

Exclusiv-Klett



## Exclusiv-Klett system

Perfect hook and loop technology  
for durable connections

# EMPUR® surface heating systems

Increased comfort and efficiency



The decision to install surface heating is a sensible decision for increased comfort, economy and sustainability. Surface heating systems are ideal for combining with modern heat generators and regenerative sources of energy.

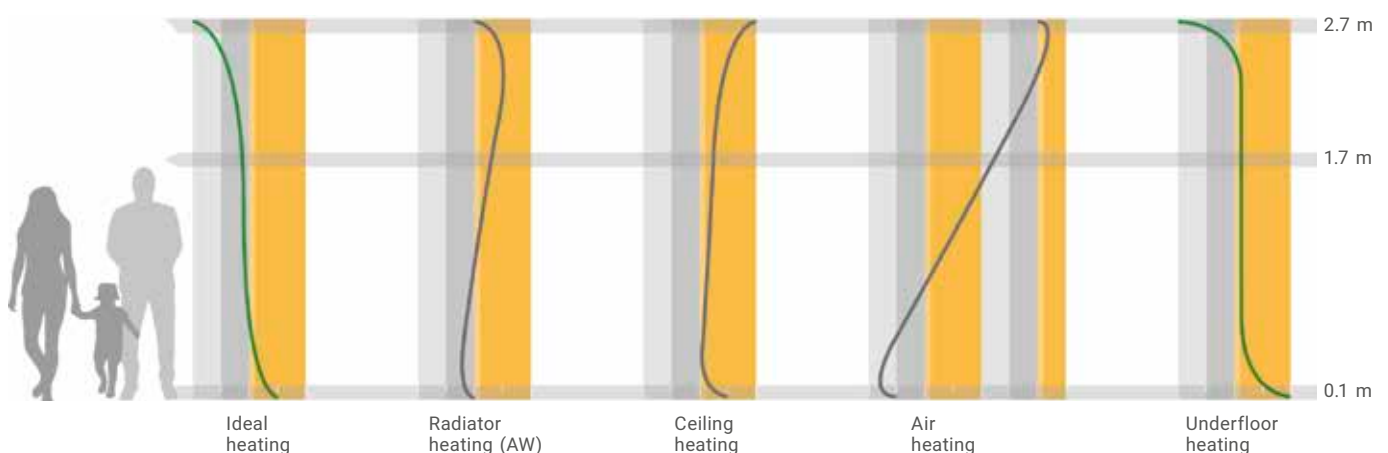
Mild heat radiation from the bottom up creates an increased sense of wellbeing. As a heat source with a large surface area, it can make an exceptional contribution to lowering energy costs at low flow temperatures. In this way, it also makes a significant contribution to sustainability and to protecting the environment.

Underfloor heating is also especially suited to people with allergies, as the heat rises across the entire room and hardly swirls up any dust across the large surface area. It affords the client completely new design possibilities without any visible radiators and increases the building's value in the long term.

Surface heating systems are also being used more and more in modernisation projects. Particular requirements, for example installation height, load capacity, weight, insulating properties and sound absorption can be guaranteed alongside efficient heating.

## Surface temperatures

Temperature curve progression: Comparison of "ideal heating" with an underfloor heating system





# EMPUR® surface heating systems

Quality "Made in Germany" from one source



EMPUR® Produktions GmbH is a producer and full-range retailer of innovative, high-quality panel heating systems and has the right solution for every requirement:

- Surface heating/cooling systems for floor, walls and ceilings
- Systems without additional installation height or with minimum installation height for modernisation
- Diverse systems with composite panels and additional insulation for new buildings in the private, municipal or industrial sectors
- System accessories and tools
- High-quality heat distribution and drinking water systems
- Innovative control technology



The company manufactures over 90% of the system components in its own production and under its own responsibility on modern equipment at our site in Buchholz-Mendt. We work under a structured quality management system, which is certified by DEKRA in accordance with the DIN EN ISO 9001:2015 international standard.

In the interests of the most objective and neutral product evaluation possible, EMPUR® subjects its products to material testing and certification by nationally recognised testing institutes and assessment centres. High quality, continual and pioneering product developments, technical advice and support, a three-level distribution network across Germany, reliable services, as well as specialist training for wholesalers, specialised craftsmen and planners make EMPUR® a competent partner in the heating industry.

The technical information in this brochure represents the state of our knowledge and experience at the time of printing. Unless expressly agreed, however, it does not constitute assurance in the legal sense. The level of experience is constantly evolving. The latest edition of this brochure should always be used. The product applications described may not take into account special conditions in an individual case. Here, suitability for the specific application purpose must be checked. Our products are delivered exclusively on the basis of our general conditions of sale and delivery.



