



Double Insulated,
Amorphous Metal
Wood Floor Heating Ribbons

Fitting Guide – version 2

Call 01444 247020 for Technical Support

Underfloor Heating – made easy...

Please ensure you read this guide completely before commencing installation of the underfloor heating. If you are unsure of any aspect of the installation please call Heat Mat's Technical Support helpline on 01444 247020.

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Before commencing your installation please check that you have the correct heater or combination of heaters for your chosen area. (see page 6 for details)

Heat Mat Limited accept no liability, either express or implied, for any consequential losses incurred as a result of a Heat Mat system installation that does not conform to the following installation instructions.

Do's and Don'ts

- Do thoroughly read this guide before commencing installation
 - Do use a multimeter to test the heating ribbon
 - Do connect multiple heating ribbons in parallel
 - Do consider additionally insulating your sub-floor before installing the underfloor heating system
 - Do ensure that all electrical works conform to Part 'P' of the Building Regulations and current IEE Wiring Regulations
 - Do ensure the system is protected by a suitable RCD device (30mA)
 - Do use a Heat Mat thermostat that can limit floor temperature
 - Do ensure your base has no sharp debris or objects such as nail heads protruding before beginning installation
 - Do install the ribbons beneath floating wooden floor coverings
 - Do place the heating ribbon panels 5cm apart from each other
 - Do connect all coldtail leads in parallel into connection box/es above the floor
 - Do control each room/area with its own connection box and thermostat
 - Do install an arc detector if recommended to by your electrician
 - Do consult your builder, electrician to ensure your BTU requirement can be met by the system if using the heating system as your primary heating
 - Do place acoustic and other suitable insulation materials beneath the heating system, not on top
 - Do consult Heat Mat Technical Support if wishing to install the product in wet areas or beneath carpet
 - Do contact Heat Mat Technical Support if a heating ribbon is torn or broken during installation, at no stage continue to cover the system in these circumstances. If anything is snagged or something is dropped onto a ribbon, check thoroughly for visual damage. The systems can be easily repaired at this stage
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- Don't install heating ribbons if the ambient temperature is below -5°C as they can become less flexible
 - Don't install the heating ribbons in walls, ceilings or outdoors unless this suitability has been confirmed with Heat Mat
 - Don't install the floor sensor close to other heat sources such as hot water pipes
 - Don't overlap the heating ribbons
 - Don't fold or wrinkle the heating ribbons
 - Don't place heavy or sharp objects onto the heating ribbons that could damage them
 - Don't cover the heating ribbons with acoustic, insulating or underlay materials
 - Don't place heating ribbons less than 10cm away from conductive items such as walls, metal pipe work, drains
 - Don't install the ribbons beneath wood coverings more than 18mm in thickness
 - Don't install the ribbons directly beneath wooden floor coverings that have to be glued, screwed in place or mechanically fixed into position in any way
 - Don't place thermal blocks onto your finished floor covering such as large bean bags, rugs or floor flush furniture when the system is in use
 - Don't install the ribbons where internal walls or partitions will be added later

Wooden Floor Heating Ribbons

150w/sqm technical specification

Product Code	Width in Metres	Length in Metres	Resistance +/- 10%	Wattage
WFH-150-0515	0.5 m	1.5 m	481 Ω	112 W
WFH-150-0520	0.5 m	2.0 m	357 Ω	150 W
WFH-150-0525	0.5 m	2.5 m	281 Ω	187 W
WFH-150-0530	0.5 m	3.0 m	220 Ω	225 W
WFH-150-0535	0.5 m	3.5 m	206 Ω	262 W
WFH-150-0540	0.5 m	4.0 m	170 Ω	300 W
WFH-150-0545	0.5 m	4.5 m	159 Ω	337 W
WFH-150-0550	0.5 m	5.0 m	143 Ω	375 W
WFH-150-0555	0.5 m	5.5 m	139 Ω	412 W
WFH-150-0560	0.5 m	6.0 m	115 Ω	450 W
WFH-150-0565	0.5 m	6.5 m	100 Ω	487 W
WFH-150-0570	0.5 m	7.0 m	107 Ω	525 W
WFH-150-1010	1.0 m	1.0 m	357 Ω	150 W

Test your heating system with a multimeter before unwrapping to confirm you have received it in working order.

