

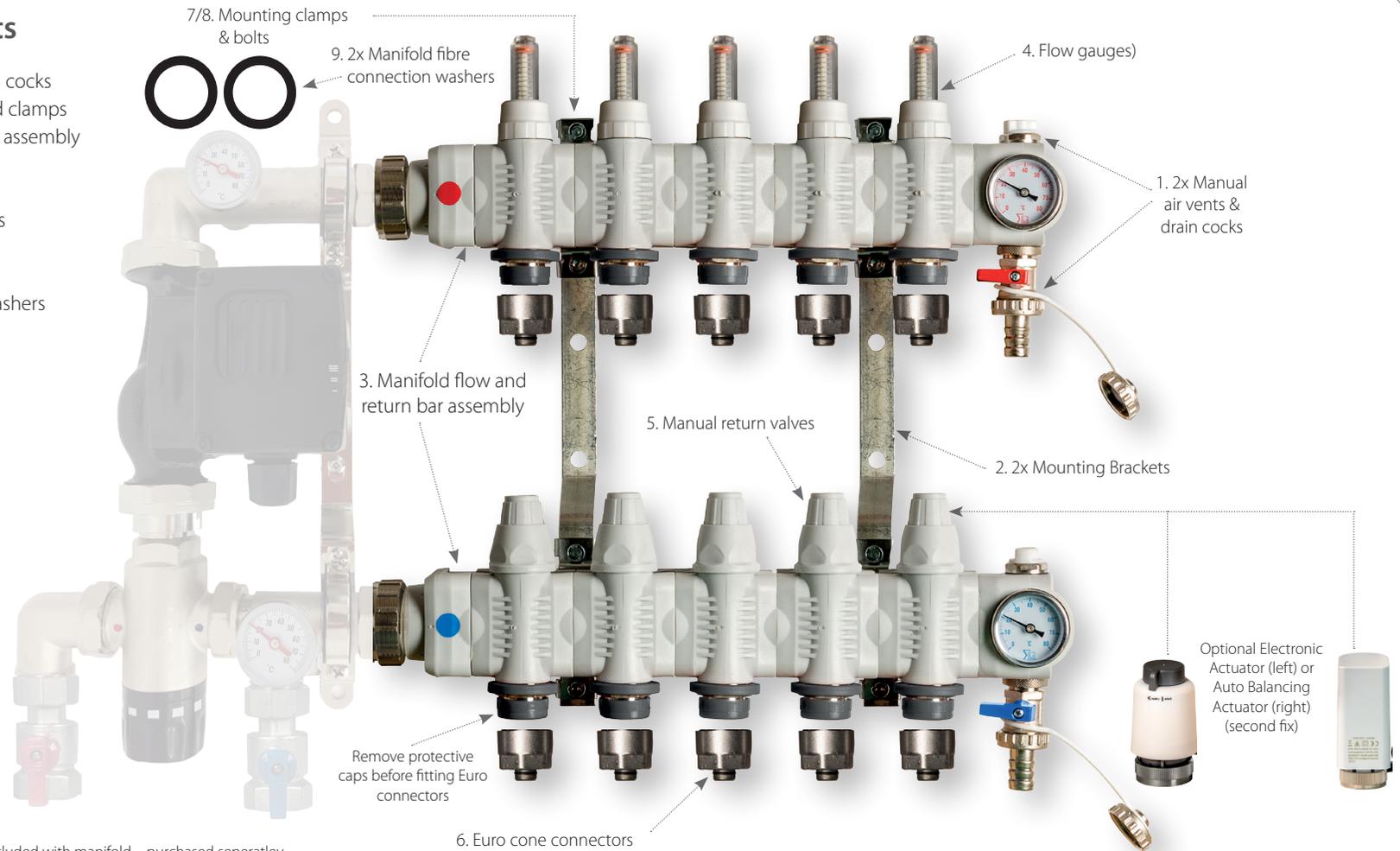
Before you start: Check the manifold box contents against the list below.

Check the contents

1. 2 x Manual air vent & drain cocks
2. 2 x Mounting brackets and clamps
3. Manifold flow & return bar assembly
4. Flow gauges
5. Manual return valves
6. Euro cone pipe connectors
7. 8 x Mounting clamps
8. 8 x Clamp bolts
9. 2x Manifold connection washers

PLEASE NOTE

Maximum continuous flow temperature must not exceed 60°C.



