VPS Trading Ltd.
Unit 16 Whitegates Business Park
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0141 459 3141
enquiries@vpsunderfloorheating.co.uk

BEFORE YOU BEGIN:

The Thermopads under tile sticky mat heating system is suitable for a wide range of floor coverings – ceramic, stone, limestone, slate, terracotta, porcelain or marble. The system is designed for installation directly below tiles and stone flooring, and the following instructions should be read carefully before you begin your installation.

Please read these instructions and complete your Guarantee and return it to the Distributor after installation. It is important to carry out and record the electrical tests as required by law to conform with the current IEE Electrical Regulations and Part P of the Building Regulations.

Thermopads systems can be applied to insulation construction boards, concrete, and existing old tile surfaces. Insulation construction board is already primed, comprising a cement polymer mortar finish on both sides of the board.

Installation Notes:

• The system requires a mains voltage 230v 50Hz and must be connected by a suitably qualified person. All wiring must conform to IEE 17th Edition Part P regulations.

• Installations require a 30mA RCD (residual current device) for safe operation and a dedicated RCD must always be installed if not already existing.

• It is possible to run the heating from an existing circuit – always consult your electrician to check if the circuit can handle the load (amperage) and the circuit is RCD protected. Make sure the total current (amps) of your Thermopads system and other appliances connected to the circuit do not exceed the current capacity of the circuit.

• Normal ring main circuits are rated at 13A and the electrical feed can be taken from a 30mA RCD via a 13A fused spur.

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• A thermostat has a 16A maximum rating. When the total load of your Thermopads system exceeds 3600 watts (24m² system) a contactor must be used to switch the electrical load. Alternatively, split the heating into more than one heating zone, each operated by its own thermostat – always consult your electrician.
• The underfloor heating must be controlled via a floor sensor thermostat at all times.

• In bathrooms the thermostat control should be mounted outside the bathroom as close to the underfloor heating as possible.

• The cold tail on the mat is will be coloured and is a twin core and earth cable. The Thermopad UFH heating element includes a built-in return that means it only has to be connected to the thermostat from one end.

• Generally, for larger areas covering over 12m², 2 separate mats will be supplied (for example, for a total area equalling 24m², then 2 x 12m², mats will be supplied)

• The Thermopad UFH system is suitable for most types of sub-floor suitable for tiling. Generally, this means concrete, plywood or cement faced tile-backer boards. Some water-resistant composite boards are also suitable, but it is not recommended to tile directly onto hardboard, MDF or chipboard as these substances absorb moisture and any swelling could cause the tiles to crack or be dislodged.

• Please note that if installing on a newly finished concrete screed, then the required minimum drying period of 1mm per day should be adhered to.

• Thermopad UFH mats must not overlap and the heating cable MUST NOT be cut or cross at any point.

• The joint between the heating cable, cold tail and end joint MUST be located under the floor and encapsulated in self levelling or tile adhesive and MUST NOT be taped over.

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Professional Electrical Installation

The installation of electrical systems presents risks of fire and electrical shock which can result in personal injury. Caution should always be taken to guard against each such risk.

Only a qualified electrician should connect the Thermopads UFH mats to the thermostat or to the electrical supply circuit.

Please ensure all electrical works conform to the current regulations.

NOTE:

Due to the new requirements of the BS7671 17th Edition Part P Regulations, only a qualified person who is familiar with the construction and operation of the apparatus and the hazards involved shall make the final connections to the electricity supply and test the installation.

Note for Bathroom Installations

When installing Bathroom Thermopads UFH mats, please ensure that the thermostat is always located outside the room and use the floor probe supplied. If in doubt,
always check with a qualified electrician that all electrics are in safe and suitable zones.

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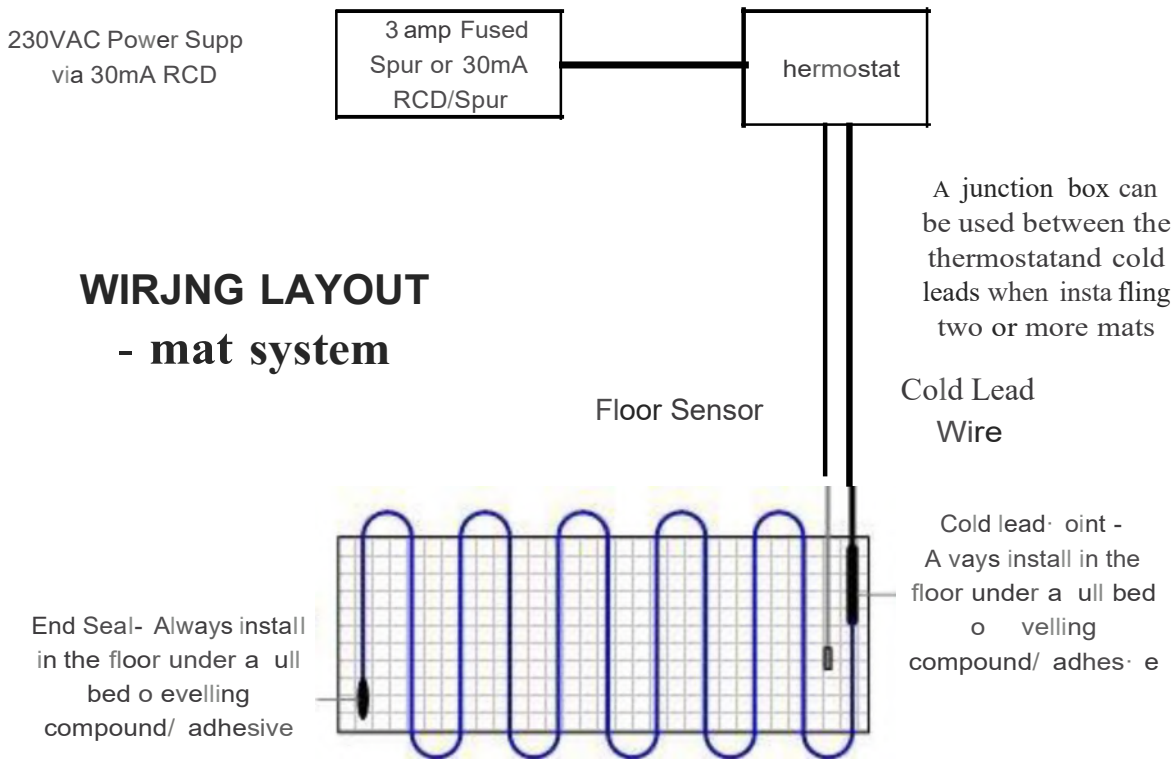
WIRJNG LAYOUT
- mat system



NB: Always run the cold lead wire & floor sensor cable in separate conduit

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Part Number	Heated Floor Area (m^2)	Heating Mat{s) Required	Total Watts	Amps	Total Mat Resistance (ohms)
STICK1	1	1 x STICK1	150	0.65	352
STICK15	1.5	1 x STICK15	225	1	235
STICK2	2	1 x STICK2	300	1.3	176
STICK25	2.5	1 x STICK25	375	1.6	141
STICK3	3	1 x STICK3	450	1.9	118
STICK35	3.5	1 x STICK35	525	2.3	100
STICK4	4	1 x STICK4	600	2.6	88
STICK45	4.5	1 x STICK45	675	2.9	78
STICK5	5	1 x STICKS	750	3.3	71
STICK6	6	1 x STICK6	900	3.9	59
STICK?	7	1 x STICK?	1050	4.6	50
STICKS	8	1 x STICKS	1200	5.2	44
STICK9	9	1 x STICK9	1350	5.9	39
STICK10	10	1 x STICK10	1500	6.5	35
STICK11	11	1 x STICK11	1650	7.2	32
STICK12	12	1 x STICK12	1800	7.8	29

Part Number	Heated Floor Area (m^2)	Heating Mat(s) Required	Total Watts	Amps	Total Mat Resistance (ohms)
STICK200	1	1 x STICK200	200	0.9	264
STICK300	1.5	1 x STICK300	300	1.3	176
STICK400	2	1 x STICK400	400	1.74	132
STICK500	2.5	1 x STICKS00	500	2.2	106
STICK600	3	1 x STICK600	600	2.6	88
STICK700	3.5	1 x STICK700	700	3	75
STICKB00	4	1 x STICKB00	800	3.47	66
STICK900	4.5	1 x STICK900	900	3.9	59
STICK1000	5	1 x STICK1000	1000	4.34	52.9
STICK1200	6	1 x STICK1200	1200	5.22	44
STICK1400	7	1 x STICK1400	1400	6.08	37.8
STICK1600	8	1 x STICK1600	1600	6.96	33
STICK1800	9	1 x STICK1800	1800	7.83	29.3
STICK2000	10	1 x STICK2000	2000	8.7	26.4
STICK2200	11	1 x STICK2200	2200	9.6	24
STICK2400	12	1 x STICK2400	2400	10.43	22

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Thermopads UFH Installation Instructions

Sub-Floor Preparation

Wooden Sub-Floors:

• For Wooden subfloors, timber floorboards and chipboard. Make sure any loose boards are firmly fixed and reinforce the floor if necessary. This will prevent any movement in the floor that could cause tiles to crack. The floor must be level.

