

PRODUCT AND INSTALLATION MANUAL

**wavin** Hep<sub>2</sub>O

Underfloor Heating



**wavin**



# Wavin Hep<sub>2</sub>O































# Underfloor Heating

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# Wavin Hep<sub>2</sub>O

## Underfloor Heating key

Pipe	Hep <sub>2</sub> O Pipe 	Hep <sub>2</sub> O Pipe 	Tigris Pipe 			
Layout	Serpent 	Spiral 				
Pipe Spacing	Distance Between Pipe 				Infinite Distance 	
Diffuser Plates	Single 	Double 				
Floor Solutions	Staples 	System Plates 	LowBuild Panel 	Joist 	Floating Floor 	
Floor Base Structure	Wet Screed 	Nonstructural Boards 	Structural Boards 			
Finished Floor	Tile 	Carpet 	Timber 	Vinyl 	Laminate 	Stone 
Finished Floor Preparation	Tile Adhesive 	General Adhesive 	Underlay 	Polythene 		

# Introduction to Wavin Hep<sub>2</sub>O Underfloor Heating

## Why choose Underfloor Heating?

Underfloor Heating (UFH) using piped warm water is a modern and energy-efficient option for heating homes and other buildings. UFH also delivers comfortable warmth for occupants, as well as other practical benefits. With UFH, the floor is gently heated by piped warm water and the heating energy is emitted from the floor by natural radiation. This heat is absorbed by other surfaces in the room which then also emit warmth.

The result is an all-round, more even warmth than is typically achieved by other space heating techniques. Radiators, for example, use room air to transfer the heat, mostly by convection. This reliance on the convection of air to heat the room results in uneven warmth and higher temperatures at ceiling height compared with floor level. As radiators intrude on the usable space within a room, there is a general desire to keep them as compact as possible. As a consequence of this, the piped water has to be hotter than for UFH in order to achieve the same level of comfort for the occupants.



### Underfloor heating offers many benefits to the homeowner

- ⌚ Lower water temperatures required for UFH mean better energy efficiency with fuel bills up to 20% lower
- ⌚ More even room temperature ensures all round comfortable warmth
- ⌚ Silent running – no expansion creaking or water flow noise
- ⌚ Unhindered room layout - because there are no wall-mounted radiators
- ⌚ Healthier environment - because less dust is circulating in the air
- ⌚ Decreased irritants - as the warm floor inhibits the breeding of dust mites and fungi
- ⌚ Greater safety - because there are no exposed hot surfaces.
- ⌚ Low maintenance - no radiators to redecorate or renew, or to be 'dropped' to allow room redecoration

### Why Hep<sub>2</sub>O UFH?

Hep<sub>2</sub>O is the leading plumbing brand in the UK, and has been manufacturing professional plumbing systems for over 40 years. Hep<sub>2</sub>O has a range of underfloor heating systems for new and existing floors and offers high quality, proven products which are widely available from plumbers and builders merchants nationwide. Our systems are easy to install and come with market leading guarantees.

### Benefits of Hep<sub>2</sub>O UFH

- ⌚ Online calculation tools to help you select the right products for your project
- ⌚ Clear, simple guidance from online guides, how to's and videos
- ⌚ Easy to order from plumbers and builders merchants and trade outlets nationwide
- ⌚ High quality products with industry leading guarantees

#### Wavin Hep<sub>2</sub>O 10 and 15mm

EVOH - Oxygen barrier layer.

Bonding layer - Ensures secure bonding of Polybutylene to barrier layer.

Polybutylene.

10

15

#### Tigris K1 16mm

High density Polyethylene (HDPE) outer.

Butt welded aluminium.

Polyethylene (PEXc) inner.

16



# The advantages of Underfloor Heating

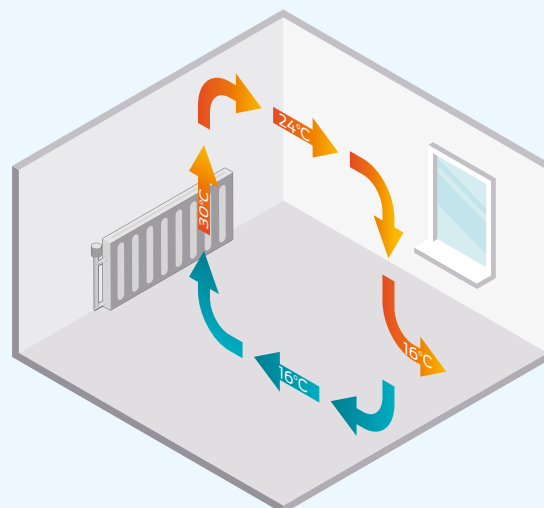
## Radiated heat (UFH)

### Performance Advantages

- ① A UFH floor only needs heating to 26-28°C (similar to hand temperature) to achieve the required room temperature
- ① Therefore, UFH requires lower temperatures for heated water:
  - 40-45°C for concrete (screeded) floors
  - 50-60°C for timber floor constructions
- NOTE: radiators typically require water heated to 70-80°C
- ① Lower water temperatures mean better energy efficiency with fuel bills up to 20% lower (see SOURCE)
- ① More even room temperature ensures all round comfortable warmth
- ① Silent running – no expansion creaking or water flow noise

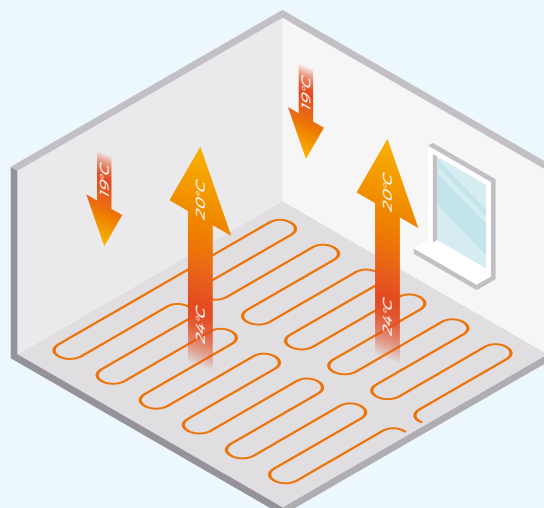
SOURCE: Energy Efficiency Partnership for Homes:

Domestic Heating systems ranked by carbon emissions, version 2



### Practical Advantages

- ① Unhindered room layout
  - because there are no wall-mounted radiators
- ① Healthier environment
  - because less dust is circulating in the air
- ① Decreased irritants
  - as the warm floor inhibits the breeding of dust mites and fungi
- ① Greater safety
  - because there are no exposed hot surfaces
- ① Low maintenance
  - no radiators to redecorate or renew, or to be 'dropped' to allow room redecoration
- ① UFH is ideal for connection to renewable energy sources (e.g. heat pumps and geothermal systems)
  - because lower water temperatures are required



## Convected heat

### Typical Comparison with Radiated Heat

- ① Requires higher temperature at heat source: using water at 45°C with radiators would require the radiator to be three times larger than normal for it to produce the same amount of heat
- ① Hot air at ceiling level and cooler at floor level, often with associated draughts, so there is uneven warmth
- ① Significant heat loss through windows, walls and ceilings, representing wasted energy costs
- ① Dust carried around room in convection currents
- ① Dry, re-heated air causing a stuffy atmosphere
- ① Convective air currents (e.g. above radiators) that can stain walls

Radiators	Normal HW flow temperature <b>65-70°C</b> - Designed for a boiler capacity of <b>82°C</b>
Underfloor Heating	Normal HW flow temperature <b>50°C</b>
Heat Pump	Normal out put temperature <b>35-45°C</b>

# Choosing a system

## Three essential elements

Our online estimating tool will help you select the products you need, but here is a summary of the basic elements of a system.

Plumbed UFH comprises of three key elements that work together to deliver the required heating performance and effect:

1. **Floor products incorporating UFH pipe: to create the pipework circuits within the floor that will emit heat. Many floor products help to hold the pipe at the correct spacing to ensure even distribution of heat across the floor surface above.**
2. **Manifold: to provide flow and return circulation of warm water at the correct temperature and flow rate to ensure an even, comfortable temperature across the whole floor surface.**
3. **Controls: to monitor water and air temperature and signal the heat source. In effect, the nerve centre of the installed system.**

The careful selection of each of these is critical to the efficient operational performance of the entire installation. Let's look at these in more detail.

### Floor products

The choice of floor product is influenced by several factors:

- ⦿ Whether the floor is being newly constructed or already exists
- ⦿ Its type of construction: solid/screeded or dry/timber
- ⦿ The size and shape of the space to be heated
- ⦿ The type of floor finish that will be installed over the UFH

A solution to suit any combination of these factors, can be found within the Hep<sub>2</sub>O underfloor heating product range.