From the end of each heating ribbon panel, there is a live and a neutral wire (approx. 5m in length). Use these wires to perform the continuity test.

This test should also be done before, during and after covering.

Tests

- Live to neutral = ohms value as listed above

If your tests do not conform to the expected results please contact Heat Mat's Technical Support Team.

Technical Data:

General Construction:	Single conductor without earth
Voltage:	230 Vac – 50Hz
Maximum Ribbon Temperature:	35°C in open air with no thermal block
Approvals:	CE Marked and Nemko, UL approved
Ribbon Thickness:	2mm
Ribbon Flexibility:	The heating ribbons can not be bent
Fixing Materials:	Fix with rows of double-sided tape attached
Power Range:	112W to 525W
Approved in accordance with:	EN 60335-1, EN60335-2-96 EN60335-2-17:1999, IEC 60730

Construction:

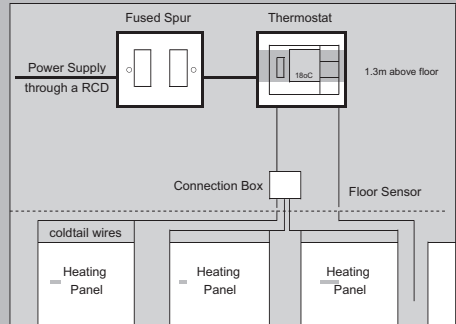
Thermal Conductor:	25 micron amorphous metal ribbon
Outer Insulation:	Double insulated
Fixing Materials:	Supplied with rows of double-sided tape



Basic wiring diagram and warning label

Typical Wiring System

- All electrical works must be carried out by a certified electrician.
- A suitable RCD protection must be incorporated in this system.
- If the ampage of the thermostat is exceeded by your chosen system, a contactor or similar device will be required. All thermostats used must be of a two-pole design. 16Amp, 3600Watts maximum for TPS30 and CPS10.
- The heating ribbons must not be cut or cross each other or other wiring.
- The cold tail joints must be kept straight and flat and has to be located beneath the final floor covering. We advise removing the Decora underlay from beneath the join to allow it to sink down.
- Please consult your electrician to discuss your individual requirements.



Please complete, cut out and display at your distribution board.

Warning

This building is fitted with Heat Mat Underfloor Heating

Do NOT pierce the floors with nails, screws or other fasteners

Do NOT expose the floor to thermal blocking or reduce the size of the floor which has floor heating installed

In the event of flooding or when carrying out any repairs or alterations disconnect the Underfloor Heating and contact your electrician or Heat Mat for advice

Details of Installation:

Electrician Name: _____ **Signature:** _____

Company Name

& Address:

Date:

Room Installed:

Please list the product code and test results of each element after installation

Product Code	Resistance Rating	Insulation Test Passed

Heat Mat Ltd - Tel No: 01444 247020

see www.heatmat.co.uk for more underfloor heating solutions

Choosing the correct heating ribbon panels

The wooden floor heating ribbons can NOT be cut, bent or shortened.

The panels have to lie flat to the base, complete in their unrolled state. The panels should not be placed under any fixed units or beneath internal wall partitions.

If there are additional heat sources within the sub-floor such as hot water/ radiator pipes, the base should be covered with 18mm ply or Heat Mat's Marmox insulation boards to protect your under floor heating system.

All the panels are 0.5m in width (with the exception of the 1m x 1m heating panel) and you should draw a plan of the free floor area of your room and mark on that plan the placement of each panel. If possible place all panels so that the live and neutral wires all end against the wall where the connection box/ power supply connections will be made. Remember to allow for a gap along this wall that can accommodate the wiring from all the heating panels. As these connections and wires are thicker than the heating ribbon panel, the 6mm soft insulation material can be cut out beneath these parts to allow your floating wood floor finish to rest flush to the system.

If for any reason your panels are too long for your area, you will need to return these to your supplier and replace for shorter panels as the heating panels can not be shortened. Heat Mat supply 6mm Decora soft insulation boards that come in 6sqm packs. This is used beneath the heating panels and as this will increase the height of your base floor, should you be continuing your floating wooden floor covering further into your building, you may require additional packs of Decora to maintain your base floor height throughout.

