

# Divine Heat



## Divine Ecofloor Cable Kit

### Installation instructions

Please read these notes carefully and follow the instruction guidelines shown in this booklet as they will ensure optimum, safe performance and may also affect the validity of the guarantee provided. If in any doubt consult your supplier or the manufacturer.

#### Planning the installation.

- 1). Measuring up.
- 2). Floor preparation.
- 3). Marking out.
- 4). Laying the Cable.
- 5). Install Thermostat and Floor probe
- 5). 'Add On' Cables for larger areas.
- 6). Final testing.
- 7). Switching on.

#### 1). Measuring up.

It is important to measure the room correctly and avoid all permanent fixtures such as baths, showers, kitchen and bedroom units, (remember also that it is important to avoid thermally blocking the heated area as this will result in localised heat build up and possible subsequent damage to the floor covering. Allowing for perimeter clearance deduct a further 5% to reach the actual available heated floor area.

#### Output requirements.

Apart from timber floors where 100 W/m<sup>2</sup> output is recommended, install the optimum heat level possible for the available floor area.

Referring to the tables shown below the cable spacings can be varied to achieve differing heat levels.

160 W/m<sup>2</sup> for optimum output

130 W/m<sup>2</sup> for comfort heating and

100 W/m<sup>2</sup> for background heating (Recommended for timber floors).

Table of cable kit sizes.

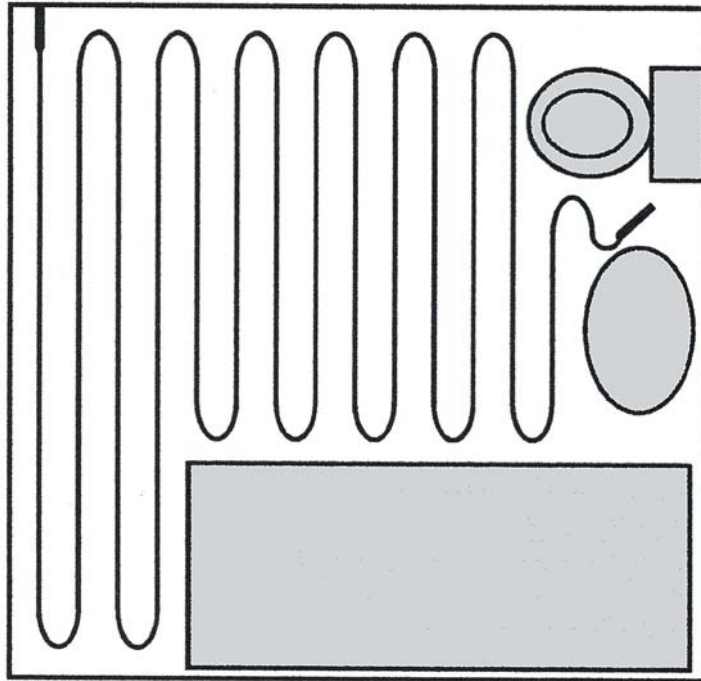
Code	Output (Watts)	Heated Floor area coverage(m <sup>2</sup> ) Cable spacing - cm and heat output(w/m <sup>2</sup> )					Resistance (ohm)
		7 (160)	8 (145)	9 (130)	10 (115)	11 (100)	
EK 10200	200	1.2	1.4	1.6	1.8	2.0	264
EK 10250	250	1.6	1.8	2.0	2.3	2.5	212
EK 10320	320	2.0	2.3	2.6	2.9	3.2	165
EK 10400	400	2.5	2.9	3.2	3.6	4.0	132
EK 10450	450	2.8	3.2	3.6	4.1	4.5	118
EK 10600	600	3.7	4.3	4.8	5.4	6.0	88
EK 10750	750	4.7	5.4	6.1	6.8	7.5	70
EK 10950	950	5.9	6.8	7.7	8.6	9.5	56
EK 101100	1100	6.9	7.9	8.9	10.0	11.0	48
EK 101300	1300	8.1	9.3	10.5	11.8	13.0	41
EK 101700	1700	10.6	11.9	13.1	15.1	17.0	31
EK 102000	2000	12.5	14.4	16.2	18.1	20.0	26
EK 102300 (EK1700+AD600)	2300	14.3	15.9	17.7	20.0	23.0	22
EK102600 (EK2000+AD600)	2600	16.2	17.9	20.0	22.6	26.0	20
EK102950 (EK2000+AD950)	2950	18.4	20.3	22.7	25.7	29.5	18
EK103300 (EK2000+AD1300)	3300	20.6	22.8	25.4	28.7	33.0	16
EK103700 (EK2000+AD1700)	3700	23.1	25.5	28.5	32.2	37.0	14

All cables incorporate an earth screen to allow installation into wet areas. The diagram shows a bathroom that is just under 3m x 3m. The total usable area is however 5m<sup>2</sup>.

Therefore for optimum heat output the correct kit to use will be EK10 750 covering 4.7m<sup>2</sup>. This example also highlights the advantage of the Divine Ecofloor twin conductor heating cable requiring connection to the electricity supply at one end only thereby removing the need to design the layout to get the cable back to the termination point.

(If in doubt and on receipt of a marked and scaled drawing your supplier will calculate the appropriate kit required).

Figure 1.



## 2). Floor preparation.

Cable kits can be laid onto most existing floor surfaces that are sound and suitably prepared. Any existing floor coverings such as carpet or vinyl must be removed. Bitumastic sealant should, be covered with a floor-levelling screed,

### Primer.

When installing the kit over concrete, wooden or existing tiled floors refer to the manufacturers standard guidelines.

### Concrete floor.

New concrete floors must be allowed time to cure naturally. This will depend on weather conditions but normally 1 week per 25mm is taken as a guideline. Existing concrete floors must be clean and level and where necessary a self-levelling screed (latex compound) should be applied ahead of the cable installation.

### Timber floor.

Existing timber floors must be clean, sound and level. To achieve this it may be necessary to have a screw fixed overlayment of WBP (weather and boil proof) plywood or marine board.

### Insulation.

To ensure optimum performance and minimise running costs floor insulation such as Aquapanel, Celotex, Marmox or Wedi Board should be laid directly under the heating cable.

### 3) Marking out and other preparatory work.

Having determined the size of the area to be heated, the heat level required and the electrical supply position form a channel in the floor adjacent to this point as illustrated.

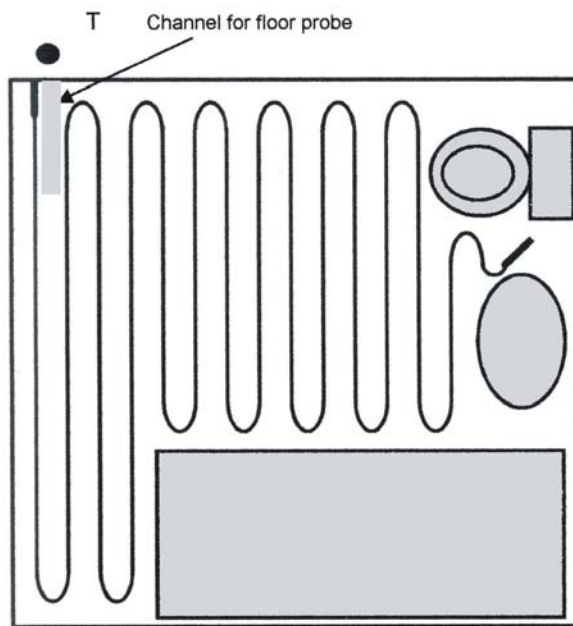


Figure 2.

