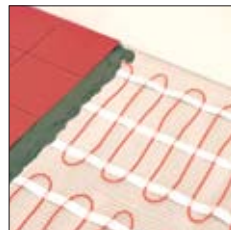


K L I M A

ELECTRIC UNDERFLOOR STICKY HEATING MAT



INSTALLATION INSTRUCTIONS

KLIMA MAT INSTALLATION INSTRUCTIONS

Dear Client,

Congratulations on the purchase of this KLIMA product. The KLIMA MAT is manufactured from high quality, durable materials. To guarantee that your product functions optimally there are a few points of attention which are described in the Installation Instructions. We can only offer you the full guarantee if the KLIMA MAT is correctly installed in accordance with the Installation Instructions. Carefully read the instructions prior to installation, do not forget the red centre page when doing so, and ensure that you have the correct tools and materials. The electrical installation must be carried out by a qualified electrician in accordance with IEE Regulations.

If you have any questions or require more information then you can:

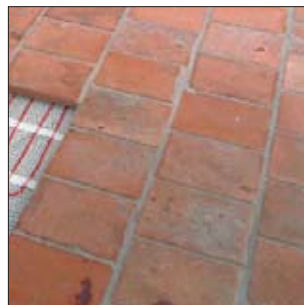
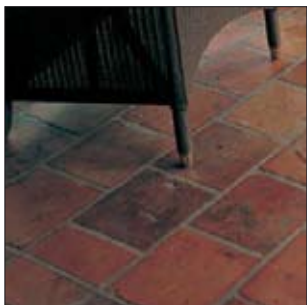
contact the Support Line Monday to Friday from 9 am to 5 pm:

0871 - 321 0411

or visit our website for more information and other products at:

WWW.KLIMA.CO.UK

© 01-2007 Klima Underfloor Heating Ltd, P.O. Box 2009, Aberfeldy, Perthshire, PH15



1. CHECK:

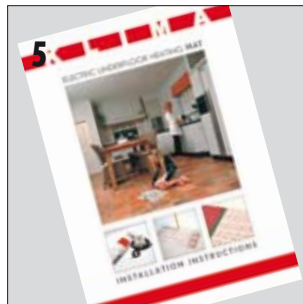
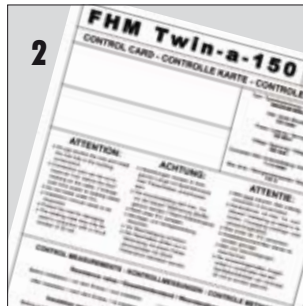
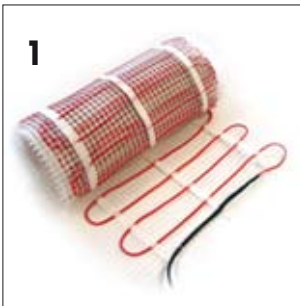
Check the contents of the box before starting. A complete set consists of:

1. A heating mat with sticky backside and connecting wire
2. Inspection card
3. A digital clock or Manual thermostat including floor sensor (Order as separate item)
4. A flexible sensor pipe
5. Installation Manual
6. Installation video download available on www.klima.co.uk

2. TECHNICAL DETAILS:

Type	: FHM_TWIN_ALU_150
With	: 0,5 meter
Power	: 150 W/m ²
Voltage	: 230 Volt~
Connection Wire	: 1x 3,5 meter
Max. temp.	: 115 °C

Type(m ²)	Wattage	Amps	Ohm
1	150W	0,7	353
1,5	225W	1,0	235
2	300W	1,3	176
2,5	375W	1,6	141
4	600W	2,6	88
5	750W	3,3	71
7	1050W	4,6	50
10	1500W	6,5	35



3. POINTS OF ATTENTION:

The KLIMA MAT electrical floor heater consists of a heating cable of 6-8 Watts per meter that is equally distributed and connected to a glass fibre net with an inter-loop distance of approximately 7cm. The KLIMA MAT is fully earthed.

