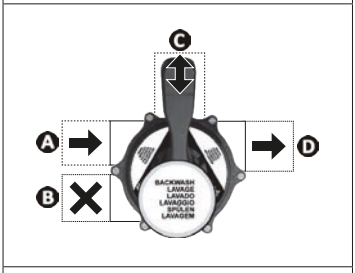
3.2 I Multiway valve positions



Position "Filter"

Water is sent to the filter media and returned to the pool.

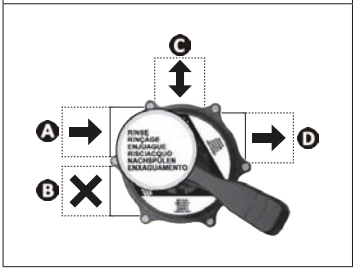
A: Pool suction = open
B: Pool discharge = open
C: Filter inlet or outlet = open
D: Discharge to the drainage system = closed



Position "Backwash"

The filter media is backflushed. The water circulation direction in the filter is reversed and the water discharged to the evacuation to eliminate the impurities.

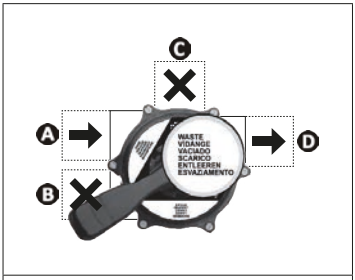
A: Pool suction = open
B: Pool discharge = closed
C: Filter inlet or outlet = open but reverse direction of flow
D: Discharge to the drainage system = open



Position "Rinse"

Water is sent to the filter media and sent to the evacuation. This is carried out to complete the washing procedure and settle the filter media in the filter, as well as to clean the filter pipes after backflushing.

A: Pool suction = open
B: Pool discharge = closed
C: Filter inlet or outlet = open
D: Discharge to the drainage system = open



Position "Waste"

This is carried out to drain the pool or lower the water level. The water is sent directly to the evacuation without going through the filter.

- **In this case, and if the pool has a bottom plug hole, aspirate the water through the bottom plug hole only to prevent air from getting into the pipes.**

A: Pool suction = open
B: Pool discharge = closed
C: Filter inlet or outlet = closed
D: Discharge to the drainage system = open

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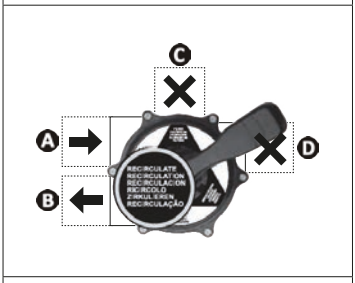
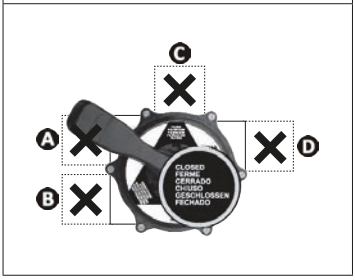


Position "Recirculate"

Water is circulated without going through the filter and sent directly to the pool.

A: Pool suction = open
B: Pool discharge = open
C: Filter inlet or outlet = closed
D: Discharge to the drainage system = closed



Position "Closed"

Water no longer circulates in the multiway valve or the filter.

- **Do not run the filtration pump when the valve is in this position!**

A: Pool suction = closed
B: Pool discharge = closed
C: Filter inlet or outlet = closed
D: Discharge to the drainage system = closed

Tip : winterizing the filter

- When the pool is winterised (reduced water level and pipes drained), set the valve to the intermediate position (between any 2 settings). This position sets the internal gaskets of the multiway valve to standby to protect them and keep them in good condition.

3.3 I Operation

- **To prevent against any risk of explosion that may cause material damage, serious injury or even death, make sure that the hydraulic circuit is free of any debris or blockage and is not subject to excessive pressure, and that the filter cover is properly positioned and tightened.**
- **Ensure that all valves are open and/or that the power of the filtration pump is suitable for the size of the filter if the initial pressure is greater than 1.2 bar (17 psi).**
- **Never change the position of the multiway valve when the filter pump is in operation.**
- **Never dismantle the valve when the filter is pressurised.**

- Check:
  - the correct tightening of the hydraulic connectors,
  - the stability of the filter, which must be level,
  - that the hydraulic circuit is drained and does not contain any debris,
  - that the filter cover is closed properly,
  - that the valves are open.
- Open the filter isolation valves and the drain valve to the evacuation.
- Open the filter cover air bleed screw.
- Set the multiway valve to position "backwash".
- Start the pump.
- When the filter level is at maximum (water comes out of the air bleed screw), close the cover air bleed screw.
- Check that there are no leaks on the hydraulic circuit.
- When starting for the first time, stay in position "backwash" until the water is clear in the transparent window on the side of the multiway valve.
- Stop the water circulation.
- Set the valve to position "rinse" and switch on the water circulation until the water is clear.
- Stop the filtration pump.
- Set the multiway valve to position "filter" and start a normal filtration cycle.
- Record the initial filter pressure shown on the pressure gauge to serve as reference value.
- Make sure that the pressure indicated lies within the operating range (see **§"1.2 I Technical specifications"**).

