

INSTALLATION MANUAL



Suitable for most
wooden/laminate floors
(always check with floor manufacturer)

- Ideal for most wood/laminate floors
- Easy to install
- Fully compliant to latest regulations
- CE approved

Product Specifications and Details

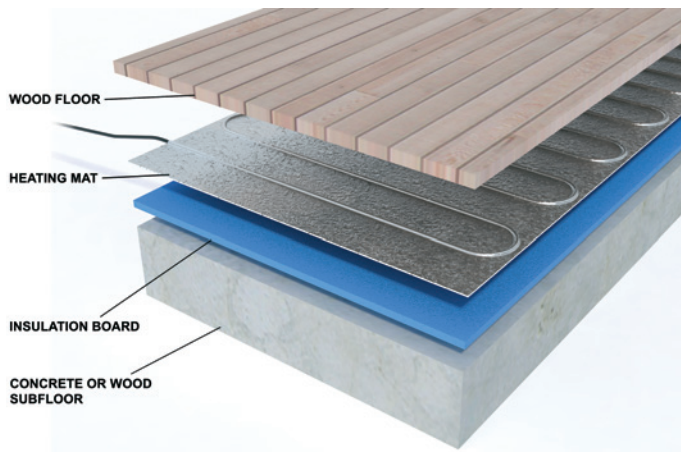
UFH-Direct floor heating mat/s for laminate/engineered and most floating wooden floors.

UFH-Direct heating mats are ultra thin at only 2mm, combined with our 6mm insulation boards they provide an ultra low profile heating system.



Construction

The UFH-Direct system is made with fluoropolymer insulated heating cables. These are sandwiched between two layers of specially reinforced aluminium foil. The uniform spacing of the heating elements, further backed by the aluminium foil, ensures even heat distribution. The heating element is connected to a power-supply cable, which exits the heating mat from one corner.

The power lead is a two core flexible cord, consisting of two insulated conductors with a metal earth sheath/ solid earth cable and an outer sheath depending on your heating requirement.



Do's and Dont's for Installation

-  **Do** read through these instructions carefully before beginning work.
-  **Do** follow testing procedure before fitting floor.
-  **Do read the safety information on the back page** plus the separate installation and operating instructions **for the thermostat.**
-  **Don't** attempt to cut the heating cable at any point.
-  **Don't** place any bean bags, fixed furniture or carpets over heated floor areas.
-  **Don't** turn on the heating mat/cable while it is rolled up or still on the drum.

Important Information:

- UFH-Direct aluminium heating mat/s are designed for installation directly underneath engineered wood or laminate floors, (using suitable UFH-Direct insulation).
- Aluminium heating mat/s are not designed for installation under ceramic tile, natural stone or similar hard floor coverings; and **MUST NOT** be installed under nailed hardwood flooring. (please confirm suitability with us if you are in any doubt). Contact us for more information.

■ COMPATIBLE WOOD LAMINATES & ENGINEERED BOARDS.

Most modern wood laminate floors are compatible with our system, but floors that have metallic strips as part of their locking systems are **NOT** compatible as these metallic strips may damage the aluminium heating mat/s. Also laminates that have an insulation pad already attached to the laminate are **NOT** compatible.

- Check with your flooring supplier as to suitability for use with underfloor heating. Max floor temp is generally 27°C. We do not recommend using wood floors thicker than 18mm, the system may still work but could cause problems over time including reduced efficiency.
- We want your installation to be trouble-free. If you are confronted with a problem you cannot solve, please do not hesitate to contact us on:.
- Aluminium heating mat/s **MUST** be connected to the electrical system through an RCD protected circuit and suitably rated fuse/MCB. Ensure that the circuits that supply power to your mats are RCD protected, or, if possible, a dedicated RCD is incorporated in each circuit supplying power to your mats.

This requirement is critical to the safe operation of the aluminium heating mat/s.