• A rigid base floor is essential. Fixing reinforcements direct to joists will not provide a suitable floor finish for tiles. Reinforcement can be applied to the rigid base floor by covering the complete floor with 18mm WBP plywood (weather & boil proof plywood), or alternatively 10mm thick insulated tile backer board (construction board).

• Reinforcements to be applied in accordance with the manufacturer's instructions.

Concrete Sub-Floors:

• Before proceeding repair any imperfections in the floor and level the floor with approved building materials.
• When practical, use XPS or tile backer insulation boards if installing the mat directly onto a concrete floor.
• Fixing the board should be per the manufacturer's instructions

Wooden & Concrete Floors:

• Clean the floor surface so that it is free from dust, dirt, grease etc.
• When it is practical, tile backer insulation construction board can be applied overall to both wooden and concrete sub floors.
• Prime subfloors with a suitable primer to improve bonding between tile adhesives and the subfloor. A primer with a flexible admix is recommended. This is used to prepare and stabilise porous and dusting surfaces prior to tiling and to improve adhesion on difficult substrates, such as timber, concrete and terrazzo.
• When installing insulation construction boards use tile adhesive to fix the boards to concrete floors and galvanised screws/washers on wooden subfloors.
• NOTE: Insulation construction board is already primed, comprising a cement polymer mortar finish on both sides of the board.

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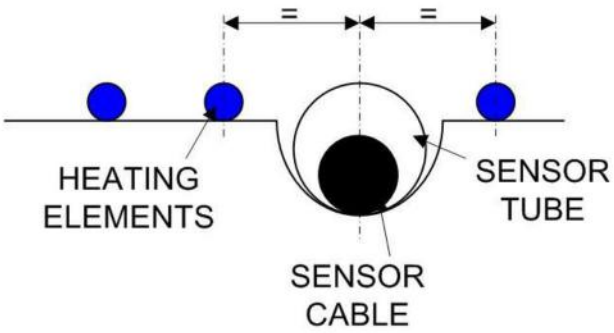
Plan the Installation

Draw a general view of the room and mark the area which will be covered with heating elements. Avoid heating under units and sanitary ware as this can cause heat blockage and it is unnecessary to heat these areas anyway.
Mark the position of the supply lead(s) – the cold lead wire(s), at floor level. In most cases this will be close to and below the thermostat position.
When decided on this position you can cut a groove in the floor to accommodate the protective floor sensor tube. The sensor must run centrally (in the middle) between two runs of heating element so it is important to note where the elements will be positioned. Make the sensor tube level with the heating element as shown below.



The black cable joint between heating element (blue cable) and cold lead wire (black cable) must be located on the floor. This joint should be level with the heating system – another small groove in the floor may be necessary.
Do not tape over manufactured cable joints, cable end seals and the thermostat floor sensor. Taping over the tip of the sensor when securing the sensor in place may result in inaccurate temperature readings. When possible, always use the sensor tube when installing the thermostat sensor cable.
Seal the end of the tubing (conduit) with tape to prevent adhesive or screed from entering the conduit.
Make sure the sensor tube has a gradual bend when it enters the floor coming down from the wall, this will ensure the sensor cable can be easily inserted or withdrawn.

Floor Insulation

On wood or concrete subfloors, a thermal barrier between the heating element and subfloor will increase performance and heat up time. This will add the benefit of improving the insulation properties, and only a 10mm maximum thickness is required to obtain good results and the necessary thermal barrier.
When installing a Thermopads 200w/m2 under tile system directly onto a wooden floor surface a thermal barrier is always essential.
To maximise the efficiency of the installed heat energy it is also good practice to have insulation installed below the sub-floor, but on renovation projects this is sometimes not practical due to the age of the property.

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Testing

All Thermopads UFH mats are tested before leaving the factory, however damage can happen during storing or transit and we strongly recommend that you test your mats:

- After unpacking but before any installation takes place
- After installation but before the floor covering takes place
- Finally, after the floor covering is installed but before the thermostat is connected.

