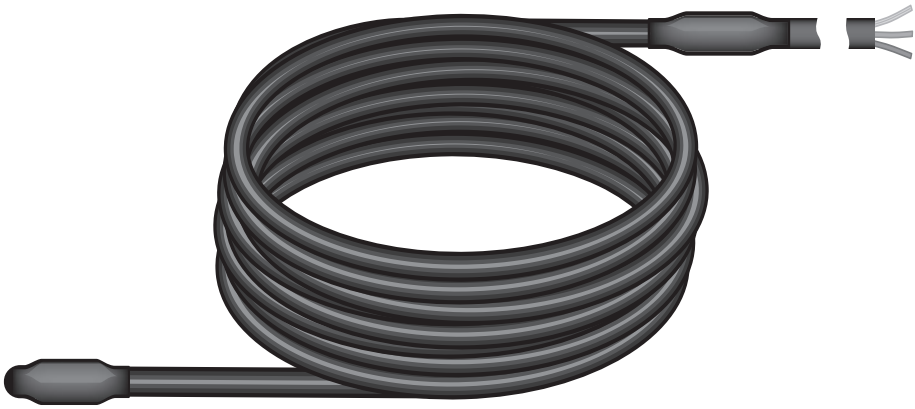
Grand Meyer®
The heating of life

Lattialämmitysjärjestelmä THC20

Kaapelilämmitysjärjestelmä Asennusohje



Skannaa saadaksesi ohjeen muilla kielillä.

SISÄLLYSLUETTELO

Hyvä asiakas, kiitos kun valitsit Grand Meyer -tuotteen. Olemme varmoja, että tuotteemme täyttää odotuksesi ja pitää kotisi lämpimänä.
Lue tämä ohje huolellisesti ennen asennuksen aloittamista.
Lattialämmitysjärjestelmän asennukseen liittyvien sääntöjen ja suositusten noudattamatta jättäminen voi johtaa järjestelmän toimintahäiriöihin tai sen tehon heikkenemiseen.

1. YLEISET MÄÄRÄYKSET JA SUOSITUKSET

Ennen lämmityskaapelin asentamista varmista, että valitsemasi järjestelmä sopii huonetilaasi sen pinta-ala huomioon ottaen.
Tämä ohje tutustuttaa sinut yksityiskohtaisesti Grand Meyer -lattialämmityksen asennukseen ja kytkentään, sillä järjestelmän pitkäaikainen toiminta riippuu oikeasta asennuksesta. Asenna järjestelmä tämän ohjeen mukaisesti.
Lämmityskaapelin asennuksen ja kytkennän saa suorittaa vain pätevä asiantuntija.

2. TARKOITUS

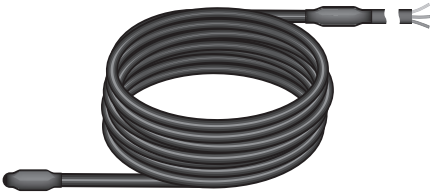
Grand Meyer -lattialämmitys on sähköinen kaapelilämmitysjärjestelmä huonelämmitykseen, joka asennetaan vähintään 3 cm paksuiseen sementti-hiekkalaastiin.
Grand Meyer -lattialämmitys, joka perustuu THC20-lämmityskaapeliin, on suunniteltu tuottamaan lämmitysmukavuutta huonetiloihin ja sitä käytetään:

- miellyttävän lattian pintalämpötilan varmistamiseen;
- tai tilan pääasiallisena lämmityksenä (ainoa lämmönlähde tai lisälämmitys).

Pääasialliseen lämmitykseen tarkoitettu lattialämmitysjärjestelmä tulisi kattaa vähintään 70 % huoneen kokonaispinta-alasta. Huonekorkeuden tulisi olla enintään 4 m.

