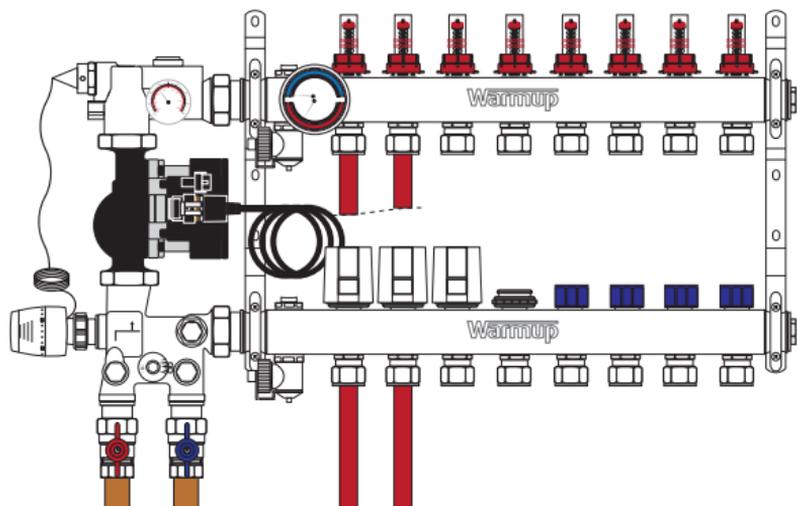


Installation Manual



Technical Helpline
0345 345 2288

IMPORTANT!

Please read this manual before attempting to install your Warmup product. Complete and submit your warranty form **online at** www.warmup.co.uk



Hydronic
Heating System

www.warmup.co.uk

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WARNING

Your Warmup® Underfloor heating manifold has been designed to be as efficient as possible when installed correctly, regardless of the heat source being used. Installation will be quick, straight forward and trouble free providing that the guidance within this manual is followed. We require that even experienced installers read this manual through at least once to prevent undue mistakes.

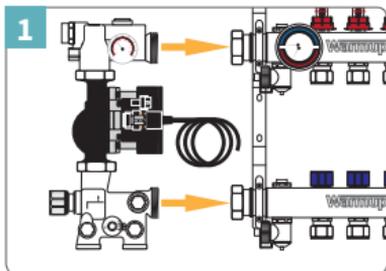
Warmup plc, the manufacturer of the Warmup® S3 Manifold series, accepts no liability, expressed or implied, for any loss or consequential damage suffered as a result of installations which in any way contravene the instructions that follow.

It is important that before, during and after installation that all requirements are met and understood. If the instructions are followed, you should have no problems. If you require help at any stage, please contact our helpline or visit our website:

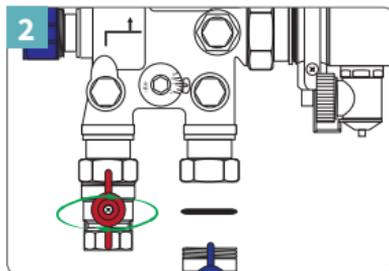
www.warmup.co.uk



Quick Install Guide - Please also read the full instructions that follow this page.



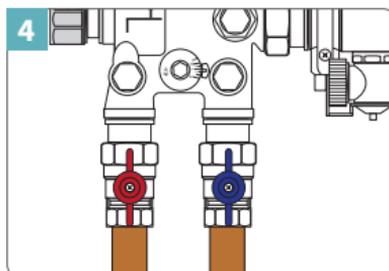
- Assemble and connect the WHS-M-S3-MIX, mixing unit (if used).



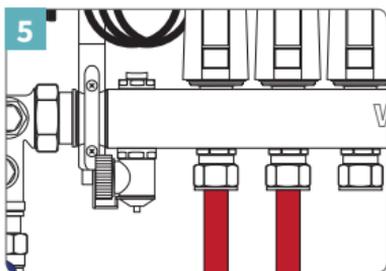
- Connect the WHS-M-S3-VALVES, isolation valve kit.



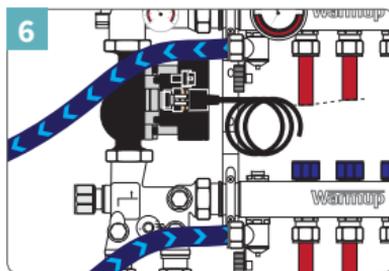
- Identify a suitable location, and mount the manifold.



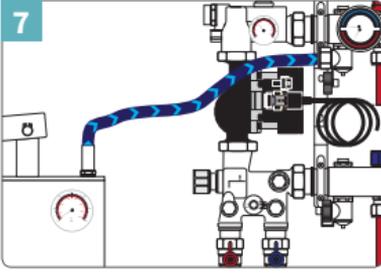
- Connect the primary supply pipes to the manifold, ensuring that only valves operated by the UFH can interrupt the supply



- Connect the secondary pipework, ensuring to record circuit lengths.



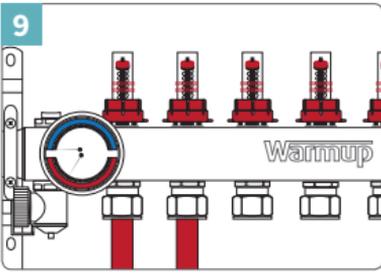
- Purge and fill the circuits.



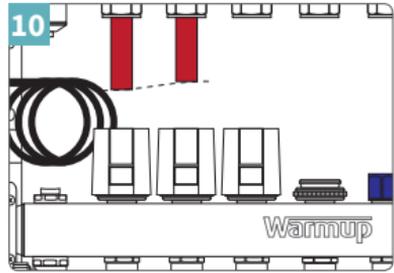
- Pressure test the system.



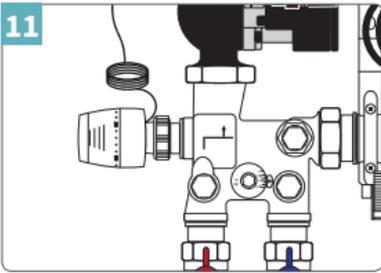
- Make the electrical connections to the circulator, setting it to operate on Constant Pressure Curve 3.



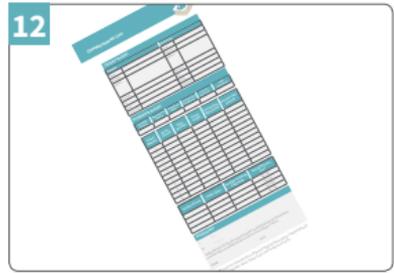
- Balance the secondary circuits.



- Install actuators.



- Install thermostatic actuator, its capillary sensor and set the secondary flow temperature (if used).



- Record all install information on the commissioning log found in the back of this guide.



Components available from Warmup

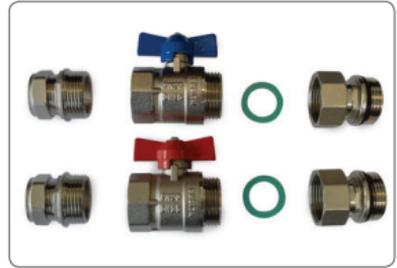


- WHS-M-S3-02
- WHS-M-S3-03
- WHS-M-S3-04
- WHS-M-S3-05
- WHS-M-S3-06
- WHS-M-S3-07
- WHS-M-S3-08
- WHS-M-S3-09
- WHS-M-S3-10
- WHS-M-S3-11
- WHS-M-S3-12