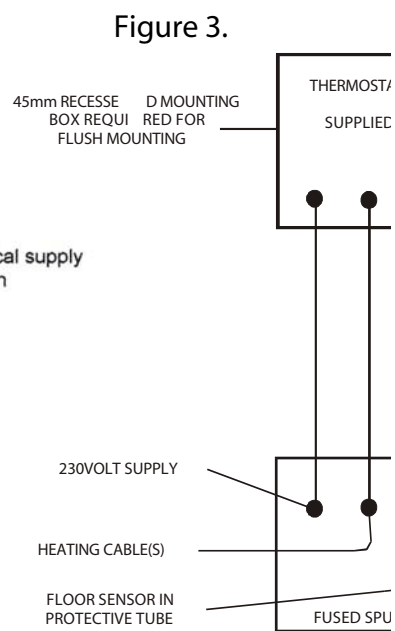


Figure 3.

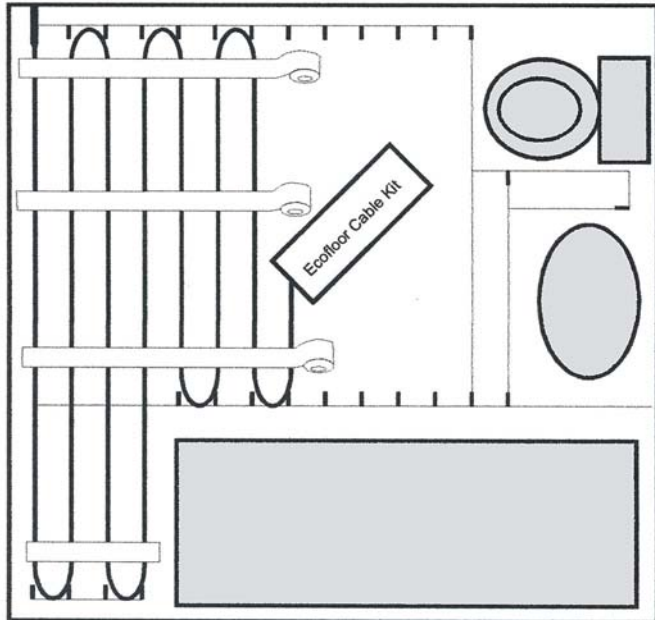
With a suitable marker and using either the ruler supplied or for other spacings a tape, mark out the fixing centres equally at opposite ends of the room take into account that the installed cables should be no closer than 50mm from the walls and any other fixed obstructions.

Final connection and testing should be carried out by a qualified electrician but prior to this and at this stage a thermostat and supply provision should be made as shown in figure.

#### 4) Laying the cable.

A hole is provided at the side of the box to feed out the cable. Do not take the cable off the drum before laying as it will twist and make the installation difficult..

Figure 4.



Connection is only required at one end. The first 3metres is black cable that can be cut as required. The orange cable is the heated part that must never be cut or shortened.

As shown loop the cables to the required marked spacings and secure to the floor as you go using the fixing tape supplied. Towards completion it may be necessary to slightly readjust the cable spacings to the available area. This will not be a problem as long as the cables remain at least 50mm apart and do not cross or touch each other.

Never bury or try to hide the cable. If necessary, start again.

If you have ordered the wrong size of kit contact your supplier.

Now and referring to the tables on page 1 test the cable circuit for continuity (resistance) using an ohmeter. Avoid traffic over the laid area until floor tiling is complete.

