

# ekocable



## floor heating system

Installation manual

EN

Instrukcja montażu

PL

Инструкция по установке

RU

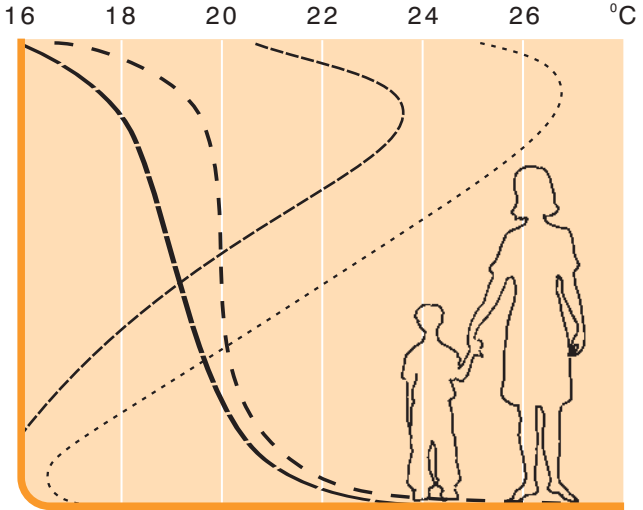
**The package contains:**

- Thin heating cable
- Thermostat and temperature sensor
- Installation pipe for the temperature sensor
- Installation tape
- Instruction manual

**You can do it yourself**

By following the simple instructions, you will be able to install ekocable yourself without any problems. Only its connection with the mains should be carried out by a qualified electrician.

The *ekocable* will provide you with heat comfort resulting from favourable temperature distribution - the, so-called, “warm feet - cool head”.



Vertical temperature distribution within the room for various types of heating.

- — — *electric floor heating*
- *ideal profile*
- . - . - *convection heaters, located near indoor walls*
- ..... *air heating*

## Why will ekocable warm up your life?

- reliable performance
- it is simple to install
- only desired areas are heated or warmed up
- uniform temperature is in the whole room
- can be installed on existing tiles
  - without removal
- because it is thin, the floor level is only slightly raised
- no maintenance
- safe: with the power supply protected by an RCD (Residual Current Device), risks are eliminated, the cable is screened and earthed
- all you have to do is set the thermostat to your desired temperature and - your floor will soon be warm and dry

## Where can ekocable be used?

- everywhere - in new building projects or renovations
- it is especially useful in renovated kitchens, bathrooms, anterooms, halls... as raising the floor level is kept to a minimum
- on any base: on concrete floors, on existing (old) ceramic tiles, terrazzo, moisture-proof chipboards
- an alternative to heating mat, especially where the floor intended for heating has an irregular shape

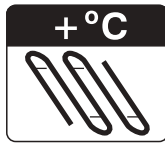
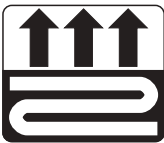
## What kind of floor finishes are compatible with *ekocable* ?

– in general, ceramic, porcelain and natural stone floor tiles, which provide optimal heat transmission;

also compatible are :

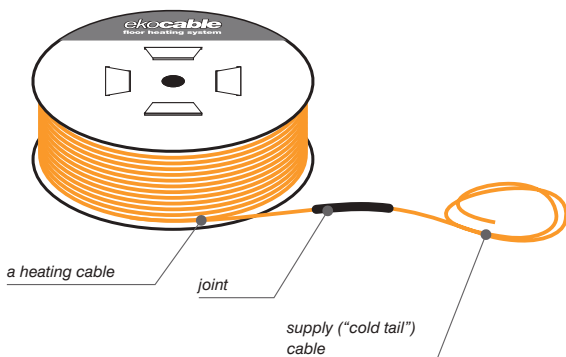
- wooden mosaic, oak parquet or laminated floor panels
- carpet (check compatibility)
- vinyl (check compatibility)

Look for quality marks that indicate compatibility with Electric Underfloor Heating:



## How is *ekocable* manufactured?

It is produced in ready-made kits. It consists of a thin heating cable (approx. 4.3mm) with a power rating of 10W/m, connected to a 'cold tail' cable 2.5m long.



