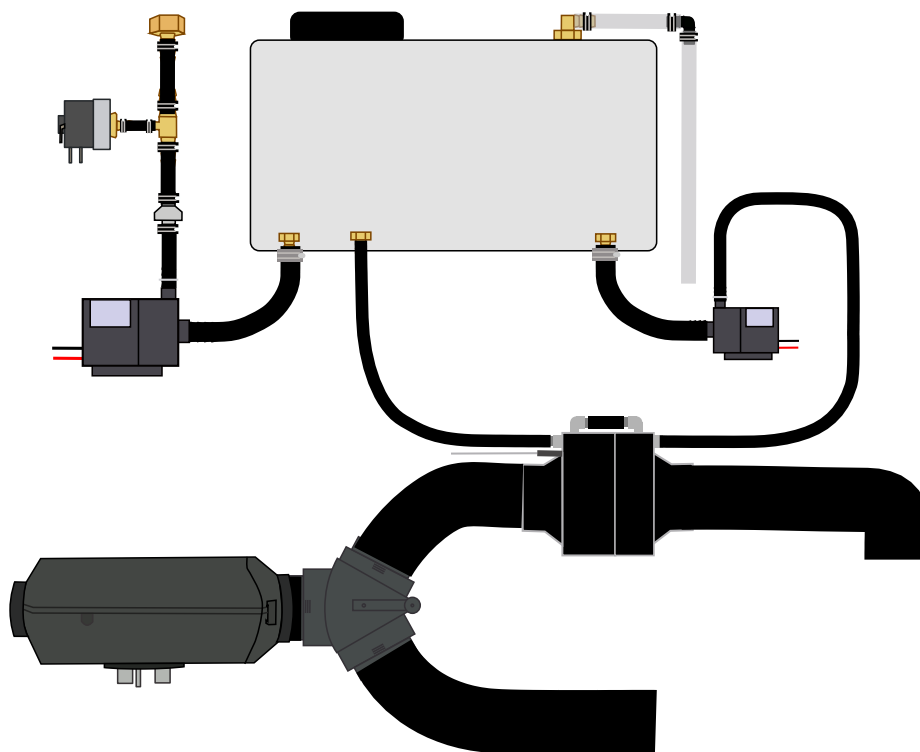




# BOBIL VANS AIR XCHANGE WATER HEATER

## INSTALLATION INSTRUCTIONS





## Important Safety Instructions! Please save these instructions!

This manual contains important safety, installation, and operating instructions for the Bobil Xchange Kit.

The manufacturer accepts no liability for damage by:

- Incorrect assembly.
- Damage resulting from mechanical influences or excess voltage.
- Modification or tampering with the unit without expressed permission from the manufacturer.
- Used for purposes other than described in this manual.

### General safety

- Firmly secure all cables and hoses.
- In the event of product failure, do not attempt to repair the water heater. Inadequate repairs may cause serious injury.
- Electrical devices are not toys - keep away from children.
- Disconnect the product from the battery and mains power each time before cleaning or maintaining the heater.
- This product is for 12V battery banks only. Make sure your voltage specification is within the input voltage range expressed.
- Install and store the product in a dry and cool place.
- Keep electronics away from liquids!
- Do not use the product if physically damaged or with visibly perished hoses.

### Installation

- Ensure secure location where it cannot tip or fall.
- If necessary, verify installation with a qualified electrician or installer.
- Lay cables so they cannot be damaged or be a tripping hazard.
- Do not operate in salty, wet, or damp environments; in the vicinity of corrosive fumes; in the vicinity of combustible material; in areas with risks of explosions.
- Ensure proper cable sizing for currents generated.
- Over-current protection devices should be on the positive line.

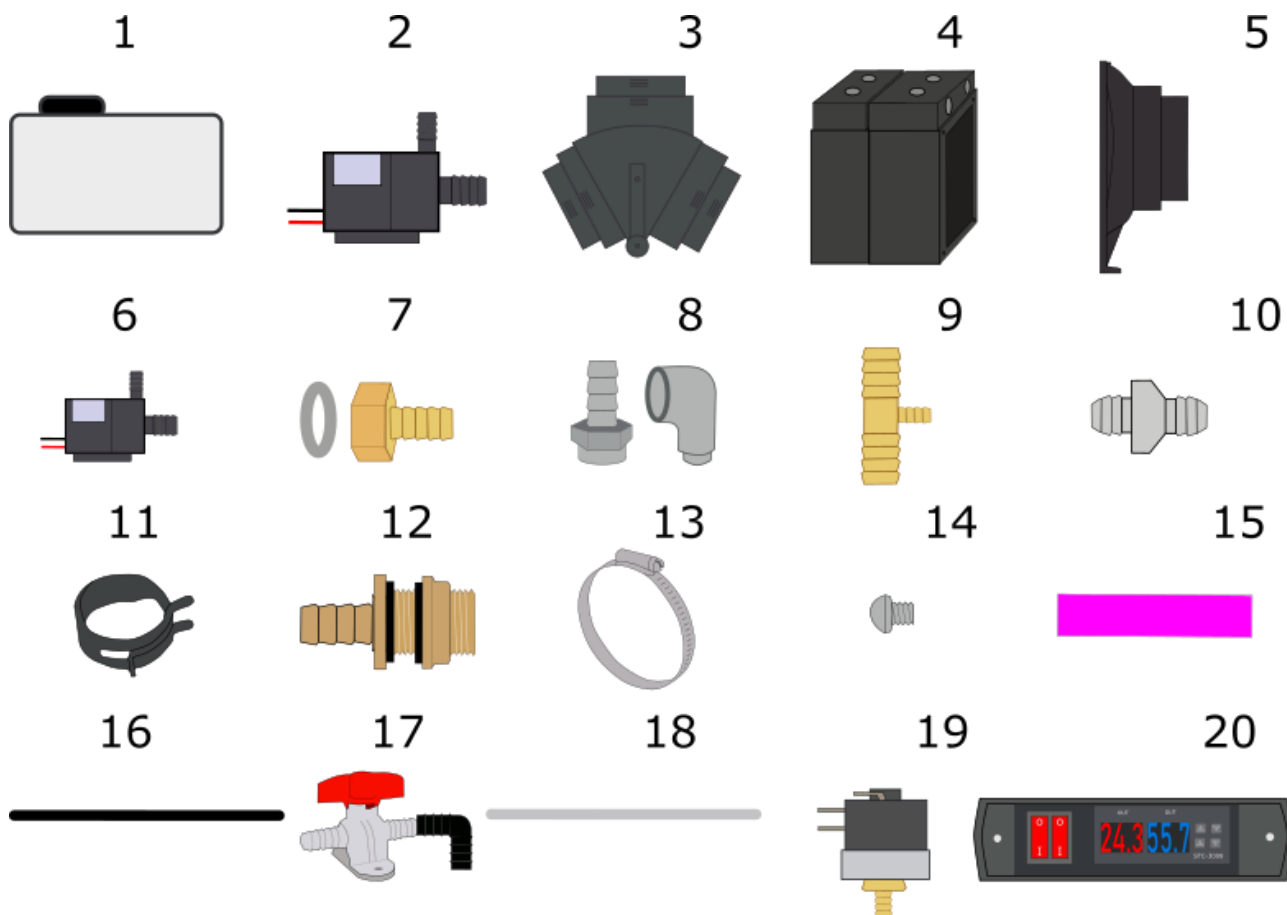
Due to the nature of ways the Bobil Xchange systems can be fitted, we cannot account for all instal variations and eventualities in this instruction manual. If you install your system in a way which deviates from these instructions without contacting us beforehand, then we cannot accept fault for any issues that might occur due to incorrect assembly or use, and as such, broken parts would not be covered under warranty.

