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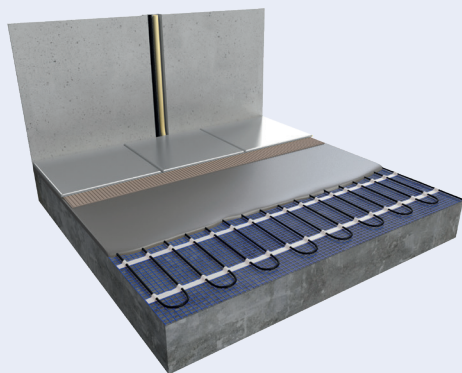


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Electric underfloor heating

Installation manual

This HENCO heating product 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 these installation instructions. We can only offer you the full guarantee if the system is correctly installed in accordance with these installation instructions. Carefully read the instructions prior to installation, do not forget the 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 current local regulations.

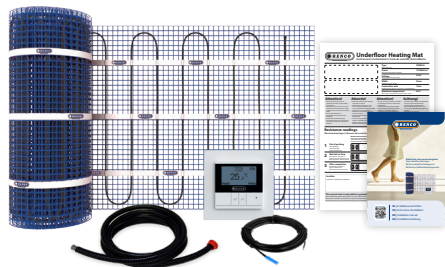


1. Check:

Check the contents of the box before starting.

- Heating mat with connecting wire
- Inspection card
- Thermostat incl. floorsensor*
- A flexible sensor tube
- Installation instructions

*To be ordered as separate item in some countries.



2. Measurements:

Type	Watt	Size	Ampère	Ohm
1 m ²	150W	0,5x2m	0,7	353
1,5 m ²	225W	0,5x3m	1,0	235
2 m ²	300W	0,5x4m	1,3	176
2,5 m ²	375W	0,5x5m	1,6	141
3 m ²	450W	0,5x6m	2,0	117
3,5 m ²	525W	0,5x7m	2,3	100
4 m ²	600W	0,5x8m	2,6	88
4,5 m ²	675W	0,5x9m	2,9	78
5 m ²	750W	0,5x10m	3,3	71
6 m ²	900W	0,5x12m	3,9	59
7 m ²	1050W	0,5x14m	4,6	50
8 m ²	1200W	0,5x16m	5,2	44
9 m ²	1350W	0,5x18m	5,9	39
10 m ²	1500W	0,5x20m	6,5	35
12 m ²	1800W	0,5x24m	7,8	29
15 m ²	2250W	0,5x30m	9,8	23
20 m ²	3000W	0,5x40m	13	18

3. Points of attention:

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.

You should check the mat between and after each working cycle using a multimeter and fill in the measured values on the control card provided. Keep this page in your meter cabinet, it is part of your warranty.

The connector cable can be extended or shortened, there must always be at least 1 meter of connecting wire left. The heating cable, attached to the 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) is 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.

A distance from the wall of 15 cm should generally be adhered to. The Heating 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 heating 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 your local supplier for information about use as main heating.

All installations must be wired through a suitably rated MCB or RCCD when applicable. 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 local regulations.

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

The Heating 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. The connector cable can be shortened, there must always be at least 0.5 meter 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 cable can be extended or shortened. 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 tube. Fit cap to end of the sensor tube. If the sensor ever needs to be replaced it can then easily be removed.

The heating mat is primarily designed for installation on concrete floors. If laying on a wooden floor, all floors must be sheathed with a cement faced 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. This does not apply to damage caused by external factors and/or incorrect installation.

5. Necessary materials:

- A heating mat system.
- 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. 2m flexible electrical conduit (16mm)
- (Plastic) adhesive comb with approx. 6mm teeth.
- Electrical back box (min 35mm deep, preferably 50mm).
- Earthed power connection.
- A multimeter to test the mat after each installation activity.
- Various tools.

6. Preparations:

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 junction box and electrical conduit.

2 conduits have 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 (2 cm deep).

TAKE CARE: Never place the sensor in the vicinity of a (hidden) radiator pipe and 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.

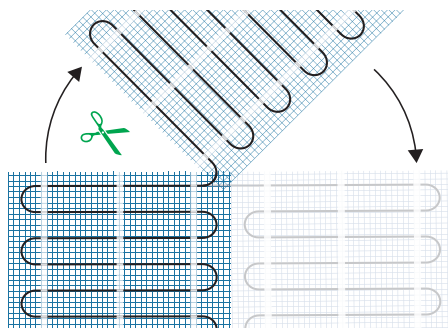
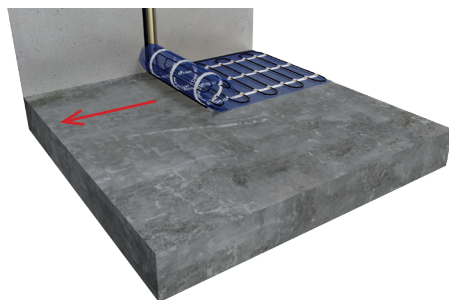
7. Resistance readings:

Before installing the Heating mat, the resistance reading should be taken and noted down on the control card provided. The reading should be taken during the installation and on final completion. These readings should be as per the technical information (Point 2). Take measurements both between the resistance wires and between the resistance wire and the earth cladding.

Keep this inspection card in the meter cupboard in a visible place! This forms part of your guarantee.

8. Measuring out the mat:

When rolling out the mat in larger rooms, allow for a wall clearance of approx. 15 cm. This does not apply to glass walls where additional energy is required. If the mat is not up to length, it can be folded 180° e.g. by cutting the glass net without damaging the heating cable. This can be repeated several times. If the mat is still too long, the cable can be detached from the glass net and processed loosely in the free strips. The loose cable should be looped min. 5 cm apart. They should not touch or cross each other. Once the mat is in place, test it again.



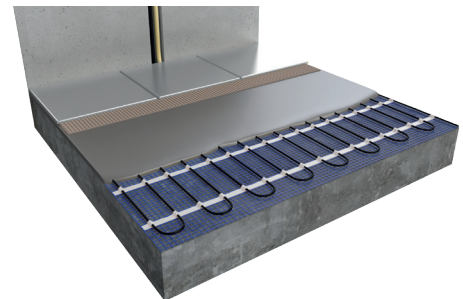
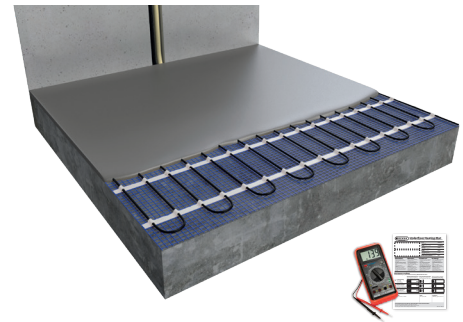
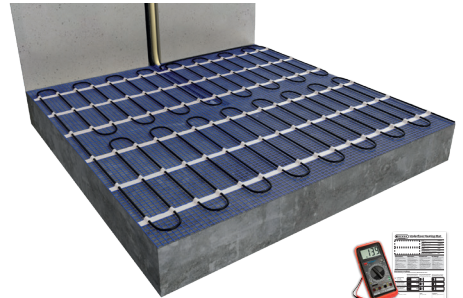
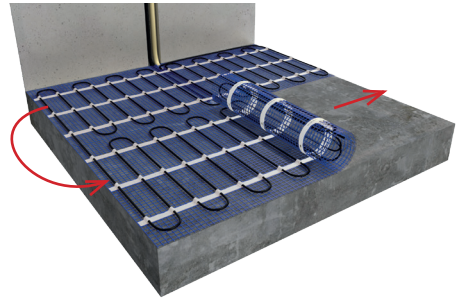
9. Self-Levelling method:

Unroll the heating mat with the heating cable facing upwards.

- Position the mat as described in Point 8.
- Pull the end of the connecting cable through the electrical piping to the thermostat.
- Take the resistance readings.
- First read the processing instructions for the self-levelling casting mortar, check whether the product is suitable for underfloor heating and follow the manufacturer's instructions exactly. Usually the self-levelling effect needs to be reinforced with a floor wiper. The entire mat including heating cables should be enclosed by the casting mortar.

TAKE CARE: Do not apply more than 1 self levelling layer. Please follow manufacturers instructions.

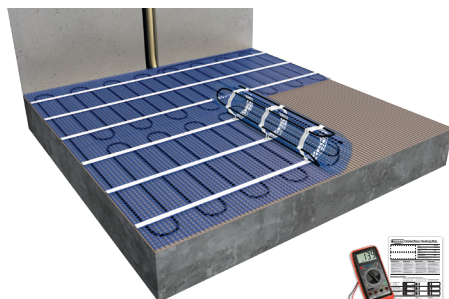
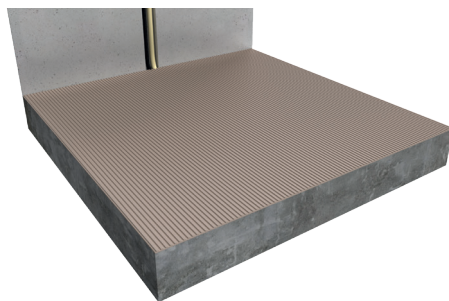
- Take the resistance readings again.
- Then apply a solid layer of flexible tile adhesive taking care to avoid air bubbles and use a plastic tile cement comb to avoid damaging the heating mat. (DO NOT SPOT TILE!). Press down the tile with a light sliding motion.



10. Tile cement method:

Unroll the heating mat with the heating cable down so that only the glass fibre netting is visible.

- Position the mat as described in point 8.
- Take the resistance readings.
- Pull the end of the connecting cable through the electrical piping to the thermostat.
- Apply a first layer of Flexible tile adhesive 0,4 cm to 0,6 cm thick and approx. 55 cm wide.
- Roll the mat out over the tile cement with the cable facing downwards.
- 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 mat. (DO NOT SPOT TILE!).
- Press down the tile with a light sliding motion.



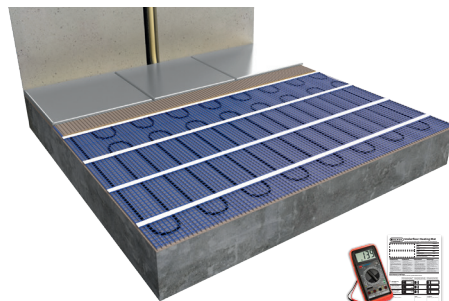
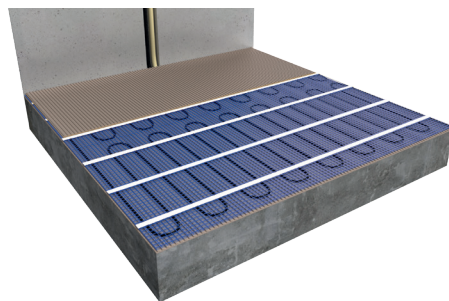
11. Connecting the thermostat:

Installation needs to be done by a qualified electrician in accordance with all current wiring and building regulations. Before installation or re-installation of the thermostat always isolate the power to the thermostat.

To install and set up the thermostat, please use the manual that is 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 21 days after installation due to the natural expulsion of moisture from the floor. Turning on the system sooner can damage the floor.



Translation of the Control Card:



Underfloor Heating Mat

Control card

Type	FHMX-H
Power	150Watt/m ²
Voltage	230V
Width	50cm
Connection wire	3,5m
Maximum temperature	90°C

Attention!

- Do not shorten the mat and install the mat fully in the building construction.
- Connection wire can be cut to max. 1m before the marking on the cable. (Change over from power to heating cable)
- Do not install under 5°C.
- Installation manual needs to be respected.
- Protect the mat for damaging.
- The heating mats may only be used in conjunction with a circuit breaker of 30mA.

Resistance readings

	Between the two resistance wires (10% margin)	Between resistor wire #1 and earth ("infinite")	Between resistor wire #2 and earth ("infinite")
1 Out of packing	Ohm (±10%)	(=∞)	(=∞)
2 Mat laid on floor	Ohm (±10%)	(=∞)	(=∞)
3 After completion	Ohm (±10%)	(=∞)	(=∞)

Installer

Date

Signature

This control card is only valid as a guarantee after correct measurements!



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