

# Installation Instructions



## Heating Cables

### Product information

The heating cables are resistance heating cables to DIN VDE 0253 and are supplied ready for connection. They are suitable for a wide range of applications, including heating terrariums, cold frames, greenhouses, young animal breeding stations or foundations of cold-storage warehouses.

The heating cable with frost protection function is specially designed as a pipeline heating system and is automatically turned on at a temperature of less than 5° C.

The heating cable with a voltage of 12 V is designed as a flexible, open-ended connection cable and is suitable for use in e.g. vehicles, caravan or boat building or specifically for greenhouses with a 12 V solar system.

Type	Rated voltage	Power per m	Total power	Length	Frost protection function	Connection	Minimum bending radius	Max. surface temperature
HK-2,5-F	230 V	15 W	37 W	2.5 m	yes	Safety contact plug, VDE	1.5 cm	105° C
HK-5,0-F	230 V	15 W	75 W	5.0 m	yes	Safety contact plug, VDE	1.5 cm	105° C
HK-8,0-F	230 V	15 W	120 W	8.0 m	yes	Safety contact plug, VDE	1.5 cm	105° C
HK-12,0-F	230 V	15 W	180 W	12.0 m	yes	Safety contact plug, VDE	1.5 cm	105° C
HK-2,5	230 V	15 W	37 W	2.5 m	no	Safety contact plug, VDE	1.5 cm	105° C
HK-5,0	230 V	15 W	75 W	5.0 m	no	Safety contact plug, VDE	1.5 cm	105° C
HK-8,0	230 V	15 W	120 W	8.0 m	no	Safety contact plug, VDE	1.5 cm	105° C
HK-12,0	230 V	15 W	180 W	12.0 m	no	Safety contact plug, VDE	1.5 cm	105° C
HK-5,0-12	12 V	15 W	75 W	5.0 m	no	without plug	1.5 cm	105° C
HK-8,0-12	12 V	15 W	120 W	8.0 m	no	without plug	1.5 cm	105° C
HK-12,0-12	12 V	15 W	180 W	12.0 m	no	without plug	1.5 cm	105° C

## Important Information / Technical Notes

*Please be sure to observe the following precautions before installing the heating cable:*

- ü Carefully read these instructions before commencing installation work.
  - ü The heating cable must only be connected to the specified power supply. Modifications of length, power or voltage are not permitted.
  - ü A circuit breaker (RCB < 30 mA) must be used as a precaution.
  - ü The manufacturer grants a 2-year warranty. Damages caused by the non-observance of the instructions void the warranty. The manufacturer accepts no liability for consequential damages thereof. Please make sure to retain the warranty card.
  - ü The manufacturer cannot be held responsible for errors that are attributable to the omission of or erroneous measurements.
  - ü The location of the heating cable is to be documented on the attached warranty card – a sketch is sufficient.
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- ⊗ Heating cables must not be used as a loose heating element. They must always be installed as a fixed component and fully protected against damages.
  - ⊗ Damages of the heating cables are to be avoided (no compression, folding or tensile load on the heating cable and connection socket). They must not be routed across sharp-edged or sharp objects.
  - ⊗ Heating cables must not be shortened or connected directly. Only the connection cable may be shortened and connected.
  - ⊗ The heating cables must not touch or cross each other.
  - ⊗ Heating cables must not be routed across expansion joints. In these locations, the heating cables must be protected by two moveable pipes, one inserted into the other.
  - ⊗ Do not install the heating cables in temperatures below +5° C.
  - ⊗ Do not route the heating cables through walls, timber constructions, roof conduits and insulating material as this would prevent heat distribution.
  - ⊗ The heating cable must not be accessible to people or animals.
  - ⊗ Do not bend the heating cables with a radius of less than 1.5 cm.
  - ⊗ The maximum rated temperature must not be exceeded when installing the cable.

## **Application Examples**

### **Application: Pipe heating**

**(type HK-2,5-F to HK-12,0-F)**

Pipe heating systems can be installed on practically any pipe in order to protect them against frost or to maintain the required temperature of hot water pipes (e.g. provision of drinking water for animals outdoors and in stables).

The completely pre-assembled and directly applicable heating cable contains a thermostat which ensures the energy-saving control of the heating cable. The thermostat automatically turns on (at app. +5° C) so that freeze-up can be excluded.

Installation notes:

First, place the thermostat with the flat side at the coldest point on the bottom of the pipe and attach it with self-adhesive aluminium foil making sure that it has the largest possible contact area with the pipe.

Depending on the required heating performance, the heating cable is installed below the pipe. Alternatively, the heating cable can be wound around the pipe (minimum distance between loops 10 cm). Make sure that the entire heating cable is attached to the pipe. Shortening the heating cable is not permitted.

The heating cable is glued to the pipe with self-adhesive aluminium foil at regular intervals to ensure a continuous contact of heating cable and pipe and to eliminate the possibility of the heating cable being pushed into the pipe insulation material.

For plastic pipes, the pipe should subsequently be wrapped with self-adhesive aluminium foil in order to achieve a better heat transfer.

Before attaching the pipe insulation material, a visual inspection for damages should be conducted.

The pipe insulation must then be fixed with commercially available insulation material (min. R-value 0.035 W/mK). This is absolutely necessary in order to achieve the required frost protection and reduces power consumption.

Finally, the heating cable must be connected to a power outlet (230 V) protected with max. 6 A.

Identification labels should be attached to the pipe insulation material at regular intervals (4 m) indicating that the pipe is heated. Operation of the heating cable in conjunction with a residual current circuit breaker is recommended.

### **Application: Seeding and nursing of plants**

Electric heating cables provide an effective germination aid and accelerate growth by heating the soil, especially in cold frames.

The heating cable is laid out on the ground in meanders according to the given conditions. Spacers can be used to maintain the desired distances. Installation in a screed layer is sensible.

The embedding depth of the heating cable primarily depends on the plant structure. The plants' roots should not come into contact with the heating cable.

To prevent damage to the heating cable by gardening tools, a steel reinforcing matt can be placed over the heating cable. Additionally, a notice warning that the beds are heated can be attached.