



TRUEHEAT

Foil Heating Mat System *Installation Manual*



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Important Safeguards & Warnings

Warning: Shock and Fire Hazard

If the Foil Heating Mat System is damaged or not installed properly, fire or shock could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in this manual.

- A thermostat must be used.
- Do not wire up to a plug, and do not switch on whilst it is still rolled up. It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of floor warming system and the hazards involved. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact an electrician.
- The Foil Heating Mat System is designed for under floor heating purposes only. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- If the Foil Heating Mat System is damaged, it must be replaced. Do not attempt to splice or repair any part of the system.

1. General Information

1.1 Use of the Manual

This manual describes the Foil Heating Mat System - how to design the room, select the product, and install the system. It is important to thoroughly review this manual and the following document prior to installation: Thermostat Installation and Operation Manual


For additional information regarding any aspect of the Foil Heating Mat System, contact:
mail@trueheat.co.uk

1.2 Safety Guidelines

The safety and reliability of any floor heating system depends on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the Heating cable, system components and property, and can create a risk of fire or shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the Foil Heating Mat System performs reliably.

Pay special attention to the following:

Instructions marked as  **Important**

Safety warning identified as  **WARNING**

1.3 Remember to Measure Resistance

The resistance should be measured between the two conductors, blue and brown. Compare this resistance reading to the resistance specified in the Product Selection Table. Without these readings, your warranty will be invalid. The value should be within -5%~+10%. If you get a different reading, contact TrueHeat (mail@trueheat.co.uk). Also, measure the resistance between the blue, brown, and shielding / grounding wire. Both should read infinity. If you get a different reading, contact TrueHeat

(mail@trueheat.co.uk). Please refer to “5 Commissioning” for instructions on how to measure the resistance.



Important: Measure the resistance three times during the installation process.

Remember to always measure, verify, and record the actual resistance throughout the installation process (out of the box, after you have laid the mat on the floor, and after the final floor finish has been laid). Your warranty will be void if this is not done and recorded.

1.4 Lifetime Warranty

From the date of purchase, TrueHeat warrants to the original purchaser that the foil heating mat is free from defects in material, design and workmanship. The extended warranty is only valid if the warranty certificate has been properly completed and mailed, and the installation is in accordance with the installation instructions.

Please contact mail@trueheat.co.uk for your warranty form.

2. Foil Heating Mat Systems

2.1 Foil Heating Mat Specifications

Cable Construction:	Twin conductor
Rated Voltage:	230V
Output:	140W/m ²
Cable spacing:	50mm
Cable Diameter:	1mm
Conductor Insulation:	Fluoropolymer
Max. Ambient Temp.:	85°F(30°C)
Min. Installation Temp.:	40°F(5°C)
Cold lead	Two wires plus ground braid; 2.5m length



