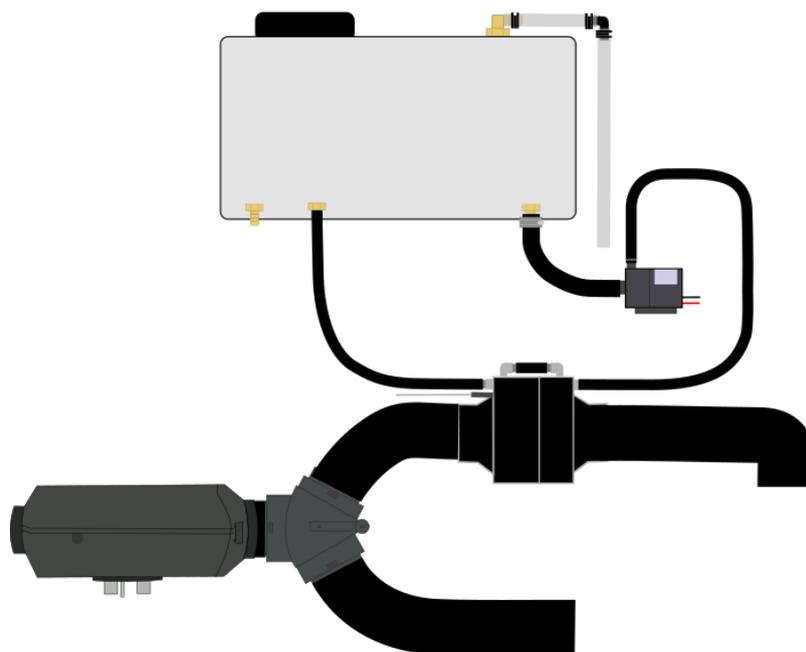




BOBIL VANS AIR XCHANGE WATER HEATER

INSTALLATION INSTRUCTIONS





Important Safety Instructions! Please save these instructions!

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

Bobil Vans accepts no liability for damage caused by:

- Incorrect assembly.
- Damage resulting from mechanical influences or excess voltage.
- Modification or tampering with the unit/system without express permission from the manufacturer.
- Use 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 draining, 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.
- Do not use the product if physically damaged or with visibly perished hoses.

Installation

- Ensure it is in a 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, with appropriate fuses.

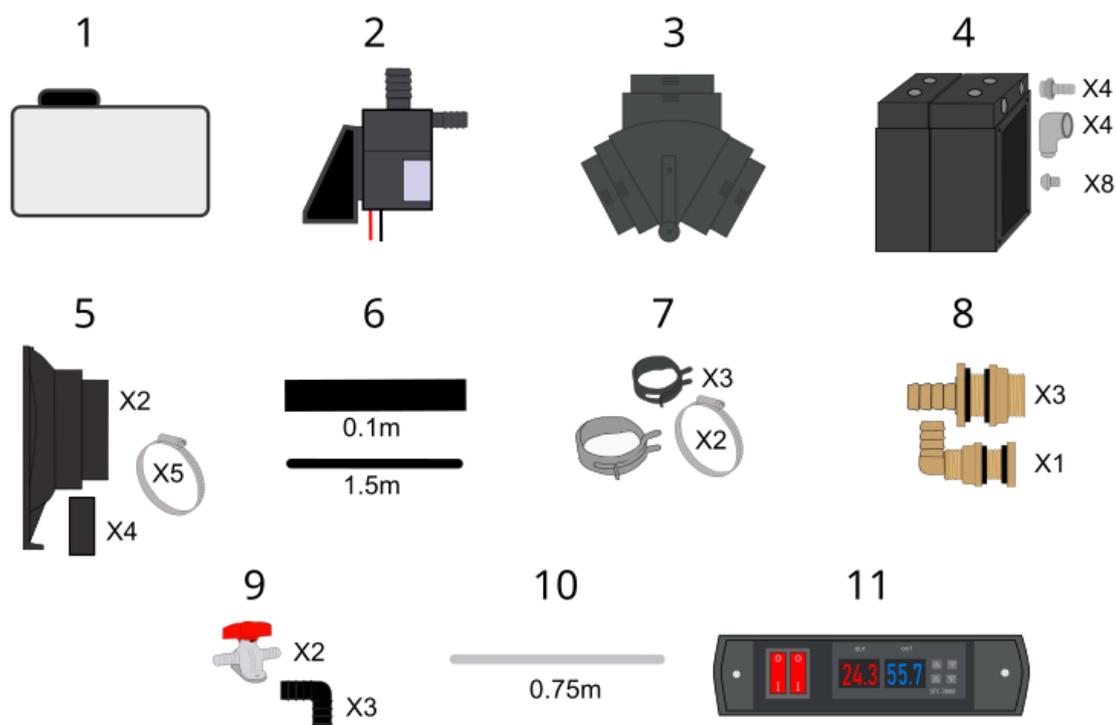
Due to the ways the Bobil Xchange systems can be fitted, we cannot account for all installation variations and eventualities in this instruction manual. If you install your system in a way which deviates from these instructions without contacting us beforehand, then we cannot accept responsibility for 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



