Hetta SYSTEMS

UNDERFLOOR HEATING TECHNOLOGIES

Premium Underfloor Heating Products

Loose Cable System

INSTALLATION MANUAL

- Strong cable
- Compliant to latest IEE regulations
- UKCA approved
- Lifetime warranty

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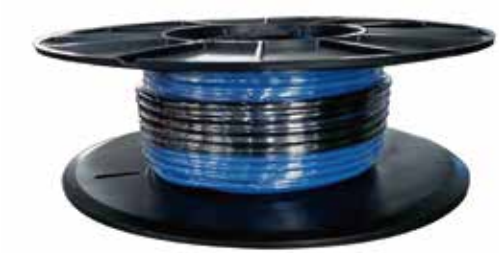
This instruction manual contains the information to ensure the safe install and operation of the cable or cables.

Please ensure you read the floor covering instruction in conjunction with this manual.

If in any doubt contact the floor manufacturer or us before proceeding with the install.



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Contents

CE approved

All our heating cables are CE approved and have been designed to conform to the current regs – 17th Edition Part P compliant.

PLEASE READ THESE INSTRUCTIONS PRIOR TO STARTING INSTALLATION

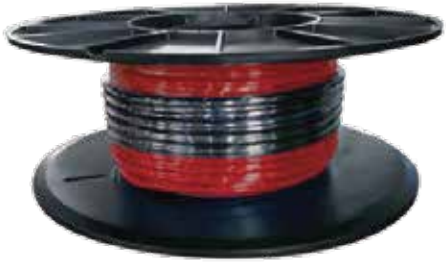
Loose cable system has been designed to be installed below most tile or stone floor coverings.

It may also be installed below engineered wood/laminated or vinyl floor coverings providing the heating cable has been covered with a 10mm layer of flexible self-smoothing compound any underlay used for engineered wood or laminate floor covering must be a suitable low tog underlay product.

Always check with the floor covering manufacturer that their product is suitable for under floor heating.

Contents Of Kit

Drum or drums of twin core heating cable



Installation Requirements

→ The heating cable/thermostat requires a 230/240-Volt AC supply via a localized isolation point on an RCD protected circuit.

→ **THE INSTALLATION MUST CONFORM TO THE CURRENT REGULATIONS AND MUST BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON.**

→ cables are 10/20+ watts per linear metre.

→ The wattage per square meter is determined by the spacing of the cable spacing the cables at 65 mm loops will achieve 150 watts per square meter, do not place the cables closer than 50 mm at any point.

→ **NEVER OVERLAP THE CABLE (THIS WILL CAUSE THE CABLE TO FAIL)**

→ The first part of the cable is the 'cold tail" (coloured black) this is a three-core cable live – neutral – earth. The live and the neutral are connected to the thermostat terminals and the earth to the incoming supply earth.

→ The heating element is the Cable, and this is a double insulated cable.

→ For larger areas two or more cables are supplied.
Two cables can usually be connected at the thermostat. More than two will need to be terminated within a wall mounted accessible junction box. (NB most thermostats have a 16-Amp maximum load)

→ Do not cut or attempt to shorten the Heating Cable.

→ The joint between the cold tail and the heating cable must be below the floor covering and fully encapsulated in self smoothing compound or tile adhesive. The same applies to the end joint of the heating cable. The cold tail joint and the end joint must NOT be taped over this will cause the joint to fail and invalidate the warranty.

→ The cable system is suitable for installing on a subfloor which is sound and suitable for tiling.

→ The subfloor must be checked by the installer for suitability.

→ Do not use on timber floorboards, MDF or hard board because these can absorb moisture and then distort, causing the floor covering to move/dislodge or crack.

→ NB newly screeded or concrete subfloor must be allowed to fully dry (this is typically 24 hours per 1mm of depth of screed/concrete. Unless an accelerator has been added to the screed/concrete.

IF IN ANY DOUBT THEN A MOISTURE CONTENT TEST MUST BE DONE PRIOR TO INSTALLATION.

