# INSTALLATION & OPERATING INSTRUCTIONS

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BY THE DOWDENS GROUP

## CARBON FILTER MODELS

| | | |
|---|---|---|
| WTWFC16 | WTWFC21 | WTWFC24 |
| WTWFC16-NHWB | WTWFC21-NHWB | WTWFC24-NHWB |
| WTWFC16-O | WTWFC21-O | WTWFC24-O |
| WTWFC16-O-NHWB | WTWFC21-O-NHWB | WTWFC24-O-NHWB |


**CLACK WS1.5E1 AUTOMATIC FILTER VALVE**

## HIGH ACTIVITY ACTIVATED CARBON MEDIA OPTIONS

### COCONUT CARBON

The most common application for coconut carbon is the reduction of the undesirable tastes and odors present in many chlorinated water supplies and has been successful for many years in the reduction of free chlorine from water supplies. De-ozonation and reduction of organic based herbicides, pesticides and hydrocarbons are also common applications.

### COAL CARBON (models with '- O' )

Coal carbon is effective in adsorbing larger molecular weight organics that would typically be rejected by the smaller pores of coconut carbon. Ideal for surface waters with high organic loading and wastewater supplies.

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PACIFIC WATER TECHNOLOGY

Carbon Filter

# INSTALLATION RECORD

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

**FILTER MODELS :**

- ☐ WTWFC16
- ☐ WTWFC16-NHWB
- ☐ WTWFC16-O
- ☐ WTWFC16-O-NHWB
- ☐ WTWFC21
- ☐ WTWFC21-NHWB
- ☐ WTWFC21-O
- ☐ WTWFC21-O-NHWB
- ☐ WTWFC24
- ☐ WTWFC24-NHWB
- ☐ WTWFC24-O
- ☐ WTWFC24-O-NHWB

**SERIAL NO. :** .....

**PURCHASED FROM :** .....

**DATE PURCHASED :** .....

**DATE INSTALLED :** .....

**INSTALLED BY :** .....

**FREQUENCY OF BACKWASH SETTING (DAYS) :** .....

Carbon Filter

# HOW DOES YOUR FILTER WORK?

Congratulations on the purchase of your Fully Automatic Glass Filter. Please take the time to read the following. It will familiarise you with the design principals and workings of your new filter

**TASTE AND ODOUR IN WATER**

Taste and odour in water can come from a variety of sources. Chlorine, for example, as used in most town water supplies for bacteria control, is objectionable in both taste and odour to most people. Particular organisms in water, while not health threatening, can impart tastes and/or odours to the water that we find objectionable. Organic odour conditions such as musty, fishy or earthy smells are common, particularly in swampy coastal areas.

**CARBON FILTRATION**

Activated Carbon is the most common and widely used method of dechlorination and organic taste and odour removal. the carbon has an exceptional surface area and therefore has tremendous adsorption capacity for chlorine and organic molecules to attach themselves. As a rule of thumb, dependent on carbon used, one litre of carbon has roughly the surface area of a football field, therefore quite extensive runs from the carbon bed can be achieved before replacement is required.

**BACKWASHING**

Efficient and regular backwashing is a very important function of filtration. Without it, the bed can compact and 'channeling' can occur causing bypassing of unfiltered water, resulting in short and ineffective filtration cycles and high pressure losses. Your filter is fully automatic so regular backwashing is assured. It also has high backwash flow rates, and has variable backwash settings that allows you to set the backwash frequency to accommodate the loading of the raw water. A backwash flow control fitted to the drain line ensures the optimum backwash flow rate for your filter and will prevents media loss to the drain.

**WHAT CONTROLS THE BACKWASH ?**

The Valve and Control. The frequency of backwashing is determined by the quality of the raw water. The more contaminated the raw water, the more frequent the backwashing requirement. The Valve is fully automatic and incorporates Service, Backwash and Purge cycles. The valve control has a variable timer that allows you to set the required backwash frequency e.g. every day, every 2nd day, weekly etc. When the timer initiates a backwash, the timer motor engages a piston that travels within a flow diversion cage and sequences the water flow as required during the different stages of the backwash cycle. The backwash frequency is factory set for every 3 days. This can be changed at any time to suit your water conditions e.g. if the water is relatively clean, the valve control can be changed to backwash weekly (every 7 days). If the water has heavy sediments then 3 days backwash may be required.