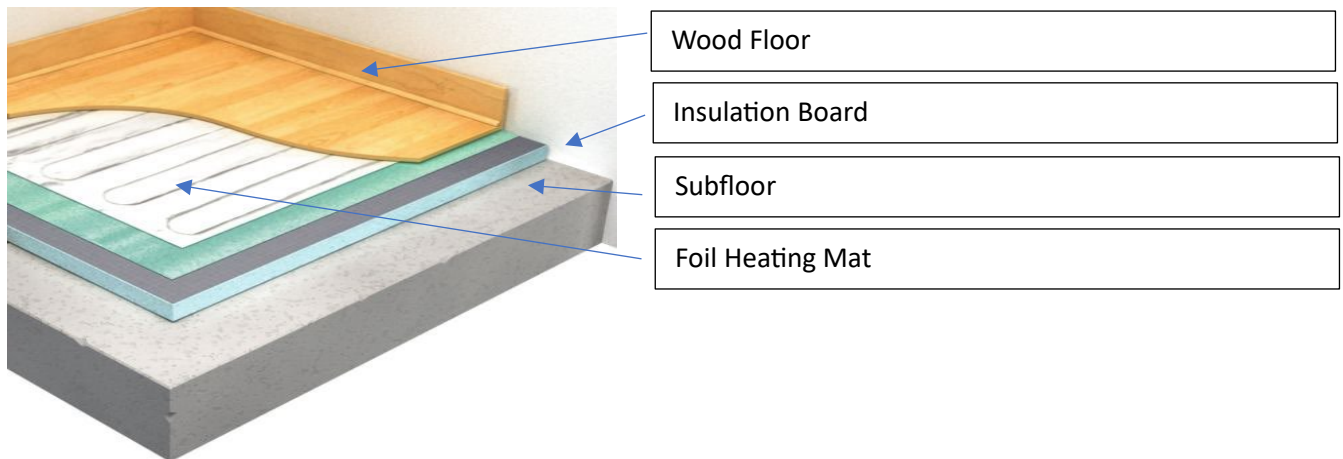
Important

Read the instructions carefully before installing the Foil Heating Mat System



WARNING

Consult the manufacturer for information on special installation requirements for wood, laminate and vinyl or linoleum flooring.



Remember to measure the resistance three times.

- Only for indoor installation. Do not install Foil Heating Mat in walls or ceilings.
- The minimum installation temperature is 5°C(40°F).
- **The Foil Heating Mat cannot be cut to length, crossed over itself, or installed too close.**
- Remember to check that the supply voltage matches the voltage of the Foil Heating Mat.
- Remember to place the labels as written in this instruction.

Please consult your supplier or TrueHeat for any other questions or advice.

3. Floor Heating Design and Product Selection

3.1 Design the Installation

Step 1: Measure the heated area

Determine the heated area of the floor where there are no permanent fixtures or furniture such as baths, showers, toilets, vanities, or cabinets. Measure the heated area of the floor.

For example, in Figure 3, the area of the bathroom is 8.75 m². When you subtract the area of the vanity, shower and toilet, the total heated area is only 6.45 m².

Step 2: Determine the power supply voltage

Make sure the power supply voltage is 230 V.

Step 3: Plan the design

Determine the optimum floor heating mat layout for your heated area to ensure coverage. Select a spot for the thermostat in the wall above the heated area where it can be reached by the 2.5m cold lead on the Foil Heating Mat, and the 3.0m floor temperature sensor. Please refer to Figure 4 below.



Important

The predetermined Foil Heating Mat spacing must be maintained to ensure proper floor heating. Do not change the Foil Heating Mat heating cable spacing when you lay out the cable or the floor may have cold spots.

