CATALYTIC CARBON – System Manual

Your Catalytic Carbon System will contain the following items:

1 off suitably sized mineral tank
1 off riser tube with bottom distributor attached
1 off top basket
1 off WS1 Clack 1" CI softener/filter valve (5 button) with internal meter
1 off Clack Oxygen Diffusion device
1 off Clack 1" by-pass valve assembly
2 off Clack 1" male BSP adaptors
1 off Clack valve wrench
1 off length of drain line
Bag or bags (depending on size of system supplied) of Catalytic Carbon adsorption media
Small quantity of underbed gravel

Your Catalytic Carbon System will look something like this:

Colour of mineral tank may vary, size of mineral tank depends on volume of water to be treated.

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Planning of the Catalytic Carbon system installation

Please observe any local or national regulations concerning the installation of your Catalytic Carbon system (certainly ensure the fitting of a non-return valve before the Catalytic Carbon system).
Check that sufficient space has been allowed for access to the unit for installation, possible future maintenance.
Check the water pressure (minimum of 20 psi/1.4 bar required, maximum of 90 psi/6.3 bar, ideally 57 psi/4.0 bar) fitting a pressure reducing device will assist in avoiding over pressure.
Locate a nearby drain (the drain line should be as short as possible) and a 230V power supply.
The area chosen should be flat and level, the incoming water to be treated should be between 4°C & 43°C. The area chosen should also be adequately insulated to prevent frost damage during cold weather conditions.
It is not recommended to fit the Catalytic Carbon system in a loft – if it is, then the floor of the loft should be strong enough to carry the weight of the entire system including the water that it will contain – **NOTE** it should be installed within a suitably sized "bund" for protection against flooding.
We strongly advice to use a "Check List" before commencing the installation to ensure that all necessary pipe-work, fittings and tools are available.
Prior to installation ensure the untreated water supply is turned off.

Installation of the Catalytic Carbon system

Place the mineral tank onto the level base of the installation – moving it after filling with the Catalytic Carbon media and underbed gravel will be difficult.

Insert the riser with bottom distributor (attached) through the neck of the mineral tank and locate it in the bottom centre of the tank (there is a "bevel" in the base that will aid with this).

The riser will be the correct length. Cover the open end of the riser tube with a cap or tape to prevent media from entering the riser during the filling of the mineral tank with the Catalytic Carbon media and the underbed gravel.

