

# Installation Instructions – Carbon Heating Foil for Wall and Ceiling Installation

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

## CARBON HEATING FOIL 48 V – WIRING AND LENGTH LIMITS

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

**1 MAXIMUM TOTAL LENGTH PER HEATING CIRCUIT: 5.5 m**  
Multiple heating foils can be connected in series (one after another).

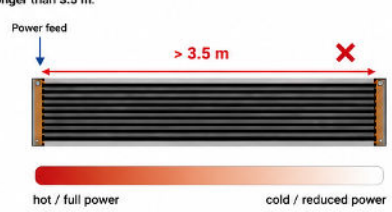
- Power: 213 W per meter
- 5.5 m x 213 W/m = 1,170 W
- Current at 48 V: approx. 24 A
- This current is matched for a cable cross-section of 2.5 mm<sup>2</sup>.

**IMPORTANT:**  
If the total length exceeds 5.5 m, the current increases.  
The cable cross-section is then no longer sufficient.  
→ Risk of overload and unacceptable heating!  
→ For longer lengths: choose a larger cross-section or divide into multiple circuits.

**CALCULATION:**  
5.5 m x 213 W/m = approx. 1,170 W  
  
At 48 V = approx. 24 A  
  
→ 2.5 mm<sup>2</sup> sufficient

**2 MAXIMUM LENGTH OF A SINGLE HEATING STRIP: 3.5 m**  
A single heating strip must **not** be longer than 3.5 m.

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

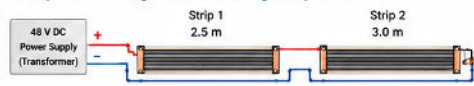


**IMPORTANT:**  
Lengths over 3.5 m lead to uneven heat distribution and are not permitted.

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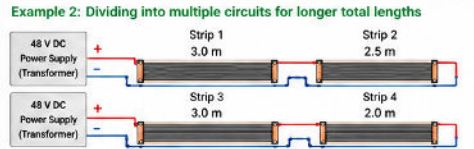
**✓ CORRECT INSTALLATION – EXAMPLES**

**Example 1: Total length ≤ 5.5 m and single strips ≤ 3.5 m**



Total length: 2.5 m + 3.0 m = 5.5 m ✓

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

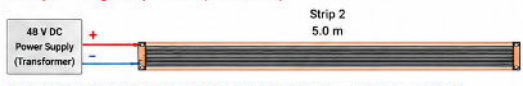


Circuit 1 (5.5 m) ✓  
Circuit 2 (5.0 m) ✓

**NOTE:** For longer total lengths, always use a suitable cable cross-section or divide the area into multiple heating circuits.

**✗ NOT ALLOWED – EXAMPLES**

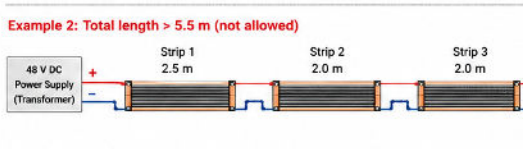
**Example 1: Single strip > 3.5 m (not allowed)**



✗

**Not allowed:** A single heating strip longer than 3.5 m → uneven heating!

**Example 2: Total length > 5.5 m (not allowed)**



Total length: 6.5 m ✗

**Not allowed:** Total length exceeds 5.5 m → current too high → cable cross-section of 2.5 mm<sup>2</sup> is no longer sufficient!

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**LEGEND:**

- Heating foil
- Connection contact
- + 48 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. 3.5 m per single heating strip
- Max. 5.5 m total length per circuit (with 2.5 mm<sup>2</sup>)
- For larger areas: divide into multiple circuits or use a larger cable cross-section

Technical diagram: Wiring and length limitations for 48 V carbon heating foil

### 1. Surface Preparation

The surface must be dry, stable, and load-bearing. For ceiling installations, ensure that the ceiling structure is sufficiently stable. Remove dust, dirt, and oil before installation. Use primer if necessary.

### 2. Marking the Heating Areas

Mark the installation positions of the heating foils on the wall or ceiling. Maximum total heating circuit length with 2.5 mm<sup>2</sup> cable: 5.5 m.

### 3. Planning Cable Routes

Plan cable routes from the control box to the heating foil carefully to avoid damage to the foil.

#### 4. Preparing Cable Channels

Create suitable cable channels in the wall or ceiling for the power supply cables.

#### 5. Electrical Wiring

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

#### 6. Making Connections

Connect the crimp connectors securely to the cables.

#### 7. Installing the Heating Foil

Bond the heating foil evenly without air pockets. Secure all crimp connections properly.

#### 8. Connecting Heating Strips

The heating strips are connected in series. Maximum single strip length: 3.5 m. Maximum total circuit length: 5.5 m.

#### 9. Resistance Measurement

Measure the electrical resistance of each heating surface before covering.

#### 10. Covering the Heating Foil

After testing, the heating foil may be covered with gypsum plaster or filler compound.

#### 11. Electrical Safety

Ensure all electrical connections are professionally insulated and protected.

#### 12. Thermostat Installation

Install a thermostat to regulate room temperature efficiently and safely.

#### 13. Thermal Insulation

Install the heating foil on thermally insulating material to minimize heat loss.

#### 14. Bonding and Fixing

Avoid air pockets beneath the foil to ensure proper heat transfer.

#### 15. Installation in Wet Areas

In wet rooms, ensure compliance with the required IP protection class.

#### 16. Heating Output Check

Verify that the installed heating surface provides sufficient heating capacity.

#### 17. Drying Time

Allow sufficient drying time before skim coating, painting, wallpapering, or cladding.

**Following these instructions will ensure safe and efficient installation of the carbon heating foil system.**

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