

INSTALLATION GUIDE

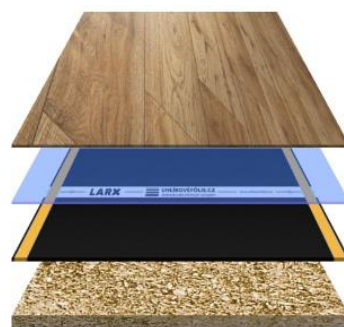
Your new heating system

Thank you for your order of the CARBON-FILM.COM heating system! In the case of any questions or troubles during the installation feel free to contact us. You will find all contacts in our website www.carbon-film.com

INSTALLATION RECOMMENDATION

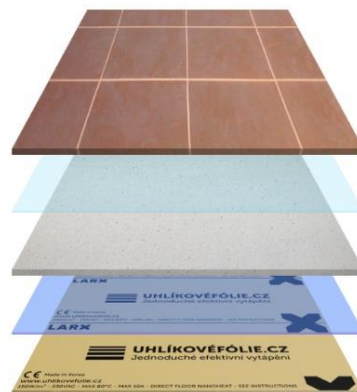
Application directly under floating flooring

1. Flooring with click system, cannot be glued or ceramic tiles (flooring must be suitable for electric floor heating)
2. Protective PE film, thickness 0.2 mm
3. **LARX Carbon Film, thickness 0.4 mm (LARX-CF100W050S)**
4. Acoustic insulation / Hobra, thickness min. 5 mm (server also as thermal insulation and connectors and cables are laid into cut grooves in this insulation)
5. Even solid subfloor



Application under screed or system floor boards

1. Any flooring or ceramic tiles (flooring must be suitable for electric floor heating)
2. Concrete or anhydrite screed, thickness min. 45 mm, or system floor boards, thickness min. 25 mm
3. Separation film with glued overlaps and dilatation
4. Protective PE film, thickness 0.2 mm
5. **LARX Resilient Carbon Film, thickness 0.7 mm (LARX-RF150W050S)**
6. Optional protective PE film, thickness 0.2 mm
7. Thermal insulation (polystyrene or Hobra)



Tips for correct installation

It is recommended to measure the room and prepare a plan before the installation. The strips of LARX Carbon Film are laid with only a minimum gap in between. It is suitable to leave 10-15 cm gap around the walls. LARX Carbon film strips are not laid under known positions of kitchen and built-in furniture. We recommend laying them under all other pieces of furniture – position or size of the furniture can change in the future. Most important part of the installation is a quality execution if the connectors and their insulation.

Heating check after the installation

Heating system must be checked at least once – after connection and covering by the protective PE film. The control has two parts. Measurement of the heating circuit and test heat. Test heat is carried out after connecting the circuit to the mains (can be temporary). We recommend using a thermal camera or a contactless thermometer and check all strips. Electrical resistance of the circuit is measured by a multimeter on the power cables. Before measuring, calculate the correct value using this formula (tolerance 10 %).

$$[\text{electrical resistance of the heating circuit}] = [\text{voltage}]^2 / ([\text{installed heating area}] * [\text{power per area}])$$

Example: Installed area 5 m² of LARX Resilient Carbon Film. Electrical resistance = (230 * 230) / (5 * 150) = 71 ohms.

HEATING REGULATION

LARX Carbon Film is a resistance heating element. It is regulated 0/1, power switched on or off. The best way of regulation is a thermostat for electric floor heating. It must have a floor temperature sensor limiting maximum floor temperature. Ideal solution is LARX LCD or Wi-Fi Thermostat. The strips of LARX Carbon Film can be connected in parallel up to maximum current 10 A or 16 A (it depends on the power cable dimension). Each heating circuit must have a separate breaker in the switchboard. Bathrooms and similar rooms must have also an RCD and a grounding net.

FIRST HEATING

The process of the first heating must be conducted, even if it is a long time since the floor has been concreted. Heating can be started not earlier than 7th day since realization of the anhydrite floor and 25th day since realization of the concrete floor. Maximum temperature on the floor sensor is 45 °C. Room temperature is set to 35 °C during the first heating. Then the floor temperature is set by raising and decreasing the floor temperature limit of the thermostat.

Application directly under flooring

1. On the first day, set the room temp. to the actual room temp., however maximum 18 °C.
2. In the following days raise the floor temp. by 2 °C per day up to 28 °C.
3. For three days, keep the floor temperature at 28 C.
4. In the following days decrease the floor temp. by 4 °C per day down to 20 °C.

Application under screed or boards

1. On the first and second day set the floor temp. to 20 °C. Since the third day raise the temp. by 5 °C per day up to 35 °C.
2. Downturn starts on the next day after reaching 35 °C. Decrease the floor temp. by 5 °C per day down to 20 °C.
3. If the first heating is conducted in winter, recommendation is to start at floor temp. 15 °C and raise to 20 °C on the next day.

APPROXIMATE DEMAND FOR THE MATERIAL

| | Application directly under flooring LARX-CF100W050S | Application under screed or boards LARX-RF150W050S |
|--|--|--|
| Power cables LARX-WBROWN/WBLUE | 2,9 m per strip or approx. 1 m per 1 m Carbon Film, area 1,5 mm ² | 2,9 m per strip or approx. 1 m per 1 m Carbon Film, area 2,5 mm ² |
| Butyl tape for insulation LARX-BT005S020L | 0,5 m per strip or approx. 0,18 m per 1 m Carbon Film | 1,5 m per strip or approx. 0,52 m per 1 m Carbon Film |
| Connectors LARX-CLAMP001X20P | 2 pcs per strip or approx. 0,69 pcs per 1 m Carbon Film | 2 pcs per strip or approx. 0,69 pcs per 1 m Carbon Film |
| Tape LARX-UF-IZOLEPA | 1 pc per 50 m Carbon Film | 1 pc per 50 m Carbon Film |
| Clips LARX-STAPLES001X50P | | 6 pcs per strip or approx. 2,1 pcs per 1 m Carbon Film |

IMPORTANT MANUALS AND VIDEOS

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| <p>LARX Carbon Film 100 W/m² PDF manual</p> <p>carbon-film.com/ manual_CF100W050S/</p>  | <p>LARX Carbon Film 100 W/m² Installation video</p> <p>youtu.be/ TG4OtSXHUZ4</p>  |
|  <p>LARX Carbon Film 180 W/m² PDF manual</p> <p>carbon-film.com/ manual_CF180W050S/</p> |  <p>LARX Carbon Film 180 W/m² Installation video</p> <p>youtu.be/ TG4OtSXHUZ4</p> |
| <p>LARX Resil. Carbon Film 150 W/m² PDF manual</p> <p>carbon-film.com/ manual_RF150W050S/</p>  | <p>LARX Resil. Carbon Film 150 W/m² Installation video</p> <p>youtu.be/ aLHE291evck</p>  |
|  <p>LARX Carbon Film Warranty Certificate</p> <p>carbon-film.com/ warranty_certificate_partners/</p> |  <p>LARX Carbon Film Complaints Procedure</p> <p>carbon-film.com/ complaints_procedure_partners/</p> |
| <p>LARX LCD Thermostat PDF manual</p> <p>carbon-film.com/ manual-LCD-thermostat/</p>  | <p>LARX LCD Thermostat Installation video</p> <p>youtu.be/ RJJuW0REM38</p>  |
|  <p>LARX Wi-Fi Thermostat PDF manual</p> <p>carbon-film.com/ manual-WIFI-thermostat/</p> |  <p>LARX Wi-Fi Thermostat Installation video</p> <p>youtu.be/ KncxGaPJdDI</p> |