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OSMA

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April 2006
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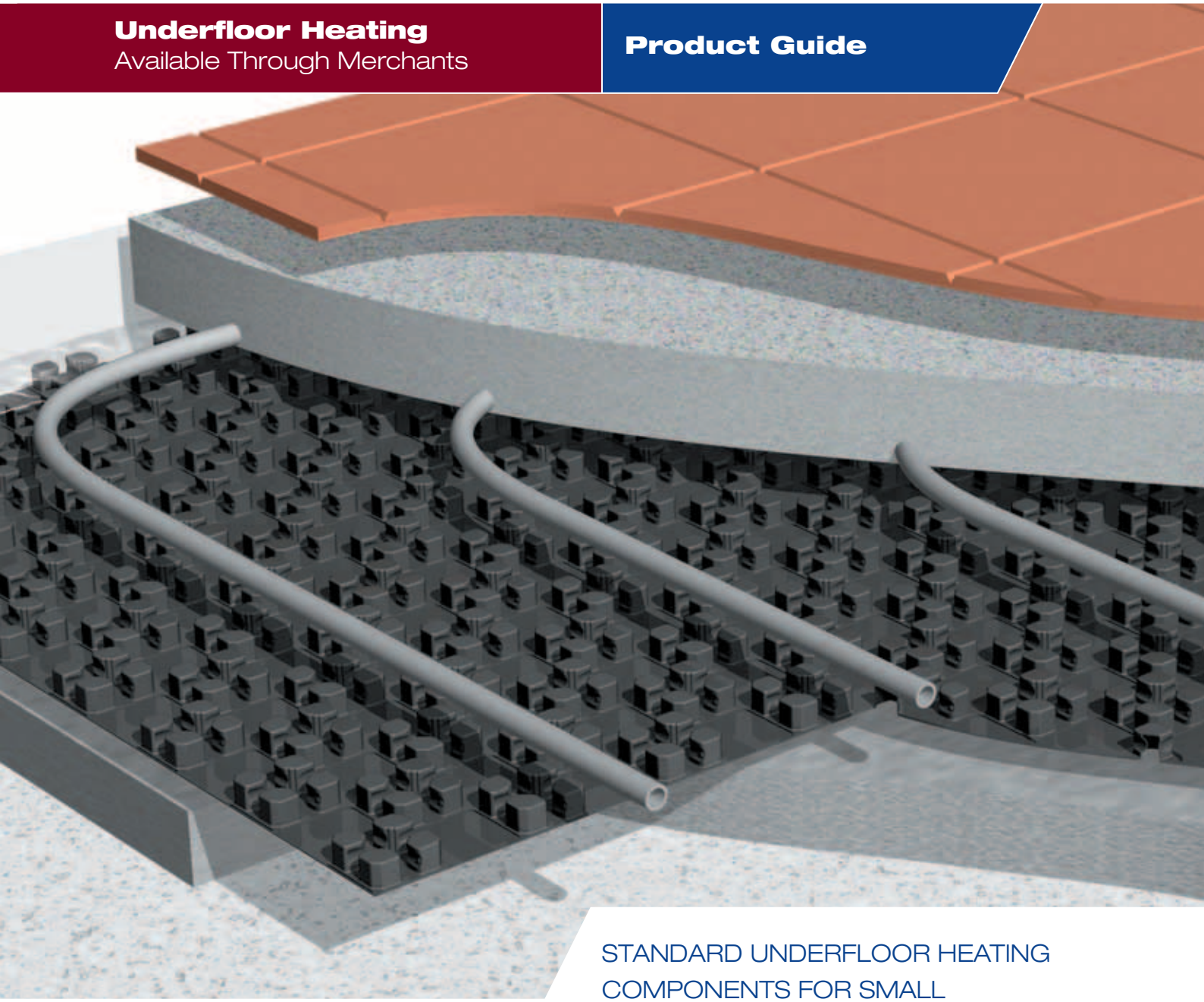
Underfloor Heating
Available Through Merchants

Product Guide



STANDARD UNDERFLOOR HEATING COMPONENTS FOR SMALL NEW-BUILD RESIDENTIAL PROJECTS

Intelligent Solutions for Heating Projects

About OSMA UFH

Versatility, Consistency and Reliability

A partnership of experience

OSMA Underfloor Heating combines the specialist skills and experience of two companies:

- **Wavin** is Europe's largest supplier of plastic pipe systems in terms of product range, innovation, logistical services and geographical presence
- **ThermoBoard** is one of the UK's major suppliers of underfloor heating systems. The company has pioneered the development of product-based solutions to underfloor heating for more than a decade

The UK's most advanced UFH technology

OSMA UFH technology has been developed to suit all building construction types typically used in the UK – both concrete-based floors and timber floors. It provides innovative, cost-efficient solutions for all types of environment, including residential, commercial and public buildings.

Underfloor heating components

This Product Guide describes the range of OSMA UFH components that are available through Merchant Stockists. These are primarily designed for use in small new-build residential projects.

For projects that are not suited to a component solution, OSMA provides a complete warranted system design service with direct-to-site delivery of all materials, installation drawings and instructions.

What's different about OSMA Underfloor Heating

OSMA UFH products have been designed to provide the highest possible heating performance while using materials that will last throughout the life of the building.

The products combine easy installation with consistent performance. They ensure that the power output from the floor is determined by the product rather than by the skills or experience of the installer.

OSMA innovation

OSMA UFH products are as easy to use as conventional radiators. They require little or no previous underfloor heating experience. No specialist tools are needed for successful installation. They enable any installer to work more quickly to achieve a high quality result.

OSMA UFH systems for domestic applications include **plumbed** systems for all types of floor construction, including:

- Sand/cement and liquid screeds
- Timber battens and timber joists
- Fully floating timber floors

The range available through Merchants is specifically designed to offer efficient and effective solutions for small and medium sized heating projects. These may include: extensions, refurbishment of individual rooms, conservatories or single dwelling installations.

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Contents

Further Information

The following related publications are available for OSMA Underfloor Heating Standard Products Range:

- **Design and Installation Guide**
- **Trade Price List**

To obtain copies, please contact:

Sales and Technical Enquiries

Tel: 01392 444122

Fax: 01392 444135

The OSMA UFH Guarantee

OSMA Underfloor Heating is the only UFH supplier in the UK which engineers and manufactures its products. Each system uses the highest specification components. All systems described in this Product Guide are directly backed by a full product guarantee provided that installation has been in accordance with the instructions provided. Unlike some other UFH suppliers, this guarantee is independently underwritten by insurance. *For full details/terms, contact OSMA Underfloor Heating.*

NOTE: For plumbed systems, this Guarantee presumes the use of OSMA Flexible Plumbing Pipe (OsmaGold). The Guarantee may NOT apply if pipe from another manufacturer is used.

What You Need to Know

Underfloor heating gently heats the floor by either warm water pipe or electric cable. It is already widely used in other countries, and is now increasingly being recognised in the UK as the most modern energy-efficient option for space heating.