- Aluminium heating mat/s **MUST NOT** be installed under cabinets or other fittings or furniture that will be permanently installed and attached to the floor. Built in cabinets and other furniture with solid bases must not be placed over the mats. Rugs and bean bags or any item which has a tog value of more than 2.5 should never be placed on top of the floor as they can cause thermal blocking, and in extreme cases may lead to the cable overheating causing a possible fire hazard.
- Aluminium heating mat/s **MUST NOT** be installed on top of other in-floor radiant heating systems (for example hydronic or in-screed systems) **UNLESS** the other system is permanently disconnected in such a way that it cannot be inadvertently switched on while the aluminium heating mat/s are also in use.
- Similarly, aluminium heating mat/s **MUST NOT** be installed on floors where radiant ceiling heating mats are used in the room directly below where the aluminium heating mat/s are installed.
- Aluminium heating mat/s **MUST NOT** be installed in thinset cement, or in direct contact with a cement or concrete sub-floor or slab. There must always be a UFH-Direct approved insulation beneath the aluminium heating mat/s.

Controlling Your System:

UFH-Direct heating systems can be controlled using any of our programmable thermostats using a floor sensing probe.

All thermostats are supplied with a floor sensor that allows you to set your heater to the exact temperature you desire.

Our sophisticated units also allow you to set the time your heating turns on - for example one may choose to have a warm bedroom floor first thing in the morning upon waking, the floor does not need to remain warm during the day, but can be programmed to come on again for a few hours around bedtime.

Most wood laminate manufacturers specify that their floors should not be subjected to temperatures in excess of 28°C. The only reliable way to achieve this is to install a temperature sensor in the floor directly under the aluminium heating mat/s, placed under the wood or laminate. Check with your laminate/engineered wood manufacturer to see what their recommendations are for installing electric radiant heating under their floors.

Professional Electrical Installation:

Caution: Due to the new requirements of the 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.

The installation of electrical systems present risk 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 and test the aluminium heating mat/s to the thermostat and / or to the electrical supply circuit.



IMPORTANT

All such connections MUST be in accordance with BS7671 17th Edition Part P wiring regulations.

Note: When installing thermostats in bathrooms they should always be located outside the room and use the floor probe supplied, always check with a qualified electrician that all electrics are in safe and suitable zones.

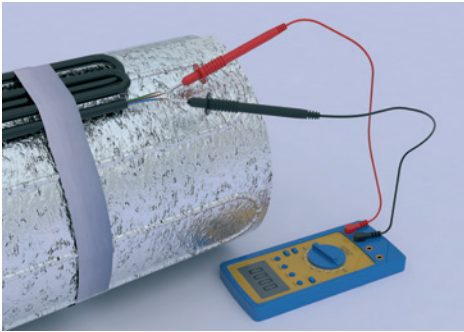
Contents of Heating Kit and Items Required for Installation:

Contents of Heating Kit

- Aluminium heating mat (or mats depending on size of kit)
- Digital thermostat with floor probe
- High adhesion fixing tape
- Black flexible conduit (for floor probe)
- Silver foil strips (for earth continuity)

Items required for installation

- Digital multi-meter (A basic multi-meter will be able to provide resistance readings before and after installation)
- UFH-Direct insulation boards (Not Tile Backer Boards)
- Appropriate insulation boards
- Electrical Housing Boxes 35mm deep (minimum)
- Stanley knife or similar sharp blade
- Tape measure



Testing

Each and every **UFH-Direct** mat is carefully tested before it is shipped from the factory and is packed suitably to avoid damage during transit. However, damage can sometimes occur whilst in storage, in transit and during installation. **We strongly recommend you test your mats as follows:**

- After unpacking them but before you install them.
- After you have installed them but before you install the floor covering (i.e. while the mats are still exposed).
- After installation of the engineered wood or laminate but before the thermostat is connected.

The tests that you will need to carry out at each stage are as follows:

- Resistance test between the Live and Neutral Conductor (Temperature will affect this value so the readings should be within +/-10% of the nominal Ohms values in the tables found on page 8).
- Insulation Resistance test 500Volts DC. This will be a test that only a qualified electrician can carry out as it involves specialised equipment.
- These tests must be performed by your qualified electrician prior to energising the heating system.

Please see table on page 8 for the values you should see when testing the mat.

Product Range and Resistance Values

LENGTH OF MAT (mtr)	WIDTH OF MAT (cm)	AREA (sqm)	RESISTANCE (in ohms)	TOTAL WATTAGE (W)
2	500	1.0	378	140
3	500	1.5	252	210
4	500	2.0	189	280
5	500	2.5	151	350
6	500	3.0	126	420
7	500	3.5	108	490
8	500	4.0	95	560
9	500	4.5	84	630
10	500	5.0	76	700
12	500	6.0	63	840
14	500	7.0	54	980
16	500	8.0	47	1120
18	500	9.0	42	1260
20	500	10.0	38	1400
22	500	11.0	34	1540
24	500	12.0	31.5	1680

The resistance on the mats have a tolerance of +/- 10% of actual reading

Installation Instructions

STEP 1 – Install electrics and clean area

1

Carry out all electrical work required to install; ie. chase walls and install back boxes for fused spurs and thermostat position. Please make sure all works conform to the current regulations.

UFH-Direct underfloor heating systems must be controlled via an rcd protected circuit, for systems not exceeding 13 amps a fused spur that has contact separation in all poles that provides full disconnection under cat 3 conditions can be used, for systems larger than 13 amps a suitable protective device that complies with regulations must be used (please contact us for technical assistance or consult a fully qualified approved electrician).

If you are in any doubt about the electrical installation then please contact our technical advice centre.

Ensure the sub-floor is structurally sound. The sub-floor should be clean and dry. To prevent damage to the mats, special attention should be given to ensure that no nails, screws, staples, tacks and the like are protruding from the sub-floor before the insulation is installed. Beware of automatic staple guns if you use one to secure the underlay to the sub-floor. A badly installed staple that protrudes from the floor can pierce and destroy the UFH-Direct mat.

Nails, screws or staples should not be installed close to the mats or power cables. Permanent fixtures, including built-in furniture, must **NEVER** be installed on top of the mats.

See Safety Guide on back page

It is important to keep an accurate record of where the mats are installed, to assist you (and a future owner!) to easily locate them when you undertake renovation work in the room at a future date. It is also a requirement of the 17th Edition Part P wiring regulations to place a diagram next to your fuseboard position stating where underfloor heating is installed.



STEP 2 – Install underlay

2

Use UFH-Direct XPS or EPS insulation boards directly underneath the heating mat/s, install the boards in a brick pattern as shown below and tape the edges to prevent movement of the underlay during installation.



STEP 3 – Install floor probe

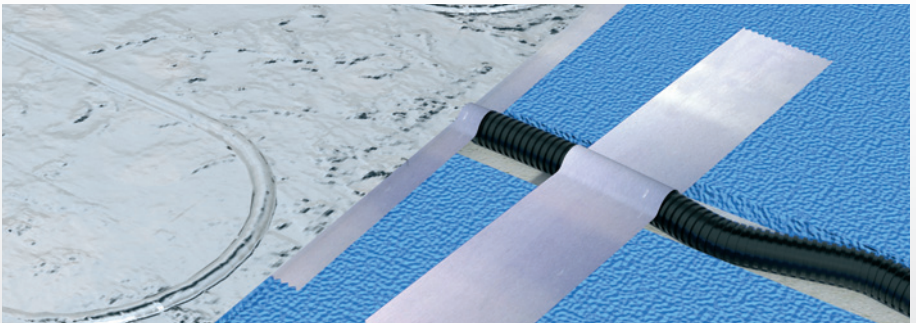
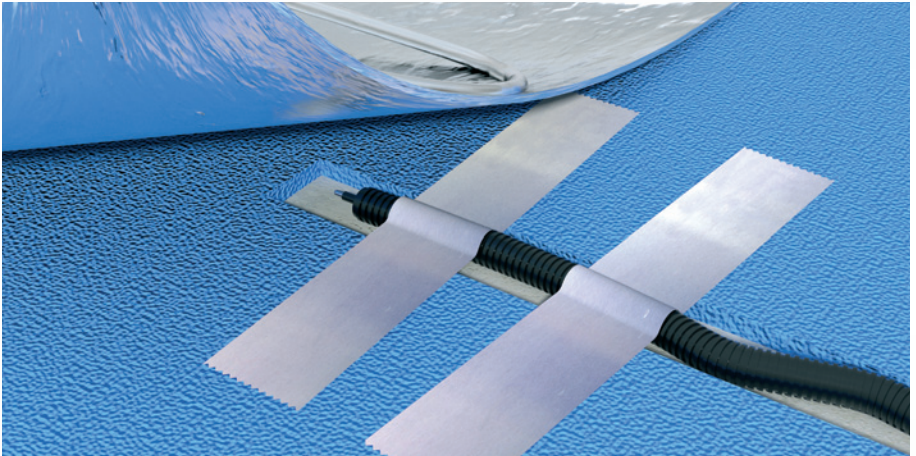
3

If you are using a thermostat with a floor sensor (most installations and recommended with wooden floors), install the black conduit in the wall chase and at least 200mm into the heated area. Run the probe wire down inside the conduit until it just appears from the end of the conduit.