What comes in the box?

Please unpack all bags/boxes to ensure you have everything before starting installation



1. 12/18L Water Tank (if ordered)	7. Hose Clips (3 sizes)
2. Circulation Pump with bracket	8. Bulkhead Fittings + PTFE Tape
3. Diverter	9. Drain Valve (x2) & Elbow (x3)
4. Heat Exchanger & Fittings	10. Clear PVC Overflow Pipe (0.75m)
5. Ducting Adaptors + Gaskets (x2); Clips* (x5); Spacer Blocks (x4)	11. STC-3008 Controller + Temp Sensors
6. Silicone Hose; 2 sizes	

* 75mm ducting kits contain x6 of these clips.

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 exchanger can be installed remotely from the tank, even under the vehicle. If mounted under the vehicle, the unit should be protected from road debris and hoses should be secured where they won't be damaged by being passed through the floor of the van.

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!

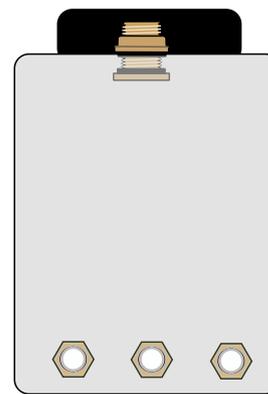
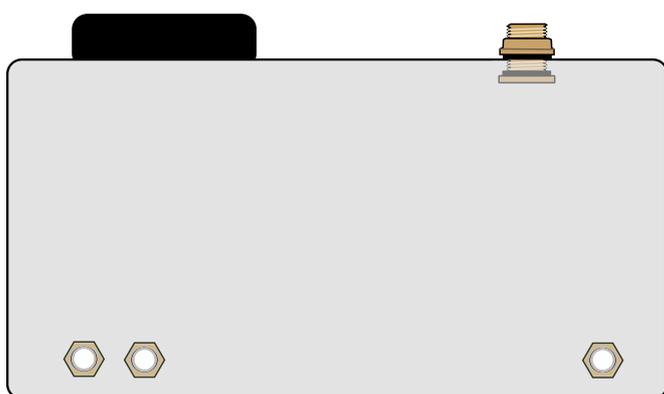
Small businesses like ours only exist because of the support of our customers. We appreciate you purchasing from us, and hope that you have a great experience.

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 or on the phone at +44 1275 261074



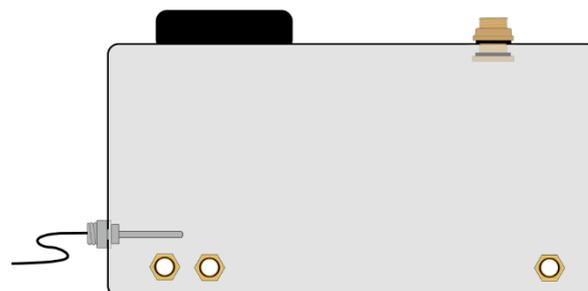
Installation

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 (right angled 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.