WHS-M-S3-XX



WHS-M-S3-MIX



WHS-M-S3-VALVES



WHS-M-S3-ACT230



WHS-C-B-MASTER01



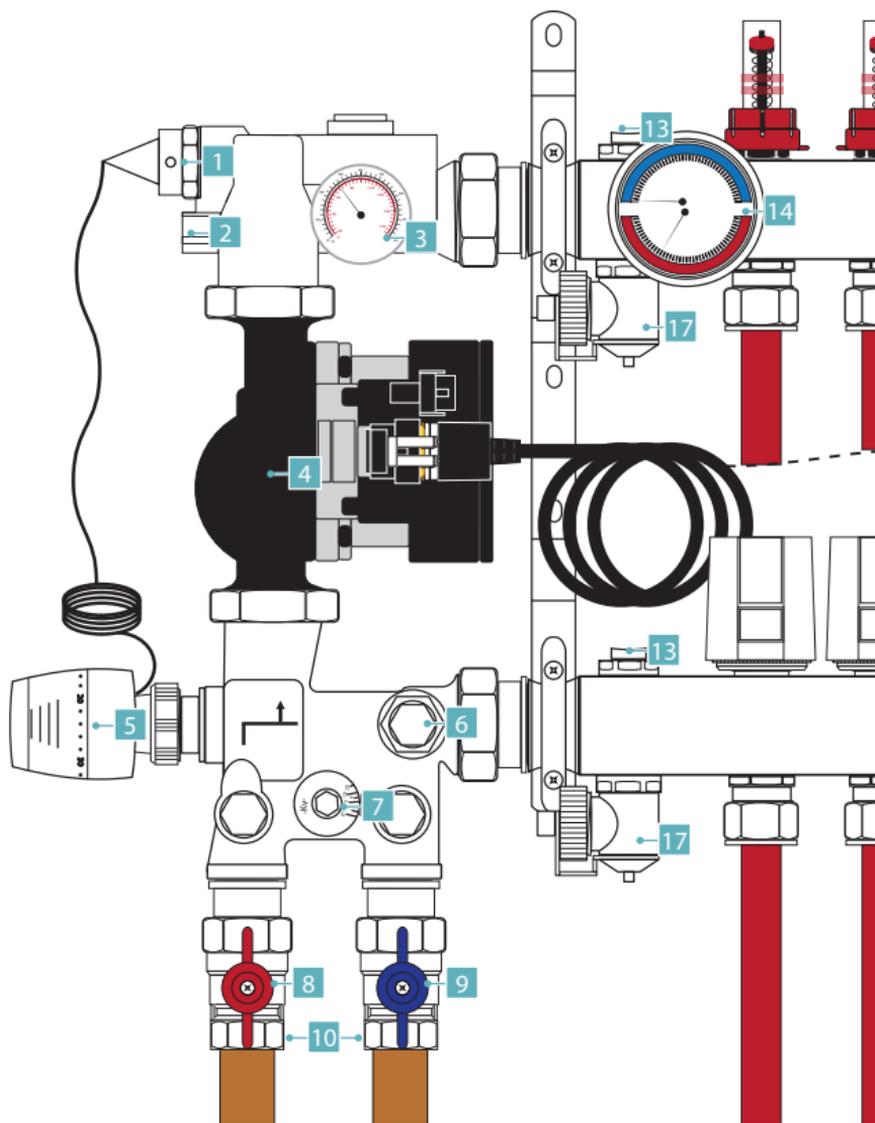
Warmup Thermostat

 **DO**

- Ensure the WHS-M-S3-XX manifold is mounted to a structurally sound wall capable of bearing the load imposed by the manifold.
- Precautions should be taken to reduce the risk of damaging any services within the walls when drilling.
- Keep the area clean and clear, reducing the risk of foreign bodies entering the system.
- Use suitable pipe cutters to ensure a square, clean cut is made to the pipework.
- Ensure all data is fully recorded on the commissioning log.
- Ensure, where the system is subject to the risk of freezing, the system is purged or a suitable antifreeze, such as Glycol (up to 30% by volume) is used.

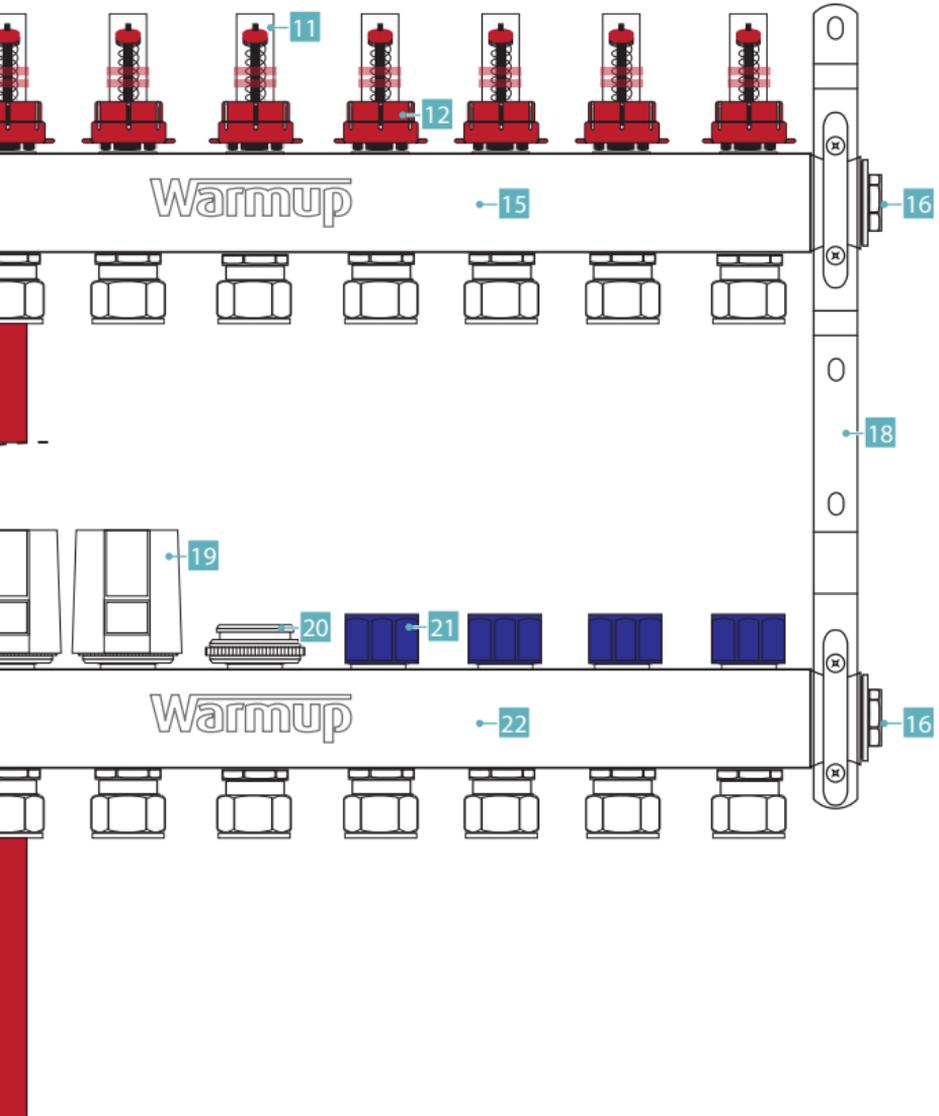
 **DON'T**

- Do not exceed specification - failure to do so will void the warranty.
- Do not use excessive force when adjusting flow gauges.
- Do not guess the flow rates or temperature settings, as this will waste energy, and potentially incur higher running costs compared to a correctly designed and commissioned system.



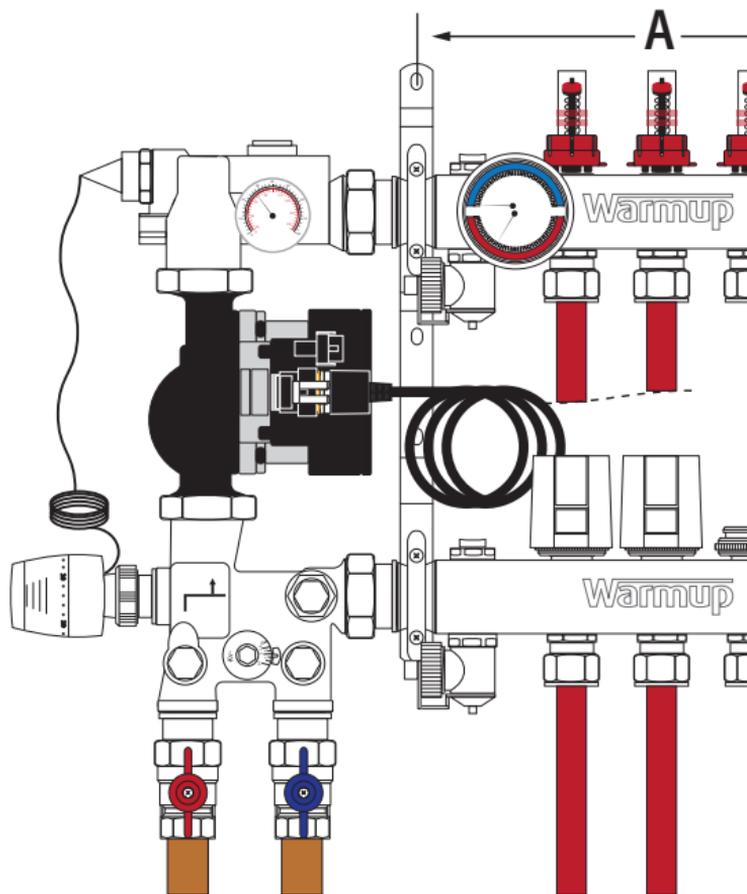
WHS-M-S3-MIX Mixing unit

- | | |
|---|--|
| 1 Capillary Thermostat - Sensor | 6 Secondary by-pass |
| 2 Circulator Isolation Valve | 7 Primary by-pass |
| 3 Thermometer - Secondary Flow | 8 Primary Isolation Valve - Flow |
| 4 Grundfos UPM3 25/70 - 130 Circulator | 9 Primary Isolation Valve - Return |
| 5 Capillary Thermostat - Actuator | 10 Primary Supply Adaptors 1" G to 22mm |



