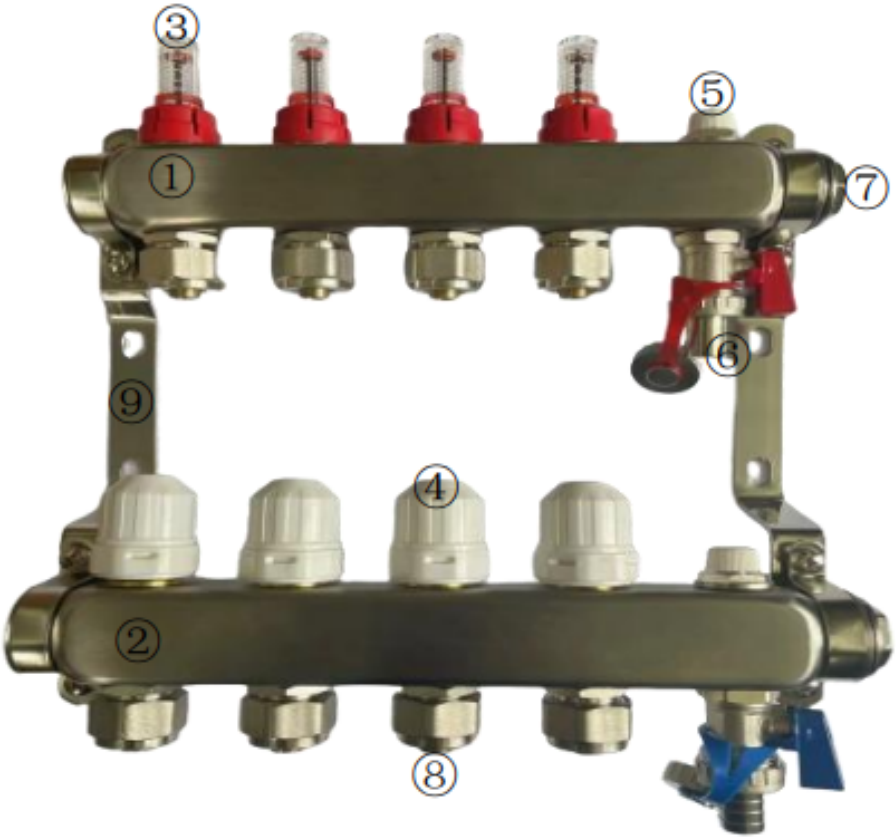
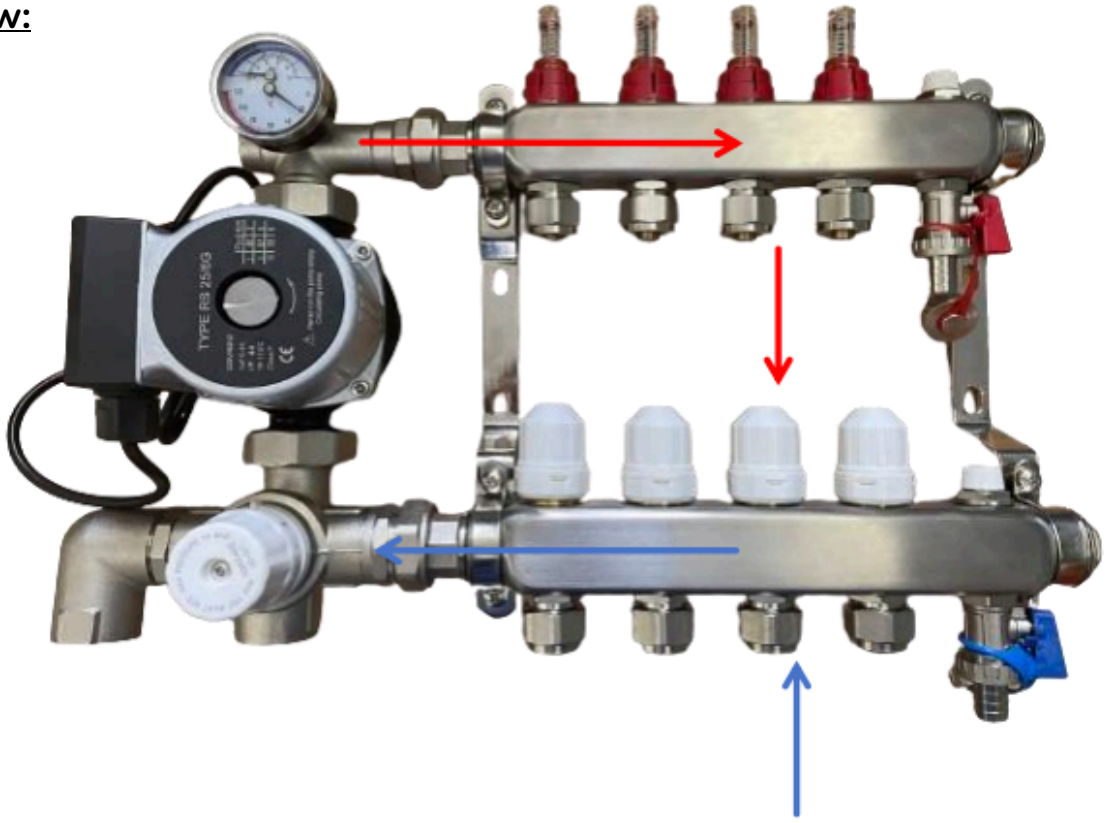
# ULTRAFLOW MANIFOLD GUIDE