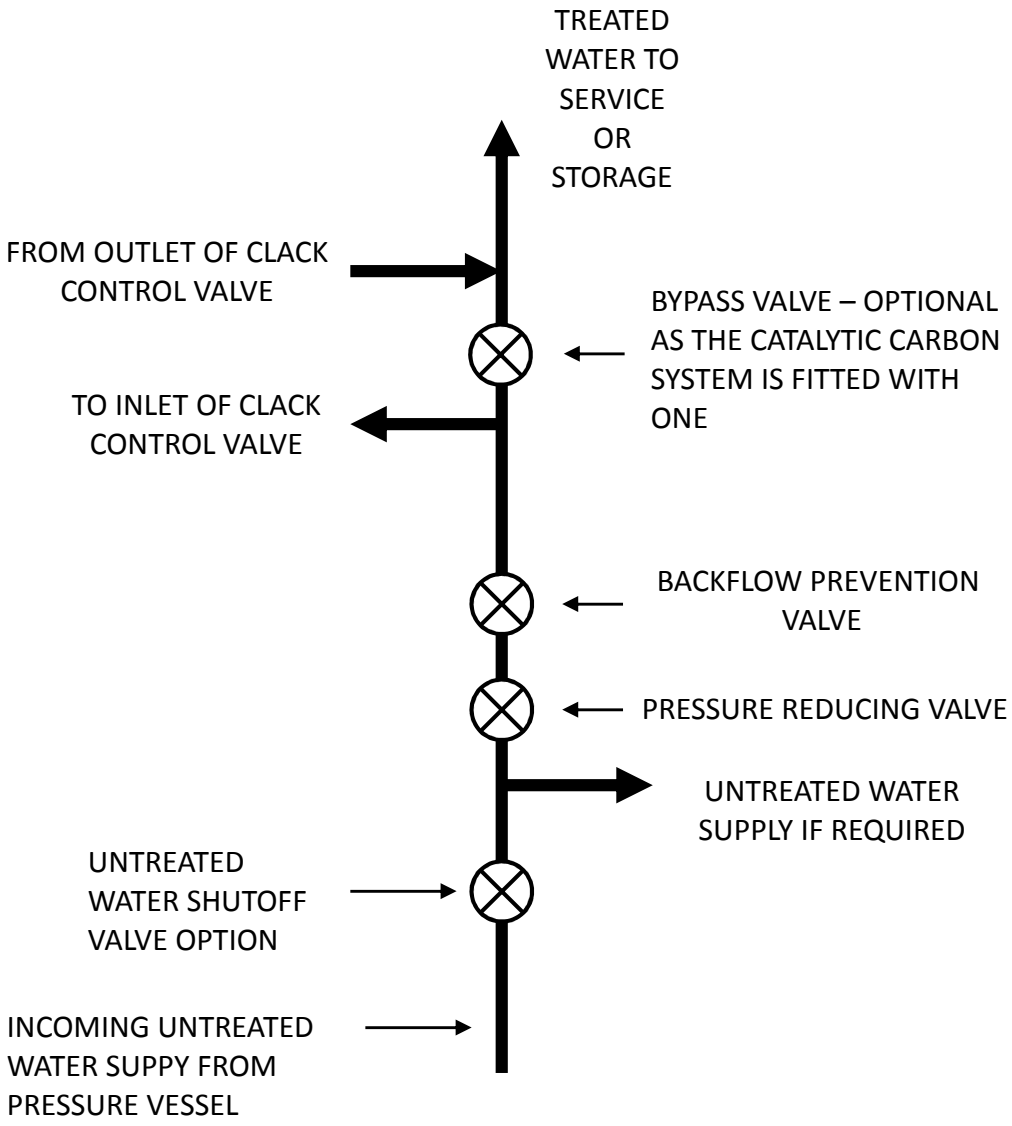
A small volume of water can be added at this stage to cushion the base of the tank from any damage when adding the Catalytic Carbon media and underbed gravel.

Carefully pour the all the underbed gravel into the tank then pour the Catalytic Carbon media into the tank. **NOTE: a mask should be worn during this process.** Ensure the riser tube does not move. There will be sufficient Catalytic Carbon media and undrebed gravel for the size of system, it will not fill the mineral tank as there has to be "freeboard" volume to ensure expansion of the Catalytic Carbon media during the backwash cycle.

Installation of the Catalytic Carbon system (continued)

Clean the top of the mineral tank and threads of any residual Catalytic Carbon media. Remember to remove the cap or tape from the end of the riser tube.

Possible plumbing arrangement



Installation of Catalytic Carbon System (continued)

Visually check the threads of the Clack WS1 1" CI softener/filter valve, if necessary clean the threads and 'O' ring and if necessary lubricated with silicone or soap, **do not** use Vaseline or grease.

Fit top basket (as shown above) over WS1 valve distributor pilot (push down, ¼ turn, release, this locks it in position).

Locate the WS1 valve on to the neck of the mineral tank, making certain that the riser tube is centred, then screw the valve (clock-wise) onto the tank. Final tightening can be accomplished by tapping the rear side of the valve with your hand.

Fit the Clack 1" bypass valve to the inlet and outlet of the WS1 valve, assembly instruction for the bypass valve are with the bag, as it leaves the factory.

Directional "shut-off" arrows for flow: normal, bypass, diagnostic and shut-off modes.

Radial seals allow for minor vertical and horizontal misalignments and connections only require hand tightening.