If you have any questions about your installation, please email us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk)



## What comes in the box?

Please unpack all bags and boxes and ensure you have everything before beginning installation.



1. 12/18L Water Tank (if you ordered one)	11. Hose Clamps (various sizes)
2. High Flow Outlet Pump (larger pump)	12. Bulkhead Fittings (x4) with PTFE tape
3. Diverter Valve + Flap	13. Jubilee Clips (x7, 2 sizes)
4. Heat Exchanger Assembly	14. Screws (x8)
5. Ducting Adaptors + Gaskets (x2)	15. 10mm ID hose - PINK (0.25m)
6. Circulation Pump (smaller pump)	16. 8mm ID hose - BLACK (1.25m)
7. ½" Barbed fittings & Washer	17. Drain Valve (x2) & Elbow (x3)
8. Heat Exchanger Fittings (x8)	18. Clear PVC Overflow Pipe (0.75m)
9. Pressure Switch Fitting	19. Pressure Switch & 5mm Silicone Hose
10. One Way Valve	20. STC 3008 Controller

If you ordered a remote cable, you will also receive this along with a small bag containing a tiny screw, a bracket and a knob.



## Preparing your installation area

The tank should be installed in a cupboard or locker which is clean, dry, ventilated, accessible and free of explosive gases or vapour such as those given off by charging batteries. The heat exchangers can be installed remotely from the tank, even under the vehicle. If they are mounted under the vehicle the units should be protected from road debris and hose should be secured where they won't be damaged by being passed through the floor of the van. You should always drain the system if there is a risk of freezing.

To install the kit, you will also need:

- Pliers
- Spanner
- Drill with 4mm, 5mm & 10mm drill bits & 26mm hole saw or spade bit
- Scissors to cut silicone hose
- Screwdriver

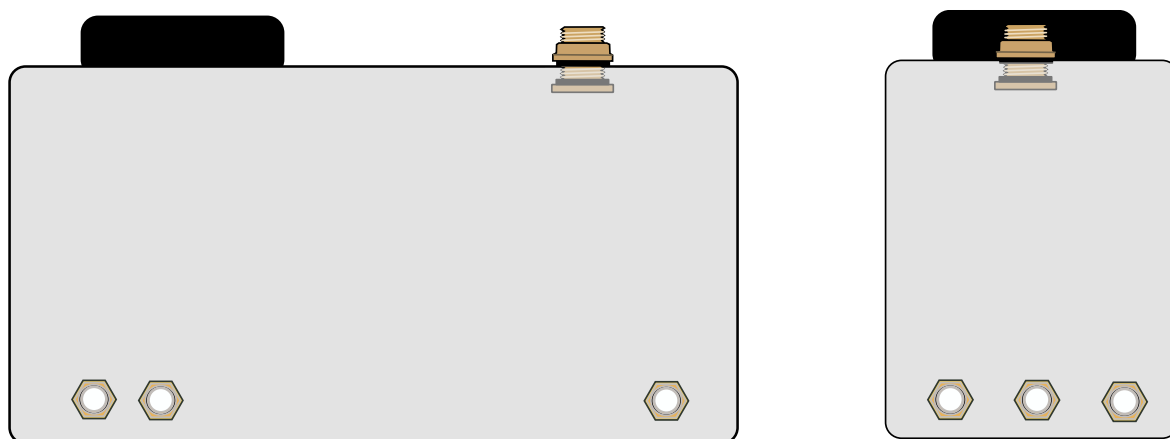
## Thank you for buying our products!

Small businesses like ours only exist because of the support of our customers. We appreciate you purchasing from us, and hope that you have a great experience.

