

Ceiling heating/cooling



## Ceiling heating and cooling

For a comfortable room climate all year round



# 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.

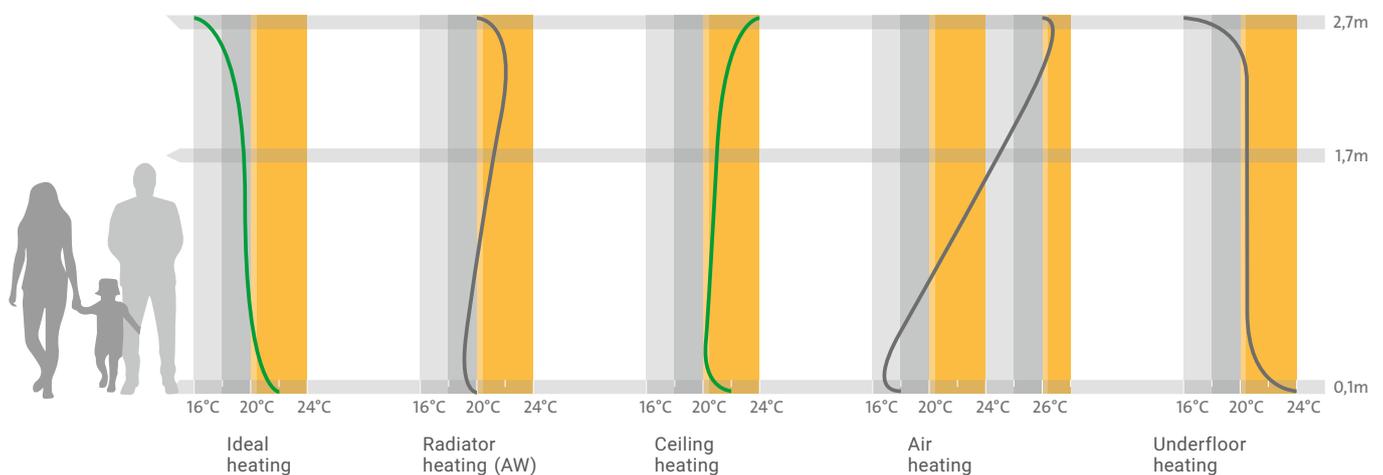
Mild heat radiation from the bottom up creates an increased sense of wellbeing. As a heat source with a large surface area, it can make an exceptional contribution to lowering energy costs at low flow temperatures. In this way, it also makes a significant contribution to sustainability and to protecting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

Surface heating is also especially suited to people with allergies. Noise, draughts and air turbulence do not occur with surface/ceiling heating and cooling. 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 often in modernisation. No additional installation height is required for ceiling heating and cooling.

## Surface temperatures

Temperature curve progression: Comparison of "ideal heating" with a ceiling heating



# 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.



# Ceiling heating and cooling

For a comfortable room climate all year round



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For a comfortable room climate all year round



In buildings with increasingly better thermal insulation and a large proportion of glass surfaces, unwelcome increases in internal temperatures can occur on sunny days. It is recommended to use ceiling and wall elements for heating and cooling purposes to create a comfortable indoor climate, especially in the summer months. The systems can be used individually or together with a surface heating system. The combination with heat pump systems enables efficient temperature control of individual rooms or entire buildings.

The EMPUR® product range now includes two variations of a ceiling heating/cooling system. On the one hand, **aluminium ceiling elements for heating and cooling** for suspended ceiling grids and, on the other hand, **ceiling and wall elements made with a special plasterboard**.

Suspended ceilings have been the standard in modern office, commercial and administrative buildings for a long time. They

look good, provide sound insulation and make large parts of the extensive building services invisible to visitors of the building. These drywall ceilings can also be used to air-condition the rooms. The EMPUR® ceiling heating and cooling system is simply inserted into the existing metal rail construction.

The new, ready-to-use ceiling and wall element for heating and cooling by EMPUR® is made with a special plasterboard with insulation on the back. In just a few steps, the EMPUR® system elements are used to create a drywall ceiling or a drywall that can efficiently control the temperature of the respective room. **The element is ideal for renovation projects in which the floor cannot or only partially be used for surface heating, as well as for all new-build projects.**

EFFECTIVE HEATING &  
COOLING ACROSS THE CEILING  
OR WALL WITH EMPUR®

We are happy to answer any questions you might have regarding our ceiling heating and cooling. Give us or your specialist craftsman a call!