# Exclusiv-Klett system

Perfect hook and loop technology for durable connections





# Exclusiv-Klett system

Perfect hook and loop technology for durable connections



The EMPUR® Exclusiv-Klett system is an innovative application type. It uses intelligent hook and loop technology to connect the EMPUR® composite panels with the KLIMAPEX® Klett plastic heating pipes.

After the laminated composite panels with one-sided film overhang have been laid, the hook and loop pipe is fixed to the surface with light pressure, according to the pre-printed laying grid and the distance required. The hook and loop tape has excellent adhesion properties, but can be removed and pressed on again to correct the position on the composite panels. To ensure good heat transfer, the heating pipe is uniformly covered with screed.

The hook and loop system components are all developed by EMPUR®, optimally adapted to each other, and produced in-house in Germany.

## Our Exclusiv-Klett system impresses

- **Proven quality** through in-house production
- **One-man laying**
- **Perfect hook and loop technology** for secure connections
- **Easy installation** of KLIMAPEX® plastic heating pipes
- System panels available with or without insulation or sound absorption
- System components optimally adapted to each other with universal licences



EXCLUSIV-KLETT BY  
EMPUR® IS SIMPLE  
TO INSTALL ALONE!

We are happy to answer any questions you might have regarding our "Exclusiv-Klett" system. Give us or your specialist craftsman a call!



# Exclusiv-Klett system

## Standardised installation

### Your route to increased home comfort



Full-surface laying of the bottom insulation, taking into account the existing supply lines.



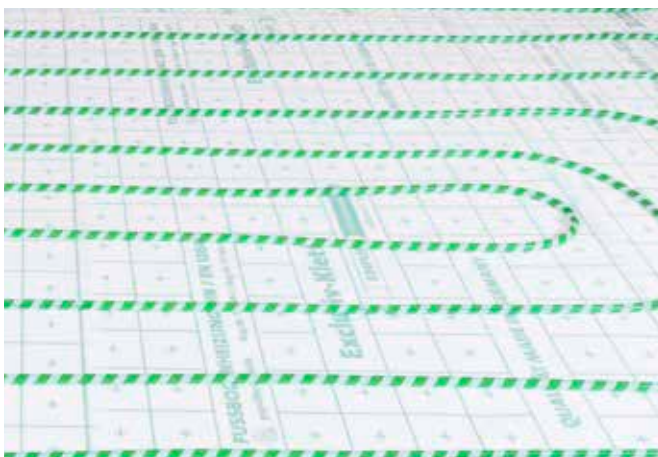
Fixing of the edge-insulation strips on all ascending parts. A reliable seal must be ensured.



Once the EMPUR® hook and loop panels have been laid overlapping, the overhanging film is fixed to the connecting panel with connecting tape.



Install the KLIMAPEX® hook and loop pipes using the preprinted laying grid by lightly pressing onto the hook and loop panel.



Secure fixing of the heating pipes thanks to excellent bonding properties of the hook and loop tape. Positions can be corrected at any time.



Connecting the underfloor heating pipes to the manifold, filling the system with water and leakage test.

