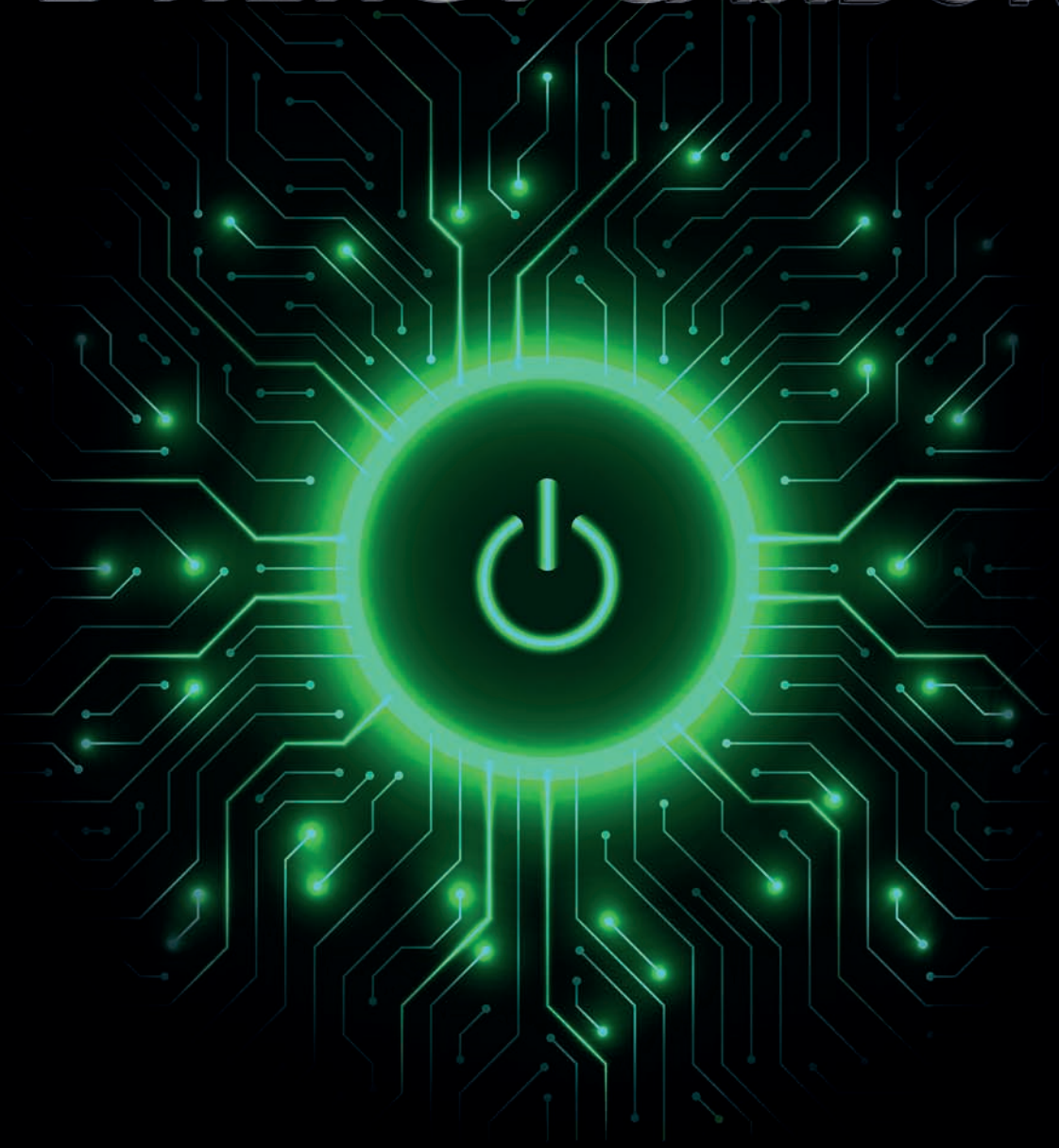
e:nergy
www.energy-heating.com

E-NERGY CARBON



HEATING FOILS FOR CEILING, WALL & FLOOR

www.energy-heating.com

COURAGE
TO RETHINK

» THE CLIMATE HAS BECOME A CENTRAL ISSUE OF HEATING

Highly efficient and quicker adjustable surface heating systems do not only save energy, but also save the environment, since climate has become a central issue of heating. More and more new technologies and application areas are being developed for which electricity provides the necessary energy.

