

EMPUR®

OPTIMAL II



OPTIMAL II dry construction system

One system panel for all instances



'Made in Germany' seal of quality

EMPUR® surface heating systems

Increased comfort and efficiency



The decision to install surface heating is a sensible decision for increased comfort, economy and sustainability. Nowadays, more than 70% of newly-constructed buildings have such a system. Surface heating systems are ideal for combining with modern heat generators and regenerative sources of energy.

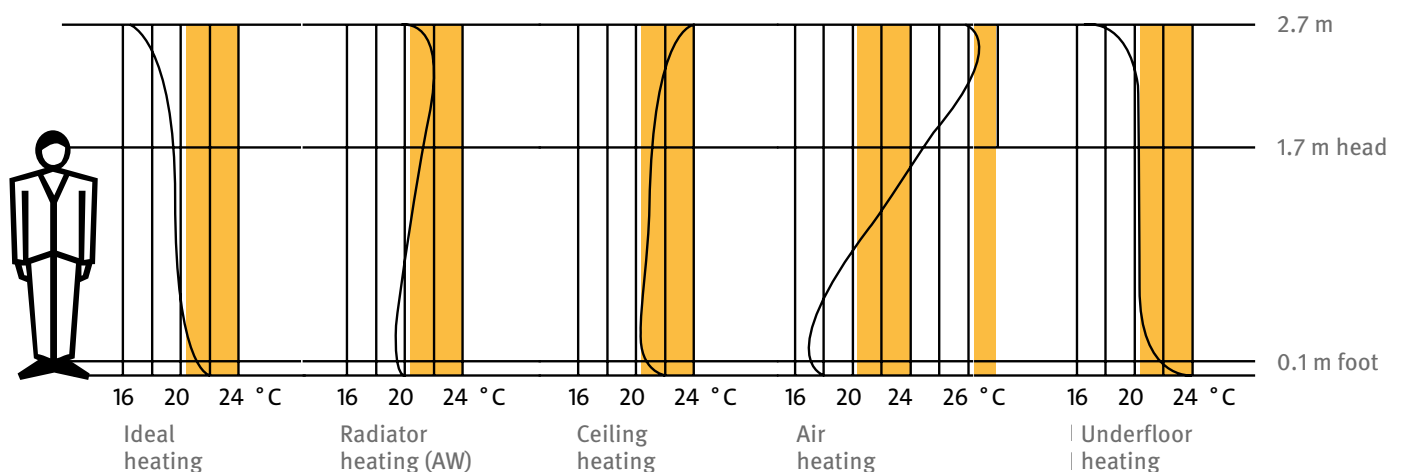
Mild heat radiation from the bottom up creates an increased sense of wellbeing. As a heat source with a large surface area, it can make an exceptional contribution to lowering energy costs at low flow temperatures. In this way, it also makes a significant contribution to sustainability and to protecting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

- Systems without additional installation height or with minimal installation height for modernisation projects
- Versatile systems with composite panels and additional insulation for new buildings in private, communal and industrial areas
- System accessories and tools
- High-quality manifold and control technology

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 company produces and is solely responsible for over 90% of all system components itself using its state-of-the-art systems. We work under a structured quality management system, which is certified by DEKRA in accordance with the DIN EN ISO 9001:2015 international standard.

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.



OPTIMAL II dry construction system

One system panel for all instances



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One system panel for all instances



The OPTIMAL II dry construction system by EMPUR® is useful wherever a low weight is required due to structural reasons or where dry screed components are being used.

The system consists of hard foam panels of the highest rigidity and foam incorporated grooves and pipe redirectors. The aluminium/steel heat conduction plates that are to be inserted ensure quick and even heat distribution. The dry screed load distribution layer can be placed into position immediately after the pipes have been laid.

The system panel can be used in many layouts.

