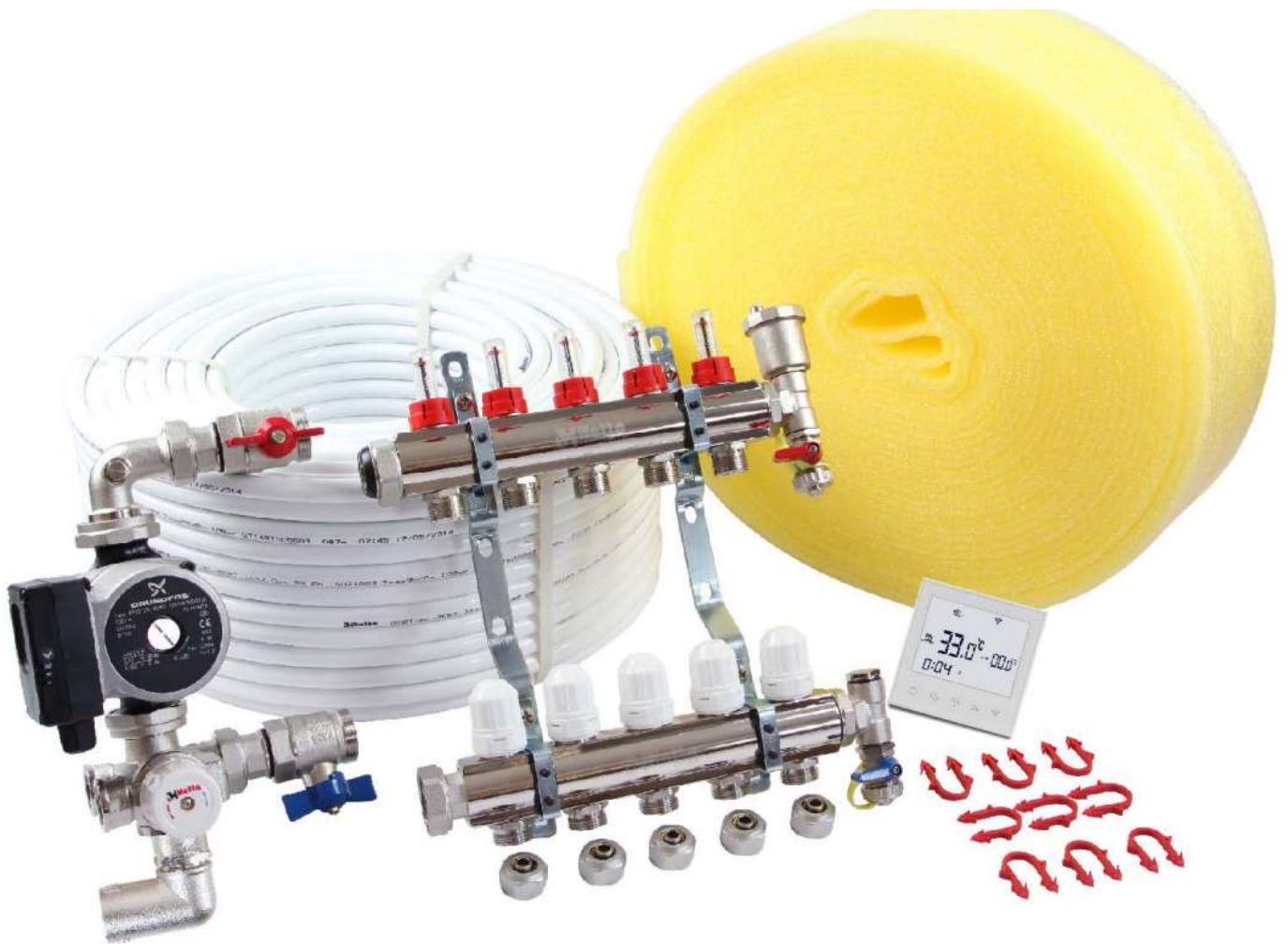


# UNDERFLOOR HEATING INSTALLATION & MAINTENANCE MANUAL



# Hetta Product Warranty Terms & Conditions

This limited warranty applies to physical goods, and only for physical goods, purchased from Hetta Systems Ltd.

## **What does the warranty cover?**

The limited warranty covers any defects in material or workmanship under normal use during the warranty period

During the warranty period, Hetta Systems Ltd will replace at no charge, products or parts of a product that proves defective because of improper materials or workmanship, under normal use and maintenance.

## **Corrective Measures?**

Hetta Systems Ltd will replace the product at no charge covering any damage caused by defective product.