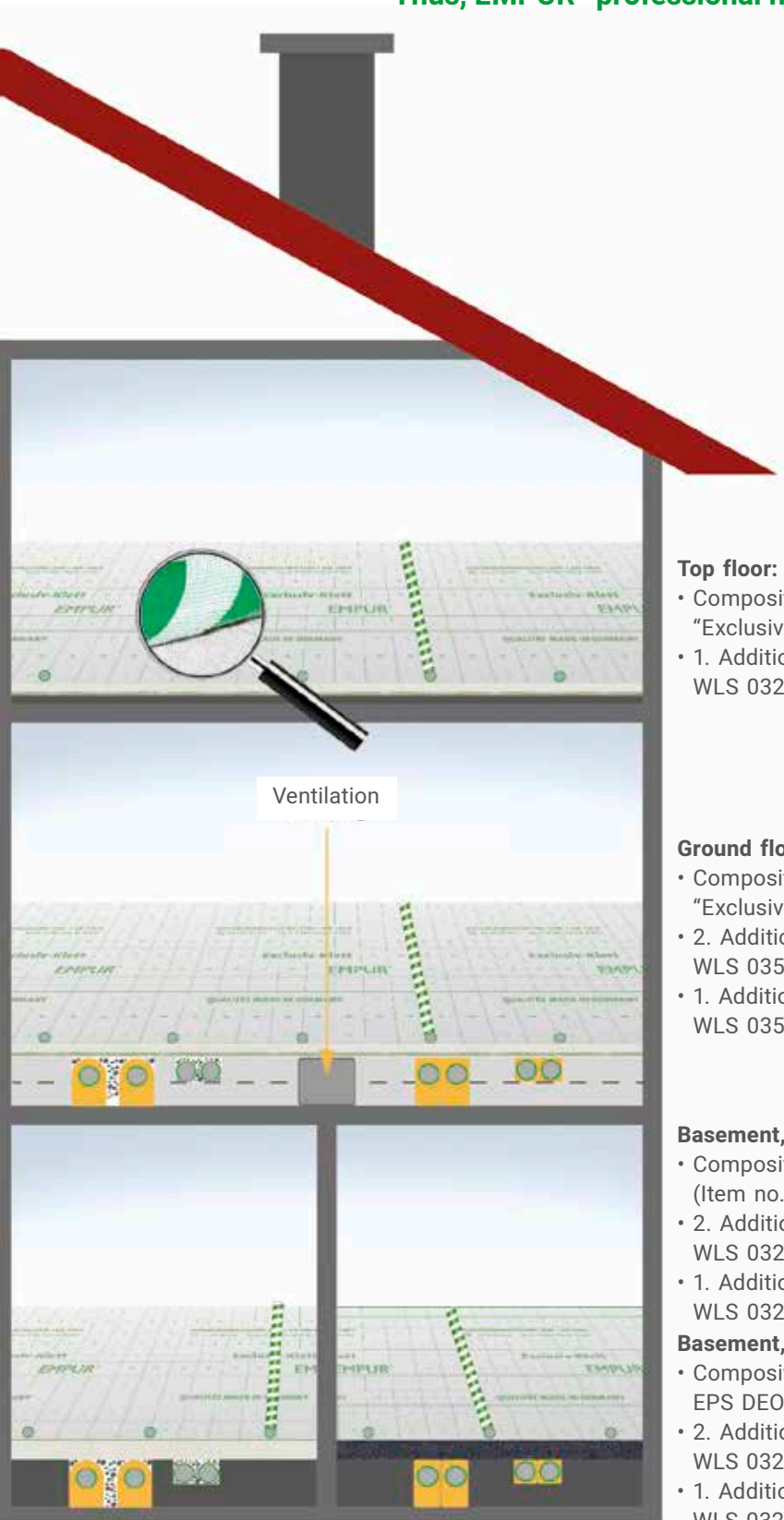


# Exclusiv-Klett system

Standardised installation

Thus, EMPUR® professional heating engineers work with “Exclusiv-Klett”

## Optimal laying in the Exclusiv-Klett-House



### Top floor:

- Composite panel PUR/PE 15 “Exclusiv-Klett” (Item no. 070414)
- 1. Additional insulation EPS DEO dm WLS 032



### Ground floor:

- Composite panel PUR/PE 15 “Exclusiv-Klett” (Item no. 070414)
- 2. Additional insulation EPS DEO dm WLS 035
- 1. Additional insulation EPS DEO dm WLS 035



### Basement, left:

- Composite panel PUR 23 “Exclusiv-Klett” (Item no. 070424)
- 2. Additional insulation EPS DEO dm WLS 032
- 1. Additional insulation EPS DEO dm WLS 032



### Basement, right:

- Composite panel „Klett-Kompakt” EPS DEO dm (Item no. 070236)
- 2. Additional insulation EPS DEO dm WLS 032
- 1. Additional insulation EPS DEO dm WLS 032



**NOTE**

Heat and sound insulation certificates must always be observed!

# Exclusiv-Klett system

## System components

### Composite panels "Exclusiv-Klett"

- Fibreboard "Klett" 2.6 mm
- PUR/PE "Exclusiv-Klett" 15 with sound absorption
- PUR "Exclusiv-Klett" 23 without sound absorption
- Composite panels "Klett-Kompakt" EPS-DEO 30
- Composite panels "Klett" EPS-DES 20-2 and 30-2
- Turbo-Cube "Klett" EPS-DES for large areas in thicknesses 20-2, 25-2, 30-2, 30-3 and 35-3





# Exclusiv-Klett system

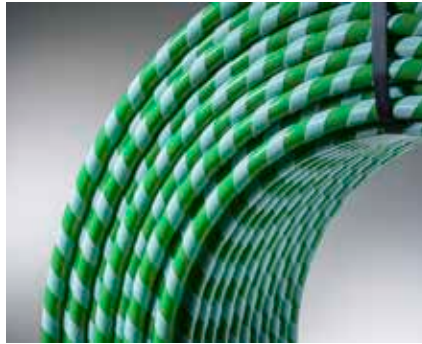
## System components



**KLIMAPEX® heating pipe PE-RT "Klett"**

12 x 1.5 / 15 x 1.8 (green) / 17 x 2.0 as 5-layer pipe or  
15 x 1.8 (green) / 17 x 2.0 as 3-layer pipe

made of polyethylene, Type I/II in accordance with DIN EN ISO 22391-2 and  
DIN 16833 with increased thermal stability and insoluble diffusion-tight EVOH  
barrier layer according DIN 4726