Pumpset & isolation valves are not included with manifold – purchased separately

WUNDA

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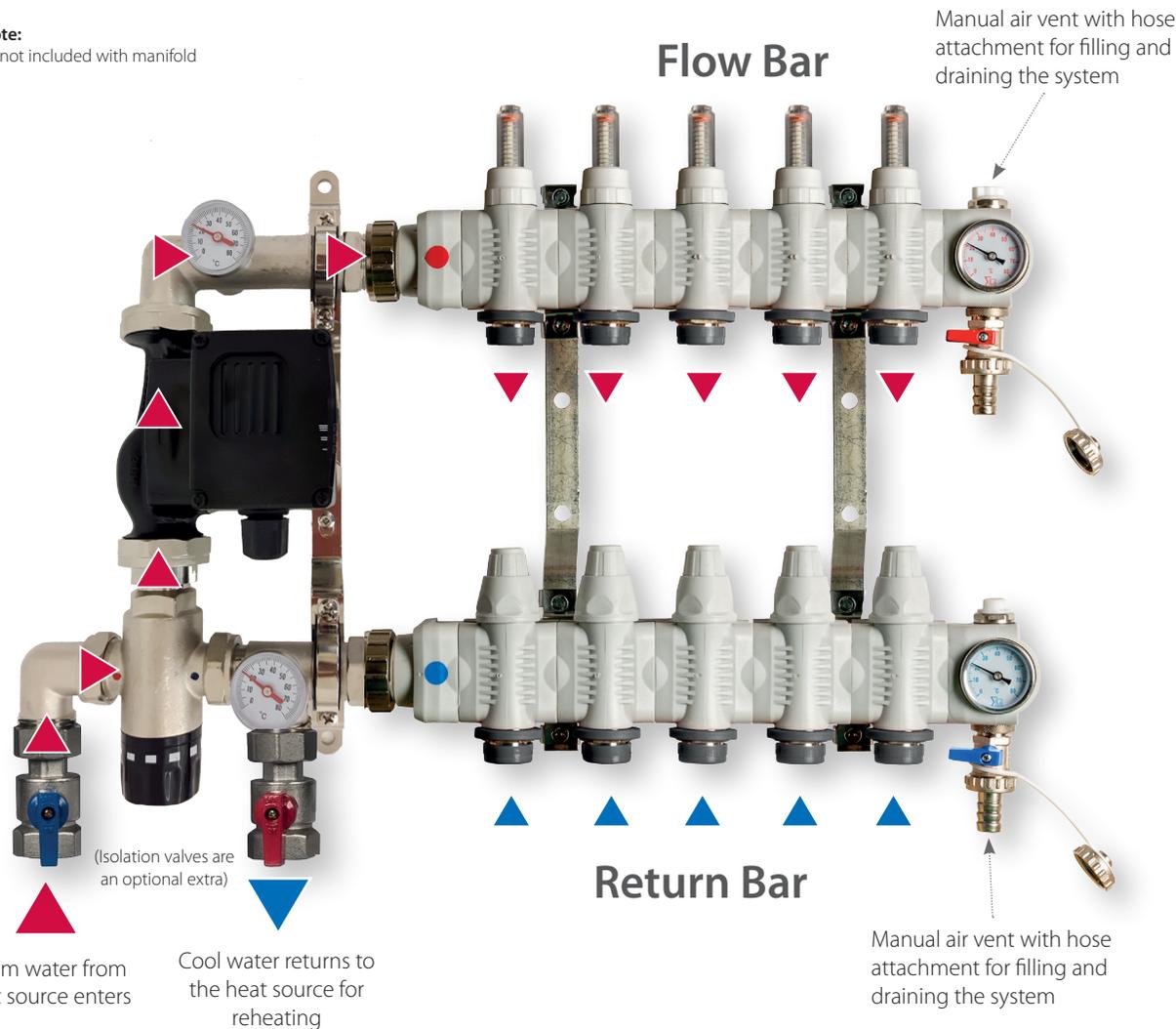
Wunda High Tech Manifold

0800 5420 816

www.wundatrade.co.uk

M13

Please note:
Pump set not included with manifold



Understanding how the manifold & Pumpset work

Warm water is pumped from the heating source to the manifold and pumpset assembly. If the system requires a top-up of heated water, the temperature control valve will allow more heated water into the floor heating system via a one-way valve or release cooled water back to the heat source for re-heating.

The temperature of water allowed into the floor heating system is controlled with the adjustable mixing valve control knob and can be monitored with the flow bar temperature gauge.

Water temperature input is easily increased or decreased by turning the mixer valve control head. CLOCKWISE closes the valve and decreases the flow temperature, ANTI-CLOCKWISE opens the valve and increases the flow temperature, all temperature adjustments should be made gradually and allow the system to respond.

From the upper flow bar, warm water is distributed to each loop of floor heating pipe via the flow gauge. The warm water cools as it passes through the circuit and then returns via the return valves and open actuator into the lower return bar.

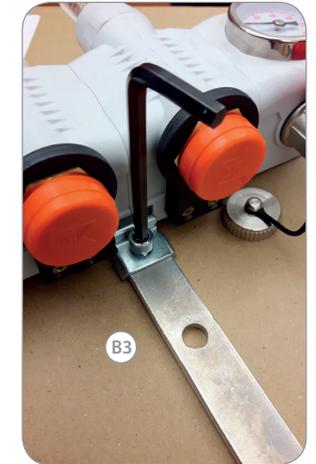
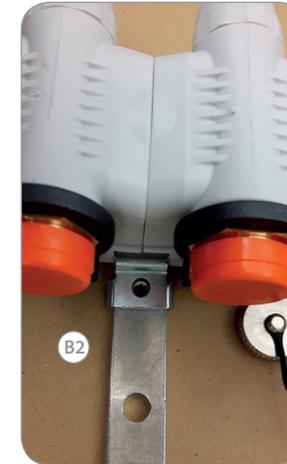
When the room reaches the required temperature the designated room thermostat sends a signal to the wiring centre to switch off the circulating pump and close the actuators. This shuts off the warm water supply to the floor heating pipe loops and therefore shuts off the heat supply to that zone.