We recommend you use a digital multi-meter set to a range of 0-2k ohms. The subsequent resistance (ohms) of each mat should be measured and recorded.
The digital multimeter is ideal for testing cable continuity and its resistance (ohms), as well as the resistance of the sensor cable. Check the sensor cable resistance with the digital multimeter. The reading should be between 9 – 23 ohms depending on room temperature.
All test results to be recorded on the Guarantee sheet.

- Live to neutral will show the ohms values listed in the product table.

+/- 5% ohm reading is allowed under manufacturing guidelines.

- Live to earth and neutral to earth should show infinity.

Insulation resistance readings should also be carried out as required by IEE Regulations.
Due to the high resistance of the heating element, continuity testers are not recommended. When checking resistance, make sure your hands do not touch the meter's probes as the measurement will include your body resistance making the measurement inaccurate.

If the measured values are not as expected, please give us a call on 0141 459 3141 for guidance or call a qualified electrician to check before proceeding any further.

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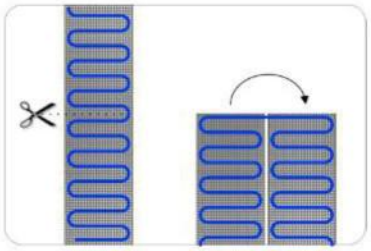
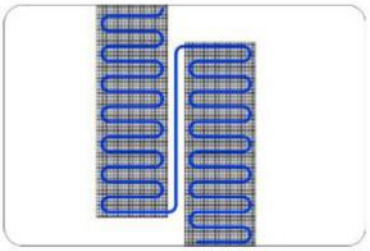
Mat Layout & Fixing

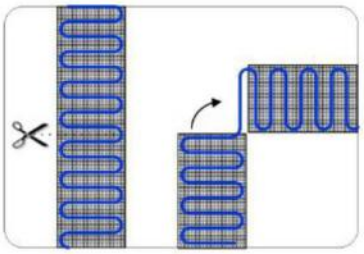
Planning is important and when calculating the heated floor area, plan to leave a gap unheated around the room perimeter of approx. 50 - 100mm. The heated floor area must be free, avoid heating under kitchen cabinets, sanitary ware and appliances. To estimate the mat size a good guide is to measure the total floor area of the room, take away 10%, then take away the area of any fixed objects.
Make sure the Thermopads system can fit the floor area to be heated. It is better to have just too little than too much over. Remember, NEVER cut the heating element. Cut only the element carrier when needed and turn / flip the mat to meet your requirements as shown in the small illustrations below.



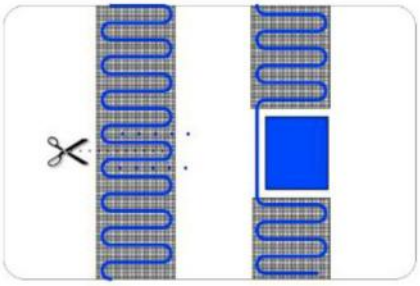
PLAIN WALL CUT



LOOSE CABLE



OPEN CORNER



OBSTACLE CUT

The position for the thermostat should have been decided at the initial planning stage.
Use a marker pen to draw out the areas on the floor where units and fixtures will be placed. Start by laying the mat in the closest location to the thermostat position.
Check that the cold lead wire for the mat(s) will reach the connection – (this is the connection with the junction box depending on the number of mats, or direct to the thermostat). If it does not, extend by removing some of the heating element from the carrier and fix the loose heating element to the floor with duct tape.
Arrange the mat on the floor, roll out and make the appropriate cuts at walls, starting at the closest location to the thermostat position. To facilitate installation of heating cable into recesses, open corners and obstacle cuts, loose cable can be removed from the fibreglass mesh. DO NOT allow the heating element to cross or touch, and make sure the loose wire is no closer than 50mm from each other, walls and other wires still attached to the mesh.