3V 204 PE-RT



**KLIMAPEX® heating pipe PE-Xa "Klett"**

15 x 1.8 / 17 x 2.0 as 5-layer pipe  
made of high-pressure crosslinked  
polyethylene in accordance with DIN  
16892/16893 and insoluble diffusion-  
tight EVOH barrier layer according DIN  
4726



**Connecting tape "Klett"**

for strong and positive connection of  
Exclusiv composite panels and addi-  
tional fixing of pipelines, 30 mm wide



**Laying gloves "Klett"**



**Door tensioner**

with rotating bezel, open extending  
length min. 570 mm – max. 960 mm



**Ceiling tensioner**

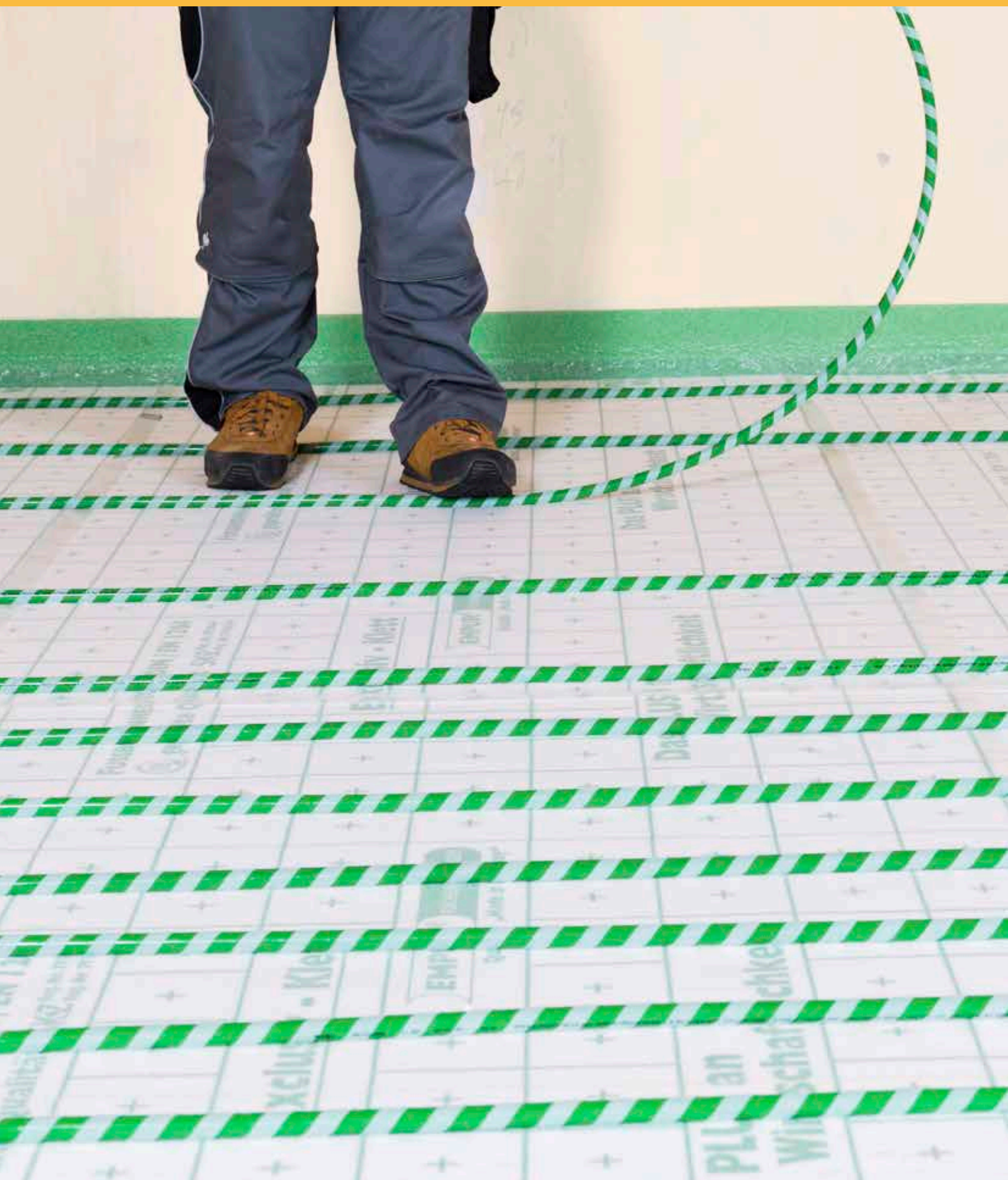
with rotating bezel, open, adjustable  
from min. 1,650 mm – max. 2,800 mm

### NOTE

Complete your Exclusiv-Klett system with further EMPUR® products such as a heating circuit manifold, manifold accessories, manifold cabinet and control technology in order to enjoy a self-contained EMPUR® system (see page 14 et seq.). We'd be pleased to advise you!

# Exclusiv-Klett system

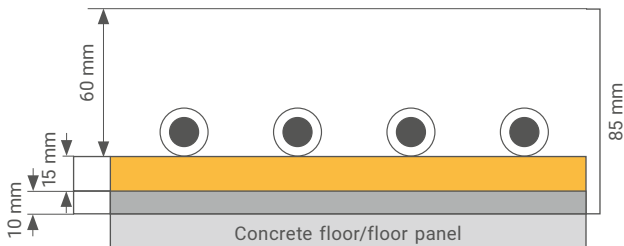
Example assembly





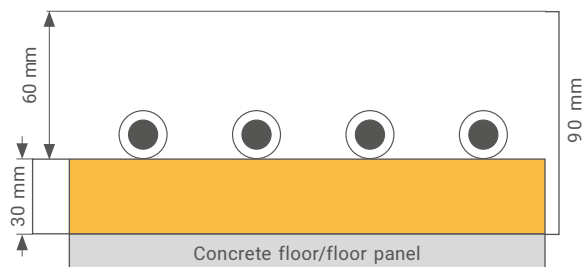
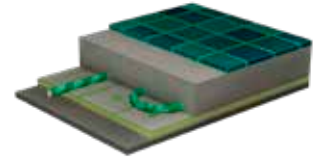
### Insulation for flat partition ceiling above rooms with similar use (19°C/19°C)

Requirement DIN EN 1264 R = 0.75 m<sup>2</sup> K/W (U = 1.33 W/m<sup>2</sup>K)



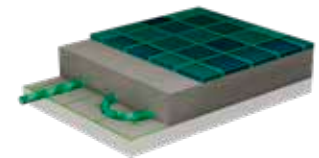
60 mm heating screed incl. system pipe 15 x 1.8 mm  
15 mm composite panel "Exklusiv-Klett" PUR/PE 10 + 5 mm  
10 mm additional insulation EPS-DEO WLS 032

**85 mm (without lining) R = 0.857 m<sup>2</sup> K/W**



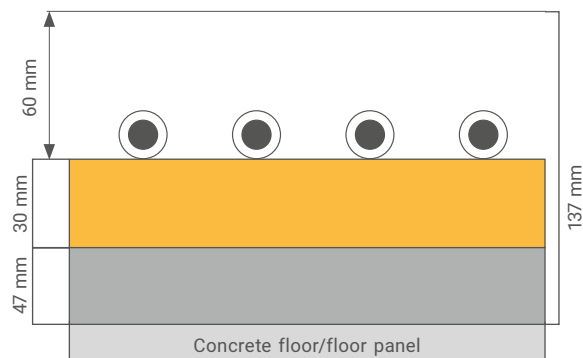
60 mm heating screed incl. system pipe 15 x 1.8 mm  
30 mm composite panel "Klett" EPS-DES 30-2 WLS 040

**90 mm (without lining) R = 0.75 m<sup>2</sup> K/W**



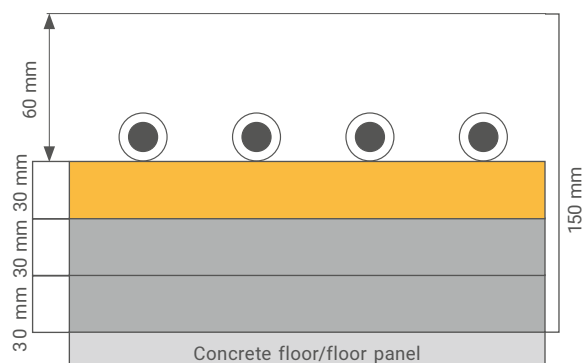
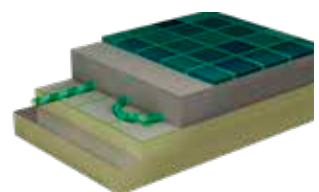
### Insulation against ground, outside air or unheated/partially heated rooms (cellar)

The required insulation results from the energy certificate of the building in compliance with the current requirements of the Building Energy Act (GEG) and is prepared by the building planner/architect.



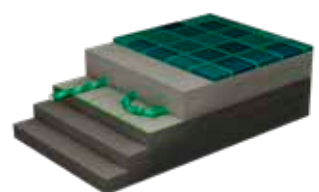
60 mm heating screed incl. system pipe 15 x 1.8 mm  
30 mm composite panel "Klett-Kompakt" EPS-DEO WLS 032  
47 mm additional insulation PUR 47 WLS 024

**137 mm (without lining) R = 2.890 m<sup>2</sup> K/W**



60 mm heating screed incl. system pipe 15 x 1.8 mm  
30 mm composite panel "Klett-Kompakt" EPS-DEO WLS 032  
30 mm additional insulation EPS-DEO WLS 032  
30 mm additional insulation EPS-DEO WLS 032

