



eMat 90/160 Installation Manual



elements

www.electricunderfloorheating.co.uk

Before you begin installing read through these instructions carefully and check that you have all the components required.

Introduction

Important notes, please read carefully before proceeding with installation

The eLine Brand

Congratulations on choosing your eMat underfloor heating product from the eLine range of under floor heating solutions.

The e Line range has been manufactured to exceed all relevant standards and expectations considering ease of installation and usability through the lifetime of the product.

The eMat Product

The emat product has a self adhesive fibre glass backing mesh with an ultra-thin twin conductor 3mm heating cable pre attached, ensuring minimal increase to the existing floor height.

Experienced product design ensures a speedy installation with an even heat across the complete floor surface whilst, allowing unlimited adjustment of the heating element to suit irregular formats.

The emat product is available in two output types:

90 watts per m² (for use with timber floor substrates e.g. plywood, chipboard etc).

160 watts per m² (for use with concrete floor substrates e.g. sand cement screed, insulated backer boards etc).



Do's & Dont's

Do

Carefully read this instruction manual before starting your installation and follow the testing procedure as detailed on page 7. Throughout your installation:

- Take some time to plan your mat layout considering all obstacles e.g. kitchen cupboards, bathroom sinks etc. Ensure mat will fit before laying.
- Use flexible tile adhesives and grouting materials.
- Ensure the floor sensor thermostat is inserted within the flexible tube provided and installed between two heating elements, with the floor end of the flexible tube effectively sealed (to ensure easy removal of floor sensor if required after installation). See page 3, fig 3.
- Maintain a minimum of 50mm between the heating element runs.
- Take care not to damage the heating element and cold tail whilst tiling.
- Ensure all the blue heating element is covered with a flexible self levelling compound or tile adhesive.
- Make certain there are no air gaps underneath tiled areas or between heating element runs.
- Ensure the floor surface is prepared correctly before installation. See note on page 4.
- Ensure all the blue heating elements are installed within the floor.
- When using more than one eMat from a single supply, cold tails must be connected in parallel.

Don't

- Cut or shorten the blue heating cable.
- Cross or touch the blue heating cables together.
- Switch your under floor heating system on for a minimum of 7 days after tiling to allow correct curing of tile adhesives and grouts.
- Connect the heating element to the power supply whilst still rolled up.
- Leave rolled up surplus sections of mat under kitchen units or bath spaces.
- Commence installation of your floor surface before testing your emat. See page 7.
- Tile over damaged or twisted cables.

Tools needed for installation

You will require the following items to install and test the floor warming systems.

- Tape measure, drawing pad and pencil
- Utility knife, scissors
- Cable strippers, screw driver
- Resistance tester (multimeter), insulation resistance tester

You will also need the appropriate tools and materials to install your finished floor surface; these will probably include products like self levelling compound, insulated backer board, notched tile trowel and various other tools and materials for your specific project.

Contents of eMat system

- Heating mat
- Sensor tube
- Installation instructions
- Warranty

The following pages contain all the information you will need about the eMat. Please take the time to study this information thoroughly before you attempt to install this product.

Glossary of Terms

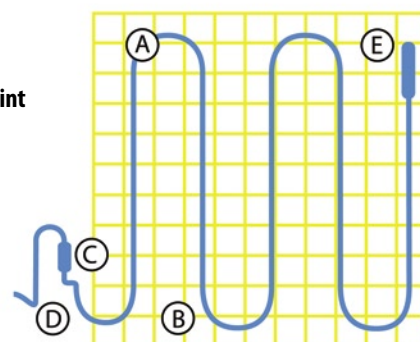
A – Heating element

B – Fibreglass backing mesh

C – Factory made cold tail joint

D – Cold tail power lead

E – End termination joint



Electrical Requirements

90 watt/160 watt

Please follow these instructions carefully. If you require assistance prior to or during your installation please call our helpline on 0845 118 99 99 Lo-Call

Electrical Requirements

Before installing the eMat you should make allowance for the electrical connections (see diagram below).

The eMat system requires a mains voltage 230/240V and must be connected in accordance with the current IEE regulations and building regulations part 'P' approved document.

