



Installation Manual
Loose cable underfloor heating

A large print version can be downloaded from our website
www.underfloorheatinghq.co.uk

Phone: 0800 328 4980

E-mail: enquiries@underfloorheatinghq.co.uk

PLEASE READ THE INSTRUCTIONS



Installation instructions

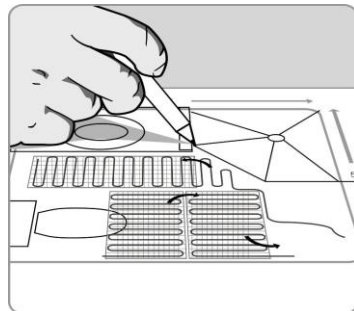
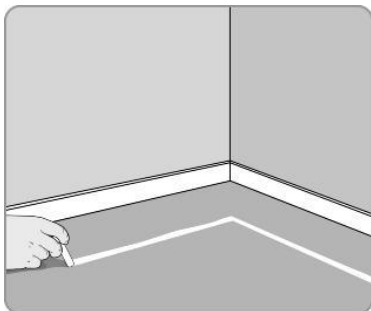
- Information on how to install our Loose wire underfloor heating systems

Our Loose cable systems have all been designed to meet class 2 standards with an earth braid, allowing them to be used on any sub-floor and in any room. There are two layers of insulation around the heating cables making them one of the finest systems available. All the systems have been rigorously tested and surpass all European and International standards for use on timber or solid sub-floors. The heating systems are comprised of fixed lengths of heating cable that come with a roll of double-sided adhesive tape for easy installation. These systems are designed for use under tiled floors, but can, with the correct guidance, be installed under other floor coverings.

If you are intending to install your underfloor heating under other floor finishes', please contact our customer helpline on **0800 328 4980** for advice on our extensive range of systems. Before you start read our advice.

How do I calculate the correct sized heating system?

Simply allow for a 10cm margin around the perimeter of the room and then calculate the remaining floor area in m², from this total you should deduct fixed furniture such as kitchen/bathroom units, the cable should only be laid in open areas, so the floor can radiate the heat.



What heating output should I have?

The power depends very much on the heating performance you expect from your system.

125 Watt/m² = Floor warming system on an insulated sub-floor

150 Watt/m² = Floor warming system

175 Watt/m² = Extra heat and can sometimes be used as a standalone heating system

200 Watt/m² = Maximum heat, ideal for uninsulated concrete or colder areas

*To use any underfloor heating system as the sole source of heating it is essential to have floor insulation.

If there is no insulation in the floor we can supply tile-backer insulation boards that can be installed on top of your existing sub-floor. The depth of these boards ranges from 10mm-50mm. It is also important to be able to carry out a heat loss calculation to ensure that your underfloor heating can provide sufficient heat, contact us for details.

What you need to fit your electrical underfloor heating system

- Correct size kit
- Control device (thermostat)
- RCD on the supply (Residual Current Device)
- Flexible adhesive or levelling compound

We do not guarantee systems that have not been fitted in accordance with the following installation instructions or those that endure accidental damage.

Please read the do's and don'ts to ensure your heating system is fitted correctly

Do -

- Carefully read this instruction manual before commencing installation.
- Consult our helpline if you are unsure how to proceed.
- Ensure the system is tested before, during and after installation.
- Plan your Loose cable layout and installation so that any drilling after tiling (e.g. for sanitary ware) will not damage the heating.
- Ensure that the maximum thermal resistance of the floor does not exceed 0.15 [m²K / W].
- Ensure that during the installation that no damage is caused by sharp objects etc.
- Maintain a minimum gap of 50mm between wire runs and from conductive parts.
- Ensure the end cap and manufactured joint are under a full bed of adhesive or levelling compound.
- Check that the Loose cable is working immediately before commencing tiling.
- Take care when tiling not to dislodge or damage the heating wire.
- Ensure that a heat loss calculation has been carried out if you are using the underfloor heating system as a primary heat source.
- Ensure that the heaters are separated from other heat sources.
- Ensure that the warranty card at the back of the manual is completed and fixed at the main consumer unit along with any plans and electrical test records. As per the current BS7671:2008 17th Edition wiring regulations.