Before assembly of the manifold, pumpset or pressure testing familiarise yourself with the various stages of assembly and the relevant fact sheets. We also advise to watch the online tutorials and technical support videos. In all cases we recommend seeking the advice/installation of a professional qualified person.

Free Technical support - 0800 5420 816

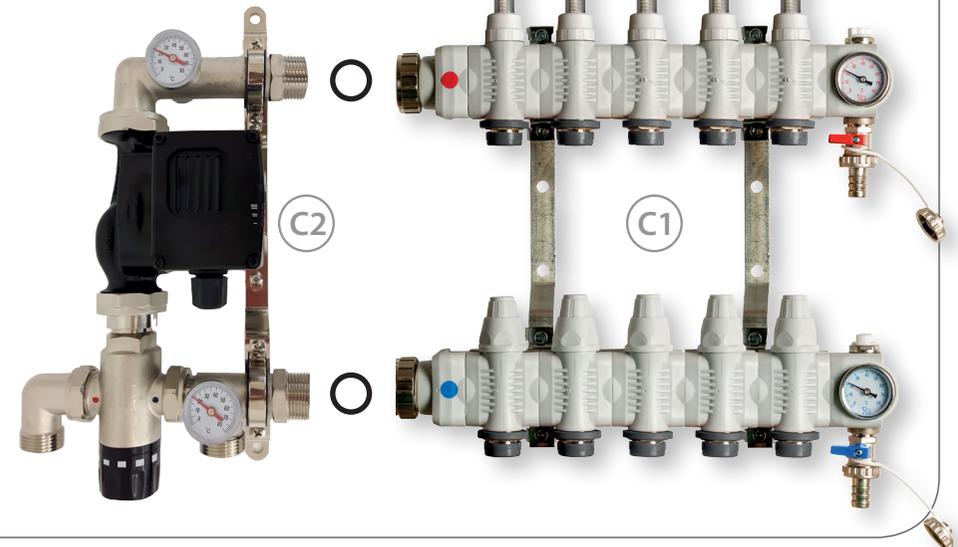
Manifold assembly instructions

- 1, Identify and locate the 2 mounting brackets, 8 manifold clamps & 8 clamp bolts. (pic A1)
- 2, The brackets should be laid out in the correct orientation with the shorter raised section uppermost. (pic A2)
- 3, The manifold flow bar (red drain tap) must be fixed using the clamps to the longer, lower part of the bracket (pic A3) and the return bar (blue drain tap) is fixed using the clamps to the raised, shorter section. (pic A2)
- 4, The flow bars are fixed to the wall brackets using the supplied clamps, 1 from above and 1 from below. (pic A4)
- 5, Each clamp has a tab that must be located into the recess of each flow bar, (pic B1, B2, B3) gently tighten each clamp ensuring the tab is located into the flow bar recess.
- 6, Repeat this process for each clamp in turn, check the assembled manifold and brackets making sure the flow and return bars are set correctly with the pipe connectors and drain taps facing the same direction – downwards. (pic C1)
- 7, When fitting a Wunda pumpset to our High Tech manifold the pumpset will require it's support bracket to be fitted, supplied with the Wunda pumpset. (pic C2)

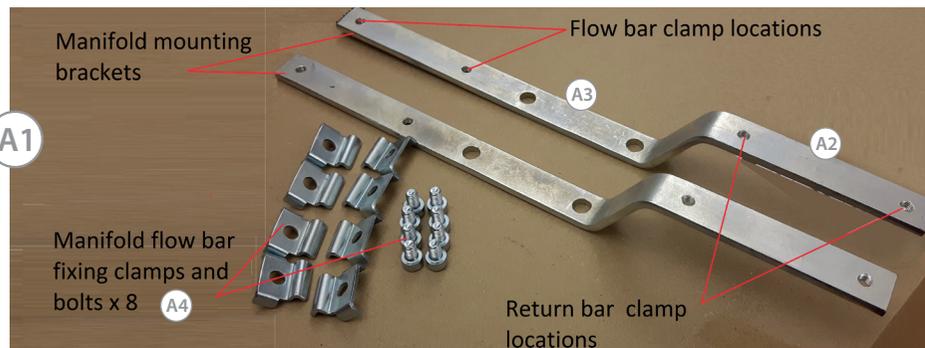


Wunda Pumpset with support bracket

Correctly assembled manifold



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Manifold Mounting & Pipe Connection

We recommend that manifolds are installed into a manifold cabinet, which are quick to fit and make locating the manifold much simpler whilst offering protection from tampering, knocks and damage.