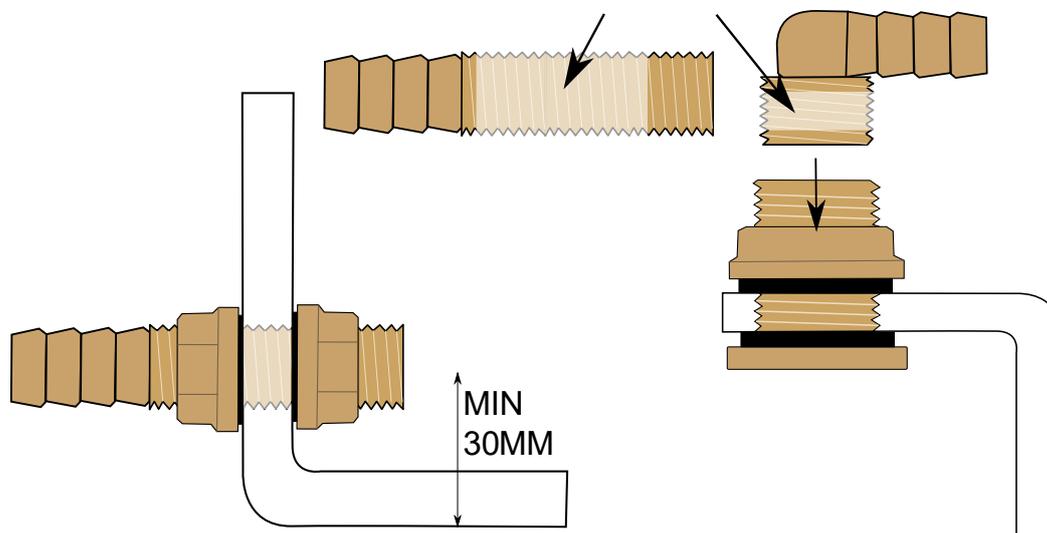


Drill another 10mm hole for the temperature sensor. This should be quite low in the tank, and near the outlets.

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

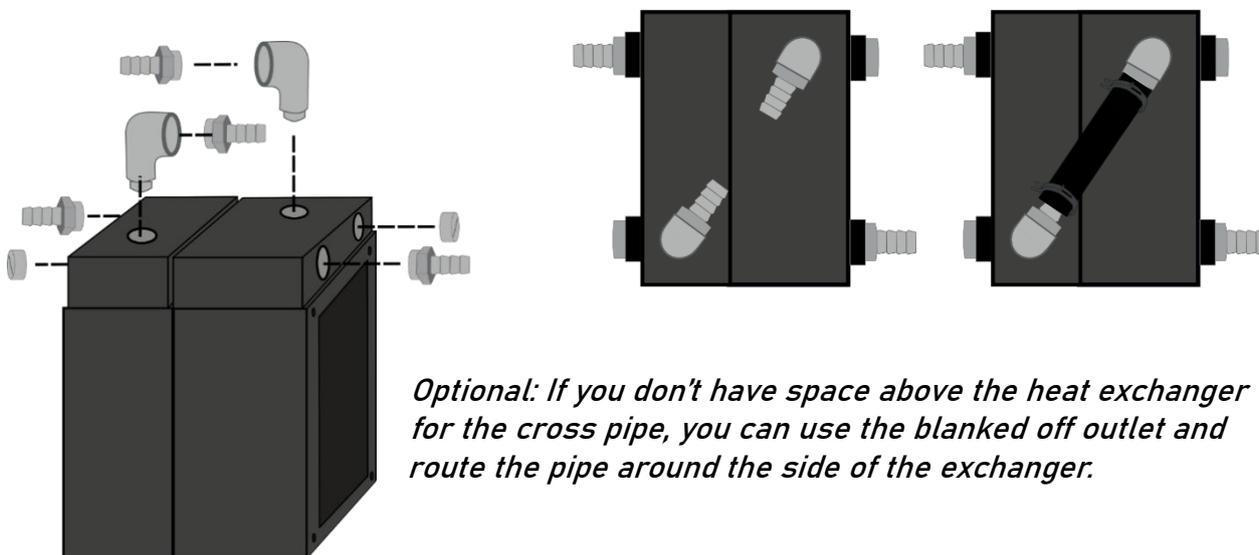


2. **BULKHEAD FITTINGS:** 4 bulkhead fittings are supplied; the angled outlet is for the overflow and the other three are for the water circulation. Remove the nuts from the smaller brass fittings, apply PTFE tape to the threads and fit as shown





