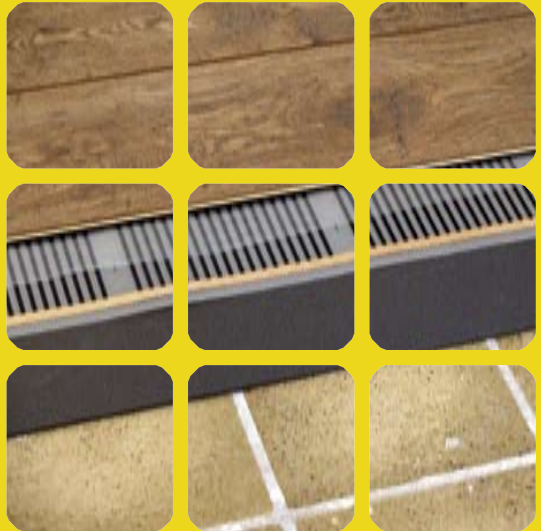


MAGNUM[®]

Specialist in electrical heating



Microfoil

Installation manual

Microfoil

Dear Customer,

Congratulations on the purchase of this MAGNUM product. The Magnum Microfoil 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 Microfoil is correctly installed in accordance with the Installation Instructions. Carefully read the instructions prior to installation, do not forget the yellow 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.

Contact the Support Line Monday to Friday from 9 am to 5 pm

01887 822999

send an E-mail with your question to:

technical@magnumheating.co.uk

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

www.magnumheating.co.uk

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1. Checklist:

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

- **MAGNUM Microfoil**
- **MAGNUM Intelligent-control digital clock thermostat with floor sensor**
- **Connection wire black/blue**
- **Crimp Connections**
- **Crimp Tool**
- **Insulation, PVC tape**
- **PP tape**
- **Flexible sensor tube**
- **Installation guide**



Also required:

- **Age resistant Polyethylene film 0.2 mm**
- **MAGNUM Isofoam 6mm Polystyrene (PS) insulation**
- **Back box for thermostat**

2. Points of interest:

Please read the instructions carefully before starting installation!

1. MAGNUM Microfoil heating foil may only be installed in dry places, IPX1
2. Magnum Microfoil heating foil may only be used as sub heating. There should always be another heating element with sufficient capacity that can be used at the same time. Keep windows and doors closed during heating periods.
3. The ambient temperature where the Microfoil is installed should be above 5 degrees Celsius.
4. The heating foil should always be installed together with an RCD.
5. The heating foil should be placed on 6mm (minimum) polystyrene insulation.
6. A 0.2 mm age resistant PE film should be placed over the heating foil before installing the laminate flooring.
7. The heating foil must not be placed under fixed furnishing such as wardrobes, inner-walls, kitchen units etc, as this will cause overheating.
8. The heating film should be separated from other heat sources like lights and chimneys. The distance should be at least 30 cm.
9. The floor covering must have a minimum thickness of at least 5mm, but must not have higher thermal resistance than $0.17 \text{ W/m}^2\text{K}$.
10. Thick rugs or other insulating materials should never be placed on a floor with electrical heating.

11. The thermostat needs to have the floor sensor properly installed to work.

12. The maximum current distributed through each length of heating foil is 5 A.

13. The Magnum thermostat can switch up to 16 A. When switching above 16 Amps a Contactor must be used.

14. The temperature in the room is controlled with a room thermostat and the floor sensor protects the floor from getting hotter than 28 degrees Celsius for maximum safety and comfort.

15. The heating foils should be connected with a double insulated cable (supplied).

16. Please visually check the Microfoil for creasing or folding that may have happened during transit. Any such damaged areas must be discarded.

17. The heating foils can only be fixed with the tape that is included in the installation kit.

18. Warning: The parquet, laminate, or wooden flooring must have a minimum thickness of 5mm and a maximum thickness of 22 mm. When there is another thickness or any doubt whether the wood can be used in combination with floor heating, please contact the manufacturer of your wooden flooring.

3. Guarantee:

Installation must be carried out by an approved fully qualified electrician. Only installation fitted in accordance with this manual will give you 10 years guarantee on the electro technical use of the Microfoil and 2 years on the thermostat and the floor sensor.

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4. Important points of interest:

WARNING:

The **MAGNUM** heating foil requires a **230V supply and the installation must be carried out by a qualified electrician. The electrical installation should be carried out in accordance with the national regulations.**

The rating of the heating foil must comply with the rating of the thermostat, the circuit breaker and if needed the contactor. Good wiring practice must be observed. Installation must comply with current building and wiring regulations. Connection cables must not come in contact with the heating foil.

The heating foil must be installed together with a Residual Current Device (RCD) with a maximum breaking current of 30mA.

5. Installation Planning:

Before installing the heating foil, make a sketch or drawing of the installation.

- Plan where the thermostat should be placed. The thermostat should not be placed in direct sunlight. It must be convenient for the user and near to the electrical supply, at a height of 1.2 m approx.

- Plan where the wiring and the connection to the electrical supply should be placed.

- Plan the layout for each heating foil panel. The heating foil must be placed side by side with no gaps.

The heating foil must cover as much floor area as possible.



6. Installation procedure:

1. Make sure the floor is clean and free from dust. (Pic. 1)

2. Cut a track in the wall and the floor for the thermostat & floor sensor, make a smooth bend at floor level for the sensor conduit. The track for the conduit must be 50cm from the wall (Pic. 3).

3. Push the floor sensor into the conduit. The tip should be visible at the end of the conduit, but it may not stick out. Place the sensor in the middle of two rows of heating foil. (Page 10 and 11)

4. Cover the end of the conduit with the small grey cap, which is supplied with the system.

5. Install the flexible conduit with a smooth bend at the floor level.

6. Check the surface of the floor. To prevent damage it is important that the surface is flat and clean. The maximum height difference that is permitted is +/- 1 mm.

7. If the floor is uneven then it is highly recommended that the floor is levelled using a suitable self levelling compound.

8. Fill up the track in the wall & floor with suitable filler.

9. Make sure the surface is clean, dry and free from grease.

10. Lay the MAGNUM Isofoam floor insulation, it must cover the whole surface (Pic. 2).

11. Tape all joints to prevent any movement between the panels. Leave a 30 mm gap for cables along the edge where the connections will be made. Make sure that the surface is clean and that no sharp objects can come into



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contact with or drop down onto the heating foil during the installation. Plan your work in a way that you don't have to step directly on the heating foil.

12. Roll out the heating foil along the edge of the room. The copper can face either up or down. Make sure that the heating film is completely flat without any creases.

13. Cut the foil only along the perforation.

14. Cover the blind copper ends with a 50 x 50 mm PVC tape.

15. Roll out the heating foil parallel to the first panel, they must not overlap.

16. Tape the foils to the insulation to avoid movements during the floor installation and service.



7. Connect the wires

Once the total floor surface is covered with the heating foil, the wires can be connected. On the side where no connections are made, tape all the copper conductors with pieces of PVC tape (Pic. 13). Protect the heating foil with left over MAGNUM Isofoam PS insulation while you are working with connections.



To protect the crimp connection:

Make a 3x6 cm cut-out in the Isofoam just below the connection point (Pic. 6). Put a piece of PVC tape on the backside of the PS insulation. The crimp connection must not protrude above the surface of the PS Insulation to guarantee a good contact between the heating foil and the (wooden) floor.



Cut off 6mm of PVC insulation at the end of

the cable, if only one cable is connected, fold the cable to fit into the connector crimp (Pic. 7).

Connect the cables to the connector crimps:

Tighten the connector by using the crimp tool (Pic. 8). Attention: In case of a single connection cable (first connection), always fold the cable double! Always tighten on both sides (on top and under) the wires to the connector (Pic. 9). Cables must be long enough and free to move and not be subjected to mechanical loads.

To connect the crimp to the heating foil:

Make sure that the crimp connection is correctly set, max gap 1.3mm. Place the crimp over the copper band on the heating film (Pic.10). Then tighten the crimp with the crimp tool in a 45 degree angle from both sides (Pic. 11 and 12).

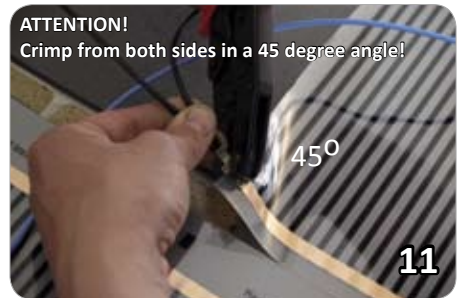
Connect the heating foils in parallel with the double insulated cable. (Page 10 and 11)

To insulate the crimp connection:

Cut out 2 pieces of 50x50mm PVC tape. Place it on both sides of the crimp connection. The tape must end at least 5mm from the edge of the crimp (Pic. 14).

8. Testing the installation:

1. All heating foils must be connected during the test.
2. Measure the overall resistance for the heating foils and note this in the protocol under Measured resistance before covering the floor

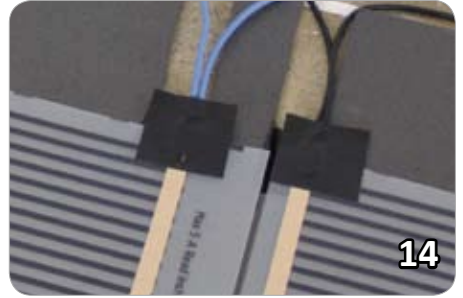


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3. Calculate the actual power with formula:
Actual power=52900/Measured resistance ;
note in under: Actual power

4. Measure the total length of the heating film and calculate the Total Rate Power with the formula: Total Rate Power = total length x rated in W/m (printed on the heating foil)
Note that under: Total Rated Power

5. Make a sketch or take a photo for documentation of the installation on the middle page.



9. Cover the Microfoil:

1. Cover the microfoil with age resistant PE foil with a minimum thickness of 0.2 mm. Film must overlap 200 mm if it is necessary to use several sheets to cover the surface (Pic. 15).



2. Install the laminate flooring according to the manufacturer's instructions. Please work with light footwear. Protect the heating foil, cables and connections with some spare Magnum Isofoam PS insulation (Pic. 16 and 17).



3. Measure the overall resistance of the heating foils and note it in the protocol under: Measured resistance when floor covering is installed. This protocol should be filled in completely. In case of a technical problem, the manufacturer will ask for this protocol-card. Connect the thermostat according to the instructions in the thermostat manual. The thermostat must be limited to a maximum floor temperature of 28 degrees Celsius.



10. Connecting Intelligent-Control:

Before installation or de-installation always turn off the electricity in the meter cupboard. Installation must be done by an approved electrician in accordance with the current regulations.

The MAGNUM Intelligent-Control has an intelligent guide function which guides the user through the program and is very friendly in use. However study the manual very well before installation and keep it with the other guarantee papers.

10.1 Notes for installer:

Check if the power is turned off. Take off the display frame by pushing with a non sharp tool (for example a ballpoint) in the square whole on the underside of the thermostat frame. The display frame and cover frame can then be taken off.

10.2 Connection schedule:

- Terminals 1 and 4 are used for the connection cables of the heating foil.
- Terminals 2 (Neutral) and 3 (Live) are used for the power supply.
- Terminal 5 is only in use in case of an external central control system
- Terminal 6 is used for the earth of the electrical power.
- Terminals 7 and 8 are used for connecting the sensor.

10.3 Fix to Back box:

The back box must be at least 35mm deep. Position the thermostat and fix it to the back box with 2 screws. Replace the cover frame and push the display frame back.

10.4 Setting the Intelligent-Control:

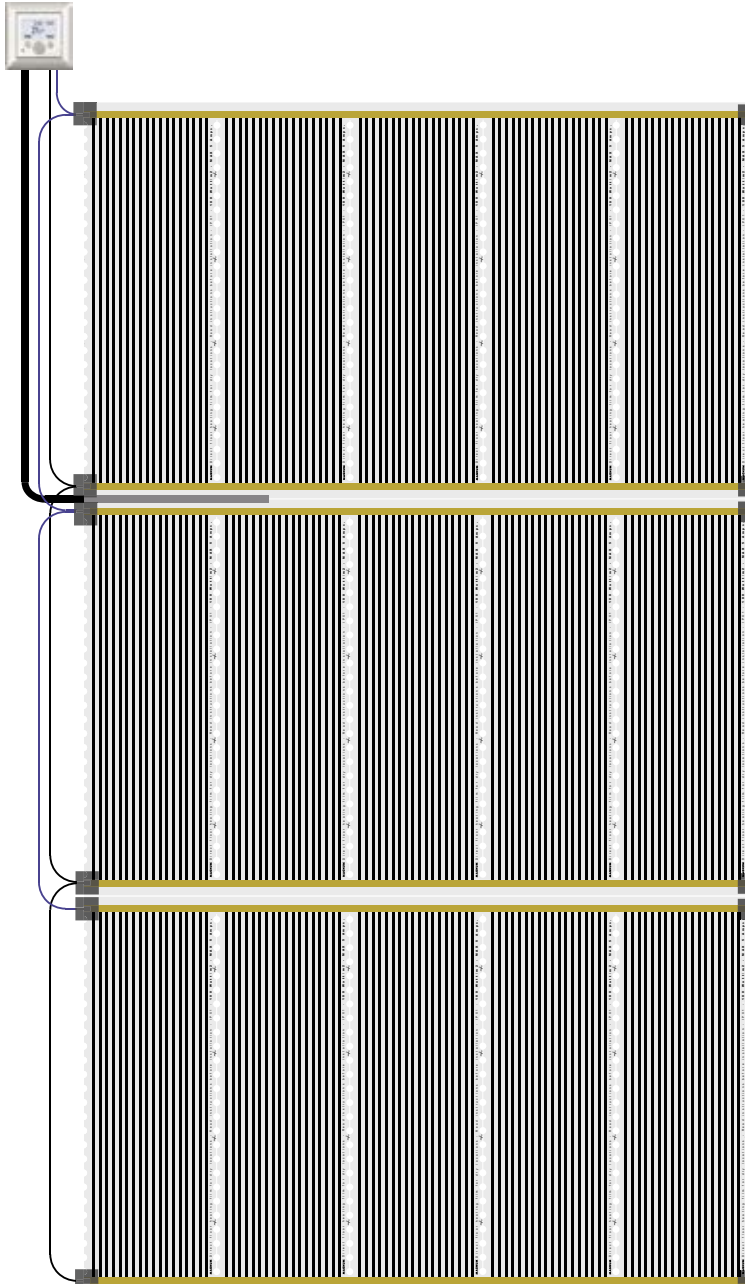
Attention: After switching the power on for the first time, it will take 5 minutes until the first question appears on the screen.

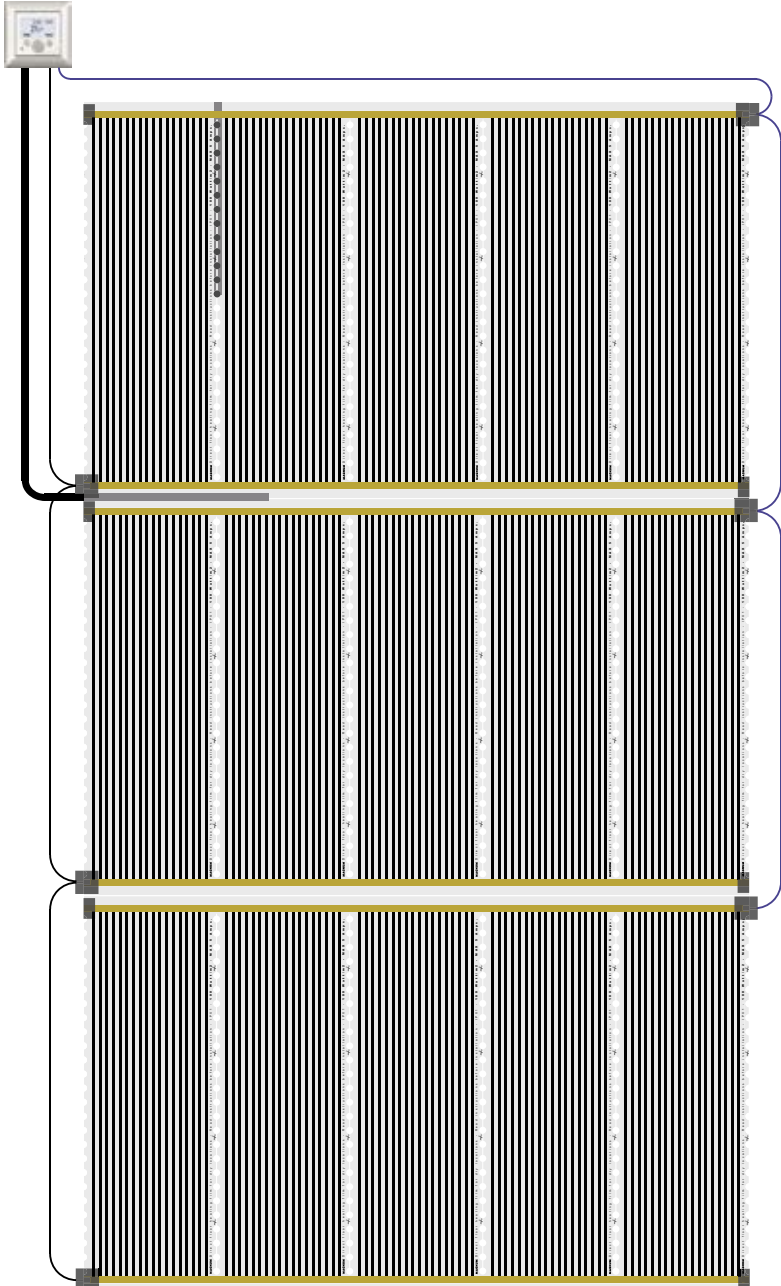
This is due to the internal back up battery charging. Follow the start-up wizard menu carefully. For the settings of the thermostat we advise you to follow the instructions in the thermostat manual.

The thermostat needs to be set at a maximum temperature at 28 degrees Celsius.

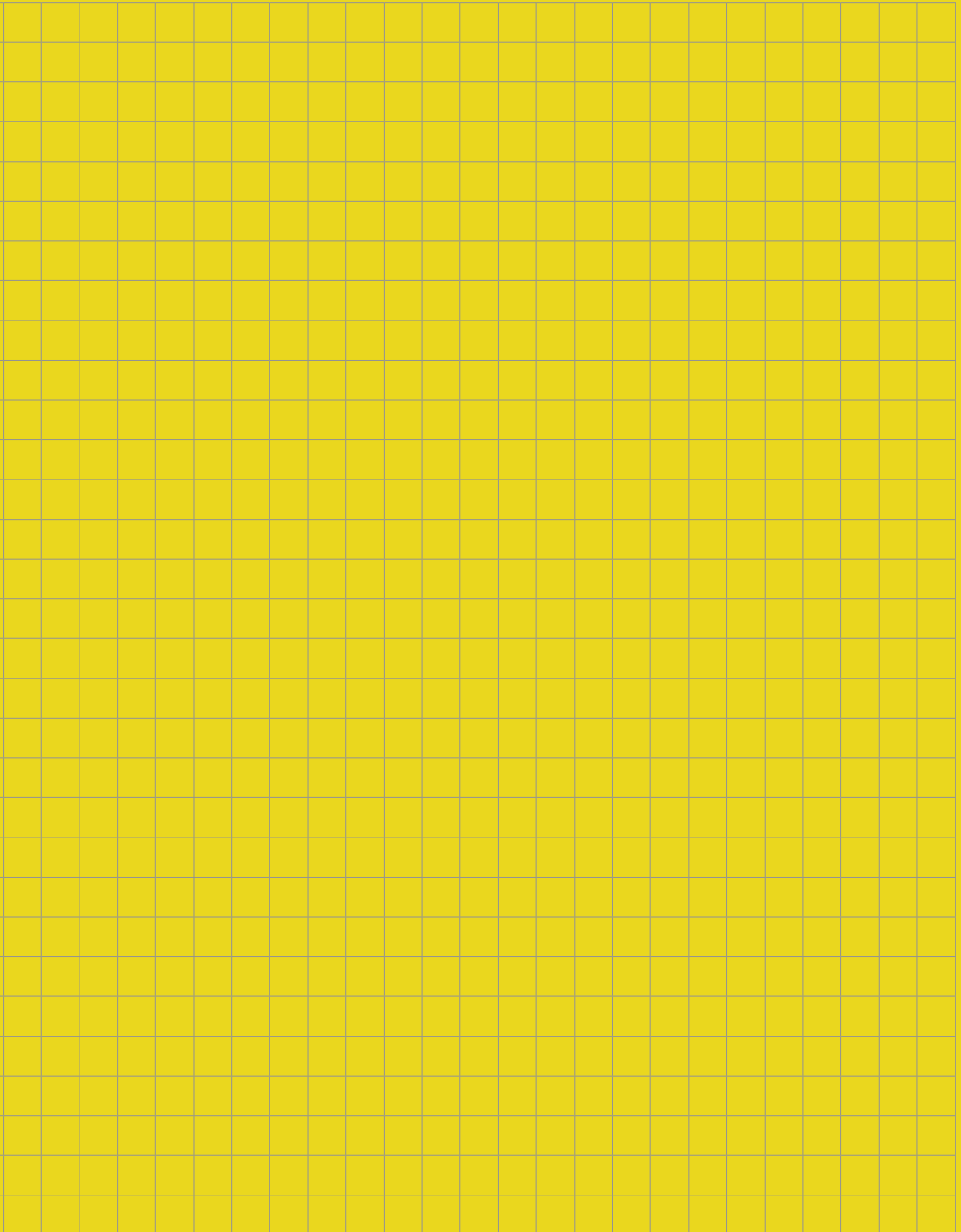


Microfoil





Schedule or pictures of the installation



WATCH OUT! UNDERNEATH THE WOODEN FLOORING IS A 230 VOLT HEATING FOIL SYSTEM! NEVER DRILL OR SCREW INTO THE FLOOR!

SEE SCHEDULE/PICTURE FOR THE POSITION OF THE FOIL.

Control measurements:

Type foil which is installed: MAGNUM Microfoil _____ W/m²
Total length foil installed: _____ Meter
Measured resistant value total installation _____ Ohm

Control Check calculation:

(W/m² x 0.6 x meter-length = total Watts system)

_____ W/m² x 0.6 x _____ meter-length = _____ Watt

Difference ~ max. 5 %

(52900 : Ohm = total Watts system)

52900 : _____ Ohm = _____ Watt

Installed by:

date:

Keep this control / check card in the meter cupboard in a visible place!