If you are mounting directly to the wall, make sure the bottom bar of the manifold is sited at a height to allow enough room for the floor heating pipes to connect to the manifold and enter/exit the floor - approximately 500mm from the floor.

Before connecting floor heating pipes to the manifold ensure each loop of pipe has been identified using a permanent marker and that flow and return is clearly marked.

Remove the plastic protective caps on flow and return bars for each pipe connection.

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Open Wunda pipe cutters by pulling the handles fully open (pic B), ensure all pipes are cut cleanly and squarely being careful not to cut the pipe short or it will not reach the manifold connection.

The freshly cut end of pipe must now be prepared using a Wunda reamer (pic C) insert the reamer fully into the end of the cut pipe so that the pipe is in contact with the 3 cutting teeth (pic D) push and turn the reamer clockwise 2-3 full turns, whilst pushing the reamer against the pipe end.

This will give the pipe a clean and chamfered finish ready for connection. If the pipe is not prepared correctly with a reamer the euro cone-connector O-ring can become snagged causing the connection to leak.

A good tip is to grip the pipe wearing a rubber glove, this will prevent the pipe twisting in your hand whilst turning the reamer.

Place the threaded pipe connector over the prepared pipe followed by the split olive, push the pipe insert into the end of the pipe ensuring it is fully seated against the end of the pipe (pic E).

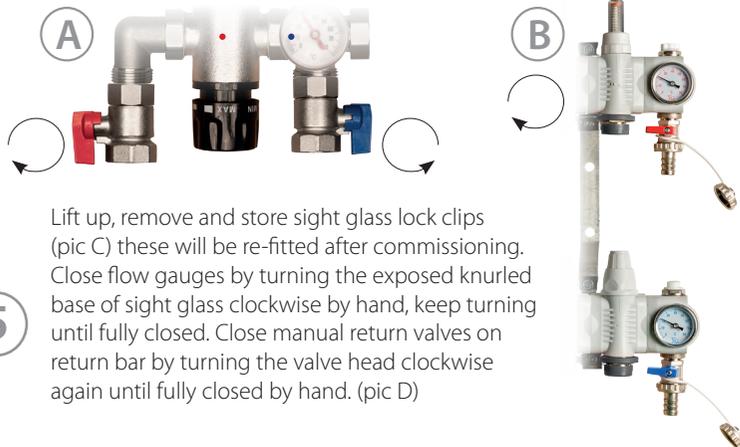
The pipe is now ready to be connected to the manifold ensure the connector is tightened using a 27mm spanner (pic F, G, H, I)



Manifold Pressure Test

Before pressure testing ensure all floor heating loops have been laid and all connections are tightened. Ensure isolation valves are fully closed. (pic A)

Close both manual air vents and both drain/fill taps. (pic B)



5 Lift up, remove and store sight glass lock clips (pic C) these will be re-fitted after commissioning. Close flow gauges by turning the exposed knurled base of sight glass clockwise by hand, keep turning until fully closed. Close manual return valves on return bar by turning the valve head clockwise again until fully closed by hand. (pic D)



Close flow gauge / return valve – turn clockwise

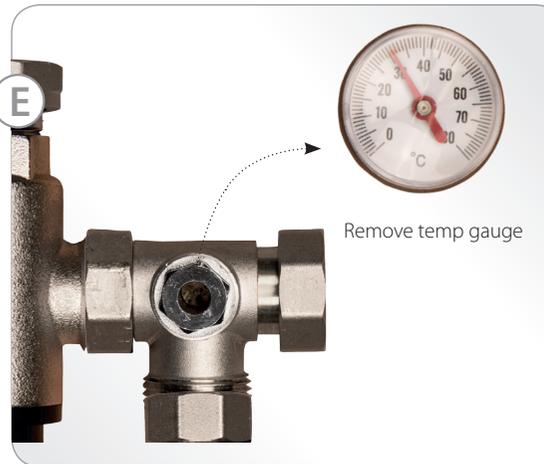


Open flow gauge / return valve – turn anti-clockwise



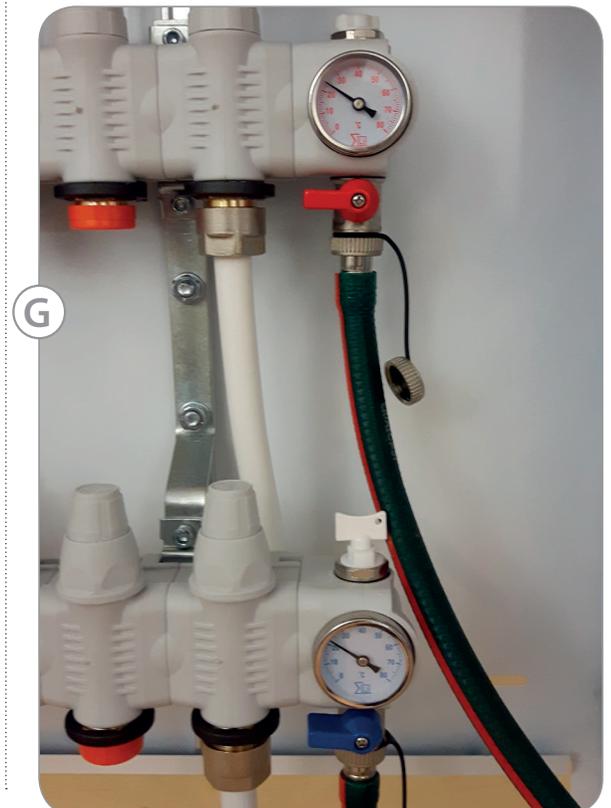
Remove lower temperature gauge and unscrew brass housing (pic E) Screw pressure gauge* into the exposed aperture, PTFE may be required to seal) (pic F)