**150 mm (without lining) R = 2.813 m<sup>2</sup> K/W**



# Exclusiv-Klett system

## Your benefits

### For specialised craftsmen

- One system, one manufacturer – from consultation and design to component delivery
- **Security for end clients and processors – system components optimally adapted to each other with universal licences**
- Proven quality through **in-house production**
- Minimal installation height  $\geq 75$  mm with PUR/PE 15 or 63 mm with fibreboard “Klett” (without lining)
- Quick and neat processing of the system panels
- Robust panel during use with **long-term stability**
- Pre-defined laying grid (50 mm) as an orientation aid for system-compatible laying of the KLIMAPEX® plastic heating pipes
- **Low-weight material**, enabling easy and non-tiring installation
- Turbo-Cube rolls in versions with various insulation materials enable quick laying even in large rooms
- **Quick, one-man installation**
- Easy laying – easy and quick laying out of the insulation materials
- One-sided hook and loop film overhang for optimal attachment to the EMPUR® hook and loop tape
- **Minimal waste due to overlay technology**
- Easy installation of the KLIMAPEX® plastic heating pipes thanks to the hook and loop pipes being easy to press onto the hook and loop panel; correcting the pipes' positioning is possible without damaging the insulation material surface
- **Optimum hold** of Exclusiv-Klett heating pipes on the EMPUR® “Klett” composite panels with more than 200 attachment points/cm<sup>2</sup> – perfect hook and loop technology for secure attachment
- Quick and flexible laying of pipes of all dimensions and qualities
- **Many insulation materials** available in various strengths
- Optimal combination with calcium sulphate liquid screeds thanks to the KLIMAPEX® plastic heating pipes being completely covered
- Door and ceiling tensioners enable quick and economical laying
- Many expansion possibilities – comprehensive EMPUR® range with PUR additional insulation materials and various system accessories and tools, as well as manifold and control technology products
- **Well-known system with years of practical experience**
- No entry of moisture under the floor and no sound bridges – secure surface sealing using a system-suitable connecting tape (no damage to the insulation layer)
- 10-year material and consequential damage liability on EMPUR® heating pipe with exclusive use of our system components subject to compliance with further warranty conditions (see EMPUR® warranty certificate)





# Exclusiv-Klett system

Your benefits

## For the end-consumer

- **Various system panels available with or without insulation or sound absorption**
- **Heat insulation across the entire surface**
- Simple implementation of thermal insulation requirements in new and old buildings
- Ideal for modern heat generators (condensing boilers, regenerative heat generators, etc.)
- No swirling up of dust, making it suitable for people with allergies
- **Maximum comfort** thanks to heat radiation
- New design possibilities without radiators
- **Increases building value**
- **Energy savings** through low flow temperatures
- Underfloor heating for all layouts
- **Comfort** thanks to even heat distribution
- **Well-known system with years of practical experience**
- **Energy efficiency** – best energy footprint with PUR-THERM® products



# Exclusiv-Klett system

## Additional system components

### Manifold technology

At our Buchholz-Mendt location, EMPUR® produces high-quality manifolds and special solutions from brass and stainless steel for client-specific requirements.

The structural design of our new manifold generation requires significantly less effort for specialised craftsmen to assemble in combination with the EMPUR® manifold cabinets. With the specially developed **quick manifold assembly technology**, the manifolds are simply suspended in the guide rails of the manifold cabinet and fixed using two fillister head screws.

Thanks to extensive manifold accessories, we enable the right connection in every situation for a perfectly adapted system – ranging from connection sets and heat volume measurement sets to line regulating or zone valves, pointer thermometers and restrictors.

**You can find detailed information in our Manifold technology brochure.**

### Stainless steel manifold



Stainless steel manifold, series 03 Balance, 2-12 heating circuits 1" IT

#### System manifold HCM-D Balance with integrated, dynamically regulating valves

Complete manifold made of 1" stainless steel section pipe in the pressure range 17-60 kPa, can be preset for flow rates of 30-300 l/h, 50 mm valve clearance, fully installed in the factory on the manifold holder with sound insulation inserts. Return valves (top) with a blue protective cap, EMPUR® actuators can be installed directly instead. Feed flow (bottom) with flow indicator **without scaling** for shut-off and function display. Heating circuit connections 3/4" Eurocone, 2 manifold end pieces with reducer (rotatable) for filling, bleeding and draining.



Stainless steel manifold, series 03, 2-12 heating circuits 1" IT

#### System manifold HCM-D, series 03 with flow rate indicator

Stainless steel section pipe complete manifold with integrated valves, 50 mm valve clearance. Pre-assembled in the factory on the manifold holder with sound insulation inserts for fast assembly in the manifold cabinet, return flow valve (top) with blue protection cap, EMPUR® actuators can be installed directly instead. Feed flow (bottom) with controllable and adjustable flow rate indicators (0-2.5 l/min.), heating circuit connections 3/4" euroconus. 2 manifold end-pieces with reducer (rotatable) for filling, bleeding and draining.