Do not -

- Commence installation on a concrete floor that has not been fully cured.
- Install the Loose cable on irregular surfaces such as stairs or up walls.
- Use staples to secure the heating element to the subfloor.
- Shorten the heating element at any time.
- Bend the heating cable under 25mm radius.
- Leave surplus matting rolled up under units or fixtures - **USE THE CORRECT SIZE**
- Run the floor sensor wire or power lead over or under the heating element or close to other heat sources such as hot water pipes.
- **Tape over the end cap or manufactured joint.**
- Commence tiling before testing the mat.
- Switch on the installed Loose cable until 10 days after fitting to allow the tile adhesive to dry completely.
- Install the Loose cable in temperatures less than +5°C.
- Use the heating system to dry out levelling compound or adhesive.
- Attempt a DIY repair if you damage the heater. Contact us.
- If you accidentally damage the heating cable **BEFORE** tiling, return the damaged heater to us and we will replace it - **FREE OF CHARGE.**

NOTE: Delicate floor finishes such as wood or vinyl have a maximum floor surface temperature of 27°C. This temperature must NOT be exceeded.

Please contact us for further advice if you wish to install the underfloor under any floor finishes other than ceramic, quarry or natural stone tiles.



1. Never cut the heating element wire.
2. Heating elements must be protected by an R.C.D always.
3. Never leave excess heating cable rolled up under units or fixtures (if the mat/ wire is too long, return it to your place of purchase and replace it with a smaller size).
4. Never run the cold leads (connection leads) underneath or across the heating element wires.
5. Never cross or overlap the heating wires.
6. Do not switch the system on for at least 2 weeks after fitting the floor finish (you need to wait for the adhesives/latex/grout to dry naturally).
7. Do not cut or prepare tiles on top of the fitted heating system. When other work is going on in the room, avoid damage by keeping the heating covered until you are ready for the final floor finish to be put down.
8. The cables should never be spaced at intervals closer than 5cm or further than 10cm apart.
9. Only a qualified electrician should connect the heating element to the mains.
10. Do not forget to install the floor sensor for the thermostat when you install the system.
11. **Do not ever** put tape over the joint at the very end of the mat
12. The cold tail connection should be laid flat and not bent in any way. Do not leave the connection between the Loose cable and the connection wire exposed – **Always cover with adhesive/ levelling compound.**

Components included in your UFHHQ underfloor heating kit:

- Warmtoes Cable
- Double sided installation tape
- Installation manual

Additional components needed as part of your underfloor heating installation:

- We recommend the use of a digital multi-meter set to a range of 0-2 K ohms for testing.
- Any compatible underfloor heating Thermostat with a floor sensor
- 30mA Residual Current Device (RCD)
- Electrical housing, back boxes and junction boxes. (Back box for the thermostat must be at least 35mm deep)

Now follow the 7 steps to install your system...

- General Instructions

Step 1. Prepare sub-floor and electrics

a. Surface Preparation

The installer should prepare the floor as if they were laying ordinary floor tiles. They should ensure that the floor surface is completely smooth and flat and that loose floorboards are repaired. If necessary, a layer of plywood or preferably tile backer board should be used to ensure a completely smooth surface. You will need to make a groove in the sub floor for the cold lead connection joint, as this is slightly thicker than the heating cables and must be covered with adhesive. Only do this once the position of the Loose cable has been finalised. We recommend the application of **SBR** primer over the sub-floor.

On wooden sub-floors:

It is recommended you prime the floor using SBR primer. Always use good quality flexible adhesives and check with the supplier that they are suitable for use on wooden subfloors.

- If installing on a de-coupling membrane, always follow the advice from the manufacturer.

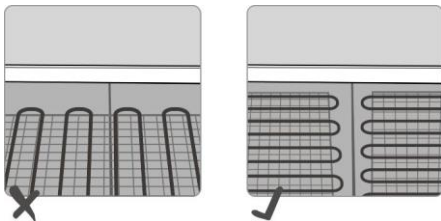
Concrete/ Screed sub-floors:

Again, it's a good idea to prime the floor. Always use good quality flexible adhesives.

Insulation/ Tile backer boards

Use the same installation process as on wooden sub-floors.

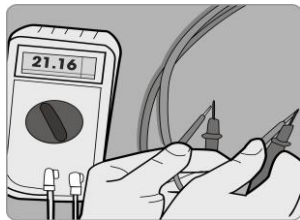
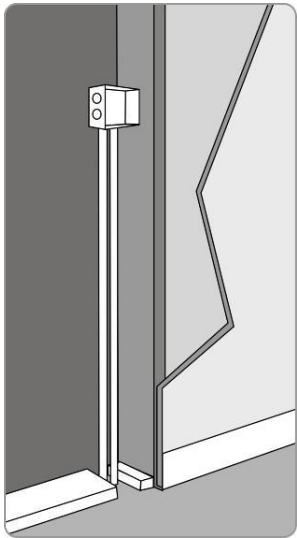
- If the subfloor is a **concrete slab with an expansion joint**, the heating cable should be positioned so that it does not cover the joint.



b. Electrical preparation

Before laying the heating system, a flush mounted deep electrical box should be installed, this is where the cold leads from the heating cable and the wiring from the controls can be connected. If installing the system in a bathroom, the regulations stipulate that the connections/controls must not be sited within the room. Usually it is possible to place them on a wall outside the room (as with a light switch). All wiring should be chased into the wall and protected by conduit or trunking.

A 13amp spur is, in most cases, sufficient. But to calculate the exact loading in amps, there is a simple calculation. Take the total area in m² of the heating cable, multiply it by the power rating of the m², this gives the heating output in watts. To work out the loading, simply divide this amount by the volts. For example, for an 8m² UFH 150 watts/m² cable. $8(\text{m}^2) \times 150 \text{ watts} = 1200 \text{ (watts)}$ divide by 230(volts) = 5.2 amps.



Step 2. Now test the system (resistance)

We recommend that you test the system resistance before you start the installation, then as you finish the installation/before the tiles are put down. To take a reading set your meter to the ohms position on the lowest setting (normally 8000 or 20000 K/ohms). Hold one of the probes on the blue centre cable and one on the black centre cable, the reading obtained should be as shown on the label. You have now completed the continuity test. There is a possibility of a degree of variance in the readings that you may take in the course of the installation, as long as this is not too significant (5% either way) you should not worry too much as it can be affected by moisture and other factors. We recommend that you test the floor sensor with an ohm reading (generally 8 to 20 ohms). The sensor is covered by the thermostat guarantee (usually 3 years).

Also, an insulation test should be done by checking for resistance between the conductor (blue or black cable) and the earth braid - with the meter on its highest setting (2M Ohms), one probe on either the blue or black cable and the other probe on the earth braid. Do not hold the probes on with your fingers during this test, as this could affect the result. Any

resistance should be greater than 2M Ohms, and therefore not register on the meter. Most multi-meters will read as “1”.

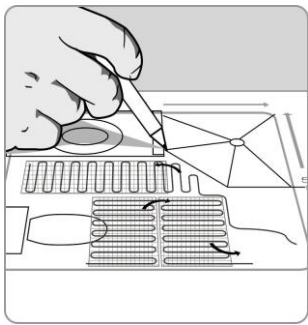
Fill in your test readings at the back of this booklet.

Step 3. Installing your underfloor heating –

If installing our wire system, follow the separate instruction sheet for wire now.

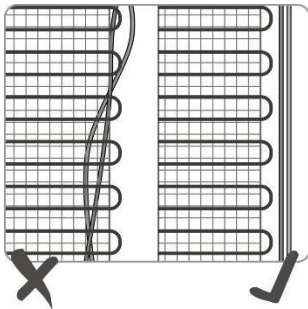
Installing your Loose cable system -

The cables are never laid beneath permanent furniture (cupboards or bathroom fixtures), therefore, we recommend that you draw up a detailed plan of the areas where the cable will be, before you carry out the installation. Decide where you would like the cable and mark them out on the subfloor.



Plan the installation and mark where each run should go to ensure you have the correct size system. Now start to lay the Loose cable taking care not to cut or damage the cable with sharp tools. Wear soft-soled shoes throughout.

Never join the heating element wires or cross the cold leads underneath or on top of the cable.



Our cable comes with a roll of very strong double-sided adhesive tape to stick the cable to the subfloor.

- A. **Start** with the cold lead (connection lead) as near to the electrical spur as possible.
- B. From the table below select your kit and area size and space the cable at the correct cm spacing for your area.

Cable kit wattage	Area covered 200 watt	Area covered 175 watts	Area covered 150 watt	Area covered 125 watts
	m2	m2	m2	m2
300	1.50	1.71	2.00	2.40
375	1.88	2.14	2.50	3.00
600	3.00	3.43	4.00	4.80
750	3.75	4.29	5.00	6.00
1050	5.25	6.00	7.00	8.40
1500	7.50	8.57	10.00	12.00
Space between wire	6 cm	7 cm	8 cm	10 cm

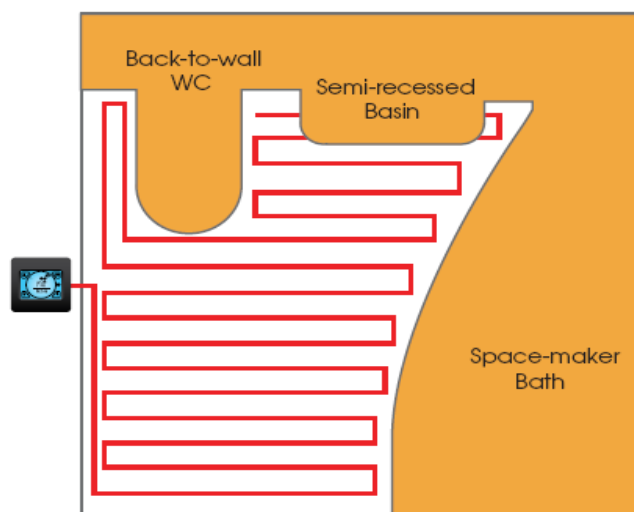
Having decided on the cable spacing, we suggest using your tape measure and with a marker pen/ chalk to highlight where each cable should be stuck down. Start from the Thermostat point and mark out the spacing intervals for the heating cable.

- Try to keep the spacing as uniform as possible to ensure that you do not have hot and cold spots in the floor.

Where you have marked on the floor to begin your installation, lay a row of the double-sided adhesive tape onto the subfloor across the top of your run, in the middle and at the bottom of your plan (if a very large area you may need to add another line of tape).

Now bed your heating cable into the tape by pushing it down to make sure it is secure. If any ends are sticking up, again use the tape to adhere them to the floor.

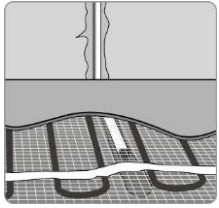
The heating cable has only one connection cable so there is no worry about getting the end back to where you have started.



If necessary, you can adjust the spacing, although we recommend that you keep it as regular as possible. Any excess cable can be run around the perimeter of the room. Once installed we recommend another continuity/resistance check at this stage.

Step 4. Plan where to put the floor sensor (included with underfloor thermostats)

The floor sensor will be in the thermostat box. It is installed about 3-4 cm from the heating cable, care must be taken to ensure that the temperature sensor does not touch the heating elements, this can be achieved by working out the placement of the heating cable prior to fitting the sensor (you will only need a floor sensor if you are fitting a floor thermostat).

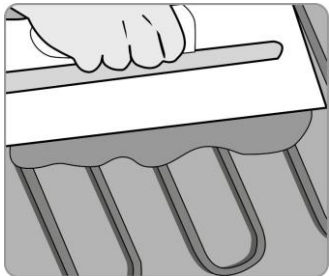


When positioning the sensor try to avoid hot water pipes in the floor or any draughty places such as external doorways as this may affect the thermostat. If required, the sensor lead can be extended using twin-flex cable.

Ensure that the sensor is installed ***in-between element wires***. The sensor tip must not be placed directly under an element wire. This is to ensure that the average heating temperature is measured, and not the temperature of the heating element.

Step 5. Now cover the cables

Now the Loose cable is firmly fixed to the subfloor we highly recommend that you cover the cable with a thin layer of levelling compound or flexible adhesive. Other underfloor heating companies do not suggest this, but we feel it is essential to avoid the possibility of damage occurring to the heating elements. Around 97% of damage caused to heating systems is due to the lack of any protection and cutting this out can cause problems later. We suggest testing the system again at this stage. Check with your supplier that the adhesive is suitable for use with the subfloor.

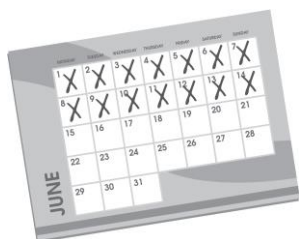
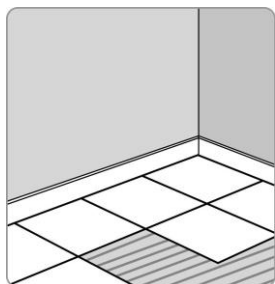


Step 6. Connecting the system

Now a qualified electrician should make the final connections in accordance with IECC guidelines. It is suggested that you use a connection box if more than one system is being connected to the device. The cold leads on the heating cables are not polarised so either can be used as positive/live, however normal practice is to make black or brown positive and blue negative. The cables are of co-axial construction and so have a braided earth screen running all the way though. This is a safety feature and the earth screen must be linked together and connected to the earthing point. All our control units (timer/thermostats) have their own manufacturers wiring diagrams/instructions enclosed in the packaging. Remember to install the RCD at this point.