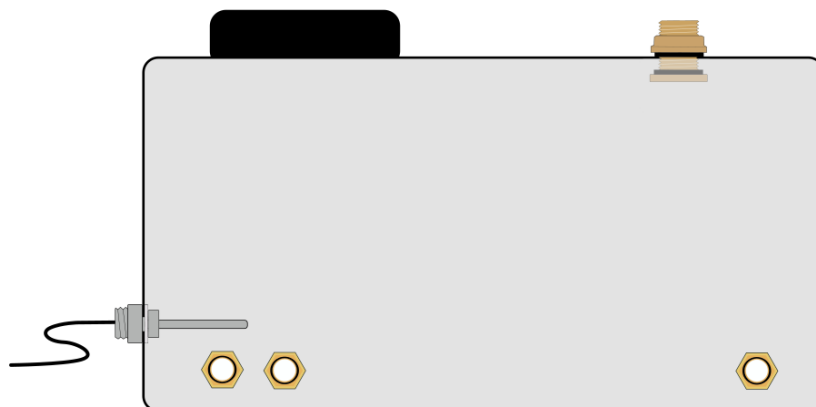
If you have any installation questions or queries then just get in touch, we're here to help.  
Contact us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk) or on the phone at +44 1275 261074

## Installation

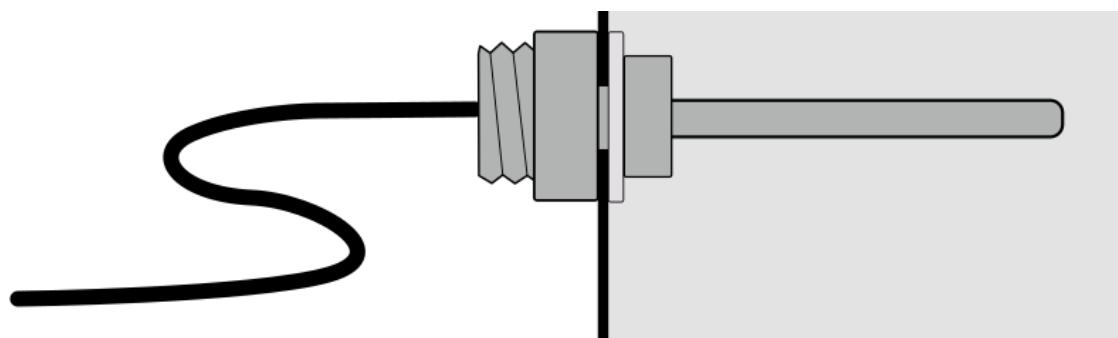
1. **PREPARE THE TANK:** Drill 3 x 10mm holes in the sides of the tank for the water, and 1 x 26mm hole in the top of the tank for the overflow. Fit the large bulkhead fitting to the top of the tank. Two layouts are shown below, but feel free to modify whichever layout suits your van. The centre of the holes should be at least 30mm from the bottom and sides of the tank.



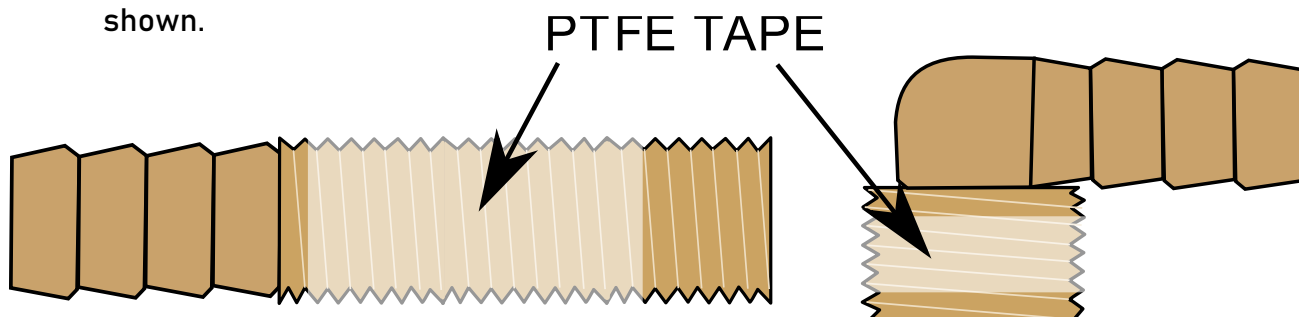
You will then need to drill another 10mm hole for the temperature sensor. This should be quite low in the tank, and near the outlets.



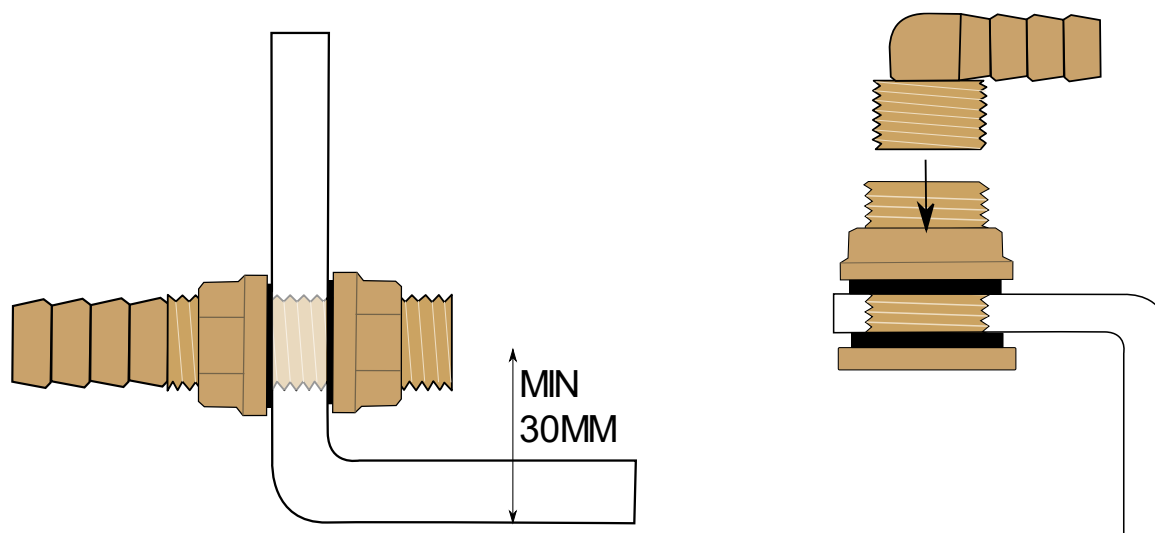
Fit using the nut provided, with the washer fitted on the inside of the tank.