Check before hand if the heating mat is the right size for the floor area to be heated and that there is sufficient electrical capacity (Amps.) available. The mat may not be positioned over expansion joints. Each mat is tested at the factory and has a unique inspection card. Every mat is tested at 4000 volt. Before installing the mat, the resistance reading should be taken and noted down on the inspection card and on page 8 (Note 8). The reading should be taken during the installation and on final completion. These readings should be as per the technical information (see note 2). Take measurements both between the resistance wires and between the resistance wire and the earth shield.

This heating mat may only be installed in combination with the following types of thermostats: FHT-Control, S-Control or ME-Control.

The red heating cable, attached to the white glass fibre net, CANNOT be cut. The mats CANNOT be laid over each other and the heating cables may NEVER cross each other! The cable junction (SPLICE), the transition of the resistance cable (heating section of the mat) to the power cable (cold connection) is just within the heating mat and is marked with a red and blue tie wrap.

A distance from the wall of 10 to 20 cm should generally be adhered to. The KLIMA MAT may never be installed under fixed objects like wall units, kitchen units, baths, or showers and must be able to give off its warmth unimpeded.

The KLIMA MAT may only be incorporated into the free floor areas. As bathrooms consist mostly of a small free floor area the mat can only be installed as supplementary heating. Please contact the Support Line for information about use as main heating.

All installations must be wired through a suitably rated MCB or RCCD when applicable. The RCD has a rated residual operating current not exceeding 30 mA. All installations in wet areas must be wired through a dedicated RCCD in line with the thermostat. All connections must be made by an approved electrician in accordance with current IEE regulations.

The heating mat is 3 to 4 mm thick and must be incorporated in a flexible adhesive or casting mortar suitable for floor heating. Check the manufacturers data.

The KLIMA MAT has 1 connecting cable 4 meters in length (Twin Conductor) and has an end seal (loop) at the end of the mat. The end seal CANNOT be broken.

The connector cable cannot be shortened by more than 2 meters, there must therefore always be at least 2 meters of connecting wire left. The power supply must never be connected during installation.

If multiple mats are installed in a space, they must be wired in parallel and a suitably rated junction box may be incorporated so that only one power cable runs to the thermostat. Maximum capacity of the thermostat is 16 Amperes. If combined area exceeds 23m², a Contactor will have to be fitted. The thermostat may only be installed by a qualified electrician.

The sensor must be installed in the middle of a cable loop for optimal temperature registration. Ensure that the sensor is installed well clear (min. 50 cm) of (hidden) radiator and water pipes, drains and electrical wiring.

The sensor must always remain IN the sensor conduit. Fit cap to end of the sensor conduit. If the sensor ever needs to be replaced it can then easily be removed.

The minimal thickness of covering materials on the KLIMA Mat is 5mm.

Avoid damaging during installation, such as dropping sharp object or stepping on the Klima mat, or careless pouring of concrete.

The KLIMA Mat has to be separated from other heat sources such as luminaires and chimneys. Do not instal the KLIMA Mat under 5°C.

The check-controlcard must be filled in and must contain a scedule or picture of the installation. Keep this check-controlcard in the meter cupboard in a visible place!

THE KLIMA MAT IS PRIMARILY DESIGNED FOR INSTALLATION ON CONCRETE FLOORS. IF LAYING KLIMA MAT ON A WOODEN FLOOR, ALL FLOORS MUST BE SHEETED WITH OUR THERMAL BOARD KIT OR SIMILAR CEMENT COVERED BOARD WHICH IS COMPATIBLE WITH HEATED FLOOR SYSTEMS OR SHEET THE FLOOR WITH 15MM WBP OR MARINE PLYWOOD, FIX WITH SCREWS AT 200MM CENTRES AND THEN SKIM WITH 2-3MM OF FLEXIBLE TILE ADHESIVE AND ALLOW TO DRY, THEN PROCEED AS INSTALLATION FOR CONCRETE BASE.