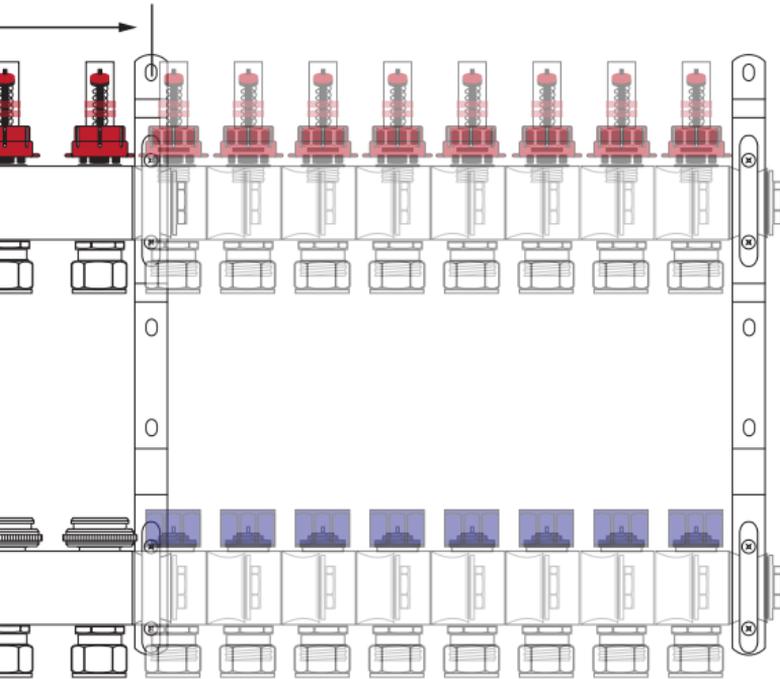
WHS-M-S3-08 Manifold assembly

- | | | | |
|----|-----------------------|----|--------------------------------|
| 11 | 1 - 5 l/min Flowmeter | 17 | Fill/Drain Valve |
| 12 | Flowmeter Locking Cap | 18 | Mounting Brackets |
| 13 | Manual Air Vent | 19 | Electrothermic Actuator |
| 14 | Thermomanometer | 20 | Electrothermic Actuator Collar |
| 15 | Flow Arm | 21 | Commissioning Cap |
| 16 | End Caps | 22 | Return Arm |



- The Warmup WHS-M-S3-XX manifolds are available in various configurations ranging from 2 ports through to 12 ports.
- The manifolds are delivered pre-assembled in the mounting brackets with flow gauges, drain/fill valves, air vents, end caps and dual master gauge.

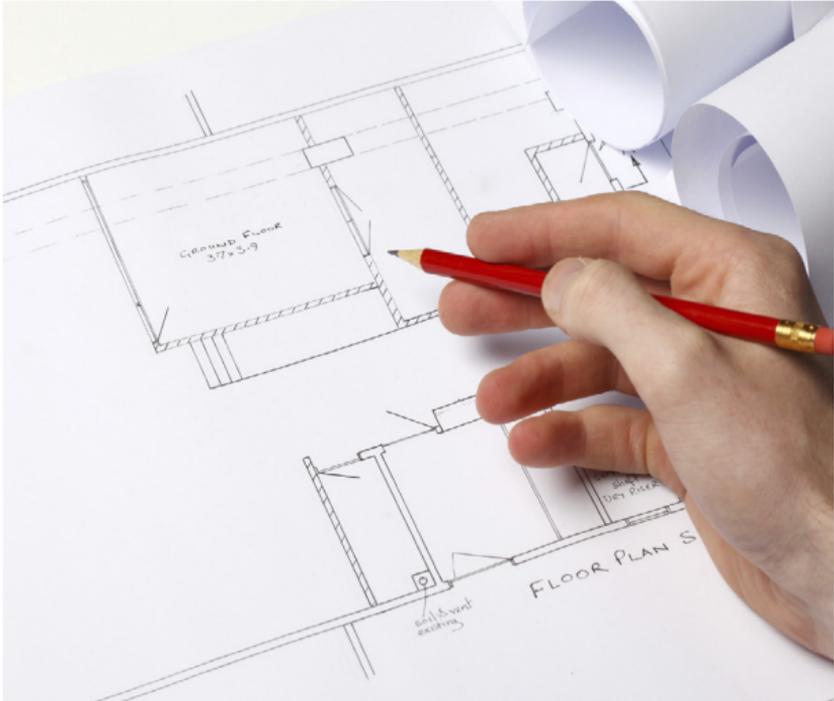
Manifold Type	Height	Depth	Bracket Spacing (A)	
			2	3
Excluding Mixing Unit	340	95	190	240
Including Mixing Unit	450	128	490	540
Bracket Spacing (A)			165	215



- The manifold can either be used as a standalone setup, or can be adapted with a Warmup WHS-M-S3-MIX mixing unit providing regulated temperature control enabling tailored system performance.

Width/No. of Ports								
4	5	6	7	8	9	10	11	12
290	340	390	440	490	540	590	640	690
590	640	690	740	790	840	890	940	990
265	315	365	415	465	515	565	615	665

NOTE: All measurements are in millimetres (mm) unless otherwise stated.



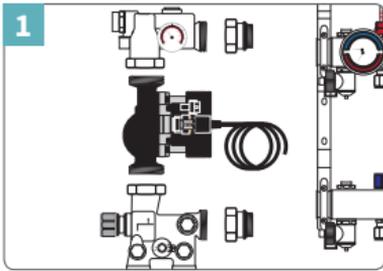
Identify a suitable mounting location for the Warmup Manifold. The location should meet the following requirements;

- The surface on to which it is to be mounted should be:
- Structurally sound and capable of bearing the load imposed by the manifold
- Vertical - The flow gauges accuracy is impaired and the manual air vents will be ineffective if the manifold is mounted on a horizontal surface
- The environment within which it is to be mounted should:
- Be within the heated envelope of the building
- Never drop below 2°C or rise above 60°C
- In a dry location with non-condensing humidity levels
- It is recommended that:
- The manifold is mounted no less than 300mm above finished floor level, to allow for easier installation and maintenance of the manifold
- A clearance of no less than 50mm is maintained on all sides for future access
- Any obstructions placed in front of it are removable to permit future access

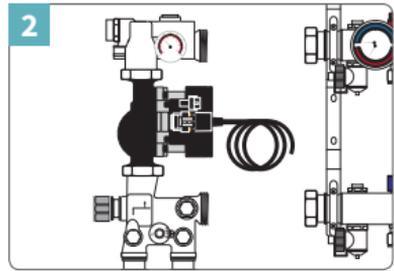
The Warmup WHS-M-S3-MIX Mixing Unit is required for all installations where the temperature of the water provided by the heat source exceeds the design water temperature of the floor heating system.

This includes all heat sources which intermittently 'over heat' due to sterilisation cycles or uncontrolled heating.

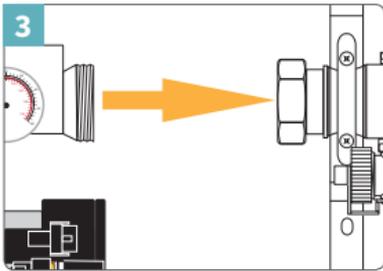
The Mixing Unit, enables the manifold to regulate the secondary flow water temperature to between 20°C and 60°C, for tailored system performance.



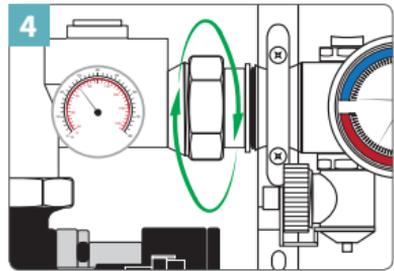
- Remove WHS-M-S3-MIX mixing unit from packaging. Keep the thermostatic capillary actuator and sensor to one side, these will be fitted during system commissioning.



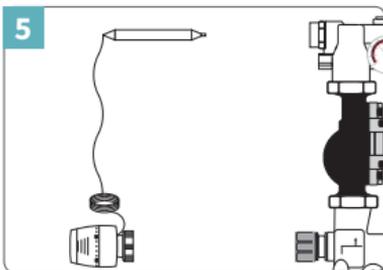
- Connect the loose nut fittings to the manifold arms. Insert the circulator gaskets and connect the circulator to the upper and lower bodies of the mixing unit.



- Align the WHS-M-S3-MIX mixing unit with the manifold.



- Hand tighten the loose nut fittings on to the manifold before fully tightening using a 46mm wrench.

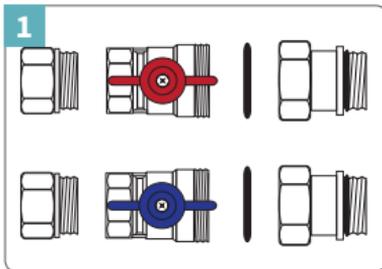


- Keep the thermostatic head and sensor in a safe place. Take care with the capillary tube, as it can be easily kinked.