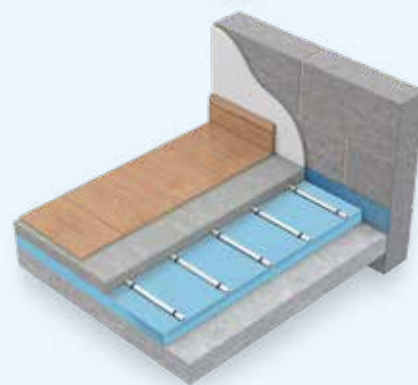
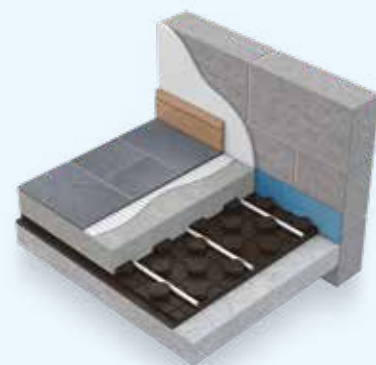
### Manifolds

A manifold is required wherever UFH is to be installed to serve two or more plumbed circuits from the boiler (or other primary heat source). When UFH is being connected to a high temperature heat source which also controls hot water or radiators, a mixing unit is connected to the manifold to mix the water to the required temperature for the system.

The Hep<sub>2</sub>O underfloor heating range includes manifold solutions that can be tailored to each situation. The composite manifold can be sized to serve the exact number of individual UFH circuits up to a maximum of 12 circuits. Single circuit installations which require water temperature control will be connected to their heat source via a mixing unit, but will not require a full manifold. See our video to find out more about what makes our manifold different from others on the market. Search Hep<sub>2</sub>O on YouTube.

### Controls

As with any type of heating, UFH operation requires time and temperature control. Hep<sub>2</sub>O have several options available, ranging from wired systems to fully networked systems that can be controlled on your mobile device. See page 20 for help in selecting the right solution for you.



# System selection guidance

## Underfloor Heating

### Advice, Tools and Guidance

Our online estimator, HepCalc, can help you through every step of the process.

Below we offer some general installation advice including layouts and heat outputs. More detailed advice for specific systems is available on our website [www.hep2o.co.uk](http://www.hep2o.co.uk). This includes installation guides, product literature and links to step-by-step videos. We also have a list of FAQ's and access to our quotation and calculation tool, HepCalc.

If you prefer to speak to someone in person, our technical team can offer help and advice, just give them a call on 0844 856 5165, or you can email the team at [technical@wavin.com](mailto:technical@wavin.com)

### General installation advice:

Recommended pipe centres.

For typical heat output, using 15mm pipe and a boiler, recommended pipe spacing is at 200mm centres. However, for some projects, smaller or greater spacing may be appropriate.

### Typical pipe layout patterns

There are two typical patterns for laying UFH pipe:



#### Spiral:

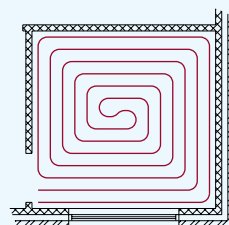
Initially at 400mm centres this layout follows the room shape in a spiral to the middle and is then reversed out from middle. This leaves pipe spacing at 200mm centres. This pattern is possible with two Hep<sub>2</sub>O underfloor heating systems – Staples and System Plates. With spiral patterns, close centres can generally be achieved without excessively tight turns.



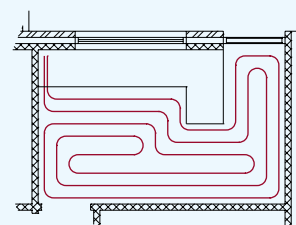
#### Serpentine:

Pipe is laid in parallel runs up and down the room length, with loop turns at each end. Hep<sub>2</sub>O panel products all use the serpentine pattern and it can also be used with staples.

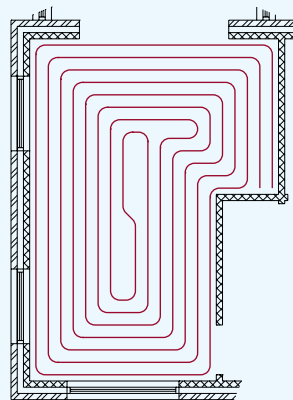
### Some typical room layouts:



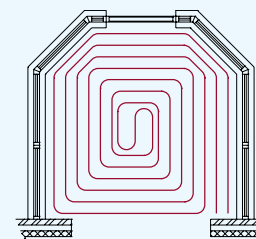
Basic Square



Irregular Shape

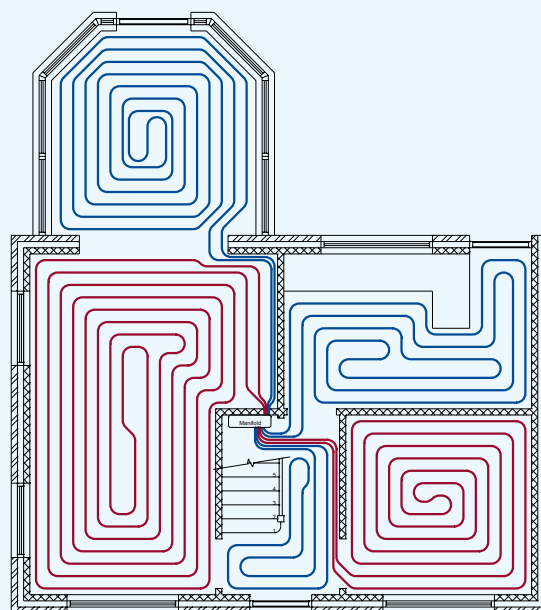


L-Shaped

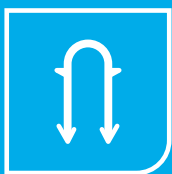


Conservatory

### Typical multi-room layout – Spiral







# Staples System

Staple systems offer a cost effective solution for screeded floors. Simply staple the pipe to the insulation panels before the screed is applied.



This option offers flexibility of design and is a great solution for installers who want to minimise cost and are comfortable in spacing and laying out pipework.

## System Construction

1. Selected floor finish
2. Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under insulation
3. Sand/cement or proprietary screed
4. 10, 15 and 16mm Barrier pipe
5. Staples
6. Insulation panels: independent choice to suit required thermal/acoustic performance
7. Level solid sub-floor

## Product Overview

Basic system for placing/fixing 15mm Barrier pipe.

## Application

Fixing UFH pipe to rigid insulation panels on a solid floor slab before screeding.

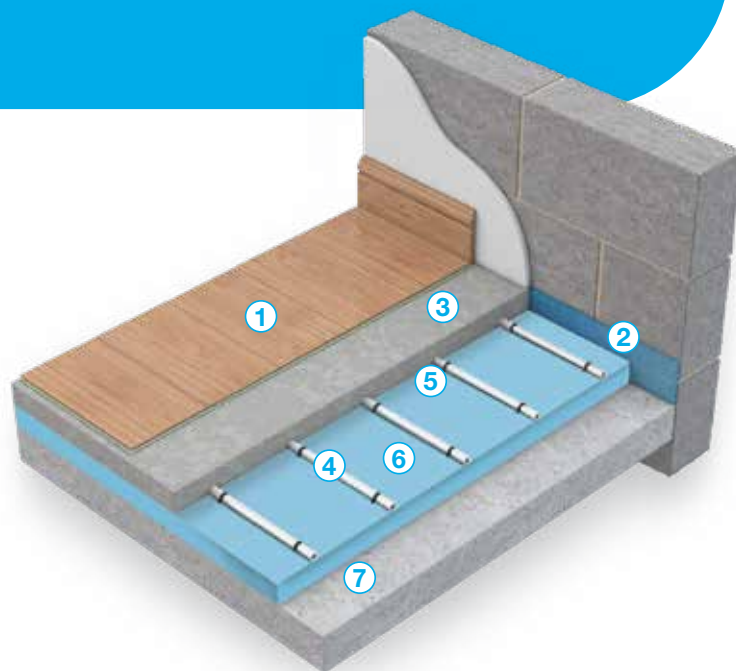
## Features and Benefits

### Product

- ① Staples to fix pipe in position on rigid insulation
- ② Lowest material cost

### Design/Installation

- ① Pipe spacing/layout at installer's discretion  
NOTE: 200mm centres normally offer the best balance of performance and cost.
- ② Installer marks top of insulation to indicate pipe positioning/spacing
- ③ Full flexibility to set pipe layout and spacing to suit specific project needs
- ④ Independent choice of insulation panels to suit thermal and acoustic properties as required
- ⑤ Suits irregularly shaped floor areas
- ⑥ Staple gun available to installer: enables pipe fixing from standing position



## System Performance

- ① Heat output subject to pipe spacing and layout consistency, see heat output tables in underfloor heating product guide

## Transitional Areas

Where pipes need to be supported and secured for run up wall to manifold: Curved Pipe Supports and Clamps are available (see underfloor heating product guide).

