

PANTERA

HIGH-RATE SAND FILTER

OWNER'S
MANUAL



IMPORTANT:

Please read and follow all instructions carefully. Failures caused by incorrect installation or operation are not covered by the warranty.

TABLE OF CONTENTS

General Information	2
Model Data	3
Installation & Assembly	4 - 8
Startup / Operation	9 - 10
Service & Maintenance	11 - 12
Tank Assembly	13
Troubleshooting	14 - 15

GENERAL INFORMATION

This filter is designed for use in domestic/residential swimming pool installations with correctly sanitised fresh or salt chlorinated water. Suitable for use with sand or Zelbrite filter media.

1. Locate the filter system as close to the pool as practical.
2. Place the filter on a level stable foundation, preferably a concrete pad or paving.
3. Position all equipment to provide ease of access for future servicing.
4. Protect the filter and pump from weather and direct sunlight by ensuring that they are properly housed.
5. Ensure there is sufficient space to provide adequate ventilation to electric pump motor.
6. Clean a new pool as well as possible before filling pool and operating filter. Excess dirt and large particles of foreign matter in the system can cause serious damage to the filter and pump.
7. Ensure pump is compatible with filter specifications.

MODEL DATA

The operator must be provided with the owner's manual. This must be read before operation and followed during operation. These instructions are a guide only. Users not familiar with pool equipment should seek advice for suitably qualified persons with experience in pool equipment installation.

Manufactured in Australia, the Onga Pantera II sand filter is made from UV stabilised polyethylene. The reputation of durability and performance makes the PanteraII range first choice for quality pool builders.

Technical Data

	P221	P225	P229	P233
Filter Diameter (mm)	535	635	735	835
Filter Area (m ²)(Internal)	0.205	0.293	0.397	0.517
Max Working Pressure (kPa)	250	250	250	250
Maximum Flow Rate (lpm)	165	235	320	415
Design Flow Rate (lpm)	145	205	280	365
Min Flow Rate for Backwashing (lpm)	125	175	240	310
Recommended Pool Volume (litres):				
Minimum	30000	45000	60000	75000
Maximum	65000	90000	120000	160000
Filter Height (to top of valve)*	840	960	1090	1170
Required mass of filter media:				
Sand (16/30 grade)(kg)	90	140	185	220
Zeolite (kg)	70	105	140	165
Valve Size (connection to PVC)(mm)	40	40	50	50
Glass (Fine/Coarse)	60/30	90/45	120/60	135/75

*It is recommended to ensure there is at least 600mm of clear space above the top of the filter to facilitate servicing.



Due to excessive cycling, this filter is not suitable for use on inbuilt In-floor Cleaning Systems.

INSTALLATION & ASSEMBLY



Hazardous Pressure

Incorrectly installed or tested equipment may fail, causing severe injury or property damage. Read and follow instructions in owner's manual when installing and operating equipment.

Have a trained pool professional perform all pressure tests.



All glued fittings and pipe work should be allowed to dry to atmosphere for 24 hours before closing the installation. Failure to do so could cause injury or installation failure.



The fittings on these filters are constructed of ABS. Some PVC jointing compounds are incompatible with ABS possibly causing failure to the product. Check compound suitability prior to use.

	⚠ DANGER	BEFORE WORKING ON THE FILTER
	<p>HAZARDOUS Pressure! Can cause severe injury or major property damage from tank explosion.</p>	<ol style="list-style-type: none"> 1. Stop pump. 2. Release all pressure from system by turning valve handle to waste.

	⚠ WARNING	BEFORE WORKING ON PUMP OR MOTOR
	<p>Filter pumps require hazardous voltage which can cause shock, burn or even death.</p>	<p>Disconnect power to motor.</p>

INSTALLATION & ASSEMBLY

Installation & Assembly of Internal Components

Installation of filter should be only carried out by qualified personnel. Ensure that the under-drain assembly (hub, laterals & tube) are properly assembled & installed prior to adding filter media (sand).