3. LAITTEISTO *.

Grand Meyer -sarja, joka perustuu THC20-lämmityskaapeliin, sisältää:



1. Tehtaalla koottu lämmityskaapelisarja THC20, jossa 3 m kylmäkaapeli.

2. Aaltoletku Ø 16 mm, pituus 1,5 m, päässä tulppa. Putki toimii lämpötila-anturin asennuskanavana.

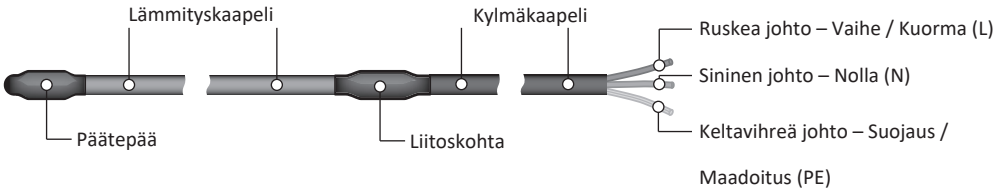
3. Asennus- ja käyttöohjeet.

4. Tehtaalla kootun lämmityskaapelisarjan THC20 tekninen tietolehti teknisine ominaisuuksineen.

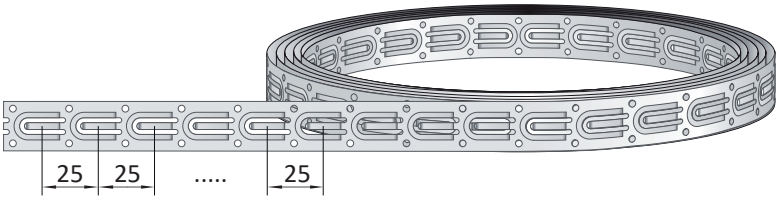
* Sarjaan tulee lisäksi valita huonetermostaatti (ei sisälly toimitukseen).

3.1. TEHTAALLA KOOTTU LÄMMITYSKAAPELISARJA

Tehtaalla koottu lattialämmityksen kaapelisarja (jäljempänä "lämmityskaapeli") perustuu kaksijohtoiseen, eristettyyn lämmitysjohdinpariin, ja se on varustettu 3 metriä pitkällä asennuskylmäkaapelilla, joka kytketään sähköverkkoon.
Kaapelin ominaisteho on 20 W/m käyttöjännitteellä ~230 V.
THC20-lattialämmityskaapelin tekniset tiedot esitetään taulukossa 1.



Kun lämmityskaapeli liitetään sähköverkkoon: ruskea ja sininen johto – lämmitysjohdinparit (kuorma), keltavihreä johto – suojavaippa (syöttöverkon maadoitusjohdin – PE).



The clamps are arranged with a constant pitch of 25 mm. This must be taken into account when calculating the laying step of the heating cable.

** Mounting tape is not included to the Grand Meyer THC20 underfloor heating cable set.*

4. BEFORE INSTALLATION.

Before you start installing the heating system, you need to make sure that you have chosen exactly the heating cable that is suitable for your room. The technical data of heating cables THC20 are given in section 3.1 (Table 1) of this Instruction.

It is necessary to lay the heating cables in such a way that subsequently furniture does not stand above them. Lay the heating cable on the area of the room, free from such furniture, taking into account the distance from the walls and furniture of 5 - 15 cm.

You can not use the same heating cable for heating rooms with different heat losses, for example, a bathroom and a hallway or kitchen. Also, do not use the same heating cable to heat rooms with floors of different floor surfaces, for example, partly covered with ceramic tiles and partly with laminate. In such rooms it is necessary to install separate heating cables 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. Heating cables with a power of more than 2 kW are recommended to be connected through special wiring and a separate automatic current.

Any heating cable must be connected through an RCD (Residual Current Device) whose rated operating current does not exceed 30 mA.

Table 2. Parameters of standard electric wire.

Conductor Material	Section, mm²	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 cable 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. DETERMINING THE INSTALLATION PLACE OF THE THERMOSTAT.

