



Electric Warm-Stretch under floor heating

Installation Manual



Please read these instructions before you start your installation.

Any damage to the system due to incorrect installation will invalidate the warranty and your lifetime guarantee.

If you are not sure on any aspect of your installation call the Bathstore helpline

0800 783 9843

Information on the Bathstore electric underfloor heating mat

The Bathstore underfloor heating mat has been designed to meet class 2 standards with an earth braid, allowing it to be used on any sub-floor and in any room. There are three layers of insulation around the heating cables making it the safest system available. All the systems have been rigorously tested and pass European and International standards for use on timber or solid sub-floors. The heating mats are comprised of fixed lengths of heating cable stitched into elasticated fabric matting with a 4m long, class 2 connection cable 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 mat under other floor finishes please contact our customer helpline on 0800 783 9843 for advice.

How do I calculate the correct sized heating mat?

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 bathroom units, the cable should only be laid in open areas so the floor can radiate heat.

What heating output should I have?

The power depends very much on the heating performance you expect from your underfloor heating mat. See below for the heating output. Even at its maximum stretch this system will perform excellently on any sub-floor.

The mats are 200watts/m² but when stretched to the maximum 8cm cable spacing the wattage will fall to 135watts/m².

Power Kit size	200watt	180watt	160watt	145watt	135watt
0.90 - 1.40m ²	0.90m ²	1.00m ²	1.10m ²	1.25m ²	1.40m ²
1.50 - 2.20m ²	1.50m ²	1.70m ²	1.90m ²	2.10m ²	2.20m ²
2.10 - 3.10m ²	2.10m ²	2.33m ²	2.60m ²	2.90m ²	3.10m ²
3.00 - 4.50m ²	3.00m ²	3.30m ²	3.75m ²	4.10m ²	4.50m ²
Cable spacing	60mm	65mm	70mm	75mm	80mm

What you need to fit your underfloor heating mat

- Correct size mat
- Programmable thermostat
- RCD (Residual Current Device)
- Adhesive or latex (with flexible additive)

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

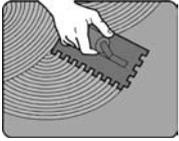
Read the 10 rules below to ensure your heating mat is fitted correctly

1. Never cut the heating element wire.
2. Heating elements must be protected by an R.C.D. at all times.
3. Never leave excess heating mat rolled up under units or fixtures (if the mat is too long, contact your place of purchase or call our helpline).
4. Never run the cold lead (connection lead) 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. For effective heating 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. If using more than one mat, never connect one mat to another, always bring each connection cable back to the control.

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

General Instructions

Figure 1:
Surface
preparation



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 should be used to ensure a completely smooth, firm 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. Only do this once the position of the mat has been finalised.

b. Electrical preparation

Before laying the heating mat, a flush mounted deep electrical box should be installed, this is where the cold leads from the heating mat 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.

Step 2. Positioning the heating mats

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

Figure 2:
Heating area

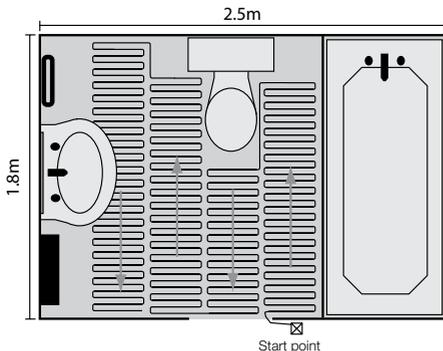


Figure 2 shows the typical area the underfloor heating should cover.

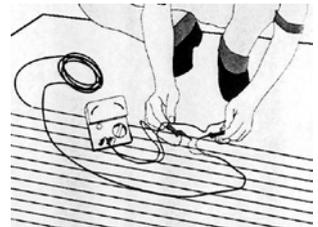
Plan where to put the floor sensor, it is installed about 3-4 cm from the heating cable, care must be taken to ensure that the temperature sensor does not touch the heating elements, this can be achieved by working out the placement of the heating cable prior to fitting the sensor (you will only need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

When positioning the sensor avoid hot water pipes in the floor or any draughty places such as external doorways as this may affect the thermostat. If necessary the sensor lead can be extended using bell wire or 1.0mm twin and earth cable. If more than one mat is used they must be connected in parallel (all cables brought back to the control). **Do not connect to each other, end to end in series.**

Step 3. 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 200 or 2000 ohms). Hold one of the probes on the blue centre cable and one on the black centre cable. 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 you should not worry too much as it can be affected by moisture and other factors.