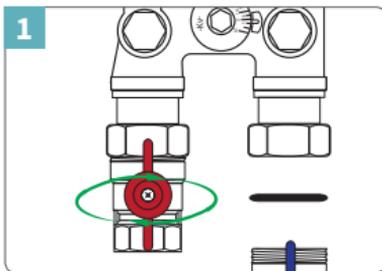
Adding the Warmup WHS-M-S3-VALVES kit allows for the manifold system to be easily isolated from the primary pipework/heat source.

Warmup recommends a minimum of 22mm for the primary pipework.

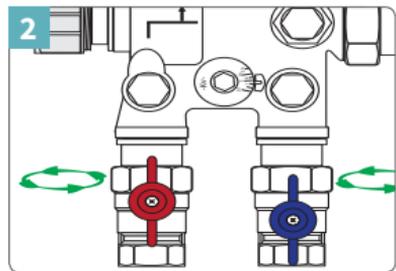


- Remove WHS-M-S3-VALVES from packaging.

Configuration with WHS-M-S3-MIX mixing unit

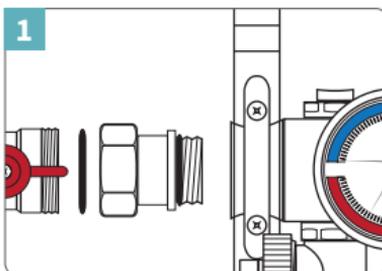


- Hand tighten isolation valves onto mixing unit, connecting to the pre-mounted loose nut fittings.

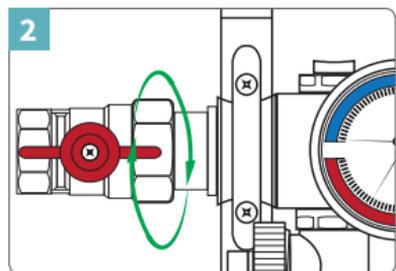


- Fully tighten using a 36mm wrench.

Configuration without mixing unit



- Hand tighten isolation valves onto manifold using the loose nut fittings supplied.



- Fully tighten using a 38mm wrench.





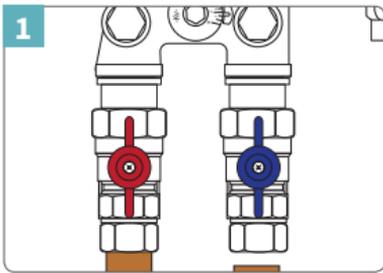
It is recommended the supply connections to the manifold are direct from the primary heating circuit, prior to any zone valves or control by other emitters or devices. Interlock should be established between the underfloor heating and the heat source. Failure to do so can lead to instances where the primary supply is not active when it is when required by the underfloor heating.

The sizing of the primary supply should always be calculated, properly accounting for the design primary flow rate.

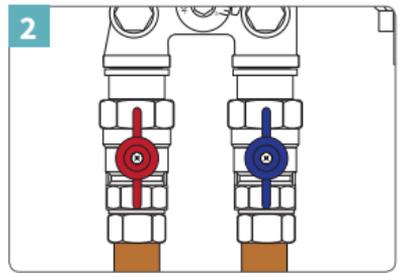
The WHS-M-S3-VALVES have Female 1" G connections to the primary supply. The pack also includes a pair of 22mm compression fittings, allowing 22mm pipe to be connected directly to the manifold where applicable.

NOTE: PTFE or similar should be used to connect the 22mm compression fittings to the 1" Isolation valve if used.

Configuration with WHS-M-S3-MIX mixing unit

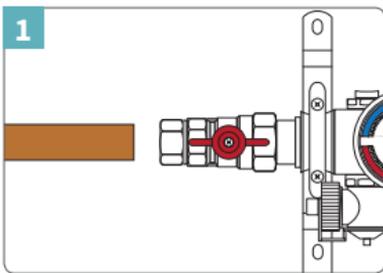


- 1 • Ensure pipe is fully inserted into fitting. Hand tighten.

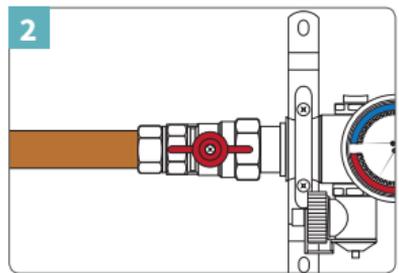


- 2 • Fully tighten using an 31 mm wrench.

Configuration without mixing unit



- 1 • Ensure pipe is fully inserted into fitting. Hand tighten.



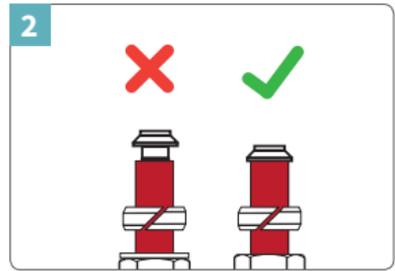
- 2 • Fully tighten using an 31mm wrench.

When preparing the pipework for connection to the manifold the end of the pipe must be cut cleanly with a suitable pipe cutter, and all swarf removed, to ensure a tight seal against the spigot is maintained.

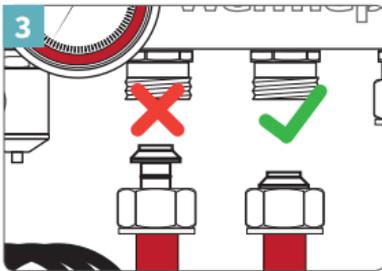
All circuit lengths should be recorded as accurately in the commissioning log on page 36 as possible to ensure correct commissioning of the system.



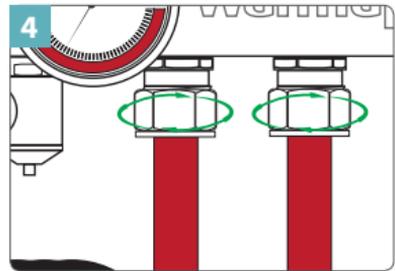
- Cut pipe cleanly leaving a straight edge using a suitable pipe cutter.



- Slide pipe adaptor nut onto pipe with thread facing up, followed by the split olive. Insert the spigot into the pipe.



- Hand tighten the nut, ensuring the spigot remains fully inserted in the pipe.

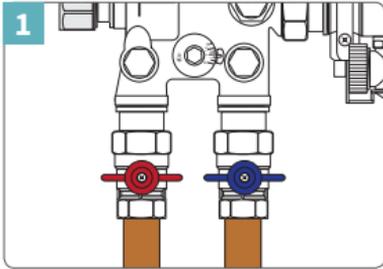


- Fully tighten the nut using a 30mm open ended wrench.

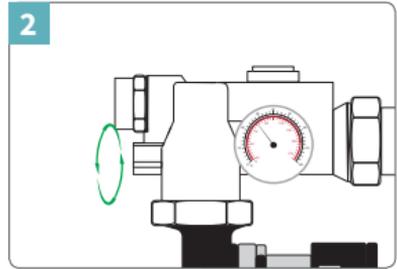


It is important that the manifold and connected circuits are purged prior to calibrating the system, to remove any air left in the pipework following install.

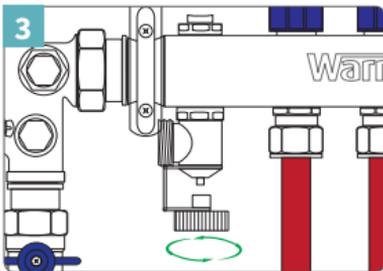
The caps fitted to the fill/drain valves functions as a key to open and close both the valves and the manual air vents.



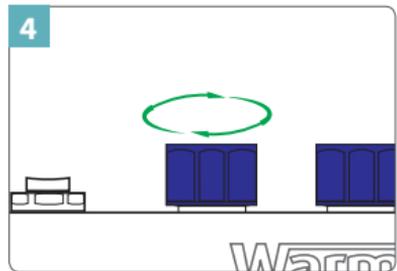
- Ensure both primary isolation valves are closed.



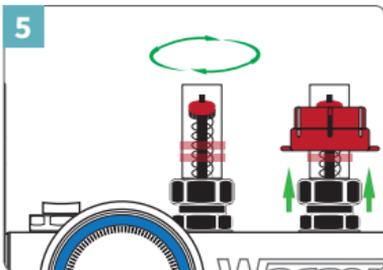
- If fitted, close the mixing units circulator isolation valve, indicated by the slot being horizontal, to prevent water bypassing the secondary circuits.



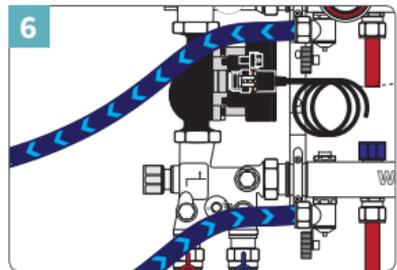
- Ensure fill/drain valves are closed, use the cover cap as shown.



- Close the return valves using the commissioning caps.

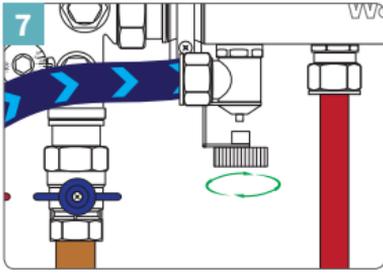


- Remove flow gauge locking cover and keep safe, close the flow valves.

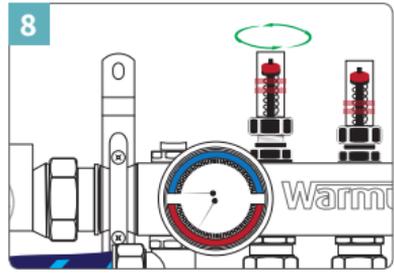


- Attach suitable feed pipe to the return arm fill/drain valve and suitable drain pipe to the flow arm fill/drain valve.

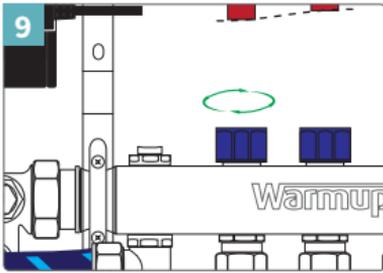
NOTE: Maximum permissible pressure during purging and filling is 10 bar.



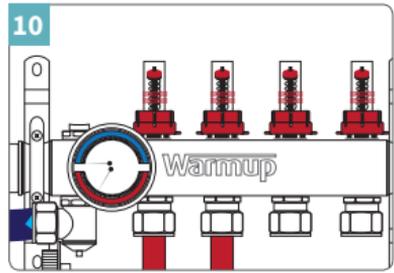
- Turn on the water supply and open both fill/drain valves.



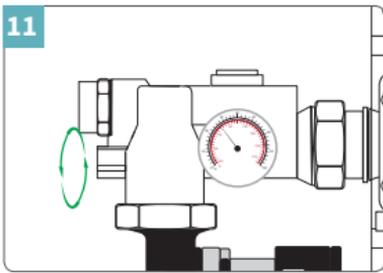
- Open first circuits return valve followed by its flow valve.



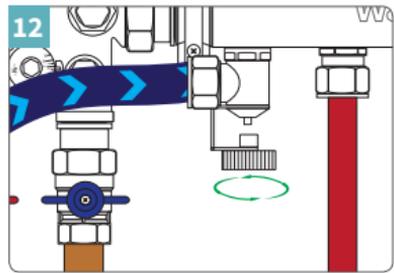
- Purge until discharge water is clear and free of air. Close the circuits flow valve first followed by its return valve.



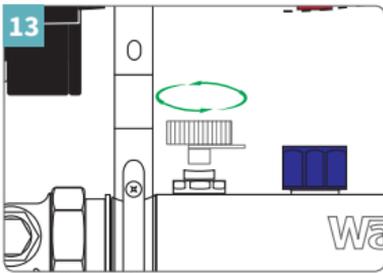
- Repeat steps 6 & 7 for all remaining circuits, and replace the flow-meter locking rings.



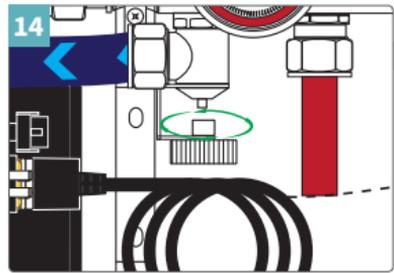
- If fitted, open the mixing units circulator isolation valve, indicated by the slot being horizontal, to purge and fill it.



- Close the flow arm fill/drain valve.



- Open the air vent on the flow arm, until all air has been expelled and water is discharged.



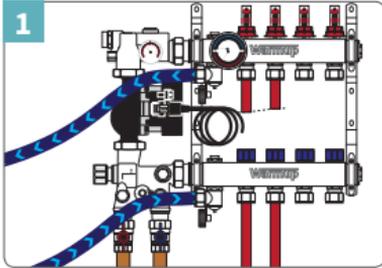
- Close the return arm fill/drain valve, turn off and disconnect the water supply.

Step 4 - PRESSURE TESTING

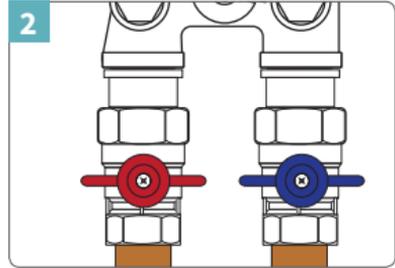


The pressure test must be completed while the pipes are fully accessible and before any screed or floor deck has been laid.

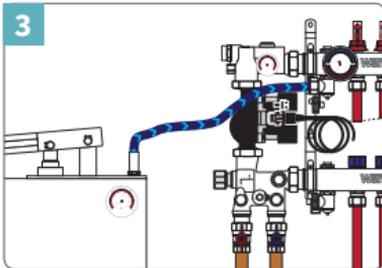
The pressure test is an important step to prove the integrity of the system, ensuring nothing has been damaged during the install.



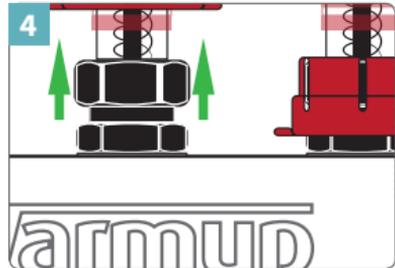
- Ensure the system is full and purged, see 'Step 3' page 18.



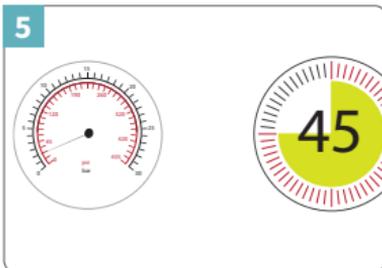
- Ensure both isolation valves are closed on the primary circuit.



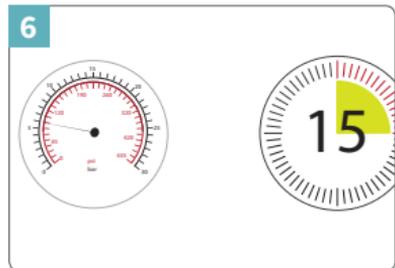
- Connect a hydraulic pressure tester to the flow arm fill/drain valve and open it.



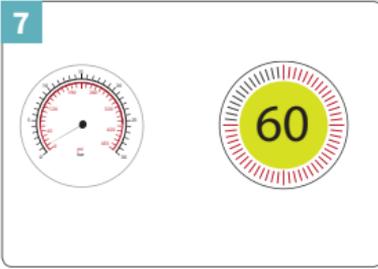
- Open the flow valves and the circulator isolation valve if a mixing unit is fitted.



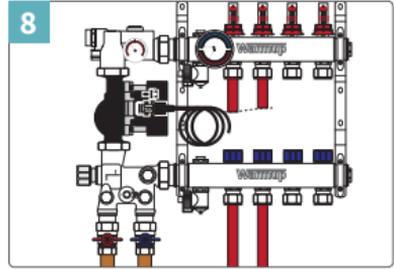
- Increase the pressure to 1 bar. Hold this pressure for 45 minutes, while inspecting the system for any leaks.



- Increase the pressure to 6 bar. Hold this pressure for 15 minutes and continue to inspect.



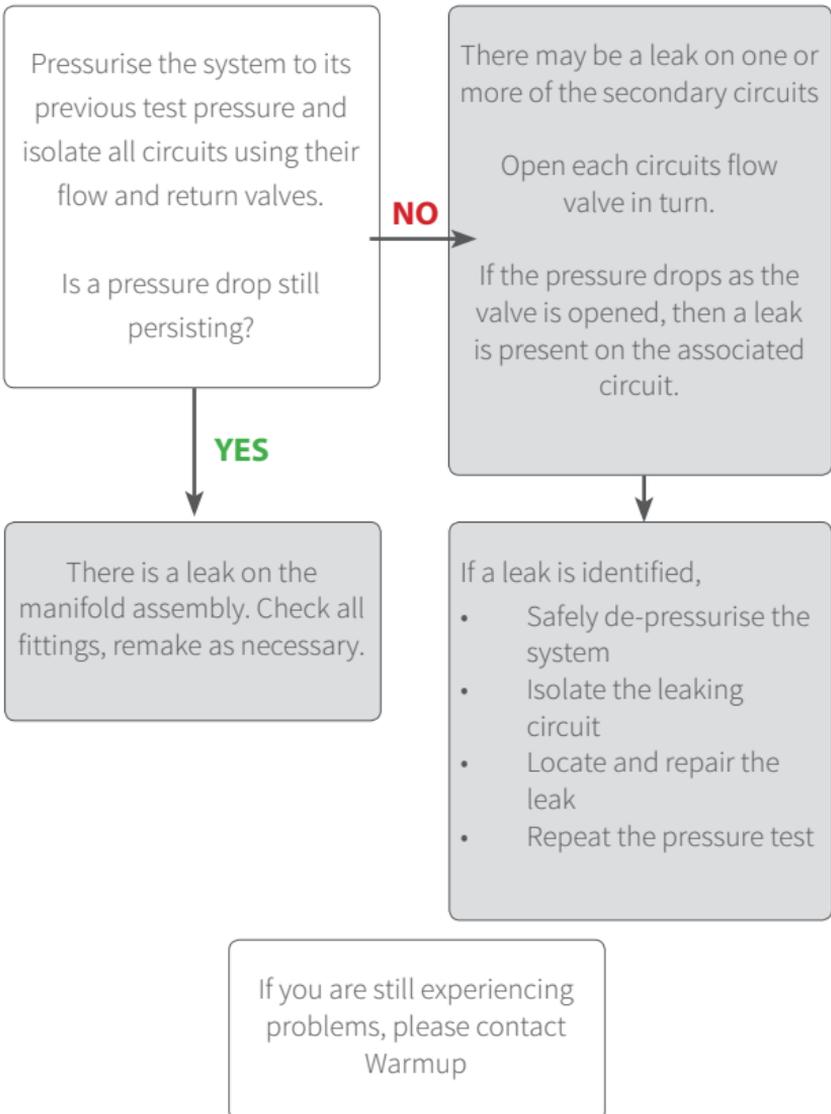
- Reduce the pressure to 2 bar. Hold this pressure for 60 minutes and continue to inspect.