Items required for your installation:

Heat Mat can supply:

- 6mm Decora insulation (available in multiples of 6sqm packs)
- 2mm thick Heating Ribbon Panels
- Thermostat with floor sensor
- Duct tape

Additional items (not supplied):

- Connection Box/es
- RCD/s
- Fused Spurs/ Circuit Breaker/s
- Extension wires
- Contactor (should your system exceed the 16amp/ 3600 watt limit of the thermostat)

The system output is fixed at 150w/sqm and, in most circumstances, this is sufficient to heat a well insulated room as the sole source of heating as long as 85% or more of the floor surface is heated.

In rooms with higher heat loss, such as conservatories or badly insulated rooms, you may require a small additional heat source in order to heat the room in addition to the underlamine heating system.

Installation instructions

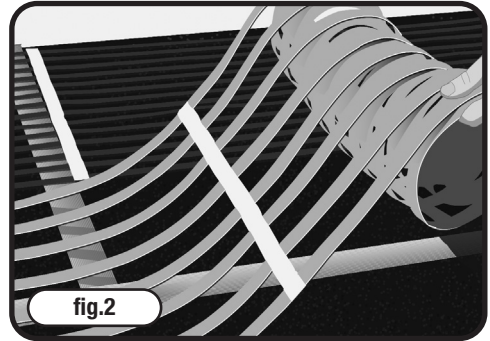


Floor preparation

Ensure the sub-floor is solid, level and dust free. Wooden sub-floors can be reinforced using 18mm WPB plyboard, Marmox Insulation boards or suitable Tilebacker boards. There should be no sharp debris or objects protruding from your base before you begin the installation.

The sub-floor should be insulated to current building regulations, however if you are unsure how well insulated your sub-floor is, Heat Mat can supply 10 or 20mm Marmox Insulation boards. Insulation improves the performance and efficiency of your system therefore reducing running costs. If there is little or no insulation within the sub-floor we would recommend using a suitable additional layer of insulation as well as our Decora insulation.

If installing Marmox boards, these should be secured with flexible tile adhesive onto concrete sub-floors, or with galvanised screws and washers onto timber bases. Reinforcement tape should be used across the joins. See www.heatmat.co.uk for further details.



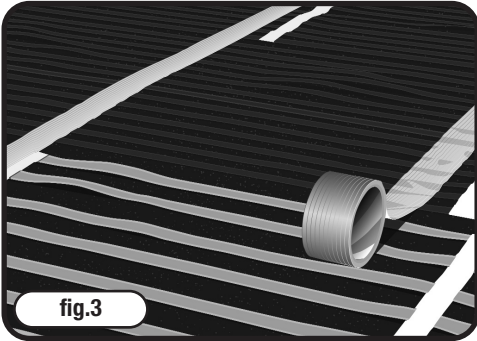
Installing the Ultra Thin Wooden Floor Heating System

Place the 6mm Decora boards on to your base floor. Cut the boards if required. Tape the joins between the boards with duct tape but do not secure the boards to the base. Allow a small gap against the walls of no more than 10mm. (fig.1)

Roll out each of your heating ribbon panels. (fig.2) The ribbons must be laid completely flat onto the Decora and they must not be bent or twisted. The ribbons can be held in position using the double-sided tape attached to each end of the heating ribbon panel, and additional double sided tape or masking tape can be used to secure them to the Decora insulation. Lay the panels side by side with a 5cm gap between each. (fig.3)

If possible lay all the panels in the same direction so that all cold tails are against the same wall, as this will make the electrical installation much simpler. Ideally the panels should be laid in the opposite direction to that which the flooring will be laid, as this will make the installation of the flooring simpler. Never cross the heating panel with any of the cold tails connections.

Installation instructions



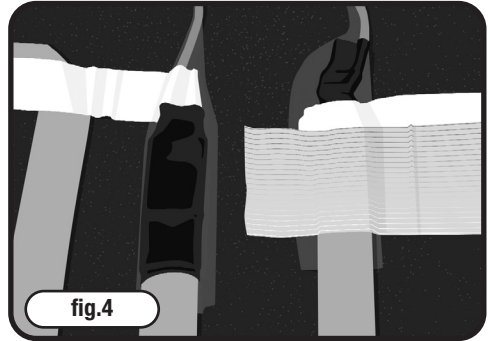
Cut out the Decora beneath each of the manufactured connection of the panels so that it does not stand proud. (fig.4)

Cut a trench into the Decora, from the manufactured connection and along the wall, to allow all the cold tails to be dropped into and be led to the connection box. The coldtails are approx. 5m in length and your electrician can extend these if required.

