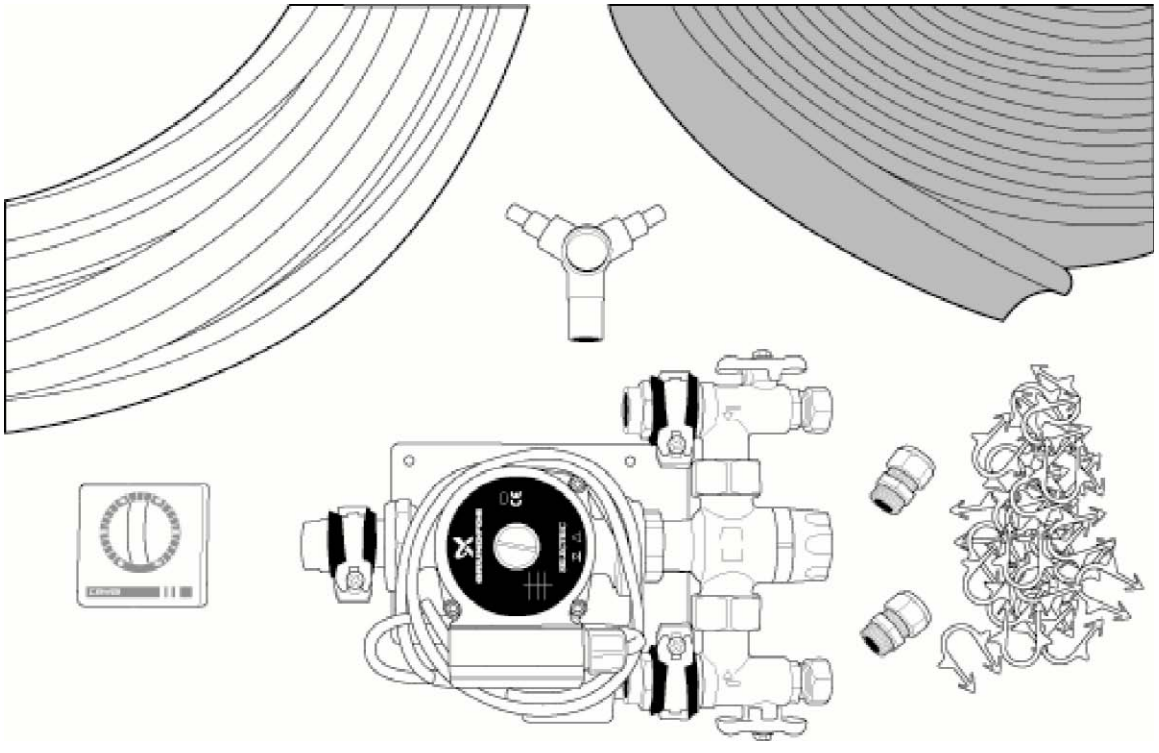
Single Room pack Instructions

UNDERFLOOR HEATING SYSTEMS

UFH system



Introduction

The Compact UFH System is pre-assembled to allow speedy and simple installation for extensions and conservatories. The control unit comes complete with wall fixing kit and the pump is pre-wired in conjunction with a flow temperature thermostat. There is also a mains connection point and removable link for connection of a room stat (supplied) if desired.

The control unit has integral ball valves for connecting/isolating the primary heating system, an adjustable thermostatic blending valve and Grundfos or Wilo 5 metre circulating pump all secured to a fixing bracket with anti-vibration mountings for silent operation.

1/2” female tappings are provided with compression adaptors for connecting the UFH pipework.

Before beginning the installation check that there are no missing items. Refer to the pack contents list below.

List of items included in the Compact UFH System:

- 100 m Henco 16x2 Multilayer pipe
- 200 no. pipe clips
- 2 no. 16x2 pipe adapters
- Tools – 1 no. Pipe Cutter and 1 no. Calibration Tool
- 1 no. 240v Room Thermostat
- 25 m of Edge Insulation with integral dpm/vapour barrier polythene lap strip, used with concrete floors only
- Pre-assembled control unit

Section 2 Preparation

After checking that all the components are included in the packaged it is time to prepare for the installation of the underfloor heating pipe.

Make sure that the floor is level and clean and the room is empty. First install the edging strip with the polythene lapstrip facing inwards (see diagram 1). The purpose of the edging strip is to reduce heat losses through the walls, allow for expansion of the screed and prevent ingress of the screed into the insulation zone.

Next install your floor insulation (not supplied). We recommends 50mm high-density (polyurethane) insulation. Such as Celotex or Kingspan. High-density insulation's have better insulant properties and allow the use of pipe clips. These brands can be bought from most builders merchant. The clips need the high-density insulation to stay in place. If Polystyrene is used, then a lightweight mesh e.g. ref 049 needs to be installed on top of the insulation and the pipe tied to the mesh.

