



# MANIFOLDS & WATER TEMPERATURE CONTROL

## Overview

Water based underfloor heating (UFH) systems work by turning the entire floor into one large low temperature radiator which is heated via a network of pipes that are embedded within the floor. Since the floor (the 'radiator') is so large it only needs to run at a low temperature to heat your room. This means that the water that flows around the floor needs to be at a far lower temperature than a traditional radiator system.

A range of factors will determine the water temperature required for an underfloor heating system; these will include:

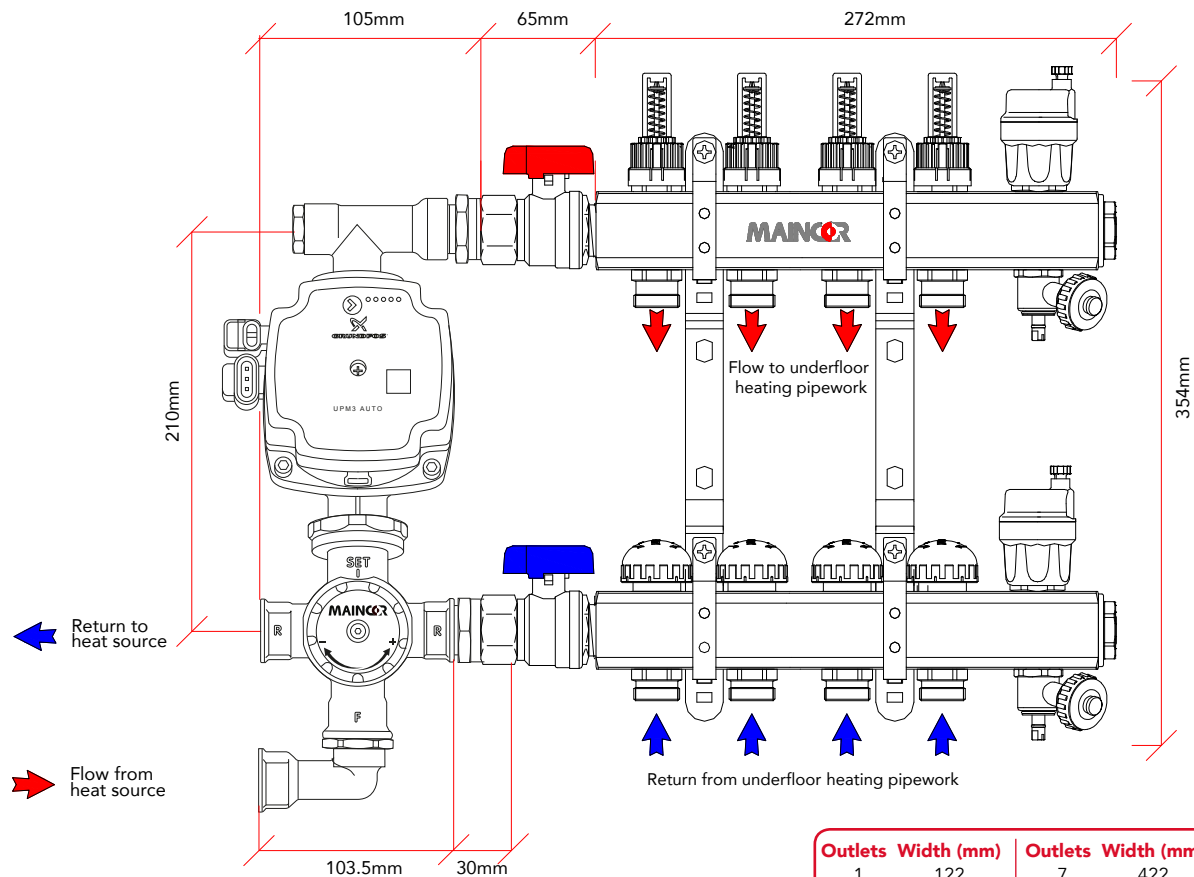
- The floor construction.
- The heat requirement of the space.
- The floor coverings.
- The pipe diameter and pipe centres that are used.

Generally, underfloor heating systems will run at temperatures ranging from 35°C - 50°C. If the boiler or heat source cannot supply the water at the required temperature, either thermostatic or actuated blending controls can be supplied. Typically, a secondary circulating pump would also be required.

Underfloor heating requires a low flow temperature, at design conditions there will be approximately a 7°C temperature drop through the underfloor heating circuits. Maincor usually supply blending valves to blend the primary flow from the boiler to mix with the underfloor heating return water to maintain the required temperature for the underfloor heating system. A pre-assembled thermostatic mixing valve and pumping unit which fits directly onto the Maincor underfloor heating manifold can also be supplied - a control pack.

An alternative method of blending the water is to use an actuated blending valve and weather compensation controller. This is generally a slightly more expensive way of controlling an underfloor heating system, however, it does offer a more efficient way of controlling the water temperature. As the outside temperature decreases, the heating requirement of the building will increase, hence the amount of energy that has to be put back into the building will also increase to ensure comfort conditions are to be maintained.

The arrangement below acts as a blending, circulating and distribution point for your UFH system:



Primary pipework can be fed into the Control Pack from the side (as per the illustration) or from below by moving the position of the 90°elbow supplied with the kit.

Outlets	Width (mm)	Outlets	Width (mm)
1	122	7	422
2	172	8	472
3	222	9	522
4	272	10	572
5	322	11	622
6	372	12	672

# MANIFOLDS & WATER TEMPERATURE CONTROL

## Key Components

### UFH Manifold with Flowmeters



Maincor 1 - 12 port UFH Manifolds are supplied complete with flowmeters for ease of commissioning. Also included within the manifold arrangement are fill and drain ports, automatic air vents and fixing brackets. Requires pipe connectors and ball valves, both are sold separately.

### Thermostatic Manual Mixing Valve



Maincor Thermostatic Manual Mixing Valve for blending water to meet design temperature. May be used as an alternative to a control pack in applications where there are restraints on space.

### UFH Control Pack



Maincor UFH Control Packs are pre-assembled units which bolt directly (via ball valves) onto the manifold and are used to blend and circulate the water around the underfloor heating system.

### Manifold Pipe Connector



Maincor Manifold Pipe Connectors join 12, 16 and 20 pipework to the Underfloor manifold. (Other sizes available upon request).

### Large Control Pack



The Maincor Large Control Packs include a blending valve, an 'A' rated energy efficient pump and an temperature controller complete with temperature sensor.

### Blanking Plug - Outlets



Maincor Blanking Plugs are used to blank-off outlets on the Underfloor Heating Manifolds.

### Weather Compensated Control Pack



The Maincor Weather Compensated Control Pack modulates the flow temperature to the system requirements depending on outdoor weather conditions.

### Straight Ball Valve



Maincor Straight Ball Valves are used to provide isolation of the flow and return pipework connected onto the Underfloor Heating Manifolds. This allows manifolds to be isolated both for filling the system, or draining down, without the risk of air ingress.

### Heat Pump Pack



The Maincor Heat Pump pack is for use when water blending controls are not required. The unit is pre-assembled and is designed to be fitted on to either side of the manifold. A high limit shut off is included and pre-set to 60°C.

### Electro-Thermic Head



The manifolds are supplied with blue caps on the return manifold (bottom header) which isolate the return water. The blue caps can be removed to allow for either 24 or 240V electro-thermic heads to be fitted which open and close to control the flow of water around the heating circuits.

## Recommended Additional Components

### Automatic Bypass

Maincor recommend fitting an automatic bypass (supplied by others) on the primary flow prior to the 2 port motorised zone valve.