4. GUARANTEE:

The electro technical part of the floor heating is guaranteed for 10 years. The thermostat is guaranteed for 2 years. The guarantee does not apply to damage caused by external factors and/or incorrect installation.

5. NECESSARY MATERIALS:

- A KLIMA MAT System.
- Thermostat
- Flexible tile adhesive or Self levelling compound and flexible grout suitable for floor heating.
- Flexible cement and cement gun for expansion joints along the walls.
- approx. 2 m flexible electrical conduit (16mm)
- (Plastic) adhesive comb with approx. 6 mm teeth.
- Electrical back box (min 35mm deep, preferably 50mm).
- Earthed power outlet.
- A multimeter to test the mat after each installation activity.
- various tools.

6. PREPARATION:

Determine where the thermostat must be placed, place a standard electrical back box with a minimum depth of 35mm, preferably at a height of 1.40 m for ease of operation.

Grind/cut the necessary grooves and mount the back box and electrical conduit.

2 conduits to be installed, one for the sensor and the other for the power cable from mat.

Do not run the power cable and sensor cable through the same conduit.

Cut a groove in the floor for the floor sensor pipe (1 cm deep).

TAKE CARE:

- NEVER PLACE THE SENSOR IN THE VICINITY OF A (HIDDEN) RADIATOR PIPE!

- NEVER INSTALL IT PASSING UNDER A HEATING CABLE!

Ensure that the surface where the mat is worked on is flat, clean, and free of dust and grease. In larger spaces, expansion joints along the wall may have to be used.

NECESSARY MATERIALS:



PREPARATION:



7. INSTALLATION INSTRUCTIONS:

WHEN INSTALLING IN TILE CEMENT:

Unroll the KLIMA MAT with the heating cable facing upwards.

FOR SELF LEVELLING COMPOUND:

Unroll the KLIMA MAT with the heating cable facing upwards. Determine how the matting must be laid. The glass fibre netting can be cut between the cable loops and folded over. Avoid damaging the cable!

There are many possible variations when installing. Klima Underfloor Heating Ltd can provide installation drawings if required - please contact us on 0871 321 0411.

8. RESISTANCE READINGS:

Please make a note of your resistance readings in the table below. This forms your guarantee. Readings to be taken with an ordinary Multimeter. Please also make note of the resistance readings on your inspection card.

*** Should always read open circuit. If not: STOP immediately and call the technical helpline.**

Mat type: M ²	Initial	Mat Laid	Completion
Live & Neutral	Ω	Ω	Ω
Live & Earth*	Ω	Ω	Ω
Neutral & Earth*	Ω	Ω	Ω

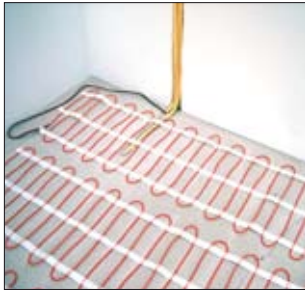
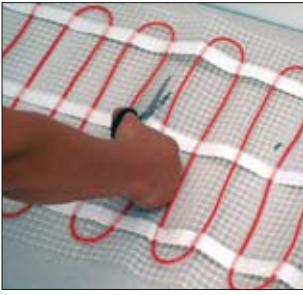
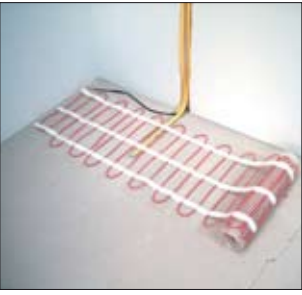
9. MEASURING OUT THE HEATING MAT:

Allow for a distance from the wall of 20 to 30 cm when rolling out the matting in larger areas. This does not apply to glazed walls where extra heating is required. If the KLIMA MAT is too long, the mat can be cut into a long length and laid round the periphery of the mat. The distance between the cables must not be less than 4cm. They may not touch or cross each other. Retest the mat when it has been laid.

RESISTANCE READINGS:



TILE CEMENT METHOD:



10. TILE CEMENT METHOD:

- Pull the end of the connecting cable through the electrical conduit to the thermostat.
- Apply a first layer of Flexible tile adhesive 4mm to 6mm thick and approx. 550mm wide.
- Unroll the KLIMA MAT with the heating cable facing upwards
- Softly push the mat down with a wooden spatula or gloves and spread the tile cement that oozes through the mat.
- Smooth it over and allow it to dry.
- Take the resistance readings of the mat again.
- Then apply a second solid layer of flexible tile adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the KLIMA MAT. (DO NOT SPOT TILE).
- Press down the tile with a light sliding motion.

11. SELF-LEVELLING METHOD:

Position the mat as described in Point 6. Attach the mat to the floor with the adhesive backside.

Test the mat again with a multimeter and write down the readings on the test card. Take measurements both between the resistance wires and between the resistance wire and the earth cladding.

First read the instructions of the self-levelling mortar, check that the product is suitable for floor heating and follow the instructions of the manufacturer to the letter.

The self-levelling effect must usually be assisted somewhat using a squeegee. Observe the drying time and then apply the floor covering, i.e. tiles as in part 10.

TAKE CARE:

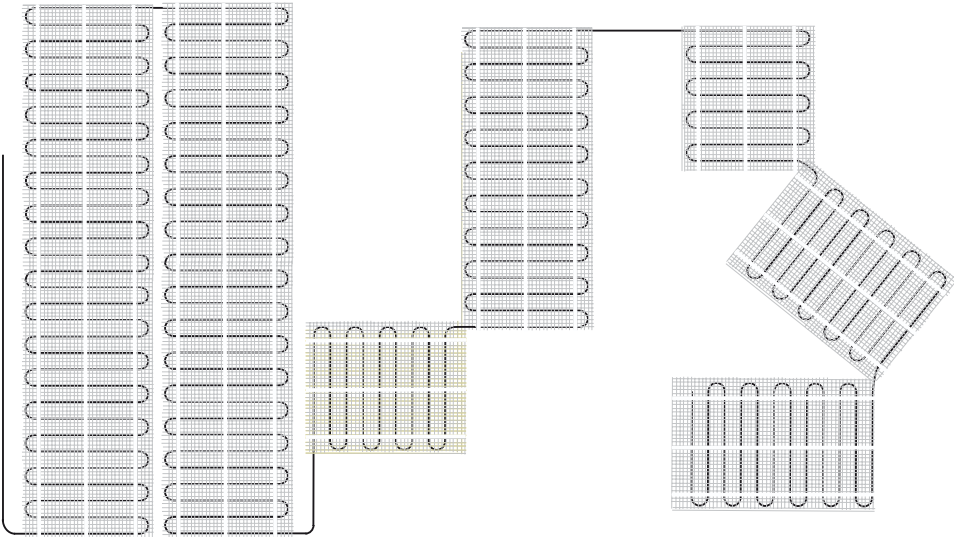
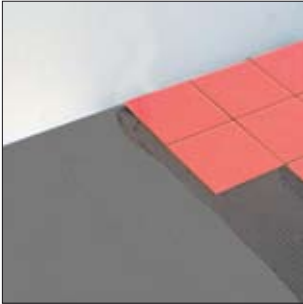
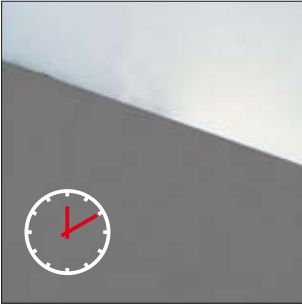
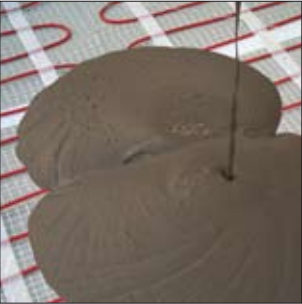
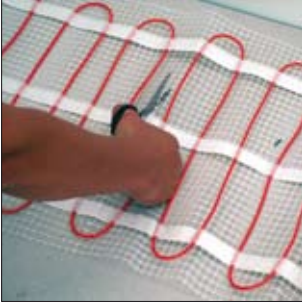
DO NOT APPLY MORE THAN 1 SELF LEVELLING LAYER!

PLEASE FOLLOW MANUFACTURERS INSTRUCTIONS!

12. USING THE SYSTEM FOR THE FIRST TIME:

Depending on the drying time specified for the Flexible adhesive or self-levelling compound, however not sooner than 14 days after installation due to the natural expulsion of moisture from the floor. Turning on the system sooner can damage the floor.

SELF-LEVELLING COMPOUND METHOD:



**PLEASE NOTE THAT WHERE THERE IS NO MATTING
INSTALLED THE FLOOR WILL NOT BE HEATED!**

CONNECTING THE FHT/S-CONTROL:

During installation/de-installation of the thermostat the electricity should always be turned off at the mains. Installation must be carried out by a qualified electrician in accordance with the IEE Regulations. The FHT-Control thermostat is equipped with an intelligent guide function that leads the user through the programme and is extremely user friendly. Still carefully read this manual nevertheless and keep it with your other guarantees.

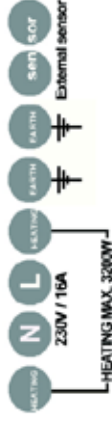
INSTRUCTIONS FOR THE ELECTRICIAN:

Check that the electricity is turned off. Remove the display housing by inserting a blunt, suitable instrument, e.g. a coin or point of a ballpoint carefully into the square hole at the top of the thermostat and exerting a light pressure. Both the display housing and the cover plate can then be removed.

WIRING DIAGRAM:

Installation is done as follows:

- 1, 4 and 5 (earth) are used for the connection wires from the heating cable.
- 2 (Neutral), 3 (Live) and 6 (Earth) are for the power supply.
- 7 and 8 (earth) are for connecting the sensor.



INSTALLATION:

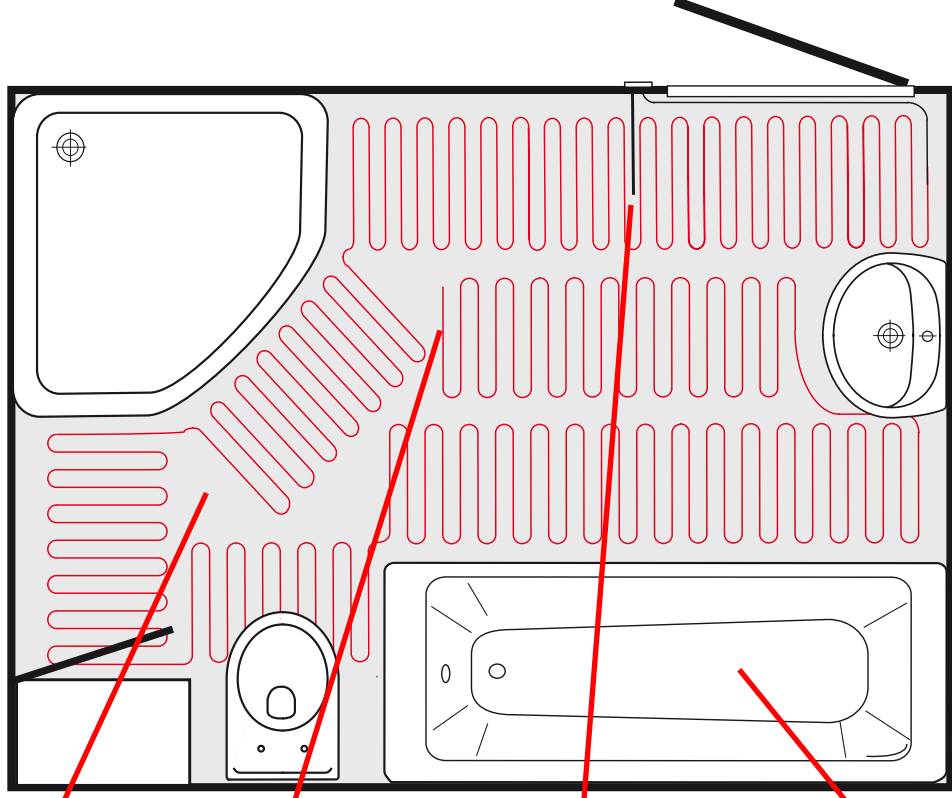
Position the thermostat and mount and secure it in the back box with two screws. Replace the cover plate and position the display housing back in place and softly press it into position. When the power is turned on the first question will be displayed on the start up menu. Follow the start up menu carefully.

Please note that where there is no matting or cable installed the floor will not be heated!

If the mat is too long the cable can be cut loose from the fibre netting and installed in loose strips. Loose cables must be looped at least 4 cm from each other. They may not touch or cross each other.

The sensor must be installed in the middle of a cable loop for optimal temperature registration. Ensure that the sensor is installed well clear (min. 50 cm) of (hidden) radiator and water pipes, drains and electrical wiring.

The Mat or Cable may never be installed under fixed objects like wall units, kitchen units, baths, or showers and must be able to give off its warmth unimpeded.



PLEASE READ CAREFULLY:

**IMPORTANT POINTS OF ATTENTION FROM THE GENERAL INSTALLATION INSTRUCTIONS
ALL FLOORS SHOULD BE INSULATED BEFORE UNDERFLOOR HEATING INSTALLATION.**

INSTALLING FLOOR HEATING:

KLIIMA CABLE: The connecting cable CANNOT be shortened. The part of the cable with the word ****SPLICE***** must be installed in the floor screed.

Shortening the connecting cable for the KLIIMA MAT: The connecting cable may be shortened AT MOST by 3 meters (no less than 2 meters). All cables that are attached to the mat must be installed in the floor.

Extending connecting cables: The connecting cables can be extended as required. Take however the capacity (Amps) of the floor heating into account and adjust the capacity of the extension cables accordingly.

FLOOR SENSOR INSTALLATION:

Ensure that the sensor is installed well clear (min. 50 cm) of central heating pipes, water pipes, drains and electrical wiring. Install the sensor as closely as possible in the middle of 2 loops. Ensure that the heating cables do not make direct contact with the conduit in which the floor sensor is mounted. The end of the sensor pipe must be closed. Check that the sensor cable is free to move to the end of the pipe.

Extending the floor sensor: The floor sensor may be extended as required up to a maximum of 10 meters. Use a signal

cable for extending the sensor. Ensure that the sensor can always be replaced in case it fails. The simplest way of doing so is installing a hidden junction box in which the signal cable is connected to the sensor.

INSTALLING KLIMA CABLE ON WELD MESH:

If using a porous floor finish such as limestone etc. on top of the screed, we recommend that the weld mesh is galvanised otherwise the rust off the mesh can rise to the top of your finished floor surface during time.

USING THE FLOOR HEATING FOR THE FIRST TIME:

Allow the floor sufficient drying time before you turn on the floor heating. For tiled floors a drying time of 3/4 weeks after installation should generally be observed. Consult the supplier/manufacturer regarding the applicable drying time for the product. For sand/cement screed floors a drying time of 1 week per applied cm with a minimum of 4-5 weeks is generally observed. Consult the supplier/manufacturer regarding the applicable drying time for your situation.

ADJUSTING THE THERMOSTAT:

Timer function: If you have a thermostat with a timer function and want to use it to set the floor drying time make sure you set a low comfort temperature. (15°C for example). When the thermostat automatically goes on (after the required drying time) then the comfort temperature may be slowly raised (1°C per day) until the desired comfort temperature is reached.

Other thermostat / settings: If you have a different thermostat or if you do not want to use the timer function ensure that you then set the comfort temperature low (15°C for example). After taking the required drying time into account you can then manually raise the floor temperature with approx. 1°C per day until the desired comfort temperature is reached.