THE OBJECTIVE AND BENEFITS UFH

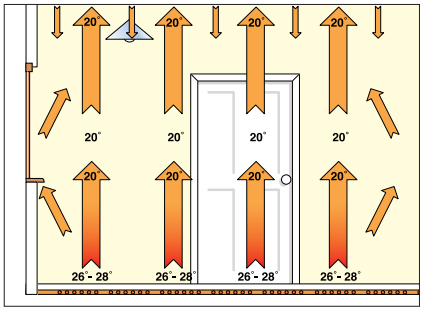
Heat is transferred from a warm area to a colder area in three ways:

- Conduction
- Convection
- Natural radiation

Our bodies find natural radiation to be the most comfortable, because this is how the sun heats us.

Underfloor heating emulates this natural heating action of the sun. Energy emitted from the floor is absorbed by other surfaces in the room. These warm up and become secondary emitters. Compared with other forms of heating, the advantages are:

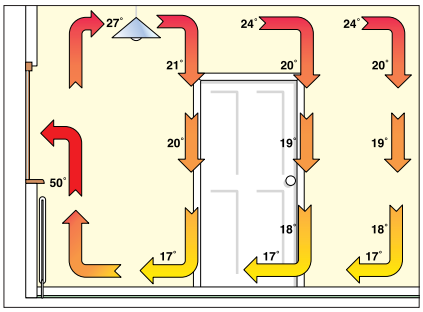
- All-round, comfortable warmth
- Unhindered room layout: no wall-mounted radiators, for example
- Improved energy efficiency: typically saving up to 25% on fuel bills
- Floor only needs heating to 26-28°C (about the same as hand temperature)
- Requires water heated to 45-65°C: significantly less than for other heating types
- Healthier environment: less dust circulates in the air
- Greater safety: very hot surfaces (most radiators, for example) are eliminated



Radiated heat: more even warmth, greater comfort

By contrast, **Radiators** use room air to transfer heat, mostly by convection. This results in:

- Hot air concentrated at ceiling level: cooler air – and often draughts – at floor level
- Dust carried around the room in convection currents
- Significant heat loss through windows, walls and ceilings
- Water has to be heated to high temperatures: typically 70-80°C
- Higher energy loss from connecting pipes
- Dry, re-heated air: causing a feeling of stuffiness



Convected heat: uneven warmth, significant heat loss

UFH HEAT OUTPUT

Heat output depends on the difference between floor and air temperature in the room to be heated. This difference is multiplied by 10.6 to provide the Watts per square metre (W/m^2) output figure.

EXAMPLE:

Floor temperature 25°C *minus* Room air temperature 20°C

= 5°C difference

= 5 x 10.6 = 53 W/m^2

Most buildings require heat output between $35W/m^2$ and $75W/m^2$ – requiring floor temperatures 23-28°C. With concrete (screeded) floors, this can be achieved with water at 40-45°C. With timber floors, water needs to be 50-65°C.

CONTROLS

A room thermostat is used to monitor the air temperature in a heating zone and to turn the flow of water into the floor ON or OFF.

For multiple circuits of plumbed UFH, pre-assembled control units – with extensions as required – and other control components are available.

For more details about control options for plumbed circuits, see page 15.

WARM-UP AND RESPONSIVENESS

Warm-up time of any underfloor heating system is a function of the thermal mass of the floor. *Thick* floor screeds will take longer to reach the target surface temperature. *Thin* screeds and timber floors begin emitting heat sooner – and cool down faster.

INSULATION

In most UFH, polystyrene insulation (thickness to suit Building Regulations) is used. Choice of insulation type is important: the lower the conductivity, the less heat is wasted downwards into the understructure.

There are two types of polystyrene:

- **EPS**
  Expanded polystyrene: This has high conductivity and is not used for OSMA products
- **XPS**
  Extruded polystyrene: closed-cell with high compressive strength and better insulating performance (up to 30% lower conductivity than EPS). Used in OSMA packaged underfloor heating systems

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Factors to Consider

Before selecting the right underfloor heating components for a project, the following factors need to be considered:

WHAT TYPE OF FLOOR CONSTRUCTION ?

Choice of UFH system is primarily influenced by the type of floor construction – Screeded or Timber.

SCREEDED FLOOR

Traditionally, a sand and cement mix (typically 65-70mm thick) OR a free-flowing liquid screed (typically 40mm thick).

Screeded floors are typically installed over an insulating layer (usually rigid polystyrene) placed over the sub-floor block. UFH pipe or cable is fixed above the insulation before the screed is laid.

The screed is a good conductor of heat and acts as a **heat diffuser**.

TIMBER FLOOR

There are various forms, including **Joisted**, **Battened** and **Floating Floors**.

Timber floors have a lower thermal mass but conduct less heat. For effective heating, water temperature is typically needed in the region of 60-65ºC with pipe in contact with floor deck.

JOISTED FLOOR

Softwood joists or manufactured I-beams, typically at 400mm or 600mm centres, support a floor deck of timber panels or planks – and the chosen **floor finish**. UFH can be installed between the joists. This may be either from *above* before the floor deck is installed – or from *below* after the floor deck is in place. The UFH is installed in direct contact with the overlaid floor deck for maximum efficiency.

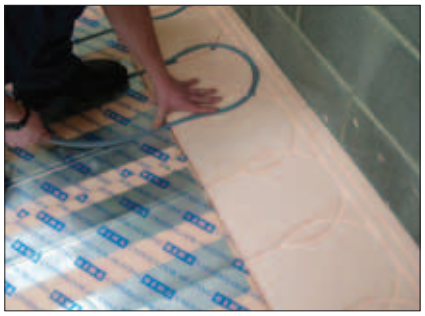
BATTENED FLOOR

Parallel timber battens are placed at regular intervals across the main structural floor. The UFH system is placed between the battens before the overlying main floor deck is installed in direct contact with the heating panels.

FLOATING FLOOR

A timber floor deck placed over, but not secured to, rigid insulation. Typically, tongued-and-grooved chipboard or ply panels glued together to create a single entity whose inherent weight is sufficient to keep it in place. A 10mm gap is left around the perimeter to allow for thermal or moisture-content expansion.

Floating Floor panel with integral heat diffuser plate



WHICH FLOOR FINISH IS TO BE INSTALLED ?

Both screeded and timber floors are typically overlaid with a final floor finish including:

- Carpet
- Resilient vinyl, linoleum (or equivalent) sheet or tile
- Stone or ceramics
- Timber or laminate

The thermal resistance of each of these varies *(EXAMPLE: carpet has a greater insulating effect than hard tiles)*. This affects heat output –and the energy required to bring the upper floor surface up to the required temperature to enable radiant heating of the room or heating zone to occur.

It is important that the combined resistance of the floor structure and finish does not become, in effect, an insulating barrier which prevents efficient heating performance. *(EXAMPLE: if carpet underlay is to be used, felt or rubber crumb underlay should be avoided because its insulating effect is too great).*

WHAT PIPE (OR CABLE) LAYOUT ?

Recommended pipe centres are typically 200mm but may be smaller where greater heat output is needed. For screeded floor areas, UFH pipework can be laid in a 'serpentine' or 'snail/spiral' pattern. *(See Figs. 1/2 below)*.

The serpentine pattern can put greater outward pressure on the pipe fixings because tighter turns are needed to achieve close pipe centres. Snail/spiral patterns can generally achieve close centres without turns being too tight.