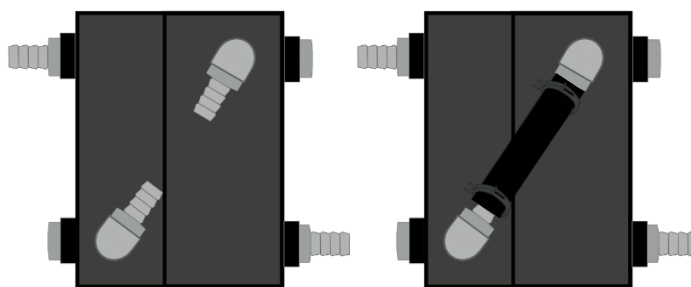
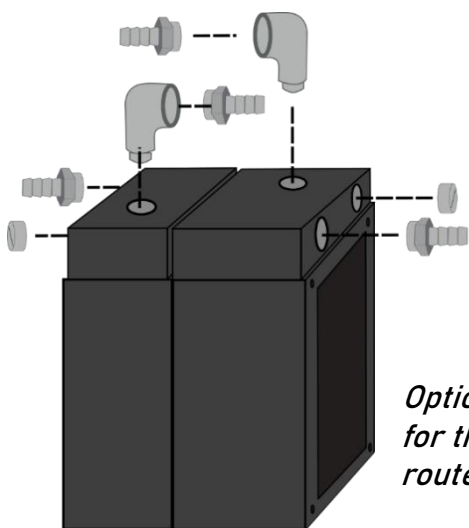
- BULKHEAD FITTINGS:** 4 bulkhead fittings are supplied; the angled outlet is for the overflow (see page 10) and the other three are for the water circulation. Remove the nuts from the smaller brass fittings and apply PTFE tape to the threads as shown.



Fit to the tank as shown:



- HEAT EXCHANGER ASSEMBLY:** Remove the 4 red plastic blanking plugs and 2 metal blanking plugs. Assemble heat exchangers as shown, adding the metal blanking plug into the spare port on the exchanger. **Do not overtighten the fittings. Hand tighten only.** Add a small piece of the 8mm ID silicone hose to connect the 2 top ports together.

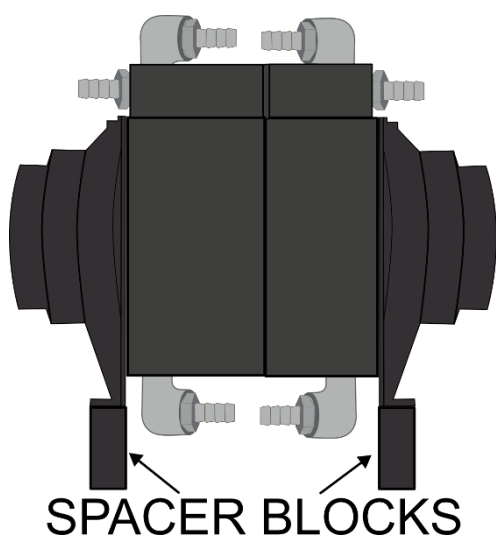
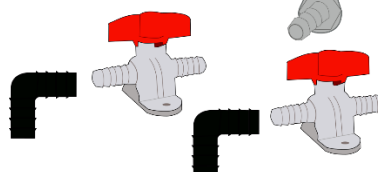
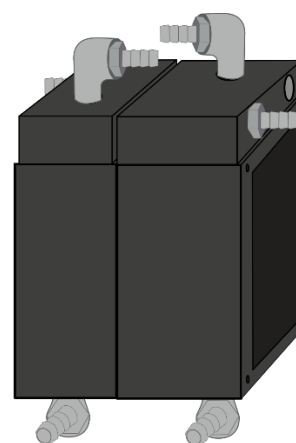


*Optional: If you don't have space above the heat exchanger for the cross pipe, you can use the blanked off outlet and route the pipe around the side of the exchanger.*

**4a. DRAIN KIT (optional):** Install the drain kit.

This is required for use in cold climates when the water in the heat exchanger is likely to freeze. If you do fit the drain kit, you must mount the exchangers on provided space blocks (see below).

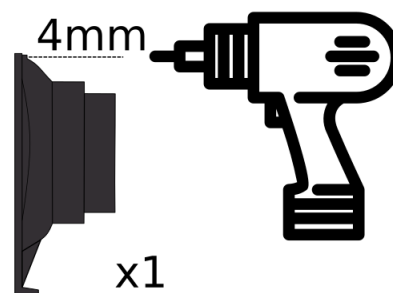
Screw in the remaining elbows and barbed fittings to the drain ports. Add drain valves and black elbow fittings as shown, at a convenient place to drain the tank. You will then need to add silicone hose and hose clamps (not shown in this image for clarity).



The spacer blocks click into the adaptors and allow a long screw to be fitted down through the block.

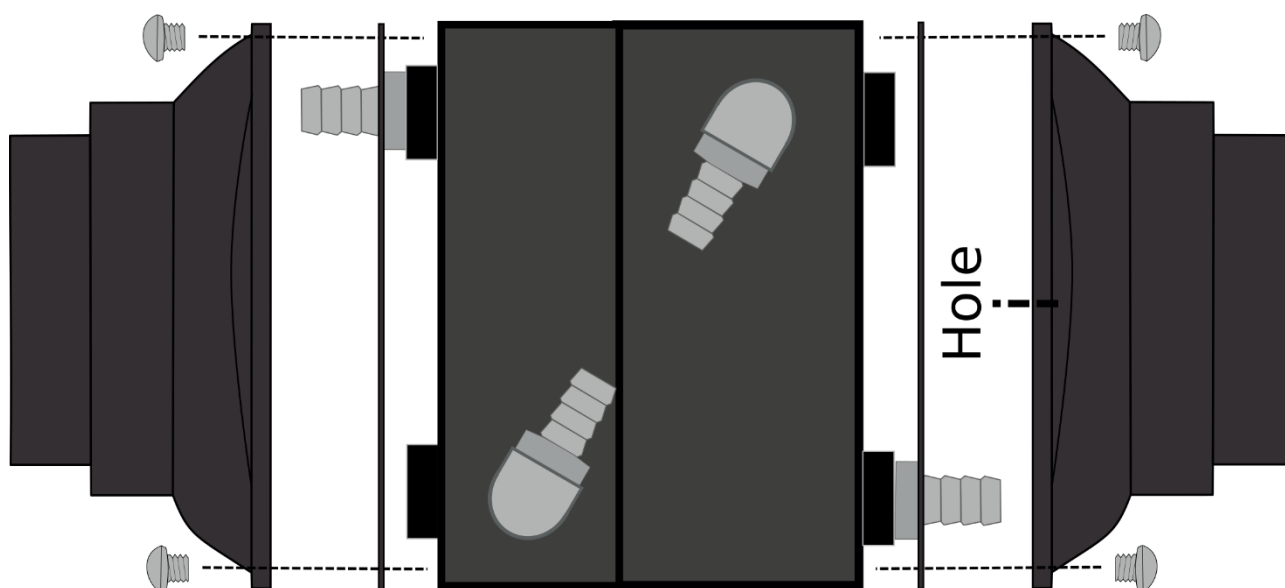


5. **HEAT EXCHANGER ADAPTORS:** Drill a 4mm hole for the thermocouple in one of the heat exchanger ducting adaptors.



Assemble ducting adaptors onto heat exchangers. Ensure the adaptor with the drilled hole goes on the thicker exchanger.

Add the rubber gaskets between the exchanger (orientation doesn't matter) and the adaptor. Fitting the screws through the adaptor and gasket before fitting to the exchanger makes this task much easier.

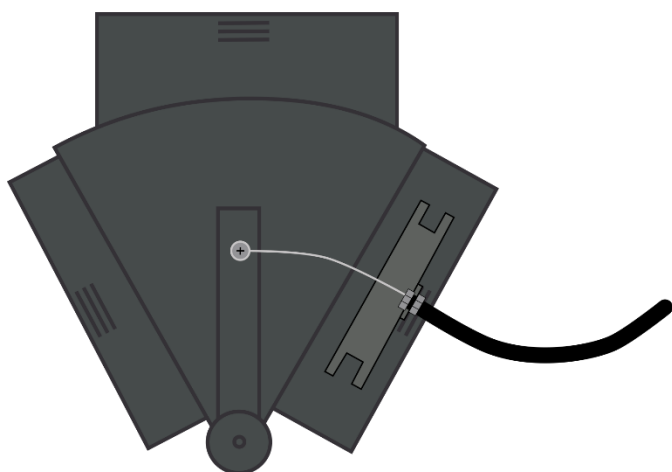






6. **DIVERTER ASSEMBLY:** Assemble the diverter by clipping together the two halves of the units with the flap in between. then clip on the arm to lock everything together. The exchanger can be situated on either branch of the diverter.

If you have purchased a remote cable you will also receive a bracket and a small screw. You will need to bend the bracket slightly to get it under the jubilee clip, and install it so that the clip is furthest away from the centre of the diverter as shown in the image.

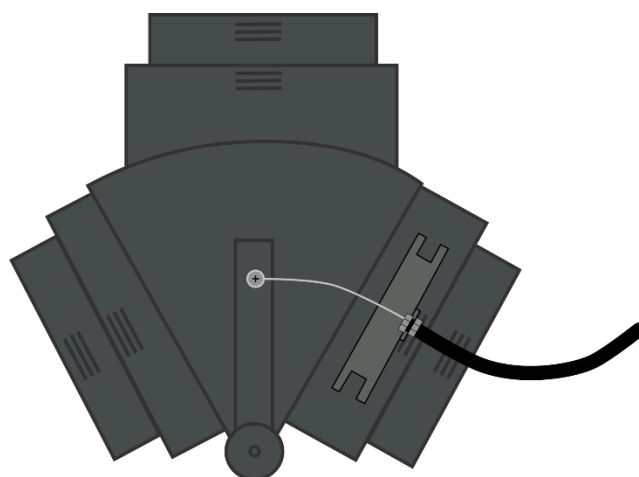


60mm & 90mm ducting

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For the 60 and 90mm diverter, the bracket will go under the same jubilee clip which holds the ducting onto the diverter.

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75mm ducting

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For the 75mm diverter, you will also receive an extra jubilee clip which holds the bracket onto the large diverter.

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Install the fixed end of the cable first by drilling a 12mm hole on the surface you want to mount your cable on. Remove one nut and feed the cable through before reattaching the nut, tightening to fix, then attaching the cable itself to the diverter bracket.

7. **OUTLET PUMP:** Assemble the outlet pump using the diagram shown. Ensure that the one-way valve faces upwards, away from the pump. Note the different hose clip sizes.