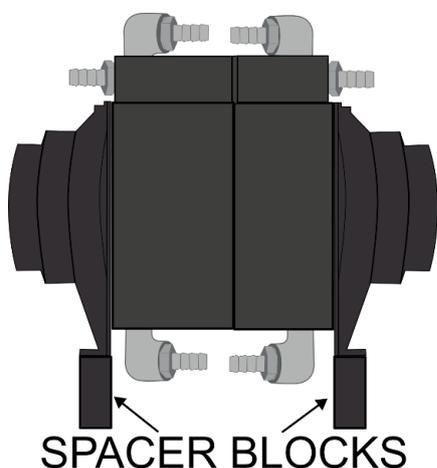
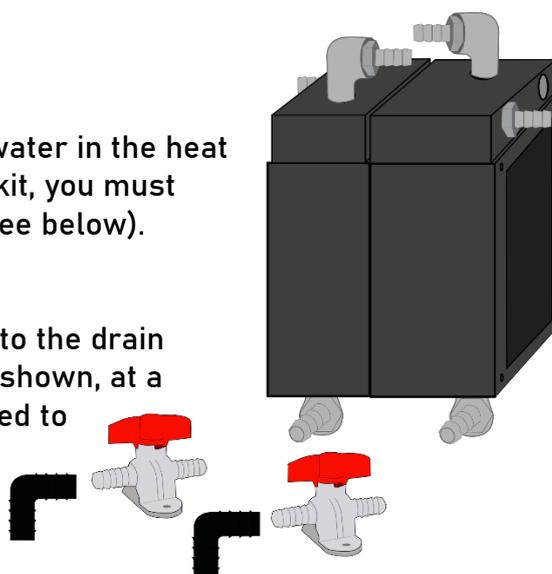
3. **HEAT EXCHANGER ASSEMBLY:** Remove the 4 red plastic blanking plugs and 2 metal blanking plugs. Assemble heat exchangers as shown, adding the **metal blanking plug** into the spare port on the exchanger. **Do not overtighten the fittings. Hand tighten only.** Add a small piece of the 8mm ID silicone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



- 3a. **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).

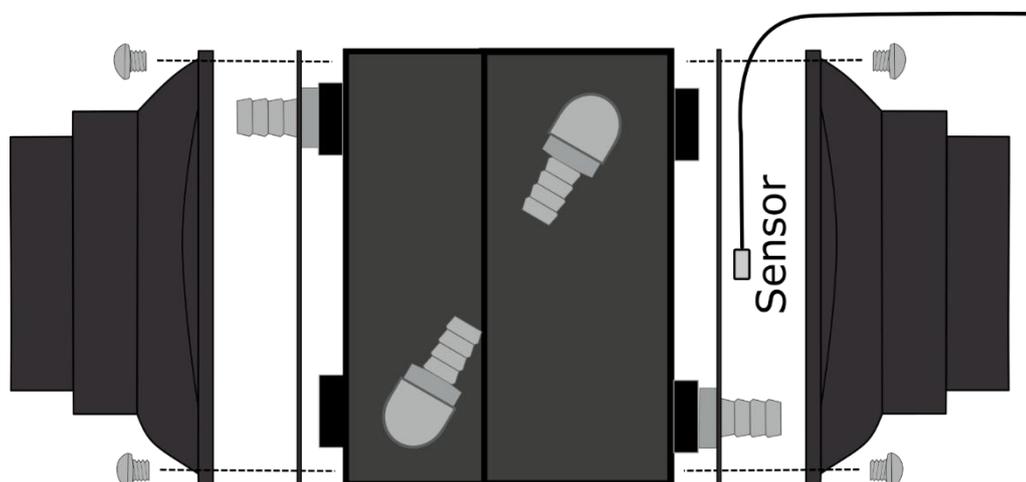
Screw in the remaining elbows and barbed fittings to the drain ports. Add drain valves and black elbow fittings as shown, at a convenient place to drain the tank. You will then need to add silicone hose and hose clamps (not shown in this image for clarity).