Fig.1 Serpentine

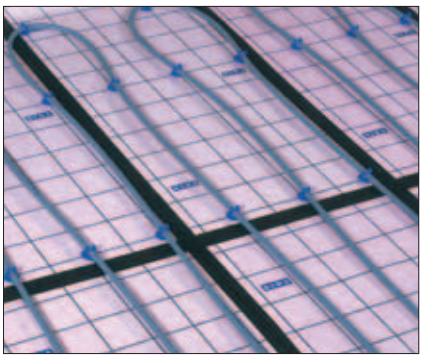


Fig.2 Snail/spiral

Factors to Consider *continued overleaf*

Factors to Consider *continued*

PIPE CENTRES ?

The distance between two parallel runs of heating pipe. Consistent spacing delivers consistent **output**. In some OSMA products, this spacing is predetermined. Other OSMA options allow pipe runs to be set closer together in specific areas where higher output may be desirable *(EXAMPLE: near large windows)*. Smaller pipe centres are usually necessary close to the manifold.

HEATING ZONE ?

This is any space that has the temperature individually controlled. Typically an individual room, but larger rooms or heating spaces can have several heating zones. Each zone must have at least one UFH circuit.

WHAT SIZE OF MANIFOLD IS REQUIRED ?

When two or more **plumbed** circuits are to be supplied from a single heating source, a manifold is used. This has *multiple* flow and return connections to serve a number of UFH circuits.

The manifold can be configured exactly to suit each individual project – with up to 4 circuits per manifold. If an installation has more than 4 circuits, refer to OSMA Underfloor Heating.

HOW MANY HEATING ZONES/CIRCUITS ?

Individual circuits may have a maximum length of 100 metres of heating pipe. (This would generally be sufficient for a room/heating zone up to 20m^2).

For larger rooms – or for several separate rooms/heating zones – more than one circuit may be connected to the same manifold.

WHAT CONTROLS ARE NEEDED ?

A **manifold** can have a mixing valve/pump unit attached to reduce high temperature water to the lower level required by UFH. Each branch can be fitted with a thermo-hydraulic actuator (controlled by a room thermostat) – or the whole manifold can be turned on or off by a motorised valve.

Other controls are needed to switch the heating system on and off as necessary (via programmed time control).

U-VALUE ?

Is a measure of the insulating (or *non*-insulating) property of a wall, window or floor. It is measured in Watts per square metre per degree Centigrade.

PERIMETER INSULATION ?

These are strips of insulating material placed around the edge of a screed. They reduce heat loss into the base of perimeter walls as well as providing for thermal expansion of the floor screed.

Larger projects ?

OSMA UFH products and systems are also available for more complex projects. These may include large developments requiring multiple installations of identical heating systems – or to provide UFH for specialised flooring systems such as acoustic flooring, raised access floors and sprung structures.

For further details of systems for larger projects, contact OSMA Underfloor Heating:

Telephone: 01392 444122
Fax: 01392 444135
Email: info@osmaufh.co.uk

HEAT DIFFUSER ?

This is the material or device which spreads the heating energy evenly through the **floor mass** so that the overlying floor surface does not have hot spots or cold spots. Screed acts as a heat diffuser. In OSMA timber systems, metal foil (which has high **thermal conductivity**) is pre-fitted to the insulation panels to lie under and along each side of the heating pipe to help spread the heat evenly to the floor above.

The Benefits:

of OSMA Underfloor Heating

For the Installer

- No previous UFH experience needed
- Single sourcing of materials
- Assured heat outputs and performance
- Faster, easier installation

For the Householder/Occupier

- More wall space available
- Greater comfort and safety: even warmth, no hot surfaces
- Lower running costs: minimal maintenance
- Separate room controls
- More control than conventional radiator systems
- Healthier environment with less dust

For the Developer

- Shorter project duration
- Consistent, repeatable performance for identical installations
- Added value to a property

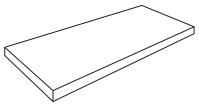
For the interior designer

- Unhindered interior layout
- No radiators to decorate or conceal
- Maximum usable wall space

Product Selector

	Page No.	Effective Input Water Temp. (°C)	Heating Element Pipe
Screed			
Basic Products	10	40-50	■
System Plates	11	40-50	■
Timber			
Joist Products	12	60-65	■
Batten Products	13	60-65	■
Fully Floating Floor Products	14	60-65	■
Controls			
Control Unit Options	15		
Single Room/Zone Controls	15		
OSMA Heating Pipe (OsmaGold)			
OsmaGold Pipe and Fittings	16		
Accessories			
Curved Pipe Supports ▪ Pipe Clamps ▪ Multi-Height Edge Insulation Strip	16		
Screw Clips ▪ Staples ▪ Circular Saw Blades ▪ Plastic 'L' Brackets ▪ Joint Tape	17		

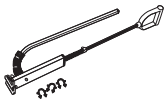
Screed Floors


25UH050


15UH153


15UH196


15UH230


15UH323

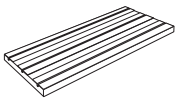

15UH400

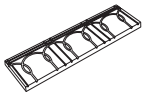

15UH235

	PART CODE	PACK QUANTITY
1200 x 600 x 50mm Plain Insulation	**25UH050**	1
25m x 150mm Multi Height Edge Expansion Foam	**15UH153**	8
1500 x 800mm System Plate	**15UH196**	18
Screw Clips *(Bag of 50)*	**15UH233**	1
Staples for 15mm OsmaGold Pipe *(Box of 300)*	**15UH230**	1
Staple Gun	**15UH323**	1
Insulation Joint Tape	**15UH400**	1
OSMA Plate Clips *(Pack of 25)*	**15UH234**	1
OSMA Plate Tack Clips *(Pack of 25)*	**15UH235**	1

Floating/Batten/Joisted Floor


30UH059

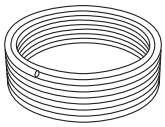

25UH053

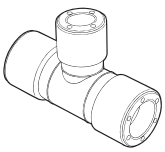

25UH056

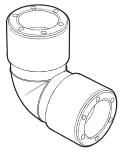

15UH700

	PART CODE	PACK QUANTITY
1200 x 340 x 50mm Straight Joist Panel	**30UH059**	20
1200 x 600 x 50mm Straight Batten Panel	**25UH053**	5
1200 x 340 x 50mm (3) Loop Return Panel	**25UH056**	10
1200 x 50 x 50mm Plastic 'L' Bracket	**15UH700**	30

OsmaGold Pipe & Fittings*


15HC160
15HC180


15HC542


15HC530


15HC740


15HC510

	PART CODE	PACK QUANTITY
15mm x 50m Coil	**15HC160**	1
15mm x 100m Coil	**15HC180**	1
15mm x 15mm Straight Connector	**15HC510**	5
Branch Tee *15 x 15 x 15mm*	**15HC542**	5
Elbow 90° *15mm*	**15HC530**	10
Blanking Caps *15mm*	**15HC740**	10

***** *OsmaGold Pipe & Fittings are available from your local OsmaGold stockist*

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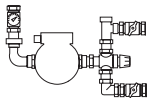
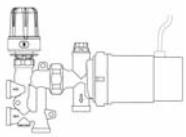
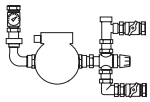
Single Room Controls

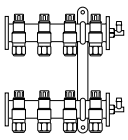

48UH585


48UH550

	PART CODE	PACK QUANTITY
1-2 Circuit Control Pack (For Connection to Heating Primary)	**48UH585**	1
1-2 Circuit Control Pack (For Connection to Radiator Branch)	**48UH550**	1