**Contents:**

1. Flow Bar
2. Return Bar
3. Flow Meter
4. Auto Valve Handwheel
5. Air Vent
6. Drain-off
7. End Stop
8. Euro cones
9. Bracket




**Workflow:**



## Manifold Mounting and Pipe Connection

A. Fix the manifold on the wall
B. Cut the pipe
C. Choose the according size reamer
D. Ream the pipe
E. Choose the according size euro cone
F-H. Insert the pipe into the manifold and tight it by spanner

## Flow Rate & Flow Temperature setting

**IMPORTANT:** Adjust the flow rate manually using only the red adjustment key. Avoid forcing the flow gauge beyond its fully open position, as this could damage the flow meter. Do not use pliers or grips to adjust or overtighten the flow gauges.
To adjust the flow rate, use the red key to turn the sight glass clockwise to reduce the flow rate or anti-clockwise to increase it (refer to Fig. 1). The red marker within the sight glass indicates the current flow rate. Each pipe loop must have its flow rate adjusted according to the circuit length. Use the table in Fig. 3 to match the flow rate (in Ltrs/Min) with the corresponding pipe loop length. Ensure the flow gauge base fitting is not tightened beyond 5 N/m.
For manual return valves (with a white head), turn the white head clockwise to close the valve or anti-clockwise to open it (refer to Fig. 2). The white manual head adjuster can be replaced with an electronic actuator during the electrical commissioning process.