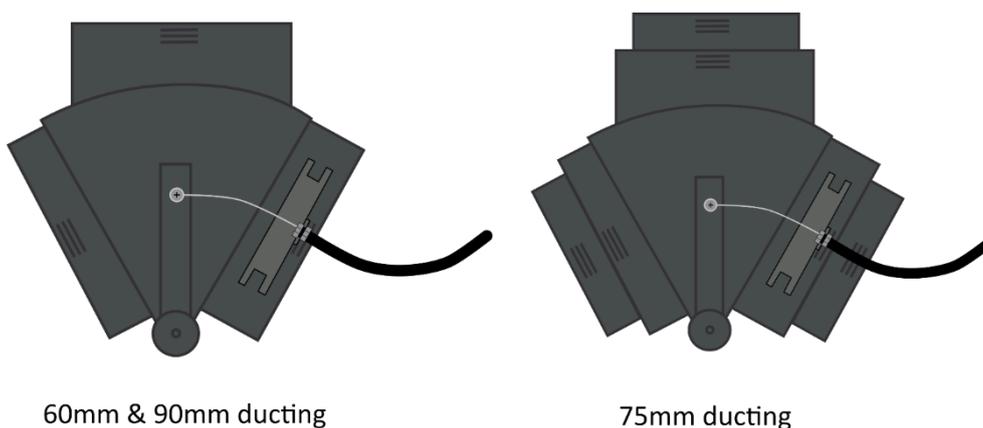
The spacer blocks click into the adaptors and allow a long screw to be fitted down through the block.

4. **HEAT EXCHANGER ADAPTORS:** The duct temperature sensor gets clamped between the rubber gasket and the plastic adaptor and is positioned as shown.

Add the rubber gaskets between the exchanger (orientation doesn't matter) and the adaptors. Fitting the screws through the adaptor and gasket before fitting to the exchanger makes this task much easier. The side with the temperature sensor will face towards the heater in final assembly.



5. **DIVERTER ASSEMBLY:** Assemble the diverter by clipping together the two halves with the flap in between, then clip on the arm to lock everything together. If you have purchased a remote cable you will also receive a bracket and a small screw. 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.