Our OPTIMAL II dry construction system is convincing

- Quick laying
- Fast construction progress in combination with dry screed panels
- Easy handling of the few system components
- Quick laying of metal connecting pipes through predefined grooves
- Low surface area weight – ideal for the renovation of old buildings



The fast solution for renovations or new builds

Optimal II	Install system panels, fit guide panels and aluminium composite pipe	Leak testing, install dry screed panels	Install floor top covering	<p>VERY FAST</p> <p>→ result: Optimal II is a clean, high-performance system for very rapid construction progress</p>
	Time ▶	▶ 1ST day	▶ 2ND day	

OPTIMAL II dry construction system

One system panel for all instances



OPTIMAL II dry construction system

One system panel for all instances

Your route to increased home comfort



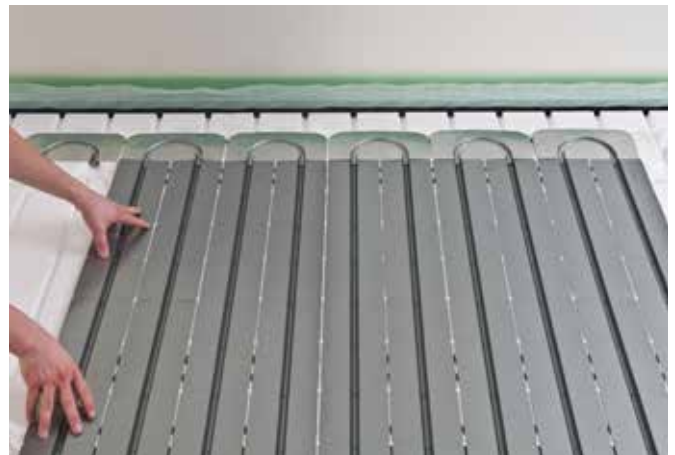
Full-surface laying of the bottom insulation, taking into account the existing supply lines and fixing of the edge insulation strips.



Full-surface laying of the system panels, taking into account the direction of the grooves.



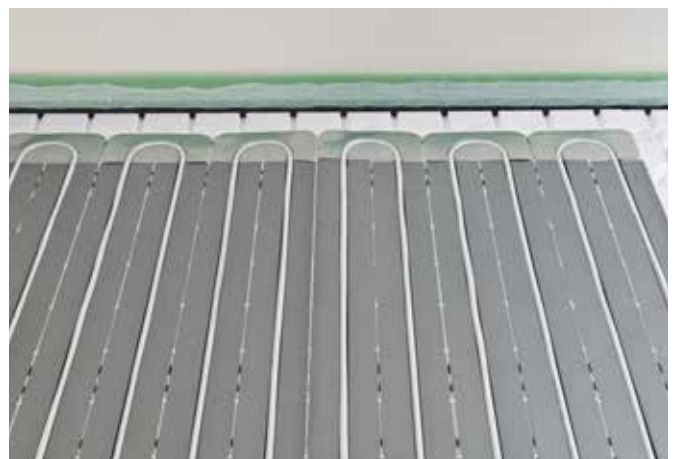
Inserting the aluminium redirection plates into the foamed grooves.



The heat conduction plates are added in the direction of the redirection plates. No special tools are required.



The metal composite pipe is easy to bend and clicks into the sheets with a little pressure.



The clamping effect ensures the composite pipe is securely fixed in the plate.

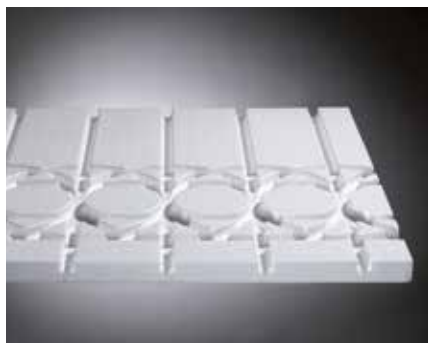
OPTIMAL II dry construction system

System components



OPTIMAL II dry construction system

System components



System panel RA 12.5/RA 25, WLS 035
Universal panel for continuous laying and redirections



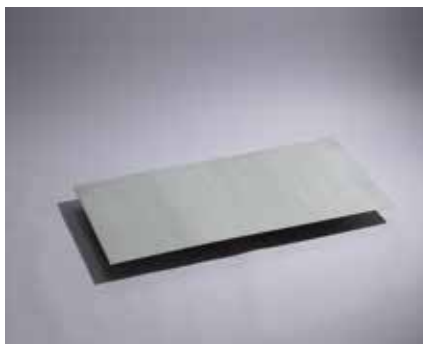
Aluminium redirection plate RA 12.5
for insertion into the system panel



Aluminium heat conduction plate
for high thermal output
with 5 pre-determined breaking points



Edge insulation strips
with self-adhesive base



Load distribution element for doorway
made of galvanised sheet steel



PE cover sheeting



**KLIMAPEX® metal composite pipe PE-RT/
AL/PE-RT 16 x 2.0**
made of polyethylene with welded
aluminium jacket, multi-layer composite
pipe, diffusion-tight and dimensionally
stable



Flexible springs
for the precise bending of metal
composite pipes



Compression fitting 16 x 2.0
especially for aluminium composite pipe

NOTE

Complete your OPTIMAL II dry construction 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!