Label each of the cold tails from each panel and mark each numbered panel onto your plan. This is for future reference should you need to test any individual panel at a later date.

Place the floor sensor (contained in the thermostat box) halfway between two of your heating panels approx. 50cm in to the heated floor area. (fig.5)

To obtain the most accurate temperature reading from the floor sensor, cut a 45mm by 45mm section from the Decora insulation for the sensor to be placed within. This will allow the laminate flooring to lie flat to the heating system. This will also allow the air heated by the heating ribbons to move towards the sensor giving a more accurate temperature reading. Additionally, you should lay two 20cm by 20cm pieces of aluminium foil above and below the sensor leading out above and below the heating ribbons, to further improve the temperature reading.



As an alternative, you can use Heat Mat's infra-red thermostat and sensor that directly measures the floor surface temperature, although please be aware that this thermostat does not have a timer function.

Carry out the continuity test on each panel before wiring into the connection box to ensure the panels are in full working order. A competent person can turn on the system for 30 minutes to ensure that each heater is heating up correctly before laying your floor. Doing this will also ensure that the ribbons will lie flatter on the Decora.

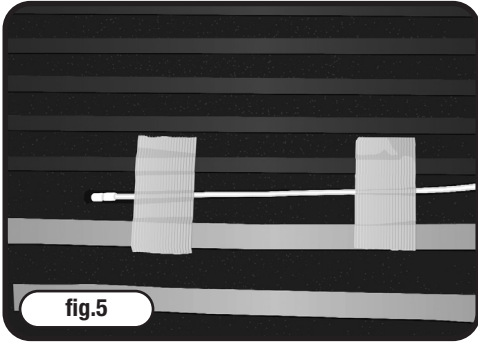
Laying your floor

Your floor covering can now be laid. Please take care when working above the system by wearing soft soled shoes and by using cardboard or carpet to protect the system when you need to stand or kneel on it. (fig.6) Should any of the heating ribbons be torn or broken, please contact Heat Mat Technical Support on 01444 247020 as they can easily be repaired.

If you are not laying your floor covering straight away, the system should be covered by 2 layers of cardboard or carpet and traffic should be avoided. Continuity tests should be redone before the floor covering is finally laid.

The heating ribbon system is particularly suited for use beneath floating laminate flooring, where it's low build height and possibility of installation without the use of any wet trade, make it a simple to fit solution.

Installation instructions



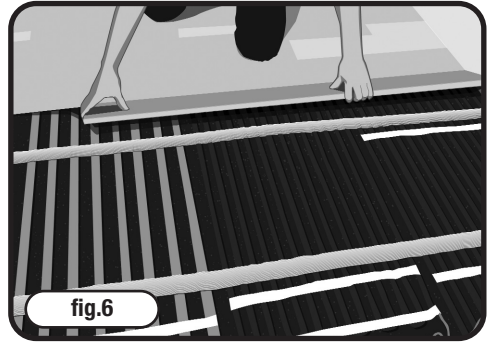
When installing this system beneath a laminate floor you should confirm with the laminate flooring manufacturer that their flooring is suitable for use directly above an electric underfloor heating system.

In situations where build height allows, or earth protection is desirable, Heat Mat offers an alternative system based around our BEAB system approved heating mats. These utilise Mira's Thermoplan self levelling compound above them to create a 10mm thick layer that dissipates heat more efficiently and provides a 100% aluminium earth shield around the heating cable. In areas that are likely to experience thermal blocking, (please see below for details), we would recommend seriously considering the heating mat and levelling compound solution.

Living with your Wood Floor Heating System

To ensure that your system works to its full capacity for the lifetime of the flooring, please ensure that thermal blocking is avoided above the heating system.

Thermal blocking occurs when the heat produced by the system warms the floor surface but is then trapped and has no way of escaping from the surface of the floor. This can cause the system to overheat in the thermally blocked area and, in extreme cases, affect the integrity of the floor covering and heating system.



Thermal blocking can be caused by placing items onto the heated floor surface that act as efficient insulators and do not allow heat through. For example, many rubber-backed rugs, bean bags, flat bottomed furniture and other heavy equipment can cause thermal blocking. Furniture should have an air gap (not including legs or plinths) of a minimum of 10mm to avoid thermal blocking.

Thermal blocking is not usually a problem within floors where the system has been covered with levelling compound or tile adhesive and tiles, as these coverings are efficient transmitters of heat themselves and will spread the heat around any thermal block. Thermal blocking has a greater chance of occurring in situations with a carpeted, wooden or laminate floor finish that do not utilise a levelling compound as these covering do not transmit heat as effectively. This is the case with the Wooden Floor Heating system and, therefore, we would recommend paying particular attention to this possibility where this system is used.

Installation instructions

Floors with carpets, wet areas, awkward shaped rooms or areas expecting very heavy traffic or that will unavoidably suffer from thermal blocking

Heat Mat do not recommend the use of this system in these circumstances unless it has been discussed with Heat Mat's Technical Support team. We would ordinarily recommend one of our heating mat systems encapsulated in Mira Thermoplan flexible levelling compound in preference. Please call the Heat Mat Technical Support Team for further information.

Electrical connections

The electrical connections can now be completed. Once complete, turn power onto the system (see separate thermostat instructions for wiring and programming information). Leave for 30 minutes and check that each panel is heating properly.

If any panel appears not to be heating correctly carry out the electrical tests again.

All electrical work should comply with current IEE wiring regulations and installations must comply with Part 'P' of the building Regulations. Consult your Local Authority Building Control department regarding their requirements or check with an electrician qualified to issue Part 'P' certification regarding your individual installation. The heating system must be wired into a thermostat with floor sensor limitation.

The coldtail connections should be connected in parallel into a connection box before using suitably rated 2 core flex to complete the connection up to the thermostat. This section and floor sensor wire should be in separate plastic conduit or trunking from your heated floor to the thermostat position.

The mains power supply must be protected by a suitable RCD (30mA – up to 4.8kW).

The thermostat should be connected to the power supply through an arc detecting device if advised by your electrician.

Heat Mat's thermostats are usually rated to 16 Amp (approx. 3,600 watts). If the total loading of the heating system exceeds this, the system will require multiple thermostats or we would recommend the installation of a suitably rated contactor which would allow the heating system to be controlled by a single thermostat for ease of control.

The thermostat should be placed inside the same room as the heated floor. It should be placed approx. 1.3m up the wall away from other heat sources and direct sunlight.

If the thermostat is placed outside the room to be heated or inside a cupboard, the thermostat will have to be reprogrammed (when first switched on) to only monitor the floor sensor that has been placed into the heated floor space.

Heat Mat 15 Year Warranty

Congratulations on your purchase of a Heat Mat electric underfloor heating system.

The heating ribbon system has been manufactured by AMT, Advanced Metal Technologies, and supplied to Heat Mat Limited for sale in the European Union. The following warranty is supplied in accordance with the general product liability rules, as stated in Directive 85/374/CEE, and all relevant national laws. You are provided with a fifteen year warranty on the heating ribbon system for eventual defects in material. Eventual defects have to be presented to Heat Mat, AMT or an authorised UK or Ireland distributor for approval.

When your warranty is released, your damaged product will either be repaired or replaced with a similar product free of charge to yourself.

Your warranty does not cover the following:

- Any system faults caused by misuse.
- Any system which has not been installed in accordance with the manufacturer's guidelines.
- Any other consequential damages.
- Any system that has not been paid for in full.

The repair or replacement of your system is the only remedy available to you under this warranty. The above warranty does not affect your statutory rights. Heat Mat/AMT will in no event be liable for consequential losses or secondary charges including, but not limited to, the cost of replacing or repairing floor coverings, any costs associated with utility expenses or running costs, professional fees relating to trades peoples' subsequent work or any other damage caused to material items.

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Remember...

**If you have any questions at all,
just call the**

Technical Support helpline on:

01 444 247020

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