

Foreword

Dear customer, by purchasing this heating fabric, you have bought an economic product that will provide you with many years of unadulterated pleasure as long as you pay attention to the following information and safety rules.

Adherence to these rules is mandatory should you need to make a warranty claim. In order to apply the heating fabric as directed, these instructions contain important information concerning usage and mounting. Surface heaters with heating fabrics are direct heaters based on the principle of infra-red heat radiation. These require low levels of energy and they create pleasant climatic conditions in rooms. These instructions will help you to use the laminated heating fabric, safely, economically and as directed.

The target group for these instructions

The instructions are intended for persons who are responsible for the mounting and installation of laminated heating fabrics. These persons are informed how the heating fabrics are securely installed and how to guard against unauthorised persons, especially untrained persons.

Supplementary material

Due to changes, supplement the instructions regularly with the following instructions:

- Statutory regulations concerning accident prevention
- Statutory regulations concerning environmental protection
- Provisions published by the Employer's Liability Insurance Association
- Changes in the law in accordance with GPSG
- Ordinance concerning safety in the workplace

Explanation of the symbols

D Danger! Notes with the **danger** symbol warn of hazards to life and limb.

! Warning! Notes with the **warning** symbol warn of material and environmental damage.

Information

Information concerning the mounting and use of the heating fabric strips (as directed) (2013 edition).

The NANOFUCHS heating fabric may be used by children aged 8 years and above / persons with an impaired physical, sensory or mental capacity / a lack of experience and knowledge, if they are supervised or have been trained with regard to the safe use of the heated fabric and understand the hazards that arise. Children should not play with the heating fabric. Cleaning and user servicing should not be carried out by children without supervision.

The mounting and connection (if not supplied with a plug) of the surface heating elements with other electrical equipment should **only** take place by a **qualified electrician!** As a general rule, all of the relevant provisions of the respective countries of use should be followed, e.g. VDE, SEV, ÖVE, UL etc.

The stated operating voltage should not be exceeded.

There should be sufficient safety devices in place to guard against contact, e.g. covers and a safety non-fused earthing. The 230 volt design should **only** be connected via a **residual current device**. If metal parts are heated, these should also be incorporated into the safety measures. Surface heating elements with a simple or basic insulation (safety class 0) should not be placed directly on conductive surfaces. In these instances, a protective film needs to be placed between the metallic surface and the heating fabric. PET films should have a minimum thickness of 200 µm. Care should be taken that the minimum permissible bending radius of 60 mm is achieved. Furthermore, the PET insulation of the heating fabric should not be damaged. Users should take appropriate care during the installation, in order to avoid damage as a result of pointed objects which may fall down.

The heating fabric is to be spatially separated from sources of heat e.g. lamps or stoves.

If the rated borderline temperature is exceeded, the heating fabric is to be switched off and only operated again if the cause has been established.

We are happy to provide you with further advice by telephone.

Specified or correspondingly tested models are to be used as temperature controllers, temperature monitors or temperature limiters. If a temperature controller is desired, we recommend our special dimmer.

Covers and heat insulators must be attached in such a way that they do not cause a build up of heat which can lead to the rated borderline temperature being exceeded.

Care should be taken that covers and undersurfaces are suitable for floor heating.

The surface heating elements should not be exposed to humidity or moisture. Following the incidence of moisture, the device should only be re-operated following the complete drying out of the device (in full) including the place where it was used.

We do not honour any warranty for damages, which arise as a result of the instructions (for use) not being followed.

Please contact us if you have any further questions concerning our products.

Safety instructions

Use as directed

The heating fabrics are only designed and suited for fixed installations e.g.

- in heaters (mounted in walls and ceilings)
- foot warmers and heating mats
- surface heating elements in buildings
- heating for wall images (and similar constructions)
- standing heating radiators.

Use as directed also involves observance and adherence to these instructions, as well as the manufacturer's notes concerning the further use of its heating radiators and heating systems (as directed).

D For example, the laminated heating fabrics are not suitable for use as heating equipment

- in explosive atmospheres (dust, steam, gas)
- in air conditioning equipment (EN60335-240)
- in heating equipment for saunas (EN60335-2-53)
- in storage heaters (EN60335-2-61)
- in pliant heating equipment such as heated blankets and heated pillows (EN60335-2-17)
- solely for individual use
- and for all applications which listed by NANOFUCHS under 'use as directed'.

Any other use, which is not 'as directed' can lead to a significant hazard for people, animals and the environment. The heating fabric must be installed in such a way that the mechanical and electric safety devices to prevent contact are assured.

! Warranty claims

In the case of improper use and/or non-adherence to the mounting and safety information listed here, the warranty of the heating equipment manufacturer becomes void. The operator loses the right to make warranty claims and takes on the liability himself.

D General safety information

If the laminated heating fabric is installed in heating equipment (and/or in surface heaters) the safety information listed below is to be followed and actively implemented by the heating equipment manufacturer / originator through constructive measures. The manufacturer of the heating equipment and/or the originator of the surface heating elements and is obliged to install them in a way which complies with the directives and standards (for further information, see the installation notes). This is to be documented through the issuing of an EC declaration of conformity in accordance with the low voltage directive.