For areas up to 33m² (eMat 90w) or areas up to 18m² (eMat 160w) power connection can be provided through a 13A switched spur outlet/combined RCD spur outlet. For larger areas a dedicated circuit should be installed from the local consumer unit.

Confirm your thermostat is suitable to switch the appropriate electrical load e.g. 16A thermostat 230V is suitable to switch up to 40m² of eMat 90w and 22m² of eMat 160w.

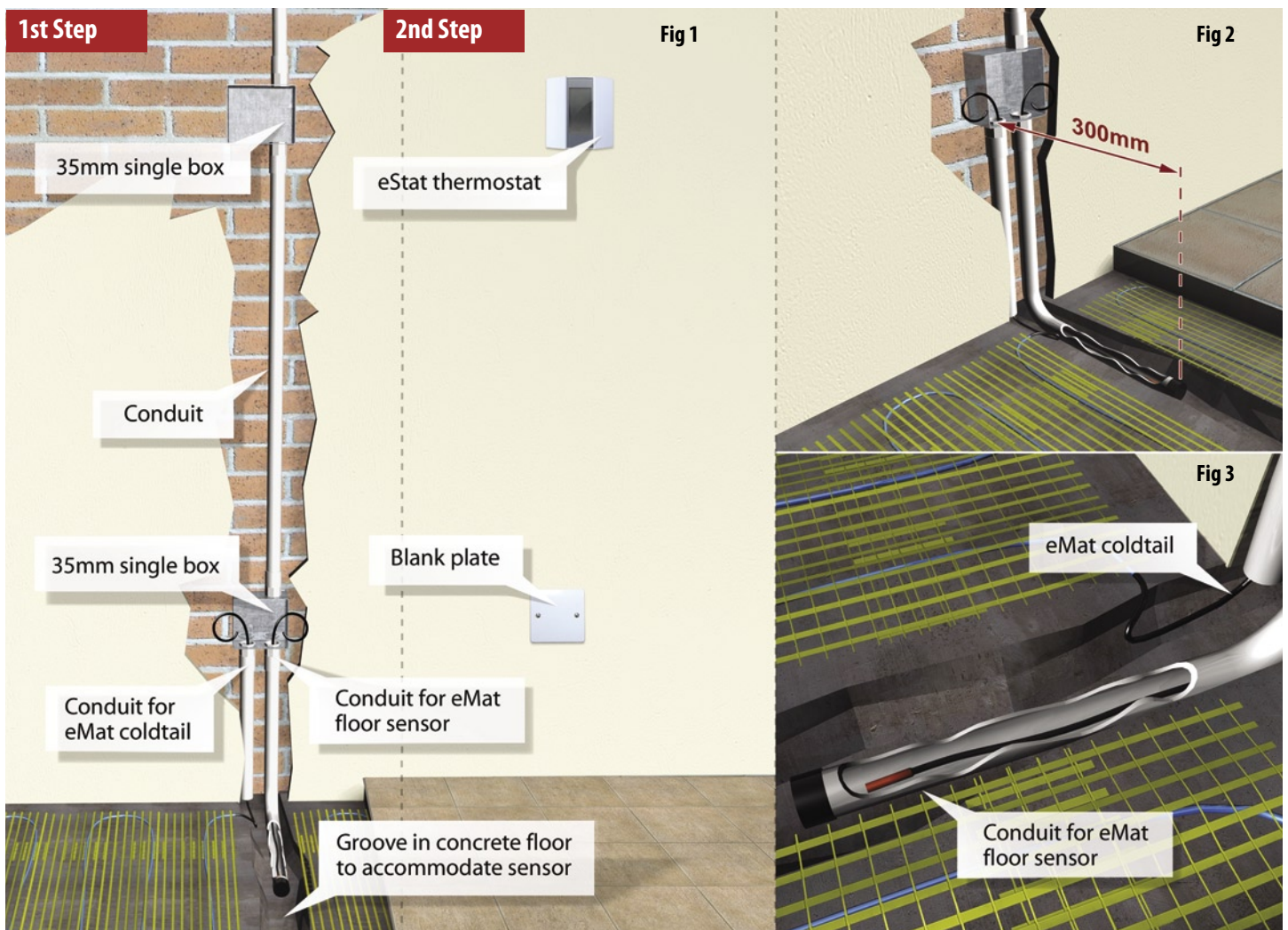
If you are required to switch greater electrical load than 16A a suitably sized thermostat or electrical contactor MUST BE INSTALLED. If in doubt please call our helpline on 0845 118 99 99 Lo-Call.