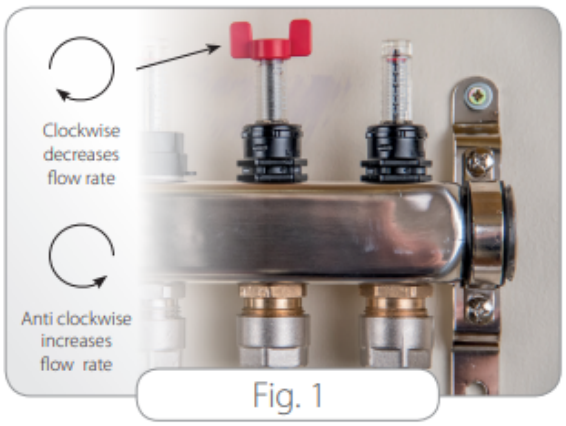


Fig. 1

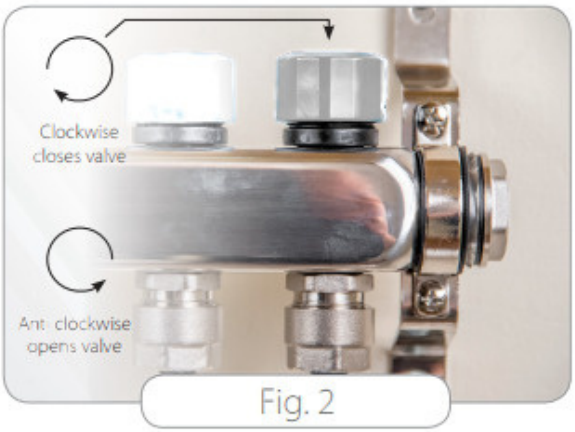


Fig. 2

To ensure the final floor finish is protected and the correct settings are applied for the floor construction, the mixer valve must be properly adjusted. The flow temperature input can be regulated by turning the black temperature control knob. Turn it clockwise to decrease the flow temperature and anti-clockwise to increase it. Adjust the flow temperature according to the requirements of the floor construction and finish. The temperature gauge located on the top flow elbow displays the flow temperature.

- For overfloor panel systems, set the pipe flow temperature to 35°C*.
- For solid screed constructions (staples, cliptrack, multipanel), set it to 45°C*.
- For joisted floor constructions (spreader plates, Foiltec), set it to 65°C*.

*Before introducing warm water into the floor heating system, consult with the flooring material suppliers, especially for materials like wood, which may require floor surface temperature limits. Floor surface temperatures can be automatically managed by installing a floor probe and correctly programming the thermostat.

**NOTE:** Flow rates can be adjusted as needed to optimize performance. Ideally, aim for a flow and return temperature differential of approximately 7°C. If two pipe circuits are connected to a single port using a 'Y' connector, their lengths should be combined to calculate the flow rate.

**Maximum recommended circuit lengths:**

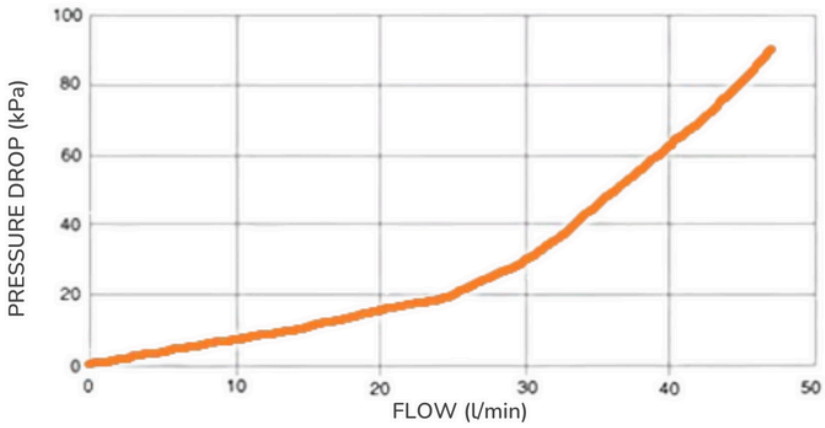
- **16mm pipe**: 100m per circuit
- **12mm pipe**: 60m per circuit

**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 |

Fig. 3

**Pressure Drop Graph**




**Understanding the Manifold & Pumpset Functionality**

Warm water is pumped from the heat source to the manifold and pumpset assembly. If the system needs additional heated water, the temperature control valve allows more warm water into the floor heating system through a one-way valve or releases cooled water back to the heat source for reheating.

The flow temperature can be easily adjusted by turning the mixer valve control head. Turn it clockwise to close the valve and reduce the flow temperature, or anti-clockwise to open the valve and increase the flow temperature.