- Safely depressurise the system, record the results in the Commissioning Log.

If a pressure loss is observed

If a pressure loss is observed at any point during the pressure test, the test must be stopped and the system must be checked to establish the cause. Use the guide below to assist;



NOTE: If a repair kit is used, ensure to record its location in the commissioning log.

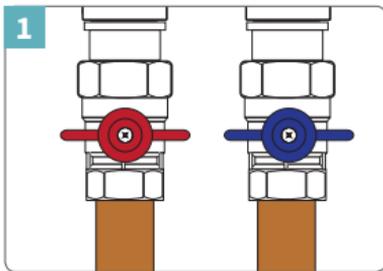


If the Warmup Mixing Unit is installed, please follow the full guidance below. This will allow you to commission the manifold independently of the primary circuit supplying water from the heat source to the manifold.

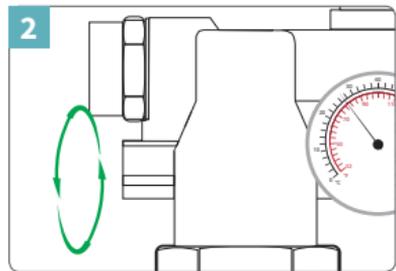
With the Warmup Mixing Unit installed, the primary circuit should be commissioned with the primary bypass on the mixing unit fully open and the secondary circuits supplying the floor closed.

With condensing heat sources, the primary bypass on the mixing unit must be closed after commissioning the primary circuit, with all other heat sources it can be adjusted to provide the heat sources minimum flow rate in accordance with its manual.

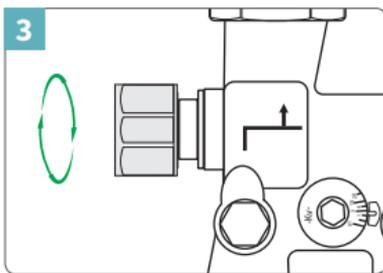
If the Warmup Mixing Unit is not installed, please commission the primary circuit first and then balance the manifold in accordance with steps 6 and 7 below.



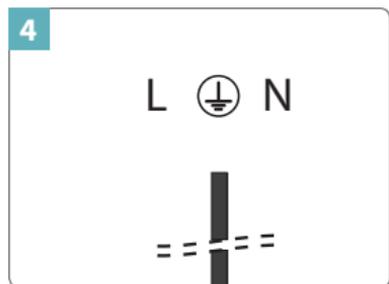
- Close the Primary Isolation Valves.



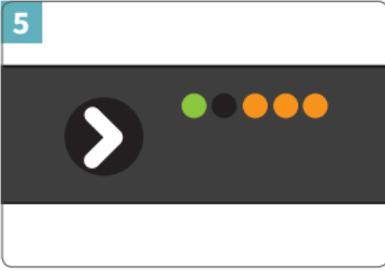
- Open the circulator isolation valve, indicated by the slot being vertical



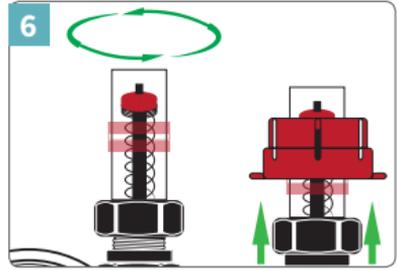
- Turn the isolating cap on the mixing unit clockwise until fully closed.



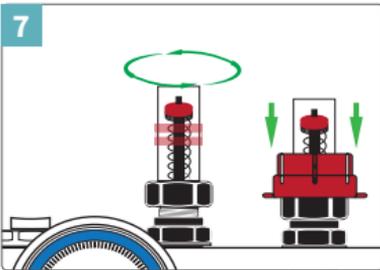
- Connect the Mixing Units circulator to a power supply and turn it on.



- Set the circulator to operate at Constant Pressure Curve 3, see 'Step 13' page 28.



- Remove the flow-meter locking rings and fully open all circuit flow and return valves.



- Adjust the flow gauges for each circuit starting with the shortest circuit first. Replacing locking covers, only when all adjustments have been made.

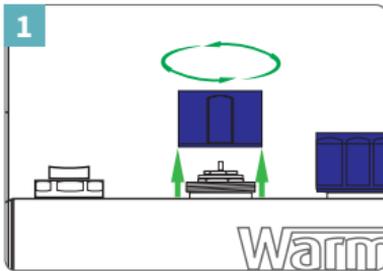
Determining your flow-meter settings

- 1 If your system has been designed by the Warmup Projects Division, the required flow-rates will be specified on the Working Drawings used to install the system.
- 2 In the absence of a design, the table below provides 'typical' flow rates, based on using a common floor construction with consistent loading throughout.
- 3 For guidance on calculating precise Flow Rates and Water Temperatures yourself, please contact Warmup.

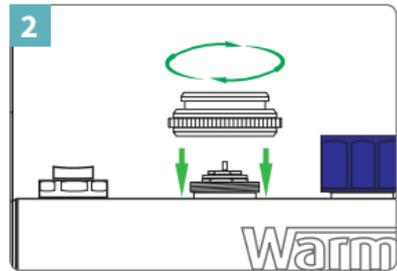
Flow Rate	Circuit Length											
	10	20	30	40	50	60	70	80	90	100	110	120
L/min	1.00	1.00	1.00	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.00	2.70



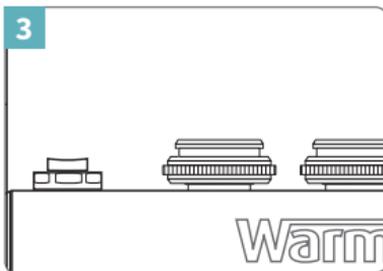
Adding Warmup WHS-M-S3-ACT230 actuators to the manifold enables individual zone control of the heating system. The Warmup actuators are amongst the most energy efficient UFH actuators available, using just 1W of power.



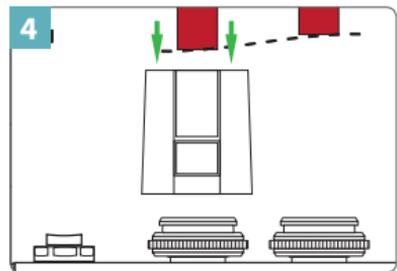
- Remove isolating caps by turning anti-clockwise.



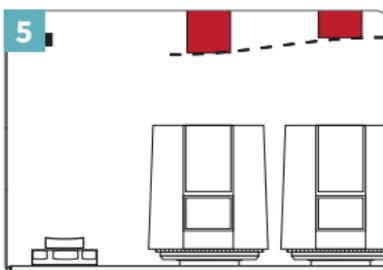
- Hand tighten the actuator collar onto the valve mounts, by turning clockwise.



- Repeat for all relevant circuits.



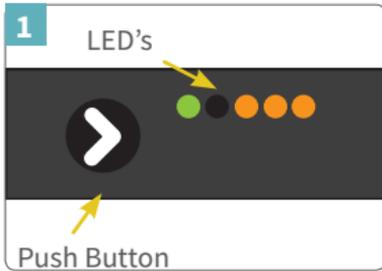
- Fit the actuator to the collar by pressing it down, until a 'CLICK' is heard.



- Repeat for all relevant circuits, and wire actuators into the wiring centre.

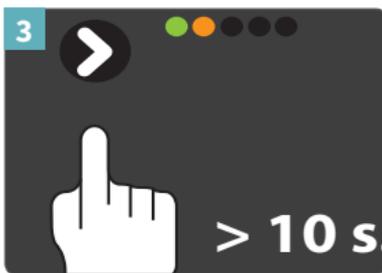
NOTE: The actuators are supplied 'open' for easy mounting on the manifold. They will close the valve after being powered on and fully 'opened' for the first time.