System Controls


48UH580


67UH874


47UH888


47UH585


52UH802

UH1-M

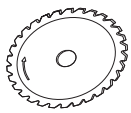

PRT-M
PRT/HW-M

	PART CODE	PACK QUANTITY
Manifold Mixing Unit *(inc. Pump)*	**48UH580**	1
2 Port Manifold	**67UH872**	1
3 Port Manifold	**67UH873**	1
4 Port Manifold	**67UH874**	1
Port Thermometer	**47UH888**	1
1" Isolation Ball Valve	**47UH585**	2
2 Wire Actuator (240V)	**52UH802**	1
Wiring Centre	**UH1-M**	1
Programmable LCD Thermostat (240V)	**PRT-M**	1
Programmable LCD Thermostat with Domestic Hot Water Timer (240V)	**PRT/HW-M**	1

Accessories


15UH236

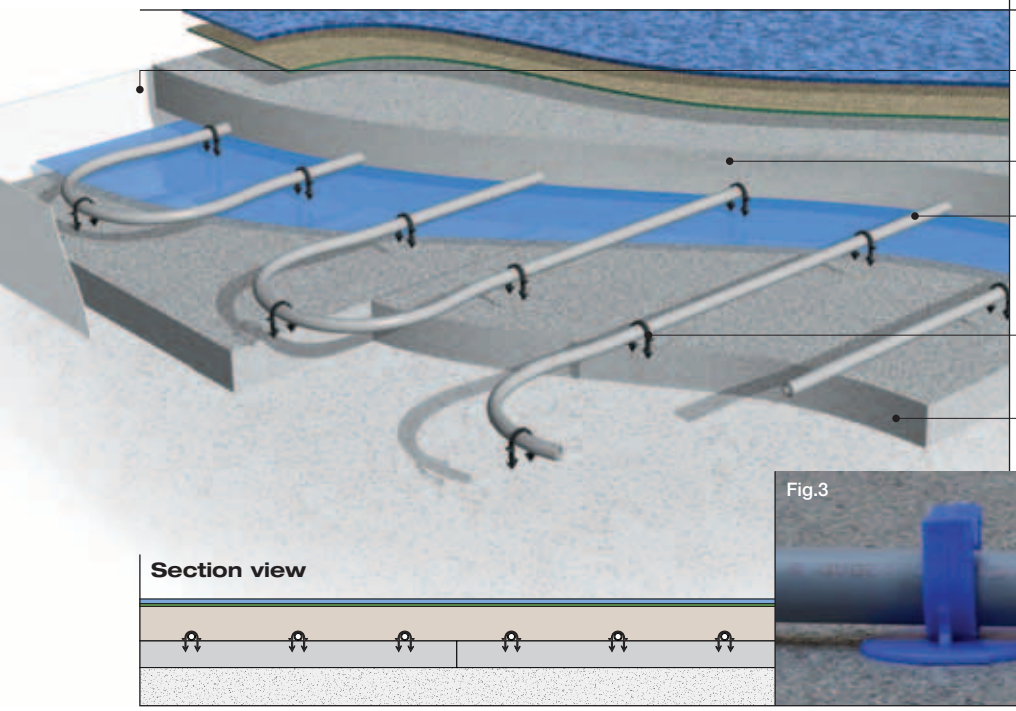

15UH239


15UH305


47UH555

	PART CODE	PACK QUANTITY
Pipe Clamps	**15UH236**	2
Curved Pipe Supports	**15UH239**	2
Y Connectors for 48UH550	**47UH550**	2
1/2" Isolation Ball Valve for 48UH550	**47UH555**	2
Circular Saw Blade	**15UH305**	1
OSMA Infrared Thermometer	**15UH500**	1
OSMA Installation/Service Pack	**15UH691**	1

Basic Products for Screeded Floors



System Construction

Comprising:

- *Multi-Height Edge Insulation (with gaiter)*
- *Sand/cement screed*
- ***OSMA 15mm Heating Pipe** (OsmaGold)*
- *OSMA Staples or Screw Clips*
- *Insulation Panels*

Pipe Spacing

- Flexible: at installer's discretion
- Recommended: 200mm centres for standard floor area

Pipe Layout

- At installer's discretion: can include diagonals if required

Section view

Fig.3

Fig.4

Product description

Wherever it is required to create a UFH system within a screed, either at the lowest possible material cost or in small/irregularly shaped floor areas, the best solution is to hold the pipe in place using either OSMA Screw Clips or OSMA Staples *(see Fig.3/4)*. The insulation is set below the screed and purchased separately. The choice of whether to use staples or screw clips is made according to type of insulation used. Screw clips provide an excellent fixing into most forms of insulation. Staples provide a secure fixing into harder insulation types and offer quicker installation. Heating pipe can be set at any spacing or pattern at the installer's discretion.

Applications

- For plumbed UFH: suitable for 65-70mm sand/cement screeded floors

Product features

- Allows independent choice of insulation panels to suit the thermal and acoustic properties and performance required: suitable for any insulation type/thickness
- Installer marks top of insulation to indicate pipe position and spacing
- Gaiter from edge insulation overlaps the top of the insulation to prevent screed ingress under panels at the perimeter
- Use with Curved Pipe Supports and Pipe Clamps to achieve neat transition between floor and wall

Benefits

- Lowest possible purchase cost
- Ideal for DIY applications
- Suits irregularly shaped floor areas
- Extreme versatility of pipe layout and spacing
- Excellent thermal performance

Supplied as:	PART NUMBER
either:	
OSMA Screw Clips	**15UH233**
option	
Screw Clip Handle	**15UH300**
or:	
OSMA Staples	**15UH230**
with	
Staple Gun	**15UH323**
Also required:	
Edge Insulation Multi-Height 25m x 125mm	**15UH153**
OSMA 15mm Heating Pipe (OsmaGold)	*see page 8*
Control Unit, Manifold and Room Thermostat or Single Room Controller	*see page 9*
Sand/cement screed	–
Insulation	–
OR	
– Plain 50mm XPS: 1200 x 600mm = 0.72m²	**25UH050**

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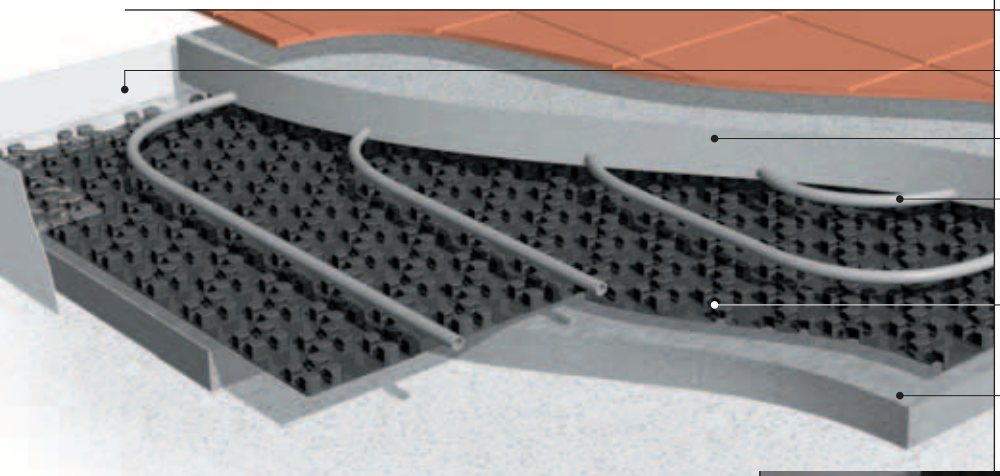
System Plates