60mm & 90mm ducting

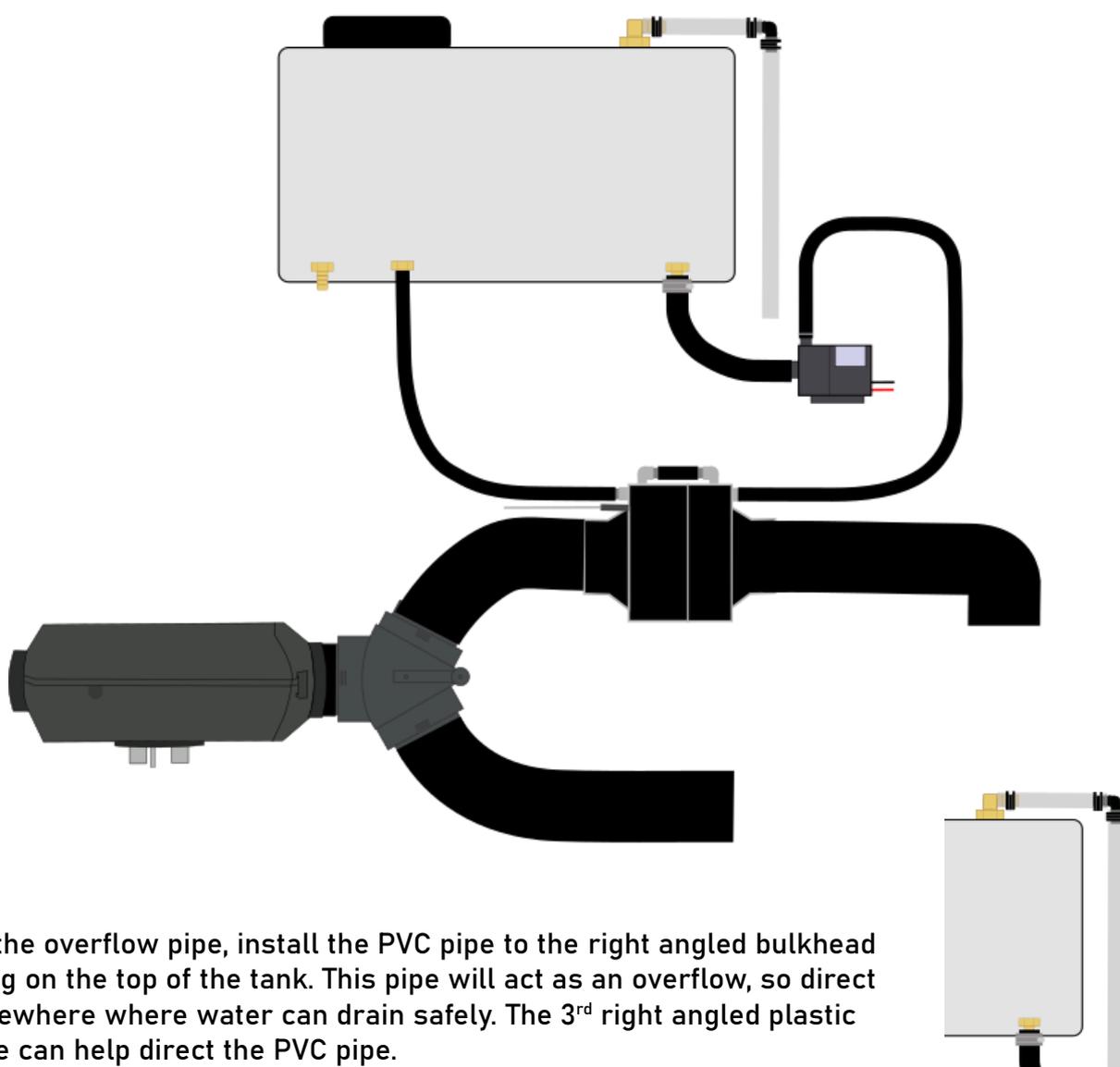
75mm ducting

The 75mm ducting requires you to use the extra included jubilee clip to hold the bracket onto the diverter. For the 60mm and 90mm sizes, the bracket is held on with the same jubilee clip that is used to hold the ducting on the diverter.

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.

Final Assembly

- Assemble the heater kit as shown.
- Ensure that the silver wire clip is fitted on the pump outlet, and the jubilee clips are fitted to the large hose going to the pump.
- The spare barb is for you to connect the Xchange tank to a pump, then onto your hot water outlet. This is unpressurised so providing your own pump is needed.
- To fill the tank we recommend a manual fill; fittings with on/off valves are available in most plumbing sizes.
- The pump should be lower than the water level as it is not self-priming and so that any air from the tank is allowed to escape.



For the overflow pipe, install the PVC pipe to the right angled bulkhead fitting on the top of the tank. This pipe will act as an overflow, so direct somewhere where water can drain safely. The 3rd right angled plastic piece can help direct the PVC pipe.

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.

