

**APPROVED  
BY PROFESSIONALS**

# proGrid+

## INSTALLATION MANUAL



-  Easy to install
-  Fully compliant to latest regulations
-  CE approved

## **UNDERFLOOR HEATING CABLE GRID SYSTEM**

Suitable for most floor coverings (always check with floor manufacturer)



**Thank you for investing in our industry  
leading ProWarm™ underfloor heating system**

**THIS INSTRUCTION MANUAL MUST BE READ ENTIRELY  
BEFORE COMMENCING ANY INSTALLATION**

This instruction manual contains important information regarding the safe installation and operation of your heating cable/s.

These installation instructions are not intended to replace or supersede the installation instructions provided by the manufacturers of your floor coverings but to supplement them.

Both sets of installation instructions should be complied with, (always check with the floor manufacturer if you are in any doubt that our heating cable/s are suitable).

Our cable kits are extremely strong but care must be taken when installing them, please follow the step by step installation guide to ensure a carefree installation.

support **01268 567019**



## CE approved systems

Our heating cables are CE approved, certified and manufactured to the highest standards using state of the art Teflon coated cables. All our cables are designed to be 18th Edition Part P compliant and the instructions we supply with them include as much information as possible to ensure that all installations comply with them (please contact us if you are in any doubt).

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## Before you begin Installing:

Please read through these instructions carefully and check that you have all the components required.

ProWarm™ heating system is designed for installation below most tile/stone floor coverings, it may also be installed below engineered/laminate wood floors, vinyl and low tog thin carpets but in these cases the heating cable/s must be first covered with an 8-10mm thick suitable latex based levelling compound

Always check with the floor covering manufacturer for suitability of use with electric Underfloor heating systems, also check the suitability of any adhesives/latex compounds that are intended to be used with both the floor coverings and the heating system.

### Contents of Heating Cable Kit

- ✓ 5mm twin-core heating cable on drum(s)
- ✓ Instruction manual
- ✓ ProGrid Matting
- ✓ Guarantee Certificate

## Installation Notes

- The system requires a mains voltage 230/240v and must be connected by a suitably qualified person. **All wiring must conform to IEE 18th Edition Part P regulations.**
- Our ProWarm™ heating cable/s are 13.7w per linear metre, total wattage per metre squared is determined by the spacing of the cable, please refer to table on page 11 for cable spacing (**DO NOT** place the cables any closer than 60mm at any point).
- The first part of the cable is the cold tail (coloured black), this carries an earth screen which is either a solid green/yellow earth cable or a silver coloured braid which is connected to the main incoming earth from the supply. The heating cable (yellow) contains a built in return meaning that the cable only has to be connected to the thermostat from one end, this cable is double insulated.
- For larger areas, if two or more cables are supplied, it will be necessary to use a connection or junction box to join the heating cables (cold leads) together prior to connecting a single cable to the thermostat (Wire used must be of a suitable size, selected by an electrician). MAX Load on one thermostat 16Amps.
- The system is suitable for installing on any sub-floor which is sound and suitable for tiling, for example concrete, plywood or cement faced tile-backer boards. Some water resistant composite boards may also be suitable, but it is not suitable to tile directly onto hardboard, MDF or standard grade chipboard as these substances absorb moisture and subsequent swelling could cause tiles to crack or dislodge. Please check with installer that the sub-floor is suitable – or please call our technical advice centre for suitability. **NOTE:** if installing on a newly finished concrete screed the required minimum drying out or 'curing' period should be followed before installing (this is typically 1mm per day in good conditions).
- The electrical and electromagnetic fields generated are negligible and well within all recommended European and International guidelines.
- The yellow heater cable **MUST NOT** be cut or cross at any point.
- The joint between the heating cable, cold tail and end joint **MUST** be located under the floor and encapsulated in self levelling or tile adhesive and **MUST NOT** be taped over.

## Professional Electrical Installation

The installation of electrical systems presents risks of fire and electrical shock which can result in personal injury. Caution should always be taken to guard against each such risk. Only a qualified electrician should connect the heating cable/s to the thermostat and / or to the electrical supply circuit.

Carry out all electrical work required to install ie. chase walls and install back boxes for fused spurs and thermostat position. Please make sure all works conform to the current regulations.

### Caution:

Due to the new requirements of the Part P Regulations, only a qualified person who is familiar with the construction and operation of the apparatus and the hazards involved shall make the final connections to the electricity supply and test the installation.