The WHS-M-S3-MIX mixing unit incorporates a high efficiency Grundfos UPM3 circulator. The UPM3 has been designed with many applications in mind, so it must be correctly configured for use with our UFH manifold.

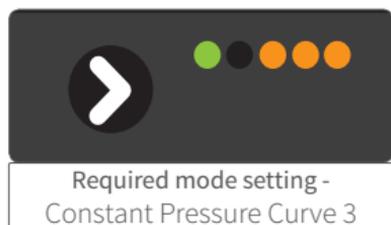


2	Low	0 - 25%	
	Medium Low	25 - 50%	
	Medium High	50 - 75%	
	High	75 - 100%	

- All of the circulator settings are adjusted with the push button and displayed with different LED sequences.
- In normal operation the LED indicators on the circulator display the current power consumption.



- The circulator has key lock function. To enable/disable the lock, hold push button for more than 10 seconds, the LED's will blink to indicate change.
- To see the current mode set, press push button briefly. LED's will display current mode. After 2 seconds the display will revert back to power consumption indication.

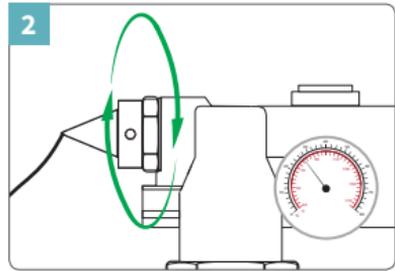
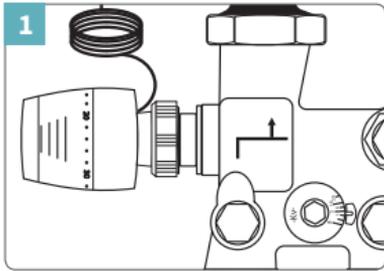


- To change the mode setting, press and hold the push button for more than 2 seconds but less than 10. The LED's will start to automatically cycle through the different modes, when the LED's are displaying the correct mode, let go of the push button. Repeat as necessary to select Constant Pressure Curve 3.

NOTE: Warmup recommends enabling the key lock once the correct mode has been set to prevent tampering.



With the system now filled, purged, pressure tested and commissioned, the capillary thermostat actuator and sensor must now be mounted and set accordingly.



- Remove isolating cap from the mixing unit. Hand tighten the thermostatic head onto the mixing unit.
- Insert the capillary bulb into the mixing unit, secure with the grub screw. Ensure primary isolation valves are open.

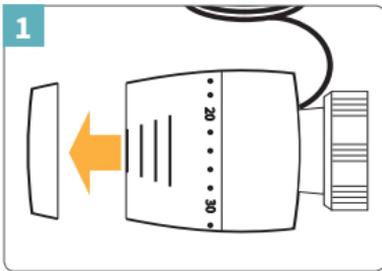
The thermostatic head mounted to the WHS-M-S3-MIX mixing unit, enables the manifold to self regulate the water temperature to anywhere between 20°C and 60°C, for tailored system performance. It also provides the ability to lock the temperature control adjustment, creating a tamper-proof thermostatic head.

Options for setting the temperature of the thermostatic head

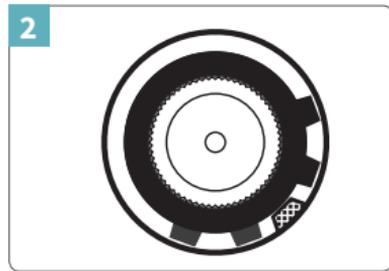
- 1 If your system has been designed by the Warmup Projects Division, adjust the thermostatic head to produce the temperature specified on the Working Drawings used to install the system.
- 2 In the absence of a design, it is recommended that the water temperature is progressively increased until the required floor surface temperature is achieved, without exceeding the flow water temperatures specified below.
- 3 For guidance on calculating Flow Rates and Water Temperatures, please contact Warmup.

Floor Construction	Maximum Recommended Temperature
Screed Floors	55 °C
Timber Floors	60 °C
All other Floors	See manufactures specifications

Limiting temperature control adjustment

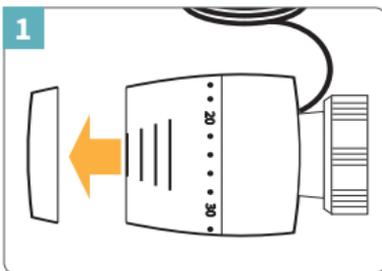


- Remove the cap from the thermostatic head, using a flat blade screwdriver. Remove only the first adjustment wheel.

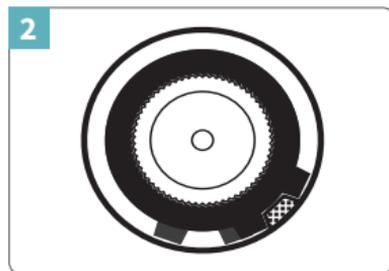


- Rotate the thermostatic head to the maximum permitted temperature. Place the adjustment back as shown. Replace cap.

Locking temperature control adjustment



- Remove the cap from the thermostatic head, using a flat blade screwdriver. Remove only the first adjustment wheel.



- Rotate the thermostatic head to the required temperature. Place the adjustment back as shown. Replace cap.



To prevent damage to floors, BS EN1264 specifies the following commissioning procedures:

- Screeds should not be heated until they have fully cured. The minimum curing periods proposed for various screed types are specified below.

Screed Type	Minimum Length of Time Before Initial Heat Cycle
Standard sand and cement screeds	21 Days
Calcium sulphate screeds	7 Days
Proprietary screeds	See manufactures specifications

- The following table shows the initial flow water temperatures, which should be held for at least the specified length of time. Applies to all floor constructions:

Temperature	Minimum Length of Time to Maintain Temperature
20 °C - 25 °C	3 Days
Maximum design temperature	4 Days

NOTE: Under no circumstances should the underfloor heating system be used to speed up the curing process.





ISSUE 1 - No heat to any zone

Symptom	Problem	Solution
No heat in any zone	UFH system not turning on	Ensure the UFH controls are programmed correctly, and the heat source is able to provide hot water for the programmed period
	Heat source or UFH circulator not operating correctly	Ensure at least one thermostat is demanding heat and that the switched live to the heat source is livened according to demand
	Valves closed	Ensure isolation valves are open (primary/circulator), the flow gauges are correctly balanced and the thermostatic actuators are opening on demand (a blue band will be visible as the actuator cap raises)

ISSUE 2 - Some zones are not getting warm

Symptom	Problem	Solution
Some zones do not become warm	Air lock within the pipes	Refer to step '7 - Circuit Filling & Purging', page 18
	Manifold incorrectly balanced	Refer to step '9 - Circulator Connection & Circuit Balancing', page 22
	Actuator faulty	Ensure the thermostat for this zone is demanding heat and that the signal to the actuator is livened according to demand. If signal voltage is present, replace actuator.
	Crossed controls	Ensure the thermostats are controlling the correct circuits

ISSUE 3 - Zone takes a long time to heat up

Symptom	Problem	Solution
Zone taking a long time to warm up	Manifold incorrectly balanced	Refer to step '9 - Circulator Connection & Circuit Balancing', page 22
	Flow temperature set too low	Refer to step '12 - Temperature Settings', page 26
	High heat losses	Some rooms and combination of floor finishes will have higher heat losses than others. Which will take longer to heat. The effects can be compensated for by setting the heating to come on for longer in these zones