Tape the sensor into channel cut into the insulation directly beneath the UFH-Direct heating mat, centred between two heater wires. (it may be necessary to channel into the sub-floor to fit conduit- beware of pipes and cables!)

The sensor cable should run back up to the thermostat position, the 2 core cable should be connected to the thermostat in the correct terminals.

The sensor wire should NOT cross over the foil heater wires.



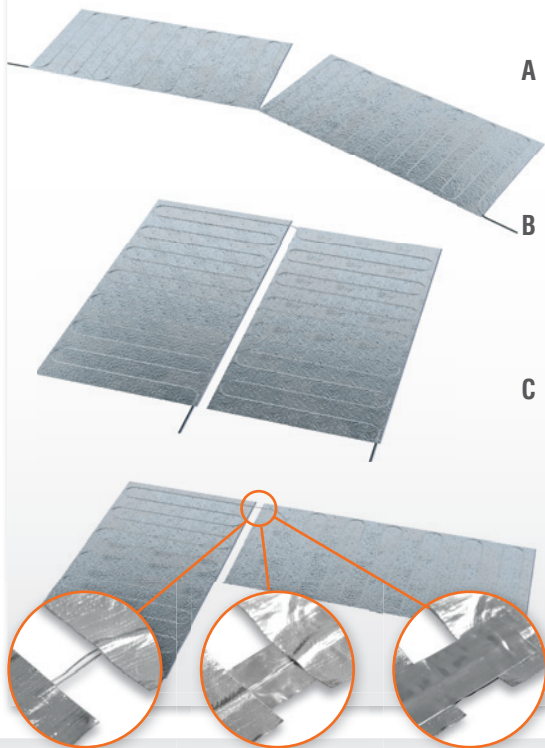
STEP 4 – Lay heating mat

4 Once the insulation has been installed, remove your UFH-Direct mat from the packaging box, carry out a resistance test (as shown on page 7), bring the cold tail (black power lead) up the wall channel and into the back box for thermostat (Use a minimum 35mm box as this allows more space behind the thermostat, if using more than 2 cables then we recommend installing a junction box).

If you have 2 or more mats place them accordingly so all power leads can reach the thermostat position. If this not possible due to layout of the room then the cold tails may be extended using 2.5mm suitable cable and crimps.

This must be carried out by a Part P 17th Edition qualified / competent person.

When positioning the mat on the insulation boards we recommend leaving a minimum gap of 50mm from all walls/fixed units; be aware of the following:



A

Use scissors or a knife to cut the mat **AVOIDING CABLE**. The heating mat must be guided around fixed objects such as toilets, basins, cupboards, etc.

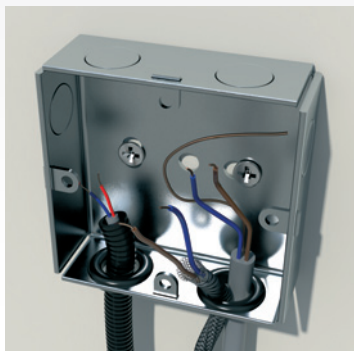
B

The mat can continue to be rolled out making sure that there is a 5mm gap between each section, **DO NOT** overlap the cables at any point, we recommend staggering the mats when installed parallel so to offset the cables.

C

The foil mat can be turned at walls by cutting the foil and flipping the mat over, if the cable is showing upwards ensure you cover all the cable with our aluminium tape for extra protection.