## ProWarm™ Underfloor Heating Systems

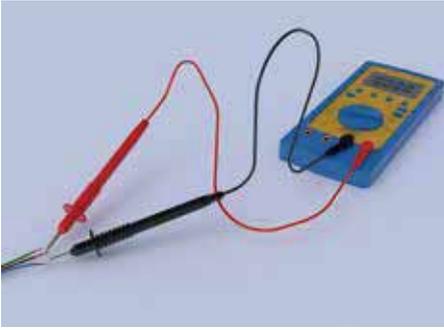
Must be controlled via an rcd protected circuit, for systems not exceeding 13 amps a fused spur that has contact separation in all poles that provides full disconnection under Cat 3 conditions can be used, for systems larger than 13 amps a suitable protective device that complies with regulations must be used (please contact us for technical assistance or consult a fully qualified approved electrician). If you are in any doubt about the electrical installation then please contact our technical advice centre.



### IMPORTANT

**All such connections MUST be in accordance with BS7671 18th Edition Part P wiring regulations.**

**Note:** When installing thermostats in bathrooms they should always be located outside the room and use the floor probe supplied, always check with a qualified electrician that all electrics are in safe and suitable zones.



## Testing

Each and every ProWarm™ cable is carefully tested before it is shipped from the factory and is packed suitably to avoid damage during transit. However, damage does sometime occur in storage or transit, and sometimes during installation. We strongly recommend you test your cable/s:

- After unpacking them but before you install them.
- After you have installed them but before you install the floor covering (i.e. while the cable is still exposed).
- After installation of the floor covering but before the thermostat is connected.

A simple test is a visual inspection to make sure there is no visible damage to the heater, and in particular to the cable component in the heater. A simple electrical inspection can be done with an ohm metre to make sure the ohm resistance is what it should be (see page 11). Ohms resistance can vary significantly depending on the ambient temperature and an allowance of - 10% to + 10% from the nominal value is acceptable. At this point an insulation resistance test should now be carried out at 500v DC out by a qualified electrician.

Please see table on page 8 for the values you should see when testing the cable.

## Installation Instructions

**STEP 1** **1** Ensure that the sub-floor is solid and suitable for tiling, free from dust and debris. Wooden sub-floors should ideally be reinforced to prevent flexing and the possibility of tiles dislodging.

This can be reinforced using a suitable WBP or Marine plywood or insulated tile-backer boards such as ProWarm™ Backerboards. Bitumen bases should be covered with a suitable backerboard or a 3-5mm levelling compound.



## STEP 2

# 2

Prime the floor using a suitable acrylic based primer (see advice for anhydrite screeds).

Once primed leave to dry (typically 1-2 hours). Once primed avoid any excess foot traffic over this area. The purpose of priming is to promote greater adhesion of the tile adhesive by reducing the amount of moisture absorbed into the sub-floor.



**ALWAYS CHECK** with tile adhesive/levelling compound manufacturer that the primer is suitable for use with their product/s, please contact our technical help centre if you are in any doubt.

## STEP 3

# 3

If using ProWarm™ insulation tile backerboards or XPS insulation boards, do so in accordance with the manufacturer's instructions, we do advise staggering the boards in a brick bond style and making sure the boards are fixed using suitable flexible adhesives to solid floors and/or mechanically fixed to wooden sub-floors @ 300mm centres using suitable screws and washers.



**(DO NOT use XPS insulation boards on wooden sub-floors)**  
**(DO NOT use ProFoam insulation boards with this heating system)**



Scan QR Code to watch **XP-Pro Insulation Video**



Scan QR Code to watch **Tile Backer insulation Video**



## STEP 4

# 4

## Installing the ProWarm ProGrid+ Matting



- A** Cut the ProGrid+ Matting to fit the subfloor you are covering. ProWarm ProGrid+ Matting can be easily cut with a utility knife or scissors. (you can mark the matting with a pen if required)
- B** Once the matting is cut to shape for the room its intended to be installed in, loose lay the matting making sure it finishes flush to the wall and then mark down the edge to where the other edges of ProGrid+ matting are to be placed. This will act as a guide as to where to spread the adhesive used to fix the ProGrid+ matting.
- C** Prime the subfloor/insulation boards using a good quality primer such as ProWarm UltraPrime. Once primed avoid any excess foot traffic over this area.
- D** Trowel the adhesive onto the subfloor/insulation boards using a 6mm square notched trowel. Evenly spread the adhesive over the area you want to cover.