We recommend that all eMat systems are protected by a 30ma RCD earth trip either at the consumer unit or by a combined RCD spur outlet.

When installing in a bathroom or other wet areas the thermostat must be located in Zone 3 (0.6m from any wet appliance e.g. shower, sink etc) or outside of the wet area ideally on the opposite face of the wall. The eMat must be earth bonded in accordance with the current IEE regulations.

Important. When designing your electrical installation you should always consult an electrician concerning your requirements.

eMat and Floor Sensor



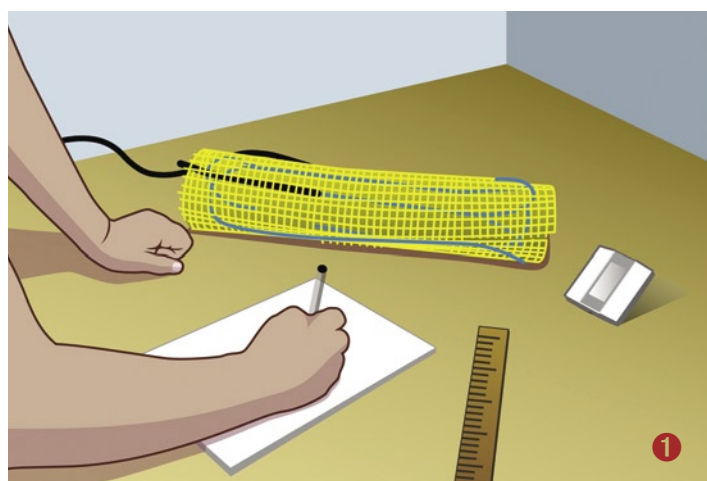
Installation Instructions

90 watt/160 watt

Step 1

Draw a layout of your room including all obstacles e.g. toilet sink etc, then determine the required floor area to be heated. Decide a suitable position for the thermostat (start point) then sketch the proposed eMat layout to ensure the heated area is completely covered whilst using all of your eMat. (See mat planner notes on page 6.)

**Ensure your eMat is correctly sized before you unpack the product.
Call 0845 118 99 99 Lo-Call with any questions.**



Step 2

Directly below the electrical connection point install a 10mm flexible tube (provided with each eMat), it may be necessary to channel a groove to allow the flexible tube to remain flush with the existing floor. The floor sensing probe is installed into the flexible tube to monitor the floor temperature and may need to be replaced if the sensor fails, ensure the tube is installed to allow easy replacement of the sensor probe and positioned between two heating elements (see fig 3). The flexible tube in the floor should be sealed to prevent adhesive or self levelling compound entering the tube.



Note

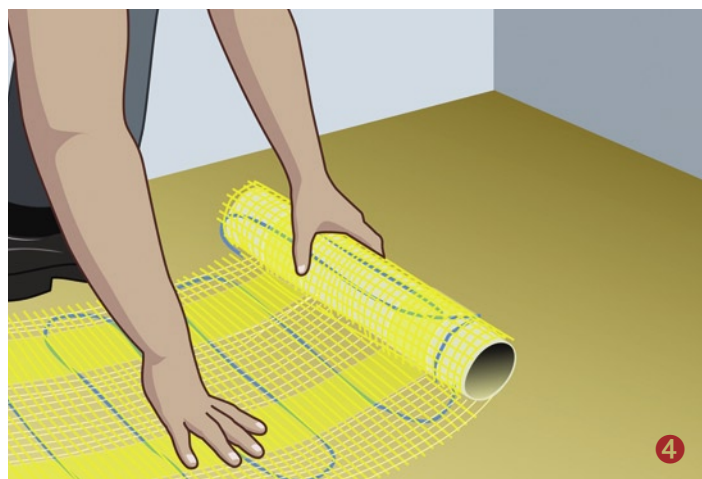
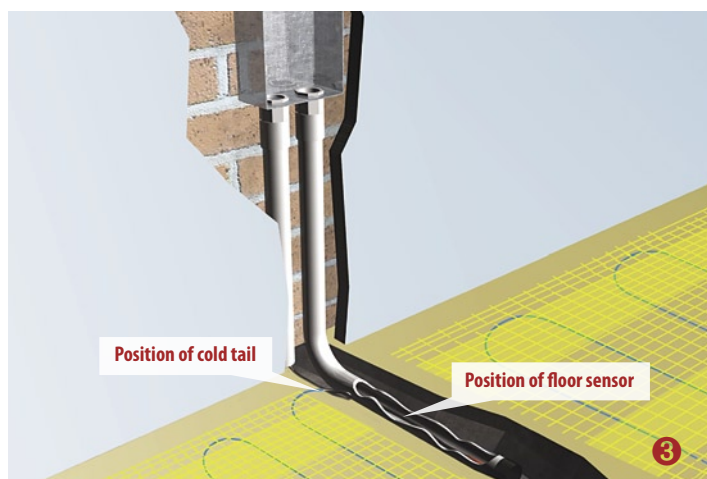
The floor should now be prepared ready for the eMat installation. All loose particles should be removed and the floor thoroughly cleaned and treated with any proprietary sealants as normally required for your finished floor. If your existing floor has a bitumen or asphalt surface it must either be removed or covered with a thin flexible self levelling compound, tile backer board or water resistant timber. If at this point you are installing insulated tile backing boards, do so in accordance with the manufacturer's instructions.