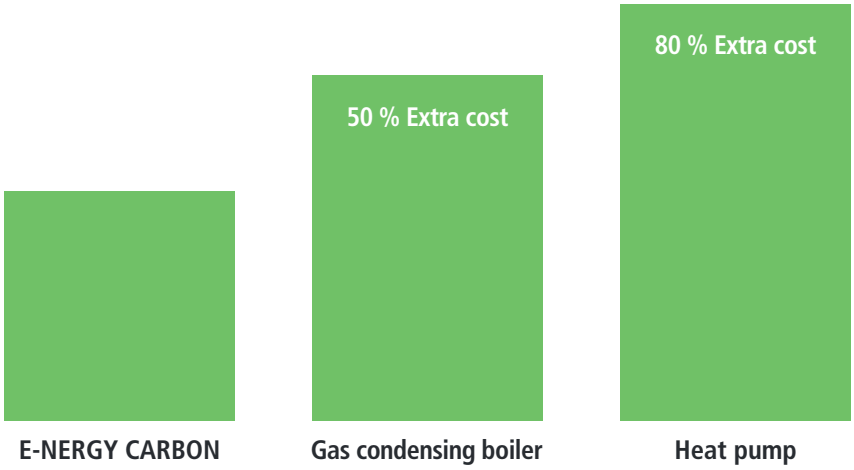
Due to the system **E-NERGY CARBON** electric heating has become an efficient and low-cost option!

» ECONOMIC EFFICIENCY – IT IS WORTH IT FROM CELLER UP TO ROOF

Future-oriented electric surface heatings for new buildings and renovations

Comfortable warmth from ceiling, wall and floor creates a healthy room climate. **E-NERGY CARBON** surface heating systems are very energy-efficient and sustainable due to low costs investment and usage. Our system worker on the basis of protective low voltage in the heating foil, which is easily guided through adjustable room, thermostate as well as modern Smart Home technology. Combined with regenative energies like photovoltaics, homeowners save heating costs and the environment. A sustainable alternative to heating systems with fossil fuels.

Comparison of investments in heating systems in the course of 20 years*



* Example of a single-family house, 2-storey new building with 150 m² living space (Efficiency house 55 according to EnEV 2009).

» QUALITY & SAFETY

- ✓ Patented production process
- ✓ Homogeneous instead of laminar structure
- ✓ Durable & safe

» TESTED QUALITY

Made in Germany

BDH Bundesverband der Deutschen Heizungsindustrie

» NEW POSSIBILITIES FOR YOUR CREATIONS

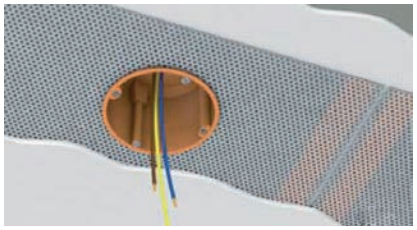
Use the opportunity of creating totally different room concepts – without considering radiators and convectors.

Create your living space on your own. Our heating foils enable you to create rooms without wasting space.

Even small rooms can be enlarged when radiators are substitute at by **E-NERGY CARBON**.
This is not only an optical improvement, but also contributes to comfort in new buildings as well as renovations.

» ADVANTAGES AT A GLANCE

- ✓ Low installation height in the millimetre range for barrier-free living
- ✓ Flexible installation on ceiling, wall & in the floor
- ✓ Simple and fast retrofitting possible
- ✓ Low investment costs and easy installation
- ✓ Effective protection against damp spots and mould growth



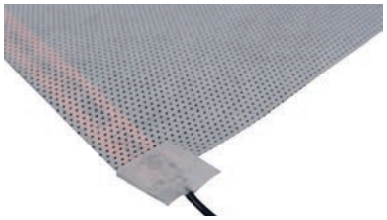
CEILING Adjusted into the ceiling´s surface, the material guarantees an excellent, eual distribution of warmth. After rowelling the ceiling can be painted or wall-papered / decorated.
The inclusion of flush-manted boxes at alater time is possible without problems.