The thermostat must be located outside of high humidity areas. The recommended installation height is 0.8 m from the floor surface. It is desirable that the thermostat has easy access to change the temperature level or program settings.

4.2 THERMAL INSULATION.

In order to reduce heat loss for heating the floor, ground and other structures lying below your premises, before installing the underfloor heating system, 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 floor 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.

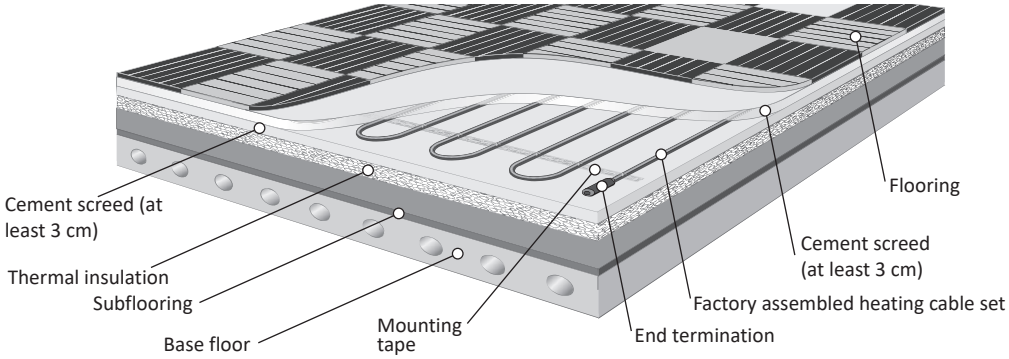
The insulation material is laid or glued to the concrete floor. To prevent deformation of the floor during heating, shock-absorbing strips of sheet foam are glued around the perimeter of the room. The thermal insulation layer is poured with a floor leveler and a screed is made.

Without additional thermal insulation, the heating time of the floor increases.

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 cable from the concrete base, as it increases the efficiency of the system.

4.3 RECOMMENDED CUT OF THE FLOOR HEATING.



Laminate, linoleum, carpeting, etc. can act as a decorative coating.

If ceramic tiles are used, they are usually attached to the screed with a heating cable using tile adhesive.

If ceramic tiles are used, the heating cable must not be laid directly into the tile adhesive layer, except for a cement screed. This can lead to cracking of the floor surface and failure of the heating cable.

If the floor heating system is used to ensure a comfortable temperature of the floor surface and there is a warm room below, for example, a city apartment (not the first floor), then the thermal insulation can not be laid.

4.4 INSTALLATION STEP OF THE HEATING CABLE.

Before starting installation, after choosing the heating cable you need, you need to determine its laying step, which can be calculated using the formula:

STEP laying (см) = (100 x S) / L cable, where

S - is the actual area on which the heating cable is laid ($м^2$),

L cable - is the length of the heating cable (m).

The calculated laying step is rounded up to a multiple of 2,5 cm, since the clamps on the applied mounting tape, into which the heating cable is attached, are located 2,5 cm apart.

It should be noted that the above formula does not take into account the length of the cable bends at the turns.

For a more correct calculation of the heated area, we recommend to use the drawing software.

Depending on the specific power (type of heating - maintaining a comfortable floor temperature or main heating) of the heating cable system, the heating area and the step of laying the heating cable depend. This dependence is shown in Table 3.

Table 3. Recommendations for the selection of heating cables.

Article	Length, m	Power, W	Max. heating area ($м^2$) at laying step (specific power, $W/м^2$)				
			7,5 см 267 $W/м^2$	10 см 200 $W/м^2$	12,5 см 160 $Вт/м^2$	15 см 133 $W/м^2$	17,5 см 114 $W/м^2$
THC20-10	10	200	0,75	1,00	1,25	1,50	1,75
THC20-15	15	300	1,13	1,50	1,88	2,25	2,63
THC20-23	23	460	1,73	2,30	2,88	3,45	4,03
THC20-32	32	640	2,40	3,20	4,00	4,80	5,60
THC20-45	45	900	3,38	4,50	5,63	6,75	7,88
THC20-57	57	1 140	4,28	5,70	7,13	8,55	9,98
THC20-70	70	1 400	5,25	7,00	8,75	10,50	12,25
THC20-85	85	1 700	6,38	8,50	10,63	12,75	14,88
THC20-98	98	1 960	7,35	9,80	12,25	14,70	17,15
THC20-115	115	2 300	8,63	11,50	14,38	17,25	20,13
THC20-160	160	3 200	12,00	16,00	20,00	24,00	28,00

5. INSTALLATION.

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

The heating cable is laid on open flooring surfaces. The laying step must be such that the power per unit area corresponds to the calculated one - see section 4.4 (table 3) of this Instruction.

The heating cable is laid on a flat floor base, without significant protrusions and height differences. If there are protrusions and height differences, the thickness of the subsequently poured screed will be different over the entire floor heating area, which will lead to uneven heating of the floor.

For correct and reliable fastening of the heating cable, a mounting tape with a fixing pitch of 2,5 cm is used (see cable 3.3). The mounting tape is attached to the floor in any way - with nails, dowels, glue, etc., in increments of 50 - 150 cm, depending on the configuration of the room. Permissible bending diameter of the fixed cable - 6 cm.

The distance between the lines of the heating cable should be no more than 18 cm, otherwise a temperature difference will be felt on the floor surface - alternation of warm and cold zones. For wet rooms, a laying step of no more than 15 cm is recommended.

Between the lines of the heating cable, a corrugated tube is laid and fixed, inside which a temperature sensor is installed. Along the corrugated tube in the wall, the sensor, together with the installation conductor of the heating cable, is led to the place where the thermostat is installed. The corrugated tube must be plugged from the side of the sensor to prevent the solution and moisture from getting inside when pouring the screed.

Immediately after the installation of the floor heating is completed, it is necessary to draw the final laying plan with binding in place, indicating the location of the joint and end sleeves, temperature sensor, lines of the heating cable.

The laid and securely fixed heating cable is poured with a cement screed, the thickness of which should be from 30 to 50 mm.

Cement screed should not have sharp stones and air pockets, so as not to damage the heating cable and prevent it from overheating.

In the process of laying the heating cable it is necessary to control the integrity of the cable and the corrugated tube.

Attention!

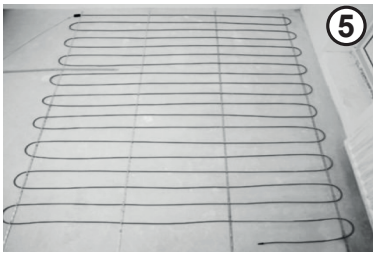
It is forbidden to turn on the heating cable until the screed is completely hardened. Generally, this time is 30 days.

5.1 STEP-BY-STEP INSTALLATION GUIDE.

1. Cut through a 2,5 x 2,5 cm heating cable 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. 1).

2. Clean the base on which the heating cable is laid from garbage and sharp objects (Fig.2).

3. Fasten the mounting tape to the floor (Fig. 3).



4. Lay out the heating cable evenly in loops over the surface of the entire floor, avoiding pipes and areas intended for bathrooms, cabinets, etc. Fasten the heating cable to the mounting tape using special clamps. The lines of the heating cable must not intersect or touch each other (Fig. 4, 5).

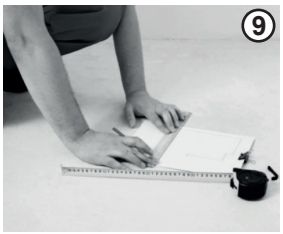
To prevent longitudinal movement of the heating cable due to heating during operation, it should be laid in one direction for a length of no more than 6 m.