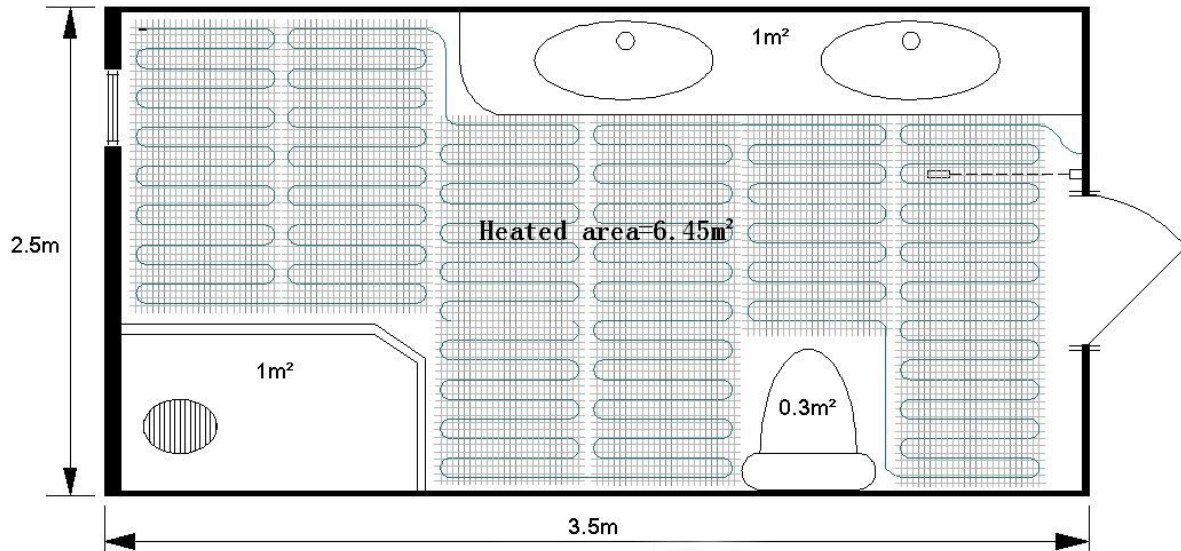


Figure 3: Heated area example

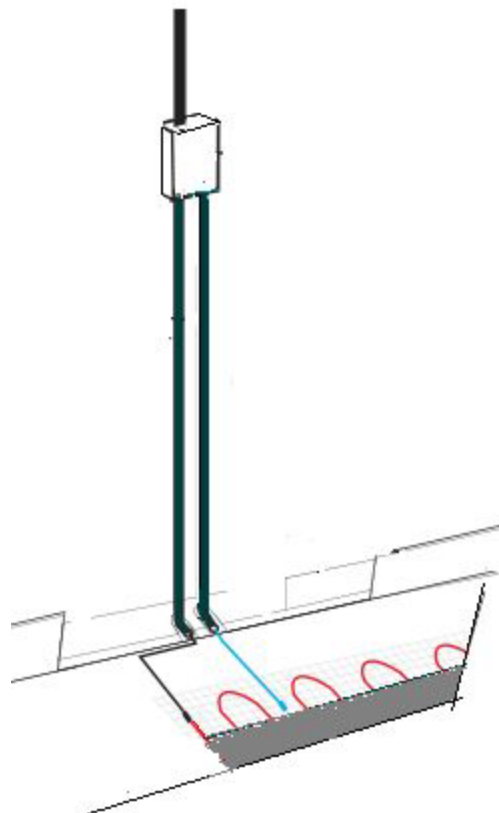


Figure 4: Typical cold lead and floor

3.2 Confirm Your Product Selection

Confirm that your Foil Heating Mat is no larger than the heated area. Following the example from Figure 3, if the heated area is 6.45 m², select the 6.0 m² Foil Heating Mat system.

230V Catalogue Number	Heated Area		Mat Dimensions		Watts (140W/m ²)	Amps	ohms
	m ²	sq.ft.	M*m	in.*ft.			
HM/140/1	1.0	10.8	0.5*2	20*6.6	140	0.61	377.9
HM/140/1.5	1.5	16.1	0.5*3	20*9.9	210	0.91	251.9
HM/140/2	2.0	21.5	0.5*4	20*13.1	280	1.22	188.9
HM/140/2.5	2.5	26.9	0.5*5	20*16.4	350	1.52	151.1
HM/140/3	3.0	32.3	0.5*6	20*19.7	420	1.83	126.0
HM/140/3.5	3.5	37.7	0.5*7	20*23.0	490	2.13	108.0
HM/140/4.0	4.0	43.1	0.5*8	20*26.3	560	2.43	94.5
HM/140/4.5	4.5	48.4	0.5*9	20*29.5	630	2.74	84.0
HM/140/5.0	5.0	53.8	0.5*10	20*32.8	700	3.04	75.6
HM/140/6.0	6.0	64.6	0.5*12	20*39.4	840	3.65	63.0
HM/140/7.0	7.0	75.3	0.5*14	20*45.9	980	4.26	54.0
HM/140/8.0	8.0	86.1	0.5*16	20*52.5	1120	4.87	47.2
HM/140/9.0	9.0	96.9	0.5*18	20*59.1	1260	5.48	42.0
HM/140/10	10	107.6	0.5*20	20*66.6	1400	6.09	37.8
HM/140/12	12	129.2	0.5*24	20*78.8	1680	7.30	31.5

4. Installation



Important – Tools and materials required.