Note- some insulation board manufacturers recommend that you tape the joints to prevent screed ingress, which can form cold bridges. The edge insulation integral polythene strip in conjunction with joint taping will provide a complete barrier.

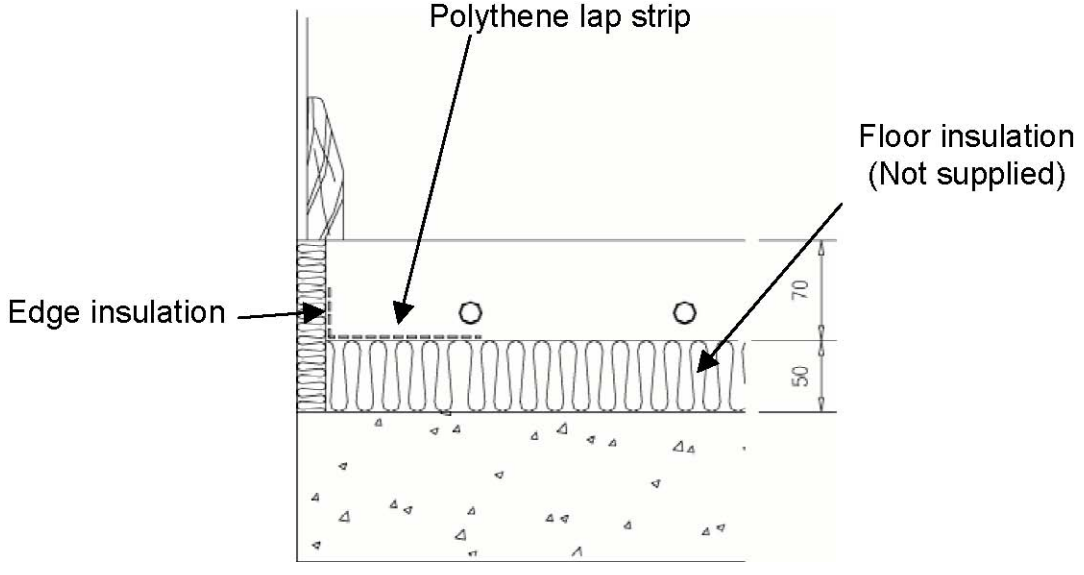


Diagram 1

Section 3 –How to design your installation

Below are guidelines on how to design your UFH installation.

Before you commence your installation take time to design your pipe layout to use the maximum amount of pipe but be careful to make an allowance for the location of the control units. Set the pipework in 100mm from all walls/edges.

The pipe can be installed in a number of ways. We recommend the snail pattern as it has a number of advantages. For example most bends will not be greater than 90 degrees, which eases and speeds installation, also, as the flow and return lie adjacent to each other an even floor temperature is produced with fewer cold spots. See diagram 2.

As the temperature of the UFH system is controlled by the Blending Valve in the Control Unit, reducing the pipe centres does not increase the room temperature but does reduce the heat up time.

Use the chart below along with the area of your room to determine the optimum pipe spacing. The spacing is described as c/c; this is the distance between the centreline of the pipes.

Room Size	Coil	c/c	Blending Valve Temperature (see section 5)
25 m2	100 m	300 mm	48
20 m2	100 m	200 mm	46
15 m2	100 m	150 mm	44

If the room is smaller than 15m2 it is still recommended to use as much pipe as possible. But, normally c/c 150mm is the minimum spacing.

We recommend setting the water temperature at 44°C for screeded floors, which can be increased to 48°C if larger pipe centres are used to achieve a maximum floor temperature of 29°C

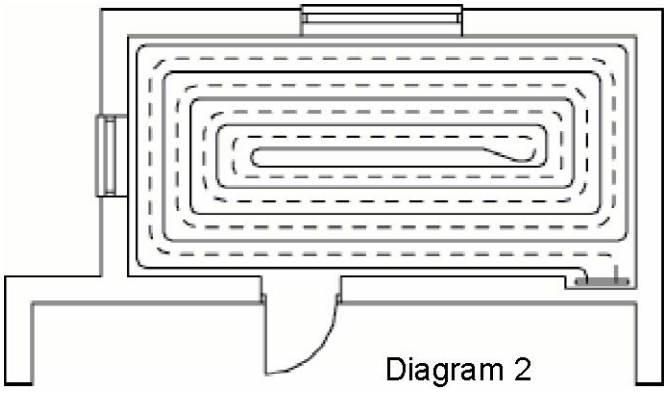


Diagram 2

If a timber floor finish or floating floor is proposed set the Blending Valve to achieve a maximum floor temperature of 27°C to avoid shrinkage of the timber boards. See section 5.

Section 4 - Installation

1.1 Pipe Laying

Decide where the control unit is to be located and leave approximately 1m. of pipe for both flow and return.

