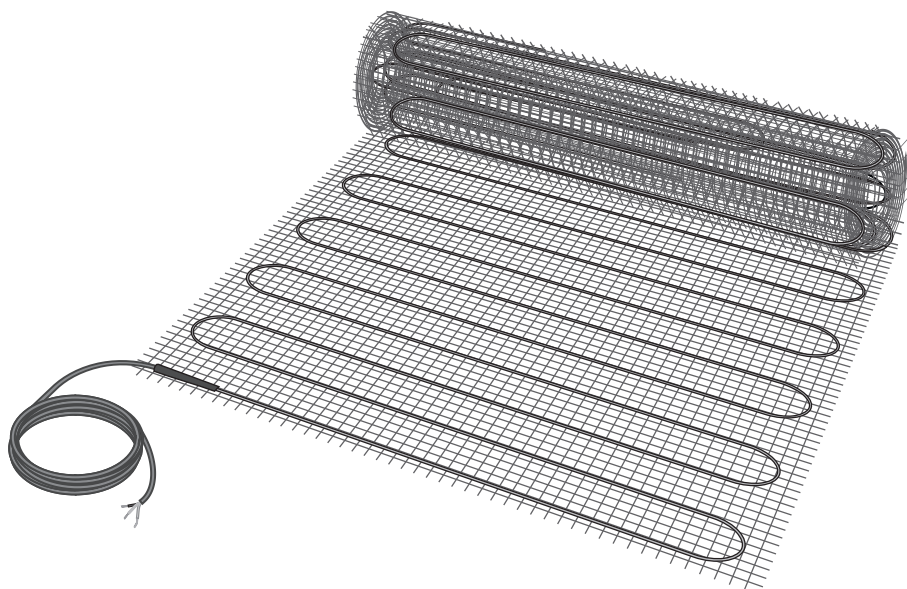


Grand Meyer®

Heat'n'Warm series

Underfloor Heating Mat EcoNG170 Installation Manual



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in other languages.



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Dear Customer, Thank you for choosing a Grand Meyer product. We are sure that our products will meet your expectations and keep your home warm. Please read the instruction carefully before starting installation. Non-observance of complying with the rules and recommendations for installing the underfloor heating system can lead to system failure or a decrease in its efficiency.

1. GENERAL PROVISIONS AND RECOMMENDATIONS.

Before installing electric heating mat, make sure that the system you choose is suitable for your room, taking into account its area.

The instruction will familiarize you in detail with the installation and connection of Grand Meyer floor heating, since the long-term operation of underfloor heating largely depends on the correct installation. Install the system in strict accordance with this manual. Installation and connection of the heating mat must be carried out by a qualified specialist.

2. PURPOSE.

Grand Meyer floor heating is an electric cable heating system for space heating based on a heating mat laid in a tile fixing tile adhesive (if a floor covering other than ceramic tiles is used or the warm floor is used for main heating, the heating mat can be laid in a layer cement-sand screed with a height of at least 3 cm). It is mainly used in the reconstruction of old floors, when it is necessary to withstand a small thickness of the newly created floor structure, or in rooms with low ceilings.

Grand Meyer floor heating based on heating mats are designed to achieve thermal comfort in rooms and serve:

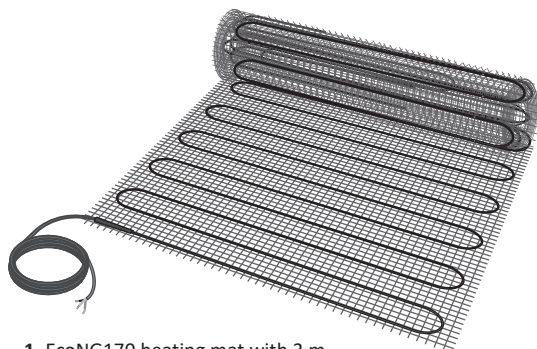
- to ensure a comfortable floor surface temperature;
- or the main space heating.

The underfloor heating system, intended for the main heating, should cover at least 70% of the total floor area. Ceiling height should be no more than 4 m.



3. EQUIPMENT *.

Grand Meyer set based on EcoNG170 heating mat includes:



1. EcoNG170 heating mat with 3 m connection cable.



2. Corrugated tube Ø 16 mm, length 1.5 m with a plug at the end. The tube serves to mount the temperature sensor.



3. Installation and operation instructions.

4. Technical data sheet of the ECONG170 heating mat with its technical characteristics.

* In addition to the set, room thermostat should be selected. (not included in set).

3.1. HEATING MAT.

The heating mat is a thin two-core heating cable with a thickness of 3,8 mm. The cable is wave-like fixed on a fiberglass mesh 0,5 m wide and up to 30 m long, depending on the type of the mat, and is designed for laying in a tile fixing adhesive or in a layer of cement-sand screed. The heating cable is made with high quality heat-resistant XPLE insulation, over which is protected by an aluminum foil screen. The outer jacket of the heating cable made from PVC insulation with increased heat resistance. To connect the heating mat to the main supply, used a 3 m long cold lead. The specific power of the mat is 170 W/m² at a main voltage of ~230 V. Technical data of EcoNG170 mats are presented in table 1.



Table 1. Specifications of EcoNG170 mats.

| Article | Coverage area, m ² | Power, W | Operating current, A | Resistance, Ohms (at +20°C) |
|--------------|-------------------------------|----------|----------------------|-----------------------------|
| EcoNG170-010 | 1,0 | 170 | 0,7 | 295,6 - 342,3 |
| EcoNG170-015 | 1,5 | 255 | 1,0 | 197,1 - 228,2 |
| EcoNG170-020 | 2,0 | 340 | 1,3 | 147,8 - 171,2 |
| EcoNG170-025 | 2,5 | 425 | 1,7 | 118,3 - 136,9 |
| EcoNG170-035 | 3,5 | 595 | 2,4 | 84,5 - 97,8 |
| EcoNG170-045 | 4,5 | 765 | 3,0 | 65,7 - 76,1 |
| EcoNG170-055 | 5,5 | 935 | 3,7 | 53,8 - 62,2 |
| EcoNG170-065 | 6,5 | 1105 | 4,4 | 45,5 - 52,7 |
| EcoNG170-070 | 7,0 | 1190 | 4,7 | 42,2 - 48,9 |
| EcoNG170-080 | 8,0 | 1360 | 5,4 | 37,0 - 42,8 |
| EcoNG170-090 | 9,0 | 1530 | 6,0 | 32,9 - 38,0 |
| EcoNG170-110 | 11,0 | 1870 | 7,4 | 26,9 - 31,1 |
| EcoNG170-130 | 13,0 | 2210 | 8,7 | 22,7 - 26,3 |
| EcoNG170-150 | 15,0 | 2550 | 10,1 | 19,7 - 22,8 |

4. BEFORE INSTALLATION.

Before you start installing the system, you need to make sure that you have chosen exactly the heating mat that is suitable for your room. The parameters of standard EcoNG170 mats are shown in Table 1.

You can not use the same mat for heating rooms with different heat losses, for example, a bathroom and a hallway or kitchen. Also, do not use the same heating mat for space heating with different flooring surfaces, for example, partly with ceramic tiles and partly with laminate. In such rooms it is necessary to install separate heating mats with their own room thermostats.

Check if the possibilities of electrical wiring allow the connection of the underfloor heating system. To do this, sum up the power of all devices that can be connected to the electric current power supply. The parameters of standard wiring according to the IEC are shown in table 2.

Check the permissible current of safety devices (automatic devices). Heating mats with a power of more than 2 kW are recommended to be connected through special wiring and a separate automatic current. Any heating mat must be connected to an RCD (Residual Current Device) whose rated operating current does not exceed 30 mA.



Table 2. Parameters of standard electric wire.

| Conductor Material | Section, mm ² | Max. load current, A | Total load (max.) power, W |
|--------------------|--------------------------|----------------------|----------------------------|
| Copper | 2x1,0 | 16 | 3500 |
| | 2x1,5 | 19 | 4100 |
| | 2x2,5 | 27 | 5900 |
| Aluminium | 2x2,5 | 20 | 4400 |
| | 2x4,0 | 28 | 6100 |

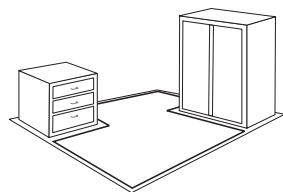
When floor heating is installed in wet rooms (bathrooms, saunas, swimming pools), the cable drain wire of the heating mat must be connected to the grounding conductor. Room thermostat must be installed outside the room with high humidity (bathrooms, toilets, saunas, swimming pools).

4.1. THE HEATING MAT INSTALLATION.

It is obligate to lay heating mats in open flooring surfaces and avoid laying mat under furniture without legs (picture 5). Lay the heating mat with the distance from the walls of at least 5 cm.

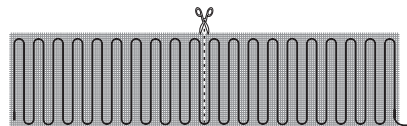
To fit the heating mat to the shape of the heated area, the mesh must be cut into fragments without damaging the heating cable (picture 3). When laying heating mat, it is strictly not allowed to overlap mat fragments on each other.

Heating mat laying example.



1. Determine the heating area and choose a mat whose area approximately coincides with the heating area.

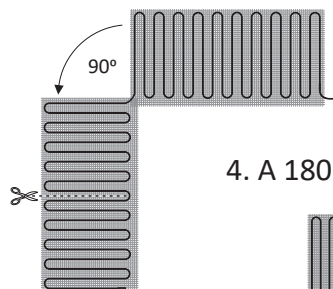
Form a mat according to the shape of the heated surface:



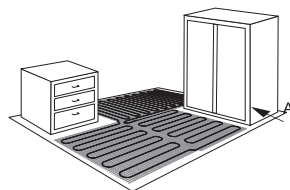
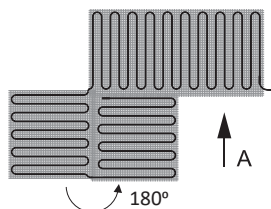
2. First cut of the mat mesh.



3. A 90° turn of the fragment and a second cut of the mat mesh.



4. A 180° turn of the fragment.



5. Heating mat after laying.

4.2. DETERMINING THE INSTALLATION PLACE OF THE ROOM THERMOSTAT.

The room thermostat must be installed outside the room with high humidity. The recommended installation height is 0,8 m from the floor surface. It will help to make easy access to set up temperature or program settings.

4.3. MAT LAYOUT.

Draw a diagram of the layout of the heating mat, mark the installation location of the room thermostat and floor temperature sensor. The floor sensor is installed in the corrugated mounting tube, in the floor, at a distance of 0,5 m from the wall on which the temperature controller is located. The corrugated tube with the floor sensor inside should be located at an equal distance between the loop of the heating cable for correct temperature measurement.

- The cold lead of the heating mat must be connected to the room thermostat.
- The splice and end sleeve of the mat must be fixed in the floor.
- The heating cable must be at least 10 cm away from other heating devices.



5. INSTALLATION.

The installation of the heating mat must be carried out by a qualified specialist, the connection of the electric underfloor heating system to the electrical network must be carried out by a qualified certified electrician.

When installing a heating system based on heating mats, first of all, it is necessary to install and fix the corrugated tube for the temperature sensor. Since the diameter of the corrugated tube is much larger than the diameter of the heating cable of the mat, it must be buried in the floor below the level of the heating cable. Be sure to plug the end cap of the tube so that moisture from the tile fixing adhesive does not get on the temperature sensor flask.

The heating mat is usually laid so that the mesh is on top and the cable is on the bottom. However, in case of practical necessity, you do not risk anything by turning the mat over. The heating mat start to be laid from the wall on which the room thermostat will be located. Having reached the opposite wall, as well as when bypassing obstacles - pipes, stationary equipment, toilet bowls, etc., the mesh is cut and the heating mat is turned in the right direction.

The heating mat, like a conventional heating cable, is laid on a open flooring surfaces. However, it is allowed to lay a heating mat under the places of installation of hanging cabinets, washbasins, sanitary ware.

The heating mat spread over the entire floor area is attached to the floor with a glue gun, staples, adhesive tape, etc. Tile glue is carefully applied to the fixed mat and tiles are laid.

After the installation of the heating mat is completed, it is obligate to draw the final laying plan with reference to the place, indicating the location of the splice and end sleeve, the temperature sensor and the heating cable lines.

When applying and curing the tile adhesive, the temperature of the substrate and the ambient air must be between +5°C and +25°C. There should be no drafts in the room where the work will be carried out.

Floor heating is allowed to switch on only after the tile adhesive has completely dried (see the recommendations of the tile adhesive manufacturer). Usually it is 5 - 7 days.



5.1. STEP-BY-STEP INSTALLATION.



1. Draw up a drawing of the area to be heated, indicating the location of the heating mat, the splice and end sleeve, the temperature sensor and the place of connection to the electrical network. If the heating cable is damaged during laying or during construction work, this will help to identify the damage point (Fig. 1).



2. Cut through a 2,5 x 2,5 cm section in the wall and floor. It is necessary for laying the temperature sensor, the installation conductor and for installing the mounting box for room thermostat (Fig. 2, 3).



3. Clean the base on which the heating mat is laid (Fig. 4).



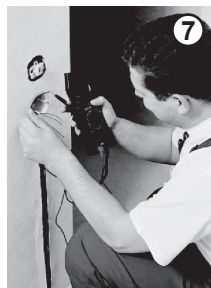
4. Place the floor temperature sensor in a corrugated tube, plugged at one end with end cap to prevent fixing tile adhesive or tile adhesive from getting inside and place it in a groove, according to the drawn up drawing (Fig. 5). The floor temperature sensor is placed at a distance of 50 - 60 cm from the wall, slightly below the level of the mat. The diameter of the tube bend should not exceed 5 cm.



5. Lay the heating mat over the entire surface of the floor, bypassing pipes and areas intended for bathrooms, cabinets, etc. (it is allowed to lay the mat under the installation places of hanging cabinets, washbasins, etc.). To avoid obstacles, it's obligatory to cut the plastic mesh without damaging the heating cable (Fig. 6).



6. 4. Fix the heating mat to the floor surface. The mat mesh can also be attached to the floor surface with a glue gun, nails, staples, etc.

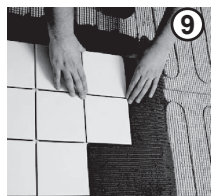


7. After laying the heating mat, it's obligate to measure the electrical cable resistance. The electrical cable resistance of the heating cable must correspond to that specified in the technical data sheet for the heating mat. Deviation from the indicated parameters -5% - +10% is allowed at $t = 20 \pm 1$ °C (Fig. 7). If difference goes below this numbers, please contact your dealer.



8. Pour the heating mat evenly with a thin layer of tile fixing tile adhesive or other self-levelling tile adhesive. Heating cable, splice and end sleeve must be completely filled (Fig. 8).

9. After pouring the mat, measure the electrical resistance again according to annex 7.



10. Apply a new layer of tile adhesive to the dried surface and lay ceramic tiles or other coating (Fig. 9).

11. Do not turn on the heating mat until the fixing tile adhesive has completely dried (usually 5 - 7 days).



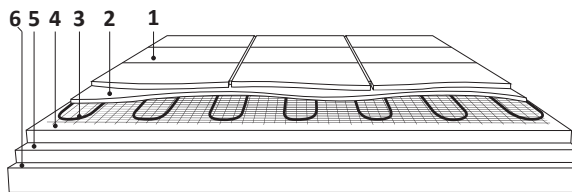
12. Connect the heating mat to the room thermostat and wait until the floor is fully warmed up (Fig. 10).



6. INSTALLATION OF THE HEATING MAT WITH DIFFERENT FLOORING.

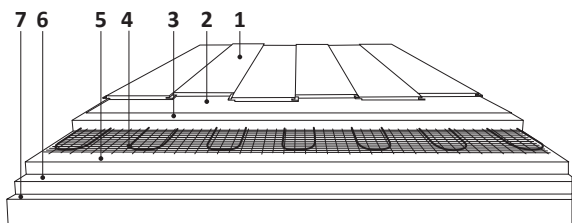
In the case of using EcoNG170 heating mats as the main heating, the floor heating construction will be as follows:

For ceramic tiles



- 1 – Flooring surface (ceramic tiles, natural stone, etc.);
- 2 – Tile adhesive (5-8 mm);
- 3 – Heating mat;
- 4 – Cement-sand screed (at least 3 cm);
- 5 – Thermal insulation;
- 6 – Base.

For laminate, linoleum, carpeting, etc.

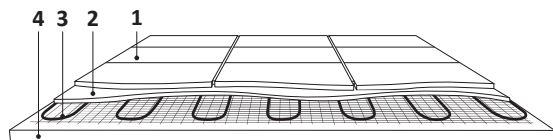


- 1 – Decorative flooring surface (laminate, linoleum, carpet, etc.);
- 2 – Underlay for decorative flooring surface;
- 3 – Cement-sand screed (at least 3 cm);
- 4 – Heating mat;
- 5 – Cement-sand screed (at least 3 cm);
- 6 – Thermal insulation;
- 7 – Base.



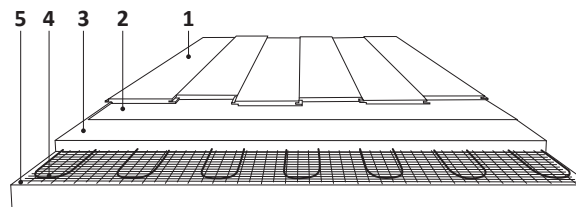
In the case of using EcoNG170 heating mats as a comfortable surface heating, the floor heating construction will be as follows:

For ceramic tiles



- 1 – Flooring surface (ceramic tiles, natural stone, etc.);
- 2 – Tile adhesive (5-8 mm);
- 3 – Heating mat;
- 4 – Base.

For laminate, linoleum, carpeting, etc.



- 1 – Decorative flooring surface (laminate, linoleum, carpeting, etc.);
- 2 – Underlay for decorative flooring surface;
- 3 – Cement-sand mixture (at least 3 cm);
- 4 – Heating mat;
- 5 – Base.

The use of wood materials (plywood, chipboard, etc.), as well as cork underlay, as a substrate for decorative flooring surface (laminate, linoleum, carpeting, etc.) is prohibited.

It is not allowed to use bitumen for gluing linoleum.



7. THERMAL INSULATION.

In order to reduce heat loss for heating the floor, ground and other structures lying below your premises, before installing the heating mat, it is necessary to choose and install the thermal insulation correctly. With its help, you can significantly save the electricity consumed by the system.

If underfloor heating is used as the main heating system, we recommend using solid grades of expanded polystyrene (EPS) with a thickness of 20 mm or more with a density of at least 35 kg/m³.

Thermal insulation should be used in all cases if the floor is located close to the ground or in the basement.

For basements, garages and other premises where the floor is in direct contact with the ground, it is recommended to use rigid foam or mineral wool boards with a thickness of 30 mm or more.

The insulation material is laid or glued to the concrete floor. To prevent deformation of the floor during heating, shock-absorbing strips of sheet foam are glued around the perimeter of the room. The thermal insulation layer is poured with a floor leveler and a screed is made.

The thinner the layer of additional thermal insulation, the more heat is lost downwards, and the less heat is released into the room.

If there is a warm room under you, then the thermal insulation may not be laid, but in any case, the best solution is to isolate the warm plate with a heating mat from the concrete base, as it increases the efficiency of the system.

8. STARTING USE THE UNDERFLOOR HEATING.

You can turn on floor heating after the tile mixture has completely dried (you can specify this parameter in the technical specifications on the package of the tile mixture). Turn on the room thermostat and set the desired temperature on it, using the instructions of room thermostat* (not included in the set).

When you turn on the floor heating for the first time after installation, you can set the maximum level of heating and, after reaching a comfortable temperature, reduce the level. When you turn on the floor heating for the first time, it can takes up to 48 hours to reach desired temperature, depending on the parameters of the room.



9. OPERATING RULES AND SAFETY.

- The braided shield of the heating mat power cable must be permanently and securely connected to the earth terminal in the junction box or to the appropriate terminal on the thermostat.
- On the floor made of materials with good thermal conductivity (ceramic tiles, natural stone, etc.), under which the floor heating mat is installed, there should not be any other coatings and objects (carpets, blankets, etc.) that prevent heat transfer, to avoid cable overheating.
- The heating mat must be at least 50 mm away from walls, furniture and any other objects that prevent effective heat release into the air.
- When installing the heating mat, direct contact with the thermal insulation, if it is corrosive, hygroscopic or flammable, must be excluded.
- The surface of the floor with installed heating must not be subjected to mechanical stress (it is forbidden to hammer nails, dowels or screw in screws, etc.) in order to avoid damage to the heating mat and temperature sensor.
- In case of a long absence from the room during the cold season, we recommend disconnecting the system from the power supply or not turning off the heating completely, but setting it to the minimum level. In this case, the system consumes little energy, and the room will not be completely cold and it can be heated up more quickly after your return.
- It is forbidden to make any changes to the design of the mats received from the manufacturer, with the exception of cutting the mesh when laying.
- It is forbidden to replace the installation wires yourself by breaking the connections in the coupling made by the manufacturer.
- It is forbidden, even for a short time, to turn on the heating mats rolled into a roll into the electrical network.
- It is forbidden to connect heating mats to the electrical network, the voltage in which does not correspond to the operating voltage specified in the technical data sheet for the mat.
- The heating mat must be connected by a qualified certified electrician.
- During installation, the heating mat must not be exposed to oil, grease or other similar substances.



- To avoid mechanical damage to the heating mat, installation must be carried out in shoes with soft springy soles or cover the surface with the heating mat laid out on it with plywood sheets or some other materials that prevent mechanical impact on the heating cable when walking on it.
- It is forbidden to use heating mats without a minimum layer of tile mixture that completely covers the heating cable. The thickness of the tile mixture should be 5-8 mm, the formation of bubbles and the rise of the heating mat are not allowed.
- It is forbidden to subject the floor surface under which the heating mats are installed to any mechanical influences.
- If any of the above requirements is violated, the manufacturer will void the warranty.

10. WARRANTY.

The manufacturer guarantees the operation of the EcoNG170 heating mat for 20 years, subject to compliance with all the requirements set forth in this Installation and Safety Manual.

The manufacturer undertakes to carry out a warranty repair of the heating mat if all the requirements for installation and operation rules are met, upon presentation of the completed Warranty Certificate and the Room Plan indicating the location of the room thermostat, heating mat, splice, end sleeves and floor temperature sensor.

Products with defects resulting from mechanical damage or improper connection and operation of the heating mat are not subject to warranty repair.

MANUFACTURER:

SIA «PRIOTHERM»

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info@grand-meyer.com

www.grand-meyer.com



11. WARRANTY CERTIFICATE.

Heating mat used for Comfort/Basic heating.
(cross out the unnecessary)

Room type _____

Total room area _____ m²

Floor heating is installed on the square _____ m²

Heating mat _____
(Article)

Presence of thermal insulation (YES/NO), its type and thickness

(cross out the unnecessary)

Sale made _____

Contact number _____

Date of sale _____ 20____

Seller _____
(signature)

Shop stamp

Buyer _____
(signature)

System installed _____

Contact number _____

Installation date _____ 20____

Installer _____
(signature)

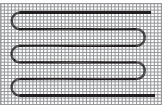
The floor plan is attached.

12. ROOM PLAN.

Room plan indicating the location of the temperature regulator, floor temperature sensor, heating mat, connection splice and end termination for installation purposes and for searching of possible defects.



Type codes



Heating Mat

Corrugated tube for temperature floor sensor



Temperature Sensor



Room Thermostat



Connection Splice



End Termination