NOW USE THE METAL STRIPS PROVIDED ON ADJACENT MATS TO MAINTAIN EARTH CONTINUITY ON BOTH SIDES OF THE MAT (TOP & BOTTOM AS SHOWN)



STEP 4 – Lay heating mat cont'd

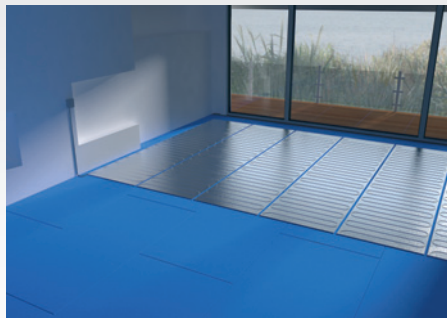
4

UFH-Direct heating mats **MUST NEVER** be cut short to fit into a space that is too small. If your mat is too large you must return it for a more suitable mat size before cutting the

Smooth out the mat and adhere the mat to the insulation material with adhesive tape.

After deciding the route that your cold tails (black leads) will take from the mat to the thermostat position, cut a channel in the insulation along this route, place the cold tails into this channel and tape into position securely. (shown below)

You may also need to remove a small section of insulation from under the mat at the point where the power supply cord enters the mat, to prevent an unsightly lump on the laminate surface and excessive wear on that part of the mat.



When installing two or more UFH-Direct heating mats next to each other make sure that the heating wires in adjacent mats **DO NOT** overlap and we recommend the use of adhesive tape to ensure that they will not overlap over a period of time.

UFH-Direct mats must be fitted directly on top of the insulation, and directly under the wood laminate flooring.



UFH-Direct mats must not be used folded, and care should be taken not to fold or crease the mats at any time during installation. For this reason UFH-Direct mats are not suitable for use on stairs. Should you wish to move your mat at some later stage please remember to roll it rather than folding it.

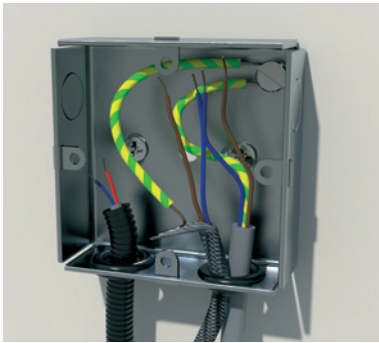
STEP 5 – Wire thermostat

5

When the floor probe, power supply lead and cold tail from the heating mat are all in place in the metal back box and the mat has been laid, you can then complete the heating installation by wiring the thermostat.

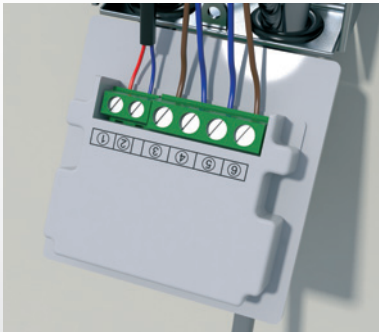


Depending on the type of mat supplied, the cold tail (black lead) may have either a solid earth cable or an earth braid wrapped around the internal cores, this needs to be unbraided by using a screwdriver and pulling down the braid to separate the strands. These can then be twisted into a single strand.



The earth from the mat can then be connected to the earth from the incoming supply by using the earth terminal in the back box. If using a plastic box with no terminal then a terminal block can be used.

At this point an insulation resistance test must be carried out by a qualified electrician.



The rest of the thermostat connections can be made according to the instructions with the thermostat and should resemble the picture shown here.

You can now lay your flooring according to your floor manufacturers instructions taking care not to glue the floor to the matting or nail through the floor! Click systems can simply be clicked together and laid over the heating and engineered wood flooring can be glued along the tongue and groove and floated over the heating mat.

Ensure no glue comes into contact with the heating mat.

SAFETY GUIDELINES

This installation manual has been designed for your safety. For a successful installation please make sure you have understood the guidelines and adhered to all the instructions



IMPORTANT

Flat bottomed furniture **MUST NOT BE** placed over areas where the heating mat/cable is installed as this can restrict airflow to the floor, causing thermal blocking, and in extreme cases may lead to the cable overheating causing a possible fire hazard. This also includes rugs, bean bags, or any item which has a tog value greater than 2.5.

The supplied Commissioning **MUST BE** completed, including the floor plan sketch, to indicate heated areas, which must be permanently fixed in or near the distribution/fuse board as required by the 17th Edition BS7671 amendment 3



MATTRESSES



BEAN BAGS



ANIMAL BEDS



RUGS



FLAT BASED
FURNITURE