System Construction

Comprising:

Multi-Height Edge Insulation (with gaiter)

Sand/cement screed

OSMA 15mm Heating Pipe *(OsmaGold)*

OSMA System Plates

Insulation Panels

Pipe Spacing

- Flexible: at installer's discretion
- Recommended: 200mm centres for standard floor area
- Any variation must be multiple of 50mm

Pipe Layout

- At installer's discretion: can include diagonals if required
- Snail pattern recommended: less outward pressure on pipe grip at turns *(see page 5)*

Section view

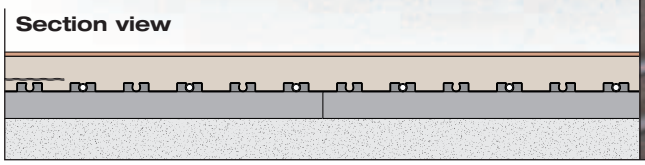


Fig.5

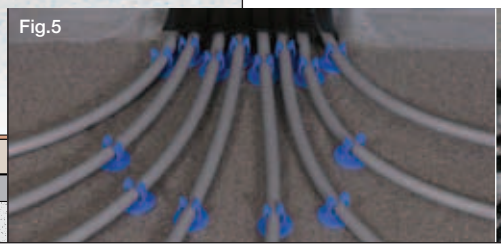


Fig.6

Product description

Vacuum-formed sheets of tough plastic incorporating a grid of clips specially-designed to hold the heating pipe securely. The sheets are laid over chosen insulation before pipe installation and screeding. Joints between Plates are tight and so this system is suitable for liquid screeding. Pipe installation is fast and easy: the installer can remain standing while feeding the pipe from a coil onto the clips and using the foot to press the pipe into position. Pipe centres can be as close as 50mm – and, if necessary, the pipe can be placed diagonally where required by the room shape/layout.

Applications

- For plumbed UFH: suitable for 65-70mm sand/cement screeded floors

Product features

- Allows independent choice of insulation panels to suit the thermal and acoustic properties and performance required: suitable for any insulation type/thickness
- System Plates lock together: prevents screed ingress beneath the Plates
- Gaiter from edge insulation overlaps the top of the Plate to prevent screed ingress under Plates at perimeter
- Integral clips securely grip pipe: layout cannot be dislodged by foot traffic
- System Plates may be trimmed to size using a Stanley knife
- No air gaps within or beneath the clip castellations: maximum thermal transfer

Benefits

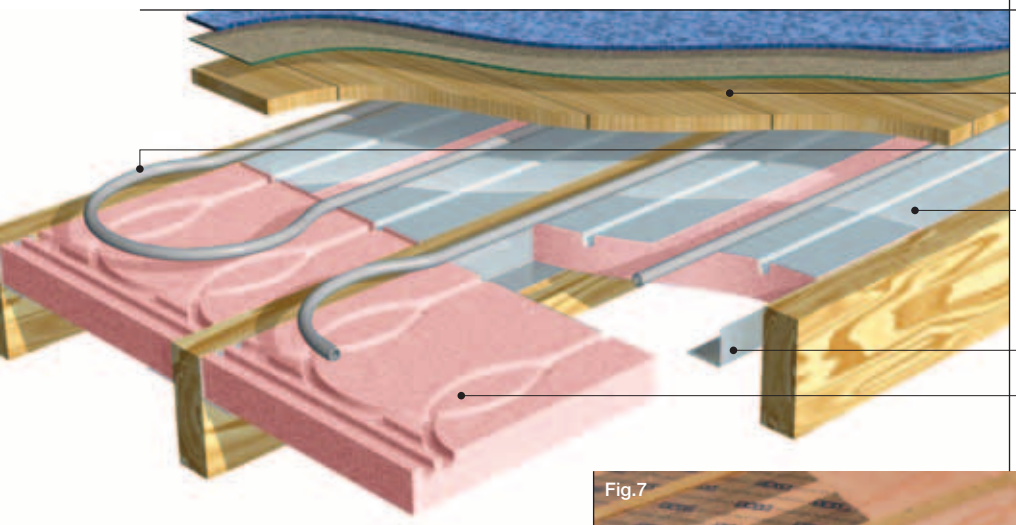
- Extremely versatile system
- Flexible layout: may be configured to meet specific project requirements
- Easy, fast installation
- Uses standard plumbing techniques
- Excellent thermal performance

Transitional areas

Where Plates are not required or not practicable, and where pipes must be positioned closer together *(EXAMPLE: approach to manifold)*, heating pipe may simply be run off the edge of the Plate onto the insulation, and held in place by OSMA **Staples 15UH230** or **Screw Clips 15UH233** *(see Fig.5/6 and page 17)*. OSMA Sweep Bends and Clamps may also be used to support and secure the pipe in such areas *(EXAMPLE: where the pipe needs to run up the wall to the manifold)*.

Supplied as:	PART NUMBER
Individual OSMA System Plates: – 1500 x 800mm = 1.2m²	**15UH196**
Also required:	
XPS Insulation Panels: – Plain 1200 x 600 x 50mm	**25UH050**
Edge Insulation Multi-Height 25m x 125mm	**15UH153**
OSMA 15mm Heating Pipe (OsmaGold)	*see page 8*
Control Unit, Manifold and Room Thermostat or Single Room Controller	*see page 9*
Sand/cement screed	–
Plate Tack Clips	**15UH235**

Timber Joist Products



System Construction

[For joisted floors] Comprising:

- *Timber floor deck*
- ***OSMA 15mm Heating Pipe** (OsmaGold)*
- ***OSMA Batten/Joist Panel** (50mm insulation) with pre-fitted aluminium diffuser and polyethylene film*
- *Plastic 'L' Brackets*
- ***OSMA End Panel** (50mm insulation)*

Pipe Spacing

- Predetermined (200mm centres): pipe channels cut into top surface of panels

Pipe Layout

- Serpentine pattern following joist layout *(see page 5)*

Section view

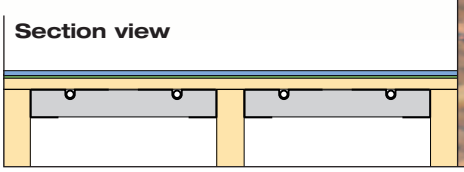


Fig.7

Product description

Timber Batten/Joist Product

Batten/Joist Panels are formed from 50mm high density extruded polystyrene. Each panel has channels pre-cut into its upper surface at 200mm centres, with factory-fitted aluminium heat diffusers, ready to receive the heating pipe. A polyethylene film covers each panel, preventing the floors from 'ticking'. It fixes the diffusers in place and protects the pipe channels from grit and dirt ingress before installation *(see Fig.7)*.

IMPORTANT NOTE: The polyethylene film should NOT be removed. It is pre-cut along the channel lines to allow pipe to be inserted

End Panels also have pre-cut channels, looped to take heating pipe around the turns at minimum 240mm diameter to comply with BS 7291. They are set at each end of a batten/joist space with the Batten/Joist panels in-between.

The Batten/Joist Panels themselves are installed between the battens/joist so that the upper surface is level with the top surface of the battens/joists and in direct contact with the underside of the floor deck. This eliminates air gaps which reduce thermal performance. No sand/cement pugging is required *(see Fig.8)*.