## Technical Information

**Base Material:** Nylon 6,6 (Polyamide)

**Staple Length:** 60mm

**Staple Frequency:** ≈ 3 Per Metre of Pipe

**Straights:** 500mm Intervals

**Bends:** 3 (Start-Middle-End)

**Supported Pipe Sizes:** 10-16mm

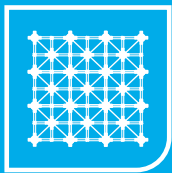
**Pipe Spacing:** Free Form (Typically 200mm)

**Permissible Pipe Deviation:** Specified by EN1264-4

**Vertical:** 5mm

**Horizontal:** +/- 10mm (Off Specified Spacing)





# System Plates

System plates are plastic sheets with pre-formed grips to hold the pipe in position. These are laid on top of insulation panels and hold the pipe in place before the floor is screeded.



This solution allows fast installation and ensures even spacing of the pipe. The sheets can be cut to size with a utility knife and lock together to prevent any screed ingress under the plates. The sheets can support foot traffic, so will protect the pipe if other trades are on site.

## System Construction

1. Selected floor finish
2. Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under Plates and insulation
3. Sand/cement or proprietary screed
4. 15 or 16mm Barrier pipe
5. System Plates
6. Insulation panels: independent choice to suit required thermal/acoustic performance
7. Level solid sub-floor

## Product Overview

Plastic sheets with pre-formed grips to hold 15 or 16mm Barrier pipe in position.

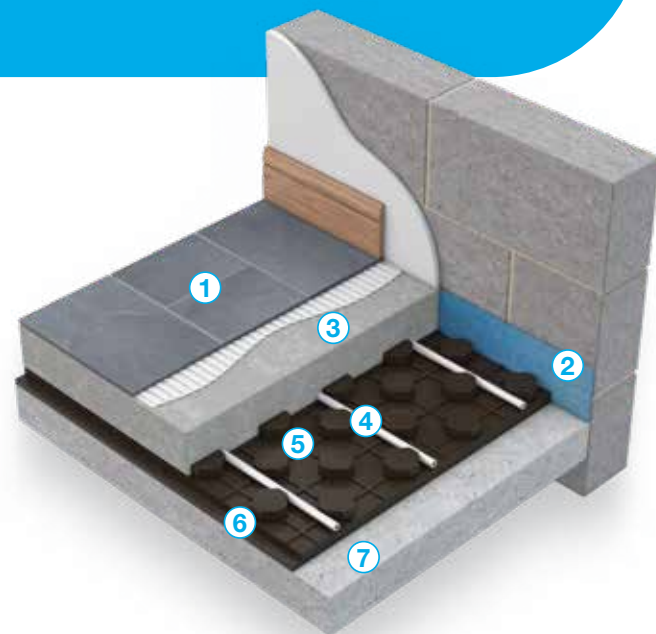
## Features and Benefits

### Product

- ① Moulded sheets lock together: prevents screed ingress under Plates
- ② Strong enough to support on-site foot traffic or wheelbarrows before screeding

### Design/Installation

- ③ Sheets easily trimmed to size with utility knife
- ④ Moulded pipe grips designed to make regular spacing easy (in multiples of 75mm)  
NOTE: 225mm centres normally offer the best balance of performance and cost.  
—— allow diagonal pipe placement if layout requires  
—— protect pipe from foot/wheel traffic before screeding
- ⑤ No measuring of pipe position needed
- ⑥ Layout flexibility to suit specific project needs
- ⑦ Independent choice of insulation panels to suit thermal and acoustic properties as required
- ⑧ Easy, fast installation  
NOTE: spiral pattern recommended = more even floor surface temperature.



## System Performance

- ① The supported pipe position improves screed wrap around the pipe reducing voids and increasing performance

## Transitional Areas

Where System Plates are not required or practical and/or where pipes need to be closely placed together (e.g. on approach to manifold): pipes may be anchored to insulation using Staples system. Where pipes need to be supported and secured for run up wall to manifold: Curved Pipe Supports and Clamps are available (see underfloor heating product guide).

## Technical Information

**Base Material:** Recycled Plastic

**Recycled From:** Styrene-Butadiene Polystyrene

**Colour:** Near Black

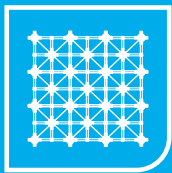
**Volume of Castellations:** 6.6l/m<sup>2</sup> (excludes pipe)

**Plate Height:** 22mm

**Plate Dimensions:** 1275mm x 975mm

**Effective Area:** 1.08m<sup>2</sup> (1200mm x 900mm)





# Low Build System Plates



System plates are plastic sheets with pre-formed grips to hold the pipe in position. These are laid on top of insulation panels and hold the pipe in place before the floor is screeded. This solution allows fast installation and ensures even spacing of the pipe. The sheets can be cut to size with a utility knife and lock together to prevent any screed ingress under the plates. The sheets can support foot traffic, so will protect the pipe if other trades are on site.

## System Construction

1. Selected floor finish
2. Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under Plates and insulation
3. Sand/cement or proprietary screed
4. 10mm Barrier pipe
5. System Plates
6. Insulation panels: independent choice to suit required thermal/acoustic performance
7. Level solid sub-floor

## Product Overview

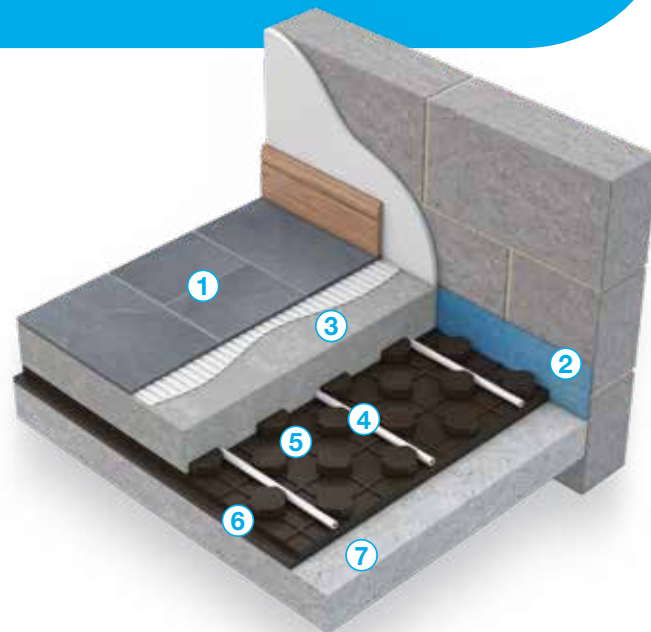
Plastic sheets with pre-formed grips to hold 10mm Barrier pipe in position.

## Product Features and Benefits

- ① Moulded sheets lock together.
- ② Strong enough to support on-site foot traffic or wheelbarrows before screeding

## Design/Installation

- ③ Sheets easily trimmed to size with utility knife
- ④ Moulded pipe grips designed to make regular spacing easy (in multiples of 50mm)  
NOTE: 150mm centres normally offer the best balance of performance and cost.  
—— allow diagonal pipe placement if layout requires  
—— protect pipe from foot/wheel traffic before screeding
- ⑤ No measuring of pipe position needed
- ⑥ Layout flexibility to suit specific project needs
- ⑦ Independent choice of insulation panels to suit thermal and acoustic properties as required
- ⑧ Easy, fast installation  
NOTE: spiral pattern recommended = more even floor surface temperature.



## System Performance

- ① The supported pipe position improves screed wrap around the pipe reducing voids and increasing performance

## Transitional Areas

Where System Plates are not required or practical and/or where pipes need to be closely placed together (e.g. on approach to manifold): pipes may be anchored to insulation using Staples system.

## Technical Information

**Base Material:** Recycled Plastic

**Recycled From:** Styrene-Butadiene Polystyrene

**Colour:** Near Black

**Volume of Castellations:** 6.6l/m<sup>2</sup> (excludes pipe)

**Plate Height:** 16mm

**Plate Dimensions:** 1,005mm x 650mm

**Effective Area:** 0.6m<sup>2</sup>







# Low-Build Max

The Low-Build Max floor system uses a low profile, routed underfloor heating insulation board with a unique facing membrane, that enables floor tiles to be directly adhered. The board's ultra high comprehensive strength enables it to withstand the rigours of both domestic and commercial applications.

The Low-Build Max system utilises the ultra high strength 15mm low panels to suit 10mm pipe.