D The laminated heating fabric (type series HGW)... should not be

- bent or folded,
- used as a pliant and flexible heating device,
- used as a heating device that is held in the hand or moved during operations,
- fastened using nails, screws or similar sharp-edged objects,
- repaired, and/or shortened or lengthened without authorisation,
- used with a rated voltage that exceeds 13A per heating element, regardless of the rated voltage
- covered (the build up of heat should be avoided)
- laid in concrete or under tiles,
- laid on uneven and sharp-edged floors.

! Please be aware of the following!

The laminated heating fabrics from NANOFUCHS – safety class 2 (double insulated) and safety class 3 – (operation with low safety voltage SEL V) are contact proof in accordance with EN60325-2-96. However, as a result of the heating equipment manufacturer, when installing in heating equipment

/ surface heating elements, care should be taken regarding the protection of the film (thermally and mechanically) as stated in the applicable standards.

D General information related to installation

Before installing the laminated heating fabric, a check needs to be made as to whether

- 1.- the intended purpose of the heating radiator corresponds with the technical data of the heating fabric. Among other things, care should be taken that there is a correspondence with the data stated on the rating plate, e.g.
 - the rated voltage / frequency or low safety voltage (SEL V) is generated via a tested and certified transformer
 - The stated output and/or appointed surface temperature is given for the respective application / installation.
2. The IPX4 level of protection is not diminished as a result of constructive measures.
3. Protection is assured as a result of mechanical damage, the cover and the housing.
4. The anti-contact device of the safety class 2 heating fabric is not restricted by the use of sharp-edged metal parts, screws etc. If metal, frames, parts, covers are used, which do not satisfy the requirements mentioned above, then additional insulation needs to be attached or alternatively, the heating radiators need to be incorporated into die safety class 1 (connection to the protective conductor system). The PE connection that is used should not rust, and should be safeguarded against self-loosening.
5. The heating fabric should not be bent or folded.
6. The heating fabric should not be stacked as this leads to the build up of heat and damage to the insulation properties of the heating fabric.
7. At the outlet port of the heating radiator, the connecting cable of the heating fabric has to be relieved from shear forces and tension.
8. In order that the insulation of the heating fabric is not damaged, the installation surfaces have to be clean, without edges and unevenness.
9. The heating fabric should not be fastened using screws, rivets etc. which go through it. The edges of the heating fabric should be fixed using adhesive tape (or a similar means) i.e. not in the area which conducts current.

The laminated heating fabrics (model series HGW-...) correspond to the requirements of the low voltage directive, the Equipment and Product Safety Act (GPSG) as well as EN60335-2-96. They are subjected to type testing by TÜV Rheinland. The manufacturer of the heating equipment is responsible for the safe application and installation.

No claim is made that the information stated here concerning the installation of the laminated heating fabric is complete. As assessment of the hazards (hazard analysis) needs to be made by the manufacturer of the heating equipment / a specialist electrician.

Installation in room heaters

The following devices are classified as room heaters:

- Heaters (mounted in walls and ceilings)
- Radiation and convection heaters
- Standing radiators.

! EN60335-1 and EN60335-2-30 apply when using the fabric in room heaters.

D In particular, care should be taken that:

1. Instructions for use should be drawn up in accordance with the standard mentioned above (as well as EN62079) / supplied with the heater. A rating plate should be fitted to the radiator.
2. The exposed parts of the radiator should not have a temperature increase of >60K.
3. A thermal fuse is installed, if the cover (in accordance with section 19 of the standard stated above) has an excess temperature.
4. On the basis of the design, there is sufficient air circulation between the heater and the seat (fastening seat).
5. The wall fastening is executed in such a way that any unintentional lifting of the heater (from its fixture) is prevented.
6. The standing heater is secured from falling over.
7. If setting the DIN EN 0100 T 701 up in baths and swimming pools, DIN EN 0100 T 702 has to be followed. Here, special attention should be paid to the protective zones and the use of an earth leakage circuit breaker with a tripping current of 30 mA.
8. In the case of ceiling mounting, the holder must be capable of holding four times the weight of the device.
9. The mounting of the heating fabric is carried out in accordance with the standards stated above as well as the general safety notes. The mounting is subject to a final check and logged in accordance with EN30335-1 app. A.

Installation in surface heating elements

The following are classified as surface heating elements:

Heating units or heating fabrics which are installed in accordance with the installation instructions and as such, achieve the level of protection with regard to protection against hazards (thermal and mechanical).

! If using the heating fabric in surface heating elements as floor heating, EN60335-1, EN60335-2-296: 2004 and EN60335-2-96: 2004 apply (among other standards).