OPTIMAL II dry construction system

Example assembly



Example: Floor heating

Flat separating ceiling above rooms with similar use (20 °C/20 °C)

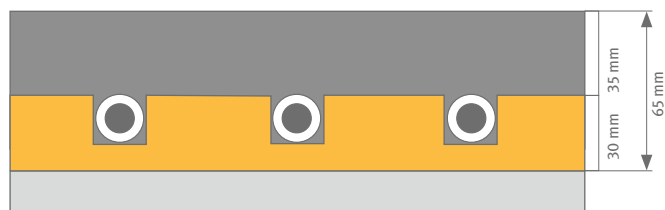
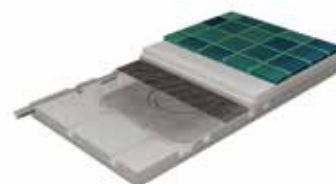
Requirement DIN EN 1264 R = 0.75 m² K/W (U = 1.33 W/m²K)



Dry laying

20 mm dry construction panel
30 mm system panel Optimal II WLS 035

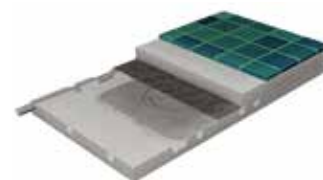
50mm (without lining) R = 0.857 m² K/W



Wet laying

35 mm anhydrite heating screed
30 mm system panel Optimal II WLS 035

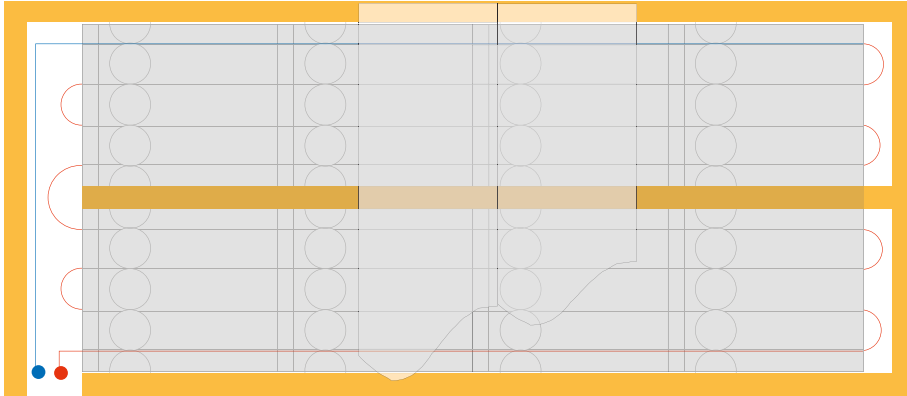
65mm (without lining) R = 0.857 m² K/W



NOTE

Screed, height and quality are to be tested for each individual case according to the site requirements!

Example: Wall and ceiling heating



1. Assemble rafter strips
2. Cut the base plates and clamp them between the rafters (leave space for redirectors)
3. Insert heat conduction plates
4. Insert pipe
5. Cover with PE film
6. Finish with plasterboard