Steps 3 and 4

Remove the plastic outer cover from the eMat and position at the start of your eMatting plan with the cold tail (power cable) at the electrical connection and positioned in to a low level electrical back box (see fig 3). Ensure the separate thermostat floor sensor cable is inserted in to the pre-installed 10mm flexible tube and returned to the low level electrical back box. The factory made cold tail joint must be positioned in the floor area.

Once the eMat cold tail (power cable) and thermostat floor sensor probe have been positioned (ensure the sensor probe is situated between two heating elements) you can now start to lay your eMat.

Following your previously drawn eMat layout ensure the eMat is placed on the floor with the adhesive side down. Unroll your eMat until you reach the end of your first run.



Installation Instructions

90 watt/160 watt

Steps 5, 6 and 7

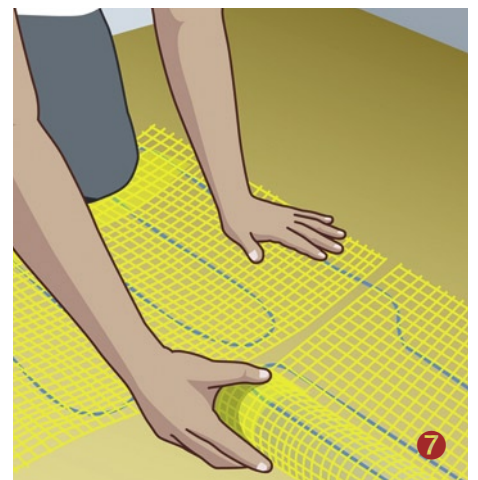
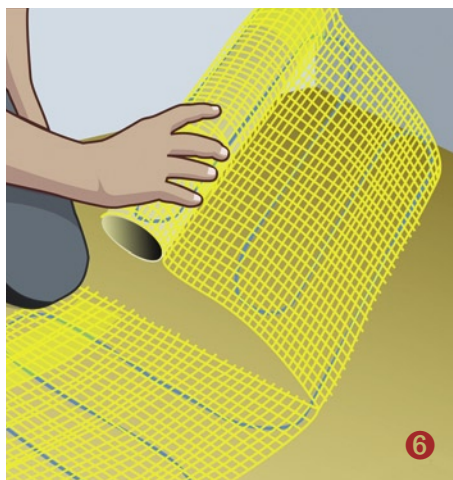
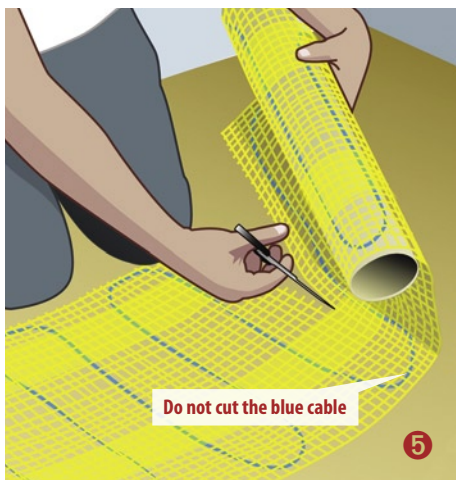
When you have reached the end of the eMat run carefully cut the yellow backing mat in between two blue cables (**do not cut the blue cable**) and turn the eMat to its new position. Ensuring the cable remains a minimum of 50mm apart.