1. The filter internals comprise of a collector hub and eight (8) laterals, which are supplied packaged separately with the collector hub and are stored inside the filter tank prior to shipment.
2. Carefully inspect the laterals and hub prior to assembly for any visible defects.
3. To assemble the laterals and hub please use the following steps. (The connection between the hub and the lateral is completed inside the filter tank - refer to diagram on following page)

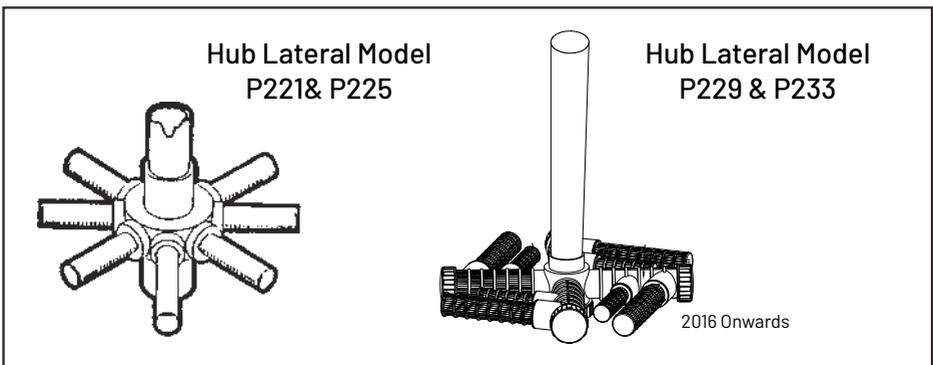
For P221100 & P225100 Models only:

Push in and align the male tab on the lateral with the female slot in the hub. Rotate the lateral clockwise until the tabs engage with an audible “click”. Repeat this process for all 8 laterals.

For P229200 & P233200 Models only:

Place the hub inside the neck of the filter tank. Begin by assembling the ‘F’ pieces, align the lateral key with the hub and insert, turn to lock in place. Repeat with the 4 ‘F’ pieces.

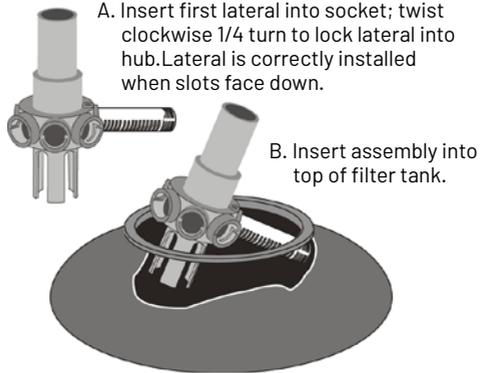
Next, insert the large diameter laterals in the outer socket of the ‘F’ pieces. Repeat 4 times. Finally, insert the small laterals into the inner sockets. Repeat 4 times.



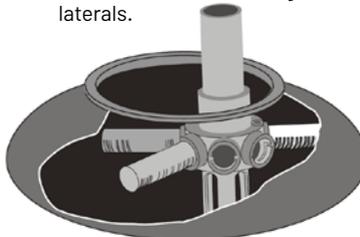
Important: Ensure slotted side of laterals face downwards from hub after final assembly, and prior to filling with sand.

INSTALLATION & ASSEMBLY

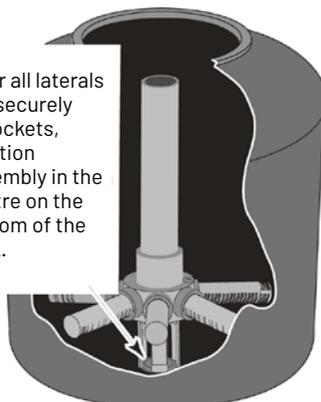
Steps for Installation of Filter Internals



C. Hold assembly up near top of tank and add remaining laterals.



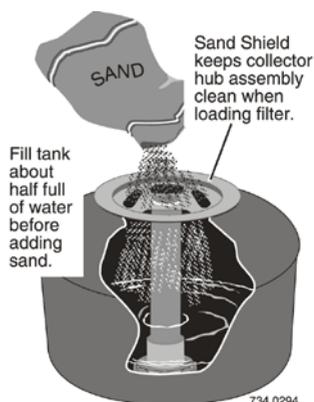
D. After all laterals are securely in sockets, position assembly in the centre on the bottom of the tank.



INSTALLATION & ASSEMBLY

Loading Sand Media

1. To keep sand out off collector assembly, place plastic sand shield over top of collector tube before pouring sand into filter (See diagram).
2. To support laterals and prevent lateral breakage during loadings, fill tank about half full of water before loading sand.
3. Pour sand into filter, making sure that the sand is of the correct type and quantity for the particular filter model (Refer to filter label).



IMPORTANT

Make sure gasket area on top of tank is free of sand before installing valve.

4. Before installing valve, double-check that the correct quantity of sand has been loaded.
5. Remove plastic sand loading shield and keep for future use.