*Optimal II from
EMPUR® can be used
in underfloor, wall and
ceiling heating*

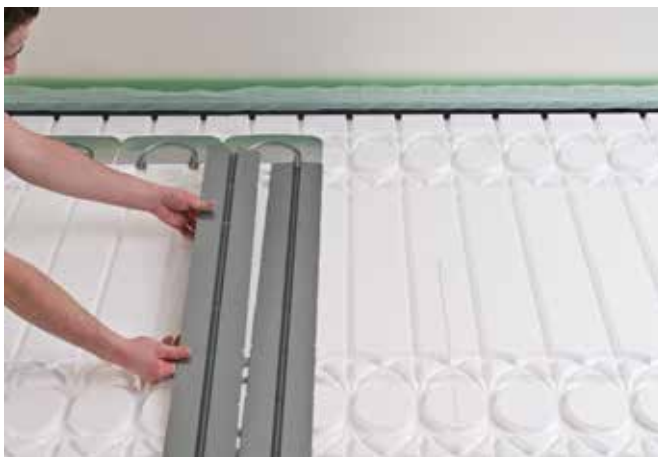


OPTIMAL II dry construction system

Your benefits

For specialised craftsmen

- **Security for end clients and processors – system components optimally adapted to each other with universal licences**
- Minimal installation height ≥ 50 mm (without lining)
- **Quick and neat processing** of the system panels
- Robust panel during use with **long-term stability**
- One element for all types of layout with two layout distances (125/250 mm) for a system-compatible laying of the metal connecting pipes
- **Low-weight material**, enabling easy and non-tiring installation
- Quick laying and fast construction progress in combination with dry screed panels
- Easy handling of the few system components
- Secure fastening of the metal connecting pipes in the heat conduction plates through the clamping effect of the redirectors
- Quick laying of metal composite pipes through predefined grooves
- **Many insulation materials** available with various strengths
- Suitable for dry screed and wet screed
- **Low surface area weight** in combination with dry construction components
- 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
- **Plates have high thermal conductivity** and low weight



OPTIMAL II dry construction system

Your benefits



For the end-consumer

- Minimal waste
- **Heat insulation across the entire surface**
- Quick laying and fast construction progress in combination with dry screed panels
- **Low surface area weight** in combination with dry construction components
- Problem-free implementation of the **Energy Savings Regulation (EnEV) 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
- **Highest comfort** thanks to heat radiation
- New design possibilities without radiators
- **Increases building value**
- **Energy savings** through low flow temperatures
- **Comfort** thanks to even heat distribution



OPTIMAL II dry construction 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.



PUR-THERM® stainless steel manifold, Series 03, 2-12 heating circuits

Stainless steel manifold

System manifold HKV-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 for filling, bleeding and draining, rotating, packaged and enclosed. All packaged in a carton and with identification plates.

NEW for quick manifold installation



PUR-THERM® brass manifold, Version 2.0, 2-12 heating circuits 1" IT or 13-16 heating circuits 5/4" IT

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 for filling, bleeding and draining, rotating, packaged and enclosed. All packaged in a carton and with identification plates.

NEW for quick manifold installation

NOTE

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

OPTIMAL II dry construction system

Additional system components

Control manifold

Control manifold HKV-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. In box with nameplates to identify the manifold outlets. Suitable for variable or constant flow temperature control in combination with control set V or K for the hydraulic integration of low-temperature underfloor heating in an existing heating system.



Control manifold HKV-DR with high-efficiency pump and thermoseparator, Version 2.0, 2-16 heating circuits

NEW for quick manifold installation

NOTE

The water quality requirements according to VDI 2035 must be adhered to! To protect the flow rate indicator and fittings, we recommend that old systems are rinsed thoroughly and to check for the installation of a dirt trap. Use 'Top Standard plus' or 'Exclusiv plus' manifold cabinets in combination with this! Thermostatic head control set K or actuator control set V must be ordered separately! Control terminal strip with pump logic required, overheat thermostat recommended, WMZ set upon request!

EMPUR® Geniix complete manifolds

The unique Geniix 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® Geniix 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.