type	length	power	area [m <sup>2</sup> ]		
	[m]	[W]	80 W/m <sup>2</sup>	100 W/m <sup>2</sup>	160 W/m <sup>2</sup>
10/105	10.5	105	1.31	1.05	0.66
10/135	13.5	135	1.69	1.35	0.84
10/165	16.0	165	2.06	1.65	1.03
10/210	20.5	210	2.63	2.10	1.31
10/265	27.0	265	3.31	2.65	1.66
10/315	32.0	315	3.94	3.15	1.97
10/405	40.0	405	5.06	4.05	2.53
10/480	47.5	480	6.00	4.80	3.00
10/550	55.0	550	6.88	5.50	3.44
10/635	63.5	635	7.94	6.35	3.97
10/815	81.5	815	10.19	8.15	5.09
10/935	94.0	935	11.69	9.35	5.84
10/1100	110.0	1100	13.75	11.00	6.88
10/1370	135.0	1370	17.13	13.70	8.56

**Note:** the nominal power output may differ by +5, -10%

# How to choose the appropriate *ekocable* ?

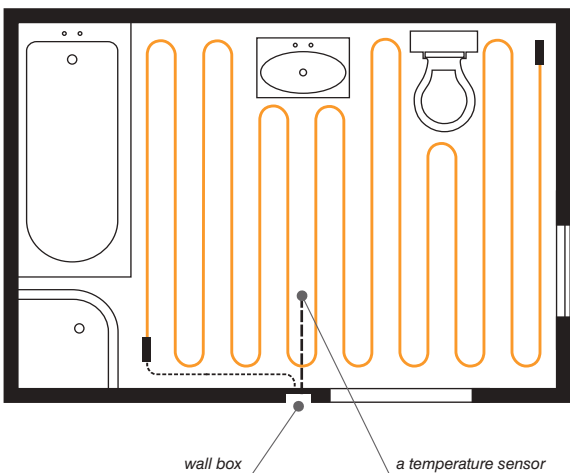
## Secondary heating - "the warm floor effect"

If you want to obtain the effect of warm floor in a given room, space the heating cable every 80-120mm, which means that on the 1m<sup>2</sup> surface to be heated you will need between 8.3 - 12.5m of the heating cable.

Multiply the length of the wire by the area of the room to be heated and choose an appropriate cable from the table.

### Example 1

- total area of the bathroom - 8m<sup>2</sup>
- the bathroom floor free from fixed structures - 5.5m<sup>2</sup>



- calculation of the cable length  

$$5.5\text{m}^2 \times 12.5\text{W/m}^2 = 68.7\text{m}$$

$$5.5\text{m}^2 \times 8.3\text{W/m}^2 = 45.6\text{m}$$
- using the table, we choose the heating cable 55m long (ekocable 10/550)
- the distance between the led cables will then be:  

$$5.5\text{m}^2 : 55\text{m} = 0.10\text{m} = 100\text{mm}$$

## Primary heating

When selecting the heating cable, you have to take the following into account

- heat loss of the room
- the distance between particular cables should not exceed 12.5cm to avoid cold spots
- the distance between heating cables should not be below 5 cm for ceramic floor and 10cm for wooden, vinyl or carpet floor

If you do not calculate the heat loss, you can use the following table which indicates typical requirements:

kind of room	demand for heating power
	[W/m <sup>2</sup> ]
bathroom	80÷120
other rooms	70÷90



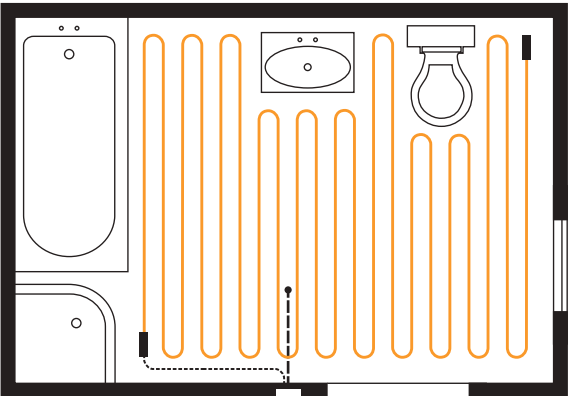
## Example 2

- total bathroom area –  $8\text{m}^2$
- the bathroom floor area free from fixed structures –  $5.5\text{m}^2$
- demand for heating power

$$8\text{m}^2 \times 80\text{W}/\text{m}^2 = 640\text{W}$$

$$8\text{m}^2 \times 120\text{W}/\text{m}^2 = 960\text{W}$$

- using the table, we choose the cable of 815W power and 81.5m long (*ekocable* 10/815)
- the spacing between the cables will be:  
 $5.5\text{m}^2 : 81.5\text{m} = 0.067\text{m} = 67\text{mm}$



## What is the *ekocontrol* thermostat used for?

It controls the *ekocontrol* performance by means of:

1. The temperature sensor, located between the heating cables, i.e., directly in the floor. With the temperature sensor, you can maintain desired floor temperature. This type of control is used for secondary heating systems ("warm floor").