## **Warranty coverage?**

The warranty period for Manifolds purchased from Hetta Systems Ltd is 3 years from the date of purchase.

A replacement Manifold (or associated part) assumes the remaining warranty of the original Manifold from date of replacement.

The warranty period for Pert-Alu-Pert pipe purchased from Hetta Systems Ltd is 50 years from the date of purchase. A replacement Pert-Alu-Pert

A replacement Pert-Alu-Pert assumes the remaining warranty of the original Pert-Alu-Pert from date of replacement.

What the warranty does not cover? The limited warranty does not cover any problems that are caused by:

- Conditions, malfunctions or damage not resulting from defects in material or workmanship
- Incorrect installation of Hetta Systems Manifold and associated parts

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## Manifold

Maximum operating pressure - 6 Bar (Tested to 10 Bar)

Maximum working temperature – 70°C

Threads - 1"

Heating pipe outlets – 3/4"

### Fittings

Hetta nickel plated pre-assembled manifold comes complete with isolating ball valves, adjustable flow meters, fill and drain points and automatic air vents.

### Fixings

Manifolds are available for 1-12 underfloor heating circuit ports and are supplied with fully assembled fixing brackets.



## Hetta Manifold Control Pack

- Provides controlled mixed temperature water to underfloor heating systems with a heat output up to 14kW
- Lightweight and compact in order to connect directly onto a standard manifold without the need for extra brackets or support
- The control pack consists of; mixing valve, A<sub>≤0.2</sub>EEl High Efficiency Grundfos Pump
- Used in conjunction with 2-12 port manifolds
- Compact bolt on unit providing quick and simple installation
- Easy set up within the adjustable range of 35°C to 65°C
- Controls flow temperature to +/- 2°C even with changing boiler flow and return temperatures
- Manufactured to BS EN 1264-4



The control pack has 3/4" flow and return connections with the flow being the top connection and the return being the bottom.

The pump can be assembled on the left or right side of the manifold to suit the project, the control pack is supplied unassembled and by default is set for assembly on the left side of the manifold, a brass fitting is supplied that can be used to reverse the connections on the blending valve to suit a right side manifold orientation.