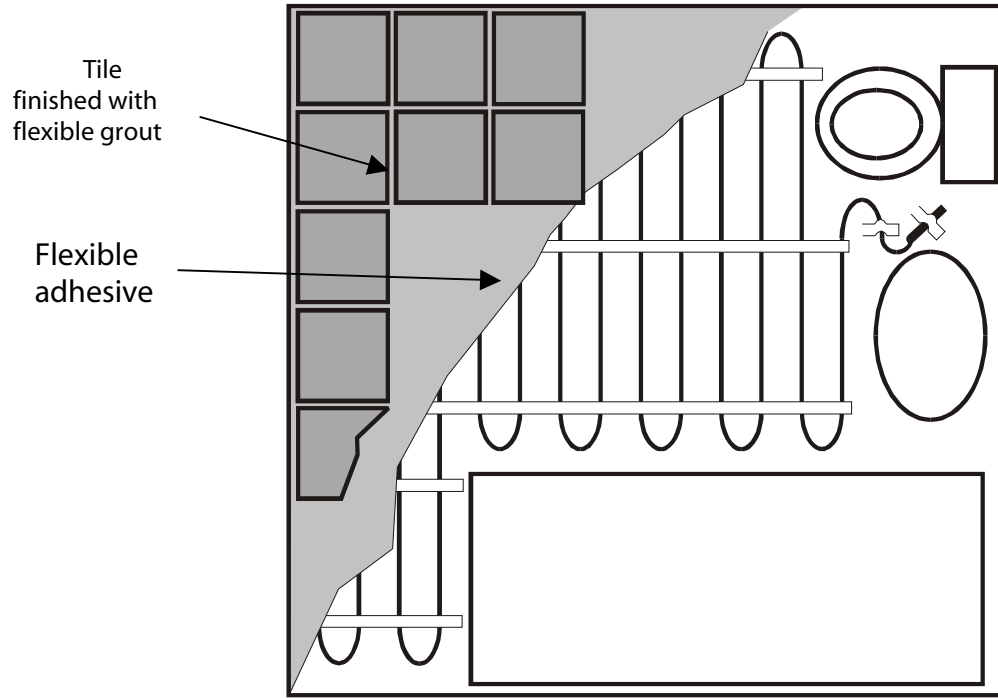
#### 5). Install the Thermostat and Floor Probe.

Follow the instructions provided with the thermostat and the floor probe. For the floor probe you will need to cut a channel for the protective spiral hose. (This may have been done at an earlier stage as suggested). Fix the hose into position and shorten to the required length. Feed the floor probe into the hose and block off the end. The floor probe is then attached to the thermostat.

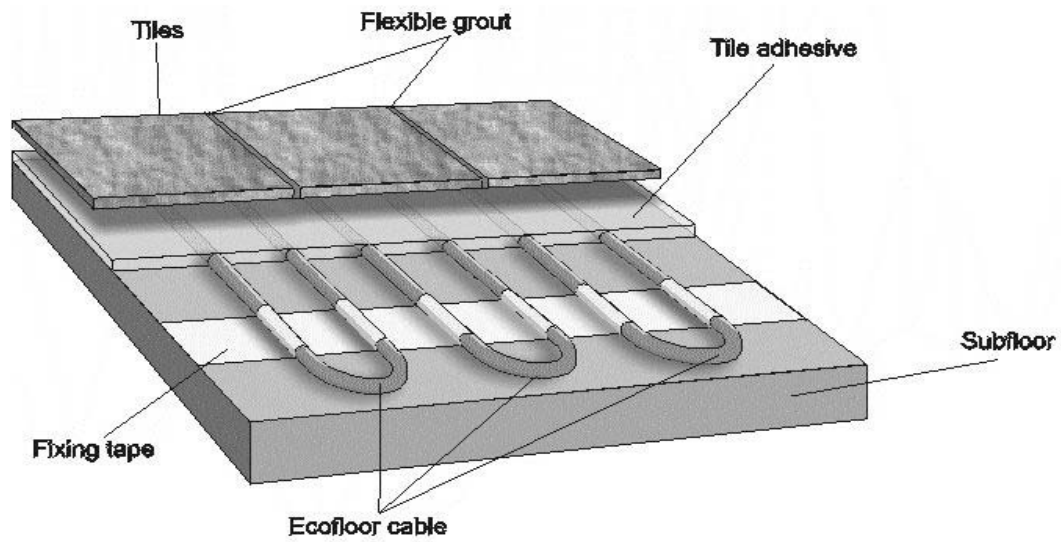
The thermostat should be installed in the room that is to be heated. For bathrooms the thermostat must be placed outside the bathroom but as close to the installation as possible.

If necessary the heating cable cold tail and thermostat can be extended by up to 50 metres using cable supplied by Divine Heat.

Finished Floor Diagrams.