**E** Lay the matting on to the freshly troweled adhesive bed, making any adjustments to the ProWarm ProGrid matting to ensure a flush fit to the wall and fixed appliances.

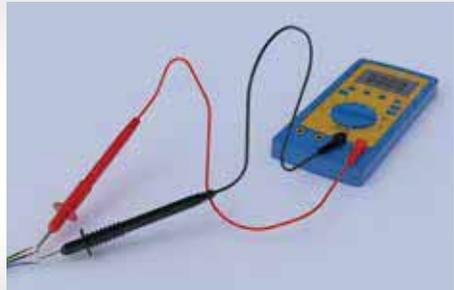
Using the flat side of your trowel, press the ProWarm ProGrid matting onto the adhesive bed for correct adhesion. Work in small areas to ensure each section of the matting is pressed into place correctly and that there is good contact between the fleece and the adhesive. (the matting will darken when pressed into the wet adhesive)

Repeat the process for the rest of the ProWarm ProGrid sections, as soon as the matting is down and the adhesive is dry it can be walked on ready to install the ProGrid+ Cable or tiled on to. (see manufacturers instructions for adhesive drying times).

**STEP 5**

**5**

At this point we recommend referring to the testing procedure on page 14, please take time to carry this out as it is extremely important.



**Resistance Values** Twin Conductor 13.7W / m / 230 VOLTS

Length (M)	Watts (W)	Resistance (Ohms)
10.9	150	352.67
16.4	225	235.11
21.9	300	176.33
27.4	375	141.07
32.8	450	117.56
38.3	525	100.76
43.8	600	88.17
49.3	675	78.37
54.7	750	70.53

Length (M)	Watts (W)	Resistance (Ohms)
65.7	900	58.78
76.6	1050	50.38
87.6	1200	44.08
98.5	1350	39.19
109.5	1500	35.27
131.4	1800	29.39
153.3	2100	25.19
175.2	2400	22.04

## STEP 6

# 6



## **IMPORTANT** Check the cable spacing

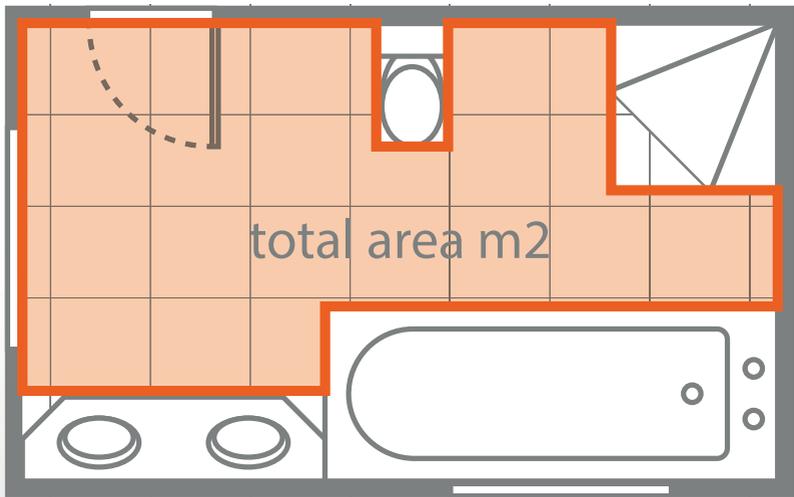
**This is a very important step and MUST be done correctly to ensure all the cable is used up and avoid extra work later.**

First measure the area to be heated in sqm (do not include the area taken up by fixed objects such as baths/showers and kitchen units). Allow a perimeter of approximately 60mm from objects or walls. Using the table on page 11 find the area closest to your calculated area. The table will also show you the spacing required to leave between cables. If you are in any doubt please speak to one of our technical advisers on 01268 567019

### **Calculating Total Heat Area**

**Calculate approximately 10% less than the total heating area to allow for fitting.**

(Always round it down as the cables **CANNOT** be shortened)



