

INSTALLATION MANUAL

UNDERWOOD HEATING SYSTEM



Suitable
for most floor
coverings*

*always check with floor manufacturer

- Ideal for most wood/laminate floors
- Ultra thin cable
- Easy to install
- UKCA approved

UKCA approved systems

Our heating cables are UKCA approved, certified and manufactured to the highest standards using state of the art Teflon coated cables. All our cables are designed to be 18th Edition Part P compliant and the instructions we supply with them include as much information as possible to ensure that all installations comply with them (please contact us if you are in any doubt).

Thank you for investing in our industry leading our underwood floor heating system

This instruction manual contains important information regarding the safe installation and operation of your heating mat/s.

These installation instructions are not intended to replace or supersede the installation instructions provided by the manufacturers of your laminate/engineered/wooden floor but to supplement them.

Both sets of installation instructions should be complied with, (always check with the floor manufacturer if you are in any doubt that our heating mat/s are suitable).

Our mats are extremely strong but care must be taken when installing them, please follow the step by step installation guide to ensure a carefree installation.

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Product Specifications and Details

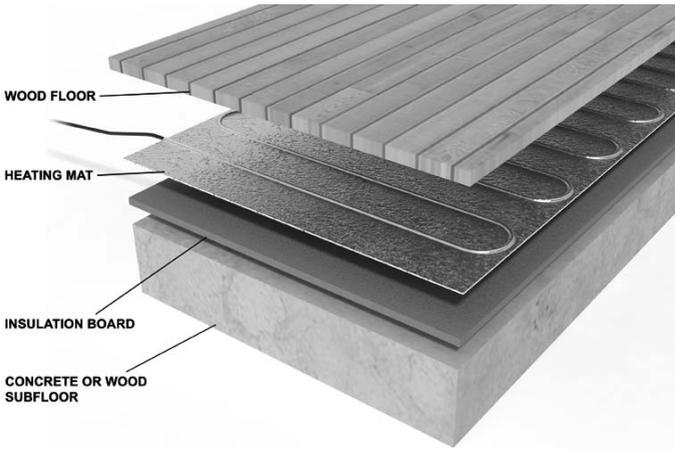
Our floor heating mat/s for laminate/engineered and most floating wooden floors.

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

Construction

Our 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 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 or fixed furniture over the floor covering.
-  **Don't** turn on the heating mat/cable while it is rolled up or still on the drum.

Important Information:

- Our aluminium heating mat/s are designed for installation directly underneath engineered wood or laminate floors, (using suitable our 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 on sales@ProWarm.com 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 28°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.
- 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 which have a tog value of more than 2.5 should never be placed on top of the floor as they can cause thermal blocking.
- 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 an insulation / underlay beneath the aluminium heating mat/s.

Controlling Your System:

Our heating systems can be controlled using any of our programmable thermostats.

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 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 18th 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.

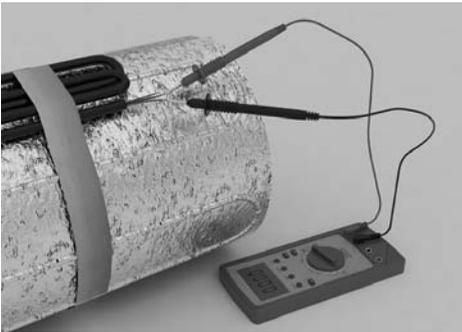
Contents of Heating Kit and Items Required for Installation:

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 sufficient for initial testing of the heating mat and after installation before laying final floor finish. However final testing for completion of the guarantee must be performed by your electrician with calibrated test equipment)
- Appropriate insulation boards
- Electrical Housing Boxes 35mm deep (minimum)
- Stanley knife or similar sharp blade
- Tape measure



Testing

Each and every our mat is carefully tested before it is shipped from the factory and is packed suitably to avoid damage during transit. However, damage does sometime occur in storage or transit, and sometimes during installation. We strongly recommend you test your mats:

- 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 wood laminate but before the thermostat is connected.

A simple test is a visual inspection to make sure there is no visible damage to the heater, and in particular to the cable component in the heater. A simple electrical inspection can be done with an ohm metre to make sure the ohm resistance is what it should be (see page 8). Ohms resistance can vary significantly depending on the ambient temperature and an allowance of -10% to + 10% from the nominal value is acceptable. At this point an insulation resistance test should now be carried out.

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.

Our 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 our 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.

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 18th 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 our XPS insulation board 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.