From the upper flow bar, warm water is distributed to each loop of floor heating pipe via the flow gauges. The water then returns through the return valves into the lower return bar. When the room reaches the desired temperature, the room thermostat sends a signal to the wiring center to switch off the circulating pump and close the actuators. This action shuts off the water supply to the floor heating loops, effectively stopping the heat supply to that zone.

Before assembling the manifold, pumpset, or performing pressure testing, ensure you are familiar with the assembly stages and refer to the relevant fact sheet for guidance.

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**Manifold Pressure Test Instructions:**

**Preparation**

1. **Ensure All Connections are Ready**
   - Verify that all floor heating loops have been laid.
   - Check that all connections and pipes are tightened.
   - Close **isolation valves, manual air vents**, and **drain/fill taps**.
2. **Close Flow and Return Valves**
   - Close all flow gauges:
     - Turn the **sight glass clockwise**.
     - Lock it by turning the **black plastic lock ring** at the base of the sight glass clockwise.
   - Close all return valve manual heads:
     - Turn the **white return valve manual heads clockwise**.
3. **Attach the Pressure Gauge**
   - Remove the **lower temperature gauge** and unscrew the **brass housing**.
   - Screw the **pressure gauge** into the exposed aperture. Use PTFE tape if needed to ensure a proper seal.

**Filling and Purging the System**

1. **Connect Hoses**
   - Attach the **mains supply hose** to the **top flow bar red tap.**
   - Connect the **drain hose** to the **lower return bar blue tap**, placing the hose end in a bucket.
2. **Open Taps**
   - Open both the **red and blue drain taps**.
   - Turn on the mains water supply to the fill hose.
3. **Fill Each Loop Individually**
   - Start at the **pump side of the manifold**.
   - Open the first flow gauge using the **correct flow gauge adjusting tool.**
   - Open the corresponding **manual return valve** below the flow gauge.
4. **Purge Air**
   - Observe the **flow gauge**:
     - It will move erratically initially.
     - Wait for a steady flow of water through the loop.
   - Monitor the drain hose:
     - Air bubbles will reduce and eventually disappear, indicating all air is purged.
5. **Close the Valve**
   - Once the air is purged:
     - Close the **manual return valve** while leaving the **flow gauge open**.
   - Repeat this process for **each loop** individually.
6. **Release Trapped Air from the Bars**
   - Close the **blue drain tap** on the lower return bar.
   - Open the **manual air vents** one at a time to release trapped air.
   - Close each air vent after all air is expelled.

**Pressure Testing**

1. **Pressurize the System**
   - Allow the system pressure to rise to **3-4 bar.**
   - Close the **red tap** on the flow bar.
   - Turn off the mains water supply at the source.
2. **Monitor Pressure**
   - Leave the system under pressure for a minimum of **3 hours.**
   - If pressure drops: investigate and resolve the issue.
3. **During Floor Finish Installation**
   - It is recommended to leave the system pressurized to identify any potential pipe damage during floor finish installation.

**Post-Pressure Test**

1. **Release Pressure**
   - Shut all **flow gauges, return valves**, and **isolation valves**.
   - Connect the drain hose to the **return bar blue drain cock.**
   - Briefly open the **drain tap**, then re-close it.
2. **Reassemble the Manifold**
   - Remove the **pressure gauge** and re-fit the **temperature gauge** and housing.
3. **Final Steps**
   - Ensure the system is connected to the heat source by a **qualified professional**.
   - Add a **suitable inhibitor** to the system.

**Important Notes**

- **Freezing Conditions:**
  - Do not leave the system filled with untreated water in freezing conditions.
  - Either introduce and circulate a suitable inhibited antifreeze or use a compressor to force water out of the underfloor heating pipes.

# ULTRAFLOW MANIFOLD GUIDE

**Standard Actuators - Manual flow rate setting**



## Flow Gauge Adjustment Instructions

**Important Precautions:**

- **Adjust by Hand Only**: Do not use pliers or grips, as this may damage the flow gauges.
- **Avoid Over-Tightening**: Do not force adjustments beyond **two full turns from shut,** as this can cause damage to the flow meter.