## System Construction

1. Selected floor finish
2. Optional load-bearing plywood layer/adhesive
3. 10mm UFH pipe: placed into pre-cut channels at 150mm centres
4. Low-Build Max floor panel
5. Separate and end panel with pre-cut end-return, flow and through-connect channels for pipe

## Product Overview

Ultra-slim insulation panels with channels for 10mm UFH pipe.

## Application

Direct placement over any existing floors.

## Product Features and Benefits

- ① Pipe integrated within Low-Build Max panel
- ② Low build up height: 15mm excluding optional load-bearing ply layer

## Design/Installation

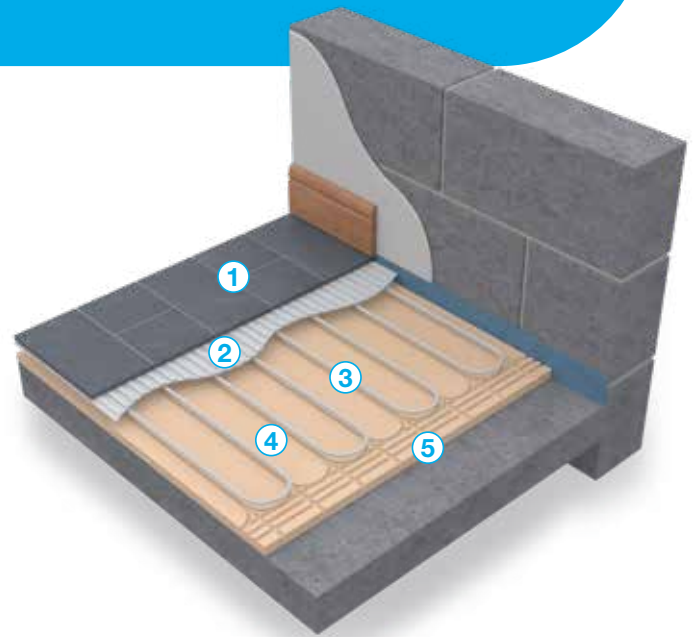
- ① Separate end return panel is required
- ② Separate diffuser plate not required
- ③ Lightweight panel: easy to cut and install – only one person required\*
- ④ Very low build = minimal rise in floor level = less disruption to doors/skirting
- ⑤ Pipe in serpentine pattern

## System Performance

- ① Fixed pipe centres ensure consistent thermal output
- ② Robust: able to withstand point loading
- ③ Energy-efficient: compared with electric UFH systems, saves up to two-thirds\*\* of running costs

\* Qualified electrician required if mains-connected controls fitted.

\*\* Based on using a SEDBUK A Rated gas boiler, and wet vs electric UFH systems at typical 2010 domestic energy prices.



## Select this system if

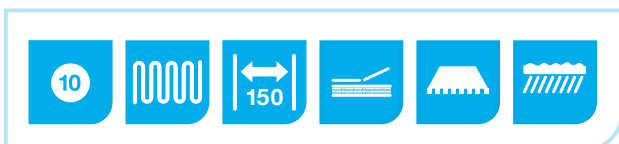
- ① Floor area to be covered is less than 26m<sup>2</sup>
- ② Area is to be heated as a single zone
- ③ If area is greater than 26m<sup>2</sup>
- ④ Build height is critical
- ⑤ You want to minimise disruption to existing fitted features including doors and skirting
- ⑥ For existing joisted/battened floors:
- ⑦ You do not want to/intend to lift the existing floor deck

## Select alternative system, Low-Build 10mm panel if

- ① Build height is important but NOT critical
- ② Existing skirting is to be replaced
- ③ Existing doors are to be replaced, or removed and planed
- ④ Where area is greater than 26m<sup>2</sup> and lowest cost option is sought

## Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

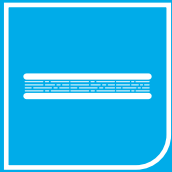




# Low-Build Panel

The Low-Build Panel floor system is used where underfloor heating is to be installed on concrete or timber floors and a dry finish to the floor is required, not a screed topping. The system allows floor finishes, including tiles, to be installed straight to the insulation.

The Low-Build system comprises of pre-channelled polystyrene insulation panels 15mm thick to suit 10mm pipe.



## System Construction

1. Selected floor finish
2. Optional load-bearing plywood layer
3. 10mm UFH pipe: placed into pre-cut channels at 150mm centres
4. Low-Build floor panel
5. Integral end panel with pre-cut end-return, flow and through-connect channels for pipe

## Product Overview

Ultra-slim insulation panels with channels for 10mm UFH pipe.

## Application

Direct placement over any existing floors.

## Product Features and benefits

- ① Pipe integrated within Low
- ② Low build up height: 15mm excluding optional load-bearing ply layer

## Design/Installation

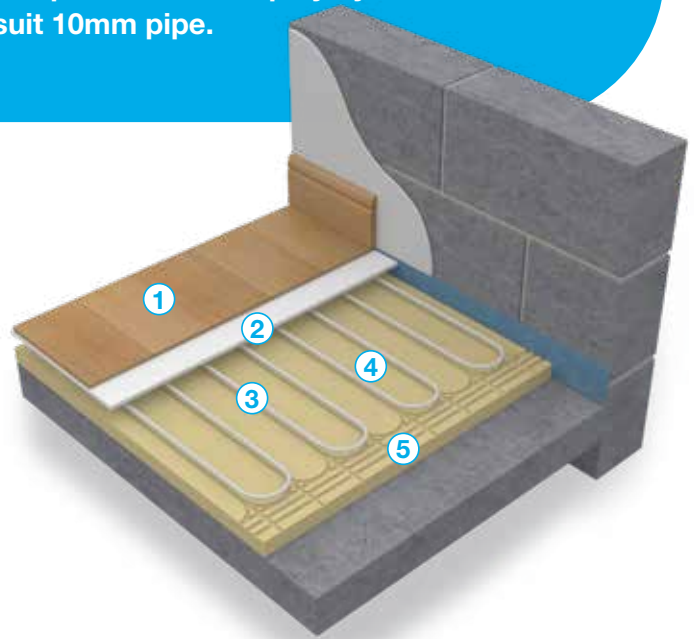
- ① Separate end return panel not required
- ② Separate diffuser plate not required
- ③ Lightweight panel: easy to cut and install – only one person required\*
- ④ Very low build = minimal rise in floor level = less disruption to doors/skirting
- ⑤ Pipe in serpentine pattern

## System Performance

- ① Fixed pipe centres ensure consistent thermal output
- ② Robust: able to withstand point loading
- ③ Energy-efficient: compared with electric UFH systems, saves up to two-thirds\*\* of running costs

\* Qualified electrician required if mains-connected controls fitted.

\*\* Based on using a SEDBUK A Rated gas boiler, and wet vs electric UFH systems at typical 2010 domestic energy prices.



## Select this system if

- ① Floor area to be covered is less than 26m<sup>2</sup>
- ② Area is to be heated as a single zone
- ③ If area is greater than 26m<sup>2</sup>, select this system if:
- ④ Build height is critical
- ⑤ You want to minimise disruption to existing fitted features including doors and skirting
- ⑥ For existing joisted/battened floors:
- ⑦ You do not want to/intend to lift the existing floor deck

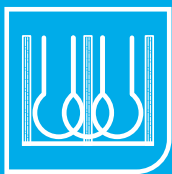
## Select alternative system, Low-Build 25 if

- ① Build height is important but NOT critical
- ② Existing skirting is to be replaced
- ③ Existing doors are to be replaced, or removed and planed
- ④ Where area is greater than 26m<sup>2</sup> and lowest cost option is sought

## Transitional Areas

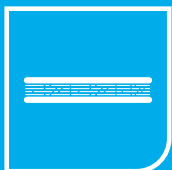
For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.





# Low-Build 25

The Low-Build 25 Panel floor system is used where underfloor heating is to be installed on concrete or timber floors and a dry finish to the floor is required, not a screed topping. The system allow floor finishes, including tiles, to be installed straight to the insulation.



The Low-Build system comprises of pre-channelled polystyrene insulation panels 25mm thick to suit 15mm pipe.

## System Construction

1. T&G timber or cementitious floor deck
2. 15mm UFH pipe: placed into pre-cut channels at fixed centres
3. Low-Build 25 panel (insulation) with optional aluminium diffuser and polyethylene film

NOTE: 25mm end panel (insulation) required as part of system

## Product Overview

Slim (25mm depth) insulation panels with pre-fitted heat diffuser and channels for 15mm UFH pipe.

## Application

Direct placement onto existing solid/screeded floors.