WALL The heating foil provides for adjusting of painting and shelves with dowels and screws. No limitation is set to your creative ideas and wishes.

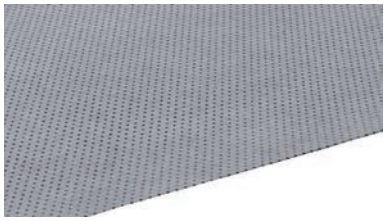
FLOOR This example shows a floating installation under laminate/parquet. **E-NERGY CARBON** can be combined with nearly all floor coverings. For floor heating it is also possible to drill, for example for a door stopper.

CEILING, WALL & FLOOR

» E-NERGY CARBON **FLEECE**



E-NERGY CARBON FLEECE is a diffusion-open, fleece-laminated and adhesion-optimized PET-foil. Due to its perforation it is optimal for plaster systems and putty on ceiling, wall and floor installations (fixed usage).

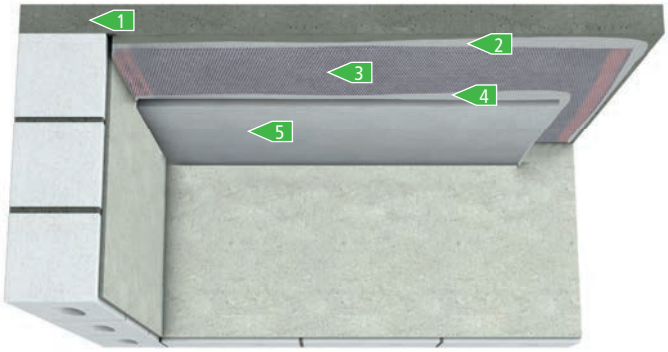


Material	Basic material	PET film with carbon fibres and fillers
Data	Mains voltage	230 V AC
	Power	110 W/m² (E-NERGY 36-110) 220 W/m² (E-NERGY 36-220)
	Output per running metre	65 W/lfm (E-NERGY 36-110) 130 W/lfm (E-NERGY 36-220)
	Secondary voltage	36 V
	Protective measure	FI protection circuit 30 mA
	Max. permissible ambient temperature	+70 °C
	Minimum processing temperature	+5 °C
	Minimum bending radius	R10 mm
	Dimension	36-110: width 59 cm, length 2 | 3 | 4 m 36-220: width 59 cm, length 1.5 | 3 m

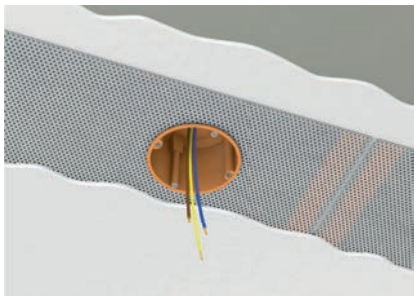
Construction ceiling

E-NERGY CARBON FLEECE

1	Bare ceiling	
2	Putty	1 mm
3	E-NERGY CARBON FLEECE	0.4 mm
4	Putty	1 mm
5	Drywall panel	
		3 mm



» INSTALLATION



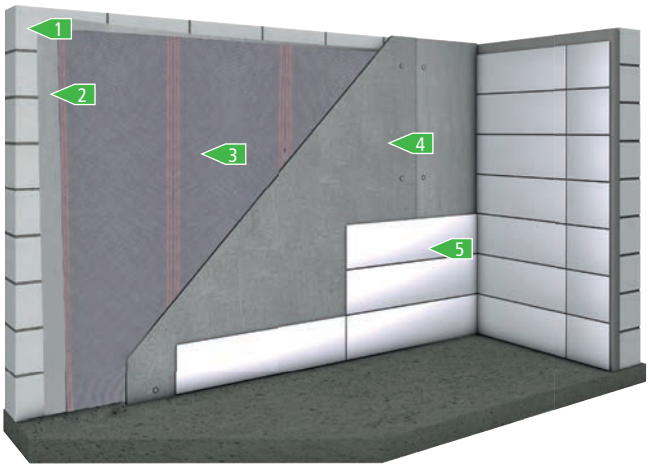
» ADVANTAGES AT A GLANCE

- Non-woven laminated and adhesion-optimised through perforation
- Optimized for plaster systems and fillers
- High heat conduction and rapid heat-up

