



UNDERFLOOR HEATING 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:

01887 822 020

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

www.klima.co.uk

© 06-2015 Klima Underfloor Heating Ltd.
Karelia House, Keltneyburn, By Aberfeldy, PH15 2LS



1. Check:

A complete set consists of:

- Heating mat with adhesive backing
- Inspection card
- Flexible sensor pipe
- Installation Manual

Order as separate item:

- Digital or Manual thermostat including floor sensor

2. Technical details:

Type	FHM_TWIN_ALU_150
Width	50 cm
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:

This heating mat may only be installed in combination with KLIMA thermostats. 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 4000V.

Before installing the mat, the resistance reading should be taken and noted down on the inspection card and on middle page. The reading should be taken during the installation and on final completion. These readings should be as per the technical information. Take measurements both

between the resistance wires and between the resistance wire and the earth shield. The check-controlcard must be filled in and must contain a schedule or picture of the installation. Keep this check control card in the meter cupboard in a visible place!

The red heating cable, attached to the adhesive 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 black shrink tube (Splice). This splice MUST be covered with the Tile Adhesive or Self Levelling Compound.

A distance from the wall of 10 to 20 cm should generally be adhered to. 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. 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 heat unimpeded.

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 covered by a 2 part flexible adhesive or self leveller compatible that is compatible with underfloor heating systems. Check the adhesive manufacturers data. The minimal thickness of covering materials on the KLIMA Mat is 5mm.

The KLIMA Mat has 1 connecting cable 3.5 meters in length (Twin Conductor) and has an end seal (loop) at the end of the mat.

The end seal CANNOT be broken and must be covered with the Tile Adhesive or Self Levelling Compound. 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 radiators and hidden hot 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.

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.

The KLIMA Mat is primarily designed for installation on concrete floors. If laying KLIMA Mat on a wooden floor please contact our Support line: 01887 822 020

4. Guarantee:

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

INSTALLATION INSTRUCTIONS:

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.
- A suitable floor primer **MUST** be used on the sub floor before adhering the mat.
- Approx. 2m flexible electrical conduit (16mm)
- (Plastic) adhesive comb with approx. 6mm 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.

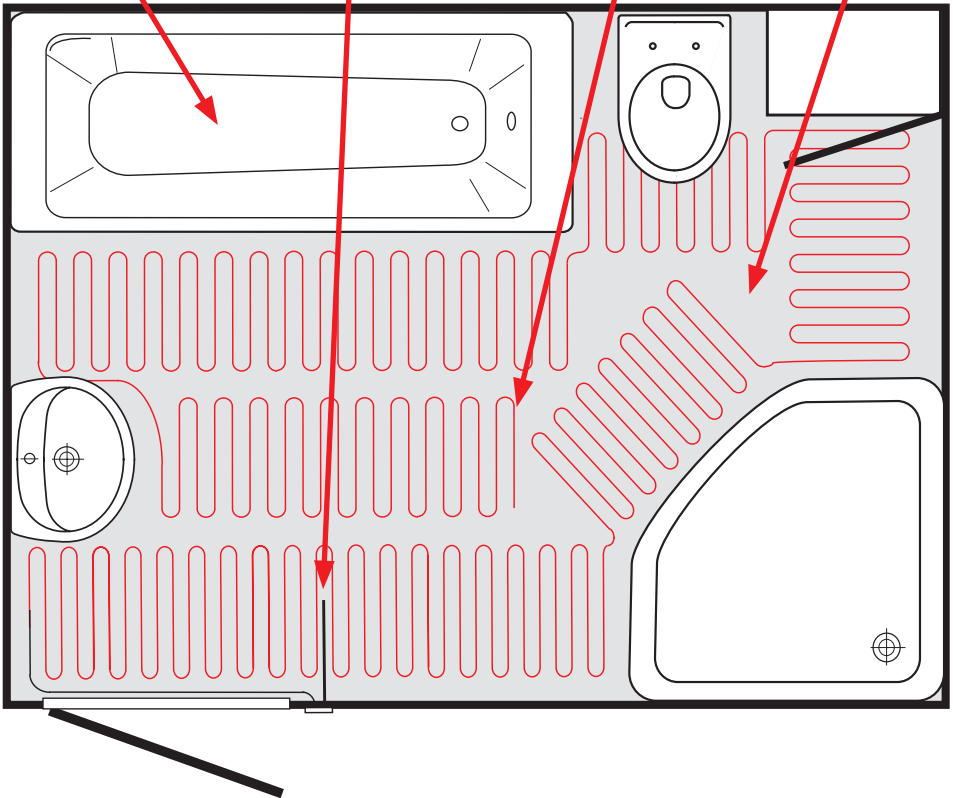


The Mat may never be installed under fixed objects like wall units, kitchen units, baths, or showers and must be able to give off its warmth unimpeded.

The 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.

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.

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



ATTENTION!

UNDERNEATH THE FLOORING A 230 VOLT HEATING SYSTEM IS INSTALLED! NEVER DRILL OR SCREW INTO THE FLOOR! SEE SCHEDULE/PICTURE FOR THE POSITION OF THE HEATING SYSTEM.

Floor Heating mat installed in:

Resistance readings:

A: Between centre core wires (within 10% margin!)

B: Between centre core wire #1 and the earth (This should read "0")

C: Between centre core wire #2 and the earth (This should read "0")

Initial Reading:

A:.....Ohm

B:.....Ohm

C:.....Ohm

Mat/Cable Laid:

A:.....Ohm

B:.....Ohm

C:.....Ohm

After completion:

A:.....Ohm

B:.....Ohm

C:.....Ohm

Installer

.....

Date

...../...../20.....

Signature

.....

KEEP THIS CONTROL/CHECK CARD IN THE METER CUPBOARD IN A VISIBLE PLACE!

7. Resistance Readings:

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

Test the mat 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.

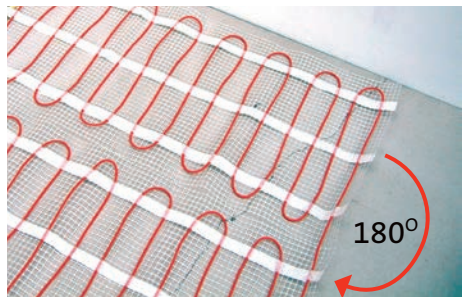
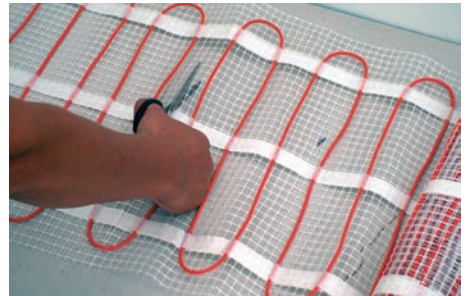
The last one should always read open circuit. If not: STOP immediately and call the technical helpline on **01887 822 020**.



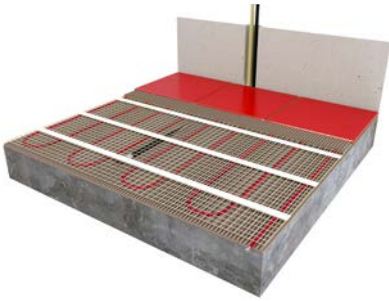
8. Measuring out the heating mat:

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 **01887 822 020**.

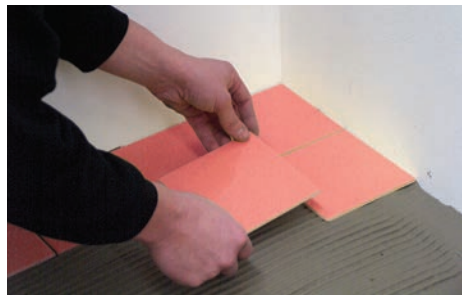
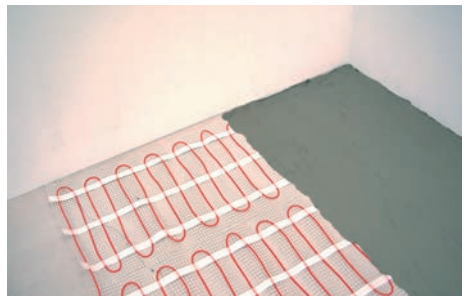
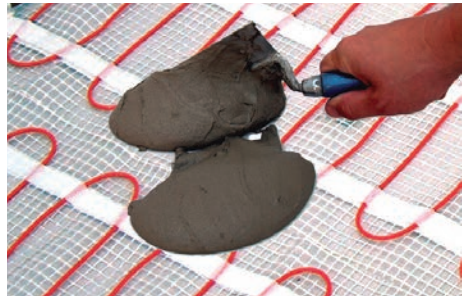
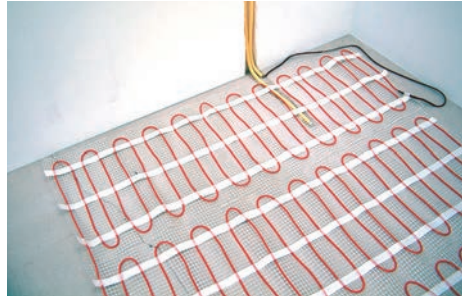
Allow for a distance from the wall of 20 to 30 cm when rolling out the matting in larger areas. This does not apply to glazed walls where extra heating is required. If the KLIMA Mat is too long, the mat can be cut into a long length and laid round the periphery of the mat. The distance between the cables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



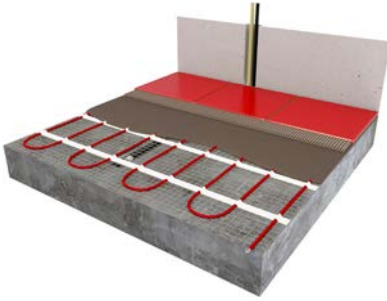
9. Tile cement method:



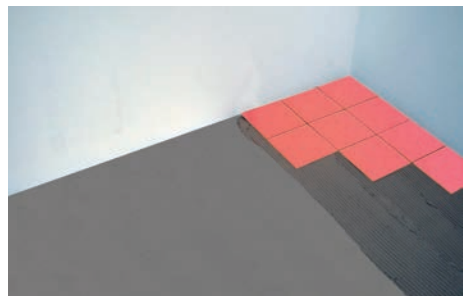
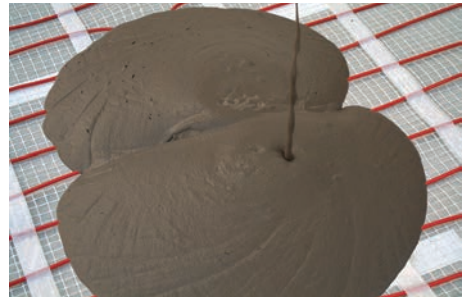
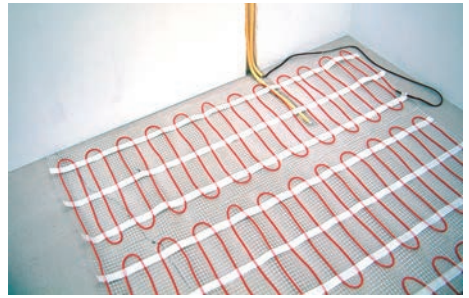
- Test the mat with a multimeter and write down the readings.
- Pull the end of the connecting cable through the electrical conduit to the thermostat.
- Prime the sub floor using a suitable primer and allow to dry.
- Unroll the KLIMA Mat with the heating cable facing upwards. Attach the mat to the floor through the adhesive backside.
- Test the mat again with a multimeter and write down the readings.
- Apply a layer of Flexible Two part tile adhesive over the mat ensuring that the whole mat (INCLUDING END SPLICE AND CONNECTION SPLICE) is covered by the adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the KLIMA Mat. (DO NOT SPOT TILE).
- Either leave this layer of adhesive to dry and then apply another layer of tile adhesive then press down the tile with a light sliding motion. Or directly lay the tiles into the adhesive ensuring sufficient depth of tile cement to cover the cable (minimum 5mm) and press down the tile with a light sliding motion.
- Test the mat again with a multimeter and write down the readings.



10. Self-Levelling method:



- Test the mat with a multimeter and write down the readings.
- Position the mat as described in Point 8. Attach the mat to the floor through the adhesive backside.
- Test the mat again with a multimeter and write down the readings.
- 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.
- **TAKE CARE:** Please follow manufacturers instructions! Do not apply more than 1 self levelling layer!
- Apply a layer of tile adhesive then press down the tile with a light sliding motion.
- Test the mat again with a multimeter and write down the readings.



11. Connecting the thermostat:

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. Carefully read the manual and keep it with your other guarantees.

For installation, use and programming the thermostat, please refer to the instructions included with the thermostat.

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.





Klima Underfloor Heating
Karelia House, Keltneyburn
By Aberfeldy, PH15 2LS

T 01887 822020
E technical@klima.co.uk
W www.klima.co.uk