### NOTE

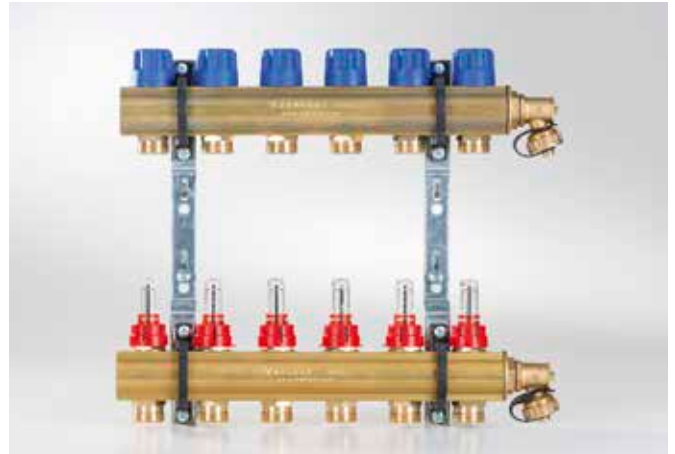
The water quality requirements according to VDI 2035 must be adhered to!



### Brass manifold

#### System manifold HCM-D, version 2.0 with flow rate indicator

Complete manifold made of brass section pipe with integrated valves, 50 mm valve clearance, return flow valve (top) with blue protection cap. Pre-assembled on manifold holders with sound insulation inserts. EMPUR® actuators can be installed directly instead. Feed flow (bottom) with controllable and adjustable flow rate indicators (0-2.5 l/min.). Heating circuit connections 3/4" euroconus. 2 manifold end-pieces with reducer (rotatable) for filling, bleeding and draining.



Brass manifold, version 2.0, 2-16 heating circuits 1" IT or 5-16 heating circuits 5/4" IT

### Control manifold

#### Control manifold HCM-DR, version 2.0 with high-efficiency pump and thermoseparator

Manifold made of brass section pipe with integrated valves, 50 mm valve clearance. Pre-assembled on manifold holders with sound insulation inserts. Return flow valve (top) with blue protection cap. EMPUR® actuators can be installed directly instead. Feed flow (bottom) with controllable and adjustable flow rate indicators (0-2.5 l/min.). Heating circuit connections 3/4" euroconus. Suitable for variable or constant flow temperature control in combination with control set V or K for the hydraulic integration of low-temperature under-floor heating in an existing heating system.



Control manifold HCM-DR with high-efficiency pump and thermoseparator, version 2.0, 2-9 heating circuits 1" IT or 10-16 heating circuits 5/4"

### EMPUR® Geniex complete manifold

The unique Geniex pump technology in the unit together with the high-quality EMPUR® components such as the manifold, manifold cabinet etc. facilitates the installation and operation of modern surface heating systems (e.g. underfloor or wall heating systems) as well as conventional heating systems.

The **EMPUR® Geniex heat distribution system\*** is a flexible surface heating and control system which enables appropriate, customised heating in all rooms in residential and non-residential buildings.

The advantages of individual production and the production expertise set standards in manifold technology.

\* For more information, see [www.geniex.de](http://www.geniex.de)



EMPUR® Geniex complete manifold

## NOTE

The water quality requirements according to VDI 2035 must be adhered to!

# Exclusiv-Klett system

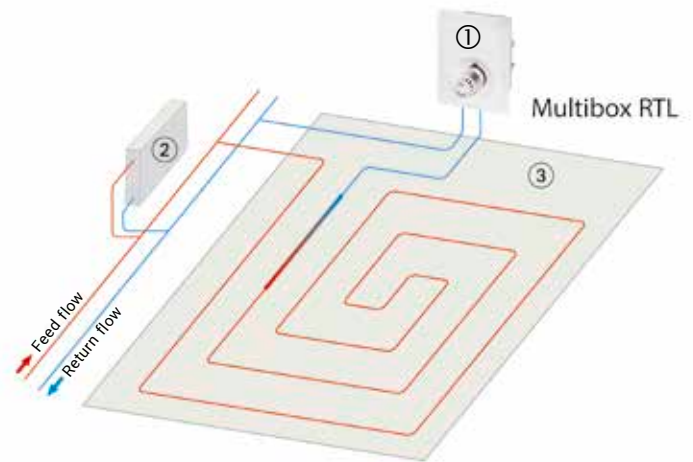
## Additional system components

### Multibox-RTL individual room control

for the renovation and subsequent installation of under-floor heating in individual rooms, e.g. bathroom. GEG compliant control is possible thanks to the separate detection of the return flow temperature and the room temperature by the thermostat. A simple and low-cost installation that increases comfort and reduces energy costs.