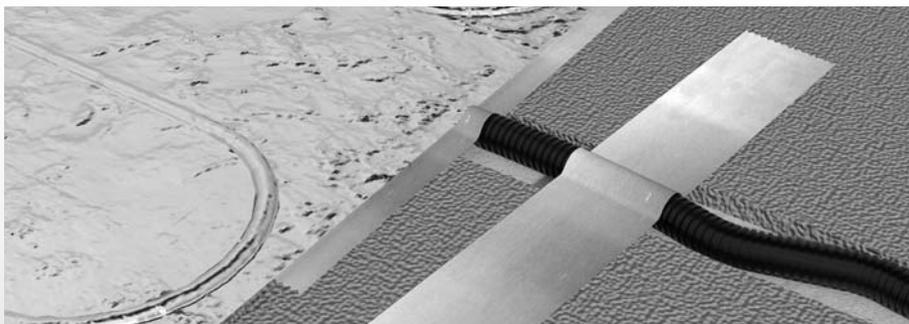
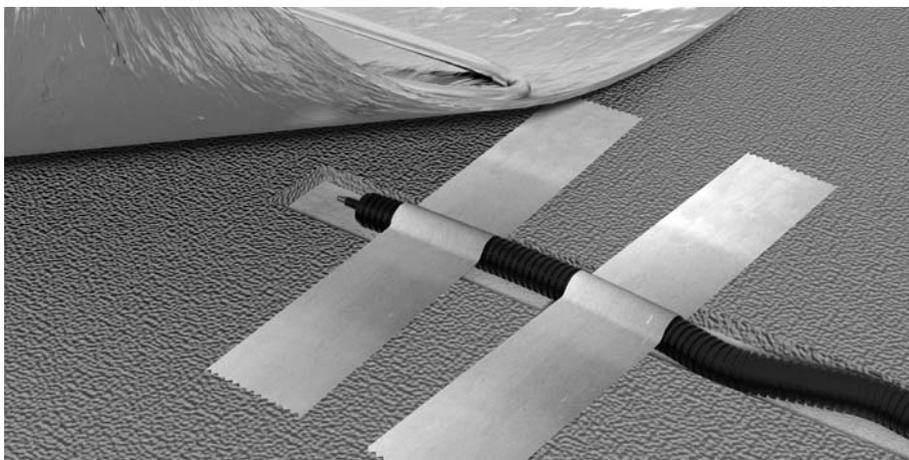
STEP 3 – Install floor probe

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 our 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.



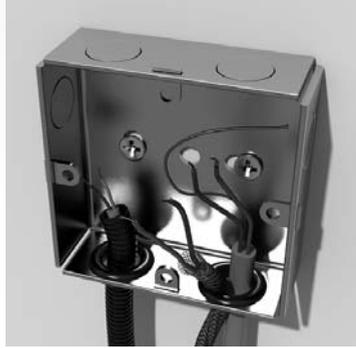
STEP 4 – Lay heating mat

4

Once the insulation has been installed, remove your 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.

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:

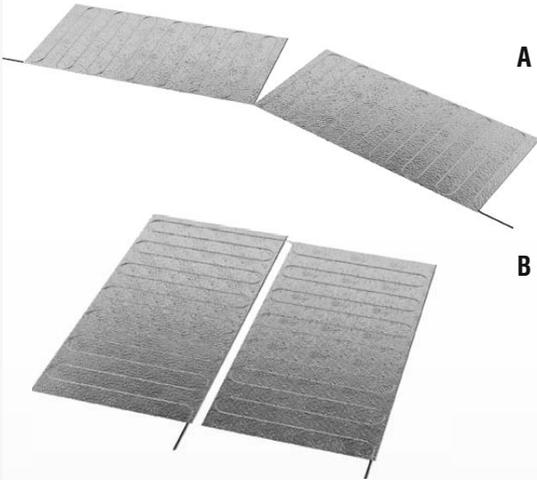


A Use scissors or a knife to cut the mat **AVOIDING CABLE**. The heating mat must be guided around fixed objects such as toilets, basins, cupboards, etc.

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.

The cable mat can be turned at walls by cutting the mesh and flipping the mat over.

NOW USE METAL STRIPS PROVIDED ON ADJACENT MATS TO MAINTAIN EARTH CONTINUITY



STEP 4 – Lay heating mat cont'd

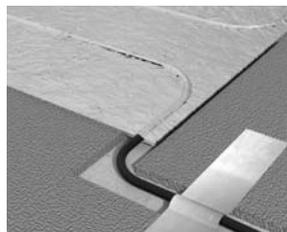
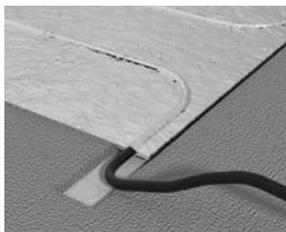
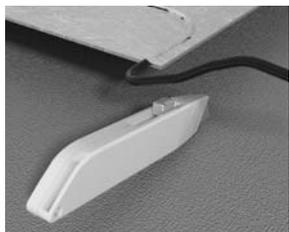
4

Our 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.

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 our 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.

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

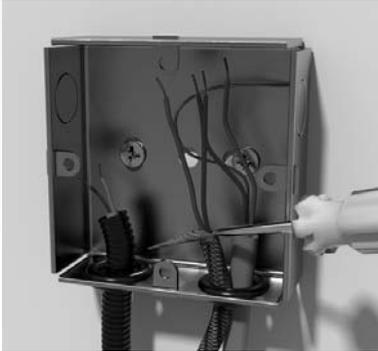


Our mats must not be used folded, and care should be taken not to fold or crease the mats at any time during installation. For this reason our mats are not suitable for use on stairs. Should you wish to move your mat at some later stage please remember to roll it rather than folding it.

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.

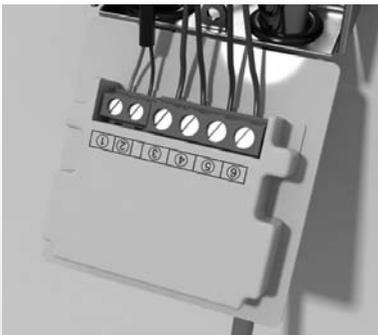


Depending on the type of mat supplied, the cold tail (black lead) may have either a solid earth cable or an earth braid wrapped around the internal cores, this needs to be unbraided by using a screwdriver and pulling down the braid to separate the strands. These can then be twisted into a single strand.



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.