D In particular, care should be taken that:

1. Instructions for use are drawn up and supplied in accordance with the standards mentioned above and EN62079.
2. Labelling in accordance with the standards mentioned above.
3. The temperature increase of the surfaces of table 101 section 11.8 corresponds to the standards.
4. If setting the DIN VDE 0100 T 701 up in baths and swimming pools, DIN VDE 0100 T 702 has to be followed. Here, special attention should be paid to the protective zones and the use of an earth leakage circuit breaker with a tripping current of 30 mA.
5. Mechanical damage to the heating fabric caused by unevenness in the floor (as a result of applying protective films) should be avoided.
6. When laying in concrete or a similar material, the heating unit has to be converted to level of protection IPX7 (waterproof).
7. A temperature control mechanism (with a temperature controller) has to be installed.
8. There needs to be warning notices on the radiator with, among other things, information concerning the fixing points, the installation point and the permissible temperatures in accordance with section 7 of EN60335-2-296: 2004.
9. Following the installation, a safety check and a check to make sure the device works properly has to be carried out and logged in accordance with DIN VDE 0100 T 610.
10. When laying the heating units / heating fabrics, a check needs to be made that they are not bent or stacked. The mounting of the heating fabric is carried out in accordance with the standard stated above as well as the general safety notes. The mounting is subject to a final check and logged in accordance with EN60335-1 app. A.

Installation in foot warmers and heating mats

The following devices are classified as foot mats and heating mats:

- Electrical foot warmers, heating mats and heating carpets (for domestic use and similar purposes).

! The heating mats / heating carpets should not exceed a surface of 0.5 m².

If using the heating fabric as foot warmers / heating mats, EN60335-1 and EN60335-2-81 must apply (among other standards). The heating mats / foot warmers and heating carpets should only be cleaned when slightly damp. It is not permissible to soak or wash the devices in containers or in the washing machine. When cleaning, the equipment has to be removed from the mains and dried again before being switched on again.

D In particular, care should be taken that:

1. Instructions for use should be drawn up in accordance with the above standards (as well as EN62079) and supplied with the heater. A rating plate should be fitted to the heating mats / heating carpets.
2. The exposed parts of the heating mat should not reach a temperature increase of >65 °C.
3. A thermal fuse is installed, if the cover (in accordance with section 19 of the standards stated above) has an excess temperature.
4. There should be sufficient air circulation between the base and the foot warmer.
5. The laminated heating fabric (type series HGW-...) for installation in foot warmers / heating mats / heating carpets should only be used if,
 - The temperature increase in accordance with section 11 < 40 K and
 - the temperature increase in accordance with section 19 < 40 K is not exceeded (in accordance with the standard mentioned above).
6. The heating mats / heating carpets are sufficiently resistant to combustion in accordance with section 30 of the standards mentioned above.
7. The mounting of the heating fabric is carried out in accordance with the standards stated above as well as the general safety notes. The mounting is subject to a final check and logged in accordance with EN60335-1 app. A.
8. There is protection as a result of mechanical damage.

! Connection conditions

The laminated heating fabrics (type series HGW-...) are supplied with a connection line and plug (12PE and 230PE) or open wires ends (32PE) – without a plug. The connection line is to be installed by the heating equipment manufacturer in such a way that tension is removed from the line before it enters the heater and it is not exposed to any mechanical or thermal load (max. 45 K). The heater heating equipment manufacturer must ensure that the anti-contact device is properly installed through installation that conforms to the standards. The heating fabric should be supplied with the voltage that is stated on the rating plate.

D Excess voltage destroys the insulation of the heating fabric and can lead to fire / an electrical hazard.

Warranty

If the notes have been followed and adhered to during installation and use, NANOFUCHS offers a 2 year warranty for laminated heating fabrics (from the sales date). NANOFUCHS guarantees the free exchanging of the laminated heating fabrics if the defects can be traced back to material deficiencies or manufacturing deficiencies. Functional faults and damage which has been caused by improper handling or installation are not taken into consideration as part of the free warranty. Please refer to the enclosed application notes / usage information.

Technical data

TYPE HGW	12PE	32PE	230PE
Rated voltage	12V SEL V	32V SEL V	230V
Rated frequency	50 Hz	50 Hz	50 Hz
Rated current (max.) per element	16 A	16 A	16 A
Output pro m²	-	-	1000 W max.
Output (max.) per element	160 W	...W	...W
Level of protection	IPX7	IPX7	IPX7
Safety class	III	III	II
Temperature max.	85 °C	85 °C	85 °C
Dielectric strength	-	-	4 KV (each side)
Deliverable widths	500 mm	600 mm 800 mm	300 mm 500 mm 600 mm 750 mm

Note: Only generate safety low voltage SEL V via checked and certified transformers in accordance with EN61558-2-6.

Disposal



Caution:
Environmental damage as a result of incorrect disposal

The heating fabric (or parts of it) should not be disposed with normal household waste. Instead, it has to be passed on to a special collection point for recycling electrical equipment.

The symbol on the product, the instructions or packaging points this out.

By reusing the materials (or reusing old equipment in some other way) you make an important contribution towards protecting our environment.

Please ask your local council for the address of the competent waste disposal centre for your area.