Product Code	Cable length(m)	230watts	150watts	115watts
		60mm Spacing	90mm Spacing	120mm Spacing
PROGRIDCABLEONLY1.0	<b>10.9</b>	0.7	1.0	1.3
PROGRIDCABLEONLY1.5	<b>16.4</b>	1.0	1.5	2.0
PROGRIDCABLEONLY2.0	<b>21.9</b>	1.3	2.0	2.6
PROGRIDCABLEONLY2.5	<b>27.4</b>	1.6	2.5	3.3
PROGRIDCABLEONLY3.0	<b>32.8</b>	2.0	3.0	3.9
PROGRIDCABLEONLY3.5	<b>38.3</b>	2.3	3.5	4.6
PROGRIDCABLEONLY4.0	<b>43.8</b>	2.6	4	5.3
PROGRIDCABLEONLY4.5	<b>49.3</b>	3.0	4.5	5.9
PROGRIDCABLEONLY5.0	<b>54.7</b>	3.3	5	6.6
PROGRIDCABLEONLY6.0	<b>65.7</b>	3.9	6	7.9
PROGRIDCABLEONLY7.0	<b>76.6</b>	4.6	7	9.2
PROGRIDCABLEONLY8.0	<b>87.6</b>	5.3	8	10.5
PROGRIDCABLEONLY9.0	<b>98.5</b>	5.9	9	11.8
PROGRIDCABLEONLY10.0	<b>109.5</b>	6.6	10	13.1
PROGRIDCABLEONLY12.0	<b>131.4</b>	7.9	12	15.8
PROGRIDCABLEONLY14.0	<b>153.3</b>	9.2	14	18.4
PROGRIDCABLEONLY16.0	<b>175.2</b>	10.5	16	21.0

m<sup>2</sup>



Installation instructions **STEP 6**

## STEP 7

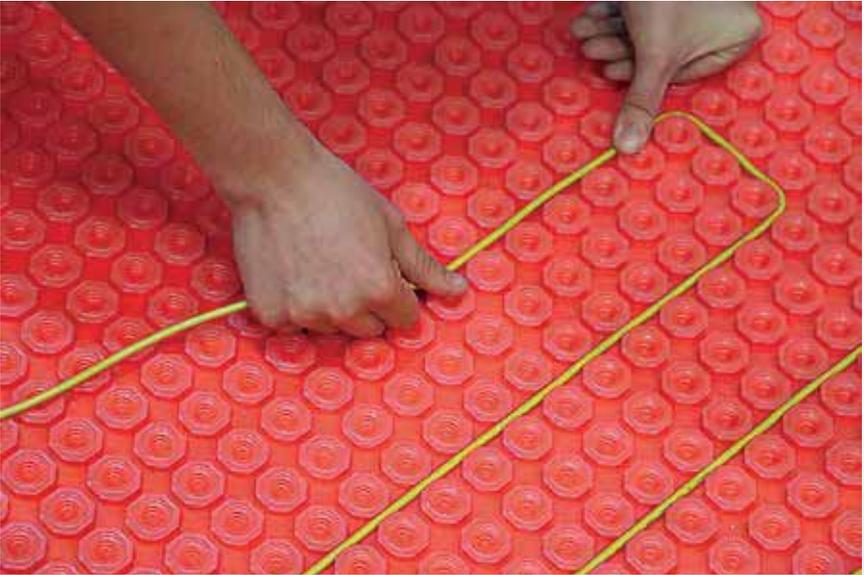
# 7 Lay the Cable into the ProGrid

Using the table in step 6 begin to lay the heating cable in the ProGrid+ Matting at the recommended spacing.

Install the Electrical Heating system pressing the cables into the grooved pattern **around the noughts** in the matting surface as required.

The yellow heater cable **MUST NOT** be cut or cross at any point (the heater cable/s should not be spaced closer than 60mm at any point to each other).

Ensure all the cable is used up and the floor has an even covering as per the table on page 11



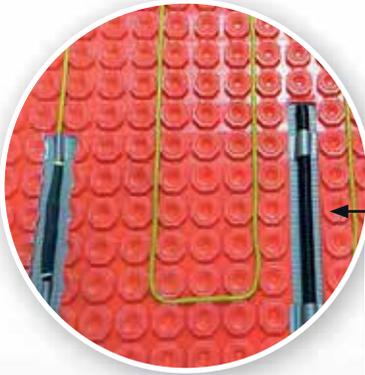
## STEP 8

# 8

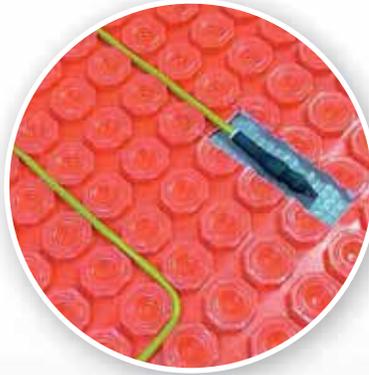
## Cold tail, end joint & floor sensor installation

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.

