elements 15 YEAR GUARANTEE

eMat Pro
100/150/200
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 Pro underfloor heating product from the eLine range of under floor heating solutions.

The eLine 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 Pro Product

The eMat Pro 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. The function of the matting system is to provide a warm floor

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 Pro product is available in three output types:

100 watts per m^2
(for use with timber floor substrates e.g. plywood etc).

150 watts per m^2
(for use with concrete floor substrates e.g. sand cement screed, insulated backer boards etc).

200 watts per m^2
(for use where a higher wattage output is required).

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 the 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 yellow heating element is covered with a flexible self levelling compound or flexible 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 yellow heating elements are installed within the floor.
- When using more than one eMat Pro from a single supply, cold tails must be connected in parallel.

Don't

- Cut or shorten the yellow heating cable.
- Cross or touch the yellow 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 Pro. 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.

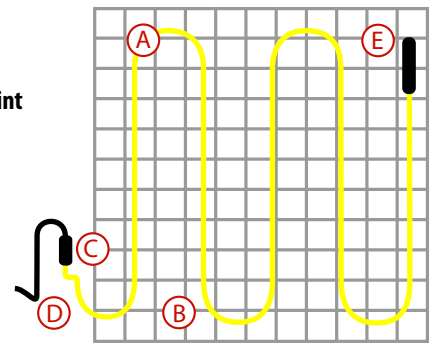
Contents of eMat Pro system

- Heating mat
- Sensor tube
- Installation instructions
- Warranty

The following pages contain all the information you will need about the eMat Pro. 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

100 watt/150 watt/200 watt

Please follow these instructions carefully. If you require assistance prior to or during your installation please call our helpline on 08714 74 08 18

Electrical Requirements

Before installing the eMat Pro 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 35m^2 (eMat Pro 100w), areas up to 22m^2 (eMat Pro 150w) or areas up to 18m^2 (eMat Pro 200w) 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. 15A thermostat 230V is suitable to switch up to 35m^2 of eMat Pro 100w, 23m^2 of eMat Pro 150w and 18m^2 of eMat Pro 200w.

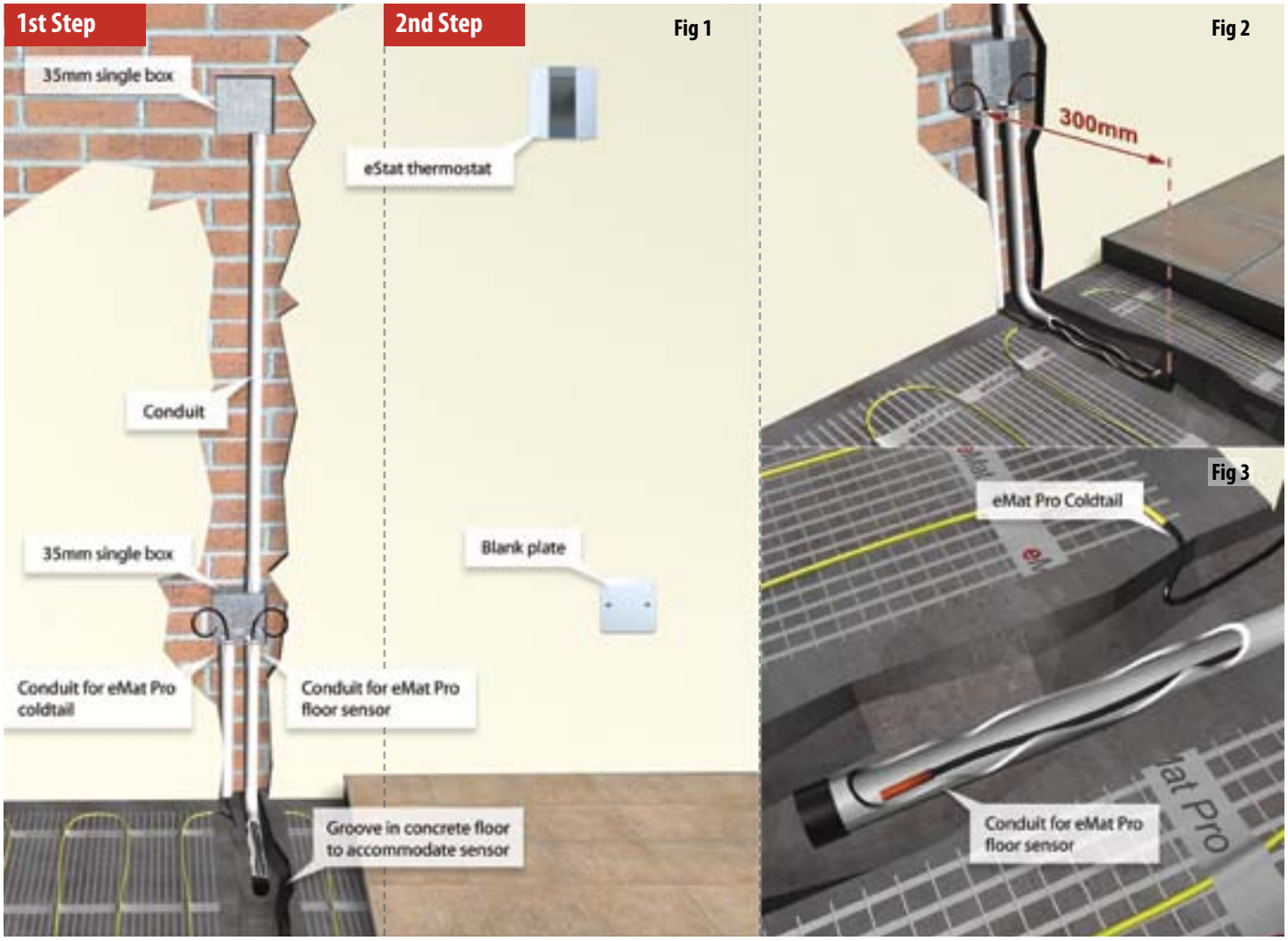
If you are required to switch greater electrical load than 15A a suitably sized thermostat or electrical contactor MUST BE INSTALLED. If in doubt please call our helpline on 08714 74 08 18.