Step 7. Tiling

Now you can lay the floor tiles as normal. Remember to leave all adhesives to dry naturally, we would recommend waiting for two weeks before turning the heating system on. If any tiles need to be taken up for any reason we recommend that extreme care is taken to avoid damaging the heating system.



Congratulations!

You have installed your underfloor heating system.

Fill in the test cards at the back of this booklet and attach your receipt. This will now act as your guarantee and will be used for reference in the unlikely event of the system malfunctioning.

Should you experience any problems please refer to the troubleshooting guide below before you contact our help-line.

If the readings were accurate during the installation, the system will be okay unless accidental damage has occurred during tiling. Should you experience any problems we recommend you check the following.

1. The circuit breaker or fuse is functioning and delivers the power through the thermostat to the heating element.
2. Make sure the R.C.D has not tripped. If it is a dedicated RCD and it has tripped there is a possibility there could be damage to the cable. Re-set the RCD (using the reset button) and, if it trips again contact the customer help-line. **NEVER BYPASS THE RCD.**
3. Check the thermostat is programmed correctly and is switching on. There should be a light on your control to indicate that it is functioning. If the light is on and it is still not functioning, check you have allowed enough time for the floor to heat up.

Uninsulated concrete floor	1 hour
Wooden sub-floor	30 minutes
Insulated tile backer boards	20 Minutes

These are approximate times and depend on the thickness of the tiles, concrete and insulation that has been put down. If it is the first time you are turning the heating on it can take up to 24 hours for the heat to come through.

If your floor is still not warming up, call the customer helpline and you can speak to one of our engineers.

Underfloor Heating HQ - Warranty

Underfloor Heating HQ guarantee all their electrical underfloor heating systems for 30 years from date of purchase against any manufacturing defects. This warranty covers the repair/replacement of the underfloor heating systems and any associated costs at the discretion of the manufacturer. The ancillary products that we offer to compliment our underfloor heating range are covered by a separate manufacturer warranty (timer/thermostats/RCD's).

Our warranty is subject to the following conditions:

- The warranty is dependent on the ohm's readings on the back of this booklet being completed fully and properly.
- We require proof of purchase to validate the warranty. Therefore, we ask that you retain your invoice, however, if there has been any default in payment for the goods or installation then the warranty is automatically null and void.
- The heating system must always be covered by an RCD (Residual Current Device) .
- The system must be fitted in accordance with our installation instructions; failure to install the heating cable in accordance with our installation instructions will invalidate the warranty.
- The warranty does not guarantee cable that endure accidental damage before, during or after installation. If Underfloor Heating HQ or any of their agents are required to attend site to carry out inspections and subsequent repairs to heating systems and the faults are found to be caused by anything other than a manufacturing defect, then Underfloor Heating HQ have the right to charge a fair sum for all works carried out.
- The warranty does not cover installations where a qualified electrician has not carried out the electrical connection.

We recommend drawing the layout of the heating element directly after the installation. Please use this space to accurately indicate on the drawing where the Loose cable is laid and where you have placed the cold leads/ connection cables and floor sensor. Alternatively, you could take a photograph of the installation.

Test report

- Do not install the cable if the temperature is less than +5°C
- Pay attention to the installation instructions.
- Take care not to damage the cable.

Ensure that the warranty card at the back of the manual is completed and fixed at the main consumer unit along with any plans and electrical test records. As per the current BS7671:2008 17th Edition wiring regulations.

Name:

Address

Purchased from:

Date Purchased:

Ohms Reading at start

Ohms reading when installed

Ohms reading when tiles installed

Attach receipt

WARNING: Your Underfloor heating has been designed so that installation is quick and straight forward, but as with all electrical systems, certain procedures must be strictly followed. Please ensure that you have the correct heater(s) for the area you wish to heat. Underfloor Heating HQ, accepts no liability, expressed or implied, for any loss or consequential damage suffered because of installations which in any way contravene the instructions. It is important that before, during and after installation that all requirements are met and understood. If the instructions are followed, you should have no problems. If you do require help at any stage, please contact our helpline: You may also find a copy of this manual, wiring instructions and other helpful information on our website:

www.underfloorheatinghq.co.uk