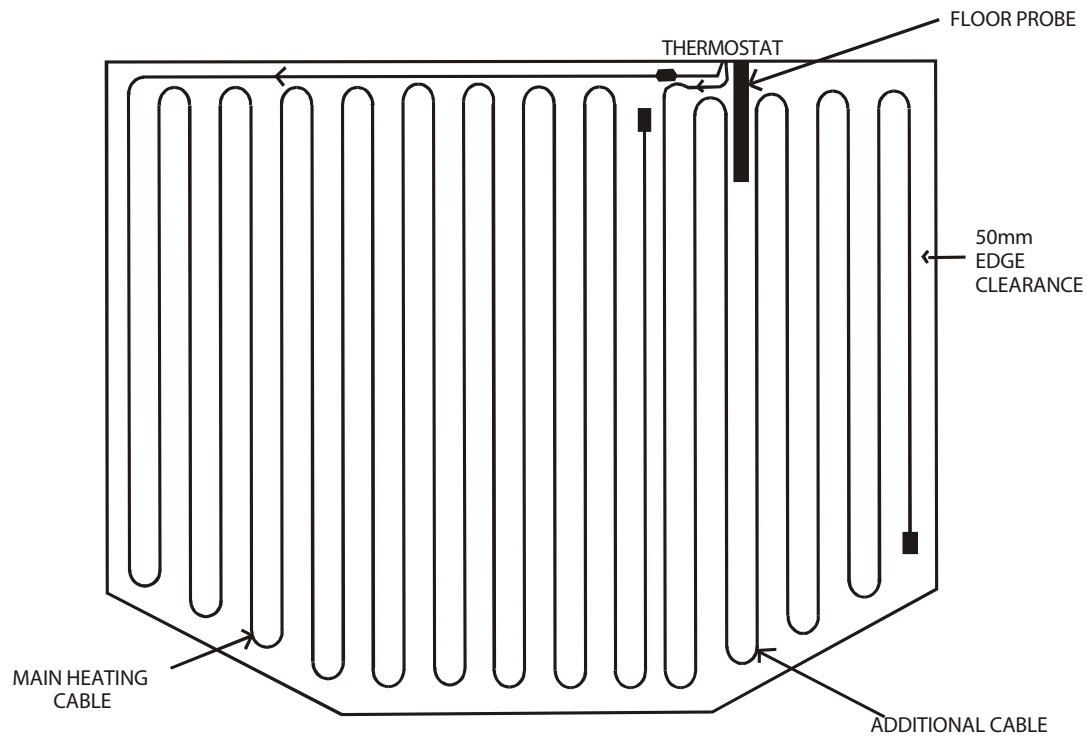


Cross Section.



6). Installation of larger areas requiring 'add-on' cables.

Illustrated is a 20 square metre conservatory requiring a type EK10 2950 cable kit to provide optimum heat. (18.4m<sup>2</sup> coverage allowing for edge clearance).



Firstly mark out the floor as previously described.

Using the main kit cable (2000watts) run this out from the termination point to the opposite end of the room and lay at 7cm spacings (12.5m<sup>2</sup> coverage) back towards the control point. Check that remaining floor area will accommodate the additional 950watt cable (5.9m<sup>2</sup> coverage). Lay the additional cable and if necessary adjust the spacing to achieve full floor coverage. (The thermostat sensor must be positioned centrally between cable loops).

**Tiling the floor.**

Once the cables are laid suitable protection boards / old carpet must be provided to avoid damage during tiling.

Tile adhesive can be laid in either a single or a two layer operation depending on the tiler's preference to accommodate the 3mm cable thickness. The adhesive must be laid evenly in the same direction as the cables are running making sure there are no air spaces.

The following table of products are suitable for use with a Divine Ecofloor underfloor heating system. Refer to the additional requirements when using Depron underlay insulation and for further information and advice contact the Divine technical department.