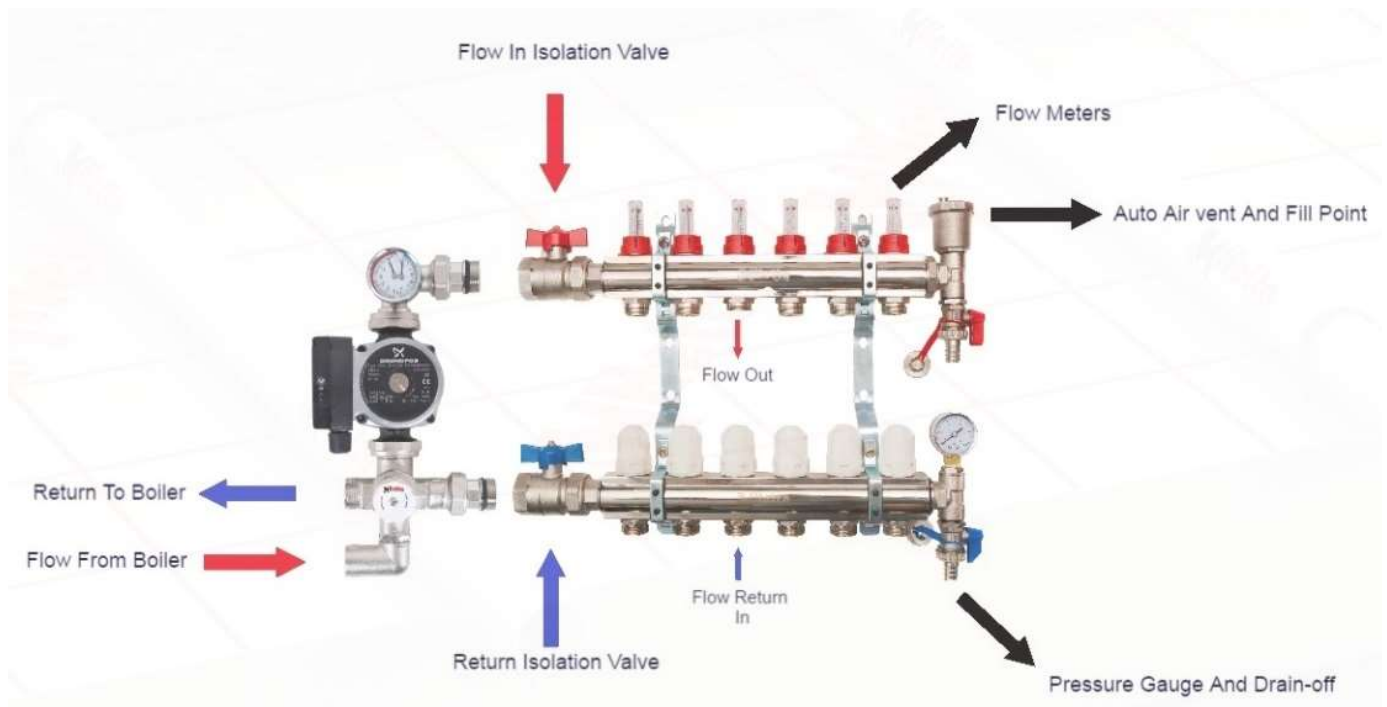
## Control Pack Assembly

1. Connect the blending valve to the bottom of the circulation pump using the valves nut and rubber washer.
2. Attach the pump elbow outlet to the top of the circulation pump with the opening connection facing the isolation valves fitted to the manifold.
3. Connect the flow and return unions to be able to connect to the manifold's isolation valves.
4. Connect the elbow to the bottom of the blending valve.



## Manifold Assembly

1. Fit the manifold to the wall using the plugs/screws provided, the distance must be 650mm from the top of the floor insulation to top level of the manifold.
2. Connect the 1" isolation valves (Blue and Red) to the same end of the manifold whilst making use of the washers provided.
3. Connect the drain valves and air vent to the opposite end of the manifold also using the washers provided.
4. Connect the primary flow and return.



## Control Pack Installation

1. Line the control pack up with the isolating valves attached to the manifold.
2. Connect the top flow elbow to the primary flow isolation valve.
3. Connect the blending valve to the primary return isolation valve.
4. Adjust the temperature of the blending valve by turning the dial until you reach the required setting, for high temperature heat sources we recommend setting the flow to 48°C.

## Connecting Pipe to Manifold

1. Cut the pipe using a suitable pipe cutter.
2. Use a chamfering tool to de-bur the inside of the pipe, allowing the pipe to keep its circular shape.
3. Place the manifold union nut and split ring over the pipe.
4. Insert the brass body of the union into the pipe
5. Connect the pipe to the manifold and tighten the nut to ensure that the pipe is secure.

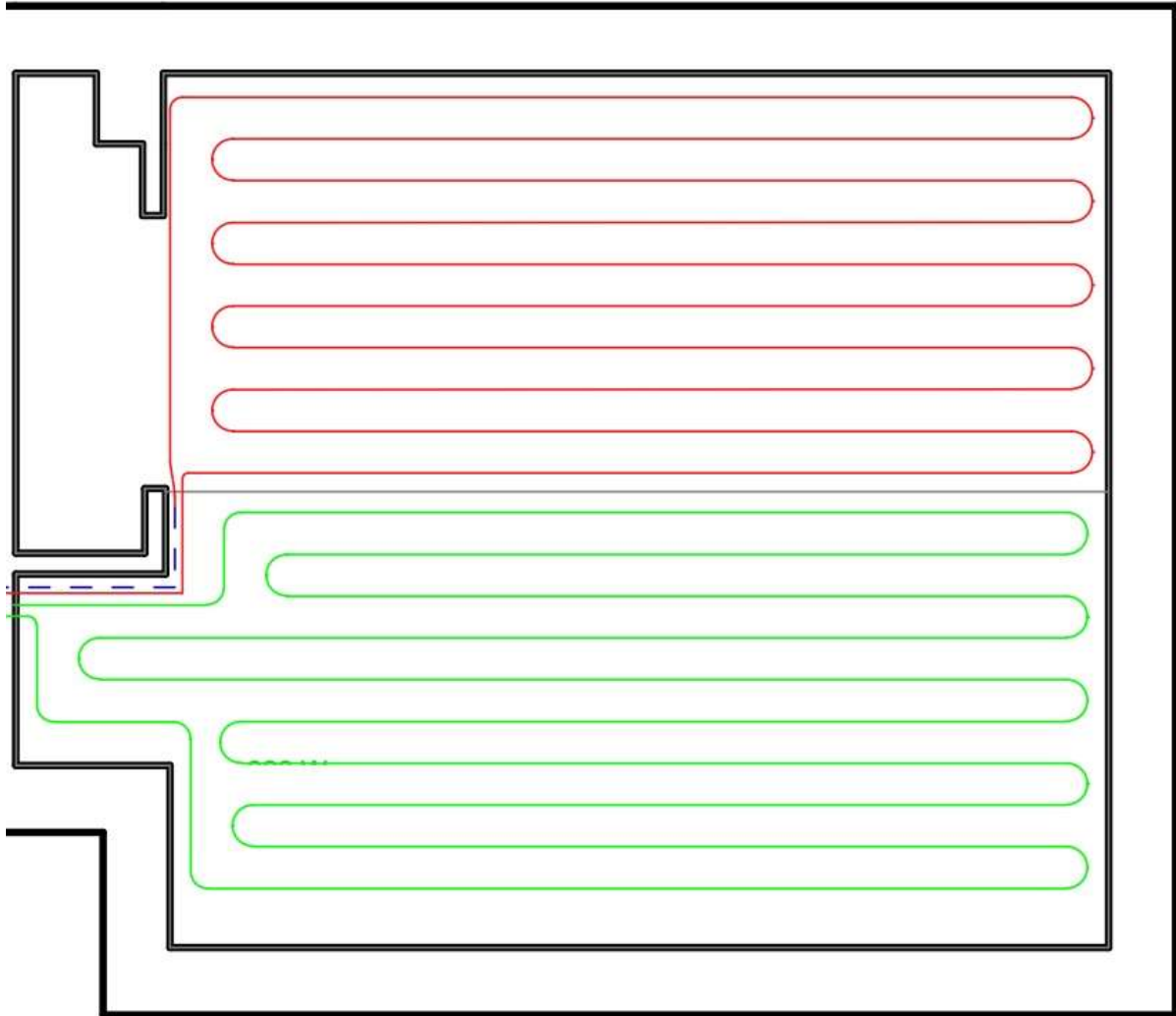


## Laying the Pipe

1. Beginning at the manifold, run out the pipe to the desired start location.
2. Mark a small line on the floor 100mm away from the wall of the heating zone.
3. Beginning on the small mark on the floor, roll out the coil of pipe parallel with the wall whilst maintaining the 100mm spacing from the wall.
4. Fix the pipe down as you go using the clips provided at maximum spacings of one metre.
5. In order to make a turn and run back parallel with the pipe run just laid, form a bend in the pipe, clip the bend down and begin rolling back whilst maintaining the required spacings between the pipes (200mm for high temperature systems, 150mm for low temperature systems).
6. For spacings tighter than 200mm we recommend that you form a 'C' (light bulb shape) on the bends to prevent any distortion in the pipe radius.
7. Ensure that you leave enough pipe on the roll to return back to the manifold (MAX LENGTH 100m)



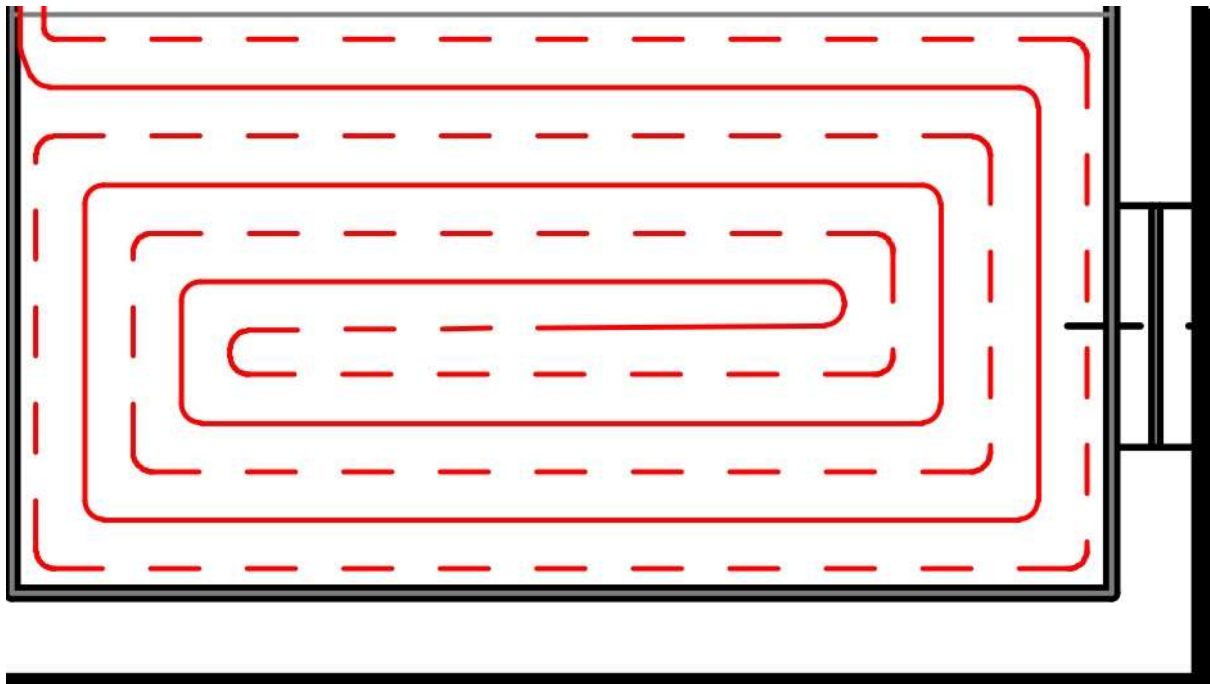
## Mender Pattern Example (Snake pattern)