**not supplied with manifold but available from Wunda*

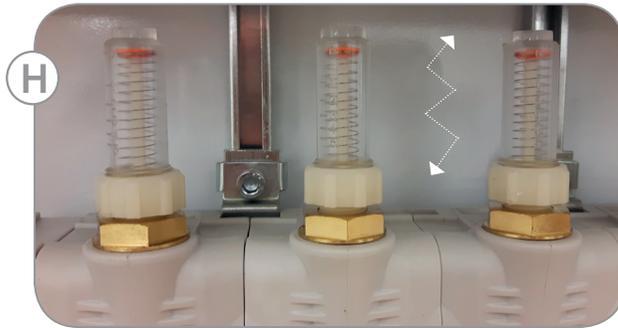


Connect a mains supply hose to the top flow bar red tap and connect a drain off hose to the lower return bar blue tap drain off point. (pic G) place the end of the drain off hose into an empty bucket. Open both the red and blue drain taps, turn on the mains water supply hose to the fill hose.

Starting at the pump side of the manifold, open the first flow gauge, turning Anti-clockwise by hand. Open the corresponding manual return valve, directly below the opened flow gauge, by hand. (pic C,D)



The flow gauge will start to move erratically until a steady flow of water is achieved through this loop of pipe. (pic H)

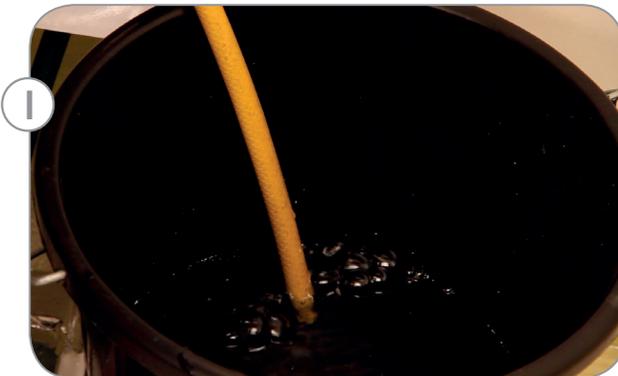


Once all floor heating loops have been filled with water and purged of all air, close the blue drain tap on the lower return bar. Briefly open each manual air vent in turn, any trapped air in the flow and return bar will be forced out of the air vent release. Close the air vents after all air has been expelled. (pic J)



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By placing the end of the drain hose into a bucket it is possible to see when all the air has been purged from this loop by the reduction in air bubbles passing into the water. (pic L)



When a steady and clear flow is achieved and ALL air has passed, close the manual return valve on the return bar, leaving the flow gauge open. (pic G on previous page). Repeat this exercise with each individual loop, ONE loop at a time.

Allow the water pressure inside the floor heating system to rise to 3-4 bar, (pic K) close the red drain tap on the flow bar (pic L). Turn off the mains water supply hose at the source and leave the floor heating system under pressure for a minimum of 3 hours.



If the system pressure drops investigate and remedy, the mains water supply hose can be removed, leave the drain hose in place as this will be required to release the pressure at a later stage. It is good practice to leave the system under pressure whilst laying of final floor finish to indicate any possible damage caused to the floor heating pipes.

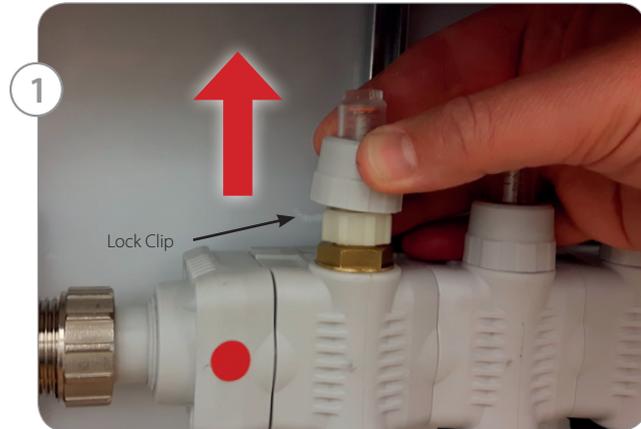
When you are fully satisfied that the system is pressure tight, shut all flow gauges and manual return heads. Release the manifold pressure through the blue drain hose on the return bar connected to a hose into a bucket. Briefly open the blue drain tap releasing the pressure and then close the blue drain tap. Remove the pressure gauge and re-fit the lower temperature gauge housing and temperature gauge. The manifold and pumpset can now be connected to the heat source by a qualified professional and a suitable inhibitor added.