## Product Features and Benefits

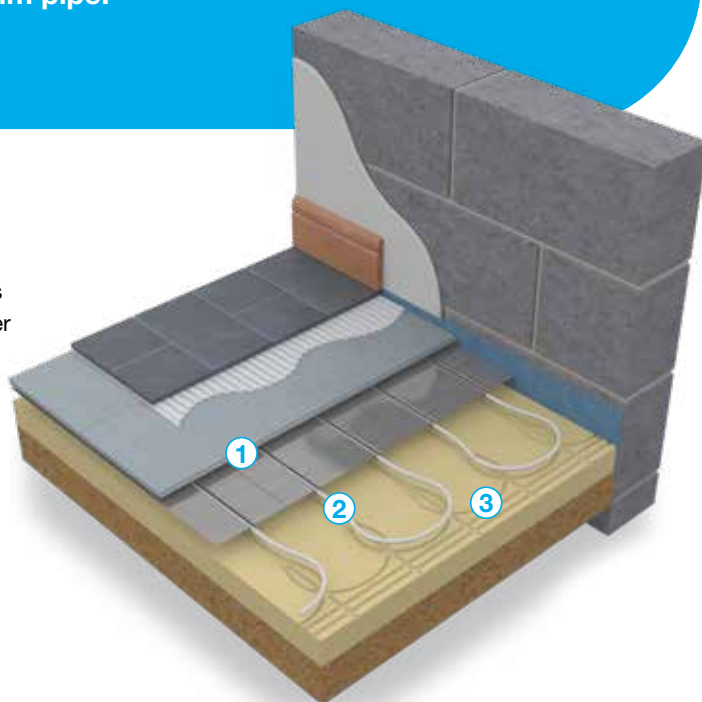
- ① Pipe integrated within insulation thickness: enables full diffuser contact with overlying floor deck
- ② 25mm insulation thickness
- ③ Supplied with integral PET film

## Design/Installation

- ① Separate diffuser plate optional
- ② Easy/fast installation and pipe placement: similar timescale for installing non-heated floating floor
- ③ Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- ④ Panels can be neatly trimmed using hand or powered saws
- ⑤ Pipe in serpentine pattern

## System Performance

- ① High power output
- ② Floor structure has low thermal mass = fast response to heat demand changes
- ③ Fixed pipe centres ensure consistent thermal output
- ④ Plastic film prevents floor ticking caused by the diffuser expansion and contraction



## Select this system if

- ① Build height is important but NOT critical
- ② Existing skirting is to be replaced
- ③ Existing doors are to be replaced, or removed and planed
- ④ Where area is greater than 26m<sup>2</sup> and lowest cost option is sought

## Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating. Where pipes need to be supported and secured for run up wall to manifold: Curved Pipe Supports and Clamps are available.







# Diffuser Plates

## Batten floor application

These are metal plates with a channel for 15mm pipe, which are fitted over the insulation layer and disperse the heat from the pipe across the floor. We also supply packs of Diffuser plates.

### System Construction

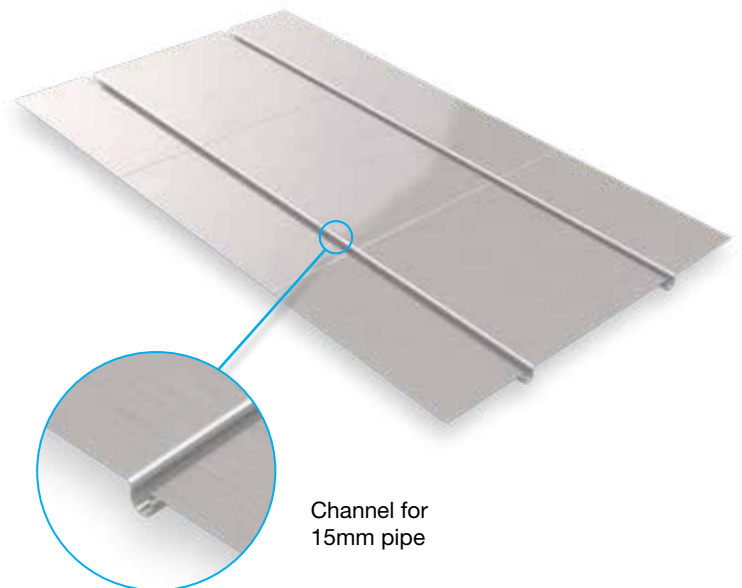
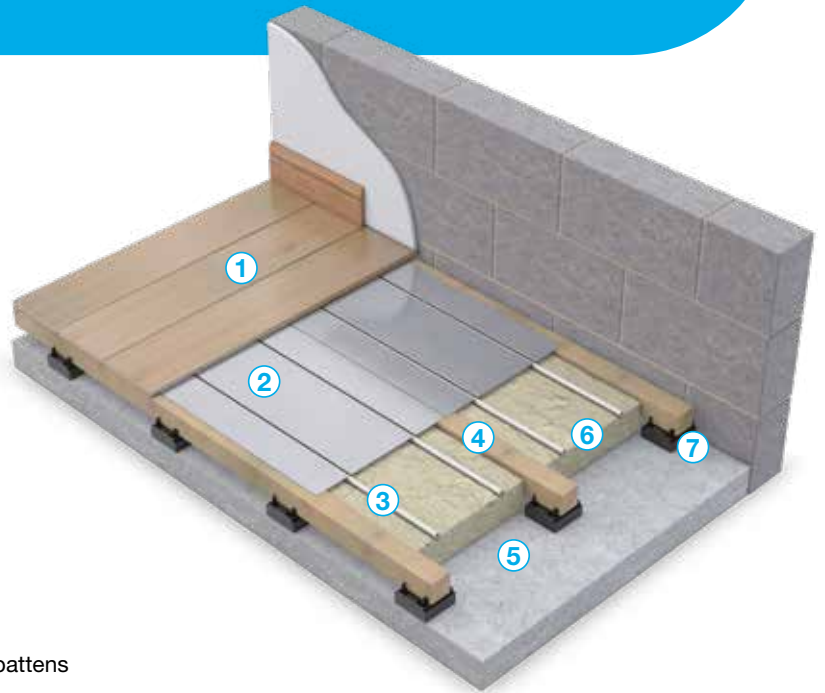
1. Selected floor finish
2. Diffusion plates
3. 15mm UFH pipe
4. Floor battens
5. Concrete sub floor
6. Solid insulation boards
7. Leveling blocks

### Product Overview

Metal plates with a channel for 15mm pipe which are fitted over the insulation layer.

### Application

- ① The diffusion plate system is an option available when adjustable height floor battens are utilised.
- ② Rigid floor insulation should be installed between the battens by the flooring contractor to the required depth.
- ③ Metal diffuser plates are pre-formed with inset pipe grooves and are fixed to the top of the floor battens.
- ④ Wavin Hep<sub>2</sub>O pipework is slotted into the plate's pipe grooves and circuited throughout the heated floor.
- ⑤ If this system is used on ground floors or floors with commercial applications below, the thermal value of the insulation used must be suitable for the floor to meet the requirements of part L Building regulations.
- ⑥ The underfloor pipework is connected to the Wavin Hep<sub>2</sub>O manifold, filled with water, and pressure tested.
- ⑦ As soon as practical after the installation is completed, the flooring should be laid over the system to the required depth. The system must remain under pressure during this process.



Single Diffuser Plates also available



Channel for 15mm pipe





# Diffuser Plates

## Joisted floor application

These are metal plates with a channel for 15mm pipe, which are fitted over the insulation layer and disperse the heat from the pipe across the floor. We also supply packs of Diffuser plates.