EMPUR® Geniix complete manifolds

OPTIMAL II dry construction system

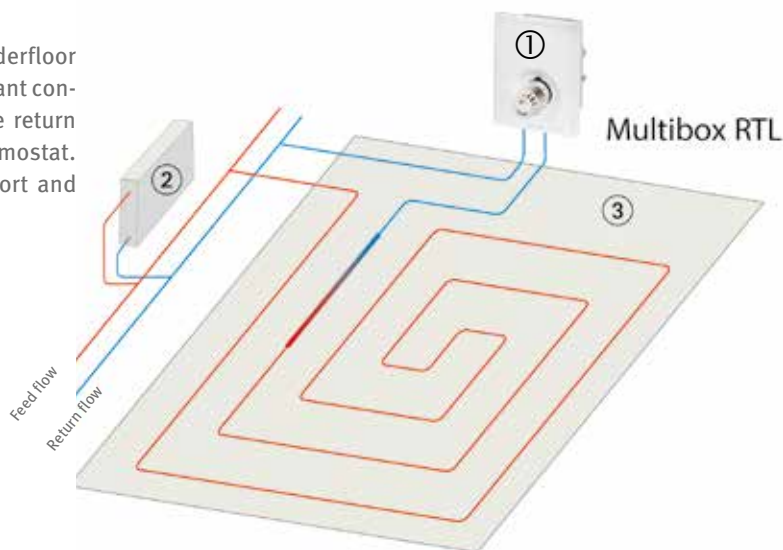
Additional system components

Multibox-RTL individual room control

for the renovation and subsequent installation of underfloor heating in individual rooms, e.g. bathroom. EnEV 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.



Thermostat head "K" control set for HCM-DR



Actuator PUR DRIVE "V" control set for HCM-DR



Ball valve 3/4" nickel-plated for HCM-DR



Overheat thermostat 230 V for HCM-DR



Connection set 90° for thermoseparator for HCM-DR



DG connection set for thermoseparator for HCM-DR

OPTIMAL II dry construction system

Additional system components

Manifold cabinets

PUR-THERM® manifold cabinets provide the perfect location for manifolds and control stations. PUR-THERM® manifolds can be installed in the traditional way using the 'Top Standard' version as a wall-mounted cabinet and the 'Exclusiv' version as a flush-mounted cabinet.

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.

The newest generation of EMPUR® manifold cabinets has been completely reworked and is manufactured from galvanised and foil-coated sheet steel. These offer adjusted suspension rails for the EMPUR® heating circuit manifold. With the specially developed '**quick manifold assembly technology**', the manifolds are simply suspended in the guide rails of the manifold cabinet and fixed with two 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

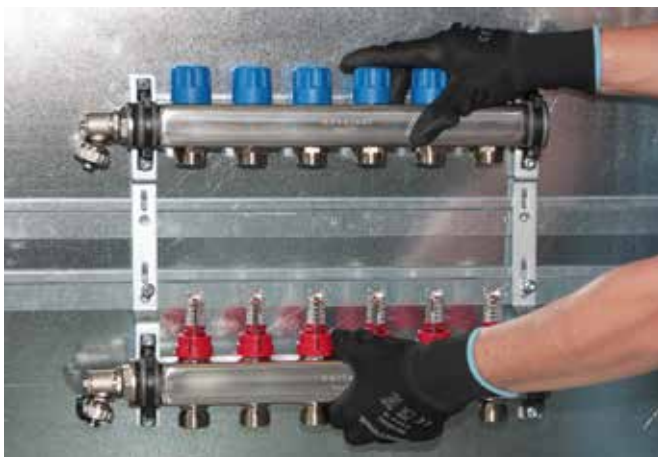


Manifold cabinet 'Exclusiv' version

NEW for quick manifold installation

Quick manifold assembly in only 2 steps

1. Suspend in the manifold cabinet rail



2. Secure with screws



OPTIMAL II dry construction 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 jewel of our control technology is EMPUR® Smart Home, which makes the integrated home automation solutions possible.

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!

OPTIMAL II dry construction system

Additional system components



Room operating unit 230 V/24 V analogue standard heating



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



Wireless/BUS room operating unit with display



Regulator terminal strip (6/10 zones) 230 V/24 V heating/cooling



Humidity monitoring with external sensor



Wireless/BUS base station



EMPUR® Smart Home Server



Basic module for EMPUR® Smart Home control terminal strip 230 V, wireless (2/6 zones)



Control terminal strip EMPUR® Smart Home 230 V, wireless (6 zones)



Room control unit for EMPUR® Smart Home wireless control terminal strips



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.

EM plan's specialist engineers and planning consultants are available to help you with their expertise in demanding property planning in almost all TGA 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 **EM-solution** and support tradesmen to complete their construction projects on time.

EMPUR®, EM-plan and EM-solution together form the **EM Gruppe®**. Thus, the three core areas of expertise – production, planning and installation – come from a single source.

planning
EM-plan

- 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 for Smart Home solutions
- Planning and designing Geniux projects
- EnEV (energy saving ordinance) certificates according to DIN 18599
- Construction supervision for technical building systems

www.em-plan.net

production
EMPUR®

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

www.empur.com

installation
EM-solution

- 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