Lay the pipe out following your design, working from the outside towards the centre clipping or tying at 1.0m centres. Form bends gently by hand, as the pipe has an aluminium layer it will stay in shape.

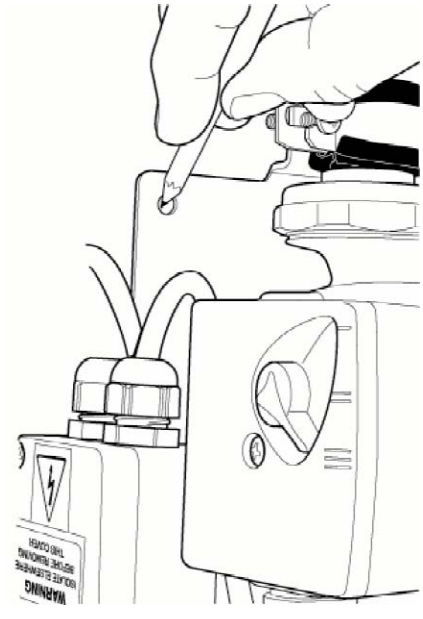
1.2 Installing the Control unit

The Compact UFH System is designed for wall fixing and ideally should be mounted in a horizontal position with the electrical connection box uppermost. However, it can also be mounted vertical to pump up or down if desired. Provision should be made to vent air to protect pump from cavitation.

The unit must not be floor mounted or in any position that inclines the pump shaft vertical. Refer to the pump installation leaflet enclosed.

Choose the location for the unit ensuring adequate clearance and accessibility for pipe work and any subsequent maintenance. This is particularly important if enclosed within a cupboard space for example.

Locate the unit on the wall and mark the hole fixing positions through the bracket. Take care to protect any electrical equipment and cables during handling.



When connecting the pipe to the manifold use the cutter supplied to cut the pipe square then calibrate the cut end to round the pipe ready to accept the compression adaptor. As the adaptor has integral ‘O’ rings it is not essential to use further sealant such as PTFE tape.

1.3 Pressure Testing

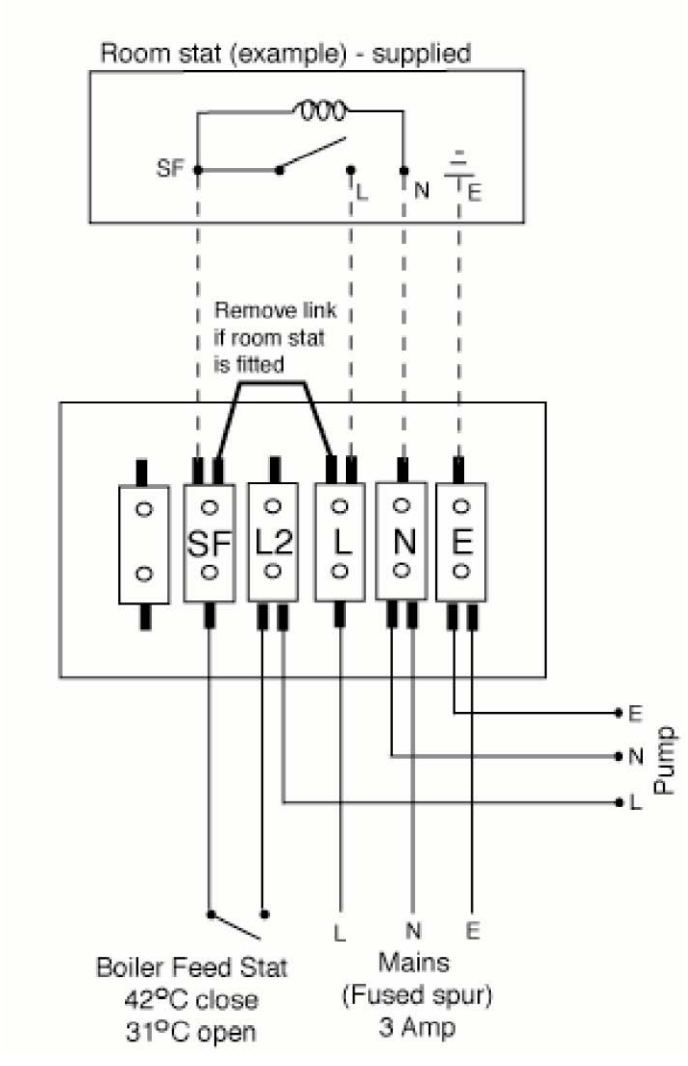
Before connecting the unit to the primary circuit it is recommended to pressure test the system. This can best be achieved by connecting mains pressure to the red ball valve and a hose or bucket to the blue ball valve on the control unit. Open both valves fully & fill the system to purge all traces of air from the system. After all the air has been removed it is recommended to pressure test the system with 6-bar pressure for 24 hours. We recommend maintaining the system under pressure whilst screeding.