Installation of Multi-Port Valve

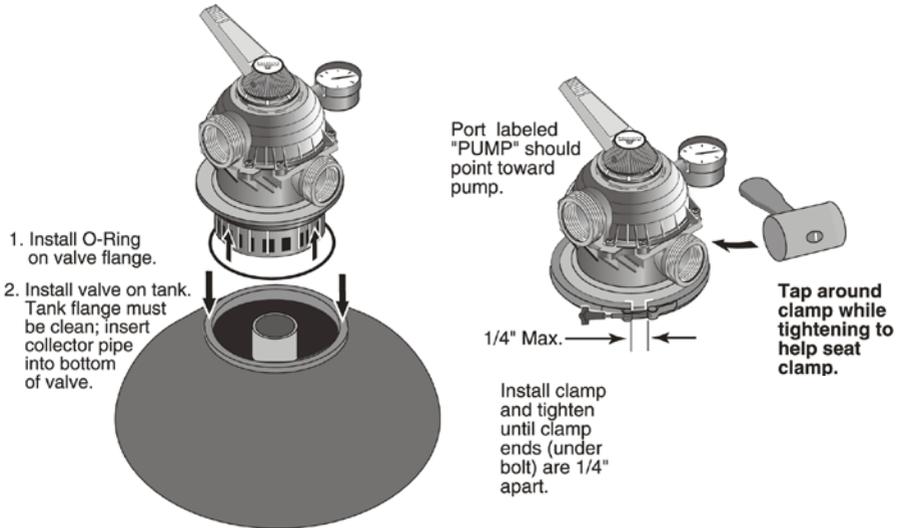
1. Install o-ring on valve flange; make sure o-ring is clean, and has no nicks, tears, or scrapes and lubricate with silicon based lubricant.
2. Make sure tank and valve flanges are clean and free of sand; put valve on top of tank. Vertical pipe of collector assembly inserts into base of valve.
3. Install clamp; make sure knob is positioned for easy access for filter maintenance. Valve port labelled "Pump" should point toward pump.

INSTALLATION & ASSEMBLY

WARNING

Hazardous pressure. Clamp will not hold unless it is seated properly! **DO NOT START PUMP** until clamp ends are 1/4" (6mm) apart or less.

4. Tighten clamp knob until clamp ends (under bolt) are 1/4" (6mm) apart.
Tap around outside of clamp with a mallet to help seat clamp.



5. Connect pipe from pump discharge to valve port labelled "PUMP"; use union half provided. Assemble union as follows for leak free operation:
 - o-ring and sealing surfaces must be clean.
 - Assemble hand tight only (No wrenches).
 - NO pipe compound or teflon tape on unions.
6. Complete all plumbing connections, using 1 1/2" (P221100 & P225100) or 2" (P229200 & P233200) pipe to reduce pressure losses as much as possible.
 - Pipe from valve RETURN port to pool return.
 - Pipe from valve WASTE port to waste.
 - Suction piping from pool to trap inlet on pump.
7. System is ready to start up.
8. If you notice a leak around the clamp area after 15-30 minutes of running, repeat steps 3-4.

CAUTION

If there are leaks from beneath valve/clamp area, STOP PUMP, release all pressure by turning valve handle to 'waste', remove clamp and valve and clean sealing surfaces.

STARTUP / OPERATION



The filter operator or owner must be provided with this owner's manual. This must be read before operation, and followed during operation.



Incorrectly installed or tested equipment may fail, causing severe injury or property damage. Read and follow instructions in owner's manual when installing and operating equipment. Have a trained pool professional perform all pressure tests.



Hazardous Pressure. To avoid explosion and possible severe or fatal injury, filter system pressure must not exceed 40psi (280kPa) under any circumstances. **NEVER** test this filter system with compressed air; never operate system with water temperature above 35°C.



To prevent equipment damage and possible injury, turn pump OFF before changing valve position.



Do not add chemicals directly into the pool skimmer. Adding undiluted chemicals may damage equipment and void warranty.

Multi-Port Valve Settings

Valve Setting

Purpose/Flow



FILTER

Normal filtration and vacuuming; water goes through filter to pool.



RINSE

For initial startup cleaning and sand bed leveling after backwash; water goes through filter to waste.



RECIRCULATE

Circulates pool water; bypasses filter.

Valve Setting

Purpose/Flow



BACKWASH

Reverses flow for cleaning; water goes through filter to waste.



CLOSED

Shuts off all flow to filter and pool.



WINTERIZE

Leaves all valve ports partially open for winter storage.



WASTE

Lowers pool level or drains pool; water bypasses filter, goes to waste.

STARTUP / OPERATION

1. Open system valve and make sure pump is filled with water. Make sure pool water level is 2" (50mm) above bottom of skimmer opening.

2. With pump OFF, set valve to 'BACKWASH' position.



BACKWASH
Reverses flow for cleaning; water goes through filter to waste.

3. Start pump, circulating water through filter to waste.
NOTE: To prevent pump running dry, be sure water level never drops below bottom of skimmer inlet. Add water to pool if necessary to keep skimmer flooded while backwashing and rinsing.

4. Backwash until water runs clear (1-5 minutes)

5. Stop Pump; set valve to 'RINSE' position.



RINSE
For initial startup cleaning and sand bed leveling after backwash; water goes through filter to waste.

6. Start pump; run pump for 1 minute.
Note: for Zelbrite repeat steps 1 through to 6 three times.

7. Stop pump; set valve to 'FILTER' Position.



FILTER
Normal filtration and vacuuming; water goes through filter to pool.

8. Filter is now ready for service.
9. Record clean starting filter pressure gauge reading as a reference.
10. For new pools, backwash once a day until pool water is sparkling clear. Backwash when pressure gauge shows 5 to 7 psi (35 to 50kPa) higher than clean starting pressure (refer to step 9).

SERVICE & MAINTENANCE



Hazardous pressure. Stop pump and release all pressure from system before working on filter, valve, or clamp.



DO NOT use solvents to clean filter; solvents may damage components in system.

General Maintenance:

Wash outside of filter with a mild detergent and water. Rinse off with hose.

Inspect sand/media bed at least once a year to remove foreign material which has not been back-washed out of the system.

NOTE:

When the sand/media bed gets hard and crusty on top, remove all the old sand/media and replace it with new sand/media. Alternatively, if the pressure gauge does not return to within 40kPa of clean filter pressure after back-washing it is time to replace the filter media.

Weekly Pool Equipment Inspection

1. Check pressure during operation. When pressure is 5 to 7 psi (35 to 50 kPa) higher than clean operating pressure, backwash filter (see instructions under Startup/Operation, page 10).
2. Except during hot weather with heavy skimmer loads, operating filter 6 to 12 hours per day should be sufficient. Carefully monitor water chemical balance and follow recommendations of your local pool professional.

Water Maintenance

Keep water level at least 2" (50mm) above bottom of skimmer opening. Failure to do so can allow air to enter system, causing pump to lose prime and air to enter filter.

Maintain pH between 7.2 and 7.6 in pool.



To prevent damage to system components, keep water temperature below 38°C at all times.

SERVICE & MAINTENANCE

Vacuum Pool

(Refer to cleaner operating manual or consult your local pool professional)

1. Fill vacuum hose by submerging in water from one end to the other.
2. To vacuum, insert hose into skimmer suction manifold or into vacuum line in pool wall. See instructions provided by the pool builder or pool manufacturer. Start pump, making sure it is primed and pumping.
3. After vacuuming, clean pump trap basket to remove accumulated debris, then check filter pressure gauge. If reading is 5 to 7 psi (35 to 50 kPa) higher than initial operating pressure, backwash filter.

Lower or Drain Pool

1. Turn pump 'OFF'; set valve handle to 'WASTE'.
2. Use Vacuum cleaner hose and head.
3. Start pump; run until pool is lowered to desired level.
4. Turn pump 'OFF' set valve handle to 'FILTER'
5. Start pump.

Multi-Port Valve Service



If valve is leaking during normal operation it will need to be repaired by an authorised Pentair Water service technician.

