



## Installation Instructions

### *175 Underfloor Heating Mat Kit*

Carefully read through the **entire** installation instructions before starting work.

#### General instructions

Floor Heating Online Underfloor heating mat kit consists of a thin heating cable fixed on a mesh. The overall build-in depth is only approximately 4 mm. The matting is designed with a very simple and flexible system for bonding to the floor. Mat Kit is used for heating tiled floors on a concrete subfloor and is available in 175 W/m<sup>2</sup>. Mat Kit has only one connection end. The electric and electromagnetic field is negligible.

- Mat Kit should be controlled by thermostat FHO FSTAT (included in the Kit).
- The system must be connected to a 230V supply via a 30mA RCD.
- **The heating cable on the Mat must not be cut.** Only cut the Matting under the cable.
- Make sure the **entire** mat will fit in your area **before** you begin installation.
- The matting should be at room temperature at installation. At lower temperatures the adhesive capacity of the tape will decrease.
- Measure the insulation and resistance values of the cable on the mat three times: before laying, after fixing and after floor laying. Note down the values in the test protocol. The 10 year warranty is invalid without this protocol and the signature of a qualified installer.
- Wait 1 week before the heating is used, inc. the heat by 1 degree C a day until your target temp is reached.
- The installation must be carried out in accordance with the current IEE regulations.
- The completed floor must not be covered with thick insulating carpets, beanbag seating or the like as this can result in temperatures harmful to the floor.

Installation must be carried out according to electrical regulations and under the supervision of a qualified electrician.

**Heater Mat Power, Length & Resistance values** (Resistance tolerances:  $\pm 10\%$ )

Part no.	Power (W)	Mat size (m)	Resistance (Ohms)	Area (m <sup>2</sup> )
<b>FHO-175-790</b>	<b>790</b>	0.5 x 9.0	67	4.5
<b>FHO-175-940</b>	<b>940</b>	0.5 x 10.8	56	5.4
<b>FHO-175-1170</b>	<b>1170</b>	0.5 x 13.4	45	6.7
<b>FHO-175-1360</b>	<b>1360</b>	0.5 x 15.6	39	7.8
<b>FHO-175-1520</b>	<b>1520</b>	0.5 x 17.4	35	8.7
<b>FHO-175-1700</b>	<b>1700</b>	0.5 x 19.4	31	9.7
<b>FHO-175-1870</b>	<b>1870</b>	0.5 x 21.4	28	10.7
<b>FHO-175-2050</b>	<b>2050</b>	0.5 x 23.4	26	11.7

Min. insulation value 10 M $\Omega$

To select the correct mat, take the floor area to be heated and select the largest mat **below** that area. E.g. for a 7m<sup>2</sup> area select FHO-175-1170 at 6.7m<sup>2</sup>.

Multiple mats should be connected in parallel either directly into the thermostat or into a junction box and then a connection taken back to the thermostat. The maximum thermostat load is 15 amps (3450 W). Installations exceeding this load will need to be controlled with a suitable power contactor or alternatively by more than one thermostat – consult your electrician about this.

**Please read through the entire installation instructions before starting work!**

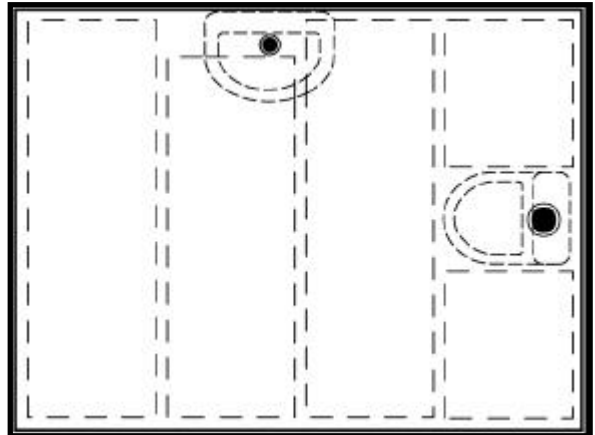
## Subfloor

Make sure the floor is solid, without any springiness and clear of any dirt or residue. Wooden or chipboard flooring with more than 30 cm between the joists usually needs to be reinforced to prevent cracking and the floor tiles from releasing. This also applies without underfloor heating.

## Installation

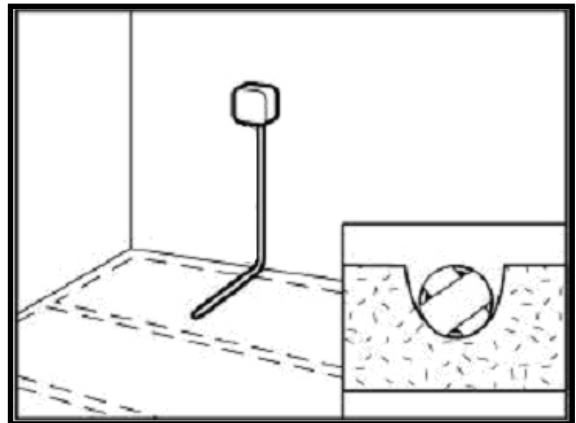
Draw on the floor how the matting should be laid. See figure 1 for an example layout. **Make sure that all the mat will fit in the area before you start laying it out.**

Fig. 1



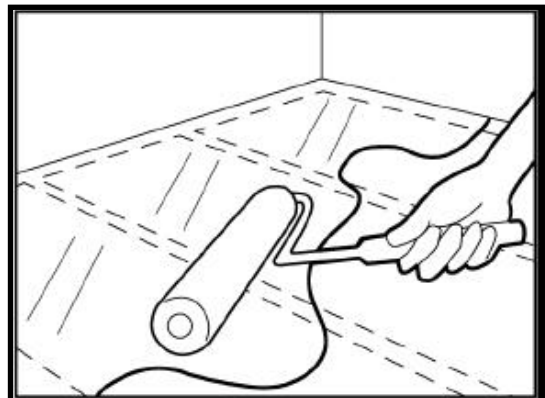
The thermostat sensor should be placed in the supplied conduit pipe right to the end, within the pipe. Cut a groove in the floor for the thermostat sensor pipe. Connect the sensor pipe under the heating cable matting in a place that will not be covered by rugs, furniture or the like. Seal over the pipe end. The sensor is now totally within the pipe and protected from the screed or adhesive. Keep the bend at the wall as gentle as possible, this will allow the sensor to be removed in the future, if necessary. See figure 2.

Fig. 2



Prime the floor using either a PVA adhesive watered down 4 parts water to 1 part adhesive or a proprietary sealer. Its main purpose is to make sure the floor is solid and dust-free so that a good bond is formed with the mat. See figure 3.

Fig. 3



Start fixing the mat in one corner. If the cold cable is not long enough to reach the connection point/ thermostat, you can cut the matting into as many sections as needed and install the cable along the wall to come closer. The cable splice must be inset in the floor. The matting must not be laid under fixed furnishings, toilets or similar objects. Note the position of the toilet's screws and avoid that area. Remove approx. 30 cm of the protective paper from the tape (all four pieces of tapes), align the matting and press down the first 30 cm of the matting. See figure 4.

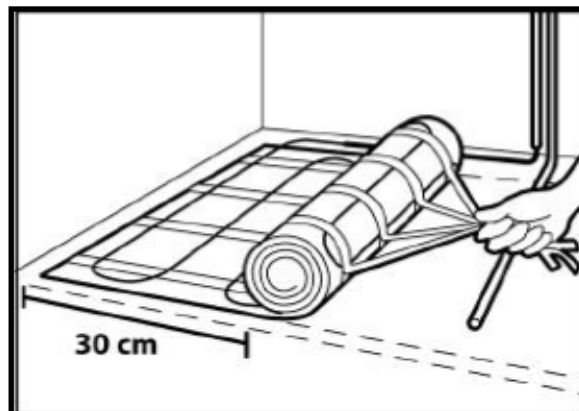
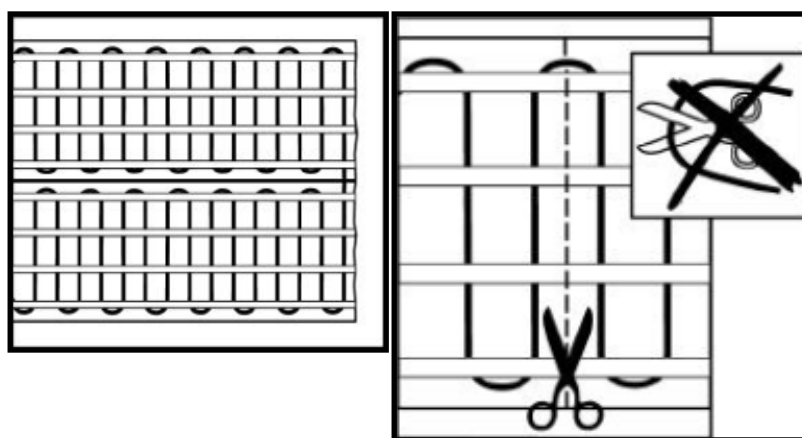


Fig. 4

Hold the protective paper from all the tapes. Carefully pull the protective paper. The matting will then roll out and bond to the floor. Press the tape against the floor. Roll out the matting to the opposite wall. Cut the mesh without damaging the cable. Loosen the protective paper and roll the matting back again. The cables should not be closer than 5 cm to each other when cutting the mesh. See figures 5 & 6.



Figs. 5 & 6

Cut and release a piece of mesh and go round toilets and similar objects. See figure 7.

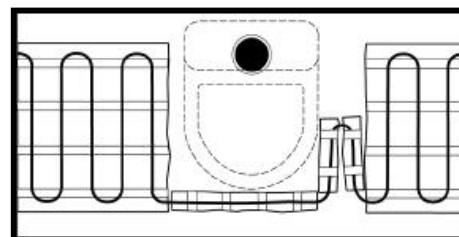


Fig. 7

Cut another piece of mesh and place the cable as in figure 7. Now, the matting can be rolled out at the right side, otherwise the installation will be more difficult. When the matting has been laid, go back and press down the tape. The tape is pressure sensitive and adheres better when pressed down well. If you walk on the tape wear shoes with a soft sole or go in bare feet to get a more constant pressure. See figure 8. To further improve the adhesive qualities the floor can be primed once more using undiluted primer, the matting will then bond very well to the floor. The mesh may also be stapled to boards.



Fig. 8

The insulation and resistance of the matting should now be measured. The values should be noted in the test protocol. The position of the matting should be documented on a sketch or photograph and be kept by the distribution box.

The floor is now ready for screeding. Use a flexible levelling screed and follow the manufacturers instructions. The mat can also be covered with a complete bed of flexible tile adhesive. See figure 9.

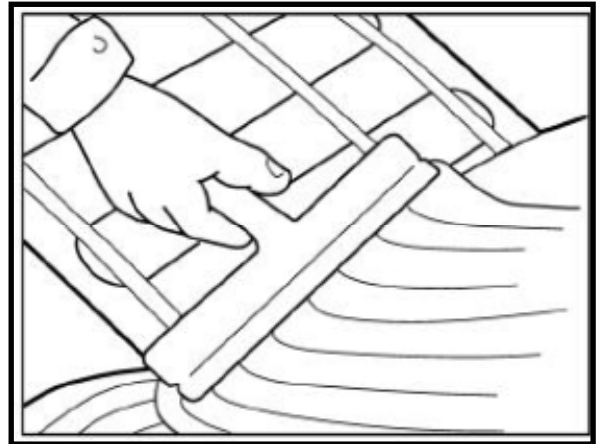


Fig. 9

The floor is now ready for tiling. Follow the manufacturer's instructions with regard to the waterproof membrane. Lay the new flooring according to the manufacturer's instructions. Use flexible adhesive and grout. See figure 10.

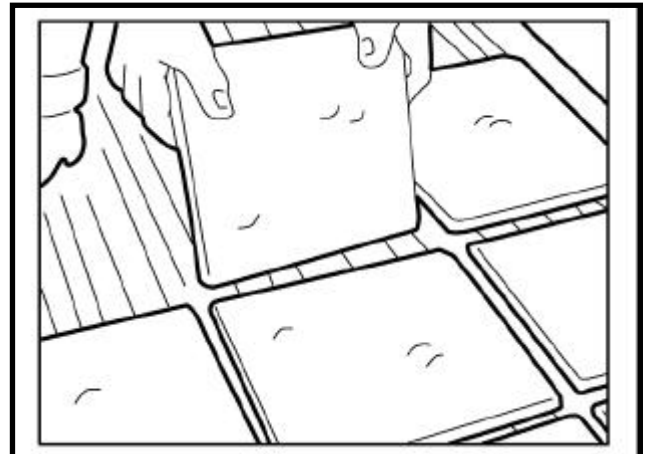


Fig. 10

The completed floor must not be covered with thick insulating rugs, beanbag-seating or the like, as these can cause about temperatures harmful to floor.

Allow the system to dry naturally, for at least one week, and then switch on the heating at a low level – we would recommend an initial setting of 16°C and increasing the temperature by one degree a day until your comfort level is reached (typically 22 - 26°C). Note – the heating may be slow to react initially especially if installed on a new screeded floor or in a new building.

See separate instructions for programming of the thermostat.