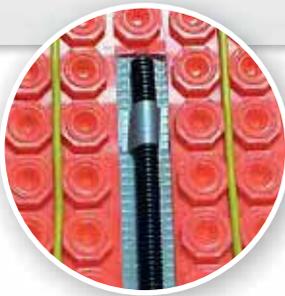
As the joints on the heating cables are a much larger diameter than the heating element it is inevitable that you will need to cut a small channel or groove for them to sit into the subfloor or the insulation board. Once they have been installed in this groove it is important that you do not cover them 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 yellow 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.



**Position the floor sensor** in the black conduit supplied between two runs of cable and tape into position. The sensor wire can be shortened or lengthened. If you need to cut the sensor wire you must only cut the end containing the wires. DO NOT cut the end which contains the plastic sensor.

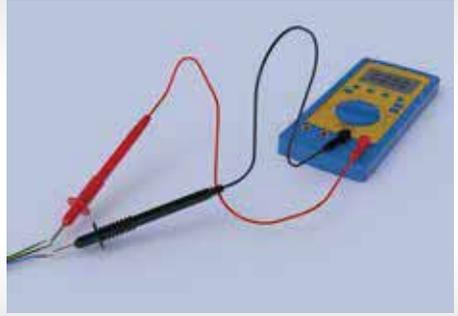
Place a short amount of tape over the end of the sensor conduit, so that the sensor does not become stuck in the adhesive or levelling compound

## STEP 9

# 9

Check the cable resistance and **insulation resistance values** after laying. Check if these values are consistent with pre-install values. Record values on the guarantee certificate.

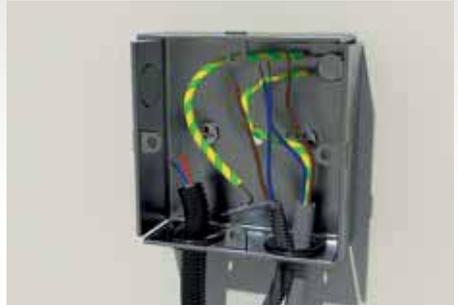
**Failure to do so will result in an invalid warranty**



## STEP 10

# 10

Run the power leads from the start of the cable up to the thermostat position. If the cable contains a silver earth braid around the cold tail this should be twisted into a single strand, this is then connected to the main earth supply - if the cold tail contains a solid green/yellow earth then this can be connected straight to the main earth supply. If using multiple cables route all power leads through a conduit from the floor to a junction box and supply the junction box from the thermostat. The earth from the cable can then be connected to the earth terminal in the back box, (shown here) if using a plastic box with no terminal then a terminal block can be used.



## STEP 11

# 11

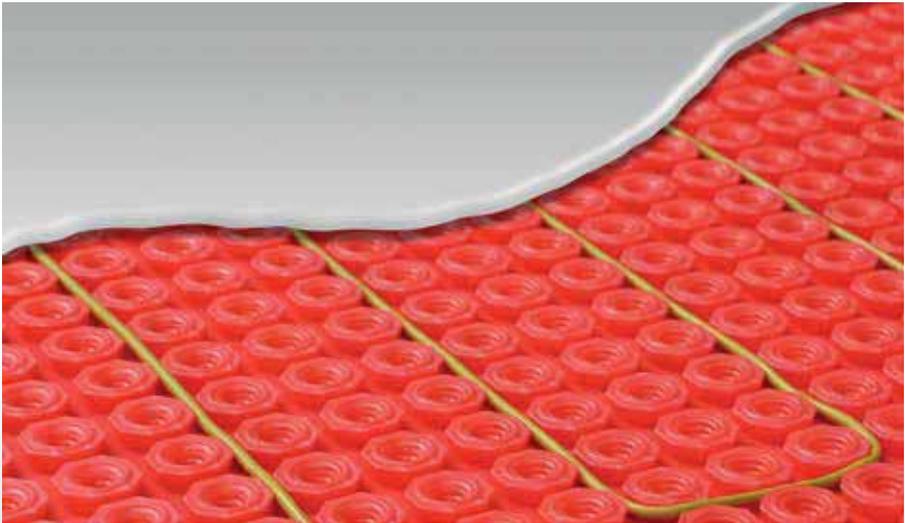
Test the cable's resistance again using a multi-meter, an **insulation resistance test** should also be carried out to ensure the cable is free from damage. The insulation resistance test must be carried out by a qualified electrician. Test must be carried out at 500 VDC. Any questions please call our technical team on 01268 567019

## STEP 12

# 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 suitable vinyl/ carpet or engineered/laminate floor as the final covering then we recommend a minimum of 8mm suitable latex levelling compound to cover the heating mat/cables to ensure even heat distribution.