Once the eMat is turned and secured, continue this process until all of your eMat is used. See page 6 for completed floor overview. Then check the complete matting area is securely fixed to the floor.

Note

In some instances it may be necessary to remove the blue cable from the yellow backing mat. If required ensure the heating cables are laid at a minimum of 50mm apart and securely positioned on to your floor surface using the excess yellow self adhesive mat. Ensure the cables are not laid in areas where fixed appliance may be positioned e.g. underneath sink basins or toilet pans.

Check the resistance of the eMat (see page 7) to ensure damage has not occurred during the installation process.



Steps 8 and 9

The eMat can now be covered with either a flexible tile adhesive or flexible self levelling compound.

Ensuring there are no air pockets, carefully spread the flexible tile adhesive or self levelling compound until all mat areas and heating cables are covered. You may tile directly over the eMat carefully applying your flexible tile adhesive with a notched trowel ensuring each tile is securely fixed and all mat and cable areas are completely covered with flexible tile adhesive.

Note

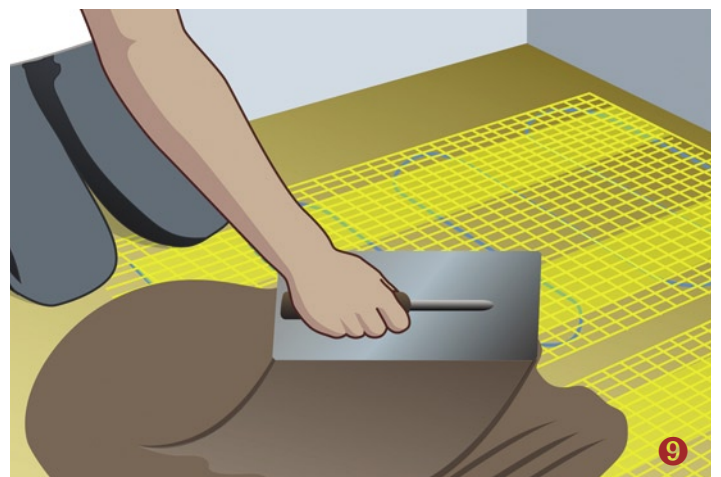
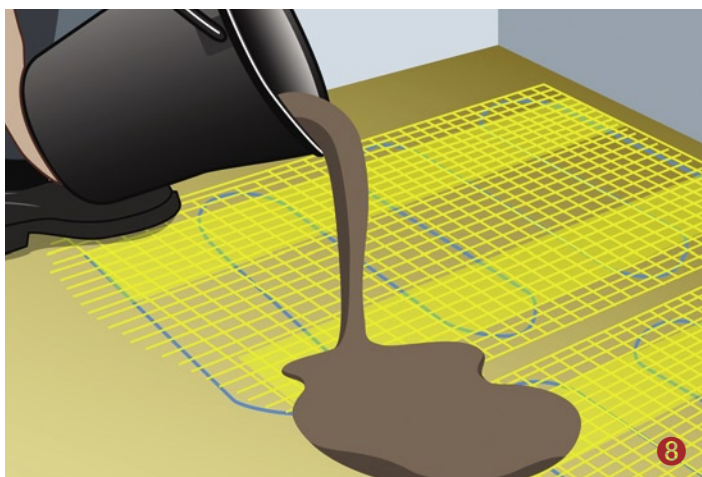
After the finished floor covering has been laid perform the following tests:

- Insulation resistance test
- Heating cable resistance test
- Thermostat floor sensor resistance test

Record your findings in the test & commission form on the back page.