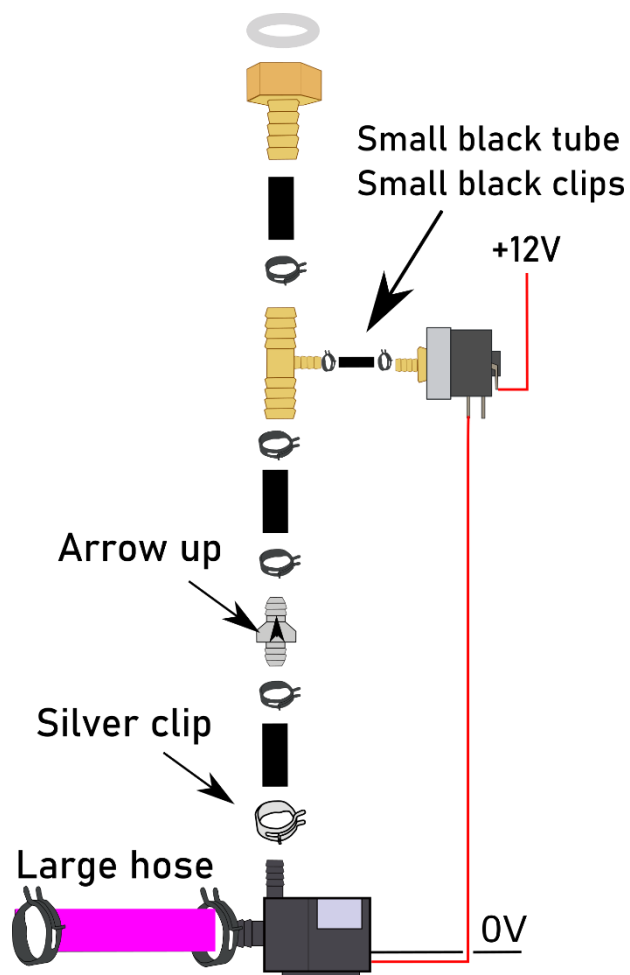
You can wire the pump through the pressure switch as shown. This will switch the pump on and off when a drop in pressure is detected.

To connect to your plumbing, ½" BSP threads are provided on the brass fittings.

The pump has a maximum power consumption of 1.4 amps. Ensure that the wiring can handle this amount and that the wire is appropriately fused.

To adjust the pressure, open the taps fully and rotate the back of the switch clockwise until the pump stops. You can then give a minor adjustment so that the pump runs correctly when the tap is partially open.

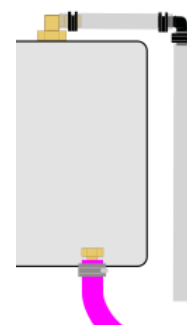
**Do not run the pump without water!**





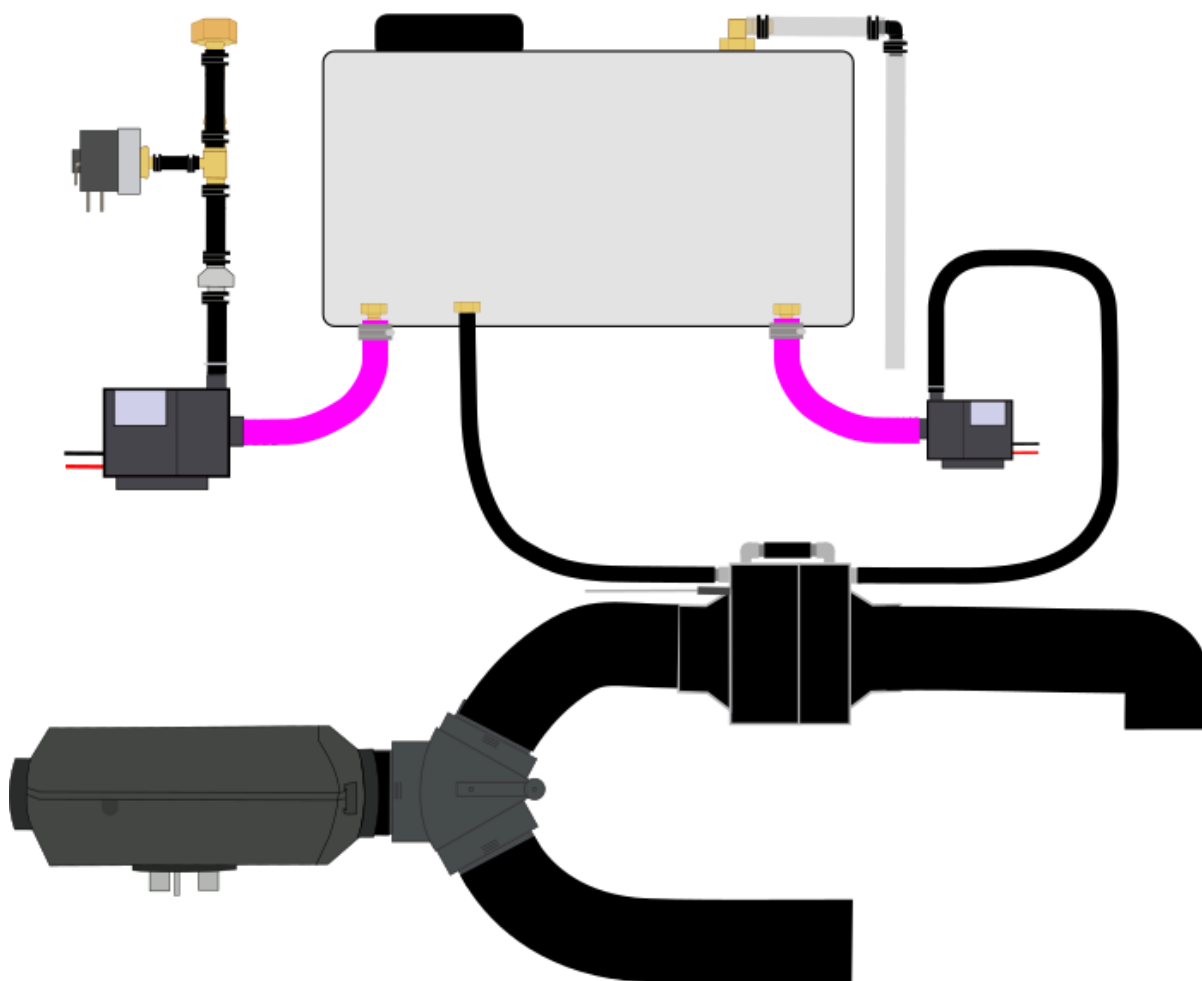
## Final Assembly

Assemble the heater kit as shown. Ensure that the silver wire clips are fitted on the pump outlets, and the jubilee clips are fitted to the large hose going to the pumps. The water pump outlet port is 1/2" BSP to which you can add your own fittings to plumb into your system. To fill the tank we recommend a manual fill; fittings with on/off valves are available in most plumbing sizes.



For the overflow pipe, install the PVC pipe to the right angled bulkhead fitting you drilled on the top of the tank. This pipe will act as an overflow, so direct it somewhere where overflowing water can drain safely.

The ducting should be secured with the supplied jubilee clips, and the exhaust from the heat exchangers can be used to either heat a shower room, garage or vented straight outside through the floor of the van.



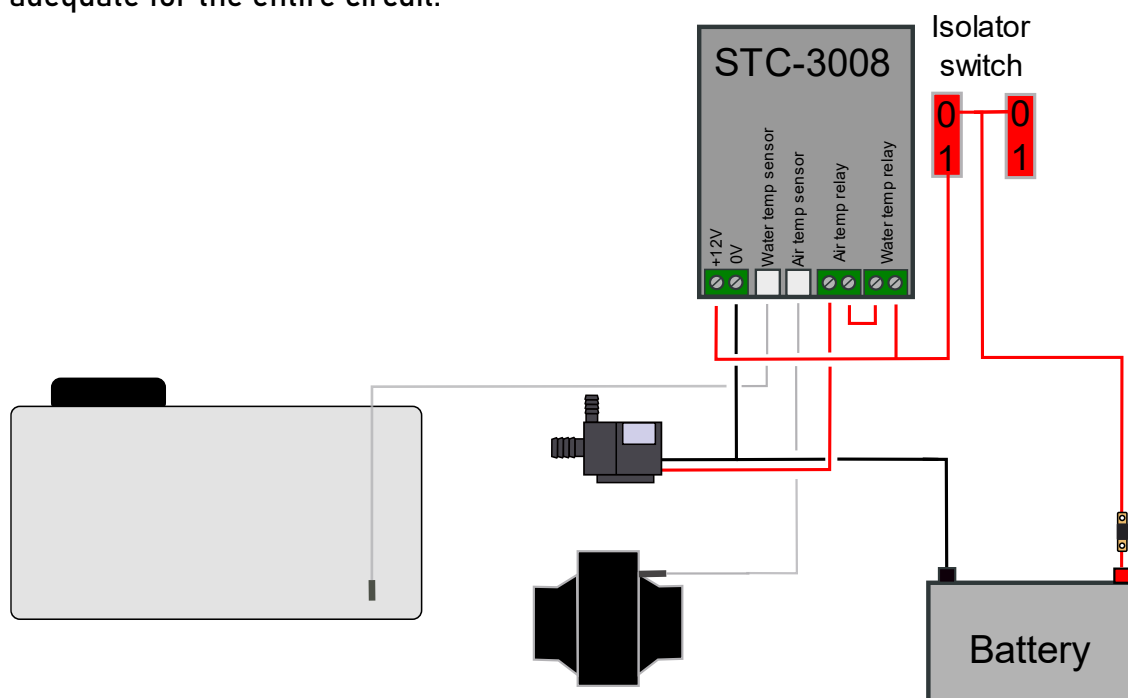
The pumps should be lower than the water level as they are not self-priming and so that any air from the tank is allowed to escape.

## Electrical Wiring

Fit the controllers and wire up as shown here. As the current is low (around 1.5 amps) small cables are adequate (1.5-2.5mm cable). Note that the outlet pump should be wired separately as per the instructions on step 7.

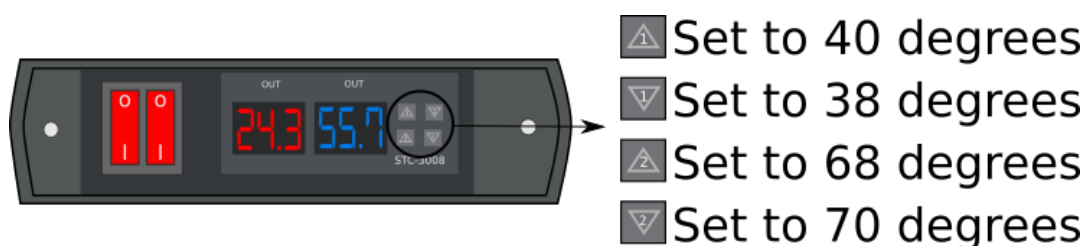
The left switch turns the controller on/off, and the right switch is unused (though if you have the 12V element upgrade with the Solaris controller, this gets wired into the right switch).

Power connections can be made straight to the battery, or to a fusebox. A 2A fuse is adequate for the entire circuit.



## Programming your Pump Controller (STC 3008)

You need to set the air temperature to activate the relay at 40 degrees and deactivate it at 38 degrees, whilst the water temperature should be deactivated at 70 degrees and reactivated at 68 degrees. To do this, hold down the relevant arrow and when it starts flashing, adjust using the up and down keys.



These numbers are adjustable and can be set to your requirements. **Do not set the maximum temperature above 75C.**