You will require the following items to install and test the floor heating system:

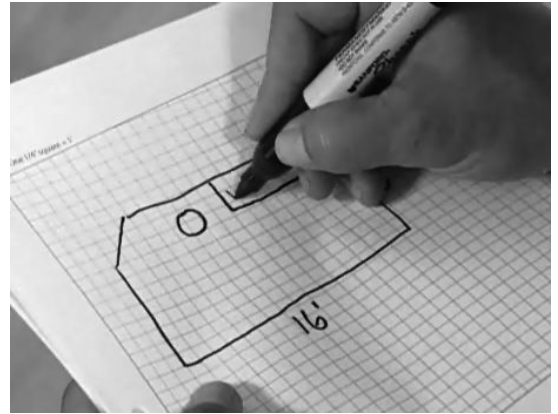
- Scissors
- Utility knife
- Wire strippers
- Tape measure
- Screwdriver
- Multi-meter
- Insulation resistance tester
- Aluminium tape
- Aluminium foil glass fibre tape

You will also need the appropriate tools and materials to install your floor.
Follow these steps to ensure a successful Foil Heating Mat installation.

Step 1: Plan Layout

Make a sketch layout or a floor plan of the room; include all permanent furnishings such as toilets, bathtubs, appliances, cabinetry, etc. The first step is to calculate the coverage of heating mat that you require. Although 100% coverage is achievable, we would recommend allowing a border of between 2 and 4cm around the edge of the room.

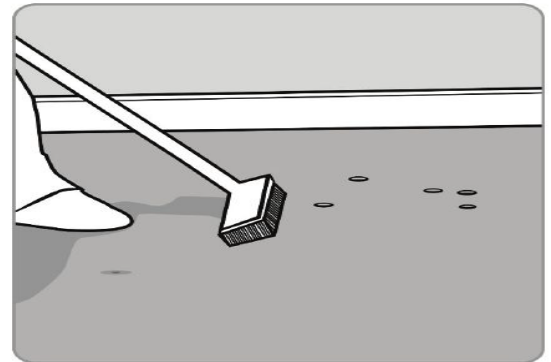
Calculate the internal dimensions (skirting board to skirting board) of your room and deduct 2cm from these. Using these amended dimensions sketch out a diagram of your room and calculate the total area that you have. Indicate all dimensions required to determine the available floor area and the position of the Thermostat. We would recommend spending ten minutes sketching this out as it can save you a lot of time during the installation process if you have a plan.



Important – TrueHeat recommends that the installation is documented with photos to note the location of connections and the sensor.

Step 2: Prepare Subfloor Surface

The Foil heater must not be installed in thin-set cement, or in direct contact with a cement or concrete sub-floor. There must always be a soft insulation / underlay beneath the aluminium heating mat/carefully inspect the subfloor and make sure it is clean, free of sharp edges, protruding nails and any other materials that may damage the heating mat. Clean and vacuum the floor thoroughly and remove dust and debris from the floor that may damage the heating cable. Ensure that the subfloor is secure and stable. Carefully fill in all cracks.



Step 3: Lay the Insulation Board

Use a minimum of 6mm XPS or IZOtherm insulation board directly underneath the heating mat/s, install the boards in a brick pattern below and tape the edges to prevent movement of the underlay during installation.

Step 4: Measure the Resistance (The 1st Time)

Once the insulation has been installed, remove your Foil Heating Mat from the packaging box, carry out a resistance test. Use a digital ohm meter to measure the resistance of the Foil Heating Mat and compare it to the Product Selection Table. Record the measured resistance on the warranty card. Documenting the resistance at each stage of installation is required for warranty purposes. Also, measure the resistance between the blue, brown, and yellow green ground wire. Both should read infinity. **(Please refer to “5 Commissioning” for instructions on how to measure the resistance).**

Step 5: Transfer Layout to Floor

Draw an outline of the layout on the room floor including a footprint of all furnishings that are not yet installed. Unroll the first 1 – 2 meters of the Foil Heating Mat. The starting point of the cable must be placed within 2.5m from the thermostat.



Important – Mark the position of the connection point between the power lead and the Foil Heating Mat heating cable. When using a floor temperature sensing thermostat, mark the sensor position in the middle of heating cables, about 25cm away from the wall (within the heated area), as close as possible to the thermostat.

Step 6: Install Sensor

If using a floor temperature sensing thermostat, install the sensor now, in the conduit tube. It is recommended that the sensor be installed in conduit tube. This will allow the sensor to be easily replaced in the unlikely event of failure. The tube needs to be installed between the thermostat wall box and the sensor position. The conduit tube must be partially countersunk into the insulation board. Run the probe wire down inside the conduit until it just appears from the end of the conduit. Cut a 8mm x 8mm (approx) channel in the floor and wall up to the thermostat for the sensor conduit. The conduit has to go from the thermostat and minimum of 25cm away from the wall towards the middle of the floor. 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.



Important – The sensor conduit must be centred in the cable loop (between two heating wires).



Step 7: Begin Laying the Foil Heating Mat

Start by placing the mat such that the connection point and the temperature sensor are in their intended positions and bring the power cable to the thermostat or connection box.



Begin unrolling the Foil Heating Mat evenly across the floor outside the areas that you marked previously. When you reach the next wall, carefully cut the foil mesh, (Taking care not to cut the cable within the foil mat) turn the mat and begin rolling in the new desired direction.



Ensure that the Foil Heating Mat is in full contact with the insulation board at all times. Avoid walking on the heating mat. If this is not possible, use shoes with soft soles.

It is highly recommended taking photographs of the installed Foil Heating Mat before installing the flooring. **NEVER CUT THE HEATING CABLE!**



Step 8: Joining the Cut Aluminium Foil Sheets

Using a minimum of 2 strips of self-adhesive aluminium foil tape, join the heating mats as seen in the image. The tape serves as shielding for the heating cables; therefore, the sheets must be electrically connected.



Step 9: Measure the Resistance (The 2nd time)

Please refer to step 4. (Please refer to “5 Commissioning” for instructions on how to measure the resistance).

Step 10: Install Wood Floor Covering

ENSURE THAT THE SENSOR CONDUIT HAS BEEN PROPERLY INSTALLED BEFORE PROCEEDING (see Step 3).

Before fitting the floor covering, switch on the heating mat to check that it is working - warmth should be noticeable on the surface of the heating mat within minutes. You are now ready to lay the final floor finish. Take care not to damage the heating mats. Do not drive nails or screws into the floor or cut the floor panels on top of the foil mat.



Important – If the floor is not being laid immediately, all heating mats must be protected with cardboard to prevent damage. Immediately prior to the floor being laid, test the heating mat to ensure it has not been damaged.

Step 11: Measure the Resistance (The 3rd time)

Please refer to step 4. (**Please refer to “5 Commissioning” for instructions on how to measure the resistance**).

Step 12: Connect Power Supply and Thermostat

The connection of the power supply and the Thermostat must be done by a qualified electrician. The electrician should connect the floor sensor to the thermostat along with the power supply and the heating mat.

Note: You need to mark the appropriate circuit breaker reference label indicating which branch circuit supplies the circuits to the underfloor heating mat.

Step 13: Record Information and Affix Labels

It is important for the homeowner to mail in the certificate immediately after installing the system (cable and thermostat). Failure to do so could void the manufacturer's warranty. The warranty is subject to the guarantee conditions listed on the warranty certificate.

Keep a copy of the warranty card for your reference. (See section 1.4 to get your warranty form)

Step 14: Enjoy the Comfort of Foil Underfloor Heating

The Foil Heating Mat heating system is now ready to use. Increase the floor temperature gradually and adjust it until it reaches a comfortable level depending on the type of room and your personal preferences.

5. Commissioning



Important – If the floor is not being laid immediately, all heating mats must be protected with cardboard to prevent damage. Immediately prior to the floor being laid, test the heating mat to ensure it has not been damaged.

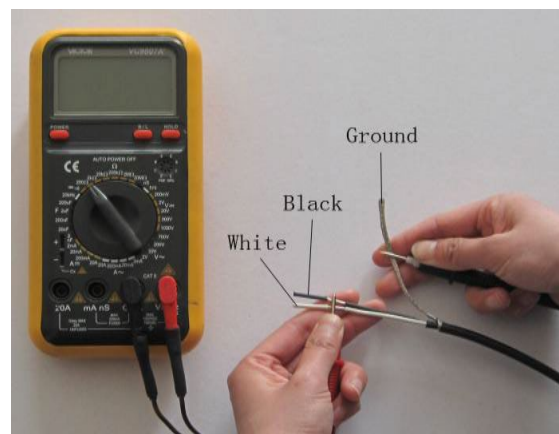
For the extended Lifetime Warranty to apply, you must perform these tests, record the results on the warranty card, and retain of copy of the record.

You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, and the Sensor Resistance Test three times (please refer to Step 4) during the installation process.

5.1 Insulation Resistance Test

This test ensures that the insulating jackets of the mat are not damaged. A low value indicates the cable has been damaged and must be replaced.

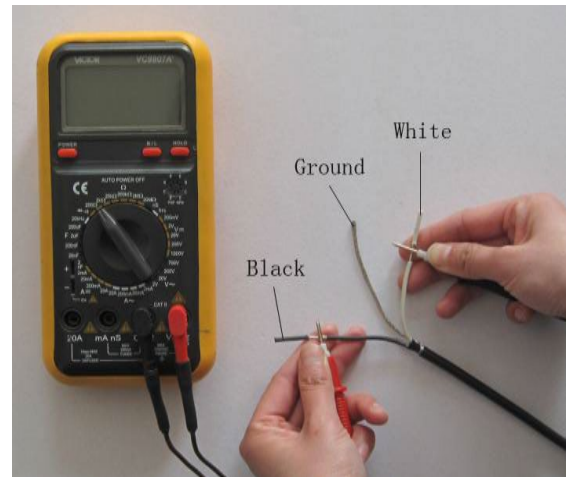
1. Connect the ground wire to the black lead and both power wires to the red lead of the multi-meter.
2. Make sure the meter reads “Open” or “OL”. If you get a different reading, contact TrueHeat at mail@trueheat.co.uk.
3. Record these readings on the warranty card.



5.2 Heating Cable Resistance Test

This test measures the resistance of the Heating Mat and is used to determine circuit integrity.

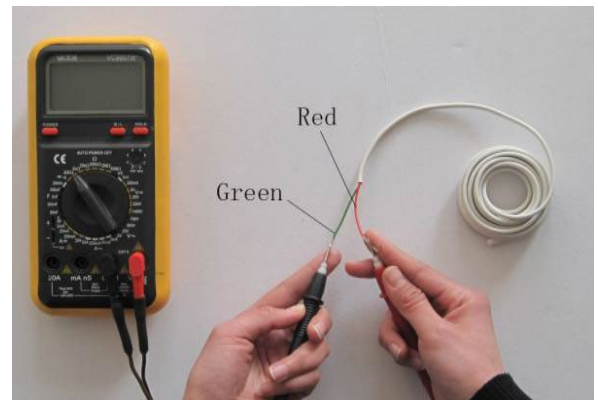
1. Set your multi-meter to the 200 or 2000 ohm range.
2. Connect the multi-meter leads to the black and white cold lead wires.
3. Compare the resistance reading to the resistance specified in the product selection table. The value should be within -5% to +10%. If you get a different reading, contact TrueHeat at mail@trueheat.co.uk.
4. Record these readings on the warranty card.