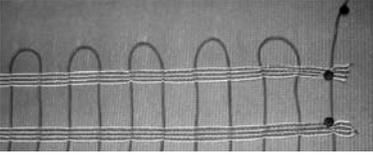


**Figure 3:
Testing
the system
resistance**

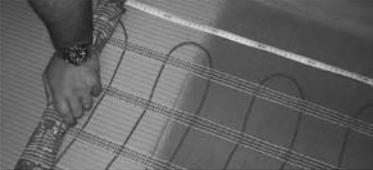
In the unlikely event that accidental damage has occurred during the installation of the mat, this will show up when you put the meter at its highest ohms setting (20 or 200 million ohms). Place one probe on either the black or blue centre cable and the other probe on the earth screen, making sure that the cables at the other end of the system are not touching. Do not hold the probes on with your fingers during this test, as this could affect the result. The reading for this test should be infinity or a blank screen.

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

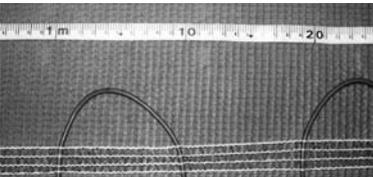
1] Fix Matt securely at the start of the run



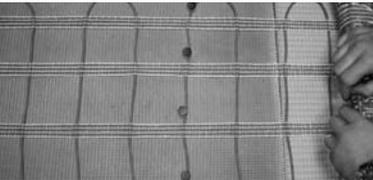
2] Fix the hook pins at the end of the run



3] Stretch the mat and check to your correct cable spacing



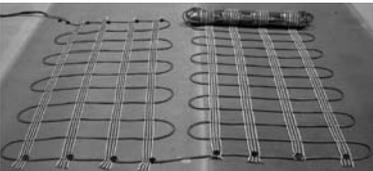
4] Now hook Matt over the pins and secure to the sub-floor



5] Cut and turn Matt



6] Repeat this process until the floor is completely covered.



Step 4. Installing the heating mat

Complete the installation without securing the mat, to ensure you have the correct size system, take great care not to cut or damage the mat with sharp tools and wear soft-soled shoes throughout.

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

If using on a wooden floor it is always recommended that you prime the floor before installing. If using on a concrete floor or a tile backer board, make sure the floor is free from dust and prepared for tiling.

Now you have prepared and are ready to install. Go to your position where you plan to start the installation. Fix the start end of your mat securely using cable clips on wood or plastic fixings on concrete. Work out from your plan the length of the first mat run and the spacing of your cables. At the end of this run fix either four plastic fixings or four 30mm oval nails (these should be firmly pushed in but can be removable) to be used as a hook device. Then, simply stretch the mat to the correct sized cable spacing, pull the Matt over the fixing hooks and secure the Matt down using the cable clips or plastic fixings as before. Then cut the mat and turn it to start your next run and then complete the same process until you have reached the end of the mat.

You may find it easier to hook the mat over the pins to calculate the cable spacing. Before fixing the last two runs of mat check the length of mat remaining against what is required to cover the floor area and, if necessary, adjust the stretch to use up all the matting. If there are any cables sticking up secure them with 3.5mm cable clips to leave the mat flat on the floor.

Figure 4: 50 mm spacing for 200 watts/m²

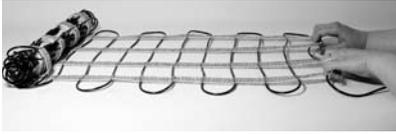
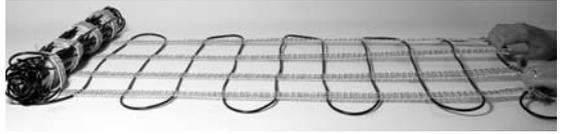


Figure 5: 75 mm spacing for 150 watts/m²



It is possible with Matt Stretchy to calculate closer spacing of cables for colder areas and wider spacing for areas you do not feel are quite as important.

Great care should be taken to ensure that there are no pipes or cables in the sub-floor that may be damaged by any of these fixings, if in any doubt do not use them and contact us for advice.

You have the ability to choose where you want the heating mat to be. You may decide that you only want heating in the main walking areas. You can do this by cutting the fabric backing and creating a single heating cable that leads to where you want the next run of heat. Remember the heat will not disperse to more than 5cm from the cable so 10cm is the maximum cable spacing that can be used.