General guidelines for preparation of subfloors and UK manufacturers adhesive products suitable for use in conjunction with Divine Ecofloor undertile heating cables and cable mats. (To be read in conjunction with the installation instructions supplied)

Manufacturer	Surface	Primer	Tile Adhesive	Grout
Ardex	Concrete Timber	No primer required Ardion 82 primer	Ardu-Flex 500 Ardurit S16 + Ardion 90 admix	Arduflex-FL
Bal	New Concrete  Existing concrete  Timber	No primer required on a sound surface. Use a slurry bonding coat if unsound Slurry bonding coat 2 parts portland cement 1 part Bal-Bond SBR Bal Bond SBR.	Bal-Rapidset Flexible  Bal-Rapidset Flexible rapid Bal-Rapidset Flexible	Bal Flexgrout  Bal Flexgrout Bal Flexgrout
Howtex	Concrete & Timber	Howtex universal primer	Howtex single part Flexible rapid	Howtex-ceramic widejoint flexigrout
Mapei	Timber	Mapeprim SP primer	Ultraplan-self levelling compound over cable, then Kerabond with Asolastic flexible additive/Granirapid.	Mapei Ultracolor Polmer modified grout
Mira	Concrete   Timber	Mira 7110 base cleaner  Mira 4800 antifire fluid primer. Use Mira 4120 and 4440 multicoat for wet areas.  Mira 4800 antifire fluid primer	Mira X-Plan self levelling acrylic and Fibre reinforced levelling compound. Mira 3250 superplan Fix acrylic reinforced cement based quick curing tile adhesive mira 3600 multicrete highly elastic two part adhesive.	Mira mastic Mira mastic
Nicobond	Concrete  Timber	1 pt Nicobond primer to 4 pt water or 1 pt Nicobond primer to 1 pt water if porous. 1pt Nicobond primer to 1 pt water	Nicobond fast floor and wall adhesive Nicobond fast floor and wall adhesive + Nicobond 2002.	Nicobond tilers grout + Nicobond enhancer 2002 Nicobond tilers Grout + Nicobond enhancer 2002
PCI	Concrete  Timber	No primer required.  No primer required	Fliebspachtel 15 self levelling compound, then any flexible cement based adhesive Timberflex or Sontex Woodflex with Sontex RS2.	Any flexible grout. Groutflast. Sontex grey grout and Grout Admix.
RMC Biscem	Concrete & Timber	No primer required.	Biscem fast set adhesive with Flexibond additive	Bisgrout Floor Grouting
Sovereign	Concrete  Timber	If unsound use 50:50 SBR bonding agent and warter.  SBR bonding agent	Sovereign Quick Fix tile adhesive  Sovereign Quick Fix tile adhesive	Sovereign water resistant tile grout.  Sovereign grey tile Grout with 1 part SBR-3 parts water

Note: Ensure tile adhesive has no air spaces. Dab fixing of tiles should be avoided

For further technical information and advice contact:  
Divine Heat - 4/5 Duff Street Lane, Edinburgh, EH11 2HS  
T/F: 0131 3377525 Freephone: 0800 756 6862  
W [www.divineheat.co.uk](http://www.divineheat.co.uk) E [enquiries@divineunderfloorheating.co.uk](mailto:enquiries@divineunderfloorheating.co.uk)



7) Final testing.

The electrician should test the continuity of the floor sensor (already fitted) and retest the connected resistance of each cable. A further insulation test should be carried out in accordance with IEE regulations. The electrician should affix a suitable advisory warning label at the electricity distribution board and complete the attached certificate which must be retained and serve as part of the guarantee requirement.

8) Switching on.

Before switching on the underfloor heating allow a minimum of 3 days for natural drying of the tile adhesive and grout. Initially operate the system for 2-3 hours per day increasing to full continuous operation after 6-7 days.

<b>Divine Heat</b>	
4/5 Duff Street Lane, Edinburgh, EH11 2HS	
<b>T/F: 0131 3377525 Freephone: 0800 756 6862</b>	
Divine Ecofloor Underfloor Heating	
Please complete and return this installation completion certificate within 10 days to Divine Heat and retain a copy to validate the guarantee.	
Name:	.....
Address:	..... .....
Room fitted:	Cable type & wattage .....
Connected continuity (resistance) recorded	(ohms) .....
Signed by electrician:	Date: .....
Date of completion and testing:	.....