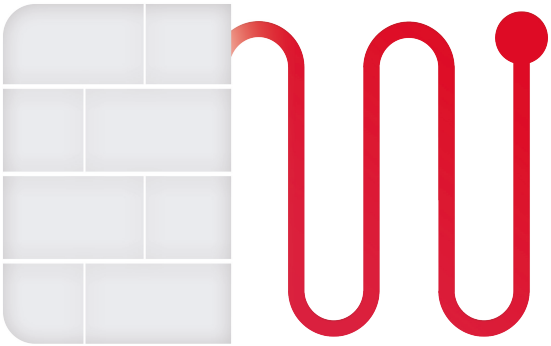
COMPUTHERM
HC20



ELECTRIC HEATING CABLE

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1. *COMPUTHERM HC20* ELECTRIC HEATING CABLE GENERAL INFORMATION

The ***HC20*** electric heating cable is produced in different sizes: 10 m, 20 m and 50 m, which with the help of their dimensional characteristics, provide covering rooms with different features. The ***COMPUTHERM HC20*** electric heating cable is suitable for both main and additional heating. In the case of direct heating, the product can be installed in the tile adhesive or screed layer, but it can also be installed in a concrete layer, which can be used in case of heat storage heating systems. It can be installed both when renovating old flooring and laying new flooring.

For the control of the heating cable, a thermostat suitable for controlling electric heating cables is required. In order for the product to function properly, the appropriate voltage and current should be provided, and the thermostat should also have a suitable maximum load capacity.

2. BEFORE INSTALLING THE HEATING CABLE

2.1. Choosing the right product size

Calculate the useful area of the floor surface to be heated, in which the bathtub, shower cabins, furniture, etc. are not included. When calculating the useful floor area, do not deduct the area of furniture that are at least 6 cm above the ground, because under them the heat release can work properly. Use the table below to select the appropriate size of the heating cable/ heating cables. If you need a lower heating power than 150 W/m^2, then increase the laying distance by the same ratio.

	HC20–10	***HC20–20***	***HC20–50***
Length	10 m	20 m	50 m
Power (consumption)	200 W	400 W	1000 W
Resistance	264.5 Ohm	132.25 Ohm	52.9 Ohm
Supply current	0.87 A	1.74 A	4.35 A
Heating surface	1.3 m^2	3.3 m^2	6.7 m^2
Laying distance (for a power of 150 W/m^2)	13.3 cm	13.3 cm	13.3 cm

If you cannot use a single heating cable for the entire surface coverage, you can use several heating cables parallel to implement it. Design the direction you want to place the heating cables. Cutting, splicing and crossing the heating cable is strictly prohibited, so be sure to buy a product in a size that fits exactly in the room.

2.2. Security checks

After unpacking the product, check that it is the right product in the packaging. After that, measure the resistance of the heating cable, which may differ by a maximum of ±5% from the values given in the table above. Ensure that the heating cable voltage rating is suitable for the service voltage available in the room. Use of appropriate layering is a prerequisite for the safe

and efficient operation of the heating cable, make sure, that the conditions are met. You will find help for applying the correct layer order in the **2.3.** and **2.4.** chapters. Check the product for signs of damage, possible material errors and deficiencies. It is forbidden to install a damaged or defective product or repair it at home. Clean the working area, because possible debris and contamination can cause the product's improper operation or failure. It is important that the working place should comply with all applicable protocols (e.g. setting time of subgrade concrete), because ignoring them, like premature installation and commissioning can damage the structure of the floor.

2.3. Getting to know the prescribed layer order

For the proper functioning of the heating cable, the optimal delivery of its heating power, and its extended service life, it is essential to use the appropriate layering order.

2.4. Layer order for underfloor heating

From bottom to top, the first layer is the concrete subfloor, which is followed by the dimensioned thermal insulation layer (important, because otherwise a large heat loss must be expected). The product must not contact the thermal insulation, it must be placed directly above the separating concrete layer of the thermal insulation. You can place the floor sensor in a layer of concrete. It is recommended to place it in a protective tube with a closed end for later installability. We must use a waterproof layer, the screed must be surface-treated with a deep primer and adhesive bridge for proper adhesion. Over these layers, install the ***COMPUTHERM HC20*** electric heating cable. In case of a tiled surface, the tile adhesive is applied to the heating cable, followed by the flooring. In the case of other, direct surface heating, for example PVC, laminate floor, boat floor, etc., the application of a thin estrich layer is recommended.

The suggested layer order, from bottom to top:

1. Concrete subfloor
2. Scaled thermal insulation layer
3. Screed with a deep primer and surface-treated with adhesive bridge
4. Floor sensor placed in the screed (in a protective tube with a closed end)
5. The ***COMPUTHERM HC20*** heating cable
6. Tile adhesive or thin estrich layer (in case of PVC, laminate floor, boat floor, etc.)
7. Flooring

2.5. Layer order for underfloor heating with heat storage

From bottom to top, the first layer is the concrete subfloor, followed by the dimensioned thermal insulation layer (important, because otherwise a large heat loss must be expected). The product must not contact directly with the thermal insulation, it is recommended to attach it to a rebar mesh and position it in the heat-storing concrete layer at the center of its thickness. With this, it is possible to provide the heating of the room with a time-of-day electricity charge, e.g. with the help of night electricity. The heating cable embedded in concrete is followed by the waterproof layer in the layer order. After that, glue or estrich can be applied, depending on the type and quality of the final flooring.