1.4 Screeding

We recommend 65 mm of screed on top of the insulation. All installation work must comply with current Building Regulations. Note that the screed drying time can be up to 4 to 6 weeks before the underfloor heating system is operated. The mixing valve needs to be set at minimum temperature when commissioning the system. Rapid heating of the screed can cause cracking so increase the temperature by 2 to 3 degrees every day to gently raise the floor temperature to the desired setting.

1.5 Wiring

All wiring should be undertaken by a qualified installer and conform to IEE regulations. To comply with IEE regulations, the pump on the unit is provided with an earth connection via the connection box. Connect the Control Unit to a mains fed switched spur fused at 3 amps.



If fitting a room thermostat position in accordance with the manufacturer instructions and remove the link between terminal SF & L as indicated on the wiring diagram.

1.6 Connecting to theprimary heating

After the pipe installation and pressure testing it is time to connect the control unit to the primary heating circuit. To avoid ‘starving’ radiators ‘down line’ of the UFH system Multipipe recommend connecting the control unit to the 22mm main primary circuit of your heating system, as close to the boiler as possible. As Henco multilayer Pipe is approved at 10 Bar 95° you can use surplus pipe for this connection.

1.7 Operating Principles

When the primary heating circuit is on and the heating water temperature has reached approximately 43°C and the room thermostat is calling for heat, the pump will activate and feed the under floor heating loops. The blending valve will maintain the temperature of the heating loop by continually blending the flow from the boiler with the cooler return flow from the underfloor heating loop. The heat output can be adjusted with the control knob on the blending valve to suit different floor structure and comfort levels, see section 5. The room thermostat will switch the pump off when the selected room temperature is reached. When the primary heating is off and the room stat is calling for heat, the pump will continue to run until the heating loop temperature falls to approximately 30°C. when it will automatically switch off.

Section 5 –settings

The thermostatic blending valve has a temperature setting range between 35°C

25 m2	100 m	300 mm	48
20 m2	100 m	200 mm	46
15 m2	100 m	150 mm	44

and 60°C as shown below:

Min	35°C
1	40°C
2	44°C
3	48°C
4	50°C
5	54°C

Initial setting of the thermostatic blending valve (after the heat up/screed drying period) should provide the following temperatures at the flow pipe control unit.

Screeded floors 40-48°C
Timber floors 55-60°C

These initial settings can then be adjusted to provide comfort. A maximum floor surface temperature of 29°C should not be exceeded (wet areas such as bathrooms, 35°C) as this will lead to feelings of discomfort. With timber floor finishes including strip laminate products the maximum floor temperature of 27°C should not be exceeded as this may result in excessive material shrinkage.

Section 6 – Questions and Answers

1. What are the best types of floor finishes to suit underfloor heating?

Almost all floor coverings work extremely well with underfloor heating. Use carpets with less than 1.5 Tog, this information will be available from your carpet supplier. Timber floors need to have a moisture content less than 10% to avoid excessive shrinkage. Some manufacturers recommend you season the timber in your premises for a period prior to laying, seek the advice of your supplier. All floor coverings and adhesive must be suitable for the temperature that underfloor heating systems will provide, generally a maximum of 40°C.

2. What is the maximum temperature difference between flow and return?

The system is designed to work with a temperature difference of between 5 - 10°C. between the flow and the return.

3. What is the heat output?

The maximum heat output from screeded floors is 100W/m2 and the maximum heat output from timber suspended and floating floors is approximately 70W/m2. With there being higher standards of insulation in new buildings the average heat requirements for many buildings are now below 60 W/m2.

For small rooms such as bathrooms it is standard practice to install additional heating in the form of towel rails, as the net floor area is not sufficient. Contact your supplier or if in doubt.

4. Is approved?

The Compact UFH System has a full range of European and British approvals including DVGW, KIWA and WRAS.

5. How many underfloor heating clips should i use?

One clip should be used at every metre of pipe. Note the pipe can also be tied to mesh on top of the insulation.

6. What are the delivery times?

Delivery of all underfloor heating components is normally 3-5 days from confirmation of your order, subject to availability.

7. What is the working life of Multipipe multi layers pipe?

Our multilayer pipe has the highest approvals in the world including Water Research Advisory Service (WRAS) and KIWA approval at 10 bar pressure and 95°C temperature for 50 years. The pressures and temperatures in underfloor heating systems are significantly lower therefore the working life of the pipe is in excess of 100 years. Henco, the pipe manufacturer provides a 10-year guarantee against manufacturing defects.

8. What if my floor area is larger than 25sq.m?

Depending on your intended room usage you may still install the system in rooms larger than 25sq.m, and increase the water temperature, but you may find cold spots on the floor and the room may not heat up to design temperature.