### System Construction

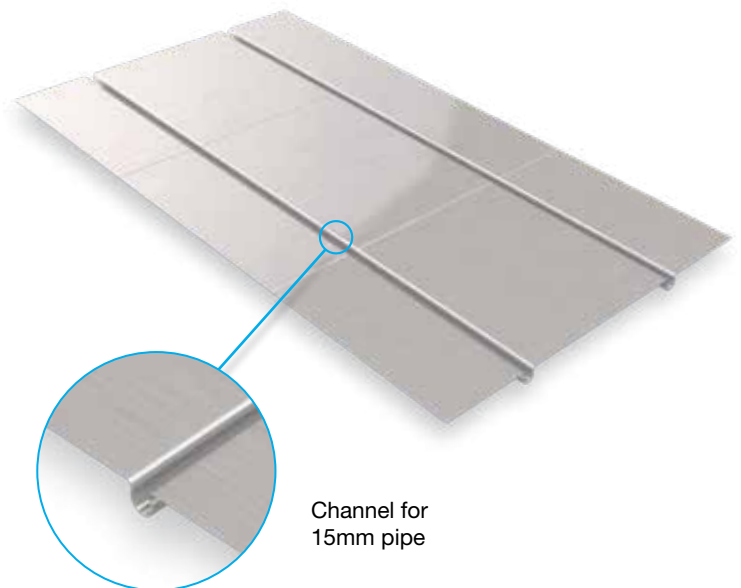
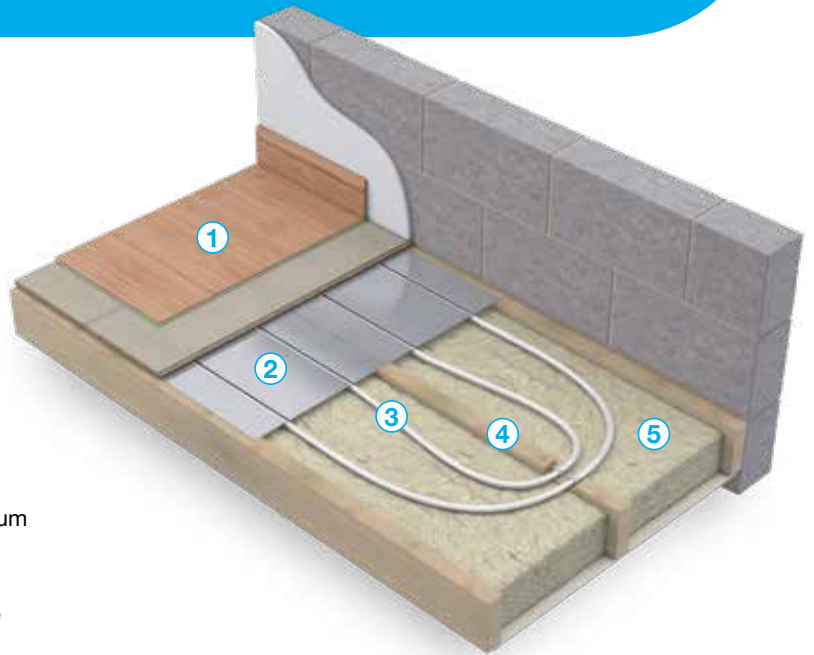
1. Selected floor finish
2. Diffusion plates
3. 15mm UFH pipe
4. Floor joist
5. Solid insulation panel

### Product Overview

Metal plates with a channel for 15mm pipe which are fitted over the insulation layer.

### Application

- ① The joisted diffusion plate system comprises of aluminium diffusion plate fixing system with compressible or rigid insulation between the floor joists.
- ② The metal diffuser plates are pre-formed with inset pipe grooves and are fixed to the top of the floor battens.
- ③ Wavin Hep<sub>2</sub>O pipework is slotted into the plate's pipe grooves and circuited throughout the heated floor.
- ④ Where this system is used on ground floors or floors with commercial applications below, the thermal value of the insulation used must be suitable for the floor to meet the requirements of part L Building regulations.
- ⑤ The diffusion plates may bow upon installation of the pipe work; this will have no detrimental effect to the output of the system.
- ⑥ The underfloor pipework is connected to the Wavin Hep<sub>2</sub>O manifold, filled with water, and pressure tested.
- ⑦ As soon as practical after the installation is completed, the flooring should be laid over the system to the required depth. The system must remain under pressure during this process.

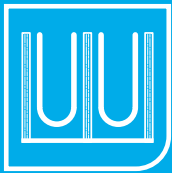


Single Diffuser Plates also available

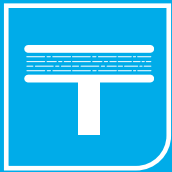


Channel for 15mm pipe





# Joisted panel



This system is suitable for joisted or battened floor constructions. The panels can be installed from above or below. The 340mm wide panel slots between evenly spaced joists at 400mm centres. Diffuser plates should be ordered separately.

## System Construction

1. Timber floor deck
2. 15mm UFH pipe: placed into pre-cut channels at 200mm centres
3. Foiled Polystyrene batten/joist panel (insulation) with optional aluminium diffuser and polyethylene film
4. Panels secured using support battens or screws and washers
5. End panel (insulation)
6. Floor finish

## Product Overview

Insulation panels with pre-fitted heat diffuser and pre-routed channels for UFH pipe.

## Application

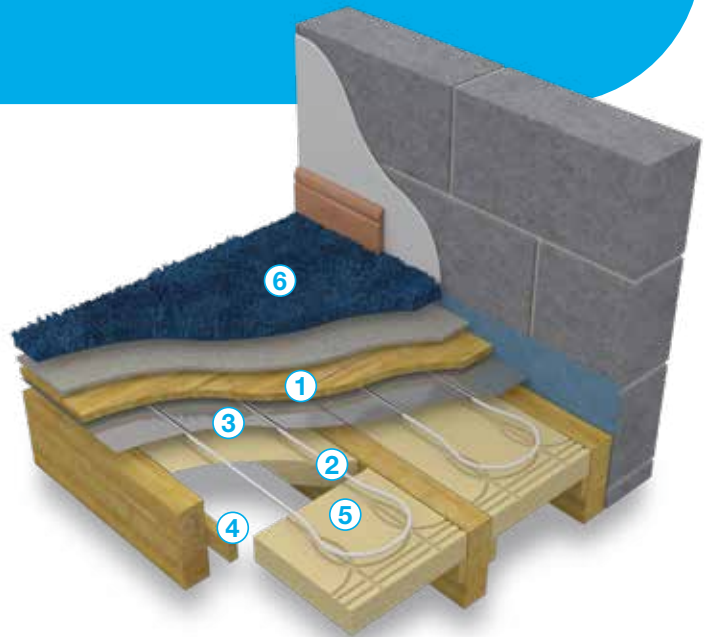
- ① Placement within new or existing timber joisted floor constructions.
- ① Installation work for this system may be from either above or below the floor construction.

## Product Features and Benefits

- ① Pipe and diffuser is fully constrained by the insulation: enables full contact with overlying floor deck
- ① Insulation thickness options: joisted floors = 50/75mm
- ① Panels to suit 400 and 600mm joists
- ① Bespoke panels are available for non-standard joist spacing.
- ① Supplied with integral PET film

## Design/Installation

- ① Separate diffuser plate is required
- ① Easy/fast installation
- ① No pugging or wet trades required: no delay of laying floor deck
- ① Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- ① Panels can be neatly trimmed using hand or powered saws
- ① Pipe in serpentine pattern to follow joists layout



- ① Plastic film shields pipe channels from dirt and debris, enabling better contact between the pipe and the aluminium heat diffuser

## System Performance

- ① Floor structure has low thermal mass = fast response to heat demand changes
- ① Fixed pipe centres ensure consistent thermal output
- ① Plastic film prevents floor ticking caused by the diffuser's expansion and contraction

## Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating. Where pipes need to be supported and secured for run up wall to manifold: Curved Pipe Supports and Clamps are available.





# Choosing a system

## Underfloor Heating Manifolds

### Easy to install and gives you unrivalled flexibility

Every project has different requirements so Hep<sub>2</sub>O underfloor heating have a choice of controls to choose from. Below is a summary which will help you select the right system. If you need more help our online quote tool, HepCalc will help you choose the right solution.

#### Manifolds

The unique Hep<sub>2</sub>O manifold is easy to install and gives you unrivalled flexibility.

#### Main Features

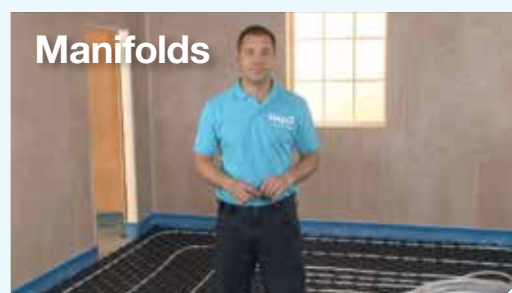
- ⌚ Lightweight: simple to assemble and easy to install
- ⌚ No special tools required
- ⌚ Can be assembled in either left or right configuration
- ⌚ Ports can be assembled facing up or down as required to supply rooms above or below the manifold location
- ⌚ Easily extendable: additional circuits can be added at any time
- ⌚ Unique 'Memory Ring' enables individual circuit isolation, with quick and simple balancing without tools
- ⌚ A single circuit can be isolated and balanced without unbalancing the system
- ⌚ BBA certified for a 25 year service life

#### Single Circuit Controls

A cost effective way to control a single room or smaller project is to use a single circuit control. This incorporates a standard circulator with an advanced mixer valve, to ensure the water flows at the correct temperature around the system. A single control is suitable for circuits smaller than 100m<sup>2</sup> with a heated floor area of 20m<sup>2</sup> or less. Simply use an adaptor and spigot elbow to connect the pipe circuit to the unit. For rooms of up to 24m<sup>2</sup> you can split the coil and use a tee fitting to create 2 circuits.



See our video's for  
helpful advice and tips.  
[www.wavin.co.uk/video](http://www.wavin.co.uk/video)



# Composite Manifold

The unique Wavin Hep<sub>2</sub>O Composite Manifold is easy to install and gives you unrivalled flexibility.



## Main Features

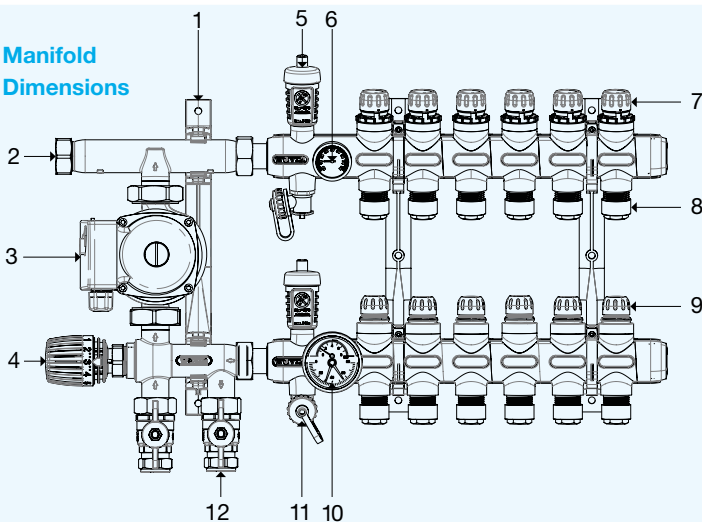
- ① Lightweight: simple to assemble and easy to install
- ② No special tools required
- ③ Can be assembled in either left or right configuration Ports can be assembled facing up or down as required to supply rooms above or below the manifold location
- ④ Easily extendable: additional circuits can be added at any time
- ⑤ Unique 'Memory Ring' enables individual circuit isolation, with quick and simple balancing without tools
- ⑥ A single circuit can be isolated and balanced without unbalancing the system
- ⑦ BBA certified for a 25 year service life

## Single Circuit Controls

A cost effective way to control a single room or smaller project is to use a single circuit control. This incorporates a standard circulator with an advanced mixer valve, to ensure the water flows at the correct temperature around the system. A single control is suitable for circuits smaller than 100m<sup>2</sup> with a heated floor area of 20m<sup>2</sup> or less. Simply use an adaptor and spigot elbow to connect the pipe circuit to the unit. For rooms of up to 24m<sup>2</sup> you can split the coil and use a tee fitting to create 2 circuits.



## Manifold Dimensions



## Manifold Design

1. Bracket + Bracket Spacer
2. Flow Water Temperature Sensor
3. Circulator Pump (Grundfos UPS2 25/60)
4. Thermostatic Actuator
5. Automatic Air Vent
6. Flow Temperature Gauge
7. Balancing Knob and Memory Ring
8. 16mm Pipe Connector
9. Isolation Cap/Thermoelectric Actuator Mount
10. Combined Pressure & Return Temperature Gauge
11. Fill/Drain Valve
12. 22mm Isolation Valves

Manifold Type	Height	Depth	Width in mm / No. of Ports														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Exc Control Pack	390	120	260	310	360	410	460	510	560	610	660	710	760	810	860	910	960
Inc Control Pack	430	160	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100

# Stainless Steel Blending Manifold

The Stainless Steel Blending Manifolds are used for distributing and regulating the volume of flow in low temperature floor heating or cooling systems.



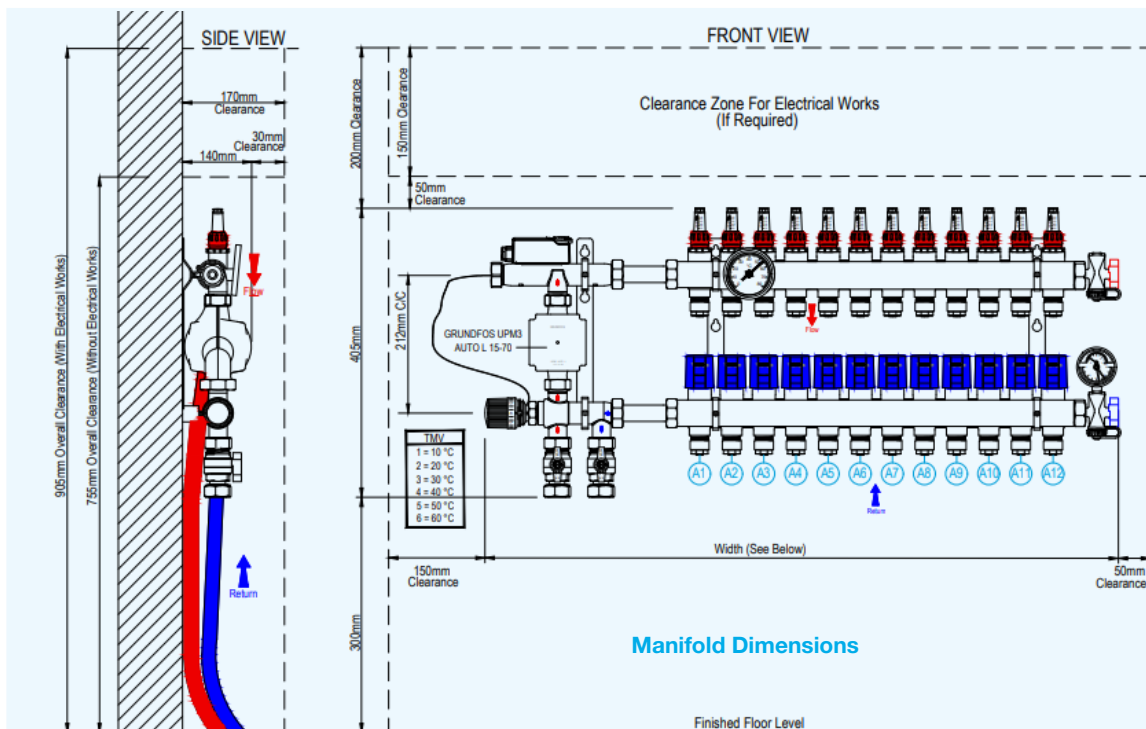
This Manifold blends and reduces the water temperature from the heat source to the correct operating temperature for the underfloor heating. The pump manifold utilises a Grundfos UPM3. The maximum permissible continuous operating pressure is 5 bar at 80°C. The maximum permissible test pressure is 10 bar at 20°C during the pressure test.

The manifold is complete, for each circuit, with shut-off and control valves that can be motorized on the return and 0-6 lit/ min flow rate gauges on the flow, both with 3/4" eurocone connections. Including fill/drain tap, manual air vent valves, and mounting brackets. The manifold is made of stainless steel, and for each circuit it is complete with control and shut-off valves that can be motorized on the return, and 0-6 lit/min flow rate gauges on the flow.

The manifold is complete with fill / drain taps, and manual air vent valves installed on the flow and the return, as well as mounting brackets.

The sealed actuator units also allow safe operation when ports are serving circuits above the manifold. The manifold has 1" flow and return primary connections which can be handed to suit specific requirements. The manifold can be used to manage up to a maximum of 12 radiant circuits, and complete with:

- ② 0-6 lit/min flow rate gauge
- ② Shut-off valve that can be motorized, on the return
- ② Fill and drain taps
- ② Manual vent valves



Manifold Type Stainless Steel	STAINLESS STEEL BLENDING MANIFOLD DIMENSIONS											
Height 405mm	No. of Ports	2	3	4	5	6	7	8	9	10	11	12
Depth 140mm	Width in mm	500	550	600	650	700	750	800	850	900	950	1000



# Underfloor heating Thermostats and Controls



## Which is the right control system?

Every project has different requirements so Hep<sub>2</sub>O underfloor heating controls have a choice of controls to choose from. Below is a summary which will help you select the right system. If you need more help our online quote tool, HepCalc, will help you choose the right solution.

	Networked Controls
Max no. of zones per control unit	8
Wiring options	Wired or Wireless
Program options	Programmable
App control	Yes - with addition of NeoHub
Benefits	Control centrally either by the touchpad or via any remote device e.g. phone, tablet, PC. Sleek design available in black or white

# Underfloor heating Room Packs

### Advice, Tools and Guidance

For smaller projects we have a range of room packs which contain everything you need for the job.

Available for rooms up to 12m, 18m and 24m, the packs come complete in a box with pipe, staples, thermostats and controls.

The packs are ideal for new screeded floors – for example if adding an extension or a conservatory to a property.

Simply order your pack from any Hep<sub>2</sub>O stockist – you can find a complete list of outlets on the stockist locator section of our website.