Construction wall

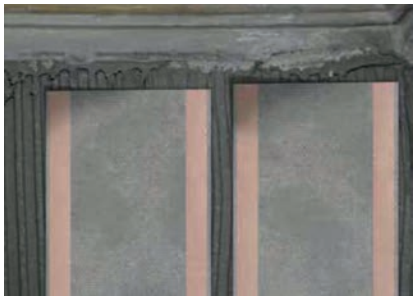
E-NERGY CARBON FLEECE

1	Raw wall	
2	Putty	1 mm
3	E-NERGY CARBON FLEECE	0.4 mm
4	Fine putty knife	2 mm
5	Painting, wallpaper, tiles	
		4 mm



» INSTALLATION





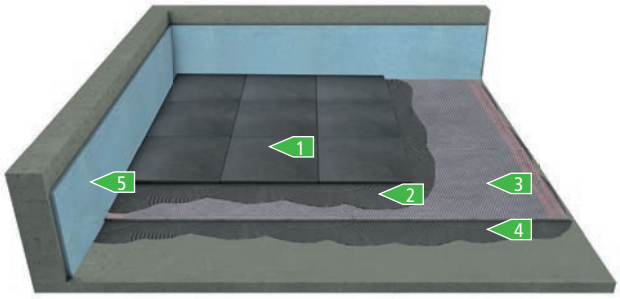

» ADVANTAGES AT A GLANCE

- Non-woven laminated and adhesion-optimised through perforation
- Effective protection against damp spots and mould
- Safe low-voltage technology (36 V) | Protective low voltage

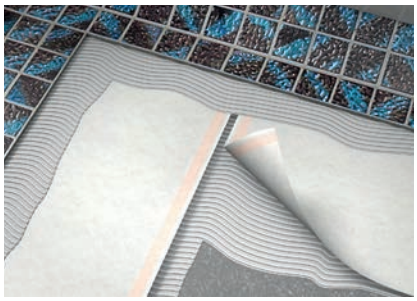
Construction floor

E-NERGY CARBON FLEECE

1	Tiles ≥ 10 mm | natural stone ≥ 15 mm	
2	Tile adhesive	2.0 mm
3	E-NERGY CARBON FLEECE	0.4 mm
4	Tile adhesive	1.0 mm
5	Edge insulation strips EPS | NEO	
		4 mm