Tip: installation with a variable speed pump

- For an installation with a variable speed pump, it is normal to have a low initial pressure if the filtering speed is low, and vice versa. In such a case, always use the same filtering speed as a comparison reference.

Tip: to save water

- To consume less water, stop the washing and rinsing procedure as soon as the water is no longer cloudy in the transparent window on the side of the multiway valve.

4 Maintenance

4.1 I Winterizing

- Stop the water circulation.
- Clean the filter (see **§4.1.2 Backflushing**).
- Drain the water out of the filter (see **§4.1.3 Replacing the filter media**), and the entire hydraulic circuit.
- If the filter is positioned below the water level, close the isolation valves at suction and discharge.
- Turn the lever of the multiway valve to an intermediate position (between any 2 settings) to preserve the internal gasket.

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4.2 I Maintenance

4.1.1 User maintenance

- Clean the outside of the appliance, do not use solvent-based products.
- Check the filter pressure and the condition of the pressure gauge and the air release once a week.
- Remove debris from the pump's pre-filter basket (see pump manual).
- Check that there are no leaks in the hydraulic circuit.

4.1.2 Backflushing

- Stop the filter pump and make sure to switch off your water treatment appliance if any, since water will not flow in this part of the hydraulic circuit.
- Check that the pressure shown on the pressure gauge is 0 bar.
- Set the valve to position "backwash" and switch on the filter pump again.
- When the water appears clear through the transparent window on the side of the multiway valve, switch off the filter pump.
- Set the valve to the "rinse" position and switch the filtration system back on.
- When the water appears clear through the transparent window on the side of the multiway valve, switch off the filter pump.
- Set the valve to the "filter" position and switch the filter pump back on.

Tip: backflushing

- Quickly switch back and forth between the "backwash" and "rinse" positions in order to unclog and more easily clean the filter medium. This process reduces water consumption.
- Backflush when water circulation becomes more difficult (pressure more than 0.3 to 0.5 bar above normal pressure, in the yellow or red area of the pressure gauge).
- Backflushing is recommended once a month.

4.1.3 Replacing the filter media

- Stop the water circulation.
- Set the valve to position "closed" and close the other valves as a precaution.
- Open the air bleed screw on the cover and unscrew the drain plug to drain the water from the filter.
- Take off the cover then remove the filter media manually or using a water and dust vacuum cleaner (take care not to damage the diffuser, the manifold and its strainers).
- Fill the filter with new filter media (see **§2.2.3 Filling the filter**).

5 Troubleshooting

- **If a problem occurs, before you contact your retailer, please carry out these few simple checks using the following tables.**
- **If the problem continues, contact your retailer.**
- **: Actions to be performed by a qualified technician only**

Malfunction	Possible causes	Solutions
Low water flow rate.	• Pump pre-filter strainer and/or filter clogged. • Valves incorrectly set. • Water leak.	• Clean the pump pre-filter strainer. • Wash the filter media. • Adjust the valves. • Check that there are no leaks.
The pressure gauge indicates a high pressure.	• Filter media clogged or too old. • Valves incorrectly set.	• Wash the filter. • Change the filter media. • Adjust the valves.
Filter media in the pool.	• Incorrect filter media grain size. • Too much filter media in the filter. • Manifold and/or manifold strainers damaged.	• Check the filter media grain size, change if necessary (see **§4.1.3 Replacing the filter media**). • Remove some filter media to obtain the correct level (see **§2.2.3 Filling the filter**). • Replace the damaged manifold and/or manifold strainers.
The pressure gauge needle shakes violently.	• Air leak in the circuit. • Suction valves half-closed.	• Check the connections and gaskets. • Adjust the valves.
The water is cloudy.	• Filter media clogged. • Water balance incorrect. • Filtration time is insufficient.	• Wash the filter media to eliminate the foreign bodies. If washing is insufficient, change the filter media and check the condition of the manifold and/or its strainers. • Check and adjust the water balance. • Wash the filter media and increase the filtration time if this proves insufficient.
The filter must be cleaned more frequently.	• Water balance incorrect. • Filter media clogged. • Organic proliferation in the filter media.	• Check and adjust the water balance. • Wash the filter. If washing is insufficient, change the filter media. • Clean the filter media using a special "filter cleaner".
The multiway valve sticks.	• The valve is clogged or contains foreign bodies.	• Rinse the multiway valve. If this is insufficient, dismantle it (respect precautions in **§2.2.2 Installing the multiway valve**), change it if necessary.

ZODIAC®

Votre revendeur *Your retailer*	
Modèle appareil *Appliance model*	
Numéro de série *Serial number*	

Pour plus d'informations, enregistrement produit et support client :
For more information, product registration and customer support:

www.zodiac.com

Zodiac Pool Care Europe - Bd de la Romanerie - BP 90023 - 49180 St Barthélémy d'Anjou cedex - S.A.S.U. au capital de 1 267 140 € / SIREN 395 068 679 / RCS PARIS