5.3 Sensor Resistance Test

This test measures the resistance of the floor sensor and is used to verify the sensor integrity.

1. Set your multi-meter to the 200K ohm range.
2. Connect the multi-meter leads to the red and green lead wires.
3. Make sure the meter reads between 9-25K ohms. If you get a different reading, contact TrueHeat at mail@trueheat.co.uk.
4. Record these readings on the warranty card.



6. Troubleshooting

Symptom	Probable Causes	Corrective Action
Floor doesn't heat	No voltage.	Check circuit breaker.
	Circuit breaker tripped.	Ensure that there are not too many mats or other appliances connected on the same circuit. The underfloor heating mat may require a dedicated circuit. See the Product Selection Table of this manual.
	Ground-fault tripped in the thermostat.	Refer to Thermostat Installation and Operation Manual.
	Thermostat not turned on.	Refer to Section 4 (Step 12) of this manual, and the Thermostat Installation and Operation Manual.
	Cable not connected to Thermostat.	Refer to Thermostat Installation and Operation Manual.
	Floor temperature sensor not connected.	Refer to Thermostat Installation and Operation Manual.
	Faulty floor sensor.	Contact TrueHeat mail@trueheat.co.uk
Floor warm all the time	Clock not set correctly.	Refer to Thermostat Installation and Operation Manual.
Floor not warm enough	Thermostat setting not set correctly.	Refer to Thermostat Installation and Operation Manual.
Installation instructions not available		Contact Trueheat at mail@trueheat.co.uk



EXTENDED WARRANTY:

TrueHeat offers a lifetime warranty on underfloor heating mats to the original purchaser. This warranty is non-transferable and only applicable providing that the warranty form is filled in and returned to us completed with all test readings recorded and installed in accordance with the installation instructions.

Failure to provide this will void the warranty.

The defective Heating mat must be inspected by or submitted to TrueHeat or an authorized Heating mat dealer. Failure to comply with all the foregoing will void this extended warranty. TrueHeat will, when the customer has documented that a defect in the heating mat was present at the date of delivery, repair or supply a new heating mat. All claims shall be made within the extended warranty period. TrueHeat will not be liable for any consequential and secondary costs or damages linked to the defect or replacement of the heating mat. TrueHeat will be liable for any costs related to the dismantling of defective product(s) and the installation of a new product; however, such liability is limited to the amount of five (5) times the initial product costs for each damage/case.

THE FOREGOING WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ON THE PART OF TrueHeat. TrueHeat DISCLAIMS ANY WARRANTY, EXPRESS OR

IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TrueHeat NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON, FIRM OR CORPORATION TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH SALE OR PRODUCT. TrueHeat SHALL NOT BE HELD RESPONSIBLE FOR DAMAGE TO PERSON OR PROPERTY, CONSEQUENTIAL LOSS, LOSS OF PROFIT, LOSSES ON GOODS IN STORE, OR THE LIKE WHICH MIGHT ARISE OUT OF THE FAILURE OF THE EQUIPMENT DELIVERED, IRRESPECTIVE OF THE CAUSE (INCLUDING FAULTY MANUFACTURE).

How to claim this warranty

Contact the company's Customer Service department and provide the following information:

- 1) Nature of the manufacturing defect
- 2) Date of purchase and, if already installed, date of installation
- 3) If installed, name of electrician and flooring installer
- 4) Resistance readings taken by installer
- 5) Proof of purchase and serial number from product label

Our Customer Service department will provide you with an authorization number and advise you on the next steps to complete your warranty claim.

Disclaimer:

This warranty gives you specific legal rights and you may also have some legal rights which may vary from state to state or province to province. TrueHeat hereby disclaims, and it is as a condition of the sale, that there are no implied warranties. Some states and provinces do not allow limitations on an implied warranty so the above limitation may not apply to you.

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