**COMPONENTS OF A CARBON MEDIA FILTER**

The Filter comprises of a 3-cycle control valve, fibreglass pressure vessel containing coconut or coal carbon media and gravel underbed. An internal riser pipe with hub and laterals distributes the water flow through the filter.

**WHAT ARE THE STAGES OF THE BACKWASH CYCLE?**

***1st Stage - Service Position***

In this position the filter delivers filtered water for usage. The filter is in this position prior to commencing the backwash cycle.

***2nd Stage - Backwash Position***

The water flow is reversed to lift and wash the media bed clean of entrapped sediment and particulate matter prior to purging.

***3rd Stage - Purge Position***

The filter is purged with water to remove any remaining impurities and re-bed the media. The Backwash Cycle is now complete and the unit will return to the Service Position. All the functions of your filter are fully automatic.

Carbon Filter

# INSTALLATION & OPERATING INSTRUCTIONS

**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 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 700kpa 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. For installations subject to excessive or prolonged water hammer, a water hammer arrestor should be fitted.
f. Waste connections should comply with minimum air gap requirements as per AS3500.1,Table 4.5.

**IMPORTANT. FOR TANK FILLING OR OPEN-DISCHARGE APPLICATIONS ONLY !**

The automatic control valve must have a positive back pressure during the backwash and rinse cycles to ensure effective backwashing and also prevent unfiltered water going to service. If using the filter to fill a storage tank (or any other open -discharge application) a NHWB (No Hard Water Bypass Valve) must be used. NHWB valves are standard on models with the '-NHWB' suffix


| | |
|---|---|
| Minimum Operating Pressure | 420kpa |
| Maximum Operating Pressure | 700 Kpa |
| Minimum & Maximum Operating Temperature | 4°C to 43°C |
| Maximum Continuous Flow Rate - litres/minute | 16" models 26.5 lpm, 21" models 46.0 lpm, 24" models 60.0 lpm |
| Inlet & Outlet Connections: | 40mm Female BSP |
| Valve Drain Fitting: | 25mm Female BSP |
| Mains Power Requirement: | 240 Volt, 10 amp |
| Control Valve Power: | 12 Volt AC supplied by wall mount transformer supplied |
| Transformer Output Current: | 500mA |

Carbon Filter

# INSTALLATION & OPERATING INSTRUCTIONS

## LOCATE THE FILTER:

**√ CHECKLIST**

_ 1. It is advisable to locate the filter in a protected environment. If the unit is to be installed outside, or in the open, a protective shelter or shed is recommended.

_ 2. The distance between the filter and a drain should be as short as possible.

_ 3. 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 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 filter where it or its connections (including drain and overflow lines) will ever be subjected to ambient temperatures under 4°C or over 45°C.

_ 6. Do not install filter near chemicals or chemical fumes.

_ 7. The filter will require a standard 3 pin 240 volt 10 amp grounded power outlet.

## MEDIA LOADING & FILTER ASSEMBLY:

_ 1. Position the filter tank in the selected location.

_ 2. Ensure the distributor tube fitted inside the tank is sitting centrally in the tank. The top of the riser pipe should be flush (+/- 5mm) with the top of tank.

_ 3. Cover or plug the top of the distributor with a rag or bag to stop the media entering the tube.

_ 4. Fill the tank approximately 2/3rds with water to prevent damage to underdrain assembly when media filling.

_ 5. The amount of media required is as per below.
Check you have the correct quantities. While holding the distributor tube central to the neck of the tank, and exerting slight downward pressure to stop the tube from moving, pour in the underbed and carbon medias in following order:

| MODELS | 1st UNDERBED COARSE #5 (kgs) | 2nd UNDERBED FINE #6 (kgs) | 3rd CARBON (kgs) |
|---|---|---|---|
| All 16" models | 20.0 | 10.0 | 50.0 |
| All 21" models | 40.0 | 25.0 | 85.0 |
| All 24" models | 60.0 | 30.0 | 110.0 |

_ 6. Remove the rag or bag from the tube and clean the media from the tank threads and the top of the distributor tube.

_ 7. Fill the tank with water to within approximately 150 mm from the top.

_ 8. Smear silicon grease to the outside of the top of the distributor tube to approx. 50mm down from the top of the tube.

_ 9. Place the automatic control valve over the distributor tube and, exerting slight downward pressure, screw the Valve into the tank thread until the valve bottoms against the top lip of the tank. **CAUTION!** - Hand tighten only.

_10. Re-position the filter tank so that the control valve is facing in the correct direction.

Carbon Filter

# INSTALLATION & OPERATING INSTRUCTIONS

## WATER LINE CONNECTION:

**√ CHECKLIST**

_ 1. Connect the incoming and outgoing water lines to the inlet & outlet fittings. Flow direction arrows are cast on the valve barrels to show the correct flow direction.

**NOTE:**

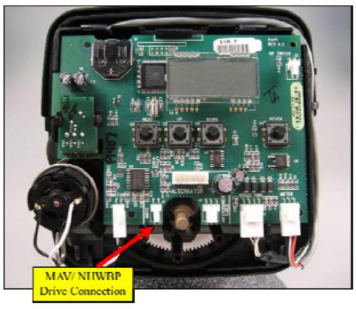
- If the valve has the NHWB 'NO HARD WATER BYPASS VALVE option, the outlet is on the bottom on the bypass valve.
- 'Falcon' full-bore flexible connectors (available from Dowdens) or equivalent are recommended for connection from softeners to main lines and service lines
- A bypass line with isolation valves is recommended to ensure ongoing water supply in case of catastrophic failure

## (NHWBP) NO HARD WATER BYPASS VALVE MODELS:

_ 1. The 'NO HARD WATER BYPASS VALVE' (below) are supplied fitted to the outlet piping to the bottom of the control valve.

_ 2. Check the power is turned off, remove the filter valve cover and ensure the NHWBP drive connection cable is plugged into the control board.


NO HARD WATER BYPASS MODELS




CONTROL BOARD

## DRAIN LINE CONNECTION

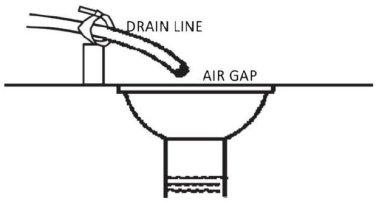
_ 1. If ideally located, the filter will be above, and not more than 6 metres, from the drain. Connect a 25mm (1") hose or piping (not supplied) from the valve drain fitting to the drain. Reinforced hose should be used to prevent kinking or collapsing of the hose and restrict the backwash flow. The valve drain outlet is located at the top of the valve.

_ 2. If the filter is located where the drain lines must be elevated, you may elevate the lines up to 2 metres providing the run does not exceed 5 metres and the water pressure at the filter is not less than 280kpa. You can elevate an additional 610mm for each additional 70kpa pressure.

_ 3. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 180mm loop at the far end of the line so that the bottom of the loop is level with the valve drain line connection. This will provide an adequate siphon trap.

_ 4. Where a drain empties into an overhead sewer line, a sink-type trap must be used.

**CAUTION ! -** Never connect the drain line direct into a a drain, sewer line or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the filter.



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# INSTALLATION & OPERATING INSTRUCTIONS

## SYSTEM START-UP

_ 1. Plug in the filter power supply/transformer and turn the power on. The control will start and synchronise the valve.
_ 2. Set time of day into the control valve:


**Setting Time of Day**

Push NEXT until time of day screen is displayed. Press and hold ▲ or ▼ until the SET indicator is displayed, and the hour flashes. Press ▲ or ▼ until the correct hour is displayed.

Then press NEXT. The minutes will flash. Press ▲ or ▼ until the correct minute is displayed.

Press NEXT to return to the Display Screens. Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight saving time begins or ends. If a power outage lasting more than 8 hours occurs, the time of day will flash on and off which indicates the time of day should be reset. If a power outage lasts less than 8 hours and the time of day flashes on and off, the time of day should be reset and the battery replaced.

_ 3. Press and hold the REGEN button on the controller for three seconds. The drive motor will start and progress the valve to the BACKWASH position. Press again to progress the valve to the RINSE position.
_ 4. Fully open the inlet water supply valve slowly, allowing water to fill the tank and expel air to the drain. CAUTION: If water flows too rapidly, there could be a loss of media to the drain.
_ 5. Allow the filter to run and complete the rest of the backwash cycle automatically.

## THE FILTER IS NOW IN SERVICE


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