It is a requirement 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 outside Zone 2 (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 Pro and Floor Sensor



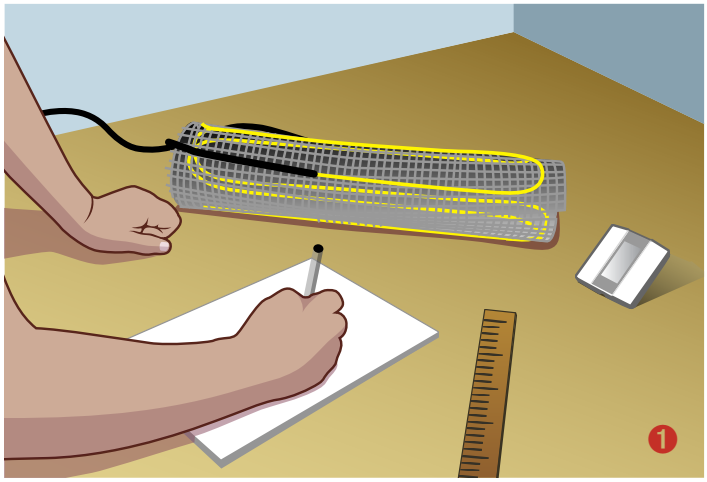
Installation Instructions

100 watt/150 watt/200 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 Pro layout to ensure the heated area is completely covered whilst using all of your eMat Pro. (See mat planner notes on page 6.)

Ensure your eMat Pro is correctly sized before you unpack the product. Call 08714 74 08 18 with any questions.



Step 2

Directly below the electrical connection point install a 10mm flexible tube (provided with each eMat Pro), 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

