



Low-temperature large-area underfloor heating

Ecofloor electric heating cables and mats are the ideal solution in terms of energy consumption and optimal temperature distribution in the living space, as the heating elements are integrated into the structure and do not disturb the perception of the space.

The mats or cables can be used to heat smaller areas in corridors, bathrooms and kitchens, but Ecofloor can also reliably serve as the main source of heating in an apartment or house. It is suitable for both new buildings and renovations. In recent years we have seen also a great boom in exterior applications, heating cables can be used even in churches.

Cable or mats? Depends on the shape of the heated surface

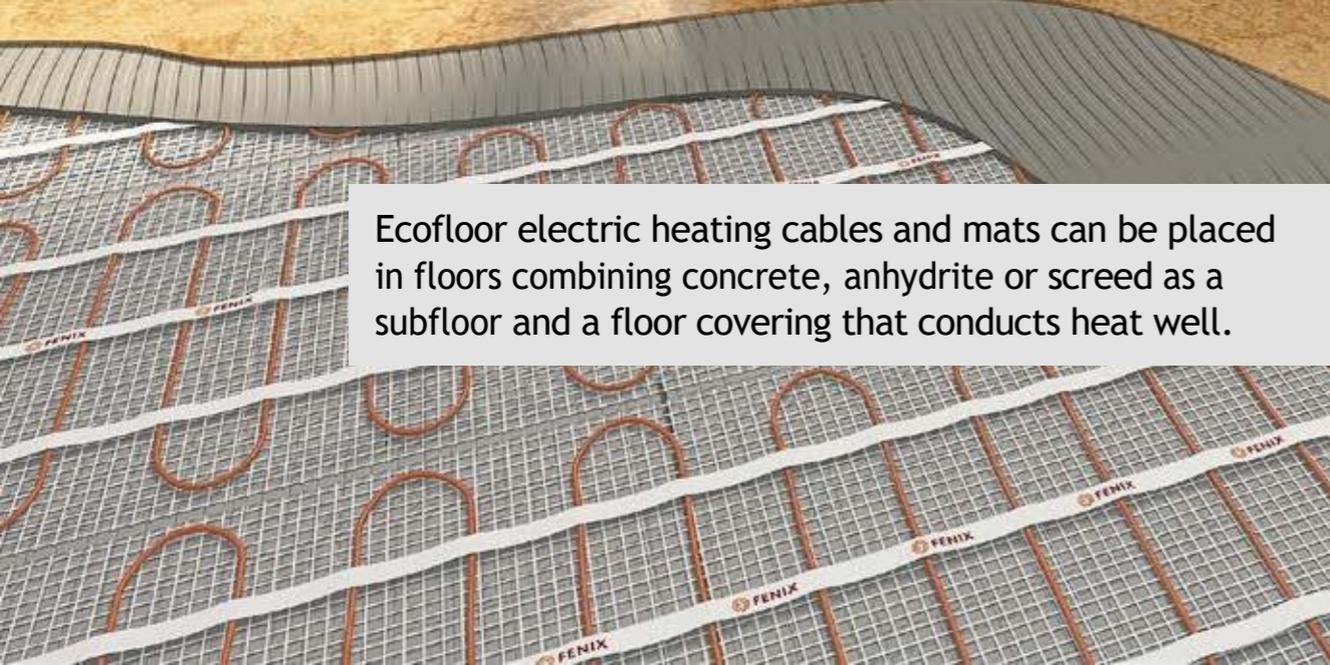
In terms of functionality, there is no difference between the heating circuit and the mat - the heating mat is basically a heating cable attached to the supporting fabric. The two products differ only in the method of installation. The installation of the circuit is more flexible but more demanding. The mat is characterised by a simpler installation and ensures an even distribution of the heat. However, the mat is more suitable for regular areas.

Direct heating is the most common method of application

It is used for both main heating systems and comfort floor heating systems. The heating mat is placed just below the floor layer, usually in a flexible screed or self-levelling screed. The cables used are of the smallest possible diameter and with a lower linear input, so that the loop spacing is small and the floor is heated evenly. The advantage of this system is its ease of installation and more flexible operation.

Cables suit not only under tiles

Ecofloor heating systems are designed for heating floors where the heating mat (cable) is laid in a layer of concrete, placed on a heat-insulating base. If we are going to heat a tiled floor, the choice is clear - heating cables or mats are ideal for this type of covering. Installation of a heating film, for example, would be technically impossible here, as the

A close-up photograph of the Ecofloor heating system. It shows a grey fabric mat with a grid pattern of orange heating cables. The cables are arranged in a series of parallel loops. The brand name "FENIX" is printed in small letters along the length of the cables.

Ecofloor electric heating cables and mats can be placed in floors combining concrete, anhydrite or screed as a subfloor and a floor covering that conducts heat well.



Electric underfloor heating is the ideal solution in terms of energy consumption and optimum temperature distribution in the room, and the heating elements are integrated into the structure and do not disturb the perception of the space.

sealant used to bond the tiles would not bond to the subfloor through the foil. However, tiles are not the only type of floor covering that is suitable for Ecofloor. With Ecofloor heating cables and mats, you can also heat a floor covered with cork or vinyl, for example.

Maintenance and repair of electric underfloor heating

Ecofloor electric heating cables and mats are maintenance-free throughout their lifetime. Their lifespan depends on the hours of operation, the way they are installed and their regulation. If the heating system and regulation are properly designed, the service life is at least 30 to 50 years.

The heating cable itself cannot be defective from the factory

Heating cables go through several stages of control, so that shipping of a broken cable is not possible. The only place where a manufacturing defect could theoretically show up afterwards is at the connections of the heating cables - i.e. the ends and cold end transitions. It is therefore important to have a scheme of the installation with the locations of the connections drawn in the warranty card. Practice shows, however, that almost 100% of the failures are caused by non-compliance with installation regulations or mechanical damage to the cable. A common cause is a cable break by the steel



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reinforcement mesh, or a break caused during cleaning of the pavement joints. These defects may also show themselves with a delay. For example, if a heating cable is only partially broken, it is seemingly normal at first, but the so-called transition resistance is increased at the point of disruption and the cable overheats there. The heating cable can continue to heat normally for a year before the connection is completely broken.

The most common cause of failure is a mistake during the installation

Maintenance itself is not needed for electric underfloor heating, so there can be no breakdowns. Routine

cleaning of joints, for example when cleaning the floor, is not a problem for electric underfloor heating.

Additional interventions to the floor with any floor heating system are always risky

How much they are risky depends on the location of the heating element. A heating cable settled in a 7 cm layer of concrete is better protected than if it is in the sealant directly under the tiles. However, there should be no further interventions unless it is certain that the floor heating will not be damaged.

In case of damage protective elements will react in a properly made installation

If this happens to you, there is no any danger of unsafety, as the circuit breaker or current protector will turn on. Heating cables then can be repaired relatively easily, even if the user does not know exactly where the cable was interrupted. The fault can be located with centimeter accuracy and for the repair itself, the company will only need to uncover an area of approximately 15 x 30 cm. So no need to worry about the demolition of the entire floor.

Lifetime warranty for Ecofloor underfloor heating in residential buildings

This guarantee refers to the lifetime of the layer in which the heating element is placed. Unlike heating foils, which are relatively easy to access under a floating floor, we have seen some concerns from the clients about the 10-year warranty, if it doesn't limit the lifespan of the heating cables. We therefore decided to allay these fears by the extraordinary guarantee we are certain in.

Behaviour of heating cables and foils in practice

In addition to Ecofloor cables and mats, we also produce Ecofilm heating foils. What is the difference between heating cables and foils and how does underfloor heating behave when covered with furniture?

The heating foil has a significantly larger surface area - the entire surface of the foil is heated. The cable is laid with a spacing of approx. 8-10 cm (it depends on the linear input in W/m), i.e. there is no heating in the 10 cm between the loops of the heating cable and the floor is gradually heated by the loops of the heating cable in this space. If the heating cable is installed in concrete or anhydrite, or if there is a covering that conducts heat well (e.g. tiles), then this does not matter at all. Hot-water underfloor heating has been done this way for decades and to this day no one has questioned the fact that the pipes are 15-20 cm apart. However, if the heating element is directly under the floor covering (which is not technically possible with a hot-water system), which is at the same time not a very good conductor of heat (typically a floating floor), then the fact that foil heats the entire area becomes important. Therefore, we as a manufacturer recommend heating foils under the floating floors.

However, once a layer of anhydrite, concrete or mastic is the part of the floor construction and the final covering is bonded to the subfloor, then heating cables/mats are recommended.

Let's return to the second part of the question, i.e. what happens when the electric heating foil (or even the cable) is covered. The heating element at the point of covering continues to heat normally. But because now heat dissipation is blocked by the object on the floor, the temperature at this place starts to rise. Many factors will influence what happens next. It depends on the area input, how high the layer covering the heating element is (a heating cable in 2 cm of mastic will behave differently from a cable embedded in 6 cm of concrete), how large the linear input of the cable is (it makes a difference if the cable is 5 W/m or 15 W/m), etc.

If the heating is done correctly - i.e. the area input is up to approx. 100 W/m² (in the foils this is automatic, we have a maximum input of 80 W/m² in the floor heating films), no cables with a linear input higher than 10 W/m are used and the floor is controlled by a thermostat with floor probe, then nothing will happen at all.

The temperature in the covered area will be approx. 6-10 °C higher than in the open area, which does not affect the heating element, the floor or the covering. However, as there are a lot of variables that affect this, we generally prohibit the installation of the underfloor heating under the equipment that does not have at least 4cm (ventilation gap).

You can find more information about Ecofloor heating cables and mats of www.fenixgroup.cz