### Packs and codes

Room Size Up To	Product Code
12m <sup>2</sup>	15UKPK1
18m <sup>2</sup>	15UKPK2
24m <sup>2</sup>	15UKPK3

### Pack contains

- ① 15mm UFH Pipe Coil
- ① 300 Pipe Staples
- ① 25m Roll of Edge Expansion Foam
- ① Programmable Thermostat
- ① 2 x Isolation Valves
- ① Flow Watch Thermostat
- ① Control Pack
- ① Single Circuit Fittings Pack



# Underfloor heating

## Typical heat outputs

The heat output is the result of a combination of factors including the UFH system installed, the floor finish installed over it, the UFH pipe spacing and the designed flow/return temperatures. Below is a guide to typical heat outputs based on different pipe centres and floor coverings.

Heat source efficiency		No Covering	10mm Tiles	25mm Stone	4mm Vinyl	7mm Laminate	6mm Carpet	18mm Timber	12mm Carpet	12mm Carpet + 4mm underlay
Hep <sub>2</sub> O UFH System	Pipe Centres	TOG value of typical floor finish								
		0.00	0.07	0.15	0.16	0.44	0.75	1.13	1.50	2.00
Staples inc 65mm Screed	100mm	6.05	5.77	5.48	5.45	4.64	4.00	3.42	3.01	2.58
	150mm	5.17	4.95	4.73	4.70	4.07	3.55	3.08	2.73	2.38
	200mm	4.46	4.28	4.10	4.08	3.58	3.16	2.78	2.49	2.19
	300mm	3.35	3.24	3.13	3.12	2.80	2.53	2.27	2.08	1.86
System Plates inc 65mm Screed	150mm	5.07	4.86	4.64	4.61	4.00	3.50	3.05	2.71	2.36
	225mm	4.06	3.91	3.76	3.74	3.31	2.95	2.61	2.35	2.08
	300mm	3.28	3.18	3.07	3.06	2.76	2.50	2.25	2.06	1.84
Lowbuild 15*	150mm	3.99	3.86	3.72	3.71	3.30	2.95	2.61	2.34	2.06
Lowbuild 25, Joisted Panels and Diffuser Plates covered by 18mm Chipboard	200mm	3.33	3.24	3.14	3.13	2.84	2.58	2.31	2.10	1.87

\* Where pipes are connected from above, access panels will typically reduce the heated floor area by 17%.

# Underfloor heating

# Standards and Warranties

## Product and System Warranties

Provided that their installation has adhered to our published advice, Hep<sub>2</sub>O and other Wavin products used within Hep<sub>2</sub>O underfloor heating systems are covered as follows:

- ④ Hep<sub>2</sub>O barrier pipe when used in UFH applications:  
100 year guarantee\*; BSI Kitemark.
- ④ Hep<sub>2</sub>O push-fit fittings:  
50 year guarantee\*; BSI Kitemark.
- ④ Composite manifold:  
25 year BBA certification;  
1 year warranty for its electrical components.
- ④ Controls:  
2 year warranty.
- ④ Other Hep<sub>2</sub>O underfloor heating items:  
1 year warranty.

*\*See pipe service conditions on website.*

## Quality and Environmental Management

All Hep<sub>2</sub>O products are manufactured under exacting Quality and Environmental management systems:


- ④ BS EN ISO 9001:2008.
- ④ EN ISO 14001:2004 Certificate No.1473.




# Product Details

## Underfloor Heating

### UFH – Polybutylene Pipe

Coils – Barrier	Description	Nom dia mm	Cat N°
	<b>Coils – Barrier</b>		
	25m ♡	10	HXX25/10W
	50m ♡	10	HXX50/10W
	100m ♡	10	HXX100/10W
	25m ♡	15	HXX25/15W
	50m ♡	15	HXX50/15W
	80m ♡	15	HXX80/15W
	100m ♡	15	HXX100/15W
	120m ♡	15	HXX120/15W

### UFH – Floor Systems

Staples			
	<b>Staples 60mm</b> for 15mm UFH Pipe	15	15
Staple Gun			
	<b>Staple Gun</b> (40/60mm)	15	15UH237
System Plate			
	<b>25mm - System Plate</b> (1275 x 975mm)	15	15UH232
	<b>10mm - System Plate</b> (1050 x 650mm)	10	10UH232
	<b>System Plate Tack Fastener</b>		15UH238
Edge Expansion Foam			
	<b>Edge Expansion Foam</b> (25.0m x 150mm)		15UH234

# Product Details

## Underfloor Heating




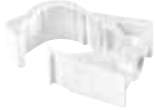
### UFH – Manifolds

Control Pack	Description	Nom dia mm	Cat N°
	Composite Manifold – Control Pack A Rated		15UH512
Starter Pack			
	Composite Manifold – Starter Pack ▲		15UH510
One Port Pack			
	Composite Manifold – One Port Pack ▲	15	15UH511
Three Port Pack			
	Composite Manifold – Three Port Pack ▲	15	15UH513
Euroconus Adaptor			
	Composite Manifold – Euroconus Adaptor 15x1.8 (pair)	15	15UH529
	Composite Manifold – Euroconus Adaptor 16x1.8 (pair)	16	16UH529
	Composite Manifold – Euroconus Adaptor 10x1.8 (pair)	10	10UH529
Isolation Valves			
	Composite Manifold 22mm Isolation Valves (pair)	22	15UH211



# Product Details

## Underfloor Heating

### UFH – Manifolds

Stainless Manifold*	Description	Nom dia mm	Cat N°
	2 port 3 port 4 port 5 port 6 port 7 port 8 port 9 port 10 port 11 port 12 port	15 15 15 15 15 15 15 15 15 15 15	15UH552 15UH553 15UH554 15UH555 15UH556 15UH557 15UH558 15UH559 15UH560 15UH561 15UH561
Cold Forming Bend Fixture			
	1"x15mm Female Brass Adaptor	15	15UH607
Cold Forming Bend Fixture			
	Cold Forming Bend Fixture Metal with passivate finish	15	HX75/15 GR
Pipe Clips			
	Pipe Clips – Screw	15	HX85/15W

### UFH – Control Systems - Digital Controls

Single Zone Kit			
	Single Zone Kit (for use with wireless stat 15UH385/6)		15UH311
24V Actuator			
	24V Actuator (for use with 15UH316)		15UH302



# Product Details

## Underfloor Heating

### UFH – Control Systems - Digital Controls

Flow Watch Sensor			
	Flow Watch Sensor (for use with 15UH316)		15UH334
8 Zone Wireless Control Centre			
	8 Zone Wireless Control Centre		15UFH308
NeoAir V2 Wireless Thermostat			
	NeoAir V2 Wireless Thermostat (black)		15UFH386
NeoAir V2 Wireless Thermostat			
	NeoAir V2 Wireless Thermostat (white)		15UFH385

### UFH – Control Systems - Mains Controls

NeoStat Wired Thermostat			
	NeoStat Wired Thermostat (black)		15UH476
NeoStat Wired Thermostat			
	NeoStat Wired Thermostat (white)		15UH475



# Product Details

## Underfloor Heating

### UFH – Control Systems - Mains Controls

8 Zone Control Centre	Description	Nom dia mm	Cat N°
	8 Zone Control Centre		15UH408
230V Actuator			
	230V Actuator (for use with 15UH408)		15UH402
Flow Watch Thermostat			
	Flow Watch Thermostat (for use with 15UH408)		15UH524
Remote Sensor Probe Cover			
	Remote Sensor Probe Cover		15UH494
neoHub			
	neoHub		15UH492

### UFH – Room Packs

Room Pack			
	12m <sup>2</sup> 18m <sup>2</sup> 24m <sup>2</sup>	15 15 15	15UKPK1 15UKPK2 15UKPK3

# Product Details

## Underfloor Heating


### UFH – Dry Construction Systems

Low-Build 15	Description	Nom dia mm	Cat N°
	Low-Build 15 Panel 15x600x1200mm	15	15UH601
Low-Build Max			
	Low-Build Max - Straight Panel 15x600x1200mm - 10 pack 15x600x1200mm - 30 pack	15 15	15UH602 15UH603
Low-Build Max			
	Low-Build Max - Return Panel 15x300x138mm	15	15UH604
Low-Build Max			
	Low-Build Max - Channel Panel 15x600x150mm	15	15UH600
Floating Floor			
	Floating Floor Panel – 25mm 600x1200mm	15	15UH608

# Product Details

## Underfloor Heating

### UFH – Manifolds

Joist Panel	Description	Nom dia mm	Cat N°
	Joist Panel – 50mm 340x1200mm	15	15UH610

### UFH – Diffuser Plates

Double Diffuser Plate			
	Double Diffuser Plate – 15mm 1000x390mm	15	15UH605
Single Diffuser Plate			
	Single Diffuser Plate – 15mm 1000x140mm	15	15UH606

# Notes

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Discover our broad portfolio at [www.wavin.co.uk](http://www.wavin.co.uk)

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Foul Water

Gas & Water Mains

Indoor Climate

Storm Water

Geotextiles

Soil & Waste



Wavin is part of Orbia, a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.



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