## Element Upgrade Kit fitting (optional)

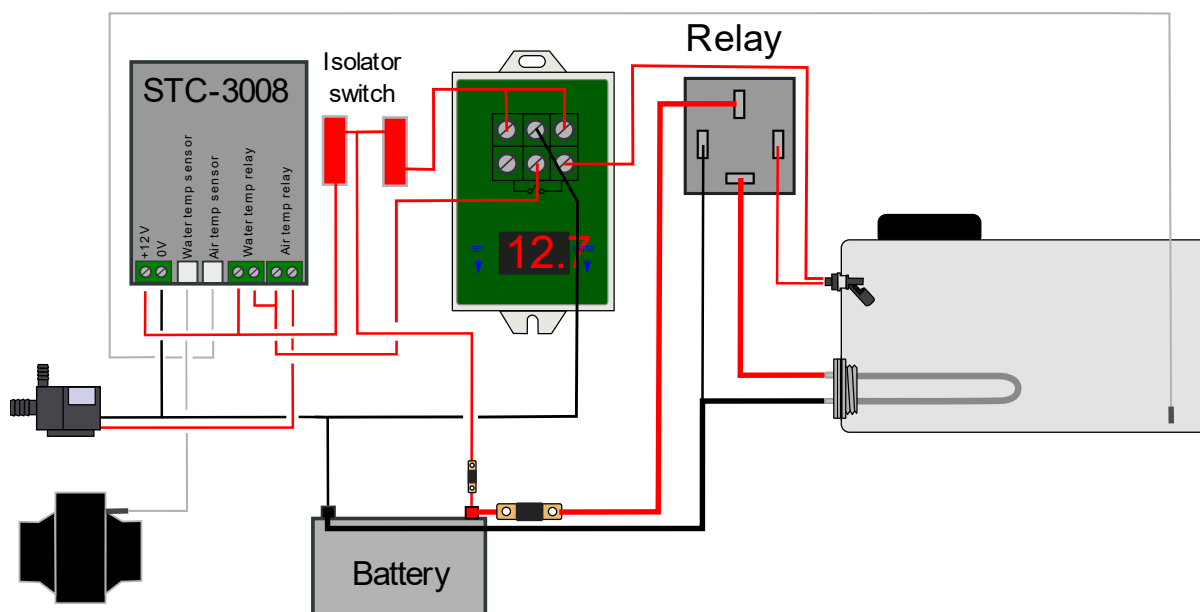
With the element upgrade kit, you will also receive a level sensor, element, Solaris and activation relay.

1. Drill and deburr a 34mm hole in the side of the tank to fit the element. This hole should be around 60mm from the bottom of the tank and be centrally positioned. Fit the element to the tank, fitting the seal on the outside of the tank. Ensure that the thermocouple cannot come into contact with the element.
2. Drill and deburr a 12mm hole towards the top of the tank. This is for the level sensor. The heater element will therefore only come on if the level sensor is activated. This means the element cannot be run dry.

The tank should then look like this:



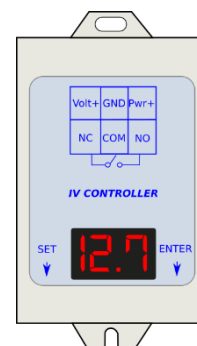
Wire the element up as follows:



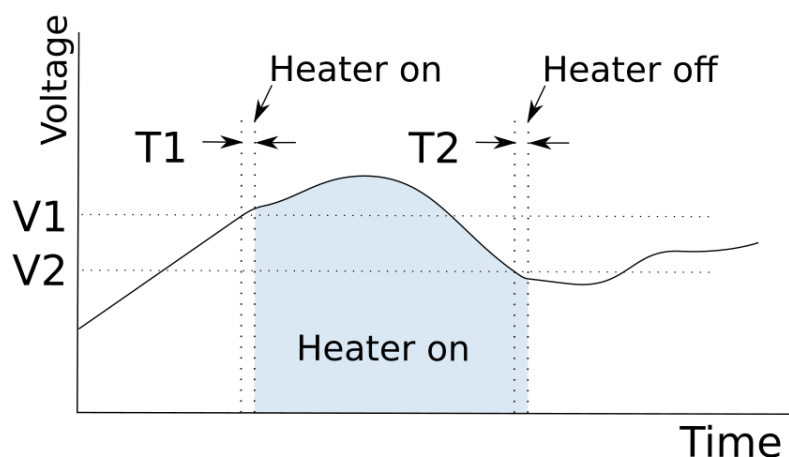


## Voltage Controller Programming

For a video on programming the controller scan the code below:



The controller will wait for the battery voltage to go above the programmed limit (V-1). When it does, it will wait for a short time delay (T-1) before switching on the relay. The relay will stay closed until the voltage drops lower than the second programmed limit (V-2), when it will start a second time delay (T-2) before switching the relay off. We recommend that T-1 is set to a minimum of 300 seconds which will stop the relay being switched too quickly if there is not enough power to maintain the voltage. Likewise, the second time delay should always be set to '0' so the relay clicks off quickly to free up power if there are any other loads placed on the battery. Note that for the element to stay on, you must have enough power coming in to maintain the



voltage. If the element is turned on then immediately goes off, it is because the power supplies are not sufficient.



## First Start Up

To commission your system for the first time, follow these steps.

1. Close both drain valves on the heat exchanger.
2. Ensure the Xchange tank is filled at least half way.
3. Point the diverter to the heat exchanger.
4. Turn on your outlet pump - if the pump is noisy, it is because there is no water in the pump. Squeeze the tube going to the pump to prime it, so that it fills with water and can now start circulating water through the system to heat the water.
5. Turn on your STC-3008 controller. You should see the water temperature (blue) and diesel heater air temperature (red) being displayed. The LED above the water temperature should be illuminated but not the one above the air temperature.
6. Turn on your diesel heater. Check that the diverter fully closes off the airflow to the van/heater when the arm is moved, either manually or via your cable.
7. After 2-3 minutes you should see the red temperature reading on the controller starting to rise. When the temperature reaches 40 degrees the red LED above the controller should illuminate and the pump should turn on. When the water temperature starts to rise you can turn off the diesel heater.
8. Open the hot tap and enjoy the lovely warm water from your Bobil Xchange!

## Technical Specifications

Parameter	Value
Outlet pump specification	7PSI, 9 litres per minute, 1.4 amps
Pump and controller power consumption	0.2 amps in standby, 1.5 amps with circulation pump running
Water heating times	20 minutes for 12 litre tank to 60 degrees with 5kw heater
Certification	This product is CE marked



We would love to know what you think!

Please let us know by leaving a review through the link sent through when you made your purchase, or email us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk)!

You can also share photos of your installation on the 'Bobil Water Heater Users', Facebook page, we'd love to see them!

[www.bobilvans.co.uk](http://www.bobilvans.co.uk)

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