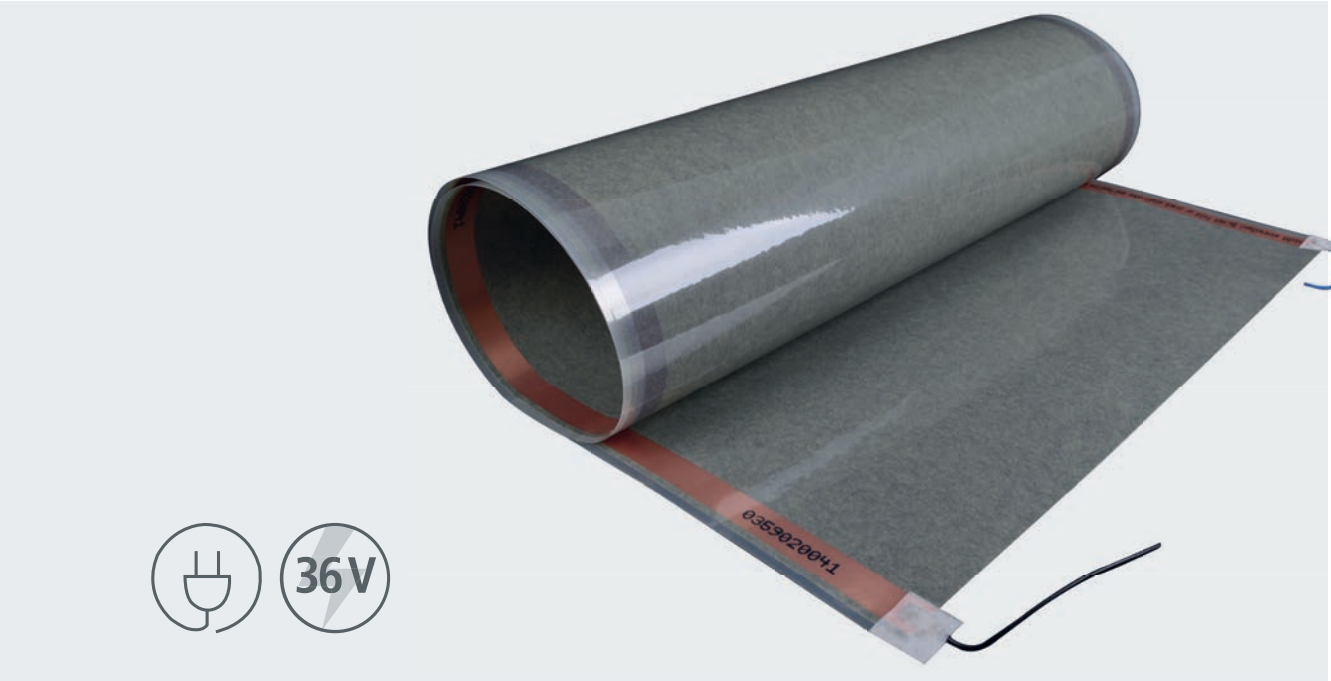
» INSTALLATION



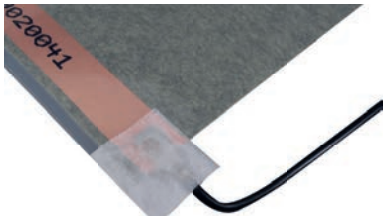
» ADVANTAGES AT A GLANCE

- Non-woven laminated and adhesion-optimised through perforation
- No installation heights
- Safe low-voltage technology (36 V) | Protective low voltage

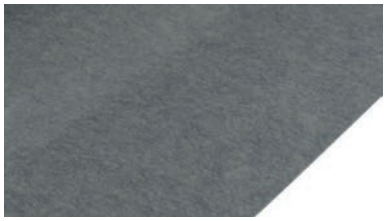
FLOOR



» E-NERGY CARBON **PET**



E-NERGY CARBON PET is a special film-coated, abrasion-resistant and mechanically resilient PET film for floor installation (floating installation under laminate and parquet).

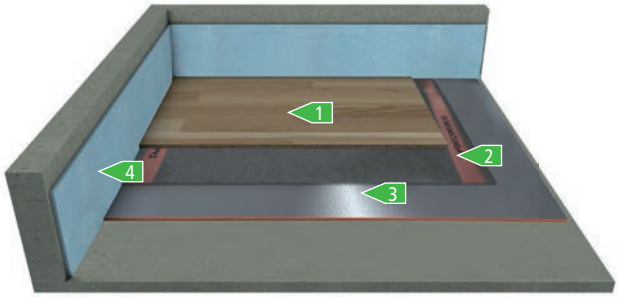


Material	Basic material	PET-Folie mit Carbonfasern und Füllstoffen
Data	Mains voltage	230 V AC
	Power	115 W/m² (E-NERGY 36-115)
	Output per running metre	70 W/lfm (E-NERGY 36-115)
	Secondary voltage	36 V
	Protective measure	FI protection circuit 30 mA
	Max. permissible ambient temperature	+70 °C
	Minimum processing temperature	+5 °C
	Minimum bending radius	R10 mm
	Dimension	36-110: width 59 cm, length 2 | 3 | 4 m 36-220: width 59 cm, length 1.5 | 3 m

Construction floor

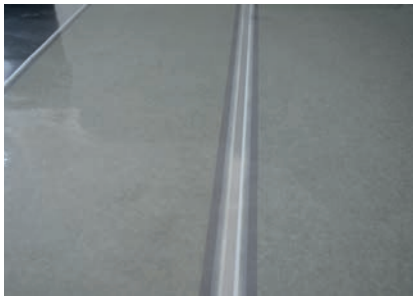
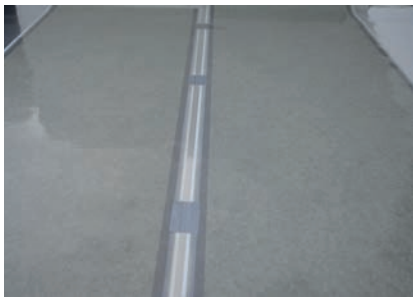
E-NERGY CARBON PET

1	Parquet ≥ 15 mm | laminate ≥ 8 mm (floating installation)	
2	E-NERGY CARBON PET	0.4 mm
3	Thermal conductive layer CF FLOOR DIRECT 1.5	1.5 mm
4	Edge insulation strips EPS | NEO	
		2 mm



» INSTALLATION



» ADVANTAGES AT A GLANCE

- Ideal for floating installation under laminate and parquet flooring
- Abrasion-resistant and mechanically loadable
- Special foil coated

CONTROLLER

App-enabled
Control via Smartphone

» E-NERGY **ROOM THERMOSTATE**

What formerly has been hard to understand, is a small, digital and easy-to-use switch in the **E-NERGY** system: the **E-NERGY CARBON** room thermostate. It provides for energy-saving: Fast heating is possible, when it is too cold and it is turned off, when enough warmth has been reached.

- Comfort hrough floor sensor for optimal well-being
- Recognition of open windows prohibits high energy costs
- Energy saving modus for simple night usage

Data

Voltage	100-240 V
Max. Backup	16 A
Colour	pure white
Output	max. 16 A
Terminal cross section	1.5-2.5 mm²
Standby-Power input	0.4 W
Degree of protection of enclosure	IP21
Size	H/ 82, B/ 82, T/ 40 mm
Display	176x220 Pixel TFT – Touch
Switch frame	enclosed | optionally suitable for common switch frames 55x55
App operation (WiFi only) | WiFi	iOS oder Android | IEEE 802.11 b/g/n - 2.4 GHz

CONNECTION

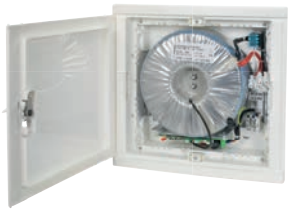
1 Heating foil

2 Feeler

3 Room thermostat

4 Transformer

» E-NERGY **WIRING DIAGRAM**



The installation is completely safe because of the **E-NERGY CARBON** transformer with safety extra-low voltage (SELV). The internal surveillance of temperature is part of the system as well as the application of a floor sensor and a wireless chip for using a wireless controller.

Data

Input voltage	230 V +/- 10% AC, 50/60 Hz
Output	400 W to 2,000 W (400 W steps)
Minimum requirement	Circuit breaker 16 A C / Fuse 16 A slow blow
Degree of protection	IP 00
Output voltage per heating circuit	36 V AC
Further connections	Room thermostat, floor sensor, Antenna, Master/Slave
Attachment	Mounting in wall box with mounting plate | Control cabinet mounting
Maximum ambient temperature	60 °C
Dimensions (L x W x H)	246 x 265 x 86 mm (with 1,200 W) 246 x 265 x 87 mm (with 1,600 W) 246 x 265 x 87 mm (with 2,000 W) 182 x 212 x 52 mm (with 400 W) 246 x 265 x 76 mm (with 800 W)

Technology imprares many things

For your wallet. For the comfort. For the environment. For the climate.

It is not laws that prohibit waste of energy, but your responsibility. And new technologies help you realise it. Modern mfh underfloor heatings can be used in renovations as well as in new buildings. They can not be defeated regarding fast regulation, low construction heights and few weight.

Improve your old buildings, make them more beautiful and usable and save energy costs in the course of the next decades. This makes you contribute on your own to selving environmental and climate protection. And that is worth it.

mfh systems GmbH
Hager Feld 8
49191 Belm-Vehrte
Germany

Fon +49 (0) 54 06 | 699 95-10
Fax +49 (0) 54 06 | 699 95-90

mail@mfh-systems.com
www.mfh-systems.com

Social Media

mfh systems App