

## Installation Instructions – Carbon Heating Foil for Floor Heating

Please follow all installation and safety instructions carefully to ensure safe operation and efficient heat distribution.

### CARBON HEATING FILM 36 V – WIRING AND LENGTH LIMITS FOR FLOOR HEATING

To ensure safe operation and even heat distribution, the following rules must be followed.

**1 POWER AND TOTAL LENGTH PER HEATING CIRCUIT**

Heating films can be connected in series (one after another).

- Power: 119 W per meter (at 36 V)
- Max. heating circuit length: 8.0 m
- $8.0 \text{ m} \times 119 \text{ W/m} = 952 \text{ W}$
- Current at 36 V: approx. 26.4 A
- This current requires a cable cross-section of 2.5 mm<sup>2</sup>.

**IMPORTANT:**  
If the total length exceeds 8.0 m, the current increases.  
The cable cross-section is then no longer sufficient.  
→ Risk of overload and unacceptable heating!  
→ For longer lengths: divide into multiple heating circuits.

**CALCULATION:**  
 $8.0 \text{ m} \times 119 \text{ W/m} = 952 \text{ W}$   
  
At 36 V = approx. 26.4 A  
  
→ 2.5 mm<sup>2</sup> sufficient

**2 MAXIMUM LENGTH OF A SINGLE HEATING STRIP: 3.50 m**

A single heating strip must not be longer than 3.50 m.

- Longer lengths can cause voltage drops within the strip.
- This results in uneven heating.
- The end of the strip has significantly lower output.

**IMPORTANT:**  
Lengths over 3.50 m lead to uneven heat distribution and are not permitted.

**✓ CORRECT INSTALLATION – EXAMPLES**

**Example 1: Total length ≤ 8.0 m and single strips ≤ 3.50 m**

Total length: 3.00 m + 2.50 m = 5.50 m ✓

**Example 2: Dividing into multiple circuits for longer total lengths**

Circuit 1 (6.50 m) ✓  
Circuit 2 (6.00 m) ✓

**NOTE:** For longer total lengths, always use a suitable cable cross-section (2.5 mm<sup>2</sup>) and divide the area into multiple heating circuits.

**✗ NOT ALLOWED – EXAMPLES**

**Example 1: Single strip > 3.50 m (not allowed)**

Not allowed: A single heating strip longer than 3.50 m → uneven heating!

**Example 2: Total length > 8.0 m (not allowed)**

Not allowed: Total length exceeds 8.0 m → current too high → cable cross-section of 2.5 mm<sup>2</sup> is no longer sufficient!

**LEGEND:**

- Heating film
- Connection contact
- + 36 V DC (Plus)
- 0 V DC (Minus)

**IMPORTANT NOTES:**

- Only the side copper busbars are live (power-carrying).
- Penetrations (e.g. for screws, plugs, sockets) are possible in the heating area, but not in the copper busbar area.
- All connections must be properly made and permanently insulated.

**SUMMARY:**

- Max. 3.50 m per single heating strip
- Max. 8.0 m total length per heating circuit (with 2.5 mm<sup>2</sup> cable)
- For larger areas: divide into multiple heating circuits or use a larger cable cross-section

Technical diagram: 36 V carbon heating foil – wiring and length limits for floor heating

### 1. Preparation of the Subfloor

The subfloor must be dry, stable, and load-bearing. Ensure that sufficient insulation is installed beneath the screed to guarantee efficient heat transfer. Installation temperature must be above 10°C.

### 2. Marking the Heating Areas

Mark the position of the heating mats on the floor. Please note that the maximum heating output per heating circuit is 1000 watts or 8 meters of heating foil.

### 3. Planning Cable Routes

Mark the cable routes for the power supply cables from the control box to the heating foil.

### 4. Preparing Cable Channels

Create channels in the floor for the power supply cables.

## **5. Electrical Wiring**

Install the power cables (2.5 mm<sup>2</sup>) from the control box to the heating foils.

## **6. Making Electrical Connections**

Connect the crimp connectors to the cables.

## **7. Installing the Heating Foil**

Bond the heating foil securely to the previously marked positions on the floor. Connect the crimps securely to the heating foil and ensure proper contact. The temperature sensor must be installed underneath the heating foil.

## **8. Connecting the Heating Circuits**

The individual heating strips are connected in series. Continue connecting the remaining heating strips using cable and crimp connectors.

## **9. Resistance Measurement**

Measure the electrical resistance of each heating area. If all measured values are correct, the installation may continue.

## **10. Covering the Heating System**

Once the resistance values are confirmed, the heating surface may be covered with filler compound or leveling compound.

## **11. Wiring and Safety**

Ensure that all electrical connections are installed professionally and safely.

## **12. Temperature Sensor and Thermostat**

Install the temperature sensor underneath the heating foil to ensure safe and efficient operation. Install a thermostat to control the floor heating system and maintain comfortable room temperatures.

## **13. Insulation Beneath the Heating Foil**

Ensure that the heating foil is installed on thermally insulating material in order to minimize energy losses and maximize efficiency.

## **14. Bonding and Fixing**

Ensure that the heating foil is bonded firmly and evenly to achieve optimal heat distribution. Avoid air pockets beneath the foil, as these can negatively affect heat transfer.

## **15. Installation in Wet Areas**

If the heating foil is installed in wet areas such as bathrooms, ensure that the foil and all electrical components are properly protected against moisture (observe the required IP protection class).

## 16. Checking Heating Output

Ensure that the installed heating area provides sufficient heating output for the room.

## 17. Drying Time

Allow the bonded and covered (skim-coated) heating foil to dry sufficiently before installing the final floor covering (such as tiles or laminate) in order to avoid damage to the heating foil or insulation.

## Important Information Regarding Floor Coverings

Approval from the floor covering manufacturer is mandatory.

The manufacturer must be explicitly informed that the system is an electric floor heating system.

**Following these steps will ensure an efficient and safe installation of the floor heating system.**

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