Installation By Qualified Person

IMPORTANT
Any electrical installation presents a risk of fire or electrical shock.

Only a qualified person should test and connect the installation, chase walls and install back boxes for fused spurs and thermostats.

This is to ensure all work conforms to current regulations.

DUE TO THE REQUIREMENTS OF THE CURRENT IEE REGULATIONS PART P ONLY A QUALIFIED PERSON SHOULD TEST AND MAKE THE FINAL CONNECTIONS TO THE INSTALLATION.

Electric underfloor heating system must be controlled via an RCD protected circuit. For a system that does not exceed 13 amps a fused spur that has all pole separation can be used.

Any larger than a 13 Amp system a suitable protected device must be used.

IF IN ANY DOUBT PLEASE CONTACT US
All connections must comply with Part P of the IEE regulations 18th edition.

VERY IMPORTANT
All connections must comply with Part P of the CURRENT IEE regulations..

Always install the thermostat for a Bathroom outside of the bathroom and use the floor sensor (probe) that is provided with the thermostat.

Testing The Heating System

The cable is tested prior to shipping but it must be tested as follows

1. After unpacking and prior to installation (record the readings)
2. At this point installing electrician must carry out a 500 Volt DC insulation resistance test (record the readings)
3. Once you have installed it on the subfloor (record the readings)
4. If a smooth levelling compound has been used test again prior to the final floor covering (record the readings)

The test is a reading in Ohms and can be within 10% plus or minus of the value shown on the table on Page 8 (measured at a room temperature of 20 degrees.) NB hot or cold conditions can cause the resistance to alter.

Installation Instructions

STEP 1

Ensure the subfloor has been solidly fixed down and free of dust and debris. Timber floorboards must be covered with a suitable thickness marine ply or suitable tile backer boards (PLEASE CONTACT FOR ADVICE IF YOU ARE UNSURE)

Do not use XPS boards on a timber subfloor.
Bitumen coated floors must be covered by a tile backer board or 3 to 5 mm of a self-smoothing compound that is suitable to cover bitumen.

Never install a cable or mat onto a bitumen covered surface.

STEP 2

Prime the floor with the acrylic based primer (this primer is not suitable for Anhydrite screeds).

Leave to dry, typically 1 to 2 hours dependent of air temperature.

Avoid excess foot traffic on primed surface.
Always check that the self-smoothing compound and tile adhesive are compatible with the primer (most are) but if in doubt check with the manufacturer of the self-smoothing compound and adhesive.

STEP 3

If using tile backer boards or XPS insulation boards, please follow the manufacturer's instructions.

Fix the boards in a brick bond fashion. Either fix the boards with a cement-based tile adhesive or screws and washers. Fix the screws at a maximum 300mm centres dependent on the subfloor.

IMPORTANT
Do NOT use XPS insulations boards on to a timber subfloor, use tile backer boards to give a stable subfloor.

STEP 4

Refer to the testing procedure on Page 6 it is very important that the testing is carried out.

Cable 10W/m			
COLOUR	HEATER LENGTH (M)	POWER (W)	RESISTANCE (Ω)
BLUE	5	50	1058
BLUE	10	100	529
BLUE	20	200	264.5
BLUE	30	300	176.33
BLUE	40	400	132.25
BLUE	50	500	105.8
BLUE	60	600	88.17
BLUE	80	800	66.13
BLUE	100	1000	52.9
BLUE	120	1200	44.08
BLUE	140	1400	37.79
BLUE	160	1600	33.06

Cable 20+W/m			
COLOUR	HEATER LENGTH (M)	LOAD (A)	RESISTANCE (Ω)
RED	10	200	264.5
RED	20	425	124.47
RED	30	650	81.38
RED	40	830	63.73
RED	50	970	54.54
RED	60	1270	41.65
RED	70	1410	37.52
RED	80	1620	32.65
RED	90	1890	27.99
RED	100	1980	26.72
RED	125	2530	20.91

STEP 5

Calculate the cable spacing.

IMPORTANT
This is a very important step and MUST be done correctly to ensure all the cable is used up.

Before you start measure the area to be heated in sqm (do not include the area taken up by fixed objects such as toilets and kitchen units etc), then divide this area by the length of the cable shown on the drum. The cable is 10 watts per linear metre so a 850 watt kit contains 85 metres of heating cable. The spacing is calculated by dividing the total sqm of to be heated by the cable length in metres (example shown below).

Example room: 2x3m (6m2) less 0.9 for bath and WC = 5.1m2. A 4.6 to 5.8m2 loose cable kit would be suitable (cable length 76 metres).

Cable spacing is calculated at 5.1 (room size) divided by 76 (cable length) = 0.067m (6.7cms) leaving a gap of approx 5-10cms from edge of the room.

Space at 10cm apart for output of 100w per m2	Space at 6cm apart for output of 165w per m2
Space at 7.5cm apart for output of 135w per m2	Space at 5.5cm apart for output of 180w per m2
Space at 6.7cm apart for output of 150w per m2	Space at 5cm apart for output of 200w per m2

STEP 6

When you have worked out the spacing leave a perimeter of 5-7cms around the edge of the room and mark out the floor at the calculated spacings. This will usually be between 5 and 10cms.

If your calculated spacing is less than 5cms, then do not continue and do not install. The cable size is too big for the area.

A spacing of 10cms will only just warm the floor and not heat the room.

A heating source in most domestic situations would be between 5 - 7cms (this always depends on the insulation thickness and type of floor construction).

STEP 7

The heater cable MUST NOT be cut or cross at any point (the heater cable/s should not be spaced closer than 50mm at any point anywhere).

If necessary adjust the spacing to ensure all the cable is used and the floor has an even amount of cable covering it. Fix the tape over the cable at regular intervals to ensure that it's well taped to the floor.

Do not use excess tape over the cables, as it can create unnecessary air pockets around the heating wire.

Do not use too much tape as It can also impede the bonding capability of the levelling compound or tile adhesive.

COLD TAIL AND END JOINT INSTALLATION

When installing the heating cable you need to be careful with how you install the end joint and cold tail joint (the join between the supply lead and the heating cable). They can potentially overheat if the following steps are not taken.

The joints on the heating cables are a much larger diameter than the heating element, you will need to cut a small channel for them to sit into the subfloor or the insulation boards.

Once they have been secured in the channel it is important that you do NOT cover them with tape as this will create an air pocket preventing the joint from releasing the heat, this can lead to a potential failure in the future

The cold tail joint can be secured in place by taping the cable either side of the joint, a small piece on the heating cable and a small piece on the cold tail. This will ensure the joint is NOT covered with tape.

The end joint can be secured in place by taping the heating element just before the joint to help secure it in place. This will ensure the joint is NOT covered with tape. Both these heating joints MUST now be fully encapsulated within levelling compound and/ or tile adhesive.

STEP 8

Check and record the insulation resistance value and the cable resistance value.

STEP 9

The cold tail from the cable has an earth which is a braided wire. If it is necessary to shorten the cold tail, at the thermostat, then the earth braid must be 'unpicked' with a small screwdriver or similar tool.

IT MUST NOT BE CUT ALONG ITS LENGTH as this will cause it to become unravelled. It should then be twisted back together and connected to the incoming earth on the power supply.

STEP 10

Position the sensor in the black conduit supplied from the thermostat position down in between two runs of cable (not overlapping the heating cable) and tape into position. If using insulation boards, these can be cut to allow the conduit to be placed inside. If installing directly onto plywood then a groove can be cut using a sharp chisel (beware of pipes). The joint between the heating cable and the cold tail can also be placed inside a groove in the floor as this can be bulky and difficult to tile over. The sensor wire can be shortened or lengthened. If you need to cut the sensor wire you must only cut the end with the exposed wires.

DO NOT cut the end which contains the plastic sensor. The connections to the thermostat can now be made.

STEP 11

Test the heating cable as before.

STEP 12

If possible cover the cables with a thin layer of suitable latex based levelling compound (5-6mm).

This will help protect the cables when tiling. You may tile directly over the cables, however extra care must be taken not to dislodge the cables or to damage the cable in anyway.

If you are using a vinyl floor covering, then a minimum 10mm self-smoothing compound should be used to cover the cable. **CONSULT VINYL FLOOR INSTALLER BEFORE USING THE COMPOUND TO CHECK COMPATABILITY.**

If carpet is to be used as the finished floor covering then a 10mm self smoothing compound needs to be used in conjunction with a suitable low tog underlay and subfloor.

You can now lay your flooring according to your floor manufacturer's instructions. Please refer to adhesive manufacturer's guidelines for drying times before turning on your heating system, this is usually around 7 days, the floor temperature should be increased gradually by 1-2 degrees per day over a 2 week period to reduce the risk of force drying. If in any doubt please check with adhesive/latex manufacturers for advice.

STEP 13

Tile the floor using a flexible tile adhesive and grout as per industry standards and manufacturers conditions. Finally wait at least 1 week before turning on to allow time to dry. NOTE the heating may be slow to react at first, especially if installed on a new screed floor or in a new building. Start by setting the floor temperature at approx 18°C - and build up by 1°C per day until your desired temperature is reached. Please see separate instructions for connection and operation of digital thermostat.

Do's and Dont's for Installation


Do read through these instructions carefully before beginning work.
Do use flexible adhesives and grouts.
Do test the cable before tiling.
Do be careful not to damage or dislodge the cable during tiling.
Do ensure the cable is spaced no closer than 50mm between loops.
Do wait at least 7 days before turning on the system.
Do read the separate installation and operating instructions for the thermostat.
Do ensure the joint between the cold tail sand heating cable is beneath the tiles.


Don't attempt to cut the heating cable at any point.
Don't allow the cables to cross or touch.
Don't allow excessive foot traffic over the wire before tiling.
Don't cut tiles over the heating cable.
Don't place tools or stacks of tiles on top of cable.
Don't place any product over the floor covering that has a higher tog value than 2.5.
Don't place any bean bags or fixed furniture over the floor covering.
Don't place cable closer than 100mm near any pipes.
Don't turn on the heating mat/cable while it is rolled up or still on the drum.

IMPORTANT

Please ensure that the cold tail joint (the join between the heating cable and flexible supply lead) is fully encapsulated in adhesive or levelling compound underneath the floor covering.

Please ensure that the end joint (the join at the end of the cable which is black) is also fully encapsulated in tile adhesive or levelling compound underneath the floor covering.

Both the cold tail joint and end joint MUST NOT be covered with tape, this can cause the cable to overheat and eventually fail!

DO NOT BEND THE COLD TAIL JOINT AT ANY POINT.

Full lifetime warranty.

Floor heating cables come with a full lifetime warranty.

The warranty does not cover installations made by unauthorized persons or faults caused by incorrect design by others / misuse /damage caused by others / damage in transit / incorrect installation and any other subsequent damage that may occur. Replacement will be fully chargeable if the damage is because of any of the above reasons.

Safety Guidelines

IMPORTANT
This installation manual has been designed for your safety. For a successful installation please make sure you have understood the guidelines and adhered to all the instructions.

Flat bottomed furniture MUST NOT BE placed over areas where the heating mat/cable is installed as this can restrict airflow to the floor, causing thermal blocking, and in extreme cases may lead to the cable overheating causing a possible fire hazard. This also includes rugs, bean bags, or any item which has a tog value greater than 2.5.

The supplied Commissioning Record MUST BE completed, including a floor plan sketch, to indicate heated areas, which must be permanently fixed in or near the distribution/fuse board as required by the 18th Edition BS7671 amendment 3.


MATTRESSES


BEAN BAGS


ANIMAL BEDS


THICK RUGS


FLAT BASED FURNITURE