3a

**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 |

## Adjustment Steps

1. **Remove Lock Clip**
   - Carefully remove the **lock clip** from the flow meter (see pic. 1).
2. **Adjust the Flow Meter**
   - Turn the **black nut** on the flow meter by hand (see pic. 2):
     - **Clockwise**: Decreases the flow rate.
     - **Anti-clockwise**: Increases the flow rate.
3. **Monitor the Flow Rate**
   - The flow rate is indicated by the **red marker** inside the flow meter.
   - Refer to the table (see pic. 3) to match the **liters per minute (Lts/Min)** with the **length of each pipe run**.
4. **Secure the Setting**
   - Once adjusted, refit the **lock clip** to hold the flow meter at the desired setting.

## Avoiding Mixing Valve Whistling

To prevent the premium mixing valve from whistling, ensure the following points are addressed during installation:

### Manifold Size and Pump Settings

- **2–4 Ports:** Max total floor heating pipe length of **400m** → Pump speed **1**
- **4–8 Ports:** Max total floor heating pipe length of **800m** → Pump speed **2**
- **8–12 Ports**: Max total floor heating pipe length of **1200m** → Pump speed **3**

### Flow Rates

- Ensure each flow meter is properly adjusted to harmonize the flow rate of each loop with the system.

### Additional Checks

1. Confirm the **red dot on the mixer valve** is connected to the flow.
2. Verify that your **feed and return pipe sizes** match the manifold requirements.
3. Ensure all **isolation valves** are fully open.

**Pump Speed Selector**

## Supplementary Information

### Floor Surface Temperatures

Before introducing heat into the floor heating system, consult the final floor finish supplier regarding maximum permissible floor surface temperatures. Typically, floor surface temperatures should not exceed **29°C**, though many wooden floor finishes have a maximum limit of **27°C**. These must be installed alongside appropriate underlay and moisture barriers. To prevent damage to the flooring, it is strongly recommended to use floor probes in conjunction with room thermostats to limit floor surface temperatures. For particularly large areas, multiple probes and thermostats may be necessary.

### Wooden Floor Coverings

When installing wooden floor coverings over floor heating, the surface temperature must not exceed **27°C**. Floor probes and room thermostats must be used to control temperatures and prevent damage. Expansion gaps, as specified by flooring suppliers, must be included to allow for the natural expansion and contraction of the wood.

**Important Notes on Wood Types:**

- **Unsuitable Woods**: Birch and Maple are not recommended for floor heating due to excessive expansion.
- **Suitable Options**: Laminates and engineered woods less than **25mm** thick perform well with floor heating.

All wood flooring products must be acclimatized to the heating system and its operational temperatures by following the supplier's guidelines.

### Water Treatment (Required for Product Guarantee)

Specialist water treatment suppliers, such as Sentinel or Fernox, can provide guidance on water treatment and dosage requirements. Flushing the system should follow **BS:7593** standards to prepare the water circuit for the heating system during initial commissioning, after major repairs (e.g., boiler replacement), or for ongoing maintenance.

**Water Volume Calculation:**

For a **16mm pipe floor heating system**, the water volume in liters can be calculated by multiplying the total pipe length (in meters) by **0.113**.

To prevent corrosion:

- Use a corrosion inhibitor, as it forms a protective film on metal surfaces.
- Ensure all metal surfaces are clean, as inhibitors only work effectively on clean surfaces.
- Use a neutral (neither acidic nor alkaline) corrosion inhibitor, particularly for systems containing **aluminum**, as this material is prone to corrosion in highly acidic or alkaline conditions.

**Consider Antifreeze**:

Adding antifreeze to the system is recommended, especially during winter months, to prevent freezing.

### Mixed Floor Solutions

When serving mixed floor solutions from the same manifold, always use a floor probe for the floor with the lower maximum supply temperature. This ensures that temperatures in these areas are controlled, preventing damage to both the floor system and the floor finish.