Register your warranty online at:

www.electricunderfloorheating.co.uk/warranty



Mat Planning and Floor Construction Examples

90 watt/160 watt

Planning your eMat

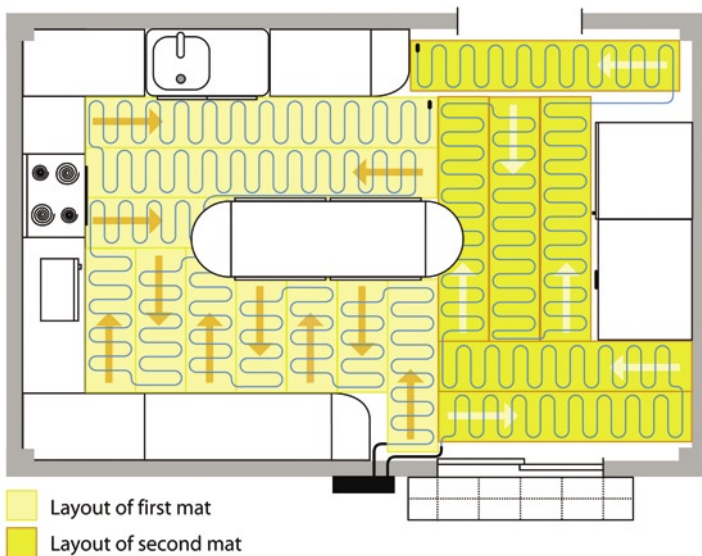
When planning your eMat layout ensure you cover as much of your free floor area as possible:

- never install your heating cables any less than 50mm apart.
- never cut your heating cable.
- never remove any pre-manufactured cable joints or end seal joints.

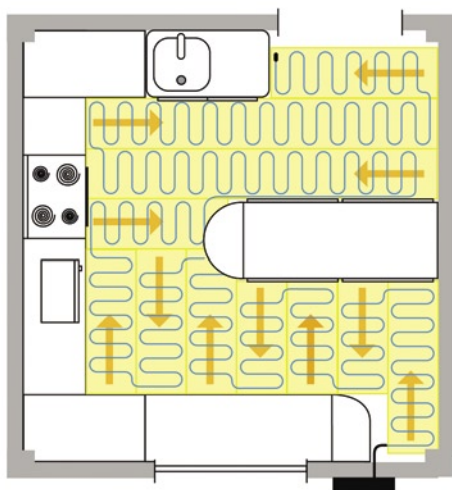
When installing two or more mats within the same area always ensure the cold tail (power cables) are returned to the thermostat power connection and are wired in parallel, never wire your eMat product in series, and always check your eMat is thoroughly adhered to the floor before tiling.

Please follow these instructions carefully. If you require assistance prior to or during your installation please call our helpline on 0845 118 99 99 Lo-Call.