## Snail Pattern Example

200mm Pipe centres = 400mm into the centre of the room and then turn back to the manifold to create 200mm pipe centres throughout.

150mm Pipe centres = 300mm to the centre, 150mm return.



# Commissioning Procedure

Once installed, the floor heating systems should be tested thoroughly to ensure they are working effectively, including initial filling of the system and system balancing.

## **Initial filling of system:**

1. Close manifold isolating valves.
2. Connect a hose pipe to the manifold flow port via the drain off/filling point on the manifold. The other end of the hose should be connected to a mains cold water supply.
3. Connect a second hose to the return manifold and take it to a suitable discharge point such as a drain or back inlet gully.
4. Open the first port of the manifold and commence filling the system via the mains cold water supply. Once the water is running smoothly through the circuit and all the air has been expelled, open the second port and close the first. Repeat this process until all the circuits have been filled and the system is free of air. Close the ports and remove the hose.
5. Connect a suitable pressure test pump to the flow manifold filling point and test the system to 4 Bar. Leave system under pressure for one hour to confirm the integrity of the installation. Once the pressure test is complete reduce the system pressure down to 3 Bar whilst the screed is applied.

Note: The flow meters on the top of the manifold must be turned anti clockwise to allow water to flow through the pipes (remove the red cap and turn the black plastic fitting anti-clockwise) Important note: Do not leave system under pressure during cold weather when there is a risk of freezing.

## **System balancing:**

Once the system is up and running it will be necessary to balance the system in accordance with the design data as provided. This should be done using the following method.

1. Open the manifold isolating valves. Ensure that the boiler is operating correctly and that the correct temperature water is being provided at the manifold mixing valve. Please note that due to the design of the mixing valve it is necessary to provide water from the boiler at least 15°C hotter than the required underfloor heating operating temperature. For example; if the underfloor heating system has been designed to operate at a flow temperature of 50°C, the boiler should be able to provide a primary flow temperature to the manifold mixing valve of 65°C min. (Please note that for systems connected to a heat pump installation different criterion may apply. Please contact Technical Support for further information.) Adjust the mixing valve temperature setting accordingly to match the precise manifold design requirement.
2. Ensure that the underfloor heating circulating pump is set to a suitable fixed head speed using the pump adjustment facility. This is particularly important for systems fitted with modulating pumps. Remove the red cap on the flow meters and turn the black base anti-clockwise to increase the flow rate, adjust each circuit until the flow meter on the manifold flow rail reads the required flow rate. Repeat the procedure for all circuits connected to the manifold. If a modulating pump is fitted return the pump to its modulating operation mode.
3. Refit the manifold actuators (if supplied/multi zone) and check their correct operation to each circuit by operating the appropriate room thermostats.

## **Pressure testing in sub-zero temperatures**

Special precautions are necessary if the pressure testing is to take place in sub-zero temperatures. This applies particularly when using the screeded floor heating system, where most of the pipe is encased in screed. Due to the contact between pipe and floor panel in screeded installations, where the screed does not surround the pipe, there may be points where strain is created on the pipe in freezing conditions, which is not normally present. Therefore, it is advisable to drain the floor heating system once testing and screeding has been completed.

Tips: If there is an excessive amount of air present the system will be noisy and the flow meters may appear to bounce up and down. If this happens, repeat the initial filling procedure until the system is fully purged of air.

## Recording

Manifold 1			Manifold 2		
No.	Name	L/min	No.	Name	L/min
1			1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		

### Temperature

Manifold return temperature:

Manifold heat output, total L/min \* $\Delta T$  (Flow temp – return temp) \* 0.7: