



fastwarm<sup>TM</sup>

# Fastwarm<sup>TM</sup> Mat System

INSTALLATION MANUAL



Ultrathin cable



Compliant to latest IEE regulations



UKCA approved



Lifetime warranty



**This instruction manual contains the information to ensure the safe install and operation of the mat or mats.**

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.

The cable and joints on the mat are very robust, but care should be taken once the mat has been removed from the box. Do not at any time bend the cold tail on the end of the mat or end joint on the mat.

TALK TO AN EXPERT  
**0800 023 4203**

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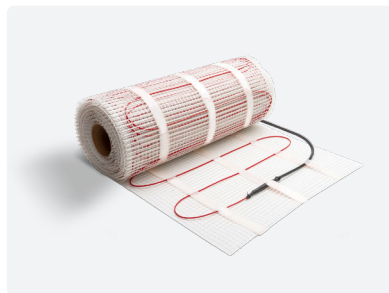
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**CE approved**  
All our Fastwarm™ cables have been designed to conform to the current regs – Part P compliant. If your installer is in any doubt concerning the installation, please call us.

**PLEASE READ THESE INSTRUCTIONS PRIOR TO STARTING INSTALLATION****Fastwarm™ mat 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 mat 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**

Mat or Mats (with a twin core heating cable attached to the mat)



Acrylic floor primer



Roller for application of floor primer



Fixing tape



Programmable digital room thermostat inclusive of floor temperature sensor. (Thermostats sold separately)



10mm diameter Conduit for floor sensor

**Installation Requirements**

- The heating mat/thermostat require 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.**
- The mat can be either 100 /150 or 200 watts per square meter. Refer to page 9 for the Resistance Values for each type.
- **NEVER OVERLAP THE MATS (THIS WILL CAUSE THE HEATING ELEMENT TO FAIL)**
- The first part of the cable on the mat 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 on the mat is the Red Cable, and this is a double insulated cable.
- For larger areas two or more mats are supplied. Two cold tails 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 Red 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 Fastwarm™ mat system is suitable for installing on a sub floor which is sound and suitable for tiling.
- There are many different types of suitable subfloor including Concrete / Solid screeded floors (preferably overlaid with Tile backer boards or XPS boards) / Structurally sound marine ply wooden floors (preferably overlaid with Tile backer boards).  
**Please Note: XPS boards can NOT be used on wooden subfloors .**
- Do **NOT** use on directly onto 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 sub floors 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.



## 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.**

Fastwarm™ 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. It is sometimes required that suitable contactor is used which is controlled by the thermostat.

### IF IN ANY DOUBT PLEASE CONTACT US

### 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 Fastwarm™ mat system 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 sub floor (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 9 (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 sub floor 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 sub floor.

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.



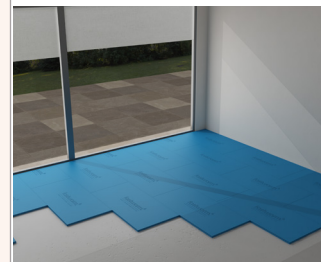
### STEP 2

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 sub floor.

### IMPORTANT

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



STEP 4

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



STEP 5

Prepare floor plan of the area to be heated and identify suitable location of the fused spur and thermostat position - mark the layout of the underfloor heating mat on the floor plan. This is an important step and must be carried out correctly to ensure that all the mat is used up. Once a mat has been unrolled it can not be returned.



STEP 6

Now start installing the floor heating mat from the thermostat position. Roll out and secure the mat to the floor. The heating mat has a sticky mesh, simply press this down onto the floor and it will hold in place. If you need to turn the mat 90 degrees upside down you can use the double sided adhesive strips to hold the mat in place. A small amount of additional cloth tape is provided to ensure the mat is flat to the floor in places where it is uneven.

**DO NOT** use excessive long strips of tape along the edges of the heating mat /s as this can cause problems with adhesive/latex bonds, please ensure any tape used is primed with suitable primer before applying adhesives/latex.

The floor heating mat should be between 50-100mm from the wall perimeter. Note: when installing around awkward shapes like a toilet or sink the cable can be removed from the mesh matting and placed loose on the floor to suit the shape (fix with minimal duct tape to hold in place), at no point must the cable be spaced closer than 50mm between any 2 loops of cable.

# Resistance Values

## Twin Conductor 100W / m2 / 230 VOLTS

Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)	Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)
0.5	2	1	100	529.00	0.5	10	5	500	105.80
0.5	3	1.5	150	352.70	0.5	12	6	600	88.17
0.5	4	2	200	264.50	0.5	14	7	700	75.60
0.5	5	2.5	250	211.60	0.5	16	8	800	66.13
0.5	6	3	300	176.30	0.5	18	9	900	58.80
0.5	7	3.5	350	151.10	0.5	20	10	1000	52.90
0.5	8	4	400	132.30	0.5	22	11	1100	48.09
0.5	9	4.5	450	117.56	0.5	24	12	1200	44.08

## Twin Conductor 150W / m2 / 230 VOLTS

Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)	Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)
0.5	2	1	150	352.70	0.5	10	5	750	70.50
0.5	3	1.5	225	235.10	0.5	12	6	900	58.80
0.5	4	2	300	176.30	0.5	14	7	1050	50.40
0.5	5	2.5	375	141.10	0.5	16	8	1200	44.10
0.5	6	3	450	117.60	0.5	18	9	1350	39.20
0.5	7	3.5	525	100.80	0.5	20	10	1500	35.30
0.5	8	4	600	88.20	0.5	22	11	1650	32.06
0.5	9	4.5	675	78.37	0.5	24	12	1800	29.39

## Twin Conductor 200W / m2 / 230 VOLTS

Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)	Width (M)	Length (M)	Area (Sq.M)	Watts (W)	Resistance (Ohms)
0.5	2	1	200	264.50	0.5	10	5	1000	52.90
0.5	3	1.5	300	176.30	0.5	12	6	1200	44.08
0.5	4	2	400	132.30	0.5	14	7	1400	37.79
0.5	5	2.5	500	105.80	0.5	16	8	1600	33.06
0.5	6	3	600	88.17	0.5	18	9	1800	29.39
0.5	7	3.5	700	75.57	0.5	20	10	2000	26.45
0.5	8	4	800	66.13	0.5	22	11	2200	24.05
0.5	9	4.5	900	58.79	0.5	24	12	2400	22.04

**STEP 7**

When you reach the end of the room the mat can be cut as shown here.

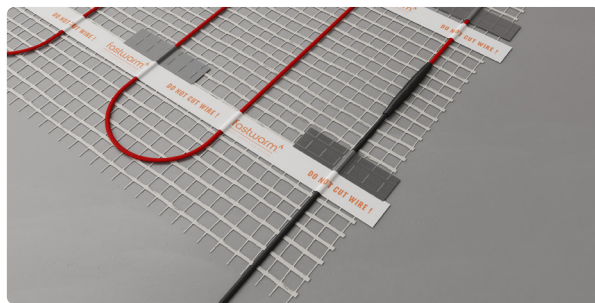
**DO NOT** cut the cables.

**COLD TAIL AND END JOINT INSTALLATION**

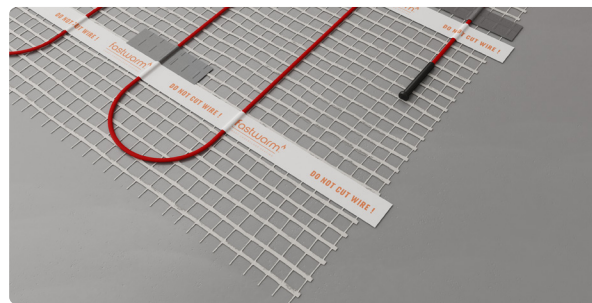
When installing the heating mat you need to be careful with how you install the end joint and cold tail joint (the join between the supply lead and the heating mat). They can potentially overheat if the following steps are not taken.

As the joints on the heating mats are a much larger diameter than the heating element it is inevitable that you will need to cut a small channel or groove for them to sit into the subfloor or the insulation board.

Once they have been installed in this groove it is important that you do not cover them with tape as this will create an air void preventing the joint from dispersing its heat, this can lead to a potential failure.



**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.



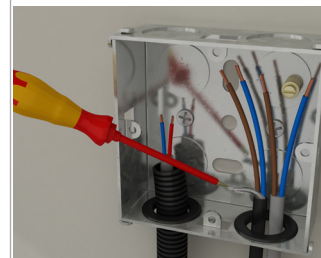
**The end joint** can be secured in place by taping the red heating element just before the joint to help secure it in place. This will ensure the joint is NOT covered with tape. Both these heating joints MUST now be fully encapsulated within levelling compound and/or tile adhesive.

**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 plus carry out 500 DC Volt Insulation resistance test.

## 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 mat. **PLEASE CONSULT VINYL FLOOR INSTALLER BEFORE INSTALLING** the compound for suitability with the floor covering.

If using carpet as a finish floor covering, then a 10mm self-smoothing compound can be used with a suitable low tog underlay (please check with manufacturer for suitability).

### NB THE CARPET AND UNDERLAY MUST NOT EXCEED 2.5 TOG COMBINED.

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.

## 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 tails and heating cable is beneath the tiles.
- ✗ **Don't** attempt to cut the heating cable at any point.
- ✗ **Don't** allow the wires 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.
- ✗ **Don't** tape over the end joint or the cold tail joint.

### 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.

Now there's something we can all get down to.



## Fastwarm™ floor heating mats 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.

Please visit website for full terms & conditions.  
[www.fastwarm.com](http://www.fastwarm.com)

fastwarm™



# 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**

CONTACT US

**0800 023 4203**

[www.fastwarm.com](http://www.fastwarm.com)