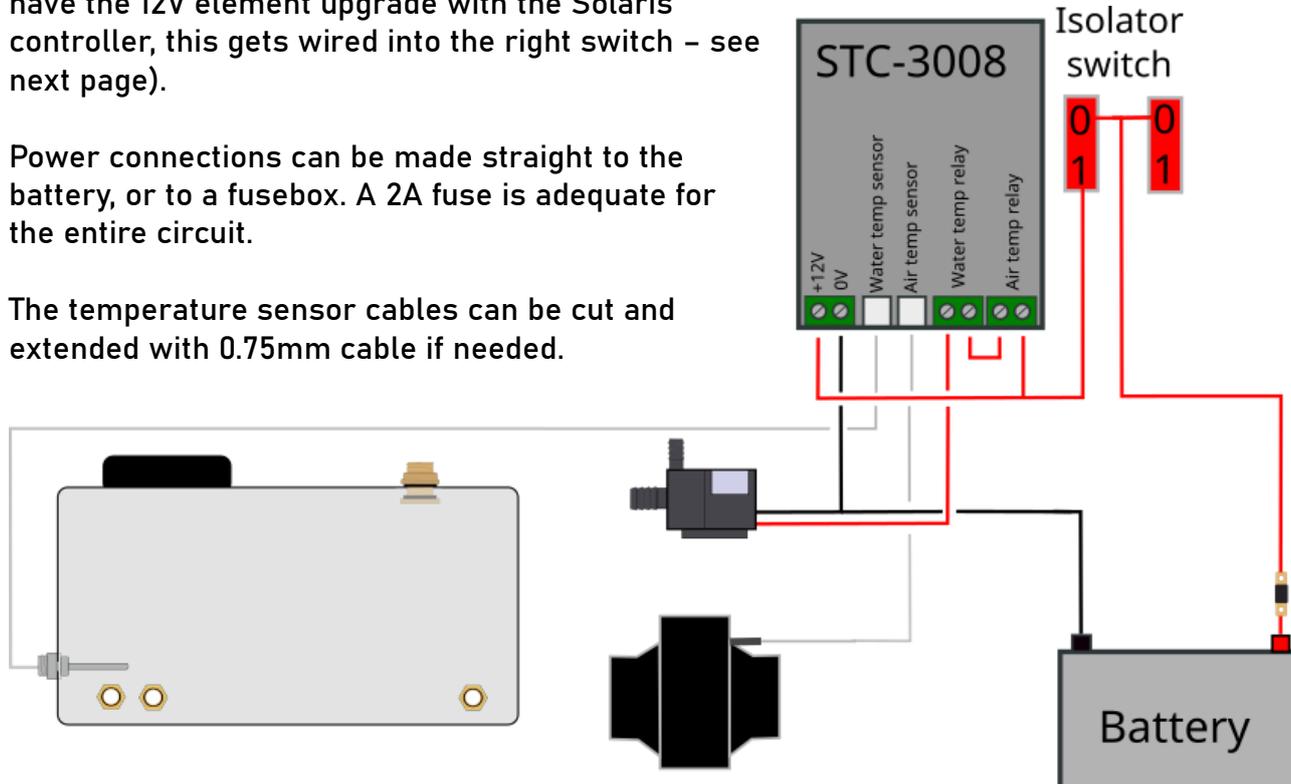
Electrical Wiring

Fit the controller and wire up as shown here. As the current is low (around 1.5 amps) small cables are adequate (1.5-2.5mm cable).

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 – see next page).

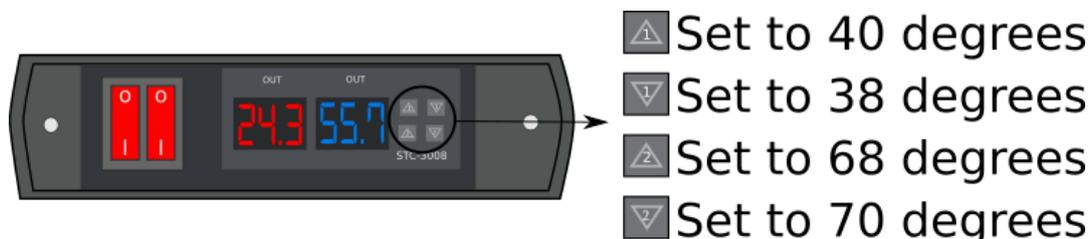
Power connections can be made straight to the battery, or to a fusebox. A 2A fuse is adequate for the entire circuit.

The temperature sensor cables can be cut and extended with 0.75mm cable if needed.