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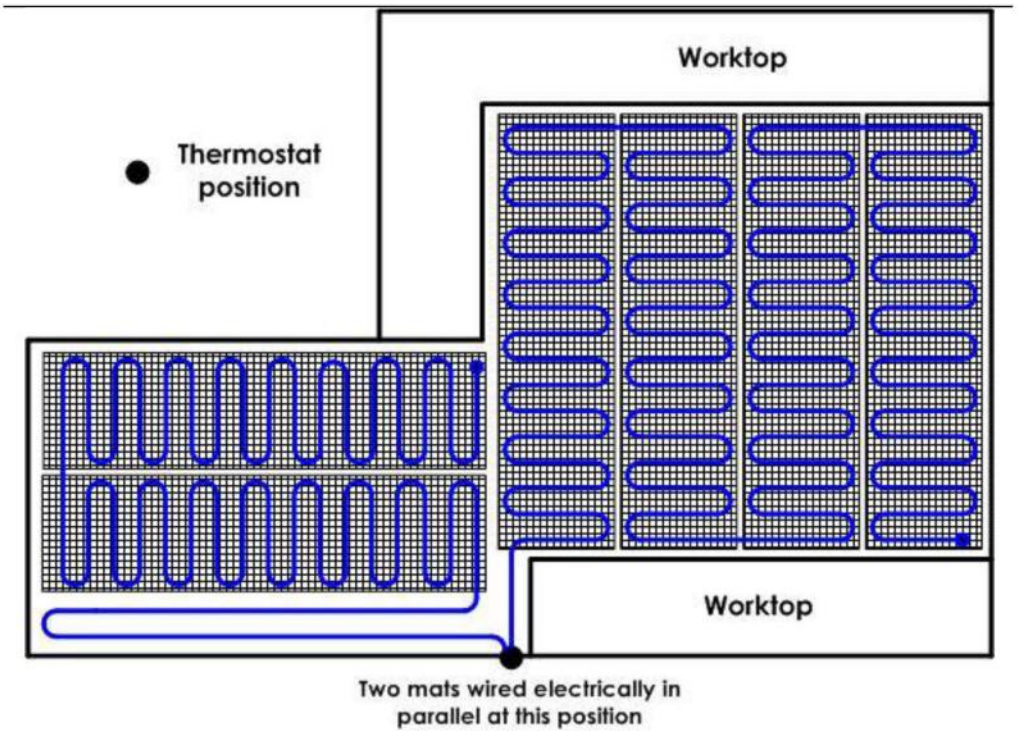
Loose wire taken from the mat can be secured to the floor using duct tape.
NEVER CUT THE HEATING ELEMENT
Do not remove the two-sided adhesive tape until you have planned which way you intend to lay the mat. Fix the mat to the floor using its self-adhesive mesh. In addition, the double-sided tape can be used. Once the mat is in position press over the mat lightly to ensure good adhesion.
Use duct tape to fix any loose cables removed from the mat.

Typical Layout of the Thermopads Under Tile Sticky Heating Mat System



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Tiling

To fix tiles select a single step or two step method. Latex, acrylic or polymer-based adhesives are acceptable.

Single Step: Using a flexible adhesive the tiling can be carried out as a single operation directly on top of the heating mat. Allow a depth of adhesive sufficient to lay the tile and to encapsulate the heating element with no air gaps

Two Steps: Apply a thin layer of flexible self levelling compound just sufficient to cover the mat and encapsulate the heating elements with no air gaps. Allow to cure in accordance with the manufacturer's instructions. This will provide protection to the heating mat and a flat surface, prior to tiling. Next apply the tiles in flexible tile adhesive in the normal manner.

Both steps are approved for under tile heating.

All adhesives must be flexible and suitable for underfloor heating.

Grouting

Use a latex, acrylic or epoxy grout for grouting between the tiles. Latex, acrylic and polymers add flexibility to grouts to resist cracking. Epoxy grouts provide high strength, good thermal shock resistance and fast cure. Do not use sharp objects to clean the grout from between the tiles. Damage to heating cables can occur when excess grout is scraped away and a sharp tool goes deep enough to cut the cable.

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WARRANTY CERTIFACTE

Thermopads Underfloor Heating System

Please complete and return this installation certificate to your distributor/ supplier within 30 days and keep a copy

Name: .....

Address: .....

.....

Phone No.: .....

Type of room: .....

Part Number(s) .....

.....

Purchased from: .....

Date of Purchase: .....

Customers Invoice Number: .....

Initial Resistance test (continuity)..... (ohms)

Insulation Resistance: .....

Signed by electrician/ installer: .....

Date: .....

Resistance test (continuity) prior to laying tiles.....(ohms)

Insulation Resistance - prior to laying tiles.....

Signed by electrician/ installer: .....

Date: .....

Final Resistance test (continuity).....(ohms)

Insulation Resistance: .....

Signed by electrician/ installer: .....

Date of completion: .....

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