Valve Removal

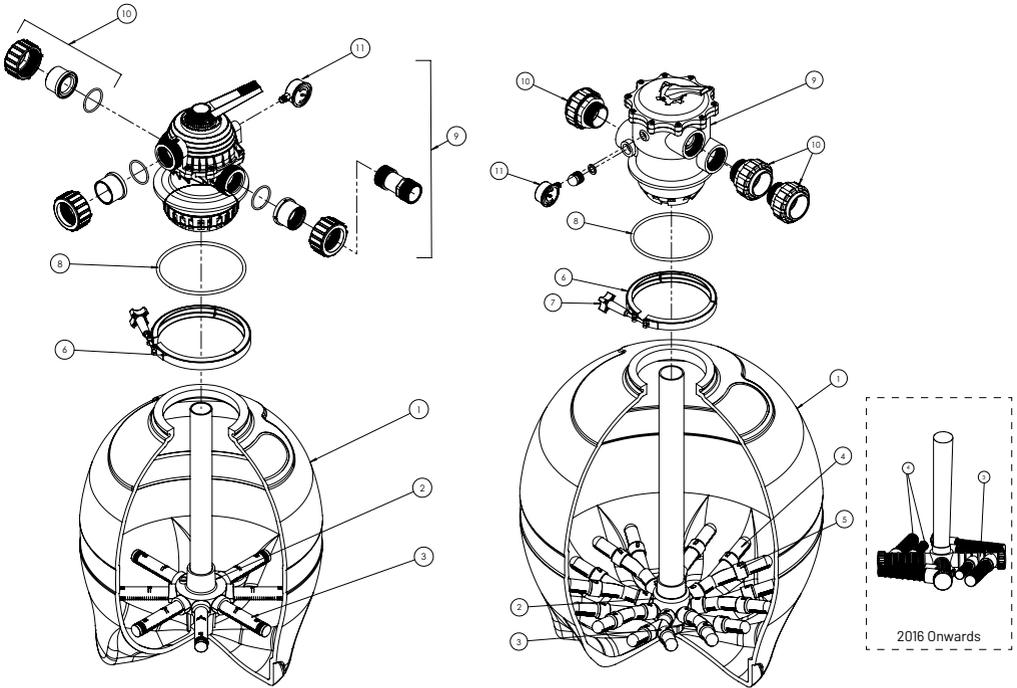


Hazardous pressure. Stop pump and release all pressure from system before working on filter, valve, or clamp.

NOTE: If Multi-Port Valve is below pool water level, close suction and discharge valves before disassembly to prevent draining pool.

1. Disconnect piping from pump and pool.
2. Remove clamp.
3. Remove valve from filter top.
4. To re-install valve, follow instructions, BE SURE to follow clamp tightening instructions.

TANK ASSEMBLY



Item	Description	P21	P25	P29	P33
PANTERA HIGH-RATE SAND FILTERS					
1	FILTER TANK ASSEMBLY	110550	110551	110552	110553
2	COLLECTOR HUB	24201-0040	24201-0040	5306700	5306700
3	LATERAL STEM	24700-0075	24700-0075	5306900 (pre 2016) 89012516 (2016 onwards)	5306800 (pre 2016) 89012516 (2016 onwards)
4	LATERAL BRANCH	-	-	5307000 (pre 2016) 01172010 & 01172007 (2016 onwards)	5307000 (pre 2016) 01172010 & 01172007 (2016 onwards)
5	LATERAL LOCKING PIN	-	-	5307200 (pre 2016)	5307200 (pre 2016)
6	HUB, STANDPIPE & LATERAL KITS	40mm PVC 443mm	40mm PVC 550mm	707671	707672
7	CLAMP ASSEMBLY	24201-0103	24201-0103	24201-0103	24201-0103
8	HANDLE - CLAMP	See Clamp Assembly			
9	O'RING - TANK FLANGE	702223	702223	702223	702223
10	MULTI-PORT VALVE ASSEMBLY*	SR14965-A003	SR14965-A003	SR14971-TM-22-L	SR14971-TM-22-L
10	BARREL UNION	14965-A033 (includes 3 pieces) U11-182PM (Union Nut) U11-183PM (Union Tail 40mm Slip) U11-201PM (Union Tail Threaded) U9-226 (O-Ring Union)		200-903 (O-ring: 702250)	
11	PRESSURE GAUGE	5166700	5166700	5166700	5166700
12	BAYONET WASHER (NOT SHOWN)	-	-	5307100	5307100
13	SAND LOADING DISK (NOT SHOWN)	24201-0063	24201-0063	24201-0063	24201-0063

TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
No Water Discharge	Pool water level too low	Fill Pool to correct level.
	Air leaks in inlet fittings to pump.	Check and tighten all connections. Teflon tape fittings.
Short Filter Cycles	Filter Dirty	Filter not backwashed for long enough period.
		Replace Media (Sand or Zelbrite)
	Algae present in Pool water.	DON'T RUN FILTER WITH LIVE ALGAE IN POOL. Check the chemical condition of pool water and refer to Pool Water Chemical Treatment. Note: Incorrect chemical treatment will greatly shorten filter cycle.
Filter Startup Pressure High and Water Flow Low	Filter requires backwash	Follow backwash procedure outlined in Manual.
	Return Line restricted	Check for flow at return.
Filter Startup Pressure Low and Water Flow High	Skimmer Basket full of leaves or debris	Clear Skimmer Basket of all foreign matter and debris.
	Pump Strainer Lid not sealed correctly.	Refer to pump Owners Manual for correct procedure for sealing strainer lid correctly.
	Pool water level too low.	Fill Pool correct level.
	Pump Impeller Blocked	Call an authorised service agent to service pump.
	Blockage in suction line	
	Air Leak in suction line	

TROUBLESHOOTING

Leaking From Filter Tank Joint	Tank o-ring dirty	Call an authorised service agent to service pump.
	o-ring incorrectly fitted	
	o-ring damaged (pinched)	
	Clamp Band not correctly fitted	

Should problems persist, contact your nearest Pentair Water Service Agent.



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