The suggested layer order, from bottom to top:

1. Concrete subfloor
2. Scaled thermal insulation layer
3. **COMPUTHERM HC20** heating cable and floor sensor attached to concrete steel (in a protective tube with a closed end)
4. Screed
5. Tile adhesive or thin estrich layer (in the case of PVC, laminate floors, boat floors, etc.)
6. Flooring

3. SAFETY WARNINGS

- The product is suitable for both indoor and outdoor heating.
- Do not install defective or damaged heating cables. It is prohibited to install damaged or defective products or to repair them at home.
- This product must be installed by a qualified person in accordance with this installation guide, the instructions must be adhered to in order to avoid personal injuries or property damages, serious injuries and potentially fatal electric shocks.
- Control the heating cable with a suitable thermostat.
- The product is earthed, so be sure to connect the earth wire as well.
- Entrust the installation and commissioning to a professional.
- For installation, use wires suitable for the power consumption.
- The surface on which the cable is installed must be free of any debris, protruding nails and screw heads, etc. that may damage the heating cable.
- Do not combine/connect the heating cable with other types of devices or heating elements.
- Install at a minimum temperature of +5 °C.
- Make sure to use the product according to the instructions. For safety reasons, the underfloor heating system cannot be built into a wall or other covered surface, only into the floor.
- **NEVER CUT THE HEATING CABLE!** If you need a shorter cable choose a different size heating cable.
- The heating section of the cable must never touch or cross over itself. Always keep a minimum of 5 cm space between cables.
- The manufacturer will assume no responsibility for any possible direct or indirect damages or income losses incurring during the use of the device.

4. INSTALLATION PROCESS

- As a first step, measure the resistance on the heating cable(s) and record the values obtained. Repeat this process after laying the heating cables and after the end of the installation too.
- In order to prepare the place of installation, if you had an old floor heating, remove all items of it. Make sure the surface is even, if necessary, level the surface.
- Provide a protective tube for the wire located in the wall, in which you'll line the wire for the thermostat. If you don't have this option, you can use a cable channel. Always use a protective pipe in the floor to place the sensor.
- To connect the heating cable and the cold end, make a recess. The concrete layer must entirely cover the cable with a thickness of at least 10 mm. Pay attention to the applied layer order and its thickness.

- For safe usage, we recommend to use a floor sensor. Create a recess and a cable outlet suitable for placing your protective tube, with the help of which you can lead the cable to the room thermostat.
- Clean the installation area, it must be clean, solid and dry. Also, it must be free of any debris, protruding nails and screw heads, etc. that may damage the heating cable.
- Place the heating cable on the concrete layer. Pay attention that the turns shall be at equal distances from each other. Preventing the heating cable from moving, fix it on the concrete layer.
- Place and fasten the floor sensor between two heating cables at the same distance.
- The second part of the resistance measurement: Measure the resistance of the heating cable and also the heating cable insulation. When measuring the insulation, the resistance between the phase/neutral and the ground wire must be infinite. If you find a mismatch and the previously recorded data, it is likely that the product is damaged. In such a case its installation is prohibited. If you found everything alright, you can continue the installation.
- The subgrade leveling, paving adhesive or concrete mix must not contain sharp materials.
- Be sure to apply the screed layer carefully to prevent the heating cable from displacement. In order to avoid damage, we recommend that you first cover the heating cable with the screed and let is try before starting to lay the flooring. Spreading the tile adhesive or floor adhesive also requires increased attention, considering that the product might be damaged. The thickness of the tile adhesive should be the same as that of the flooring manufacturer regulations and be sure to cover the heating cable. In the case of embedding in a concrete layer, pay attention to use the right thickness of the concrete layer and to not damage the heating cable.
- Be careful during the installation process, do not use tools which can damage the heating cable. Do not place a jar full with glue, screed or concrete mix on the heating cable, because it can damage the heating cable due to its weight and edges.
- Pay attention to the setting time of the adhesive or concrete layer, which is a minimum of 14 days. In order to avoid the damage of the floor structure and failure of the heating cable, do not expose the surface to load during the setting time, and don't use the heating cable. When embedding in a layer of concrete, wait until the concrete has completely hardened.
- After installation, measure the product and the insulation resistance again. The measured data must match the previously measured data. If they do not match, it is likely that the product is damaged. Using damaged heating cable is prohibited.

5. OPERATION AND MAINTENANCE

You installed the heating cable in the useful area of the room during the planning process. It's important to pay attention on exactly which areas it covered. The posterior placement of furniture in the useful area can represent a potential danger in terms of overheating of the floor heating. If the installed furniture or any household appliance is located at a height at least 6 centimeters from the ground, and air can flow between it and the floor, then it is unlikely that the underfloor heating system will overheat or get damaged.

6. TECHNICAL DATA

	HC20–10	***HC20–20***	***HC20–50***
Supply voltage	230 V AC	230 V AC	230 V AC
Supply current	0.87 A	1.74 A	4.35 A
Power consumption	200 W	400 W	1000 W
Electrical resistance	264.5 Ohm	132.25 Ohm	52.9 Ohm
Length	10 m	20 m	50 m
Maximum heating temperature*	82 °C	82 °C	82 °C
Protection against environmental impacts	IP67	IP67	IP67

* The maximum heating temperature is the surface temperature of the product under normal conditions and constantly turned on status.

The **COMPUTHERM HC20** type heating cable complies with directives EMC 2014/30/EU, LVD 2014/35/EU, and RoHS 2011/65/EU.

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