FILTER VESSEL INSTALLATION & OPERATING INSTRUCTIONS

PACIFIC WATER TECHNOLOGY

CALCITE FILTER MODELS: IN/OUT HEAD

INDUSTRIAL FRP PRESSURE VESSEL TANK 18"x65"
100% corrosion resistant and made from high-performance composite material food grade HDPE seamless liner with FRP filament winding.

MANUAL MULTI-PORT VALVE
F56K（51204K）

CALCITE MEDIA

Calcite is a crushed and screened inexpensive white marble media used to neutralise acidic or low pH waters to a neutral, less corrosive effluent.

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INSTALLATION RECORD

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Please complete the following as a record of purchase for warranty and service purposes.

FILTER MODEL: CALCITE CLACK WS E1

SERIAL NO.: .....

PURCHASED FROM: .....

DATE PURCHASED: .....

DATE INSTALLED: .....

INSTALLED BY: .....

HOW DOES YOUR FILTER WORK?

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Congratulations on the purchase of your new Calcite Filter.

Please take the time to read the following. It will familiarise you with the design principles and workings of your new filter.

The Science of Calcite

Calcite is a naturally occurring calcium carbonate media. One of the advantages of Calcite is its self-limiting property. When properly applied, it corrects pH only enough to reach a non-corrosive equilibrium. It does not overcorrect under normal conditions. Upon contact with calcite, acidic waters slowly dissolve the calcium carbonate to raise the pH, reducing the potential leaching of copper, lead, and other metals found in typical plumbing systems. Periodic backwashing prevents packing, reclassifies the bed, and maintains high service rates. Depending on pH, water chemistry, and service flow, the Calcite bed will have to be periodically replenished as the Calcite is depleted.

As the Calcite's calcium carbonate neutralises the water, it will increase hardness and a softener may become necessary after the neutralizing filter. Magnesium oxide medium may be added to boost the neutralising capacity of the filter. Upon contact with calcite, acidic waters slowly dissolve the calcium carbonate to raise the pH, reducing the potential leaching of copper, lead, and other metals found in typical plumbing systems. If the increase in hardness is to be prevented, it may be necessary to increase the pH using Sodium Carbonate (Soda Ash) or Sodium Bicarbonate.

Each 100 mg/l of Calcite will neutralize 44 mg/l of carbon dioxide. So, I cubic foot (28 litres) of Calcite will treat about 96,800,000 mg of carbon dioxide. If water has 20 mg/l of carbon dioxide, then 1 cubic foot will treat (96,800,000 / 20) liters of water. Or 4,840,000 liters or 1,278,730 gallons of water. If the water usage is 10,000 gallons/day, then 1 cubic foot of Calcite will last 128 days.

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FRP water filter pressure vessel

- FRP water filter pressure vessel is used to hold filtration media for many different commercial and industrial water treatment applications, FRP filter pressure vessel tank is used in commercial iron removal filters, commercial water softeners, Commercial sand filters, media filters, activated carbon filters, mixed bed resin systems, cation and anion resin deionisers and other media filters.
- This FRP filter tank can be combined with any type of specialised filtration media such as activated carbon, calcite, quartz sand, brim, siliphos, zeolite, and KDF as well as several different ion exchange resins such as softening, deionisation cation resin, anion resin, and mixed bed ion exchange resin.
- 100% corrosion resistant and made from high-performance composite material food grade HDPE seamless liner with FRP filament winding.
- Material of Construction: FRP with polyethylene inner shell.
- Colour: Blue (default) or natural colour (Optional).

- **Opening: Top opening with 4” Threaded, 4"-8NPSM neck.**
- Total Capacity: 242 liters.
- Nominal Dimension: 450x1650mm (18-inch OD x 65-inch High).
- Maximum Operating Pressure: 150 psi (1 MPa).
- Burst Pressure: 4 times of design pressure.
- Maximum Operating Temperature: 49°C.
- Fibre Reinforced Plastic (FRP) Filter Vessels is only meant to be used with water applications and must not be used for pneumatic or hydro-pneumatic applications.

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Manual Multi-port Valve 51204 F56KY

Manual multi-port media valve head with bypass for water filtration vessels and tanks.

Suits any water tank or media vessel with a 2.5” female threaded top.

The head has three 1” Bsp female inlet, outlet, and drain ports.

The sturdy lever on the top can be turned to select between Filtered, Backwash, Fast Rinse, and By-Pass.

The by-pass position will allow water to travel straight through the head without being filtered.

Suitable for uses with 1.05” drop tubes.

Includes the O-ring for the base of the head to seal when attached to the vessel/tank, three 1” blue rubber washers are included to provide a tight seal when screwing fittings into the ports of the head.

Top basket will also be included, the basket locks into the head with a twist and fits 1.05” Outer Diameter pipe.