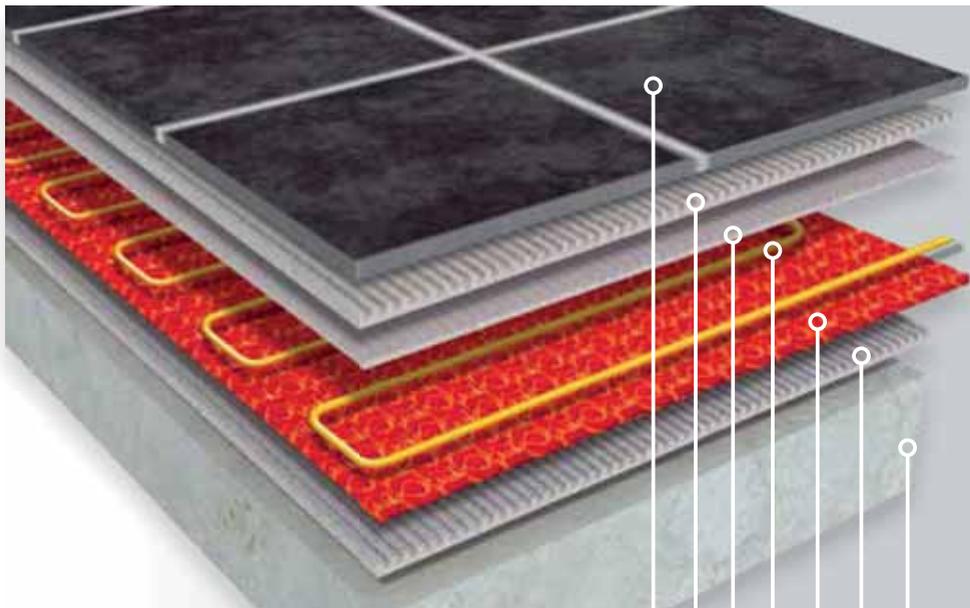


## STEP 13

# 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 refer to manufacturers instructions if unsure of drying times for adhesive or self levelling compounds.**



<b>Flooring</b>
<b>Flexible adhesive</b>
<b>Levelling compound (optional)</b>
<b>ProGrid+ Loose cable</b>
<b>ProGrid+ Matting</b>
<b>Flexible adhesive</b>
<b>Insulated Subfloor</b>

**Floor Type Suitability**



**Tiles**



**Laminate  
/wood\***



**Vinyl/  
carpet\***

\*Provided cable is covered in a min of 10mm self levelling

## Do's and Don'ts 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 60mm between loops.
-  **Do** try to protect the cable with cardboard or carpet during tiling.
-  **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 cables to cross or touch.
-  **Don't** allow excessive foot traffic over the cable 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 heating pipes.
-  **Don't** turn on the heating mat/cable while it is rolled up or still on the drum.
-  **Don't** tape or clip anything 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**

# peace of

**ProWarm™ 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.

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



## **Need Help installing your underfloor heating?**

We can recommend approved electrical contractors who can install your heating from start to finish

**Call us on 01268 567019 and we will be happy to help.**

# of mind

## CableSafe™ Guarantee

ProWarm™ is the only company that offers you a no quibble exchange on a damaged cable!

If you damage your heating cable during installation then on receipt of the damaged cable/mat we will send you a new one of the same size free of charge. **Only one cable/mat per Invoice.**

This amazing free peace-of-mind insurance is only offered by ProWarm™ - No waiting for a repair engineer to come out and no more expensive mistakes - as soon as we receive your returned cable/mat we will send you a new one on next working day delivery.

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



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

Lifetime Warranty

# SAFETY GUIDELINES

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



## IMPORTANT

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**



**RUGS**



**FLAT BASED FURNITURE**



Unit 12, Carnival Park, Carnival Way, Basildon, Essex, SS14 3WN

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**www.prowarm.com**