The heating pipe is pressed into the pre-cut channels – and carried over to the next section through notches cut in the top of the batten/joist.

Applications

- For plumbed UFH installed beneath a timber or chipboard floor deck# that is supported by battens or joists
  # Typically chipboard or ply, covered by a timber laminate finish OR underlay and carpet OR tiles
- For fitting between battens/joists which are at 400mm centres

Product features

- Pipe integrated *within* the insulation thickness: enables full contact with overlaid floor deck
- No reliance on heating air beneath the floor deck
- No pugging or wet trades required: no delay to laying of floor deck
- Creates floor structure with low thermal mass: fast response to changes in heating demand
- Panels can be neatly trimmed to required length using an OSMA Circular Saw Blade

Installation - Joisted

Installation from ABOVE

Plastic 'L' Brackets are nailed into position with their top vertical edge flush with top of joist. OSMA Panels are inserted between joists resting on Brackets. Pipe is pressed into pre-cut channels in insulation panels *(see Fig.9)*. Pipe is taken to adjacent space by cutting channel/notch in joist

Installation from BELOW

Pipe is pressed into pre-cut channels in insulation panel leaving two ends protruding. Panel is then either screwed directly to underside of floor deck or supported by Brackets fixed to joist sides while holding panel tight up against underside of floor.
The pipe ends are threaded through joist to adjacent space and connected to the next panel using an OSMA Flexible Plumbing system (OsmaGold) 15mm Elbow

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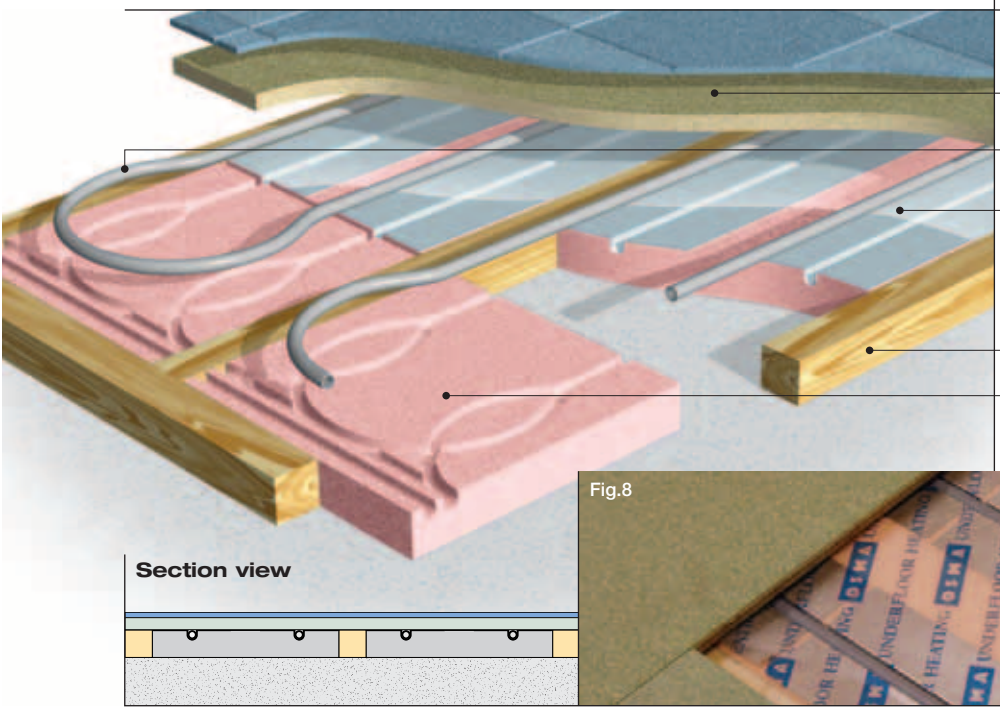
Timber Batten Products



System Construction

[For battened floors] Comprising:

Chipboard deck

OSMA 15mm Heating Pipe *(OsmaGold)*

OSMA Batten/Joist Panel *(50mm insulation) with pre-fitted aluminium diffuser and polyethylene film*

50x50mm battens

OSMA End Panel *(50mm insulation)*

Pipe Spacing

- Predetermined (200mm centres): pipe channels cut into top surface of panels

Pipe Layout

- Predetermined Serpentine pattern following joist layout *(see page 5)*

Section view

Fig.8

Installation - Battened

OSMA Panels are used as spacers when setting out battens. Pipe is taken to an adjacent space by cutting channel/notch in batten

Benefits

- Very fast, easy construction: no setting out/marking out of insulation panels required
- Easy planning and installation
- No separate diffuser plates to source and fit: floor deck can be glued direct to top of battens/joists (to suit Building Regulations Part E)
- Factory-fitted polyethylene film prevents ticking of floor (caused by differential thermal expansion) and enables better acoustic performance
- Even, consistent heat output

Fig.9

Supplied as: PART NUMBER

OSMA Batten/Joist Panels (50mm XPS insulation – pre-cut channels): 1200 x 340mm **30UH059**

OSMA End Panels (50mm XPS insulation – pre-cut channels): 1200 x 340mm = 0.41m² [approx.] **25UH056**

Also required:

- OSMA 15mm Heating Pipe (OsmaGold) *see page 8*
- Control Unit, Manifold and Room Thermostat or Single Room Controller *see page 9*

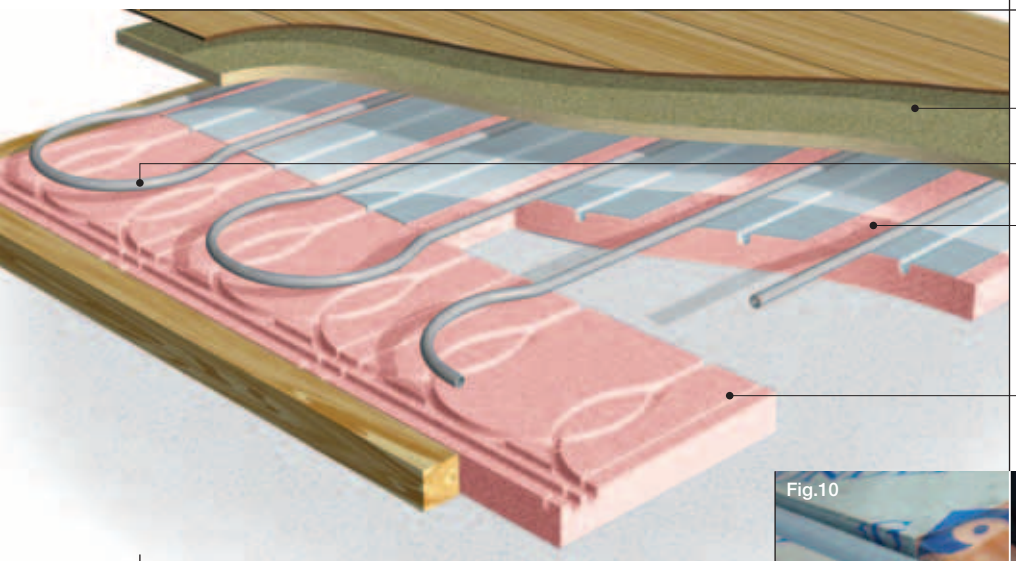
For Battened Floors:

- 50 x 50mm timber battens

For Joisted Floors:

- Plastic 'L' Brackets [OR (for installation from below) small battens] **15UH700**

Fully Floating Floor Products



System Construction

Comprising:

Chipboard floor deck

OSMA 15mm Heating Pipe *(OsmaGold)*

OSMA Floating Floor Panel *(50mm insulation) with pre-fitted aluminium diffuser and polyethylene film*

OSMA End Panel *(50mm insulation)*

Pipe Spacing

- Predetermined (200mm centres): pipe channels cut into top surface of panels

Pipe Layout

- Predetermined
- Serpentine pattern

Section view

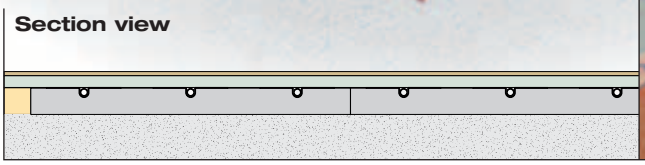


Fig.10

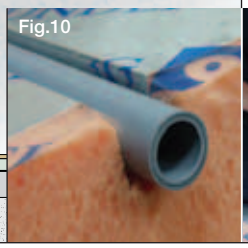


Fig.11

Product description

Floating Floor Panels are formed from 50mm high - density extruded polystyrene. Each panel has a pattern of channels pre-cut into its upper surface at 200mm centres, with factory-fitted aluminium heat diffuser, ready to receive the heating pipe. A polyethylene film covers each panel. This prevents 'ticking', it fixes the diffusers in place and protects pipe channels from dirt ingress before installation.

IMPORTANT NOTE: The polyethylene film should NOT be removed. It is pre-cut along the channel lines to allow pipe to be inserted

End Panels also have pre-cut channels, looped to take heating pipe around the turns at minimum 240mm diameter to comply with BS 7291.

The floating floor deck is supported by and in contact with, the heating panels. No air gaps remain which would reduce thermal performance and no pugging is required.

Applications

- For plumbed UFH installed beneath a timber floating floor deck#
  # Typically chipboard or ply, covered by a timber laminate finish OR underlay and carpet OR tiles
- Extra insulation may be required within the supporting understructure to meet Building Regulations Part L

Product features

- Pipe integrated within the insulation thickness: enables full contact with overlaid floor deck *(see Fig.10/11)*
- Creates floor structure with low thermal mass: fast response to changes in heating demand
- Panels can be neatly trimmed to required length using an OSMA Circular Saw Blade

Benefits

- Easy planning and installation: similar timescale for installing unheated floating floor
- No marking out of panels required: pre-set pipe spacing
- No separate diffuser plates to source and fit
- Factory-fitted polyethylene film prevents ticking of floor (caused by differential thermal expansion) and enables better acoustic performance
- Even, consistent heat output
- Pipe at 200mm centres ensures excellent thermal performance

Supplied as:	PART NUMBER
OSMA Floating Floor Panel (50mm XPS insulation: pre-cut channels): 1200 x 600mm = 0.72m²	**25UH053**
OSMA End Panel: (50mm XPS insulation: pre-cut channels): 1200 x 340mm = 0.41m² [approx.]	**25UH056**

Also required:

- OSMA 15mm Heating Pipe (OsmaGold) *see page 8*
- Control Unit, Manifold and Room Thermostat or Single Room Controller *see page 9*

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Control Unit Options

Method of control

Underfloor heating requires cooler water than is needed by a radiator system. This cooler water can be supplied directly by some condensing or combi boilers. Where radiator - hot water has to be used, this can be blended with water returning from the UFH circuit(s) using a mixture control unit. The OSMA range includes two different mechanisms, one for connecting UFH to the hot heating primary and the other for connecting UFH circuit(s) to an individual radiator branch (subject to this having sufficient spare capacity to cope with the additional UFH load.) Both units incorporate pumps in order to ensure that the main central heating pump is not overloaded. The first of these units need to be used in conjuntion with the OSMA Wiring Centre and a room thermostat(s) so that the wiring centre can activate the boiler when heating is required. The second incorporates its own 4-wire thermostatic actuator, which can be connected to an OSMA programmable room thermostat that can be set to call for heat at the same times set on the main central heating programmer.

For PLUMBED installations

There is a choice of controls for both single room and multiple-room plumbed UFH installations:

- For **Single Rooms** involving 1-2 heating circuits
  – Water mixing controls unit
- For **Multiple Rooms** involving 2-4 heating circuits
  – Separate manifolds (for 2-4 circuits)

All controls have been designed to enable UFH sub-systems to be added to an existing radiator system.

Single Room / Zone Controls

1-2 Circuit Control Pack

(Part Number **48UH550**) *(see Fig.12)*

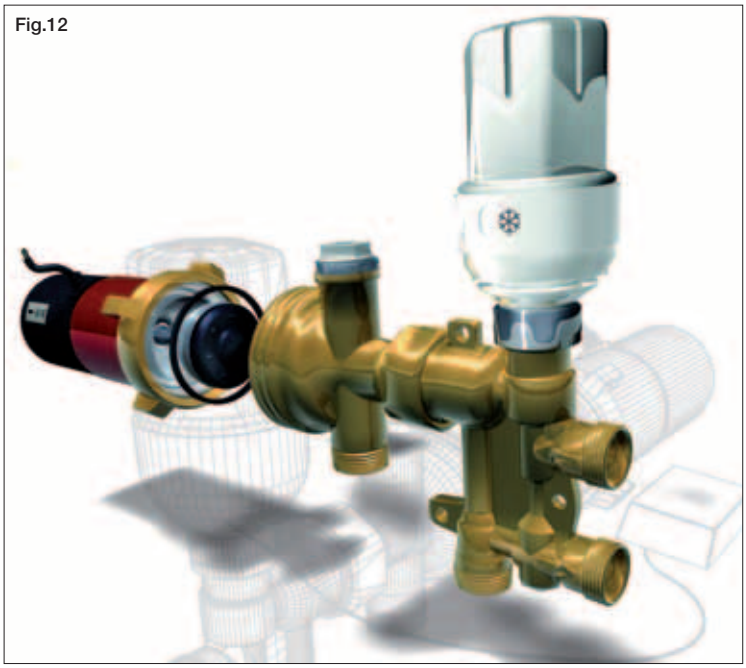
Product description

This pre-assembled unit is installed in the branch of the heating primary and wired in series with a room thermostat. It can be mounted onto a wall either falling left or right. The Water Mixing Control Unit incorporates a standard circulator with advanced mixing valve. This mixes floor return water with the incoming primary flow but only when that exceeds the mixing valve setting. In addition, it has an actuator to open and close, thus turning it off when the boiler is inactive.

Benefits

- Cost effective and safe
- Optimum use of primary flow during warm-up
- May be used to control any small UFH sub-system
  – Up to 2 pipe circuits with similar length up to 100m each
  – With up to 40m² total active heating area
- Suitable for any floor type or finish

Fig.12



Supplied as:

Pre-assembled unit comprising:
– Pump
– Water Mixing Valve
– Built in bypass actuator
– All industry recommended safety controls

NOTE: Unit is itself controlled via a room thermostat *[not included]*.

OSMA Heating Pipe (OsmaGold)

OsmaGold Pipe

(See page 8 for Part Numbers)

An engineered, flexible barrier pipe system, manufactured in polybutylene, which conforms to the highest specifications.