#### System illustration (example):

Multibox RTL ① in the system return flow of the underfloor heating ③ connected to the return flow temperature limitation in an existing heating system with heating surfaces ②



### Manifold accessories

Whether you are installing a low-temperature heating system or you would like to integrate surface heating into a high-temperature heating system. We have the right accessories for you! Here, you will find a selection from our range. Please see our current price list for further components.



Actuator "Economy"



Zone valve



Manifold connection set 90°



1/2" WMZ connection set passageway



Connection set 90° for thermoseparator



Box wrench, open SW 30



### Manifold cabinets

Manifold cabinets provide the perfect location for manifolds and control stations. The variants 'Top Standard' version as a wall-mounted cabinet and the 'Exclusiv' version as a flush-mounted cabinet are available for the conventional assembly.

The large manifolds, control stations and control manifolds are installed in the 'Top Standard plus' manifold cabinet for wall-mounting or 'Exclusiv plus' for flush-mounting.

Our latest manifold generation offers a significantly reduced assembly effort for specialised trades in combination with the EMPUR® manifold cabinets. With the specially developed **quick manifold assembly technology**, the manifolds are simply suspended in the guide rails of the manifold cabinet and fixed using two fillister head screws.

Additional benefits of the new generation of manifold cabinets include easy connection of the primary connections, time savings when feeding through electrical connection cables and, of course, secure and flexible mounting options.



Manifold cabinet 'Top Standard' version



Manifold cabinet 'Exclusiv' version

# “Exclusiv-Klett” system

## Additional system components

### Control technology

EMPUR® offers innovative and perfectly matched control components as an ideal addition to versatile surface heating systems. We offer cable-bound standard solutions for conventional surface heating, as well as solutions for heating/cooling applications with heat pumps depending on the type of application and installation.

In the case of retrofitting or modernisation, mostly wireless variants are used, which can be combined with modern heat generators.

We offer individual automation options with our Exclusiv modular-designed control technology (wireless/BUS). So you can also control your heating system via smartphone and PC.

The individual product ranges are supplemented using control terminal strips that – depending on the equipment –

can also control a circulation pump. Dew point/humidity monitors and digital room temperature controllers with clock function round off the programme.

Opposite you will find a selection of our range. Please see our current price list for further components.

**Give us a call. We'd be pleased to advise you!**





# “Exclusiv-Klett” system

## Additional system components



Room operating unit 230 V/24 V analogue standard heating/cooling



Room operating unit 230 V/24 V Standard plus heating/cooling with display



Wireless/BUS room operating unit with display



Control terminal strip Balance heating/cooling 230 V



Humidity monitoring with external sensor



Wireless/BUS base station



Dew point monitor 230 V for top-hat rail mounting



Dew point sensor type 2 for dew point monitor 230 V



Dew point sensor type 3 for dew point monitor 230 V

You can find detailed information in our Control technology brochure.



## Your specialists for surface heating systems

Expertise, reliability and commitment are **EMPUR®**'s strengths. In addition to the production and sale of high-quality surface heating systems and components, the company's range of services also includes comprehensive services relating to the planning and installation of our complete systems.

**EMPLAN®**'s specialist engineers and planning consultants are available to help you with their expertise in demanding property planning in almost all TBE (Technical Building Equipment) areas such as heating, air conditioning, ventilation, plumbing and electrical.

We have bundled our many years of experience in the installation of surface heating systems into our **EMSOLUTION®** and support tradesmen to complete their construction projects on time.

**EMPUR®**, **EMPLAN®** and **EMSOLUTION®** together form the **EMGRUPPE®**. Thus, the three core areas of expertise – production, planning and installation – come from a single source.

TBE . PLANNING . CONCEPTS

### EMPLAN®

- Planning surface heating and cooling systems for new builds, modernisation projects and customised solutions
- Project planning for heating, ventilation and air conditioning applications, electrical engineering and swimming pool technology
- Creation of performance specifications
- Planning and designing Geniax projects
- Energy planning and assessment of residential and non-residential buildings (EnEV/GEG certificates)
- Construction supervision for technical building systems

[www.em-plan.net](http://www.em-plan.net)

TBE . PRODUCTION . SALES

### EMPUR®

- Plastic heating pipes, insulation and composite panels for surface heating and cooling systems for new builds and modernisation projects
- Manifold and control technology
- Geniax heat distribution systems
- Accessories and tools
- Customised solutions for industrial, sports and commercial buildings

[www.empur.com](http://www.empur.com)

TBE . ASSEMBLY . SERVICE

### EMSOLUTION®

- Installation of surface heating and cooling systems in new build and modernisation projects
- Installation of the CUT-THERM® milling system
- Commissioning of Geniax heat distribution systems and heat pump systems
- Service for technical building installations

[www.em-solution.de](http://www.em-solution.de)