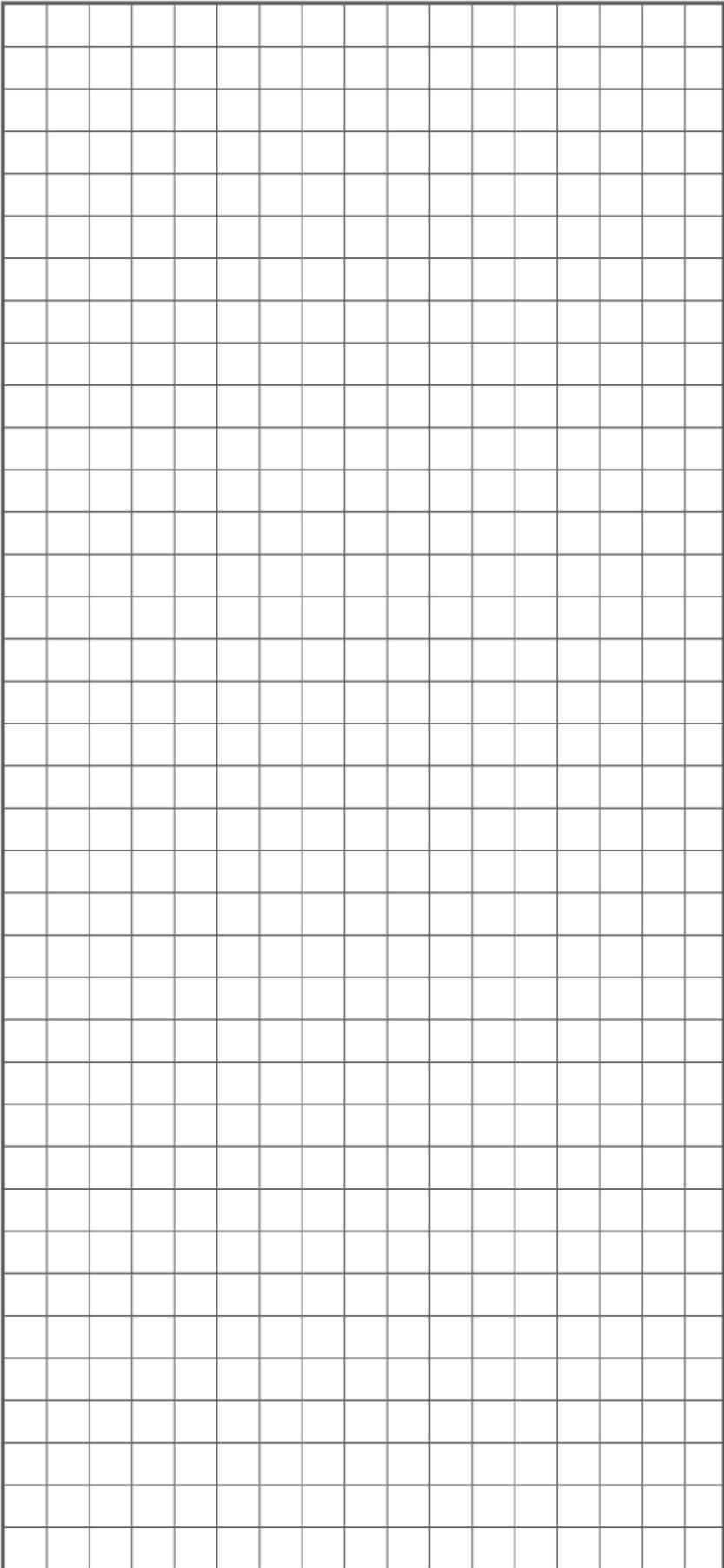
Detailed Troubleshooting

<i>No heat in any zone</i>	<ol style="list-style-type: none"> 1. Check thermostat/controls are set 'on' 2. Check the heat source is operating and supplying heat to the UFH system 3. Check the primary isolation valves are open 4. Check the mixing unit bypass is closed 5. Check circulator isolation valve is open 6. Ensure flow gauges are balanced correctly (Refer to step 9 - Circulator Connection & Circuit Balancing, page 22) 7. Check isolations caps are open. If actuators are fitted, check operation and signal voltage
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<i>Some zones do not become warm</i>	<ol style="list-style-type: none"> 1. Ensure any trapped air has been expelled from the system (Refer to step 7 - Circuit Filling & Purging, page 18) 2. Check zone thermostat/controls are set to constant 3. Check zone flow gauge is balanced correctly (Refer to step 9 - Circulator Connection & Circuit Balancing, page 22) 4. Check circuit isolator cap is open. If actuator fitted check operation and signal voltage. 5. Check circuit pipework and actuator wiring are correct
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<i>Zone taking a long time to warm up</i>	<ol style="list-style-type: none"> 1. Check zone flow gauge is balanced correctly (Refer to step 9 - Circulator Connection & Circuit Balancing, page 22) 2. Check the circulator is operating while the zone thermostat is demanding for heat 3. Check the zone isolating cap is fully open 4. Check zone actuator is fully opening (a blue band will be visible as the actuator cap rises)
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NOTE: Draw a plan showing the layout and location of the heating circuits





Installer Details

Plumber		Electrician	
Name:		Name:	
Company:		Company:	
Address:		Address:	
Postcode:		Postcode:	
Tel:		Tel:	
Email:		Email:	
Project Ref:		Project Ref:	

Installation Details

Manifold Location	Temperature Setting	Purged and Filled ?	Pressure Test Completed ?	Circuits Balanced ?	Fully Operational

Circuit Number	Room Served	Zone Number	Circuit Length	Circuit Flow Rate (l/min)	Pressure test passed?
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Location of Leak	Action Taken	Location of Fitting if Repaired	Passed Pressure Test ?
			Yes / No

Declaration

I name

of company

hereby declare that the UFH system has been installed and fully commissioned in accordance with the guidelines set out within this installation manual

Signed:

Date:

NOTE: Failure to present this commissioning log (accurately completed with declaration signed), upon request, will void system warranty.



Warmup plc Limited Warranty – WHS-M-S3 Series Manifolds

PLEASE REGISTER YOUR UNDERFLOOR HEATING SYSTEM
ONLINE AT: www.warmup.co.uk



Registration can be completed online at www.warmup.co.uk.
In the event of a claim, proof of purchase is required, so keep your invoice
and receipt.

THIS WARRANTY DOES NOT EXTEND TO ELECTRICAL COMPONENTS OR TO
COMPONENTS WHICH ARE COVERED BY SEPARATE WARRANTIES.
THIS WARRANTY DOES NOT AFFECT YOUR STATUTORY RIGHTS.

Limited Warranty:

Warmup® WHS-M-S3 Series Manifolds warranted by WARMUP PLC (“Warmup”) to be free from defects in manufacturing under normal use and maintenance, and is warranted to remain so subject to the limitations and conditions described below.

This warranty period begins on the date of purchase. Registration is confirmed only when confirmation of receipt is forwarded by Warmup PLC.

Warranty Duration:

- The WHS-M-S3 Series Manifold is warranted for a period of 10 years from date of purchase, except as provided below; your attention is drawn to the exclusions listed at the end of this warranty.

Notification of a suspected failure must be received in writing by Warmup within thirty (30) days of the suspected breach. Products believed to be defective must be made available to Warmup for testing and determination of cause. Upon acceptance of any warranty claim, Warmup shall have ninety (90) business days in which to investigate and determine whether it recognises responsibility for any believed defects in material or workmanship and determines the appropriate course of action to be taken.

It is expressly agreed that the sole remedies under this limited warranty shall be at the discretion of Warmup, plc. to either: issue a refund, repair or replace any article which is proven to be defective. Any and all allowances made to customers for transportation, labour, repairs or all other work, are at the exclusive discretion of Warmup and shall be authorised in writing, in advance, by Warmup. Such cost does not extend to any cost other than direct costs of repair or replacement by Warmup and does not extend to costs of relaying or repairing any floor covering or floor.

The warranty applies to the products identified above only if they:

1. are registered with Warmup within 30 days after purchase;
2. are selected, designed and installed by a qualified contractor according to installation instructions provided by Warmup which are current as of the applicable Installation Date;
3. are connected to appropriate power and water supplies;
4. are installed according to all applicable building code requirements;
5. are not exposed to pressures and/or temperatures that exceed any limitations printed on the warranted product or in the applicable Warmup product installation manual;
6. remain in their original installed location
7. do not show evidence of accidental damage, misuse, lack of care, tampering, or repair or modification without the prior written approval of Warmup plc.



TECHNICAL SPECIFICATIONS - Manifold	
MATERIAL	304 Stainless Steel
PORTS AVAILABLE	2 - 12
TEMPERATURE RANGE	-5°C to +60°C
MAX OPERATING PRESSURE	6 Bar
MAX TEST PRESSURE	10 Bar
ADJUSTMENT RANGE	0 - 5 l/min
MEASURING ACCURACY	±10% (of highest nominal value)
MANIFOLD ARM DIMENSIONS	40 mm x 40 mm
PIPE FITTING CENTRES	50 mm
PIPE FITTING DIAMETERS	G-3/4"

TECHNICAL SPECIFICATIONS - Grundfos UPM3 25-70 130	
OPERATING VOLTAGE	230 V ac 50Hz
CONNECTIONS	G1 1/2
WEIGHT	1.9 (kg)
SYSTEM PRESSURE	Max. 1.0 MPa (10 bar)
MINIMUM INLET PRESSURE	0.05 MPa (0.50 bar) at 95°C liquid temperature
LIQUID TEMPERATURE	+2°C to +110°C (TF110)
ENCLOSURE CLASS	IP44 (non-condensing) K: IPx4D (condensing)
MOTOR PROTECTION	No external protection needed
APPROVAL AND MARKING	VDE, CE

TECHNICAL SPECIFICATIONS - Actuators	
OPERATING VOLTAGE	220-240 V AC 50/60Hz
OPERATING TEMPERATURE	0 to +60 °C
POWER	1 W
DE-ENERGIZED POSITION	Normally Closed
INRUSH CURRENT	max. 550 mA
STROKE	4 mm
IP RATING	IP54
STORAGE TEMPERATURE	-25 to 60 °C

Warmup plc

United Kingdom
702 & 704 Tudor Estate
Abbey Road, London
NW10 7UW

Web: www.warmup.co.uk

Email: uk@warmup.com

Tel: 0345 345 2288

Fax: 0345 345 2299

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Hydronic
Heating System

v1.1-0317

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