FLEXHEAT ADEPT

Electric Underfloor Heating Cable

Installation manual

The package contains

- **Thin heating cable**
- **Thermostat and temperature sensor (optional)**
- **Flexible conduit for the temperature sensor**
- **Installation tape**
- **Instruction manual**

You can do it yourself

By following these simple instructions, you will be able to install the FLEXHEAT heating cable yourself.

Please note: Its connection with the mains needs to be carried out by a qualified electrician.

Electric underfloor heating is highly efficient, with a 100% efficiency rate at the point of use. Since the generated heat is exactly where it is needed, there is no need to transport energy, resulting in every joule of energy being utilised for heat. As a result, every pound spent on running electric underfloor heating is fully converted into heat where it is needed.

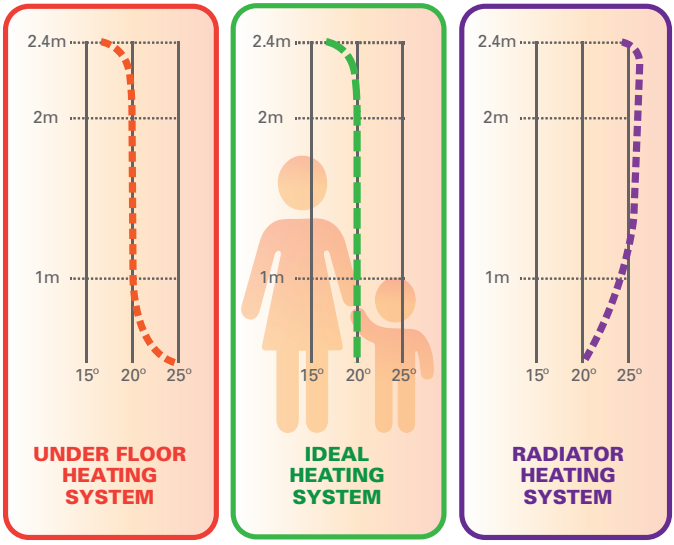


Diagram to show vertical temperature distribution within the room for various types of heating.

How will FLEXHEAT warm up your life?

- Favourable temperature distribution
- Simple and hassle-free installation
- The thin cable means only a small raise of the floor level
- No maintenance
- 20 year manufacturers guarantee - peace of mind
- 100% efficiency at the point of use

Where can FLEXHEAT underfloor heating cable be used?

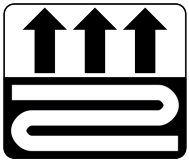
- Everywhere in new building projects or renovations
- Especially useful in renovations such as kitchens, bathrooms, anterooms and halls as the rise in floor level is kept to a minimum
- Concrete floors, existing ceramic tiles, terrazzo, moisture proof floorboards

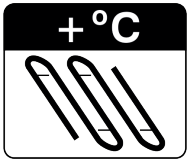
What floor finishes are compatible with FLEXHEAT underfloor heating mats

- Ceramic, Porcelain, and natural stone floor tiles which provide optimal heat transmission.

When used with self levelling compound, the flowing floor finishes can also be used:

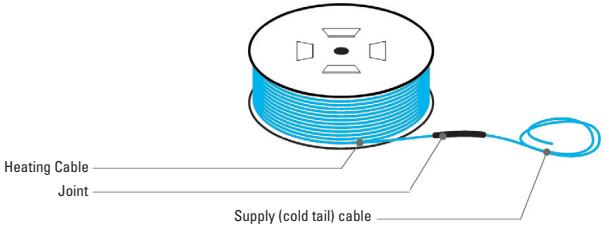
- Wooden mosaic, oak parquet or laminated floor panels
- Carpet (check manufacturers compatibility and tog rating)
- Vinyl (check manufacturers compatibility
- Look for quality marks that indicate compatibility with electric underfloor heating





How is FLEXHEAT 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.



			area		
Type	length (w)	power (w)	80W/m²	100W/m²	160W/m²
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	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 +5, -10%

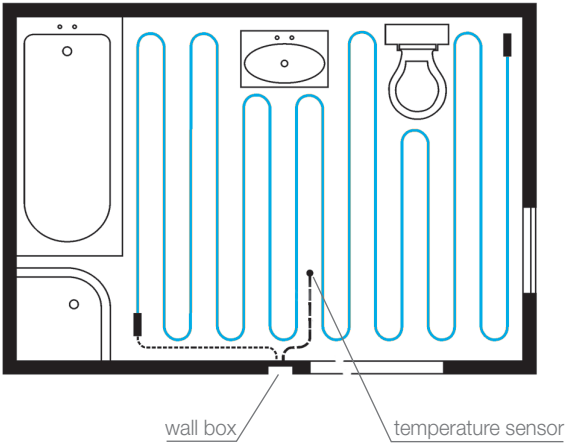
How to choose the appropriate FLEXHEAT heating cable

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^2 surface to be heated you will need between 8.3 - 12.5m of the heating cable.

Multiply the length of the cable 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^2
- the bathroom floor free from fixed structures - 5.5m^2
- calculation of the cable length
  5.5m^2 x 12.5W/m^2 = 68.7m
  5.5m^2 x 8.3W/m^2 = 45.6m
- using the table, we choose the heating cable
  55m long (10/550)
- the distance between the heating cables will then be:
  5.5m^2 : 55m = 0.10m = 100mm long (10/550)

Primary heating

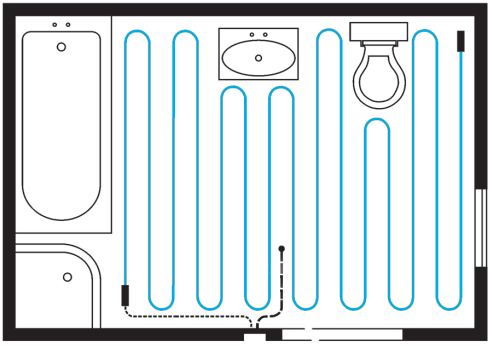
When selecting the heating cable, you have to take the following into account.

- heat loss of the room
- the distance between particular cables should not exceed 12.5cm to avoid cold spots
- the distance between particular cables should not be below 5cm 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:

	demand for heating power
type of room	W/m^2
bathroom	80 ÷120
other rooms	70 ÷ 90

Example 2



- total area of the bathroom - 8m^2
- the bathroom floor free from fixed structures - 5.5m^2
- calculation of the cable length
  8m^2 x 80W/m^2 = 640W
  8m^2 x 120W/m^2 = 960W
- using the table, we choose the heating cable of 815W power and
  81.5m long (10/815)
- the spacing between the cables will be:
  5.5m^2 : 81.5m = 0.067m = 67mm

Where to start

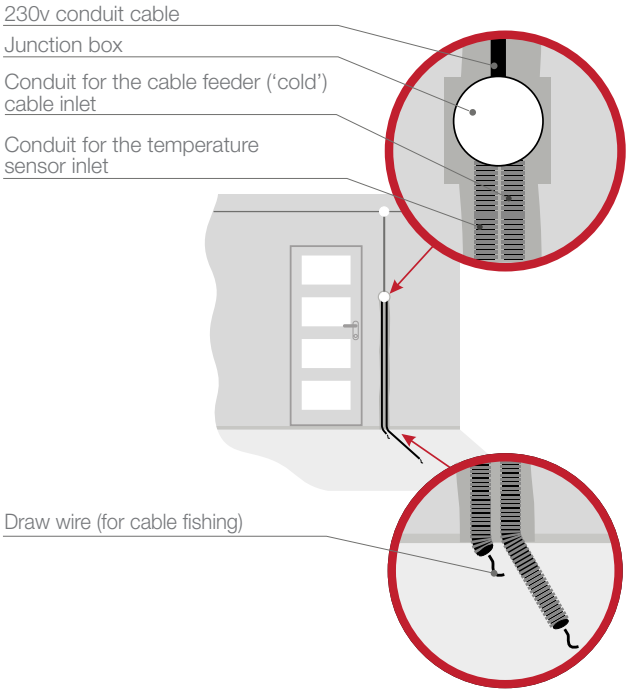
1 Calculate the area of the ‘free’ floor and select an appropriate heating cable.

Note: If you start the installation works in a new build with no fixed furniture, draw or mark the fixed elements (cabinets 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!
During the later stages of installation, you’re going to install your thermostat in the installation box. The thermostat should be placed close to light switches – this makes wiring easier, and more practical.

Very important: The thermostat should be mounted on the outside of any bathroom/wetroom/sauna walls. This will protect the thermostat from any moisture and means you’re complying with regulations.



3 Install two (2) conduits from the installation box (the inside diameter minimum 11mm) to the floor. For aesthetic reasons, lay them in the 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 tempertature sensor into one of the conduits.

Remember!
The temperature sensor should be placed 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 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, leading it to the installation box.

Very important: The conduits cannot be bent at a 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 cable is to be laid.
   a level the surface
   b carefully scrub any old tiles

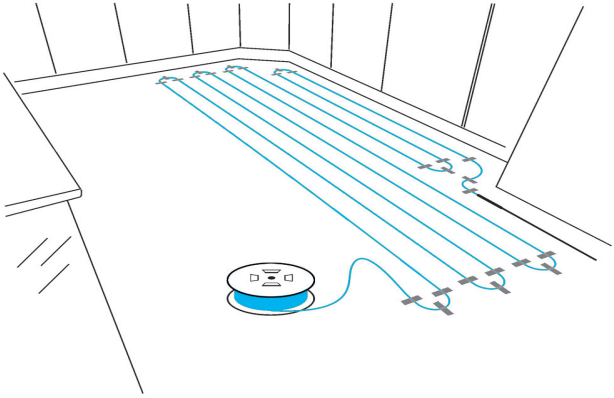
2. Install the cable with the temperature sensor (in the conduit under the wall plaster).

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.

Fixing the heating cable

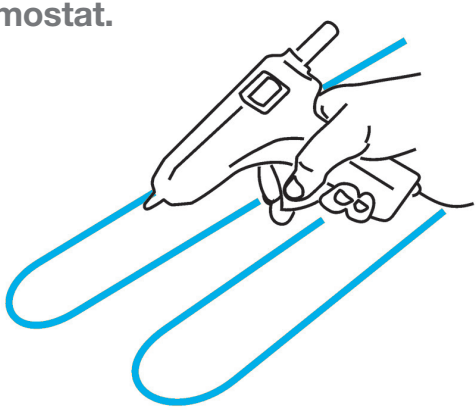
1 Fit the heating cable, avoiding fixed furniture such as the bathtub, the shower, toilet, bidet, standing cables without legs... and fasten it using installation tape. This enables the cable layout to be easily modified before final fixing.



Remember!
You must not damage the heating cable. You must not cut it! Calculate the distance between the 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 cables to the base, check the resistance of the core with a ohmmeter, 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.

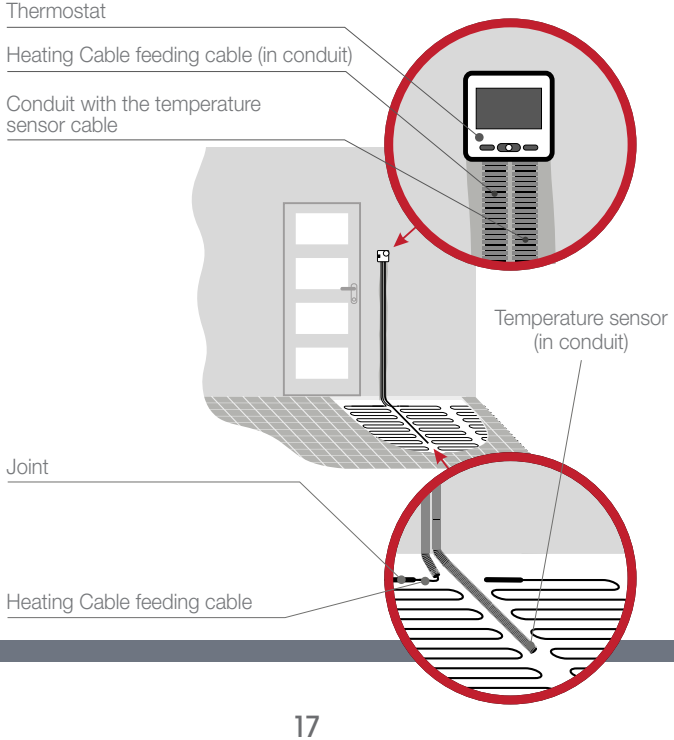
4 Once the cable is fixed to the base, coat it with a layer of flexible tile adhesive or self-levelling compound.

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

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

When the heating cable is installed

1. Wait until the adhesive is dry.
2. Insert the cold tail cable into the installation box (through the conduit) you may shorten the cold tail cable length, if necessary.
3. Again measure the resistance of the core, and the insulation of the heating cable. Compare these results with the initial values and note the results.



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 cables 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 Δ≤30mA sensitivity.

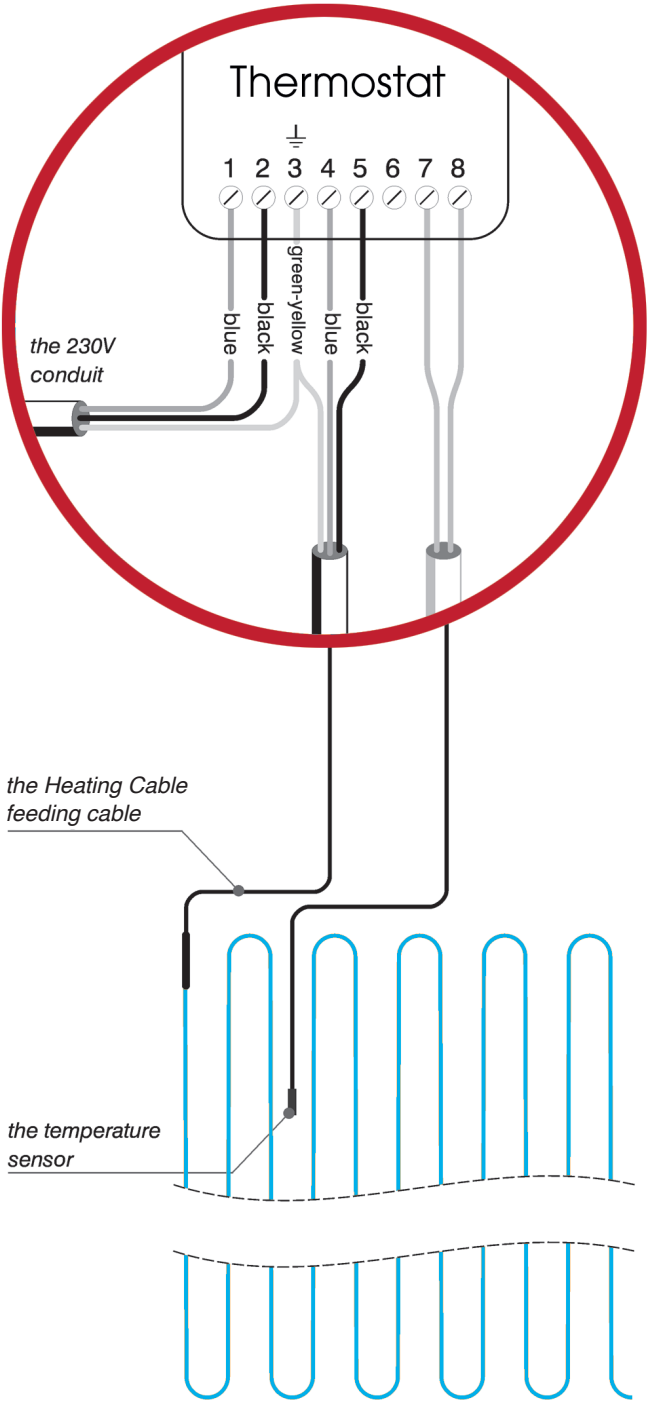
Switching on the heating system

Important: Only switch the heating system on once the tile adhesive/ self-levelling compound/grout has completely dried as per the manufacturers specification.

Your task:
Set the desired temperature on the thermostat.

Some helpful advice

Avoid making any changes in furniture layout that could affect the output of heat from your cable. Do not put objects with large surfaces touching the floor (mattresses, cabinets) where the cable has been installed. If you need to drill holes, refer back to your cable layout first to avoid damaging the heating cable.


Thermostat
1 2 3 4 5 6 7 8
blue
black
green-yellow
blue
black
the 230V conduit
the Heating Cable feeding cable
the temperature sensor

The guarantee card

FLEXHEAT ADEPT provides a 20 year guarantee for underfloor heating cable.
Thermostats are guaranteed for 2 years 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 the heating cable and thermostat, along with all measurements of the heating cable core and insulation resistance readings should be undertaken by a qualified electrician.

- the electric installation, supplying the heating circuit, should be equipped with an RCD

- a plan of the underfloor 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

- incorrect installation

3 Regarding the guarantee, FLEXHEAT ADEPT is obliged to incur costs, connected exclusively with the repair or replacement of a defective heating cable.

Guarantee Card

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

Installation address			
Address			
Town		Postcode	

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

Details of installer / Electrician					
Name				Professional body enrolment number	
Address				Email	
Town		Postcode		Tel	Fax

Heating core and insulation resistance		
After heating cable insulation, before floor insulation	Ω	
	MΩ	
After floor insulation	Ω	
	MΩ	

Caution: The measurement results of the heating core and insulation 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 MΩ when measured with a megaohmmeter (Insulation resistance tester) with a rated voltage of 1000V.

Date	
Installer's signature	
Product label	

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

Sketch of heating layout

004/APRIL24

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