5. After laying the heating cable, check electrical resistance measure. The electrical resistance of the heating cable must match the specified in the technical data sheet for the heating cable. Allowed deviation from the specified parameters -5% - +10% at t = 20±1^{o}C (Fig. 6).

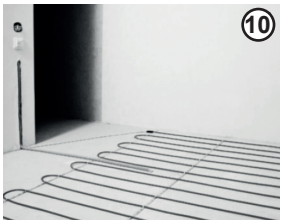
6. Place the floor temperature sensor in a corrugated pipe, plugged at one end to prevent mortar and moisture from getting inside when pouring the screed, and place it between the heating cable lines on the open side of the loop at a distance of 50 - 60 cm from the wall (Fig. 7).

Lay the corrugated pipe with cold lead of the heating cable in a chase in the wall leading to the junction box.

7. Connect the cold lead of the heating cable with the room thermostat. (Fig. 8).



8. Draw the room plan with heated area location, indicating the heating cable end and splices, temperature sensor and the place of connection to the power supply (Fig. 9). If heating cable breakdown will be made during installation, it will helps to identify breakpoint to fix the heating cable.



9. After installation (Fig. 10), lay the cement screed on the heating cable. The heating cable, end and splices must be completely filled. In case of incorrect filling or poor-quality of the screed, air pockets can form around the cable which can lead to an excess of the permissible temperature on the cable surface and, consequently, to its damage.

10. Check measure of the electrical resistance of the heating cable after pouring the screed again.

11. After the screed has completely hardened (usually 30 days), you can turn on the warm floor.

6. STARTING USE THE UNDERFLOOR HEATING.

You can turn on floor heating after the tile adhesive has completely dried (you can specify this parameter in the technical specifications on the package of the tile adhesive). 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.

7. OPERATING RULES AND SAFETY.

- The braided shield of the heating cable 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 cable is installed, there should not be any other coatings and objects (carpets, blankets, etc.) that prevent heat transfer, to avoid cable overheating.
- The heating cable 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 cable, 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 scr ews, etc.) in order to avoid damage to the heating cable 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 heating cable 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 cable rolled into a roll into the electrical network.

- It is forbidden to connect heating cable to the electrical network, the voltage in which does not correspond to the operating voltage specified in the technical data sheet for the heating cable.
- The heating cable must be connected by a qualified certified electrician.
- During installation, the heating cable must not be exposed to oil, grease or other similar substances.
- To avoid mechanical damage to the heating cable, installation must be carried out in shoes with soft springy soles or cover the surface with the heating cable 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 cable 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 cable are not allowed.
- It is forbidden to subject the floor surface under which the heating cable are installed to any mechanical influences.
- If any of the above requirements is violated, the manufacturer will void the warranty.

8. WARRANTY.

The manufacturer guarantees the operation of the THC20 heating cable 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 cable 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 cable, splice, end sleeves and floor temperature sensor.

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

MANUFACTURER:

SIA «PRIOTHERM»

Address: st. Augusta Deglava 50, Riga, LV-1035, Latvia.
info@grand-meyer.com
www.grand-meyer.com

9. WARRANTY CERTIFICATE.

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

Room type _____

Total room area _____ m²

Floor heating is installed on the square _____ m²

Heating cable _____
(Article)

Presence of thermal insulation (YES/NO), its type and thickness _____
(cross out the unnecessary)

Sale made _____

Contact number _____

Date of sale _____ 20____ r. Seller _____
(signature)

Shop stamp Buyer _____
(signature)

System installed _____

Contact number _____

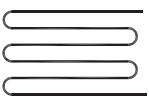
Installation date _____ 20____ r. Installer _____
(signature)

The floor plan is attached.

Room plan.

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

Type codes



Heating cable

Corrugated tube for temperature floor sensor

Temperature Sensor

Room Thermostat

Connection Splice

End Termination

R heating cable ..... Ohm

R sensor ..... Ohm

FOR NOTES