2. An air temperature sensor and floor limitation sensor (the former measures the air temperature and the latter protects the heating cable and floor against overheating). Use this type of control for primary heating systems.

**Important:** The *ekocontrol* thermostat is adjusted by the factory to floor temperature measurements (item 1).

**If it is to measure air temperature and simultaneously protect the cable against overheating (item 2), it should be properly configured (following the instruction, supplied with the thermostat).**

The connection of the heating cable to the electric mains is possible only via the thermostat!

The connection can only be done by a qualified electrician.

## Where to start?

1) Calculate the area of the “free” floor and select an appropriate heating cable.

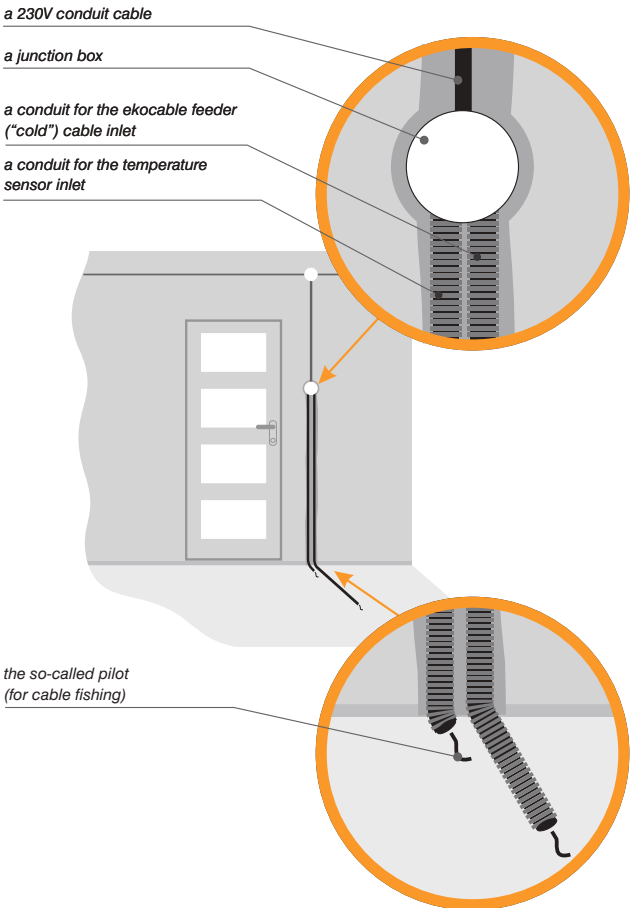
**Note:** If you start the installation works in a new build with no fixed furniture - draw (mark) the fixed elements (cabinets, a bathtub, a toilet, a shower, etc.) on the floor and calculate the area to be heated.

2) Install an installation box for the thermostat, ready for the power supply to be installed.

### Remember!

**At a later stage of installation works, you are going to install the thermostat in that installation box. The thermostat should be placed (for aesthetic and practical reasons) close to light switches - perhaps within the same frame.**

**Very important!** The thermostat should be mounted on the outside bathroom or sauna wall for protection against moisture.



- 3) Install two (2) conduits from the installation box (the inside dia. minimum 11mm) to the floor. For aesthetic reasons, lay them in previously made chases in the wall.
- a) Later on (at the stage of the cable installation), you are going to insert a cable with the temperature sensor into one of the conduits.

### Remember!

**The temperature sensor should be placed possibly at the centre of the heated surface - therefore, the conduit (laid in the groove, cut in the floor) should "enter" the heating zone.**

b) The *ekocable* cold tail cables will be inserted into the other conduit. Cut out a groove in the floor (but much shorter) and lay a conduit in it, leading it to the installation box.

**Very important! The conduits cannot be bent at a the right angle (at the contact of the wall with the floor); a smooth bend should be maintained.**

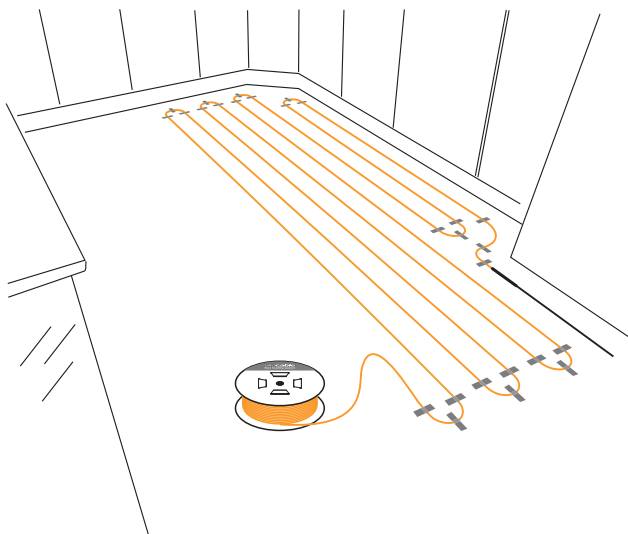
## Before fixing the cable

- 1) Clean the base on which the *ekocable* is to be laid
  - a) level the surface
  - b) carefully scrub any old tiles
- 2) Install the cable with the temperature sensor (in the conduit under the wall plaster) up to the installation box
- 3) Lay the conduit in the groove, previously cut in the floor.

**Important! Seal the end of the conduit with, for example, insulating tape to protect against tile adhesive oozing inside the pipe and damaging the temperature sensor.**

# Now starting fixing the heating cable

- 1) Fit the heating cable, avoiding fixed furniture, such as the bathtub, the shower, toilet, bidet, standing cabinets without legs... and fasten it using installation tape. This enables the cable layout to be easily modified before final fixing.



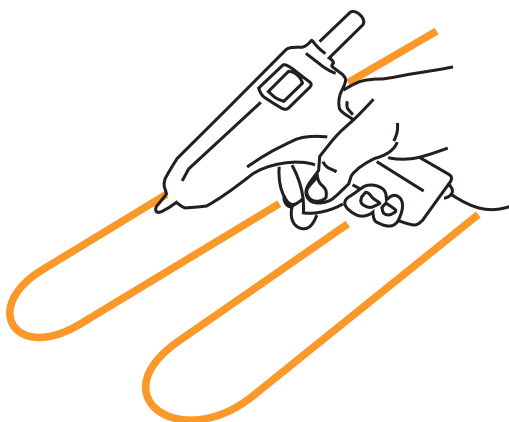
## Remember!

**You must not damage the heating cable.  
You must not cut it!**

**Calculate the distance between cables as presented in examples 1 and 2.**

- 2) Fix the heating cable with hot glue

**Important: Install the heating cable in such a way that the cold tail cable will reach the installation box / thermostat.**



**Note:** The temperature sensor has to be placed at an equal distance between heating cables.

**Important:** After gluing the cable to the base, check the resistance of the core with an ohm-meter, and the insulation resistance of the core with a megaohmmeter. Note the result. After covering the cable with flexible tile adhesive or with self-levelling compound, you must measure the resistance again. It is necessary to make sure that the cable is not damaged during installation works.

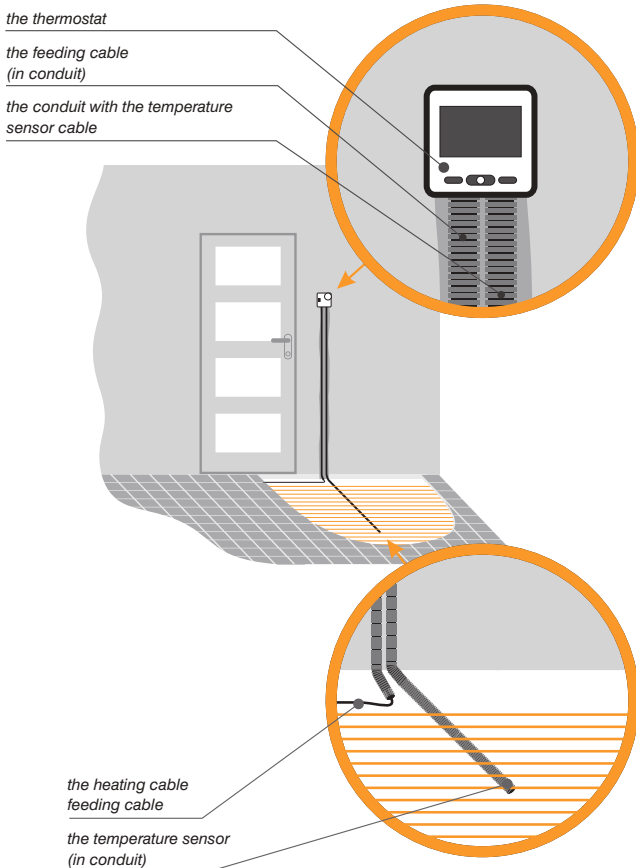
- 3) Prepare a plan indicating the cable layout and position of the floor sensor. Keep the drawing in order to facilitate, if necessary, locating the heating cable and the temperature sensor in the future.
- 4) Once the cable is fixed to the base, coat it with a layer of flexible tile adhesive or self-levelling compound.

**Very important:** The heating cable should be covered with a 3 mm layer of tile adhesive or self-levelling compound.

**Important:** The joint between heating cable and cold tail should be embedded in the flexible tile adhesive or self-levelling compound.

# When the heating cable is already installed

- 1) Wait until the adhesive is dry.
- 2) Insert the cold tail cable into the installation box (through the conduit of course) - you may shorten the cold tail cable length, if necessary.
- 3) Measure again the resistance of the core and the insulation of the heating cable - compare with the initial value - note the result.



**Remember!**

If you put more than one heating cable in one room, all the cold tail cables must be led to the installation box / thermostat.

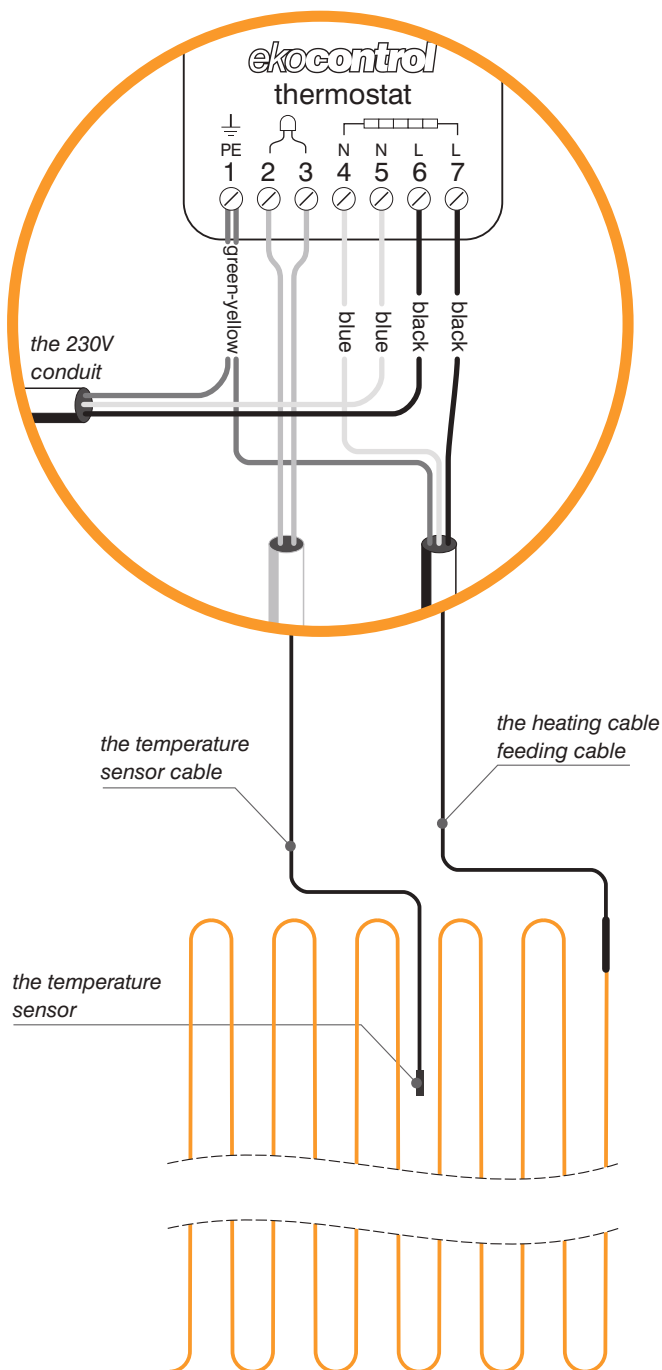
## Connecting the heating cable to the mains

**Important:** Leave this task to a qualified electrician.

**Remember!**

The connection of the heating cable should be done through the thermostat - follow the circuit diagram. The protective cable (green-yellow) must be connected to the protective cable of the electric installation (green-yellow) by means of a clamp terminal on the thermostat.





## Earth leakage protection

The power supply should be equipped with an RCD (Residual Current Device) with  $\Delta \leq 30\text{mA}$  sensitivity.

## Switching on the heating system

**Important:** Only after complete drying of the tile adhesive and the grout, as specified by the manufacturer.

**Your task:**

Set the desired temperature on the thermostat.

## The last advice

Remember to avoid making changes in furniture layout that will affect heat radiation by the floor: do not put objects with large surfaces on the floor, e.g., mattresses, cabinets without legs... If you have to drill holes, check it with the cable layout plan first in order to avoid damaging the heating cables.

# The guarantee card

The manufacturer provides a 10-year guarantee for *ekocable* and a 2-year guarantee for the *ekocontrol* thermostat from the date of purchase.

## The guarantee conditions

1. In order to have the submitted claim acknowledged:
  - the installation of the heating cable should comply with the installation instructions
  - the connection of heating cable and the thermostat to the electric mains, as well as measurements of the heating cable core and insulation resistance should be done by a qualified electrician
  - the electric installation, supplying the heating circuit, should be equipped with an RCD
  - a plan of the heating cable layout should be submitted
  - the properly filled guarantee card (with product label) should be submitted
2. The guarantee does not cover defects, caused by:
  - mechanical damage
  - improper power supply
3. Regarding the guarantee, the manufacturer is obliged to incur costs, connected exclusively with the repair or replacement of a defective heating cable.

# Guarantee Card

Your 10 year guarantee commences on the date of purchase.  
This card must be retained for the duration of the guarantee.



## INSTALLATION ADDRESS

Address	
Post Code	Town

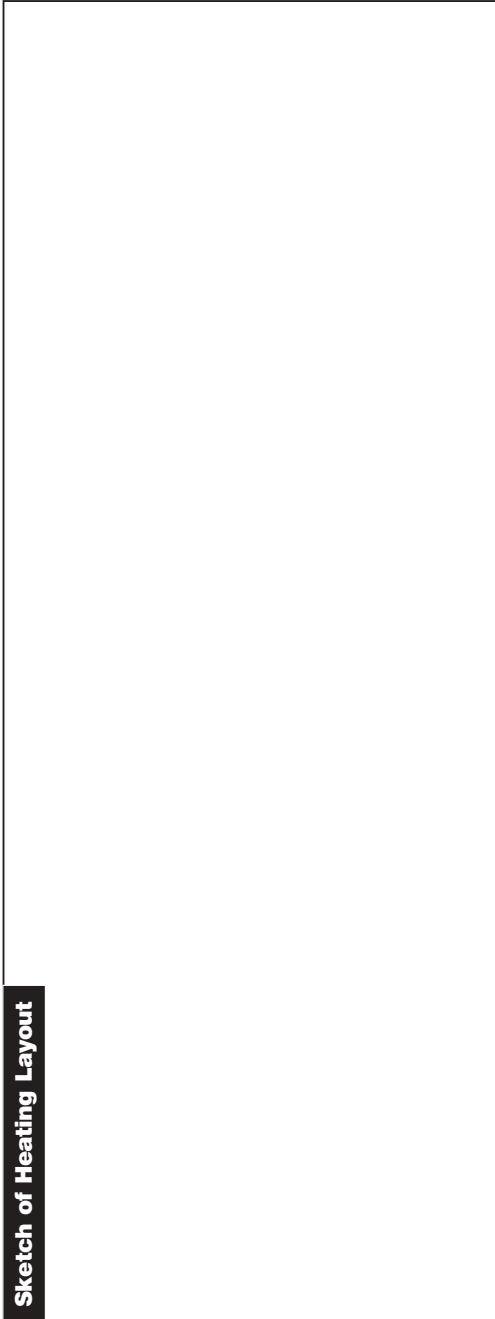
Any claim must be accompanied by this guarantee card & proof of purchase.

## DETAILS OF INST ALLER / ELECTRICIAN

Name		Professional body enrolment number	
Address		E-mail	
Post Code	Town	Tel.	Fax

The electrician carrying out the electrical connections / installation must provide a test certificate.

**Sketch of Heating Layout**



Heating core and insulation resistance	
After heating cable installation, before floor installation	$\Omega$
	M $\Omega$
After floor installation	$\Omega$
	M $\Omega$

Date	
Installer's signature	
Company stamp	

**Caution:** The measurement results of the heating core's resistance should not vary from the one given on the nameplate with more than -5% and +10%. Resistance of the heating wire insulation should be at least 10 M $\Omega$  when measured