PLEASE NOTE:

DO NOT leave an un-commissioned system filled with untreated water and unprotected from freezing conditions – introduce & circulate a suitable inhibited antifreeze or alternatively the water must be forced out of the floor heating pipes using a compressor.

Free technical support call 0800 083 2677

Standard Actuators - Manual flow rate setting



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IMPORTANT: Adjust flow gauges by hand only do not use pliers or grips and do not force open beyond 2 ½ turns from full closed as this may cause damage to the flow gauge.

To adjust flow rates, remove flow gauge lock clip (pic 1) and turn the knurled base of the flow gauge by hand. (pic 2)

- Ensure pump is working, actuators are fitted & thermostats are calling for heat.
- Clockwise to decrease flow rate.
- Anti-clockwise to increase flow rate.
- Flow rate is indicated by orange disc inside flow gauge sight glass.
- Check table (pic 3) and adjust individual flow rates to match loop length of each pipe.
- Re-fit flow gauge lock clips to all flow gauges.

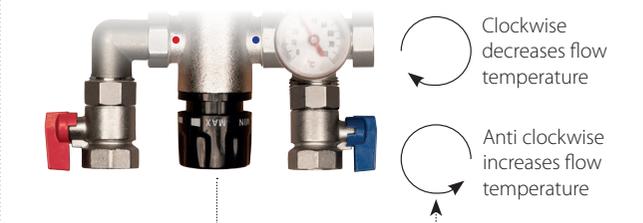
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Approximate Flow Rate Guide*	
Length of heating** circuit (Metres)	Flow rate (litres per min)
20	0.5
30	0.6
40	0.8
50	1.2
60	1.4
70	1.7
80	1.9
90	2.3
100	2.5
110	2.8
120	3.0

Flow input temperature setting

To protect final floor finish and have the correct settings for floor constructions, the mixer valve must be set correctly. Flow temperature input is adjusted by turning the black temperature control knob. Clockwise reduces flow temperature and anti clockwise increases flow temperature.

Adjust the flow temperature to suit the floor construction and floor finish. Flow temperature is indicated by the temperature gauge on the top flow elbow.



- Pipe in Overfloor panel systems 35°C*.
- Pipe in Solid screed construction (staples, cliptrack, multipanel) 45°C*.
- Pipe in Joisted floor construction (spreader plate, foiltec) Max flow temp 60°C*.

* Check with floor finish suppliers before introducing warm water into the floor heating system as some flooring materials, in particular wood, require limiting of floor surface temperatures. Floor surface temperatures can be automatically controlled with the installation of our floor probe and correct thermostat programming.

***NOTE**
Flow rates may be increased or decreased to adjust performance. A flow and return temperature differential of approx 10°C is preferred. Flow rate temp may adjusted to a max of 60°C

If two pipe circuits are attached to one port with a 'Y' connector, then both lengths should be added when working out flow rate.

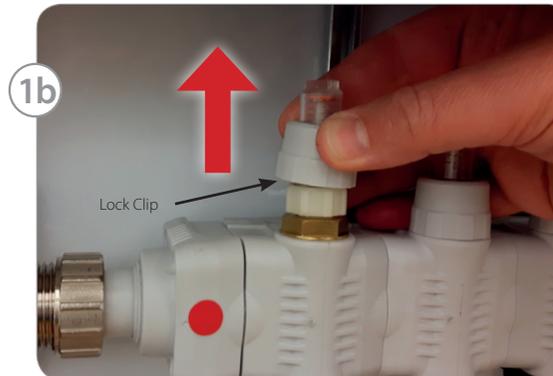
****NOTE**
The maximum advisable circuit lengths are:
16mm pipe – 100m per circuit
12mm pipe – 60m per circuit

Auto Balancing Actuator - installation

Wunda Auto Balancing Actuators have sensors that constantly measure the flow and return temperature of each individual loop and adjust the actuator position to maintain a constant temperature differential (pic 3a) of delta T set to 7°C between the flow and return floor heating pipes.

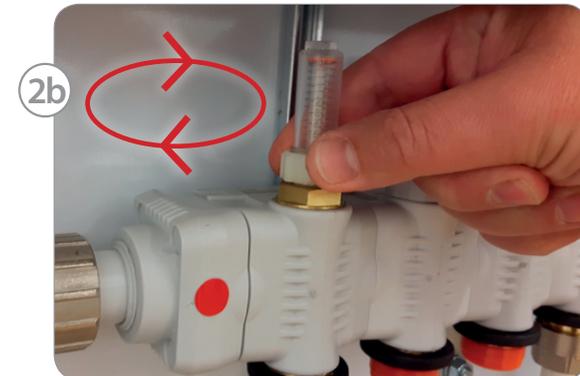
This ensures correct circuit balance every-time with no need to set flow rates. Automatic flow adjustment means that flow gauges DO-NOT need balancing and must be set to their fully open position.

