

Floor heating **LARX** Carbon Kit

Installation manual

A simple solution for efficient heating in households

For dry or wet installation



 **CARBON-FILM.COM**

LARX Carbon Kit **Variants**

LARX Carbon Kit type	Width [m]	Length [m]	Area [m ²]	Power per area [W/m ²]	Power [W]	Electrical resistance [Ω]
LARX-CK150W050S080L	0,5	0,8	0,4	150	60	882
LARX-CK150W050S120L	0,5	1,2	0,6	150	90	588
LARX-CK150W050S160L	0,5	1,6	0,8	150	120	441
LARX-CK150W050S200L	0,5	2,0	1,0	150	150	353
LARX-CK150W050S240L	0,5	2,4	1,2	150	180	294
LARX-CK150W050S300L	0,5	3,0	1,5	150	225	235
LARX-CK150W050S340L	0,5	3,4	1,7	150	255	207
LARX-CK150W050S400L	0,5	4,0	2,0	150	300	176
LARX-CK150W050S440L	0,5	4,4	2,2	150	330	160
LARX-CK150W050S500L	0,5	5,0	2,5	150	375	141

LARX Carbon Kit power tolerance is 15 %.

Package content

- › LARX resilient heating film (1 stripe) with power cables
- › Installation manual and Warranty certificate

Mandatory installation conditions

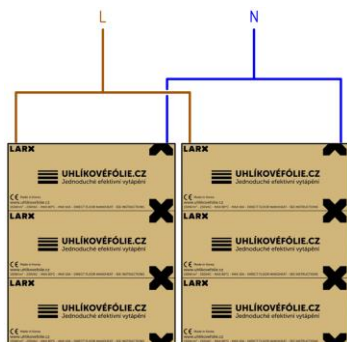
- › LARX Carbon Kit must be installed and used according to the valid local standards and requirements in that country.
- › LARX Carbon Kit is designed to be installed dry or wet way. It must be fixed to the ground in a suitable way to prevent its displacement.
- › Inside the floor construction under LARX Carbon Kit must be a waterproofing to prevent raising humidity to LARX Carbon Kit. Humidity of the ground must be less than 2 %. LARX Carbon Kit must not be installed on constructions with excessive humidity.
- › The ground for installation of LARX Carbon Kit must be flat, without unevenness and dirt. LARX Carbon Kit can't be installed bent.
- › LARX Carbon Kit must be protected against damage during installation and after.
- › Individual LARX Carbon Kit strips must not cover each other. LARX Carbon Kit can't be installed over expansion joints and under door.
- › LARX Carbon Kit can't be cut and it is not allowed to make holes in it. It is possible to shorten the power cables.
- › It is not possible to place LARX Carbon Kit under non-movable furniture and bathroom equipment.
- › LARX Carbon Kit can't be installed in temperatures under 3 °C and exposed to temperatures over 80 °C.
- › LARX Carbon Kit can't be covered by flooring or a barrier with thermal resistance higher than 0,14 m²K/W.
- › LARX Carbon Kit must be over the entire surface covered by a PE film with minimum thickness 0,2 mm and minimum overlap 10 cm. The PE film must fulfil the local standards for electrical isolation (protection class II).

- › The installation must allow electrical disconnection of all poles of LARX Carbon Kit, the distance of the disconnected contacts must be at least 3 mm.
- › The power circuit must have an RCD with $I_{\Delta n} = 30$ mA.
- › In bathrooms LARX Carbon Kit can be installed only through a wet process (application under screed). Into the screed over LARX Carbon Kit a grounding net must be installed (fulfilling conditions of the local standards) which must be grounded (PE).
- › Every supplier and user must be instructed to avoid drilling, digging or nailing into floor with LARX Carbon Kit.
- › Flooring over LARX Carbon Kit must be protected against unprofessional disassembly. During installation can be used only construction chemistry suitable for floor heating.
- › In the switchboard of the heating system must be placed filled and signed Warranty certificate. In the switchboard must be glued a label indicating floor heating.
- › User must be instructed how to operate LARX Carbon Kit.
- › Installation and use of LARX Carbon Kit must fulfil conditions listed in this manual. Other installation and use can be dangerous, and the warranty is void.

Recommended minimal floor thermal insulation

Floor positioning	Polystyrene thickness
On terrain	60 mm
Above cellar	60 mm
Above heated space	20 mm
Above exterior	100 mm

Connecting two LARX Carbon Kits



Parallel connection

For application under screed, full power, any number of strips up to 10 A, when connecting in parallel different strip lengths can be connected

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

Application directly under floating flooring

Floor composition



Any flooring with click system (certified for floor heating)

PE film 0,2 mm

LARX Carbon Kit

Acoustic insulation

Installation procedure

1. On a cleared floor without unevenness place an acoustic insulation (e.g. hobra). It serves also as a thermal insulation. The LARX Carbon Kit power cables are laid into grooves in this acoustic insulation.
2. Measure the electrical resistance according to the Warranty certificate.
3. Lay LARX Carbon Kit in the designated place and fix it against displacement in a suitable way (e.g. silver tape). Never use nails or screws.
4. Prepare grooves in the acoustic insulation and lay the power cables into them. The cables are not allowed to cross and must be fully imbedded.
5. Professional person with the electrician certificate connects LARX Carbon Kit inside a wiring box or a thermostat.

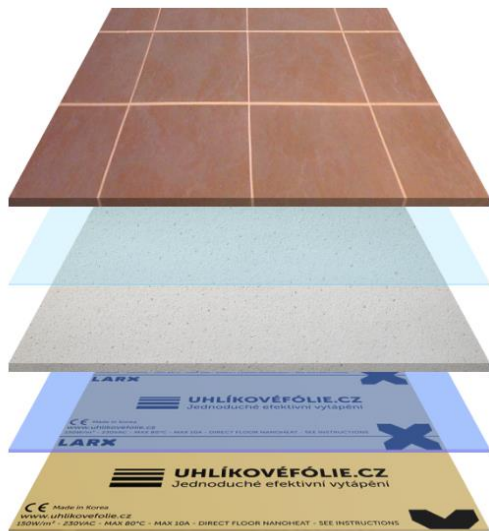
6. In the case of more LARX Carbon Kit in one room it is possible to connect them in series or in parallel (according to the required power) up to maximum current 10 A (2 300 W). The best way to connect them is inside a wiring box using e.g. WAGO clamps.
7. For floor heating it is necessary to place a floor temperature sensor of the thermostat. It must be placed into a groove directly under LARX Carbon Kit.
8. Cover all LARX Carbon Kit with a PE film with minimum thickness 0,2 mm and minimum overlap 10 cm.
9. Measure the electrical resistance according to the Warranty certificate and draw the position of every LARX Carbon Kit, cable, connection and device.
10. Check everything and lay flooring with click system according to instructions of the manufacturer. Be careful to avoid damage of LARX Carbon Kit.

First heating

- › On the first day set the floor temperature to current room air temperature (but maximum 18 °C).
- › In the following days increase the floor temperature gradually by 2 °C per day up to 28 °C.
- › Keep the floor temperature at 28 °C for next three days.
- › Then lower the floor temperature by 4 °C per day to 20 °C.

Application under screed (anhydrite / concrete)

Floor composition



Any flooring / tiles
(certified for
floor heating)

Possible tile glue

Anhydrite / concrete
> 45 mm

PE film 0,2 mm

LARX Carbon Kit

Installation procedure

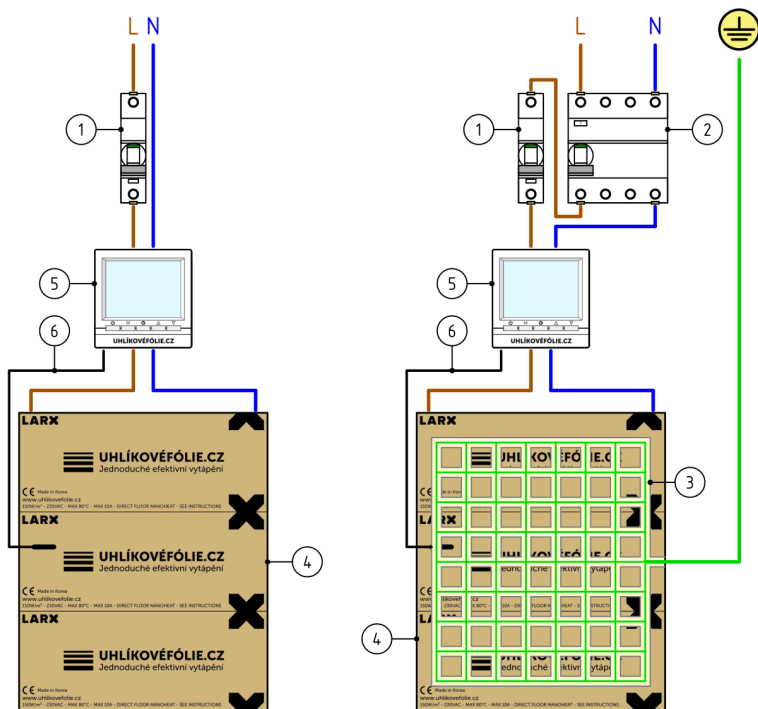
1. LARX Carbon Kit is usually laid on a thermal insulation (polystyrene).
2. Measure the electrical resistance according to the Warranty certificate.
3. Lay LARX Carbon Kit in the designated place and fix it against displacement in a suitable way (e.g. silver tape). Never use nails or screws. Secure against displacement also the power cables.
4. Professional person with an electrician certificate connects LARX Carbon Kit inside a wiring box or a thermostat.

5. In the case of more LARX Carbon Kit in one room it is possible to connect them in parallel up to maximum current 10 A (2 300 W). The best way to connect them is inside a wiring box using e.g. WAGO clamps.
6. Cover all LARX Carbon Kit with a PE film with minimum thickness 0,2 mm and minimum overlap 10 cm.
7. For floor heating it is necessary to place a floor temperature sensor of the thermostat. It must be placed on the PE film directly above LARX Carbon Kit and must be secured against displacement.
8. In bathrooms LARX Carbon Kit must be covered by a grounding net laid on the PE film and overlapping LARX Carbon Kit. The grounding net must fulfil the local standards and must be grounded (PE), e.g. galvanized welded mesh, mesh 12.7 mm, wire diameter 1.05 mm.
9. Measure the electrical resistance according to the Warranty certificate and draw the position of every LARX Carbon Kit, cable, connection and device.
10. Check everything and pour the screed according to the manufacturer's technological procedure. The minimum thickness of anhydrite or concrete above LARX Carbon Kit is 45 mm. Be careful to avoid damage of LARX Carbon Kit.

First heating

- › On the first and second day set the floor temperature at 20 °C. From the third day add 5 °C every day up to 35 °C.
- › The next day after it has reached 35 °C start to lower the floor temperature by 5 °C per day to 20 °C.
- › If the first heating is done in winter, it is recommended to start at 15 °C on the first day and on the next day increase the floor temperature to 20 °C.

Standard way of switchboard connection



1. Circuit breaker
2. RCD ($I_{\Delta n} = 30 \text{ mA}$)
3. Grounding net (rooms with higher moisture – e.g. bathrooms)
4. LARX Carbon Kit
5. Thermostat for electric floor heating
6. External temperature sensor

Regulation

Floor heating LARX Carbon Kit must be controlled by a thermostat with a floor sensor. The floor sensor must limit the maximum floor temperature in living rooms according to the local standards.

The current through the thermostat must not exceed 80 % of the nominal maximum current indicated on the thermostat.

A suitable regulation is at www.carbon-film.com/regulation

Warranty

Supplier of LARX Carbon Kit provides a warranty on its operation for 2 years. The warranty period starts from the date of its installation, but not later than 6 months from the date of its sale.

Also, these conditions must be fulfilled:

- › Mandatory installation conditions and installation procedures in this manual have been fulfilled without an exception.
- › Installation has been done by a professional person with the electrician certificate.
- › Filled and signed Warranty certificate is submitted.
- › LARX Carbon Kit delivery note or invoice is submitted.
- › LARX Carbon Kit has not been damaged by its user or a third person.

The Complaints procedure is at www.carbon-film.com/complaints-procedure

Published 3/2021

For more information



www.carbon-film.com/larx-carbon-kit

info@carbon-film.com