Step 5. Now cover the cables

Now the mat is firmly fixed to the subfloor we highly recommend that you cover the cable with a thin layer of flexible levelling compound or adhesive. This 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 protection - omitting this can cause problems later. Test the system again at this stage. Check with your supplier that the adhesive is suitable for use with the subfloor.

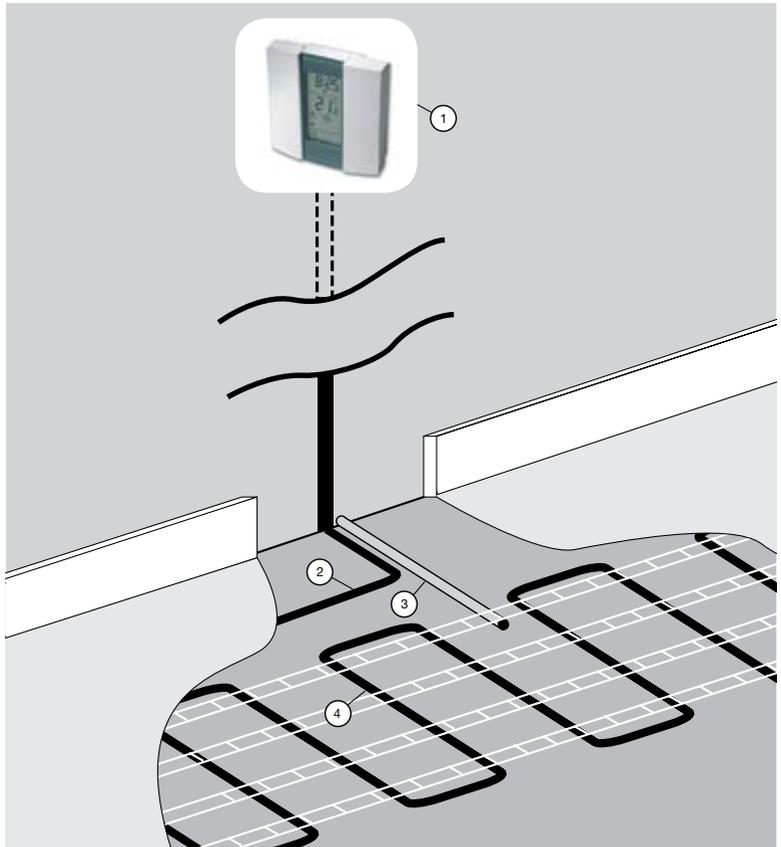
**Figure 6:
Covering the
cables**



Step 6. Connecting the system

A qualified electrician should make the final connections in accordance with IECC guidelines. Use a connection box if more than one mat 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 blue positive and black negative. The cables are of co-axial construction and so have a braided earth screen running all the way though. The thermostat has manufacturers wiring diagrams/instructions enclosed in the packaging.

Figure 7:
Underfloor
location of
temperature
sensing probe
and cold lead



KEY

- | | |
|-------------------------------|------------------------------------|
| 1. Programmable Thermostat | 3. Floor temperature sensing probe |
| 2. Cold lead for power supply | 4. Heating element |

Figure 8: Tiling

Step 7. Tiling



Now you can lay the floor tiles as normal. Remember to leave all adhesives to dry naturally, we 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 mat.

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, 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 RCD 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. Below is a chart showing how long it usually takes to heat the floor up.

Sub-Floor Construction	Heat up time
Marine Ply	0.5 hours
Insulated tilebacker board	0.5 hours
Insulated screed/concrete	1-2 hours
Un-insulated concrete	2-5 hours

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.

