10 year Guarantee

GUARANTEE CERTIFICATE

ECOFLEX

in-screed underfloor heating cable

Please complete and return this installation completion certificate within 10 days to Flexel International Ltd and retain a copy to validate the guarantee.

This guarantee is only valid under the following conditions:

- All electrical connections were connected by a qualified electrician
- The guarantee covers faults in material for 10 years for ***Ecoflex*** heating cables and 1 year for other components from the date of purchase.
- The completed guarantee and proof of purchase must be presented in connection with warranty claims.
- Data on laying and connecting the cable in the floor and the resulting measured values of the insulation resistance of the heating cable are provided, and
- The procedure for applying the sealing cement specified by its producer has been followed.
- The guarantee covers the repair/replacement of goods found to be faulty and does not cover secondary charges relating the repair/replacement of any floor covering.
- The Flexel warranty does not cover faults resulting from incorrect design or installation or damage caused by others.

Name .....

Address of Installation .....

.....***Postcode***.....

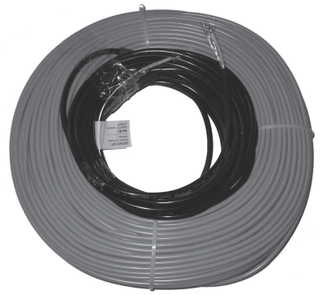
Room fitted ..... ***Cable type & wattage*** .....

Connected continuity (resistance) recorded (ohms) .....

Signed by electrician ..... ***Date*** .....

Date of completion and testing .....

Ecoflex In-Screed Underfloor Heating Cable *is part of the* ***Flexel Underfloor Heating Systems***
Product range by **Flexel International Ltd**,Telford Road, Glenrothes, KY7 6RB, UK
Also available: ***Ecoflex Heating Cable, Ecofloor Heating Mats*** *&* ***EcofilmSet Elements****.*
T 01592 760928 F 01592 760929 W www.flexel.co.uk E enquiries@flexel.co.uk



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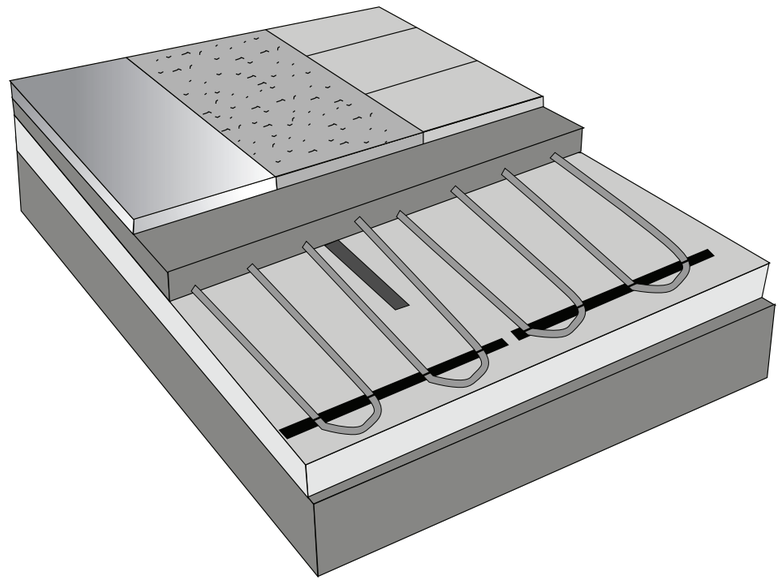
in-screed underfloor heating cable



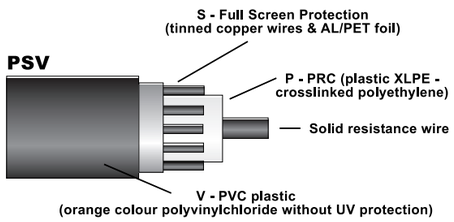
COMPLETE INSTALLATION INSTRUCTIONS & GUARANTEE

the economical heating solution for new screed floor constructions

Congratulations on your purchase of Ecoflex In-Screed Underfloor Heating, the economical solution for new screed floor constructions.

Please read the following instructions carefully to ensure ease of installation. Remember that the final electrical connections must be made by a qualified electrician and also that the guarantee certificate must be filled in and signed by the electrician to ensure you are covered by our guarantee.