Dimensions are:

Height of Valve Head from the bottom of the Thread to the top of the Handle (170mm)

Width across the head from Port to Port (130mm)

Model	F56K（51204K）
Handwheel material	Plastic
Mount type	Top mount
Inlet/outlet	1"F
Drain	1"F
Mounting base	2.5"-8NPSM
Riser pipe	1.05"OD
Flow rate	4.5m³/h
Filter tank	6"--12"
Water pressure	0.15-0.6Mpa
Water temperature	5-50℃
Water turbidity	＜20FTU
Application	Activated carbon filter, sand filter
Filter media	Quartz sand, activated carbon

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CAUTION!

The filter is not designed to remove microbiologically unsafe contaminants from the water supply. If the water is for potable use, it should be disinfected prior to use.

IMPORTANT. FAILURE TO COMPLY COULD VOID THE WARRANTY!

a. All plumbing must conform to Australian Standards guidelines and Local Council regulations.
b. For filters subjected to permanent hydrostatic pressure an integral non-testable backflow prevention device in accordance with AS3500.1 and complying with AS 2845.1 Clauses 3.6.3, 3.6.4, 7.3.1 and 7.3.3 should be fitted in the inlet line.
c. For filters subject to hydrostatic pressure in excess of 690 kPa a suitable pressure control device should be fitted in the influent line.
d. Where the hot water system is a mains pressure storage type, a cold-water relief valve of suitable rating should be fitted (if not already installed), between the non-return valve and the cold-water inlet of the hot water system.
e. A water hammer arrestor should be fitted for installations subject to excessive or prolonged water hammer.

GENERAL SPECIFICATIONS

Minimum Operating Pressure	280 kPa
Maximum Operating Pressure	690 kPa
Minimum & Maximum Operating Temperature	5°C to 49°C

MODEL	DESCRIPTION	In/Out kmm	Service. Flow lpm
CALCITEWS 18”X65" Manual Filter	IN/OUT Manual multiport valve, calcite media 186.2Kg, under bed gravel 43 kg, and loading funnel		

LOCATE THE FILTER:

√ CHECKLIST

1. It is advisable to locate the filter in a protected environment. A protective shelter or shed is recommended if the unit is to be installed outside or in the open.
2. The distance between the filter and the drain should be as short as possible.
3. The location should be easily accessible and have adequate height clearance to facilitate servicing.
4. Hot water can severely damage the filter. If installing near a hot water service, ensure a minimum of 2 metres of piping between the outlet of the filter and the inlet of the heater to help avoid heat transfer. Ensure a non-return valve on the inlet of the hot water system is present and functional.
5. Do not install a filter where it or its connections (including drain and overflow lines) will ever be subjected to ambient temperatures under 1°C or over 49°C.
6. Do not install filters near chemicals or chemical fumes.
7. The filter will require a standard 3-pin 240-volt 10-amp grounded power outlet.

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MEDIA LOADING & FILTER ASSEMBLY:

1. Position the filter tank in the selected location.
2. Place the distributor tube and basket assembly in the media tank. Ensure the riser is sitting in a recess at the bottom of the tank. The top of the distributor tube should be level with the top of the filter tank.
3. Cover or plug the top of the distributor tube with a rag or bag to stop the media from entering the tube.
4. The amount of Calcite media and under-bed gravel required are as per below.
5. Check you have the correct quantities. While holding the distributor tube central to the neck of the tank, and
6. exerting slight downward pressure to stop the tube from moving, pour in the underbed gravel. #5 followed by #6.
7. Holding the distributor tube central to the neck of the tank and exerting slight downward pressure, shake the tank back and forth slightly to level out the gravel in the tank.
8. Pour in the calcite media.
9. Do not remove the tape at the top of the riser tube until all the media has been added.
10. Remove the rag or bag from the tube and clean the media from the tank threads and the top of the distributor tube.
11. Fill the tank with water to approximately 150 mm from the top.
12. Smear silicon grease to the outside of the top of the distributor tube approx. 50mm down from the top of the tube.

UNDERBED COARSE #5 (kgs)	UNDERBED FINE #6 (kgs)	CALCITE (kgs)
25.0	18.0	186.20

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Place the Backwash valve over the distributor tube and, exerting slight downward pressure, screw the Head into the tank thread until the head bottoms against the top lip of the tank.

CAUTION! - Hand tightens only.

Note: In order to allow media bed expansion do not fill media more than 60-70%. This will allow the media bed to be expanded and any contaminants to be flushed away. Always carry out a fast rinse after backwash to recompact the media bed and rinse any contaminants from the filter.

WATER LINE CONNECTION:

NO HARD WATER BYPASS VALVE (NHWBP) OPTION: _

a. If the 'NO HARD WATER BYPASS VALVE' option is supplied, connect it to the outlet of the bypass Valve.

11. Connect the incoming and outgoing water lines to the inlet & outlet adaptors. Flow direction arrows are moulded on the valve barrels to show the correct flow direction.

√ CHECKLIST

1. After installation is completed, turn on the supply water to check for leaks

2. Fully open a cold-water faucet downstream of the system

3. Allow water to run until clear- water will appear milky and may be aerated.

4. Close the cold-water faucet INSTALLATION & OPERATING INSTRUCTIONS

5. Turn off the water supply

The system is now ready for start-up. Please note always install the UV disinfection after any pre-filters and as close as possible to the point of usage. We recommend that the UV system be installed horizontally with an inlet/outlet on top. Protect filter from direct sunlight to prevent algae growth.

The filter is now ready for operation – turn water back on.

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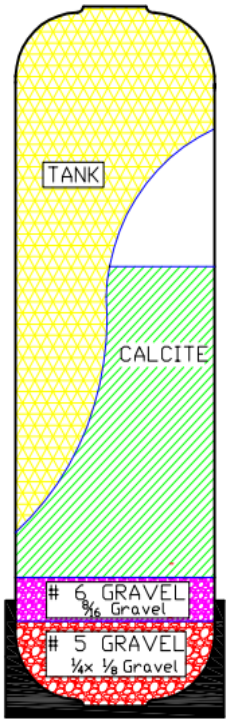

CALCITE FILTER GRADE A8021-01													RECOMMENDED FLOW RATES LPM	
FILTER TANK SIZE	FILTER TYPE	#5 UNDERBED ¼ x ⅛ Gravel Kgs	BAG QTY.	ORDER BAG QTY.	#6 UNDERBED ⅜ Gravel Kgs	BAG QTY.	ORDER BAG QTY.	MEDIA QUANTITY A8021-01 Kgs	BAG QTY.	ORDER BAG QTY.	MEDIA QUANTITY Ft3	Litres	SERVICE RANGE	BACKWASH RANGE
9 X 48	CALCITE GRADE A8021-01		-	-	7.50	0.30	1.00	40.90	1.80	2.00	1.00	28.5	5 / 10	13 / 20
10 X 54			-	-	10.00	0.40	1.00	51.10	2.20	3.00	1.25	35.5	6 / 12	16 / 25
12 X 52			-	-	15.00	0.60	1.00	81.80	3.60	4.00	2.00	56.5	9 / 18	24 / 35
13 X 54			-	-	20.00	0.80	1.00	92.00	4.00	4.00	2.25	63.5	10 / 20	28 / 41
14 X 65			-	-	25.00	1.00	1.00	122.70	5.40	6.00	3.00	85.0	12 / 24	32 / 48
16 X 65		20.00	0.80	1.00	10.00	0.40	1.00	143.20	6.30	7.00	3.50	99.0	15 / 30	42 / 63
18 X 65		25.00	1.00	1.00	18.00	0.75	1.00	186.20	8.20	9.00	4.50	127.5	20 / 40	53 / 80
21 X 62		40.00	1.60	2.00	25.00	1.00	1.00	245.50	10.80	11.00	6.00	170.0	26 / 52	72 / 108
24 X 71		60.00	2.40	3.00	30.00	1.20	2.00	327.30	14.40	15.00	8.00	226.5	35 / 70	94 / 141
30 X 72		120.00	4.80	5.00	60.00	2.40	3.00	531.80	23.40	24.00	13.00	368.0	54 / 108	147 / 221
36 X 72		160.00	6.40	7.00	80.00	3.20	4.00	756.80	33.30	34.00	18.50	523.5	78 / 156	212 / 318
42 X 72		200.00	8.00	8.00	100.00	4.00	4.00	1104.50	48.60	49.00	27.00	764.0	106 / 212	289 / 433
48 x 72		360.00	14.40	15.00	120.00	4.80	5.00	1513.60	66.60	67.00	37.00	1047.0	138 / 276	377 / 565
63 x 86		750.00	30.00	30.00	250.00	10.00	10.00	2270.00	100.00	100.00	55.00	1556.5	238 / 476	650 / 975

SERVICE FLOW RATES SHOWN ARE BASED ON GENERAL RECOMMENDED RATES FOR pH Adjustment in the range 6--7.

TO ADJUST IN A LOWER pH RANGE IT WILL BE NECESSARY TO LOWER THE FLOW RATE TO HAVE A LONGER BED CONTACT TIME.
NOTE: NO PEAK FLOW RATE HAS BEEN NOMINATED BECAUSE FOR pH ADJUSTMENT CONTACT TIME IS THE IMPORTANT FACTOR.

THE CALCITE MEDIA QUANTITY WEIGHTS / BAG QUANTITY SHOWN ARE IN GENERAL: THEORETICAL VALUES BASED ON THE NOMINAL FT3 VOLUME TO WEIGHT CONVERSION

NATURALLY FOR THE LARGER VESSELS: WHERE POSSIBLE FULL BAG QUANTITIES WOULD BE USED IN PRACTICE

CALCITE BAG QTY. : BASED ON 50 lb, (22.7Kg) BAGS AND 15.5 LITRES VOLUME

UNDERBED GRAVEL BAG QTY. : BASED ON 25 KG. BAGS

IMPORTANT NOTE:
A NUMBER OF CALCULATIONS HAVE BEEN ROUNDED OFF IN THE CONVERSIONS.

SCALE:	TITLE:	REV.	DRAWING NO.
NTS	CALCITE FILTER MEDIA LOADING	2	A4FML-CAL-5