# Ceiling heating and cooling

## Aluminium ceiling elements



The ceiling heating and cooling system is designed for drywalls in new-builds or renovation projects. **The ceiling elements consist of a powder-coated aluminium sheet.** On the back, the elements are covered with 30 mm EPS thermal insulation (WLS 035) into which the high-quality PE-RT 5-layer pipe is integrated at the factory. The low weight enables simple and straightforward handling. The 600 x 600 grid size prefabricated with a heating circuit – alternatively without a pipe circuit as a dummy/compensating element – allows for flexible design of the ceiling surface. The ceiling elements can be installed in combination with standard ceiling substructures (e.g. T 24 support rail systems). Special plug-in couplings connect the elements.

### Our EMPUR® ceiling aluminium element impresses

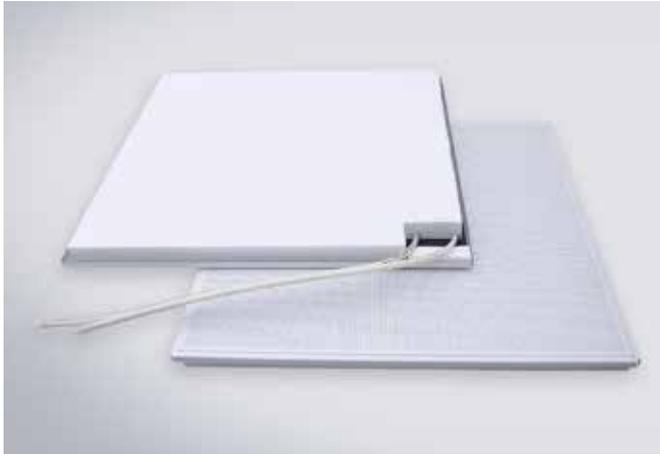
- **Easy installation** in new or existing suspended system ceiling grids
- Low-maintenance and durable surface thanks to powder coating
- Suitable for **cooling and heating**
- Low thermal inertia, with **good adjustment**
- **Low weight**, fast installation on standard ceiling substructures
- **High performance** with low system temperatures
- Noiseless, even and practically draft-free temperature distribution

#### NOTE

EMPUR® ceiling heating elements must be measured by the specialist planner and may only be installed and commissioned by authorised specialist companies. Installation and assembly must be carried out in accordance with the applicable technical rules and the latest technology. The specifications of the manufacturers of the rail system elements or the profile systems must also be taken into account and observed.

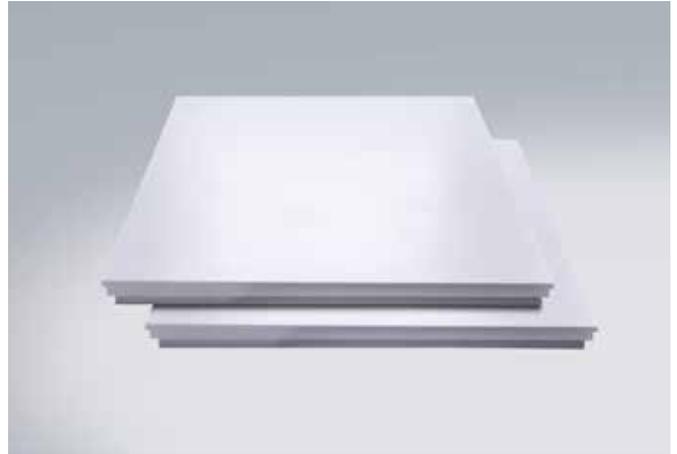
# Ceiling heating and cooling

## System components



### Ceiling element H/C aluminium

Surface painted white, similar to RAL 9003  
600 x 600 x 30 mm (0.36 m<sup>2</sup>), WLS 035  
ready for installation with PE-RT 8 x 1.0 mm pipe  
(Requirement: 2.778 pcs/m<sup>2</sup>,  
system weight: approx. 6 kg/m<sup>2</sup>)



### Ceiling compensation element

Surface painted white, similar to RAL 9003  
600 x 600 x 30 mm (0.36 m<sup>2</sup>), WLS 035  
ready-for-installation, without pipe (dummy element)  
(Requirement: 2.778 pcs/m<sup>2</sup>,  
system weight: approx. 6 kg/m<sup>2</sup>)



### Push fitting H/C element\*

for connecting line aluminium composite pipe 20 x 2.0 mm  
Through fitting 20 x 2.0 mm with 4 outlets, 8 x 1.0 mm (red)  
Through fitting 20 x 2.0 mm with 4 outlets, 8 x 1.0 mm (blue)



### Push fitting H/C element\*

Coupling 20 x 2.0 mm for aluminium composite pipe  
Coupling 20 x 2.0 mm for PE pipe  
Coupling 8 x 1.0 mm for PE-RT pipe

\* On-site connection via wholesaler.

Take the tolerance dimensions of the fittings into account when selecting the pipe (see data sheet).

## NOTE

Complete your EMPUR® ceiling heating/cooling 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 15 et seq.). We'd be pleased to advise you!

# Ceiling heating and cooling

Aluminium ceiling elements



# Ceiling heating and cooling

## Aluminium ceiling elements

### Installation example ceiling heating and cooling



After the substructure has been installed, the individual heating and cooling elements can be inserted and connected. The substructure must have sufficient longitudinal and transverse stability and be adapted to the grid dimensions of 600 x 600 mm and the weight of the aluminium elements (approx. 6 kg/m<sup>2</sup>). In addition to the connection lines, other installations, e.g. for electricity, lighting, water or ventilation, can be placed concealed in the ceiling space. For the installation of the ceiling elements, a free distance to the ceiling of at least approx. 15 cm is recommended.



With the corresponding connectors, 2 or 4 ceiling elements can be connected in parallel to the aluminium composite or PE distribution lines 20 x 2.0 mm. The distribution lines must be insulated according to the application.

The 8 x 1.0 mm connecting cables of the individual elements, which can also be shortened if necessary, should be free of twists and stresses in the installed state and without kinking in the space between the ceilings.

For all plug-in connections, the correct position and necessary insertion depth of the pipes must be ensured. The pipes must be cut straight and burr-free using suitable tools and calibrated.



After the tightness test has been carried out, the elements are carefully inserted into the substructure in the direction of the arrow and aligned with the grid. The protective film must be removed during the final installation. We recommend wearing clean gloves to prevent soiling of the high-quality surface.

#### NOTE

Please be sure to follow our assembly instructions for ceiling and wall elements, which you can download from our website.

# Ceiling heating and cooling

## Plasterboard ceiling and wall elements



The drywall elements consist of a 12.5 mm thick plasterboard into which the high-quality PE-RT 5-layer pipe is integrated at the factory. On the back, the elements are covered with 30 mm EPS thermal insulation (WLS 035). The total board thickness of 42.5 mm ensures both sufficient and lightweight board stability. The position of the heating pipes is clearly printed on the surface of the panels to facilitate installation. Two prefabricated panel sizes with one or two heating circuits enable flexible design of the ceiling and wall surfaces. Another element, without a pipe circuit, can be used as a compensating/dummy element. The elements can be processed with standard profiles (e.g. CD 60/27/06), such as a standard plasterboard. The wall and ceiling heating and cooling system is designed for drywalls in new-builds or renovation projects.

### The EMPUR® Plasterboard ceiling and wall elements impresses

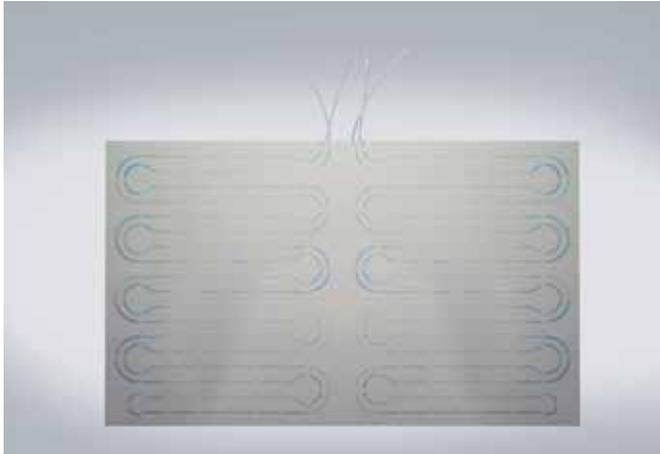
- Ready-to-use drywall element
- Installation possible **on wall and ceiling**
- Suitable for **cooling and heating**
- **Fast response**, low thermal inertia
- Easy and quick installation on standard drywall profiles
- Thermal insulation exceeds the requirement of DIN EN 1264 ( $R \geq 0.75 \text{ m}^2 \text{ K/W}$ ) compared to similarly heated rooms.
- High level of living comfort with low system temperatures

#### NOTE

EMPUR® ceiling heating elements must be measured by the specialist planner and may only be installed and commissioned by authorised specialist companies. Installation and assembly must be carried out in accordance with the applicable technical rules and the latest technology. The specifications of the manufacturers of the rail system elements or the profile systems must also be taken into account and observed.

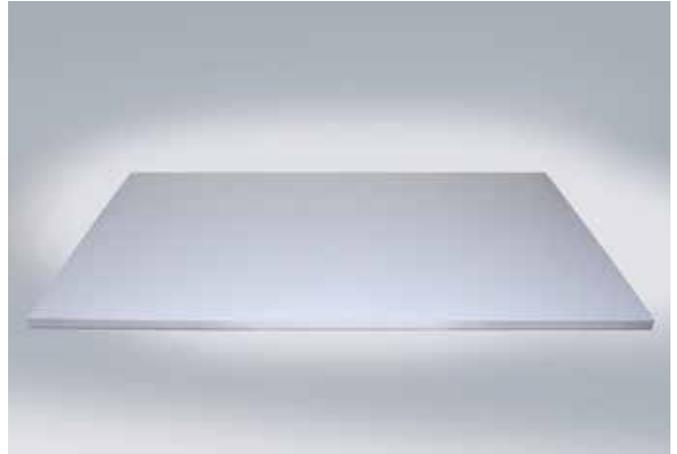
# Ceiling heating and cooling

## System components



### Ceiling and wall element H/C

2,000 x 1,200 x 42.5 mm (2.4 m<sup>2</sup>) or  
1,200 x 500 x 42.5 mm (0.6 m<sup>2</sup>)  
made from 12.5 mm gypsum board and 30 mm EPS, WLS 035  
ready for installation with PE-RT 8 x 1.0 mm pipe  
(Requirement: 0.416 pcs/m<sup>2</sup>, system weight: approx. 8.5 kg/m<sup>2</sup>)



### Ceiling and wall compensation element

2,000 x 1,250 x 42.5 mm (2.5 m<sup>2</sup>)  
made from 12.5 mm gypsum board and 30 mm EPS, WLS 035  
ready-for-installation, without pipe (dummy element)  
(Requirement: 0.4 pcs/m<sup>2</sup>, system weight: approx. 8.5 kg/m<sup>2</sup>)



### Push fitting H/C element\*

for connecting line aluminium composite pipe 20 x 2.0 mm  
Through fitting 20 x 2.0 mm with 4 outlets, 8 x 1.0 mm (red)  
Through fitting 20 x 2.0 mm with 4 outlets, 8 x 1.0 mm (blue)



### Push fitting H/C element\*

Coupling 20 x 2.0 mm for aluminium composite pipe  
Coupling 20 x 2.0 mm for PE pipe  
Coupling 8 x 1.0 mm for PE-RT pipe

\* On-site connection via wholesaler.

Take the tolerance dimensions of the fittings into account when selecting the pipe (see data sheet).

## NOTE

Complete your EMPUR® ceiling heating/cooling 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 15 et seq.). We'd be pleased to advise you!

# Ceiling heating and cooling

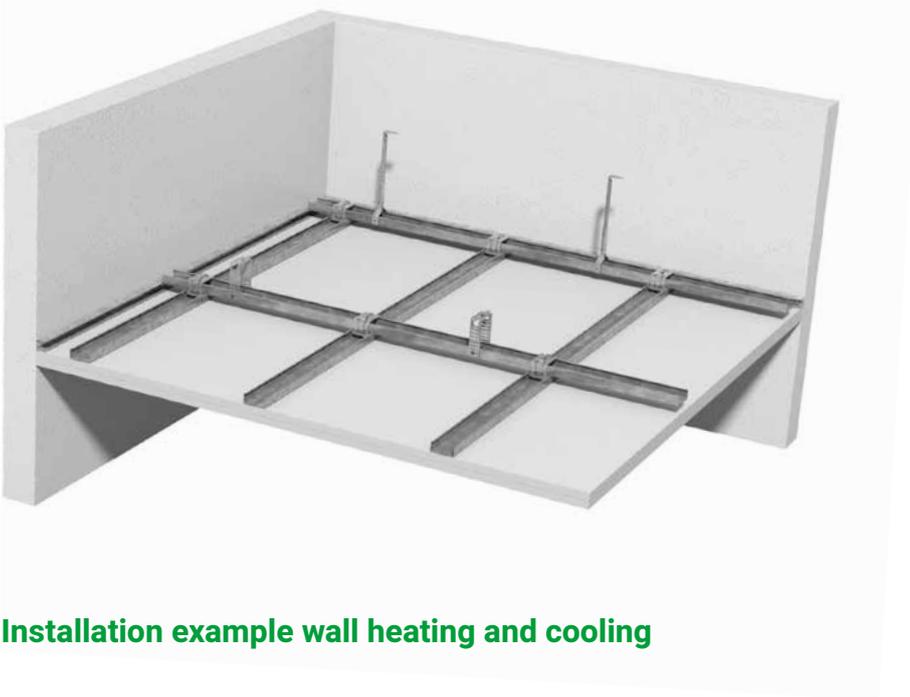
Plasterboard ceiling and wall elements



# Ceiling heating and cooling

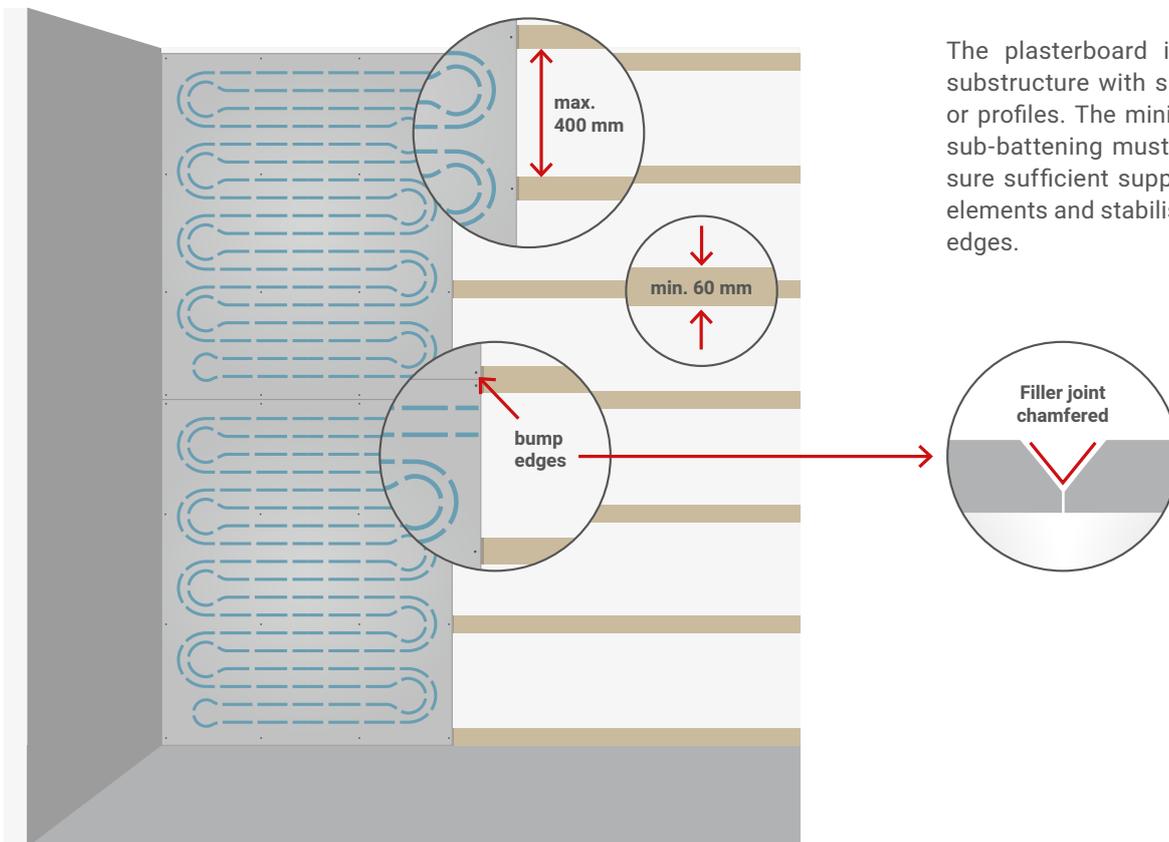
## Plasterboard ceiling and wall elements

### Installation example ceiling heating and cooling



The plasterboard panels are mounted on a suspended metal substructure. Due to the reduced room height, installations in the ceiling cavity can be concealed.

### Installation example wall heating and cooling



The plasterboard is mounted on a substructure with supporting timbers or profiles. The minimum width of the sub-battening must be 60 mm to ensure sufficient support of the cooling elements and stabilisation of the bump edges.

#### NOTE

Please be sure to follow our assembly instructions for ceiling and wall elements, which you can download from our website.

# Ceiling heating and cooling

## Benefits for the processor and the end-consumer

### The benefits of our ceiling heating/cooling systems are obvious

- Maximum comfort through mild **radiant heat** from above – heat transfer by radiation is perceived as much more comfortable than warm air flows of convective systems
- Suitable for **heating and cooling** – for a pleasant and healthy room climate all year round
- **Thermal comfort** according on the season – through low-noise and draught-free temperature distribution
- **Effective cooling in the summer** – cooling via the ceiling is more powerful and more pleasant than cooling via the floor or wall
- **New design options** without radiators – freely usable floor and wall surfaces for more flexibility in furnishing, also ideal in modernisation projects
- Optimum **concealment of connecting cables** – electrical, lighting, water or ventilation connections, for example, can be placed concealed in the ceiling cavity
- **Can be combined with a floor heating system** – our ceiling heating/cooling system can supplement a heat transfer system, or replace an existing system, as desired
- High performance with low system temperatures – for fast **response times** and good **regulating ability**
- No swirling up of dust, suitable for **people with allergies**
- **Energy savings** through low flow temperatures – ceiling heating/cooling systems can also be ideally combined with modern heat generators (heat pumps, regenerative energies etc.)
- **Simple implementation of thermal insulation requirements** in new and old buildings – our gypsum elements (with thermal insulation on the back) even exceed the requirements of DIN EN 1264 ( $R \geq 0,75 \text{ m}^2 \text{ K/W}$  compared to similarly heated rooms)
- **Increases building value** – therefore ideal for use in the renovation of existing buildings
- Many expansion possibilities – comprehensive EMPUR® range with various system accessories and tools, as well as manifold and control technology products



# Ceiling heating and cooling

## 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.

### 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.

#### Industrial manifold XXL-D

Complete manifold made of brass section pipe 5/4" with integrated valves, 50 mm valve clearance. Return flow valve (top) with blue protection cap. EMPUR® actuators can be installed directly instead of the blue protection caps. Feed flow (bottom) with controllable and adjustable flow rate indicators (0-5 l/min.). Max. permissible volume flow of all heating circuits 3 m<sup>3</sup>/h. 2 manifold end-pieces with reducer for filling, bleeding and draining, rotating.

Manifold holder with sound insulation insert. Heating circuit connections for pipe 20 x 2.0 including compression fittings.

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.**



Brass manifold, version 2.0, 2-16 heating circuits 1" IT



Industrial manifold XXL-D, 5-16 heating circuits 5/4" IT

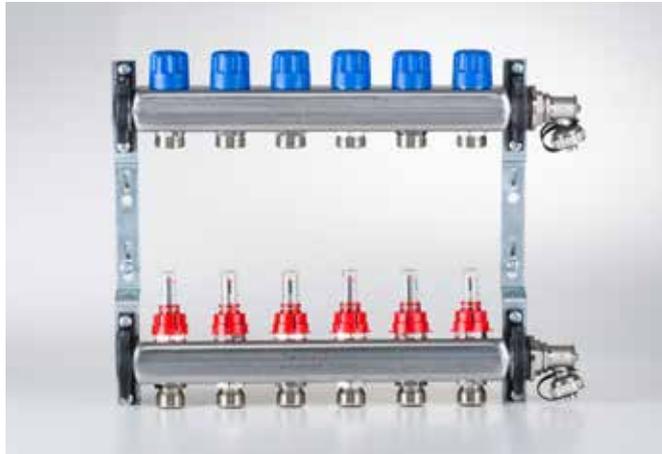
### NOTE

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

# Ceiling heating and cooling

## Additional system components

### Stainless steel manifold



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.

### EMPUR® Geniax complete manifold



EMPUR® Geniax complete manifold

The unique Geniax 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® Geniax 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.geniax.de](http://www.geniax.de)

#### NOTE

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

# Ceiling heating and cooling

## Additional system components

### 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



Manifold cabinet 'Top Standard' version



Manifold cabinet 'Exclusiv' version

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 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



Box wrench, open SW 30

# Ceiling heating and cooling

## 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 Exclusive 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. Timer modules and digital timers round-off the product range.

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!

# Ceiling heating and cooling

## 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
- Project planning and designing Geniux 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
- Geniux 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 Geniux heat distribution systems and heat pump systems
- Service for technical building installations

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