- Awarded Kitemark certification (Licence No. KM51813)
  - – Confirms compliance to Class S of BS 7291
- Full range of fittings where required by UFH system: including bends, tees, connectors
- All fittings are push-fit and incorporate a unique 'M' ring and stainless steel grab ring combination to ensure fully watertight joint security

The full OSMA Heating Pipe (OsmaGold) range of pipe and fittings is also suitable for hot & cold plumbing and traditional forms of plumbed central heating.

- With natural resilience and smooth internal bore: ideal for UFH applications
- Easy to install and connect to manifolds
- High impact resistance
- Accommodates thermal expansion
- Prevents furring, pitting or corrosion
- Provides trouble-free, quiet performance
- Resistant to most heating system additives
- Pipe with 15mm or 10mm diameter used in OSMA UFH systems

Accessories

Curved Pipe Supports

(Part No. **15UH239**)


Fig.13

Function:

These are rigid black plastic supports used where pipe must transfer between floor and wall. They support the pipe at this point and ensure pipe bends are consistent and neat.

Pipe Clamps

(Part No. **15UH236**)

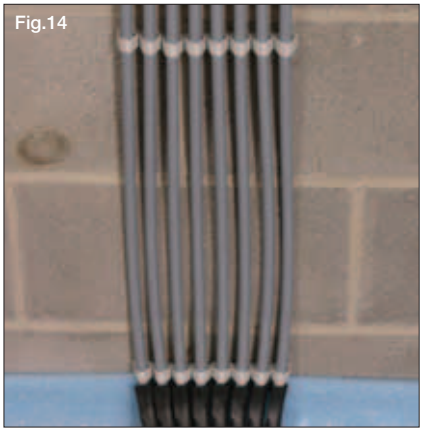


Fig.14

Function:

These are individual snap over clamps designed to hold the pipe close to the wall below a manifold *precisely at 27.5mm* spacing, to match that of the manifold branch. Individual clamps can be clipped together to make a combined block capable of taking the total number of pipes required.

Multi-Height Edge Insulation Strip

(Part No. **15UH153**)


Fig.15

Supplied as:

25 metre rolls of 150 x 10mm insulation

Function:

Perimeter insulation for screeded floors: prevents direct heat loss into wall *(see pages 10 and 11)*

Features:

- Sufficient width for various insulation/ screed combined thicknesses
- Clear film gaiter at lower edge holds strip in position before and during screeding: prevents screed ingress into perimeter joints
- Top edge pre-cut in 10mm wide bands: enables easy stripping of excess after screeding

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Accessories *continued*

Screw Clips

(Part No. **15UH233**)

Fig.16

Supplied as:

Packs of 50 Clips

Function:

To provide a strong fix for Heating Pipe *(see pages 10 and 11)*

NOTE: Screw Clips provide a more secure fix than Staples

Features:

- Suitable for most forms of insulation: holds pipe 4mm above insulation surface
- Allows screed or pug to wrap around the whole of the pipe, improving thermal transfer

Staples

(Part No. **15UH230**)

Fig.17

Supplied as:

Packs of 300 Staples

Function:

Barbed to hook into top of plain insulation and fix Heating Pipe or Cable in position *(see pages 10 and 11)*

Features:

- Grip most effectively when used on *extruded* insulation, or on polyurethane foam with a foil/paper facing
- Low cost fixing option – but care needed not to dislodge Staples before or during screeding

Circular Saw Blades

(Part No. **15UH305**)

Fig.18

Function:

For cutting Foiled Polystyrene panels *(see pages 12 and 13)*

Features:

- May be used with all makes of circular saw
- Specially designed to cut aluminium foil and polystyrene

Plastic 'L' Brackets

(Part No. **15UH700**)

Supplied as:

50 x 50 x 1200mm single items

Function:

To support OSMA Joist Insulation Panels in joisted floor applications so that Panel surface is flush with top edge of joists *(see page 12)*. Fixed to joists using galvanised nails

Joint Tape

(Part No. **15UH400**)

Function:

For taping joints between insulation panels in screeded systems *(see pages 10 and 11)* to prevent screed ingress between joints

Features:

- Specially formulated to adhere to the Polyethylene film surface of insulation panels
- Other tapes can eventually become unstuck due to release agent on the Polyethylene film

General Information and Ordering

Health and Safety

The relevant provisions of the following legislation should be adhered to on site:

- Construction (Design and Management) Regulations 1994
- Control of Substances Hazardous to Health Regulations 1988
- Health and Safety At Work Act 1974
- Management of Health and Safety At Work Regulations 1999
- Manual Handling Operations Regulations 1992

References

Reference should be made to:

- Building Regulations (England and Wales): Approved Document 'L' (Thermal)
- Building Regulations (England and Wales): Approved Document 'E' (Acoustic)

Supply

All OSMA products described in this Product Guide are supplied through a nationwide network of Merchant Distributors. For details of your nearest stockist, contact OSMA Underfloor Heating.

Ordering

To order, be ready to quote the Product Name and relevant Part Number, together with quantities required. Part numbers are clearly indicated in **bold** type throughout this Product Guide *[EXAMPLE:* **15UH110***]*

Conditions of sale

The Company will not accept responsibility for the malfunction of any installation which includes components not supplied by OSMA Underfloor Heating. Goods are sold subject to Company conditions of sale.

For sales enquiries, or to place an order

Please contact
OSMA Underfloor Heating:

Sales /Orders

Tel: 01392 444122

Fax: 01392 444135

Email: info@osmaufh.co.uk

Technical Advice and Assistance

OSMA Underfloor Heating products are backed by a comprehensive technical advisory service. This is available to provide expert assistance at every stage of a project, from planning and product selection to installation and maintenance.

Services include:

- CAD product and application details on disk
- Computer aided project design, for more complex projects
- Call-off service for efficient product scheduling
- Bill of Materials Calculator for PC or Lap-top

For prompt assistance, contact
OSMA Underfloor Heating:

Technical Enquiries

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Fax: 01392 444135

Email: info@osmaufh.co.uk

More Complex Projects

This guide sets out the details of components that can be used easily for creating underfloor heating systems in straightforward new-build residential projects. Where a project is more complex, OSMA Underfloor Heating is able to provide a complete warrented system design service, which includes the creation of detailed CAD installation drawings and instructions, and direct to site delivery. Each project is overseen by a dedicated experienced OSMA Project Manager who is a single point of contact from the first enquiry to post-completion commissioning. Please contact OSMA Underfloor Heating direct if you would like to use this service.

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OSMA

Underfloor Heating
Available Through Merchants

Product Guide

For screeded and timber floors

This Product Guide describes OSMA Underfloor Heating [UFH] products which are available through Merchants – and which are suitable for Residential applications.

This OSMA UFH product range:

- Is designed for time-saving, easy installation – without requiring special tools or experience
- Provides consistent, controllable heat output and performance
- Enables achievement of a high quality result every time

OSMA also provide design and production of bespoke systems to meet specific application requirements or to suit specialised construction projects. These include acoustic and sprung floors, specialist screeds, high strength floating floors, and industrial floors – or for multiple unit projects requiring large numbers of identical installations (housing or flats). OSMA UFH technology can also be used for cooling. *For information, contact OSMA Underfloor Heating.*

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