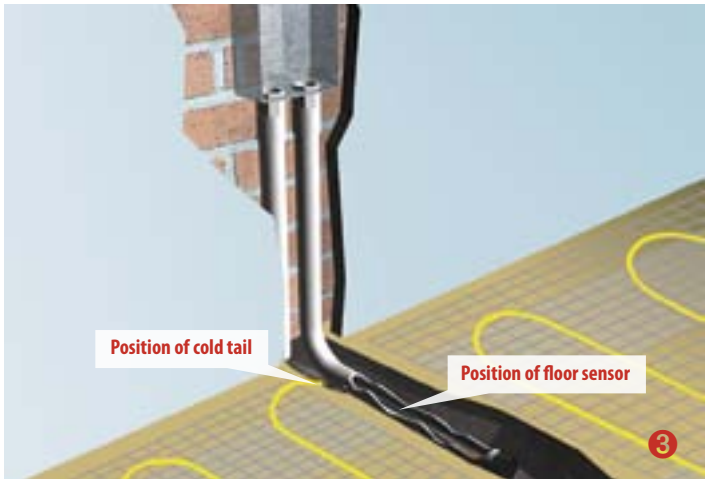
The floor should now be prepared ready for the eMat Pro installation. All loose particles should be removed and the floor thoroughly cleaned and treated with any proprietary sealants as normally required for your finished floor. If your existing floor has a bitumen or asphalt surface it must either be 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.

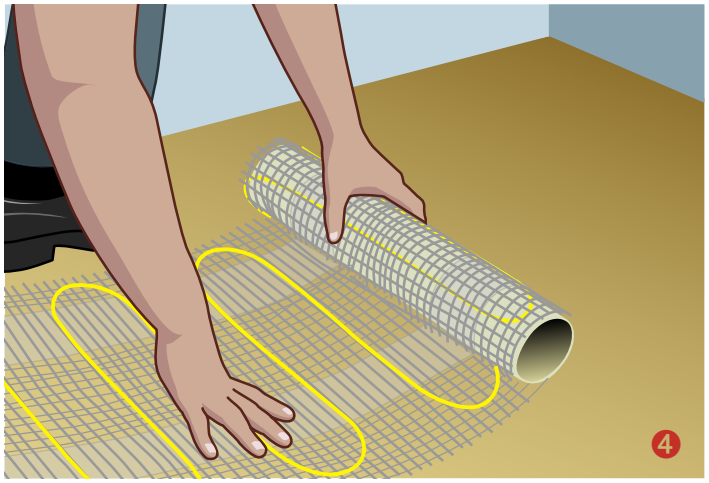
Steps 3 and 4

Remove the plastic outer cover from the eMat Pro and position at the start of your matting 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 Pro 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 Pro.

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





Installation Instructions

100 watt/150 watt/200 watt

Steps 5, 6 and 7

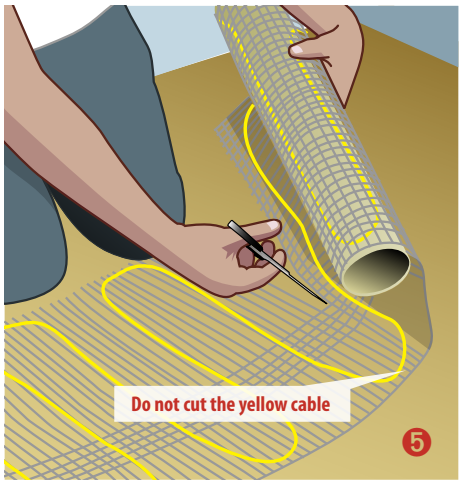
When you have reached the end of the eMat Pro run carefully cut the grey backing mat in between the two yellow cables (**do not cut the yellow cable**) and turn the eMat Pro to its new position. Ensuring the cable remains a minimum of 50mm apart.

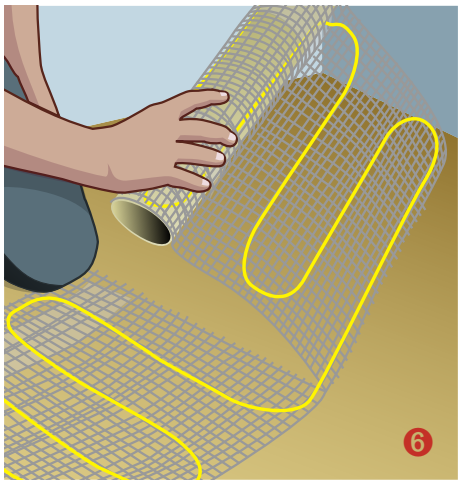
Once the eMat Pro is turned and secured, continue this process until all of your eMat Pro is used. See page 6 for completed floor overview. Then check the complete matting area is securely fixed to the floor.

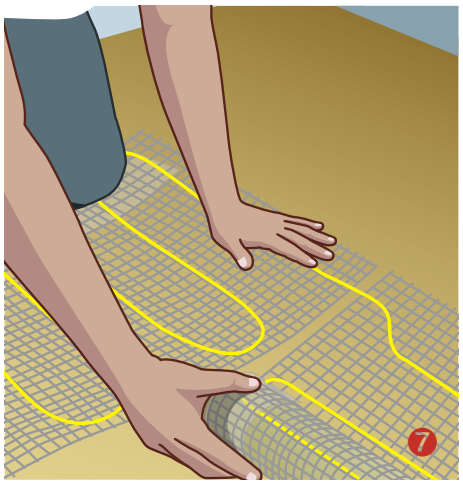
Note

In some instances it may be necessary to remove the yellow cable from the grey 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 grey self adhesive mat. Ensure the cables are not laid in areas where fixed appliances may be positioned e.g. underneath sink basins or toilet pans.

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







Steps 8 and 9

The eMat Pro 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 Pro 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.

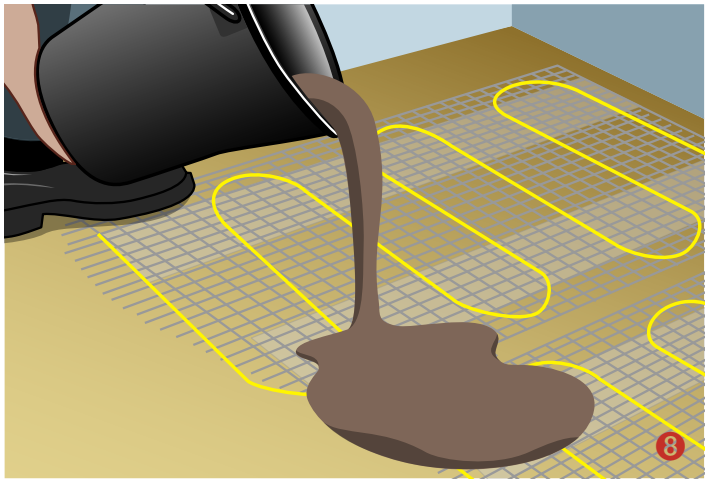
Note

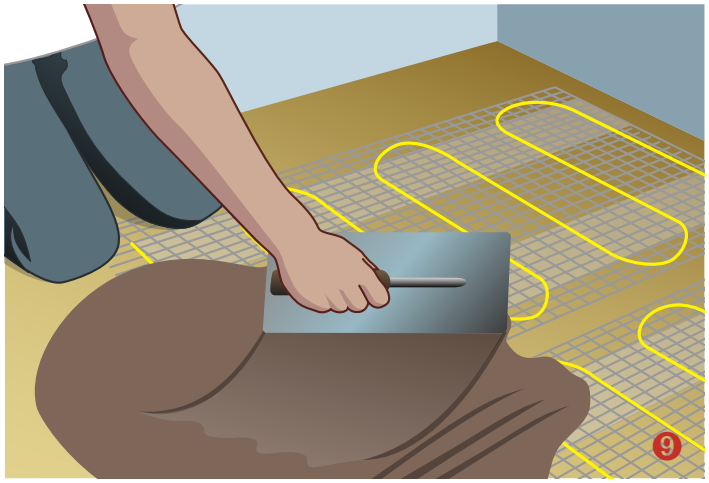
After the finished floor covering has been laid perform the following tests:

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

Record your findings in the test & commission form enclosed in the mat box.

Register your warranty online at:
www.electricunderfloorheating.co.uk/warranty





Mat Planning and Floor Construction Examples

100 watt/150 watt/200 watt

Planning your eMat Pro

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

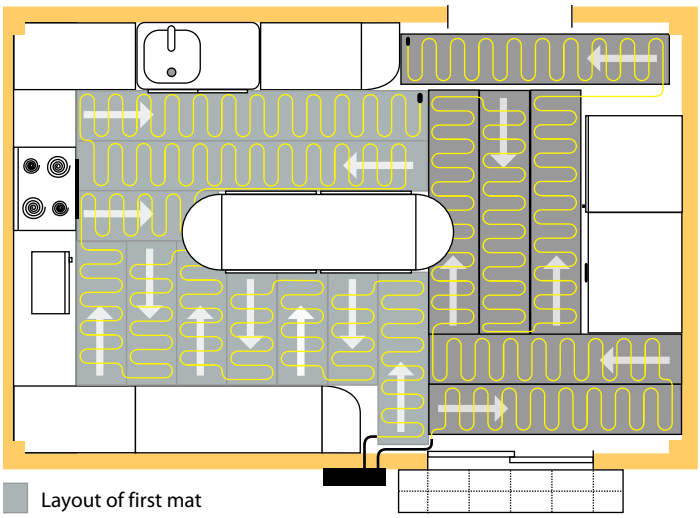
- never install your heating cables any less than 50mm apart.
- never cut your heating cable.
- never remove any pre-manufactured cable joints or end seal joints.

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 Pro product in series, and always check your eMat Pro is thoroughly adhered to the floor before tiling.

Timber substrates should be prepared as required by tiling guide lines, for example bracing of a timber floor with WBP or tile backer board.

Please follow these instructions carefully. If you require assistance prior to or during your installation please call our helpline on 08714 74 08 18.

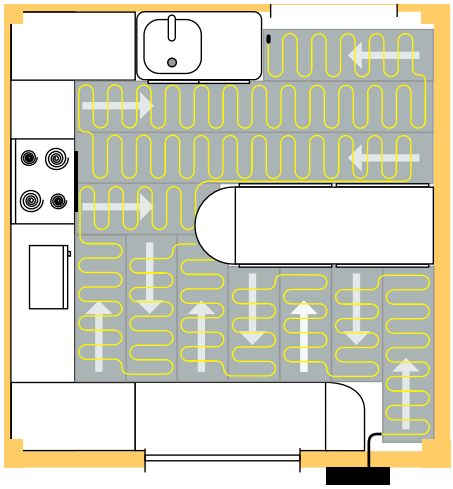
Plan using two mats



Layout of first mat

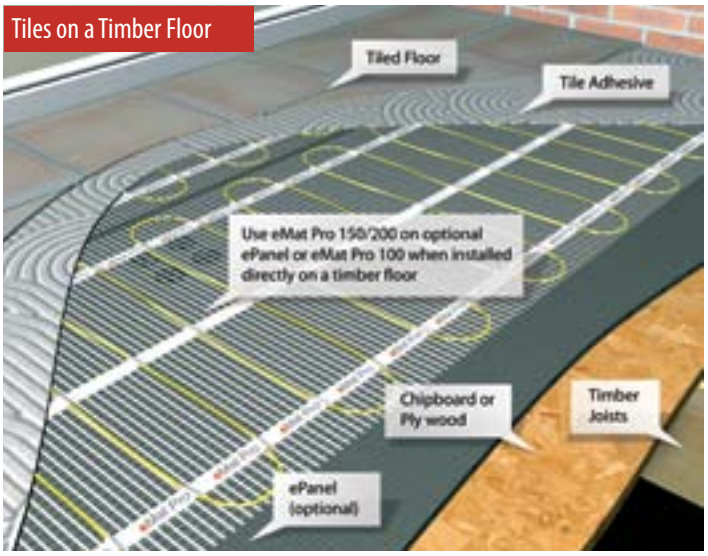
Layout of second mat

Plan using one mat

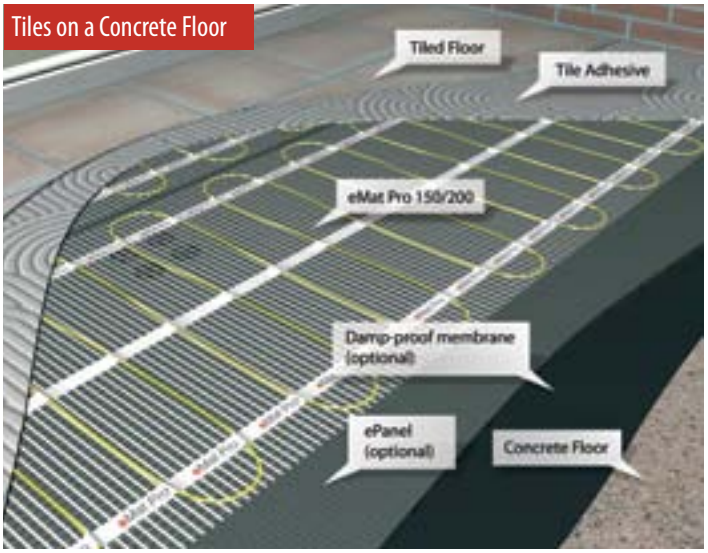


Floor Construction Examples

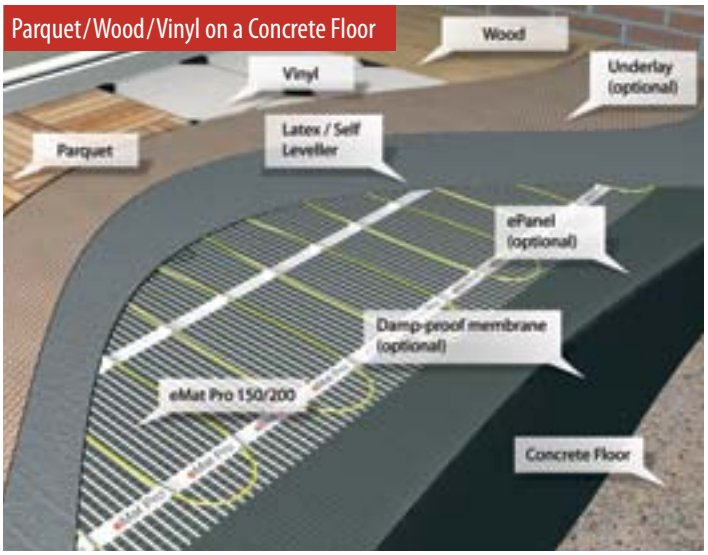
Tiles on a Timber Floor



Tiles on a Concrete Floor



Parquet/Wood/Vinyl on a Concrete Floor



Testing & Commissioning and Product Specifications

100 watt/150 watt/200 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 Pro.
2. After you have laid your eMat Pro and before you cover your eMat Pro.
3. After your finished floor has been laid.

This information must then be recorded on your commissioning record form (enclosed in the mat box).

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 black and blue mains lead and confirm resistance value matches that quoted on your specification label on the eMat Pro 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 black cables) and the earth (surrounding copper wire screening cable). The meter should record a high resistance value e.g. above 100 Meg ohms.

Product Specifications

100W

Quick Find	Part Code	Coverage	Length	Width	Wattage	Resistance +9/-4%
1172	eMat 100-0.5	0.50m^2	1.0m	0.5m	50w	1058.0 Ω
1173	eMat 100-1	1.00m^2	2.0m	0.5m	100w	529.0 Ω
1174	eMat 100-1.5	1.50m^2	3.0m	0.5m	150w	353.0 Ω
1175	eMat 100-2	2.00m^2	4.0m	0.5m	200w	265.0 Ω
1176	eMat 100-2.5	2.50m^2	5.0m	0.5m	250w	212.0 Ω
1177	eMat 100-3	3.00m^2	6.0m	0.5m	300w	176.0 Ω
1178	eMat 100-3.5	3.50m^2	7.0m	0.5m	350w	151.0 Ω
1179	eMat 100-4	4.00m^2	8.0m	0.5m	400w	132.0 Ω
1180	eMat 100-5	5.00m^2	10.0m	0.5m	500w	106.0 Ω
1181	eMat 100-6	6.00m^2	12.0m	0.5m	600w	88.2 Ω
1182	eMat 100-7	7.00m^2	14.0m	0.5m	700w	75.6 Ω
1183	eMat 100-8	8.00m^2	16.0m	0.5m	800w	66.1 Ω
1184	eMat 100-9	9.00m^2	18.0m	0.5m	900w	58.8 Ω
1185	eMat 100-10	10.00m^2	20.0m	0.5m	1000w	52.9 Ω
1186	eMat 100-12	12.00m^2	24.0m	0.5m	1200w	44.1 Ω

150W

Quick Find	Part Code	Coverage	Length	Width	Wattage	Resistance +9/-4%
1187	eMat 150-0.5	0.50m^2	1.0m	0.5m	75w	705.0 Ω
1188	eMat 150-1	1.00m^2	2.0m	0.5m	150w	353.0 Ω
1189	eMat 150-1.5	1.50m^2	3.0m	0.5m	225w	235.0 Ω
1190	eMat 150-2	2.00m^2	4.0m	0.5m	300w	176.0 Ω
1191	eMat 150-2.5	2.50m^2	5.0m	0.5m	375w	141.0 Ω
1192	eMat 150-3	3.00m^2	6.0m	0.5m	450w	118.0 Ω
1193	eMat 150-3.5	3.50m^2	7.0m	0.5m	525w	101.0 Ω
1194	eMat 150-4	4.00m^2	8.0m	0.5m	600w	88.2 Ω
1195	eMat 150-5	5.00m^2	10.0m	0.5m	750w	70.5 Ω
1196	eMat 150-6	6.00m^2	12.0m	0.5m	900w	58.8 Ω
1197	eMat 150-7	7.00m^2	14.0m	0.5m	1050w	50.4 Ω
1198	eMat 150-8	8.00m^2	16.0m	0.5m	1200w	44.1 Ω
1199	eMat 150-9	9.00m^2	18.0m	0.5m	1350w	39.2 Ω
1200	eMat 150-10	10.00m^2	20.0m	0.5m	1500w	35.3 Ω
1201	eMat 150-12	12.00m^2	24.0m	0.5m	1800w	29.4 Ω

200W

Quick Find	Part Code	Coverage	Length	Width	Wattage	Resistance +9/-4%
1638	eMat 200-0.45	0.45m^2	0.9m	0.5m	90w	608.0 Ω
1639	eMat 200-1.05	1.05m^2	2.1m	0.5m	210w	246.0 Ω
1640	eMat 200-1.45	1.45m^2	2.9m	0.5m	290w	186.0 Ω
1641	eMat 200-2.1	2.10m^2	4.2m	0.5m	420w	123.0 Ω
1642	eMat 200-2.5	2.50m^2	5.0m	0.5m	500w	106.0 Ω
1643	eMat 200-3.1	3.10m^2	6.2m	0.5m	620w	87.0 Ω
1644	eMat 200-3.45	3.45m^2	6.9m	0.5m	690w	76.0 Ω
1645	eMat 200-4.3	4.30m^2	8.6m	0.5m	860w	63.0 Ω
1646	eMat 200-4.95	4.95m^2	9.9m	0.5m	990w	53.0 Ω
1647	eMat 200-6.1	6.10m^2	12.2m	0.5m	1220w	44.0 Ω
1648	eMat 200-7.0	7.00m^2	14.0m	0.5m	1400w	38.0 Ω
1649	eMat 200-7.8	7.80m^2	15.6m	0.5m	1560w	34.0 Ω
1650	eMat 200-8.8	8.80m^2	17.6m	0.5m	1760w	31.0 Ω
1651	eMat 200-10.5	10.50m^2	21.0m	0.5m	2100w	26.0 Ω

Troubleshooting

100 watt/150 watt/200 watt

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 Pro 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 08714 74 08 18
	Heating element cut or damaged	Contact the eLine Helpdesk 08714 74 08 18
Floor warming all the time	Thermostat not set correctly	Refer to thermostat instructions
	Floor temperature sensor not connected	Refer to thermostat instructions
Floor not getting warm enough	Thermostat not set correctly	Refer to thermostat instructions
	Floor sensor too close to heating element	Contact the eLine Helpdesk 08714 74 08 18
Contact the eLine Helpdesk with any questions on 08714 74 08 18		

The professional choice for underfloor heating

Devilink

An easy to use touch screen panel which offers complete control over your entire heating system wirelessly from one central control.

eStat

Provides total control and flexibility when using your underfloor heating system. With the options of both manual and fully programmable controls.

eDemist

An ultra thin self-adhesive heating pad that fits inconspicuously behind virtually any mirror keeping the mirror completely mist free.

eGuard Monitor

Monitors mats and cables for faults during installation.

Call 01473 27 66 80 to receive the latest elements underfloor heating catalogue

eMat Pro

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