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)

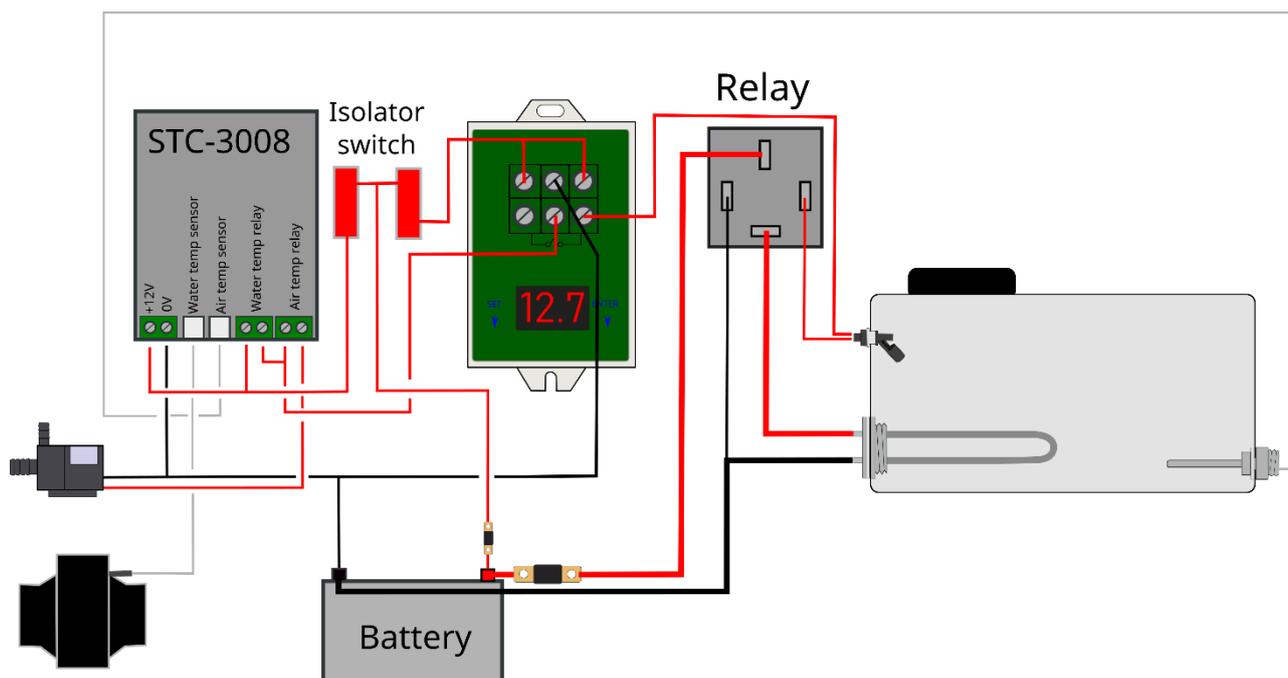
The element upgrade kit (if ordered) contains a level sensor, element and activation relay, along with a solaris voltage controller.

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.
2. Fit the element to the tank, fitting the seal on the outside of the tank. Ensure that the element is not touching anything inside the tank.
3. 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.



Wire the element up as follows. Use a 2A fuse for the controller and 30A fuse for the 300W 12V element, and ensure you use adequate size wire to prevent voltage drop.

TOTAL Length	1-2M	2-3M	3-6M	6-8M
Element	2.5mm	6mm	10mm	16mm
Wire	14 AWG	10 AWG	8 AWG	6 AWG
Controller & Signal Wire	1mm	1.5mm	2.5mm	2.5mm
	17 AWG	16 AWG	14 AWG	14 AWG





Voltage Controller Programming

For a video on programming the controller, scan the QR code:



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.

T-1 should be set to a minimum of 300 seconds to stop the relay being switched too quickly. T-2 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. 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

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 hot water pump and open your hot water tap - this will prime your hot water line. When water flows out the hot tap, close the hot tap. You can now start circulating water through the system to heat the water. Ensure there is still water in the Xchange tank.
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 approaches your desired temperature, turn off the diesel heater.
8. Open the hot tap and enjoy the lovely warm water from your Bobil Xchange!
9. Heating time will be approx. 20 minutes for 12 litre tank to 60 degrees with 5kw heater.



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!

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

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