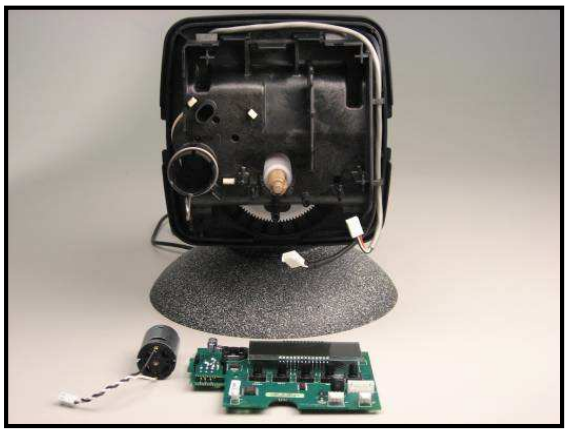
Fit the Clack 1" male BSP adaptor kit to the inlet and outlet of the bypass valve assembly (again, instruction for assembly are with the bag) – hand tighten.

Connect the drain line to the backwash drain connection (left/top of valve, shown below) – ensure the drain line is firmly anchored with no kinks.

Installation of Catalytic Carbon system (continued)

Make all plumbing connections to the inlet and outlet of the WS1 1" control valve.

Connect the electricity supply to the valve (thread the power through the "back left or right corner of the valve).



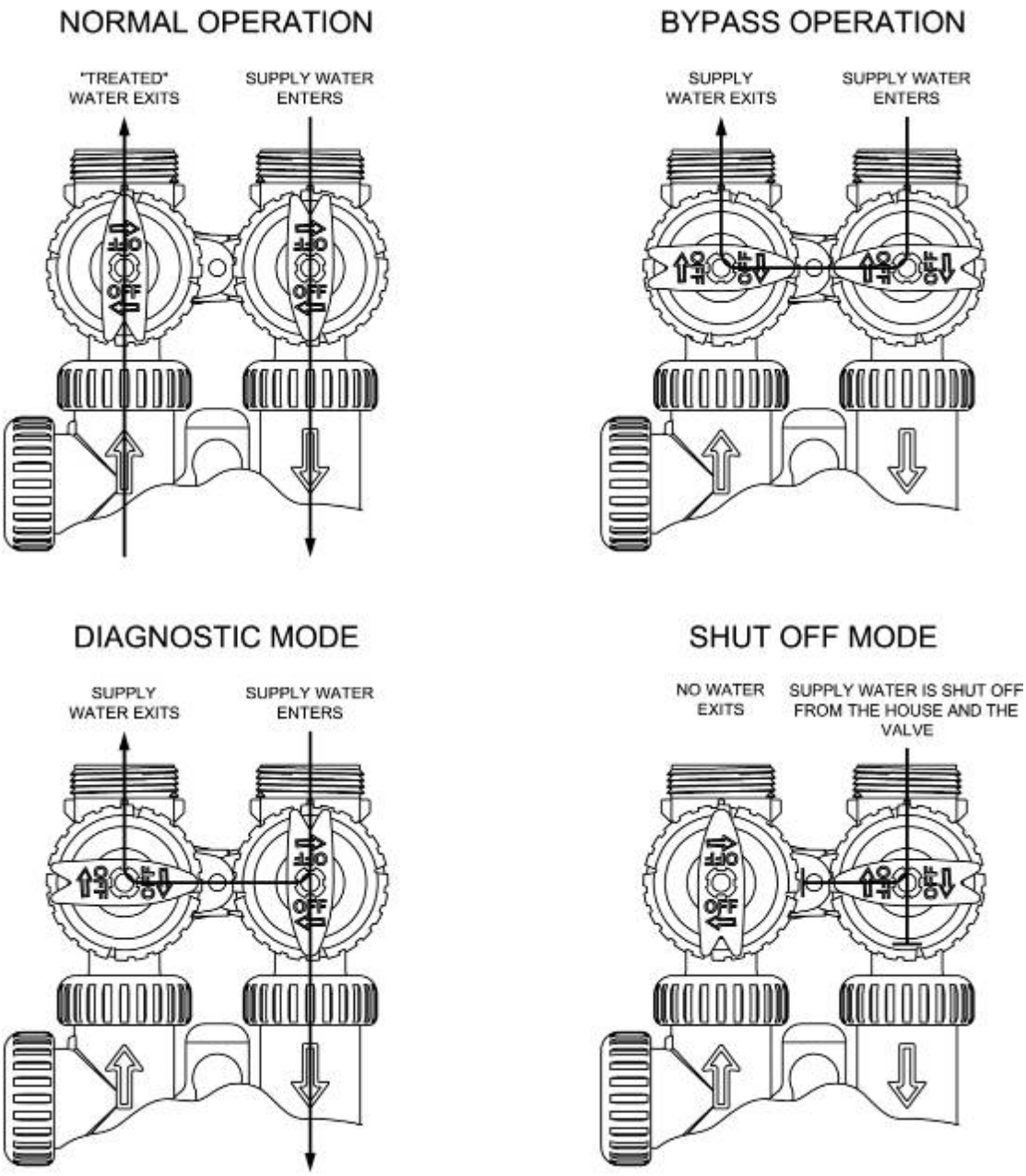
Unhinge the drive bracket by using the two finger tabs on the top left and top right of the black drive bracket – then thread the power cable into the valve and attach to the connection marked 12 VAC on the green PC board.