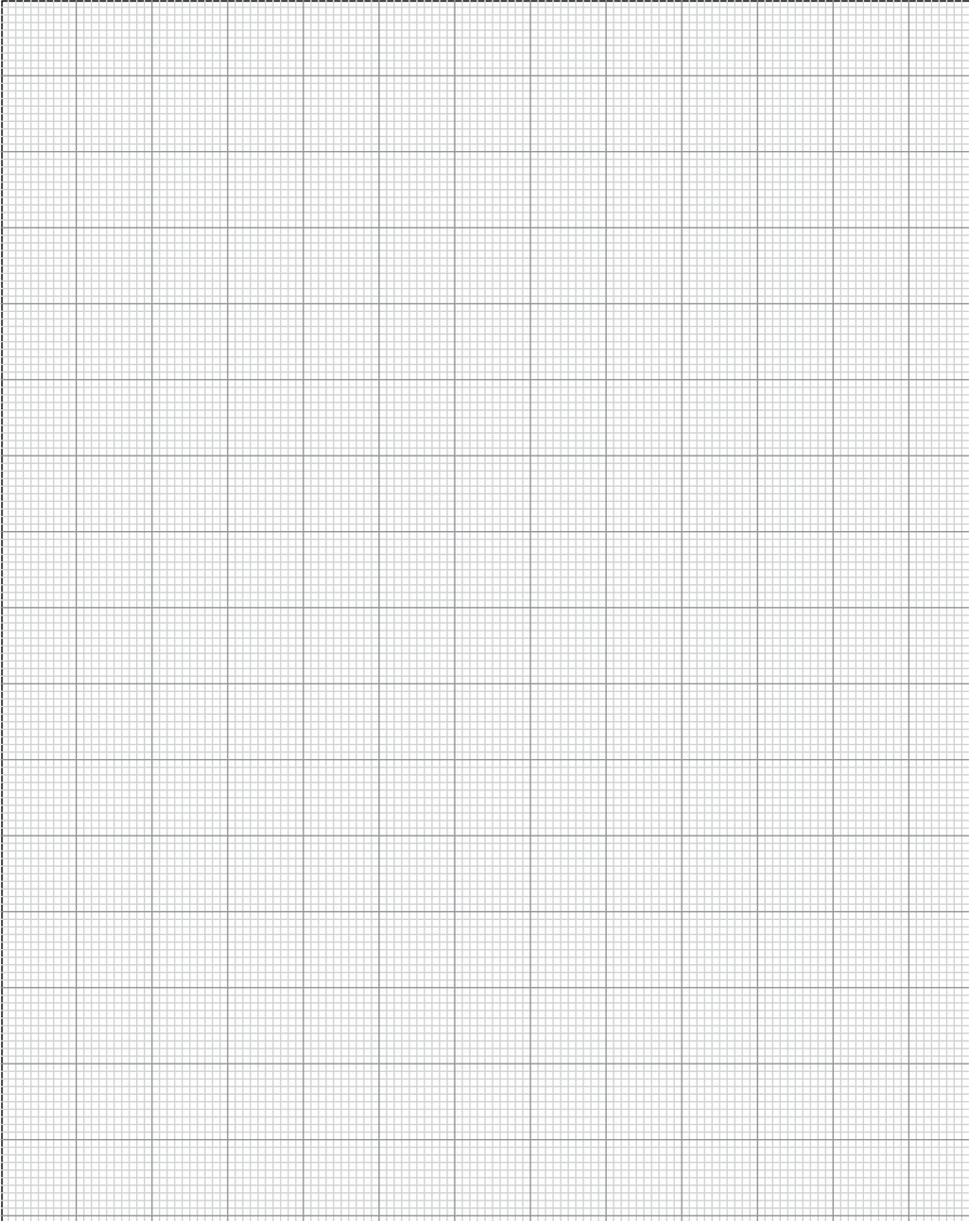
If your floor is still not warming up, call the customer helpline and you can speak to one of our engineers.

Bathstore guarantee the underfloor heating mat for life from date of purchase against any manufacturing defects. This warranty covers the repair/replacement of the underfloor heating mat 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 guarantee is subject to the following conditions:

- The guarantee is dependant on the ohms readings on the back of this booklet being fully and properly completed.
- We require proof of purchase in order to validate the warranty. Therefore, we ask that you retain your receipt.
- The heating mat must be covered by an RCD (Residual Current Device) at all times.
- The system must be fitted in accordance with our installation instructions; failure to install the heating mats in accordance with our installation instructions will invalidate the guarantee.
- The guarantee is invalidated where mats endure accidental damage before, during or after installation. If Bathstore or any of their agents are required to attend site to carry out inspections and subsequent repairs to heating mats and the faults are found to be caused by anything other than a manufacturing defect, then Bathstore have the right to charge a reasonable sum for all works carried out.
- The guarantee 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 the space below to accurately indicate on the drawing where the mat is laid and where you have placed the cold lead/connection cable 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.

This card is for your reference, please fill in the guarantee card and return it to us if you experience problems.

Test

BEFORE installing the heating element

Resistance of the heating wire ohm

Insulation test element/earth braid ohm

Signature..... Date

Test

BEFORE putting the heating element into operation

Resistance of the heating wire ohm

Insulation test element/earth braid ohm

Signature..... Date

Test

IMMEDIATELY AFTER installing the heating element

Resistance of the heating wire ohm

Insulation test element/earth braid ohm

Signature..... Date

Bathstore underfloor heating

Technical helpline 0800 783 9843