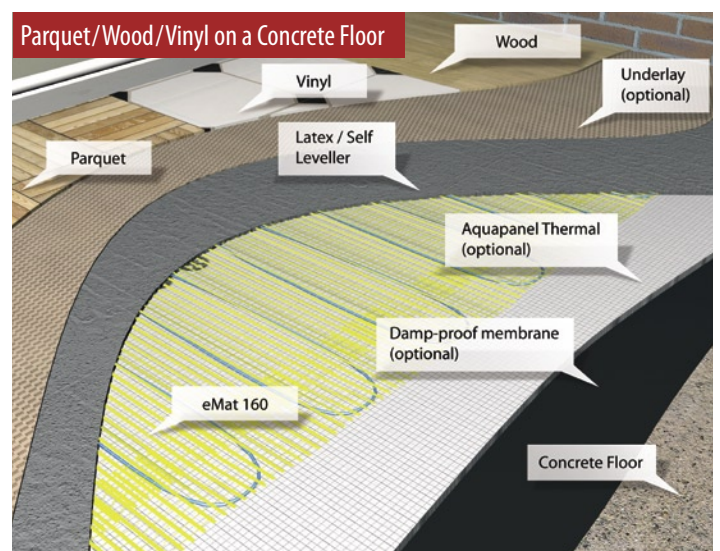
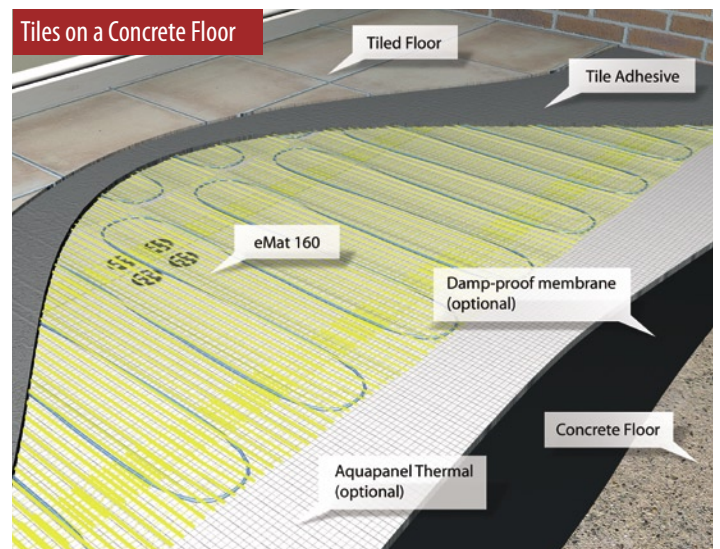
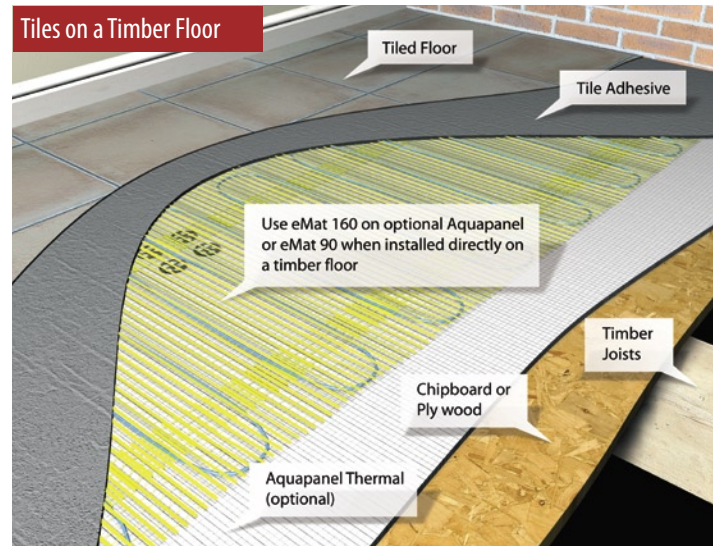
Plan using two mats



Plan using one mat



Floor Construction Examples



Testing & Commissioning and Product Specifications

90 watt/160 watt

Warranty Validation

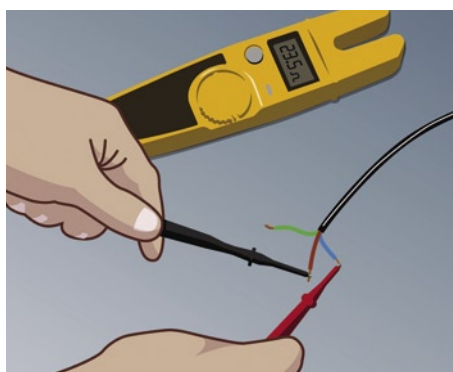
To validate your 15 year online warranty registration you must perform the insulation resistance test, the heating cable resistance test, and the sensor resistance test three times during the installation process.

1. Before you lay the eMat.
2. After you have laid your eMat and before you cover your eMat.
3. After your finished floor has been laid.

This information must then be recorded on your commissioning record form (see page 8).

Heating Cable Resistance Test

This test is carried out to prove continuity of the heating element. A low resistance ohm meter should be used (ie Multimeter on ohm setting), connect your meter on to the brown and blue mains lead and confirm resistance value matches that quoted on your specification label on the eCable Cold Lead joint.



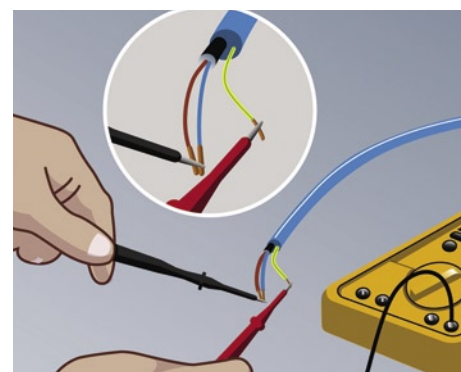
Floor Cable Resistance Test

See Heating Cable Resistance Test and repeat with floor sensor cable.