Turn the power supply on, the valve will operate for a few seconds as it re-synchronises and finds the home position. All the programmes necessary for the valve to perform the regeneration functions correctly have been pre-programmed. The Clack WS1 control valve has a non-volatile memory, which means these programmes will not be lost, even in the event of a power failure. The time of day needs to be set as follows:
Press "SET CLOCK"
Press "UP" or "DOWN" to set hour (24 hour clock)
Press "NEXT"
Press "UP" or "DOWN" to set minutes
Press "NEXT" goes back to original screen

The Oxygen Diffusion device is factory fitted to "brine" elbow of the Clack WS1 1" softener/filter valve.

Commissioning of Catalytic Carbon system

Turn the Clack 1" bypass valve into bypass mode – please see below:



Turn on the untreated water supply. Ensure that there is sufficient water pressure (between 1.4 & 6.3 bar).

Slowly open the Clack 1" bypass valve. This will introduce untreated water into the Catalytic Carbon system and also start to purge air from the system

Commissioning of Catalytic Carbon system (continued)

When as much air has been purged then commence the following sequences:
Press & hold "REGEN" for 3 seconds
The above action puts the system into an immediate regeneration.
The first cycle of the regeneration is a backwash cycle, this will complete the purging of air from the system. The backwash cycle will last for between 5 & 15 minutes dependant on the size of the Catalytic Carbon system.

Once this cycle is completed the Clack WS1 valve will automatically move to the second cycle of regeneration, which is the rinse cycle, duration of which also depends on size of the system.

Once this cycle is completed the Clack WS1 valve will automatically move to the third cycle of regeneration, which is the "down brine" cycle, again the duration of which also depends on size of the system.

This cycle automatically draws air into the tank through the Oxygen Diffusion device and the in-built injectors in the WS1 softener/filter valve, again the duration of which also depends on size of the system.

During operation the "smelly" water falls through this trapped air, oxygenating it sufficiently to assist the Catalytic Carbon to remove the Hydrogen Sulphide gas that creates the "rotten egg" smell.
This is the type of system that Utility companies use in their treatment for this particular problem – this is known as "packed tower aeration".

When this cycle is completed the WS1 valve will automatically move back to the "home" position, the screen will show current time.
PRESS "NEXT"
The screen will show the actual current flow ("service flow") is through the system in litres per minute.
PRESS "NEXT"
The screen will show how many days there are to the next regeneration.
PRESS "NEXT"
The screen will show current time.

Commissioning is now complete.

The Catalytic Carbon system will now automatically regenerate at a pre-set time, usually at 2am, usually the time when least water is being consumed.
Regenerations will take place "day set" basis (in this case – every day).
During regeneration the first cycle, backwash "spits out" the entrapped air before backwashing. The third cycle, down brine replenishes the system with new/fresh air.
Catalytic Carbon systems require virtually no after care – if a Clack WS1 1" CI softener/filter valve manual is required, this can be sent by e-mail.