Open and close flow gauge by hand only – DO-NOT force beyond 2 ½ open from fully shut as this may cause damage to the flow gauge.



To adjust, remove lock-clip (pic 1b) and turn the knurled base of the flow gauge by hand (pic 2b)

DO-NOT USE PLIERS OR WRENCH TO ADJUST FLOW GAUGE.

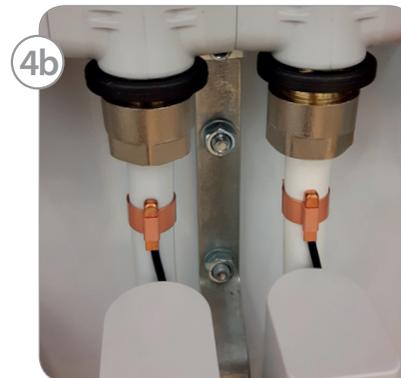


Turn flow gauge anti-clockwise to open and clockwise to close (pic 2b) the flow gauge is fully open when turned 2 ½ full turns from closed position, do not force pass this point. Re-fit lock lock-clip once fully opened.

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Each Auto Balancing Actuator has 2 pipe sensors (pic 3b), one is simply clipped onto the flow and the other onto the corresponding return of each loop of pipe. Either clip can be placed on the flow or return. (pic 4b)



Ensure that sensors are positioned correctly and secured in place with the clips. (pic 5b)



Auto balancing actuators must be wired in accordance with Wunda wiring guide. All electrical work must be carried out by a qualified professional. When the floor heating system is fully commissioned and thermostats call for heat, each individual actuator will activate and self-calibrate.

Once a flow temperature is detected by the sensors the Auto Balancing actuator will maintain a constant temperature differential of 7°C between the flow and return floor heating pipes until the room thermostat signals that heating has been achieved.

PLEASE READ: Important set-up info

In some cases, if the pump circulation speed and flow meters are not set up properly, the premium mixing valve may whistle. To avoid this, check you have covered the following points during installation.

MANIFOLD SIZE:

2-4 ports - total floor heating pipe length of up to 400 metres, the pump should be set at **no higher than speed 1**

4-8 ports - total floor heating pipe length of up to 800 metres, the pump should be set **no higher than speed 2**

8-12 ports - total floor heating pipe length of up to 1200 metres, the pump should be set **no higher than speed 3**

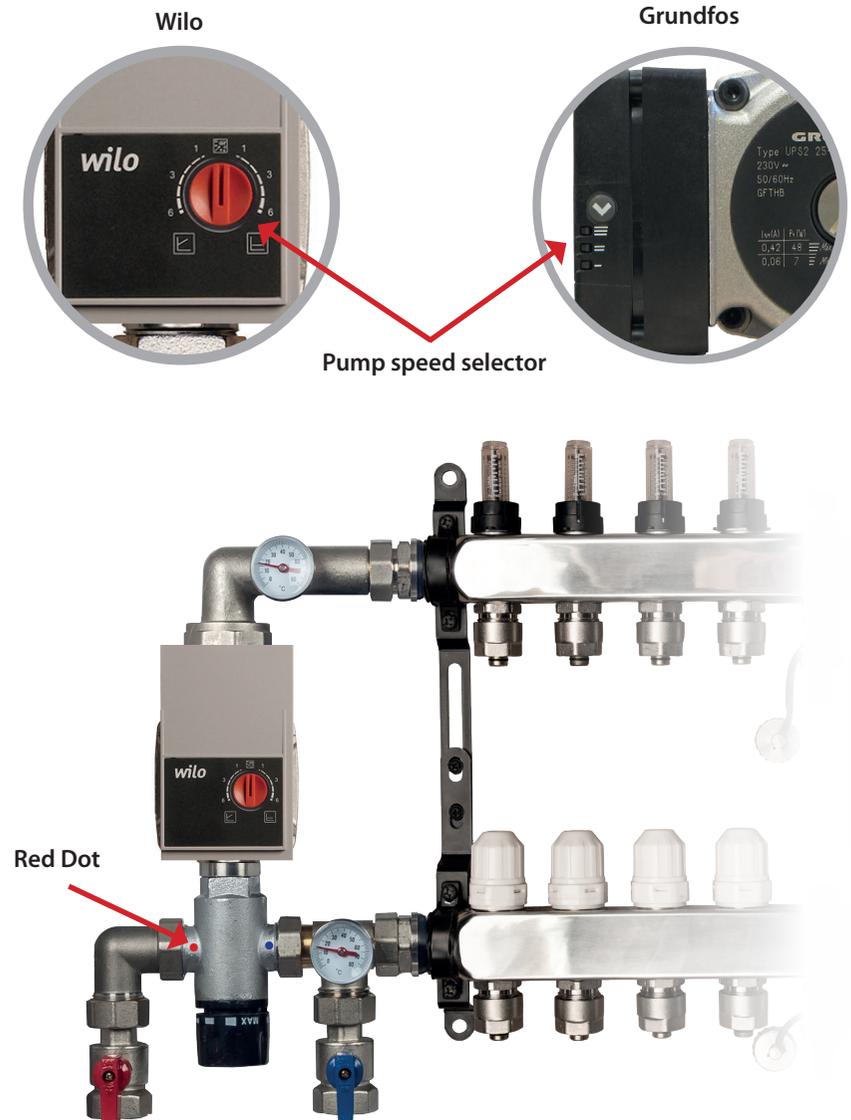
FLOW RATES:

Each flow meter should be set up to harmonise the flow rate of each loop with the system - please follow the instruction laid out in **Fact Sheet M07 page 6** (downloadable from www.wundatrade.co.uk/factsheets/) or see the online video.

OTHER THINGS TO CHECK:

- Check that the red dot of the mixer valve is connected to the **flow**
- Check that your feed and return pipe sizes meet the requirements of the manifold.
- Make sure your isolation valves are fully open

Please call tech support should you need any further guidance



Supplementary information.

Floor surface temperatures

Before introducing heat into the floor heating system check with the final floor finish supplier about maximum floor surface temperatures.

Generally a maximum floor surface temperature of 29°C should not be exceeded however many wooden floor finishes have a maximum floor surface temperature of 27 °C and must be laid in conjunction with relevant underlay and moisture barriers.

We advise the use of floor probes in conjunction with room thermostats be used in order to limit floor surface temperatures and avoid damage to chosen floor finish.

In particularly large areas several probes and thermostats may be required.

Wooden floor coverings

When installing wooden floor coverings over floor heating the floor surface temperature must not exceed 27 °C. Floor probes in conjunction with room thermostats must be used in order to limit floor surface temperatures and avoid damage to wooden floors. Expansion gaps must be used to allow for expansion and contraction movement of the wooden flooring as specified by flooring suppliers. Birch and Maple are not suitable for use with floor heating due to excessive amounts of expansion. Laminates and engineered woods less than 25mm thick work well with floor heating. All wood flooring products must be acclimatised to the heating system and its operational temperatures by following suppliers guide lines.

Water Treatment (required to comply with product guarantee)

Specialist water treatment suppliers such as Sentinal or Fernox will be able to advise on all water treatment issues and dosage requirements. Flushing should be in accordance with BS:7593 to ensure awareness of the preparation of the water circuit for the wet heating systems prior to initial commissioning following major remedial work such as boiler replacement and the ongoing water

treatment to ensure continued efficiency. The water volume in a 16mm pipe Floor Heating system can be calculated by multiplying the total linear length of Floor Heating pipe by a factor of 0.113 this will give the volume of water in litres.

In order to minimise corrosion, treatment of the water with an inhibitor is essential, however, for a corrosion inhibitor to function effectively, the metal surfaces must be clean. The British Standard Code of Practice BS 7593: 1992 details the steps necessary to clean a domestic central heating system. The Code recognises that it is not possible to clean a system without the application of a cleanser. Different products may be used depending on the nature of the system involved.

The most effective corrosion inhibitors act by reacting with the surface of the metal to produce a protective film in the form of a stable complex. The effectiveness of a given corrosion inhibitor will depend on its concentration.

In a multi-metal system, the product selected should contain a blend of inhibitors such that each metal is afforded good protection. In addition to the usual metals and alloys, e.g., iron, copper, steel and brass, special consideration must be afforded to aluminium.

Normally this metal is protected by a film of aluminium oxide which prevents corrosion in water (or in air), but under acid or strongly alkaline conditions the oxide film dissolves exposing the metal. Some waters found in the UK will give rise to sufficiently alkaline conditions in a central heating system to promote corrosion of aluminium and the gassing associated.

An increasing number of central heating systems contain aluminium so it is advisable that a neutral (neither acid nor alkaline) corrosion inhibitor product is selected in every case.

Consideration should be given to adding antifreeze to the floor heating system especially during the winter months.

Important

"When mixed floor solutions are being served from the same manifold, a floor probe must be used in the floor solution with the lower maximum supply temperature. This is to limit the temperature in these floor areas and prevent damage to the floor solution and/or floor finish."

Wunda Group Plc operates a continuous product development programme to maintain our reputation for quality products and as such we do occasionally modify or amend the specification of our products in line with our strict quality control policy. Maintenance of the floor heating system is straightforward and the pump, manifold, gauges, valves and actuators are designed for continuous operation over many years. Wunda Group Plc recommends regular use of floor heating systems, this will ensure flow gauges, pumps and valves are kept in good working order.

All information in this publication is given in good faith, and believed to be correct at time of going to press. No responsibility can be accepted for any errors, omissions or incorrect assumptions. Users should satisfy themselves that products are suitable for the intended purpose and application.