Insulation Resistance Test

This test is performed to measure the insulation resistance between conductors and ensures the cable insulation is not damaged. A low resistance reading indicates a damaged cable and must be repaired or replaced.

The insulation resistance tester should be connected between the conductors (blue and brown cables) and the earth (yellow/green cable). The meter should record a high resistance value e.g. above 100 Meg ohms.



90W

Quick Find	eLine Part	Coverage	Mat Size Dimensions (m)	Watts per m ²	T Load	Resistance +10-5%
735	eMat 90-1	1m ²	2x0.5	90	90	588
736	eMat 90-1.5	1.5m ²	3x0.5	90	135	393
737	eMat 90-2	2m ²	4x0.5	90	180	295
738	eMat 90-2.5	2.5m ²	5x0.5	90	225	236
739	eMat 90-3	3m ²	6x0.5	90	270	194
864	eMat 90-3.5	3.5m ²	7x0.5	90	315	167
740	eMat 90-4	4m ²	8x0.5	90	360	147
741	eMat 90-5	5m ²	10x0.5	90	450	117
742	eMat 90-6	6m ²	12x0.5	90	540	97
743	eMat 90-7	7m ²	14x0.5	90	630	84
744	eMat 90-8	8m ²	16x0.5	90	720	73
745	eMat 90-9	9m ²	18x0.5	90	810	66
746	eMat 90-10	10m ²	20x0.5	90	900	58

160W

Quick Find	eLine Part	Coverage	Mat Size Dimensions (m)	Watts per m ²	T Load	Resistance +10-5%
747	eMat 160-1	1m ²	2x0.5	160	160	335
748	eMat 160-1.5	1.5m ²	3x0.5	160	240	220
749	eMat 160-2	2m ²	4x0.5	160	320	165
750	eMat 160-2.5	2.5m ²	5x0.5	160	400	132
751	eMat 160-3	3m ²	6x0.5	160	480	111
868	eMat 160-3.5	3.5m ²	7x0.5	160	560	94
752	eMat 160-4	4m ²	8x0.5	160	640	83
753	eMat 160-5	5m ²	10x0.5	160	800	66
754	eMat 160-6	6m ²	12x0.5	160	960	57
755	eMat 160-7	7m ²	14x0.5	160	1120	46
756	eMat 160-8	8m ²	16x0.5	160	1280	41
757	eMat 160-9	9m ²	18x0.5	160	1440	37
789	eMat 160-10	10m ²	20x0.5	160	1600	33

Commissioning Record and Troubleshooting

90 watt/160 watt

Commissioning Record

Please retain this record. Register your warranty online at: www.electricunderfloorheating.co.uk/warranty

Installer		
Date of Commissioning	Customer Name	
Name of Installer	Phone	Mobile
Customer Address		
Town/City	County	Postcode

eMat	Product Code <input type="text"/>	Results
Insulation Resistance	Before embedding in mortar	Above 100 Meg ohms <input type="checkbox"/>
	After floor covering	Above 100 Meg ohms <input type="checkbox"/>
Heating Cable Resistance	Before laying	= ohms
	Before embedding in mortar	= ohms
	After floor covering	= ohms
Sensor Resistance	Before embedding in mortar	= k ohms
	After floor covering	= k ohms

Troubleshooting

Symptom	Probable Causes	Corrective action
Floor does not heat	No power at controller	Check Power supply
	MCB Tripped	Check the circuit is not overloaded or short circuited
	Thermostat not set correctly	Refer to thermostat Instructions
	eMat not correctly connected with thermostat	Refer to thermostat Instructions
	Floor temperature sensor not connected	Refer to thermostat Instructions
	Faulty sensor/thermostat	Contact the eLine Helpdesk 0845 118 99 99
Floor warming all the time	Heating element cut or damaged	Contact the eLine Helpdesk 0845 118 99 99
	Thermostat not set correctly	Refer to thermostat Instructions
Floor not getting warm enough	Floor temperature sensor not connected	Refer to thermostat Instructions
	Thermostat not set correctly	Refer to thermostat Instructions
	Floor sensor too close to heating element	Contact the eLine Helpdesk 0845 118 99 99

Contact the eLine Helpdesk with any questions on 0845 118 9999

eMat

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