Cable Construction



- Power Rating 15W/lin metre, 230V Supply
- Diameter - 4.6-5.1mm
- Single conductor cable
- 2 x 5m cold tail connection leads

Heat Output	Heat Type	Typical Applications
100W/m^2	Background	Tile Warming
130W/m^2	Comfort	Sitting/Dining Rooms
160W/m^2	Optimum	Bathrooms/Kitchens
200W/m^2	High Heat Loss Applications	Conservatory/Garden Room

To calculate the cable spacing distance C-C (centre-centre) use either of the two formulas below: Where free floor space is the total useable floor space less 10% perimeter allowance

$$\text{C-C} = \frac{\text{Total Free Floor Area (m}^2\text{) x 100}}{\text{Cable length (m)}} = \text{C-C distance in cm}$$

$$\text{C-C} = \frac{\text{Rated Heat Output of cable (W/m) x100}}{\text{Required Heat Output Free Floor Space (W/m}^2\text{)}} = \text{C-C distance in cm}$$

Please take time to read carefully the following notes and instructions before commencing installation:

- The heating part of the cable may not be shortened or otherwise adjusted in any way. Only the cold connection ends may be shortened, as needed.
- The connector joining the cold connection end and the heating cable must not be bent or put under strain in any way.The heating cables must not touch each other and should never cross.The minimum distance between the cables is 30 mm, and the diameter of a bend must be at least eight times greater than the cable's diameter.
- The heating cable circuit must be protected by a 30mA RCD for safe operation.
- Before and after laying the cables ,measure the insulation resistance between the heating conductor and the protective braiding. This may not be less than 0.5milliohms. Record the measured value in the guarantee.
- In case of any discrepancies, you should report these immediately to the manufacturer or supplier and discontinue the work completely.
- Before installing the heating cable, check that the data on the label attached matches your order request.
- The perimeter of the screed area must be separated from the vertical structures by an expansion joint (polystyrene, Mirelon, etc., up to 10 mm wide).

  In cases where cables are laid in an area larger than 20m^2 or with a diagonal greater than 7m, it is necessary to install an expansion joint. The heating cable should not cross expansion joints. The non-heating connecting cables located at the expansion joints must be laid loosely in a protective tube.
- When installing the heating cables always wear rubber soled boots and avoid any unnecessary traffic over the cables. Inform other trades working in the vicinity of the installation process and request that they do not walk on the cables.
- When installing Ecoflex in-screed cables consideration should be given to providing sufficient thermal insulation below the heating system. This will minimize downward heat losses to the subfloor, minimize running costs and ensure quicker heat up times for the floor. Flexel recommend Celotex tuff-R GA3000 foil faced insulation or equivalent. In case of reconstruction, where there is not space to install the thermal insulation to a sufficient depth on the existing subfloor, and the system is anticipated to be used only for a short intervals (up to 6 hours per day) to increase comfort but not to heat the premises, we recommend installing Ecomax tile backer board in a depth of 6mm or 10 mm to accelerate the warming of the surface and to slightly reduce the thermal loss.

  Ecomax is installed onto the concrete subfloor using tile adhesive. Ecoflex heating cable is placed directly onto its surface before being covered with the finished floor screed.
- The heating cables should not be placed in floor areas that will be perminately covered with floor fitted furniture or fitments (e.g. Kitchen units or baths etc) .
- A minimum clearance of 50mm should be left between the heating cable and perimeter walls.
- Consult the screed manufacturers instructions as to a suitable drying out period before turning on the heating system.

Installation:

Before commencing, the entire sub-floor should be swept clean and be free from any sharp objects. If laying onto foil backed insulation ensure the area is dust free to enable a good fix.

It is good practice to plan your installation using a sketch marking your laying pattern and planning the positions for the floor sensor, the connection box and thermostat.

Attach the Eco-Fix band to the sub-floor or insulation using fixing nails or high impact adhesive tape. The Eco-Fix bands should be spread evenly accross the floor at intervals of 750mm. A 50mm border should be left around the perimeter of the room. Do not remove the cable from the drum before laying as it will twist and make the installation difficult.

The heating cables (orange cables) must not touch each other and should never cross.
The heating cable must not be cut or shortened and the joint between the cold tail and the heating cable must not be bent or put under strain.

The floor sensor for the thermostat should be positioned between 2 heating cable loops approximately 500mm from the wall. The black flexible conduit provided with the thermostat should always be used to install the floor limit sensor probe. Once laid, the heating cable should be covered with a minimum of 50mm sand and cement screed.

Before and after covering the heating cable with the screed, the cable resistance should be checked against the label value. Avoid traffic over the areas until the cable is completely protected. The screed should be allowed to dry completely before turning on the system (approximately 4-6 weeks). Please check screed manufacturers instructions.

A fully qualified electrician must now make the final connections to the mains supply and install the thermostat. The thermostat should be installed in the room to be heated. For bathrooms the thermostat will be a floor sensing only model and must be placed outside the room but as close to the installation as possible. Finally the electrician should check for continuity of the floor sensor and retest the resistance of the cable. A further insulation test should be carried out in accordance with IEE regulations.

The installation should be protected by a 30mA RCD for safe operation.

Typical Installation: