# KLIMATEC®

ERFURT.
WÄNDE ZUM WOHLFÜHLEN

# NATURALLY EFFICIENT

## The energy-saving interior wall system

KlimaTec PRO

www.erfurt.com

# ERFURT-KLIMATEC – COMBATS MOULD AND COLD WALLS

## WHAT IS ERFURT-KLIMATEC?

ERFURT-KlimaTec is an energy-saving, breathable interior wall system, which can be applied to the insides of exterior walls and to all other cold interior walls of buildings. ERFURT-KlimaTec is mainly used to save energy and prevent and remediate mould.

## HOW DOES ERFURT-KLIMATEC WORK?

The low thermal conductivity of KlimaTec products significantly reduces the consumption of heating energy and creates optimum indoor comfort, even with their minimal layer thickness. From an economic point of view, they are therefore a recommended investment. Individual apartments can be renovated regardless of the weather.

## ERFURT-KLIMATEC: APPLICATIONS

### 1. MOULD PREVENTION/REMEDIATION

Mould prevention and remediation with ERFURT-KlimaTec KP 1000+ PRO / KP 2500+ PRO climate panels

### 2. INTERIOR INSULATION

Interior insulation with ERFURT-KlimaTec IP 2500+ PRO / IP 3500+ PRO interior insulation plates

### 3. RAPID HEATING-UP

Energy-saving wall lining to prevent cold walls with ERFURT-KlimaTec KV 600 PRO thermal nonwoven

### 4. IMPROVE INDOOR COMFORT

The invisible surface heating system for walls and ceilings with ERFURT-KlimaTec FH 300 PRO

### 5. IMPROVE ACOUSTICS

Acoustic system with climate panels, Acoustic Base Plaster and Acoustic Finishing Plaster

### 6. LIGHTWEIGHT CONSTRUCTION

A wealth of applications with the ERFURT-KlimaTec VP 1000+ PRO lightweight construction panel

# THE ENERGY-SAVING PRODUCT RANGE AND ITS APPLICATIONS

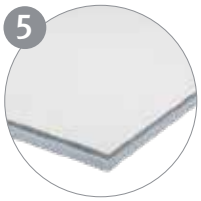
ERFURT's KlimaTec range presents solutions to increase comfort, remediate the formation of mould, and save heating costs.

1 KV 600 PRO thermal nonwoven

2 KP 1000+ PRO climate panel

3 KP 2500+ PRO climate panel

4 IP 2500+ PRO interior insulation plate



5 IP 3500+ PRO interior insulation plate

6 FH 300 PRO surface heating

## ITS USES AT A GLANCE

| | KP 1000+ PRO climate panel | KP 2500+ PRO climate panel | IP 2500+ PRO interior insulation plate | IP 3500+ PRO interior insulation plate | KV 600 PRO thermal nonwoven |
|---|---|---|---|---|---|
| **MOULD** | | | | | |
| Mould prevention | ++ | +++ | ++ | ++ | |
| Mould remediation | ++ | +++ | ++ | ++ | |
| Wet areas / bathrooms | ++ | +++ | | | |
| **ENERGY SAVING** | | | | | |
| Interior insulation of exterior walls | | + | ++ | +++ | |
| Fast heating up and temporary heating of rooms | + | ++ | +++ | +++ | +++ |
| **WALL SURFACE TEMPERATURE** | | | | | |
| Raises the wall surface temperature depending on the wall structure | up to 3 °C | up to 6 °C | up to 8 °C | up to 9 °C | up to 2 °C |
| **ACOUSTICS** | | | | | |
| Base plaster + finishing plaster | ++ | +++ | | | |
| **POSSIBLE USES*** | | | | | |
| Breathable emulsion paint | ● | ● | ● | ● | |
| Breathable wallcovering | ● | ● | ● | ● | ● |
| Interior plaster, e.g. mineral-based | ● | ● | ● | ● | |
| Suitable for stud walls | ● | ● | | | |

**Table 1:** *Please refer to our technical data sheets.

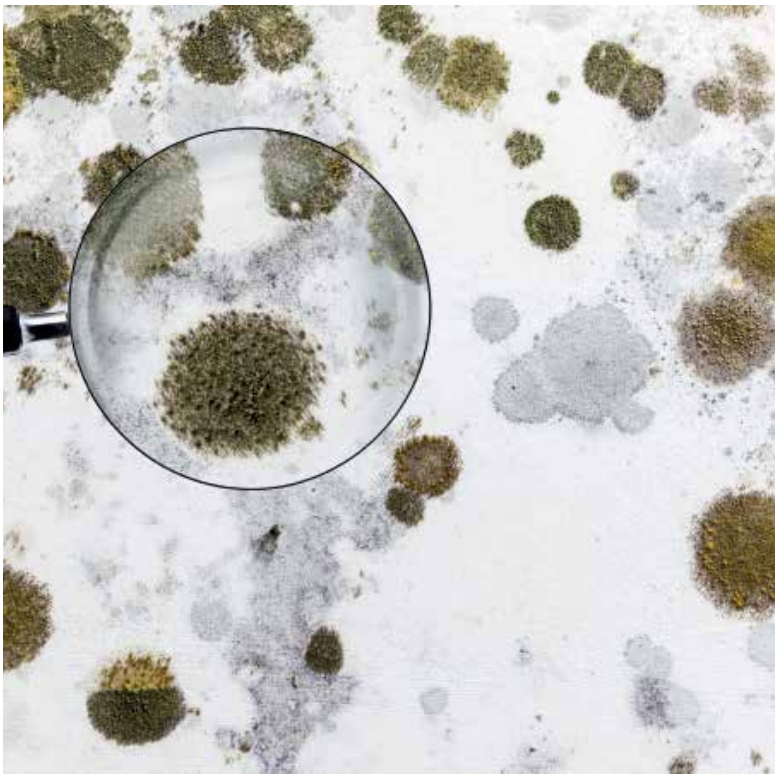
# 1. MOULD PREVENTION/REMEDIATION

## HOW DOES MOULD FORM?

Quite simply, mould formation needs three things:

- Mould spores
- A breeding ground
- Moisture

Mould spores can be found almost everywhere. All organic materials are ideal breeding grounds. Mineral-based and alkaline materials with a high pH value do not constitute a breeding ground for mould. However, mould can still form on mineral-based surfaces, as grease vapours from cooking and house dust can be deposited on the surfaces, which in turn form breeding grounds. That's why it is crucial that the surfaces of all walls and ceilings remain dry.



## CAUSES OF MOISTURE

One of the most common causes of damp wall surfaces is too low a surface temperature combined with too high a level of relative air humidity.

To prevent mould formation, the surface temperature of the walls and ceiling needs to be a minimum of 12.6 °C with a room temperature of 20 °C and a relative humidity of 50%. A surface temperature of 14.1 °C is needed for a relative humidity of 55%. This shows how important it is to ventilate a room to keep humidity at a low level.

The minimum surface temperatures shown in Table 2 also need to be achieved at an outside temperature of -5 °C. The cause of low surface temperatures in older buildings is inadequate insulation.

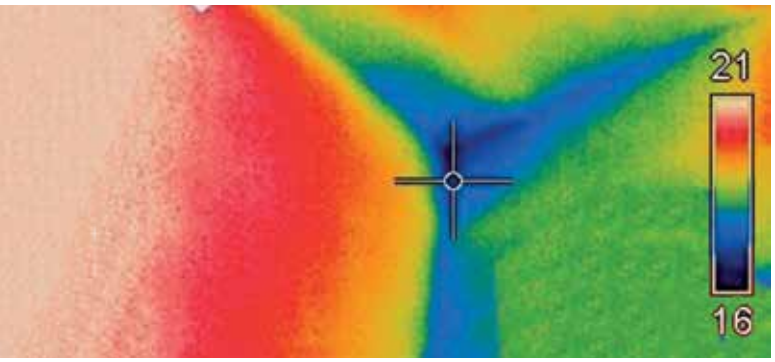
| | ROOM AIR TEMPERATURE (°C) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 17.0 | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 |
| Relative air humidity in the room (%) | Minimum surface temperature of the wall to avoid mould | | | | | | |
| 35 | 4.6 | 5.5 | 6.4 | 7.3 | 8.2 | 9.1 | 10.0 |
| 40 | 6.5 | 7.4 | 8.3 | 9.3 | 10.2 | 11.1 | 12.0 |
| 45 | 8.2 | 9.2 | 10.1 | 11.0 | 11.9 | 12.9 | 13.8 |
| 50 | 9.8 | 10.7 | 11.7 | 12.6 | 13.6 | 14.5 | 15.4 |
| 55 | 11.2 | 12.2 | 13,1 | 14.1 | 15.0 | 16.0 | 16.9 |
| 60 | 12.5 | 13.5 | 14.5 | 15.4 | 16.4 | 17.4 | 18.3 |
| 65 | 13.8 | 14.7 | 15.7 | 16.7 | 17.7 | 18.6 | 19.6 |
| 70 | 14.9 | 15.9 | 16.9 | 17.9 | 18.8 | 19.8 | 20.8 |
| 75 | 16.0 | 17.0 | 18.0 | 19.0 | 20.0 | 20.9 | 21.9 |

Table 2

## HEAT BRIDGES

Heat bridges are often critical when the surface temperature is generally adequate in the untouched wall surfaces. That's why mould formation generally starts in the heat bridges. Typical heat bridges include:

- Corners
- Window reveals and soffits
- Radiator recesses
- Ceilings under protruding balconies
- Skirtings on the ground floor above unheated basements



## MOULD REMEDIATION

If there is an existing mould infestation, it is crucial that it is professionally removed before the area can be renovated with climate panels.

ERFURT-KlimaTec KP 1000+ PRO and KP 2500+ PRO climate panels raise the surface temperature and help to regulate moisture by the panels absorbing significant amounts of air humidity and releasing it again after the room has been ventilated. The volume of water vapour absorbed and the speed at which the moisture is absorbed and released again are decisive here. The speed of this process is one of the stand-out features of ERFURT-KlimaTec climate panels. The moisture buffer works during the day, not just seasonally.

Climate panels can help to retain the value of a building's structure in the long term and significantly reduce the risk of mould formation. However, the user's behaviour also needs to change to prevent renewed mould formation following the refurbishment measures.

# MOULD PREVENTION / REMEDIATION WITH CLIMATE PANELS KLIMATEC KP 1000+ PRO/KP 2500+ PRO

ERFURT-KlimaTec KP 1000+ PRO and KP 2500+ PRO climate panels can be used to eliminate the causes of mould formation in the long term. The right climate panel to be used for each individual application depends on the wall surface temperatures in the room. KP 1000+ PRO climate panels raise the surface temperature by approx. 3 °C, and KP 2500+ PRO by about 6 °C. KP 2500+ climate panels also have a larger moisture buffer, making them ideal for rooms exposed to high levels of moisture, such as bedrooms. The durability and ease of use of ERFURT-KlimaTec climate panels really sets them apart.

## PRODUCT BENEFITS

- Prevents mould
- Mineral-based
- Alkaline
- Pressure-resistant
- Breathable
- Non-flammable
- Simple and fast to use
- Versatile design options, e.g. it can be wallpapered over

### KP 1000+ PRO

### KP 2500+ PRO

## THE KEY DIFFERENCE BETWEEN KP 1000+ PRO AND KP 2500+ PRO

The **1 cm thick climate panel KP 1000+ PRO** increases the wall surface temperature by **up to 3 °C** depending on the wall construction

The **2.5 cm thick climate panel KP 2500+PRO** increases the wall surface temperature **by up to 6 °C**, depending on the wall construction.

## USES OF CLIMATE PANELS:

# Technical product data

## KLIMATEC KP 1000+ PRO CLIMATE PANEL
## KLIMATEC KP 2500+ PRO CLIMATE PANEL

| | Material | Order number | Overall panel dimensions | Total weight | Water vapour diffusion sd value | Thermal conductivity λ | Compressive strength according to DIN EN 826 | pH value | Fire behaviour DIN EN13501-1 | Contents |
|---|---|---|---|---|---|---|---|---|---|---|
| **KP 1000+ PRO** | Expanded glass granulate | 1003053 | 120 x 80 x 1.0 cm | approx. 5.3 kg | approx. 0.15 m | approx. 0.11 W/(mK) | approx. 40 kg/cm² | approx. 9 | A2-s1,d0 | 120 panels/ pallet |
| **KP 1000+ EXTRA PRO** | Expanded glass granulate | 1004594 | 240 x 120 x 1.0 cm | approx. 15.9 kg | approx. 0.15 m | approx. 0.11 W/(mK) | approx. 40 kg/cm² | approx. 9 | A2-s1,d0 | 120* panels/ pallet |
| **KP 2500+ PRO** | Expanded glass granulate | 1001200 | 120 x 80 x 2.5 cm | approx. 7.0 kg | approx. 0.15 m | approx. 0.075 W/(mK) | approx. 20 kg/cm² | approx. 9 | A2-s1,d0 | 40 panels/ pallet |
| **KP 2500+ EXTRA PRO** | Expanded glass granulate | 1004368 | 240 x 120 x 2.5 cm | approx. 21.0 kg | approx. 0.15 m | approx. 0.075 W/(mK) | approx. 20 kg/cm² | approx. 9 | A2-s1,d0 | 40* panels/ pallet |

* Minimum order quantity: 6 pallets
Delivery time: approx. 3 weeks

## System Adhesive SR 6 PRO

| | |
|---|---|
| Order number: | 1000098 |
| Container size: | 15 kg |
| Quantity: | approx. 2.2 kg/m² with a 10 mm toothing / C5 |
| Working time: | approx. 30 min |

## HOW TO USE

Please read our general instructions for use before using ERFURT-KlimaTec climate panels to obtain the best possible results.

**1.** Fill cracks, chipped surfaces and significantly uneven surfaces with ERFURT-System Adhesive SR 6 PRO.

**2.** Fit a sound insulation strip for acoustic sealing around the window joint and around all movable elements, such as floating screed, windows etc.

**3.** Use a Stanley knife to scarify the climate panel and break along an edge or cut with a saw.

**4.** Use a keyhole saw to cut openings for sockets before fitting the panels and use appropriate back boxes.

**5.** Use a toothed trowel / toothed comb to comb adhesive onto the entire rear of the climate panels (fabric webbing) at right angles to the direction in which the adhesive is applied (min. 10 mm toothing/C5).

**6.** Press the climate panels onto the wall, offset above each other (min. 20 cm), with moderate pressure. Avoid cross joints and gaps. Remove excess adhesive along the edges.

**7.** Fill the joints between the panels flush with ERFURT-System Adhesive SR 6 PRO. For smooth or slightly textured wallcoverings, fill the joints flush with a fine cement-based filler.

**8**. Prime the climate panels with paste.

**9.** Climate panels can be covered by all breathable wall coverings capable of covering cracks without reinforcement.

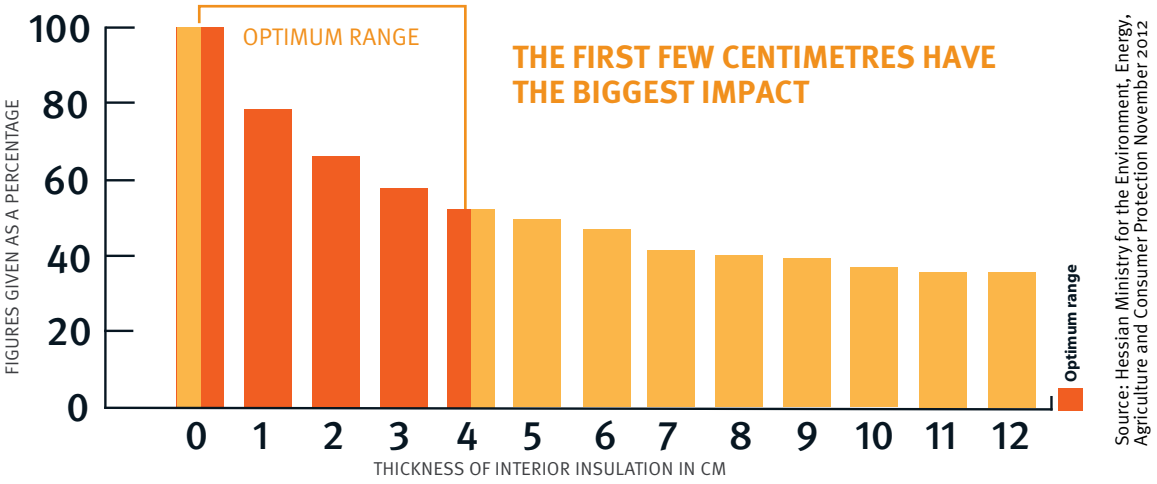
# 2. INTERIOR INSULATION

## SAVING HEATING ENERGY WITH INTERIOR INSULATION PLATES

If temperatures outside the building are lower than inside, thermal energy flows through the building shell from the inside to the outside. The extent to which the heat flow is impeded depends on the thermal transfer resistance R [m²K/W] of the structural components. ERFURT-KlimaTec IP 2500+ PRO and IP 3500+ PRO interior insulation plates let you increase the thermal transfer resistance of the walls and ceilings, significantly reducing the heat loss. Transmission heat loss is a flattening curve in relation to thermal resistance. This means that the first few centimetres of insulation provide the greatest savings, whereas there are barely any benefits in applying twelve centimetres of insulation instead of eleven.

## SLIMLINE INTERIOR INSULATION

Energy loss through the exterior wall




## IMPROVED U-VALUES WITH INTERIOR INSULATION PANELS IP 2500+ PRO | IP 3500+ PRO

The following table provides a brief overview for orientation when determining U-value improvement:

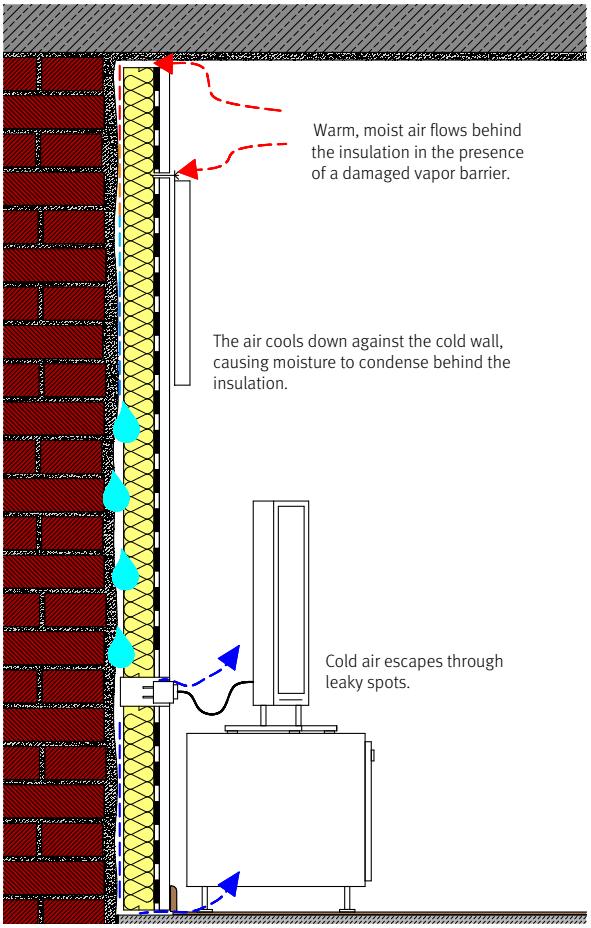
| | Wall thickness | ACTUAL U-value * | U-value with IP 2500+ PRO | Improvement with IP 2500+ PRO | U-value with IP 3500+ PRO | Improvement with IP 3500+ PRO |
|---|---|---|---|---|---|---|
| Solid brick λ=0.81 W/(mK) 1800 kg/m³ Lime-cement plaster inside and outside | 17.5 cm | 2.44 W/(m²K) | 1.05 W/(m²K) | 57% | 0.81 W/(m²K) | 67% |
| | 24 cm | 2.04 W/(m²K) | 0.97 W/(m²K) | 52% | 0.76 W/(m²K) | 63% |
| | 30 cm | 1.78 W/(m²K) | 0.90 W/(m²K) | 49% | 0.72 W/(m²K) | 60% |
| | 36.5 cm | 1.55 W/(m²K) | 0.84 W/(m²K) | 46% | 0.68 W/(m²K) | 56% |
| Perforated brickwork λ=0.58 W/(mK) 1800 kg/m³ Lime-cement plaster inside and outside | 24 cm | 1.65 W/(m²K) | 0.87 W/(m²K) | 47% | 0.70 W/(m²K) | 58% |
| | 30 cm | 1.41 W/(m²K) | 0.80 W/(m²K) | 43% | 0.65 W/(m²K) | 54% |
| | 36.5 cm | 1.22 W/(m²K) | 0.73 W/(m²K) | 40% | 0.61 W/(m²K) | 50% |
| Sand-lime bricks λ=0.99 W/(mK) 1800 kg/m³ Lime-cement plaster inside and outside | 17.5 cm | 2.70 W/(m²K) | 1.09 W/(m²K) | 60% | 0.83 W/(m²K) | 69% |
| | 24 cm | 2.30 W/(m²K) | 1.02 W/(m²K) | 56% | 0.79 W/(m²K) | 66% |
| | 30 cm | 2.02 W/(m²K) | 0.96 W/(m²K) | 52% | 0.75 W/(m²K) | 63% |
| | 36.5 cm | 1.78 W/(m²K) | 0.90 W/(m²K) | 49% | 0.72 W/(m²K) | 60% |
| Pumice stone λ=0.39 W/(mK) 800 kg/m³ Lime-cement plaster inside and outside | 17.5 cm | 1.56 W/(m²K) | 0.84 W/(m²K) | 46% | 0.68 W/(m²K) | 56% |
| | 24 cm | 1.24 W/(m²K) | 0.74 W/(m²K) | 40% | 0.61 W/(m²K) | 51% |
| | 30 cm | 1.04 W/(m²K) | 0.66 W/(m²K) | 37% | 0.56 W/(m²K) | 46% |
| Natural sandstone λ=2.3 W/(mK) 2100 kg/m³ Lime-cement plaster inside | 30 cm | 3.21 W/(m²K) | 1.17 W/(m²K) | 64% | 0.88 W/(m²K) | 73% |
| | 40 cm | 2.81 W/(m²K) | 1.11 W/(m²K) | 60% | 0.84 W/(m²K) | 70% |
| | 50 cm | 2.51 W/(m²K) | 1.06 W/(m²K) | 58% | 0.81 W/(m²K) | 68% |
| Concrete λ=2.1 W/(mK) 2300 kg/m³ Lime-cement plaster outside | 20 cm | 3.61 W/(m²K) | 1.22 W/(m²K) | 66% | 0.90 W/(m²K) | 75% |
| | 25 cm | 3.33 W/(m²K) | 1.18 W/(m²K) | 65% | 0.88 W/(m²K) | 65% |
| | 30 cm | 3.08 W/(m²K) | 1.15 W/(m²K) | 63% | 0.87 W/(m²K) | 72% |

**Table 3:** *U-value = The heat transfer coefficient indicates the heat output that flows through each square metre (m²) of the structural component (e.g. wall) when the interior and exterior wall have a constant temperature difference of 1 degree.

## DEW POINT SHIFT WITH INTERIOR INSULATION

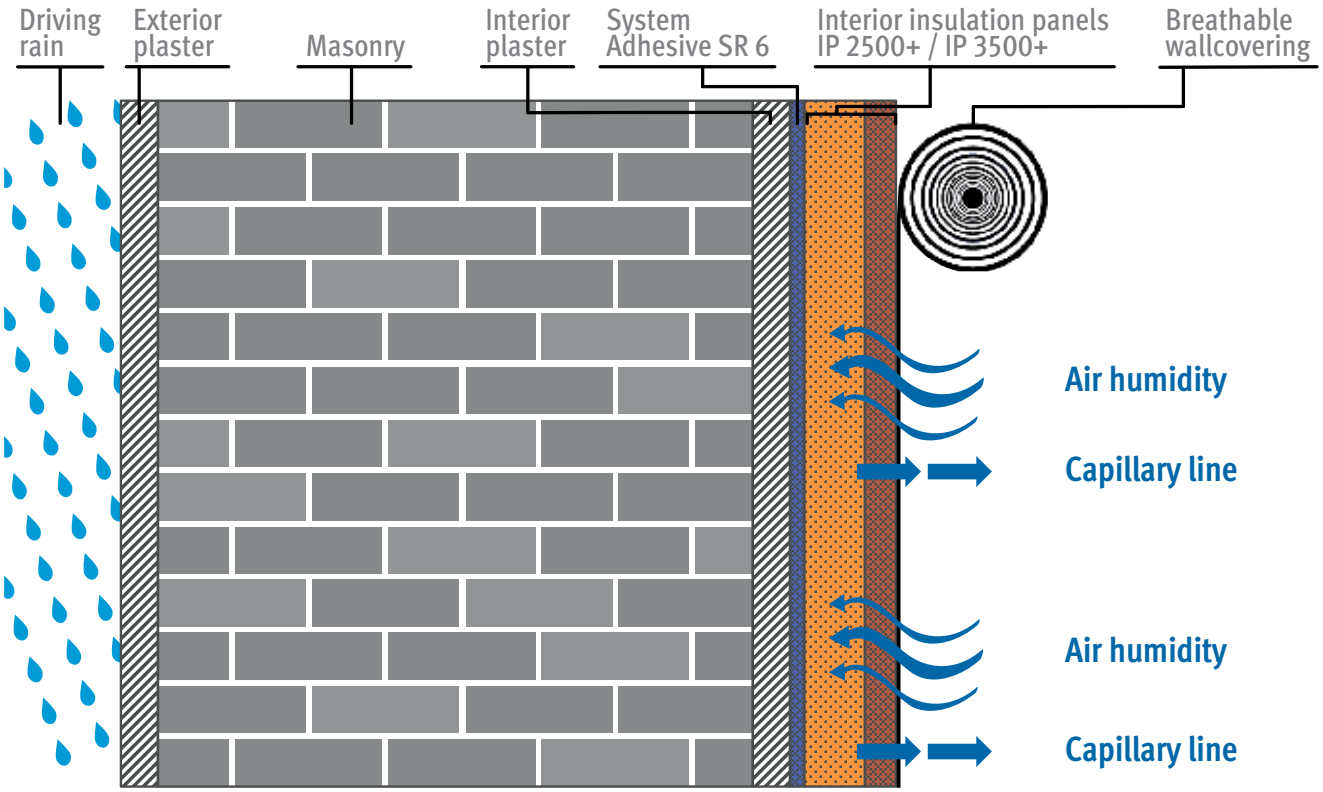
Moisture is also transported from the inside outwards with the flow of heat. The flow of moisture is slowed down by the resistance to water vapour diffusion, the sd value [m]. The temperature in the structural component falls from the inside outwards, and the air can absorb less water vapour at colder temperatures. This can cause water vapour saturation in the structural component, with the water vapour condensing to form liquid water. This is what is known as the dew point. If a structural component is also insulated internally, the temperature in the component will drop more significantly, and the dew point may possibly shift inwards. A vapour barrier or retarder is installed on the room side of vapour-tight systems. No water can condense if no water vapour penetrates the wall structure.

However, the disadvantage of these systems is that they are extremely susceptible to failure. If moisture penetrates the insulation due to a leaking vapour barrier, it can no longer dry out inwards through the film. The humidity will also increase as the moisture buffer is sealed off.




## HOW THE IP 2500+ PRO/IP 3500+ PRO INTERIOR INSULATION PLATES WORK

ERFURT-KlimaTec IP 2500+ PRO and IP 3500+ PRO interior insulation plates feature intelligent moisture management. If condensation forms, it is transported to the surface by the capillary nature of the material and evaporates. The capillary transport of water works many times faster than water vapour diffusion, preventing moisture from accumulating.




Peaks of moisture from the room air can be stored thanks to the breathable construction of the layers and then released into the air.

# INTERIOR INSULATION WITH KLIMATEC IP 2500+ PRO / IP 3500+ PRO CLIMATE PLATES

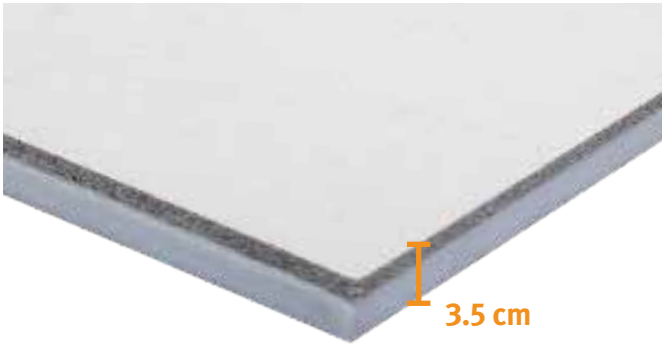
Many façades are not externally insulated for technical reasons or due to economic aspects. ERFURT-KlimaTec IP 2500+ PRO and IP 3500+ PRO breathable interior insulation plates offer energy-saving solutions for single rooms, apartments or entire buildings. Their unique properties help the interior insulation plates to minimise heat losses from the existing construction.

## PRODUCT BENEFITS

- Highly thermally insulating (textile nonwoven) $\lambda = 0.035$ W/(mK)
- Minimal layer thickness
- Breathable
- Simple and fast to use
- Versatile design options, i.e. it can be wallpapered over, plastered, painted
- Prevents mould

### IP 2500+ PRO

### IP 3500+ PRO



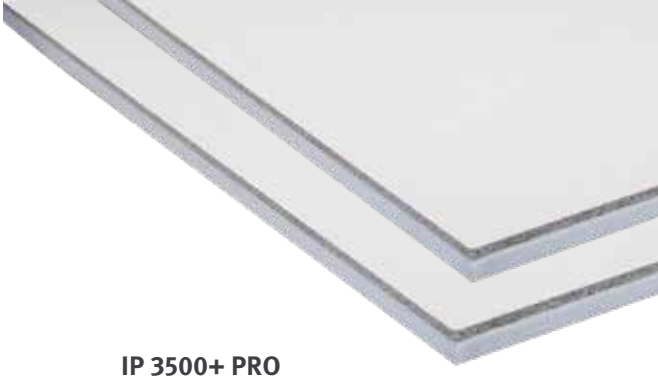

## USES OF ERFURT-KLIMATEC IP 2500+ PRO / IP 3500+ PRO INTERIOR INSULATION PLATES

Buildings with no roof overhang

Listed buildings and facades of historic interest

Buildings with adjacent construction

Curtain walls



# Technical product data

## KLIMATEC IP 2500+ PRO INTERIOR INSULATION PLATE
## KLIMATEC IP 3500+ PRO INTERIOR INSULATION PLATE

| | IP 2500+ PRO | IP 3500+ PRO |
|---|---|---|
| Material: | Expanded glass granulate and textile nonwoven material | Expanded glass granulate and textile nonwoven material |
| Order number: | 1002690 | 1002694 |
| Dimensions: | 120 x 80 x 2.5 cm | 120 x 80 x 3.5 cm |
| Total weight: | 5.5 kg | 6.0 kg |
| Water vapour diffusion sd value: | 0.3 m | 0.4 m |
| Thermal conductivity λ (textile nonwoven): | 0.035 W/(mK) | 0.035 W/(mK) |
| pH value (expanded glass): | approx. 12 | approx. 12 |
| Reaction to fire: | C-s1,d0 | C-s1,d0 |

## SYSTEM ADHESIVE SR 6 PRO

| | |
|---|---|
| Order number: | 1000098 |
| Container size: | 15 kg |
| Quantity: | approx. 2.2 kg/m² with a 10 mm toothing / C5 |
| Working time: | approx. 30 min |

## HOW TO USE

Please read our general instructions for use before using ERFURT-KlimaTec interior insulation plates to obtain the best possible results.

**1.** Fill cracks, chipped surfaces and significantly uneven surfaces with ERFURT-System Adhesive SR 6 PRO.

**2.** Fit a sound insulation strip for acoustic sealing around the window joint and around all movable elements, such as floating screed, windows etc.

**3.** Use a saw to cut interior insulation plates.

**4.** Use a keyhole saw to cut openings for sockets before fitting the panels and use appropriate air-tight back boxes.

**5.** Use a toothed trowel / toothed comb to comb adhesive onto the entire rear of the interior insulation plates (textile nonwoven) at right angles to the direction in which the adhesive is applied (min. 10 mm toothing / C5).

**6.** Press the interior insulation plates onto the wall with moderate pressure, offset by 20 cm from each other. Avoid cross joints and gaps. Remove excess adhesive along the edges.

**7.** Applying adhesive to outer corners: the nonwoven material needs to butt-joint; to do so remove 2.5 cm or 3.5 cm of nonwoven material along the edge.

**8**. Applying adhesive to inner corners: the nonwoven material needs to butt-joint; to do so remove 2.5 cm or 3.5 cm of expanded glass along the edge.

**9.** Reinforce the joints between the panels with reinforcing webbing and fill flush with ERFURT-System Adhesive SR 6 PRO. For smooth or slightly textured wallcoverings, fill the joints flush with a fine cement-based filler.

**10.** Prime the interior insulation plates with paste.

**11.** Once fully dry, any breathable wallcoverings can be applied to the interior insulation plates.

# 3. RAPID HEATING-UP

## RAPID HEATING-UP OF ROOMS WITH KLIMAVLIES ERFURT-KLIMATEC KV 600 PRO THERMAL NONWOVEN

The structural principle of ERFURT-KlimaTec KV 600 PRO thermal nonwoven is primarily based on decoupling the interior air from the solid walls. This means that the walls do not have to be heated before a constant pleasant temperature is reached in the room.
ERFURT-KlimaTec KV 600 PRO thermal nonwoven helps to create a more comfortable indoor environment, i.e. the cold “emissions” from the solid walls are significantly reduced or eliminated, and there is an improved flow of air between the (heated) indoor air and the wall surface.

## PRODUCT BENEFITS

- Up to 75 % quicker heat-up of your room
- Breathable
- Improves the thermal efficiency of your space
- No loss of living space
- Versatile design options, i.e. it can be wallpapered over

**The KlimaTec effect:** ERFURT-KlimaTec KV 600 PRO raises the wall surface temperature by up to 2°C.

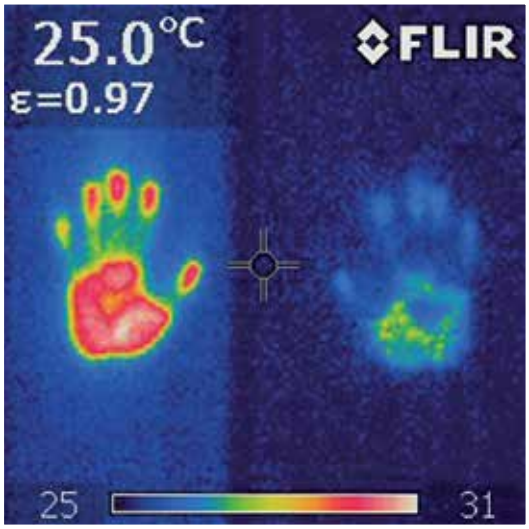
## ERFURT-KLIMATEC THERMAL NONWOVEN DECOUPLES THE WALL SURFACE

Interior wall surfaces and ceilings fitted with ERFURT-KlimaTec thermal nonwoven radiate thermal energy back into the room, ensuring that the maximum amount of heat is available to heat up the room air. Rooms thus become warmer more quickly, with reduced energy consumption.

Interior walls and ceilings to which the breathable ERFURT-KlimaTec KV 600 has been applied decouple the inert “wall” heat store from the room air and quickly achieve personal comfort temperatures.

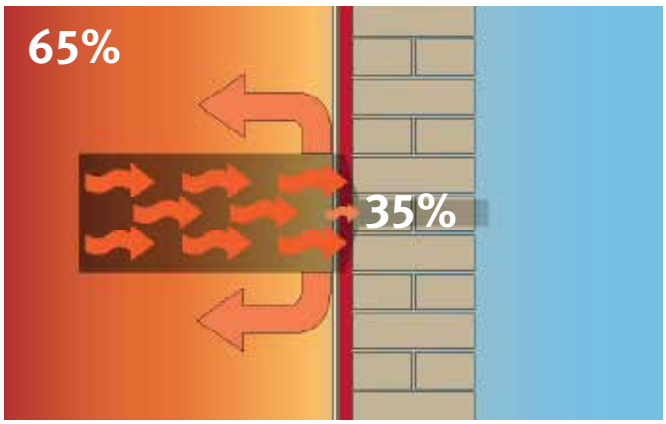
## WALL SURFACE TEMPERATURE

**WITH KLIMATEC KV 600 PRO | WITHOUT KLIMATEC KV 600 PRO**

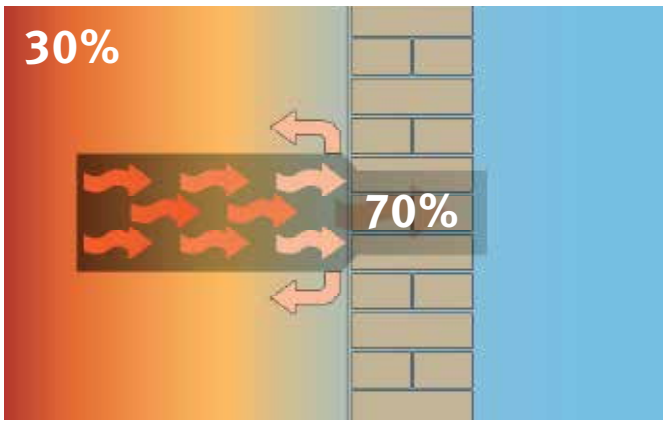



Thermal imaging camera photo

**WALL WITH KLIMATEC KV 600 PRO + WALLCOVERING**




**WALL WITHOUT KLIMATEC KV 600 PRO + WALLCOVERING**



# Technical product data

## KLIMATEC KLIMAVLIES KV 600 PRO

| | |
|---|---|
| Material: | Textile nonwoven |
| Order number: | 1001209 |
| Roll dimensions: | 15 x 1 m |
| Layer thickness: | approx. 4 mm |
| Total weight: | 9 kg |
| Water vapour diffusion sd value: | 0.06 m (with System Adhesive SR 2 PRO)<br>0.54 m (with System Adhesive SR 4 PRO) |
| Reaction to fire: | E |

## SYSTEM ADHESIVE SR 2 PRO/ SR 4 PRO

| | SR 2 PRO | SR 4 PRO |
|---|---|---|
| Order number: | 1001207 | 1001206 |
| Container size: | 18 kg | 18 kg |
| Quantity: | approx. 0.3-0.5 kg/m² with a roller | approx. 0.6-1.2 kg/m² with C3/B2 toothing |
| Working time: | approx. 20 min | approx. 20 min |
| pH value: | 9.5 - 10.5 | 6 - 7 |

For smooth base surfaces: (SR 2 PRO)
For slightly to medium textured base surfaces: (SR 4 PRO)

## HOW TO USE

**1.** Fill cracks, chipped surfaces and seriously uneven surfaces with ERFURT-System Adhesive SR 6 PRO.

**2.** Cut ERFURT-KlimaTec KV 600 PRO leaving a surplus and roll up with the underside facing outwards.

**3.** With smooth base surfaces, use a long-pile roller to generously roll ERFURT-System Adhesive SR 2 PRO along the lengths onto the base surface.

**4.** With slightly to medium textured base surfaces, use a toothed trowel (either B2 or C3 depending on the base surface) to evenly apply ERFURT-System Adhesive SR 4 PRO directly to the surface of the wall perpendicular to the lengths of wallcovering.

**5.** Place the felted side of the wallcovering, butt jointed to the next length, into the wet ERFURT system adhesive using the paste-the-wall technique. Press down with a rubber roller and/or a plastic trowel.

**6.** Trim off excess wallpaper at the corners and edges and butt joint the next length.

**7.** Use strong scissors or a hook-blade knife and palette knife to cut and remove excess material at ceilings, skirtings, windows etc.

**8.** Incorporate crack repair tape into a suitable filler to reinforce the seam area.

**9.** Once dry, wallpaper over ERFURT-KlimaTec KV 600 PRO. Ensure that the seams do not sit on top of each other, due to the butt joints moving sidewards.

# 4. IMPROVE INDOOR COMFORT

## THE ELECTRIC ERFURT-KLIMATEC FH 300 PRO SURFACE HEATING SYSTEM

The new FH 300 PRO electric surface heating system is the ideal addition to climate panels and interior insulation plates from the ERFURT-KlimaTec range. The thermal nonwoven material generates infra-red radiation that directly heats people and objects it meets. People perceive this as being very pleasant and comfortable, even when the air temperature is lower. The surface heating system reacts very quickly. Home-owners can lower the central heating and only heat the occupied areas of the house when heat is needed, saving heating energy.

**Technical data - Carbon-based thermal nonwoven:**

Dimensions: 2.2 m x 0.6 m
Suitable for cutting: cables crimped at both ends
Output: 220 watts/m²

**The ERFURT-KlimaTec FH 300 PRO kit consists of:**

1. Carbon-based thermal nonwoven
2. Basic 300 W power pack
3. Wireless thermostat
4. Wireless plug-in adapter
5. 5 crimp connectors
6. 10 m connecting cable

## ERFURT-KLIMATEC FH 300 PRO SET

Order number: 1003901

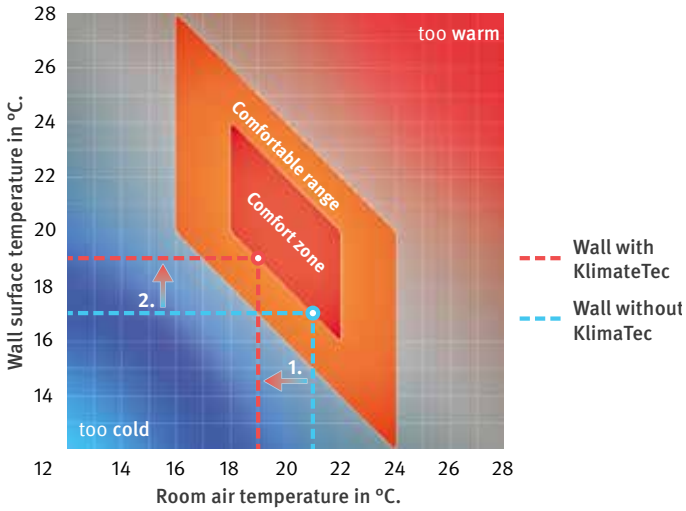
# IMPROVE COMFORT WITH ERFURT-KLIMATEC FH 300 PRO

The room temperature that a person perceives depends on the air temperature, but also on the temperature of the surrounding surfaces (walls, windows, ceilings, floors). The advantage of surface heating is that it heats the air and increases the surface temperature at the same time, so that a lower air temperature is required to raise the temperature perceived by a person to a comfortable level. Thermal radiation-based heating has been around for a long time. Whether underfloor heating, tiled stoves or ceiling heating - they are all characterised by a slow warm-up, as a lot of mass always needs to be heated before heat can be emitted.

By contrast, the new ERFURT-KlimaTec FH 300 PRO electric surface heating system reacts very quickly, as it is installed directly under the surface. The system is therefore perfect as an addition to existing heating systems. The unnecessary heating of infrequently used rooms, such as bathrooms, guest toilets or workshops, increases heating costs. An electric surface heating system can produce heat rapidly when it is needed, so that a comfortable temperature can be achieved in the blink of an eye, even in rooms heated to a lower temperature.

## ERFURT-KlimaTec FH 300 PRO boasts unique product features:

- Comfortable thermal radiation
- Short reaction time
- Low investment, installation and consumption costs
- Invisible and individual design options
- For walls and ceilings
- Includes programmable wireless room thermostat
- Can be fitted by a decorator – no electrician required for installation
- Complies with the Ecodesign Directive 2009/125/EC



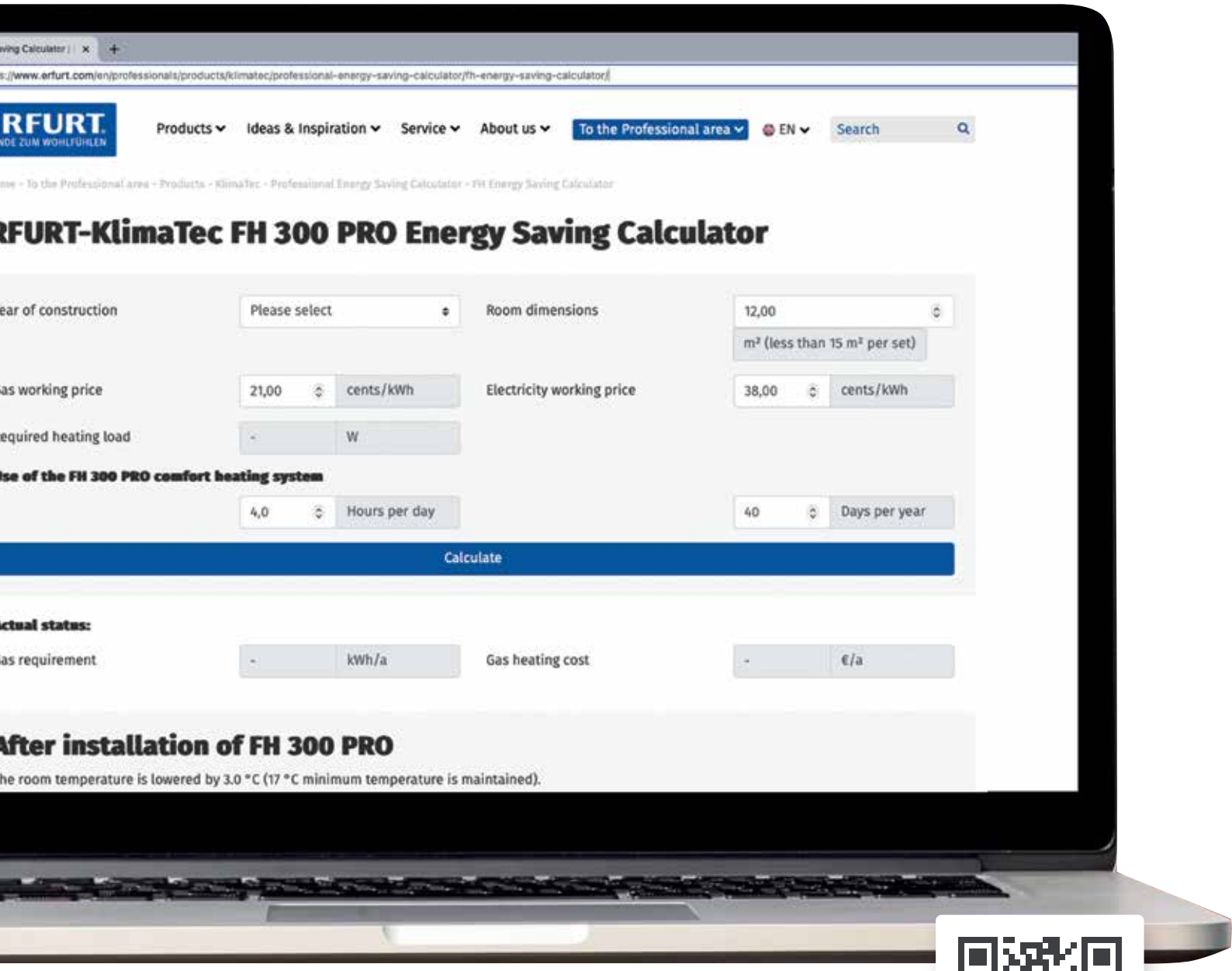

**1.** The wall surface temperature is increased by 2 °C.
**2.** The indoor air temperature can be lowered by 2 °C yet people feel just as comfortable. About 12% energy can be saved when the indoor air temperature is lowered by 2 °C .

Thermal imaging camera photo of the FH 300 PRO surface heating system

# SAVING HEATING COSTS WITH ERFURT-KLIMATEC FH 300 PRO

Every building has a specific need for thermal energy to maintain the required indoor temperature during the heating period. We can reduce this energy requirement by improving the insulation standard and lowering the required indoor temperature. By reducing the room temperature produced by the central heating system from 20 °C to 17 °C, we also reduce transmission and ventilation heat losses by 23% (with Mannheim in Germany used as the reference location).

We can use this fact to save heating costs with the ERFURT-KlimaTec FH 300 PRO electric surface heating system. The surface heating system reacts very quickly and generates a pleasant radiated heat in a short time. This makes it possible to reduce the room temperature produced by the central heating system by three degrees and only switch on the surface heating system when it is needed. Use our energy saving calculator to work out your approximate savings.




**www.erfurt.com/energy-saving**

**Scan here for the ERFURT energy saving calculator.**

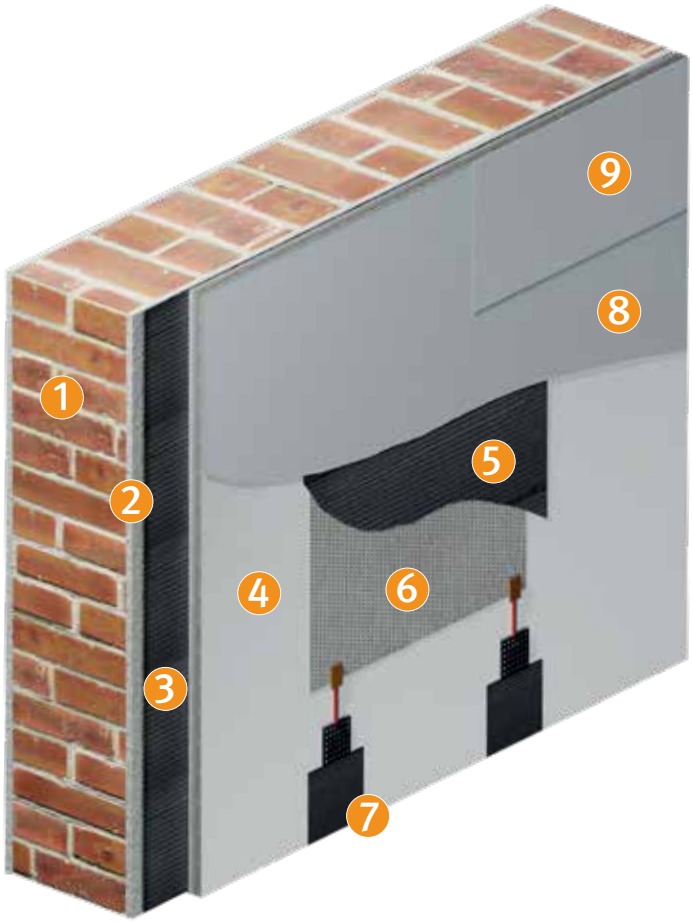
*** Important information:**
It is assumed that the room temperature generated by the central heating system is reduced by 3 °C over the entire heating period. The FH 300 PRO surface heating system is only switched on when required. No guarantee is given for the correctness of the results. The calculation is only intended to illustrate the possible savings. An extensive calculation by a specialist designer which takes the local circumstances into account is required to transfer the figures to a specific project.

# PRODUCT COMBINATIONS WITH ERFURT-KLIMATEC FH 300 PRO

We recommend using the surface heating system in conjunction with the ERFURT-KlimaTec interior insulation plates IP 2500+ PRO or IP 3500+ PRO. This allows more thermal radiation to be emitted into the room and less to be trapped in the wall. The heating system reacts much more quickly and additional heating energy is saved due to the insulation.

## WALL CONSTRUCTION WITH ERFURT-KLIMATEC IP 2500+ PRO/IP 3500+ PRO INTERIOR INSULATION PLATES

1. Wall
2. Interior plaster
3. ERFURT-System Adhesive SR 6 PRO
4. ERFURT-KlimaTec IP 2500+ PRO or IP 3500+ PRO interior insulation plate
5. ERFURT-System Adhesive SR 6 PRO
6. ERFURT-KlimaTec FH 300 PRO
7. Fill the opening with ERFURT SR 6 PRO System Adhesive and reinforcement
8. Filler
9. ERFURT-Variovlies or ERFURT nonwoven woodchip




**Scan here to get all the latest information and videos about the product.**

www.erfurt.com/en/professionals/products/klimatec/surface-heating/

## HOW TO USE

**1.** Apply System Adhesive SR 6 PRO with toothing C1.

**2.** Place the carbon thermal nonwoven into the bed of adhesive.

**3.** System Adhesive SR 6 PRO penetrates through the perforated nonwoven material.

**4.** Fill and smooth the surface with System Adhesive SR 6 PRO.

**5.** Apply an ERFURT wallcovering of your choice. You're finished!

# ERFURT-KLIMATEC: ACCESSORIES

## Technical product data

### KLIMATEC SOFFIT PANEL LP 1000+ PRO

| | |
|---|---|
| Material: | Expanded glass granulate |
| Order number: | 1001201 |
| Dimensions: | 120 x 40 x 1.0 cm |
| Total weight: | 1.6 kg |
| Thermal conductivity λ: | 0.086 W/(mK) |
| Reaction to fire: | B-s1,d0 |

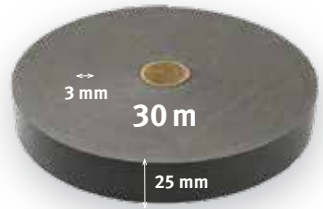
The 1 cm thick soffit panel LP 1000+ PRO is used in adjoining and window areas. The soffit panel slows down the flow of heat outwards, saving energy, particularly during the heating-up phase, by warming the room air more quickly.

### KLIMATEC INSULATING WEDGE DK 2 PRO

| | |
|---|---|
| Material: | Expanded glass granulate |
| Order number: | 1002693 |
| Dimensions: | 60 x 40 x 2.5/0.5 cm |
| Total weight: | 1.29 kg |
| Thermal conductivity λ: | 0.086 W/(mK) |
| Reaction to fire: | B-s1,d0 |

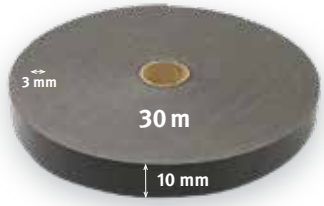
The ERFURT KlimaTec DK 2 PRO insulating wedge is designed for the energy-saving interior insulation of wall and ceiling areas and for the adjoining areas between interior walls and insulated exterior walls. The use of ERFURT KlimaTec DK 2 PRO insulating wedges prevents heat bridges and slows down the flow of heat to the outside.

### KLIMATEC EB 25+ PRO SEALING STRIP




| | |
|---|---|
| Material: | PE foam |
| Order number: | 1003672 |
| Roll dimensions: | 3000 x 25 x 3 mm |
| Carton content: | 10 rolls |
| Reaction to fire: | B2 (according to DIN 4102-1) |

### KLIMATEC EB 10+ PRO SEALING STRIP




| | |
|---|---|
| Material: | PE foam |
| Order number: | 1003671 |
| Roll dimensions: | 3000 x 10 x 3 mm |
| Carton content: | 10 rolls |
| Reaction to fire: | B2 (according to DIN 4102-1) |

The KlimaTec EB sealing strip acoustically and mechanically seals the gap between the panel and the base surface. It is self-adhesive on one side.

### ERFURT-KLIMATEC: FACTS & FIGURES

| Approx. values | KV 600 PRO | KP 1000+ PRO | KP 2500+ PRO | IP 2500+ PRO | IP 3500+ PRO |
|---|---|---|---|---|---|
| Thickness [mm] | 4 | 10 | 25 | 25 | 35 |
| Thermal conductivity λ [W/mK] | 0.04 | 0.11 | 0.075 | 0.096/0.035* | 0.096/0.035* |
| Thermal insulation resistance R [m²K/w] | 0.1 | 0.09 | 0.33 | 0.63** | 0.95** |
| sd value [m] | 0.06 | 0.15 | 0.15 | 0.30 | 0.40 |
| Moisture buffering | - | + | +++ | ++ | ++ |
| Reaction to fire | E | A2-s1,d0 | A2-s1,d0 | C-s1,d0 | C-s1,d0 |
| Adhesive | organic | mineral-based | mineral-based | mineral-based | mineral-based |

**Table 4:** * Textile nonwoven ** measured by tests on the total cross-section

# 5. IMPROVING ACOUSTICS

## EXPERIENCE OUR WELL-BEING ACOUSTIC SYSTEM!

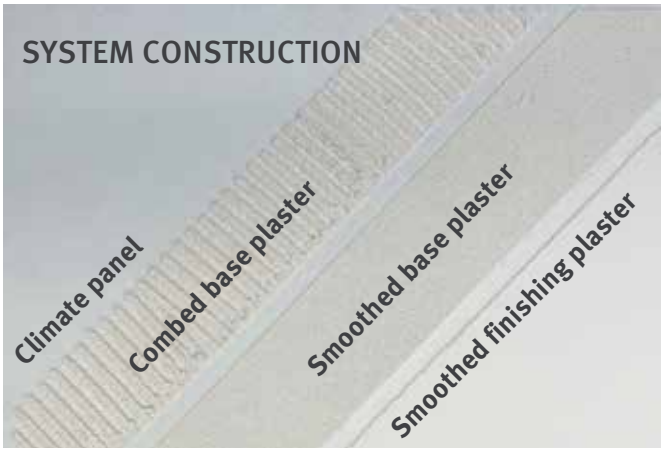
Optimum acoustics in a room help a person's capacity to focus and concentrate, aiding their performance and well-being. And who does not want to live or work in a room that allows you to communicate with and understand others with ease?

## THE PROBLEM

Good room acoustics are particularly important in rooms where lots of people gather or meet up. However, unfortunately these rooms, including classrooms, restaurants or canteens, often have poor acoustics due to their sparse furnishings, bare walls and hard floors. This often leads to the sound waves being reflected off these surfaces, further increasing noise levels. However, modern interior architecture means that acoustics are often poor in private homes as well. Clean lines and minimal décor show off a room to best advantage, while large areas of glazing maximise the feeling of openness. However, an absence off curtains, carpets and comfy sofas worsens the acoustics.

## THE SOLUTION

You do not have to suffer from poor room acoustics. Using the new ERFURT Acoustic System, you can now remedy this during the planning or renovation phase. **The Acoustic System consists of ERFURT-KlimaTec KP 1000+ PRO or KP 2500+ PRO climate panels, which are then coated with Acoustic Base Plaster GP 10 PRO and Acoustic Finishing Plaster OP 5 PRO.**




Climate panels have outstanding sound-absorbing properties. Acoustic plaster is sound-permeable, enabling the sound-absorbing properties of the climate panels to be retained. Sound absorption reduces the reverberation time, improving the acoustics of the room.

The structure of the Acoustic Finishing Plaster is exceptionally fine for an acoustic plaster, and is hard to distinguish from a normal plaster. Its marble content gives it a bright white finish, which does not need to be painted. Benefit from this innovative system and design your rooms in line with your style and taste.

## YOUR BENEFITS AT A GLANCE:

- Smooth, seamless surfaces
- Scratch-resistant – suitable for walls and ceilings
- Very good sound absorption
- Directly bonded system
- No substructure required
- Minimal installation depth
- Fine, matt, pure white finish
- Easy to apply

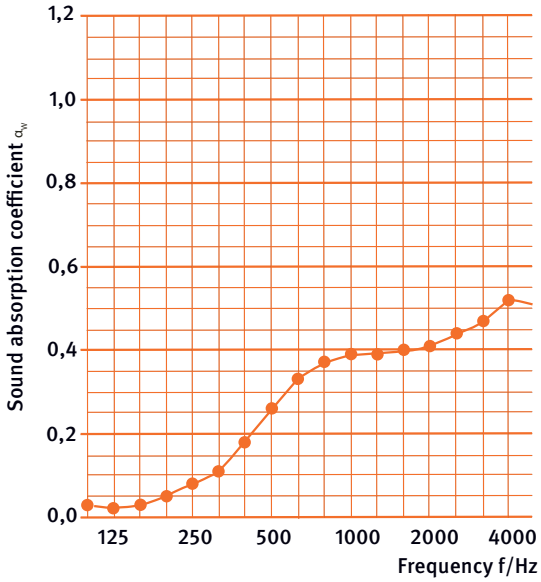
# PERSUASIVE TECHNICAL VALUES

| | Sound absorption | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PRODUCT** | **125 Hz** | **250 Hz** | **500 Hz** | **1000 Hz** | **2000 Hz** | **4000 Hz** | **$\alpha_w$** | **Thickness (mm)** |
| KlimaTec KP 1000+ PRO | 0.05 | 0.1 | 0.25 | 0.4 | 0.4 | 0,5 | 0.3 | 10 |
| KlimaTec KP 2500+ PRO | 0.05 | 0.1 | 0.25 | 0.65 | 0.95 | 0.75 | 0.3 (MH) | 25 |

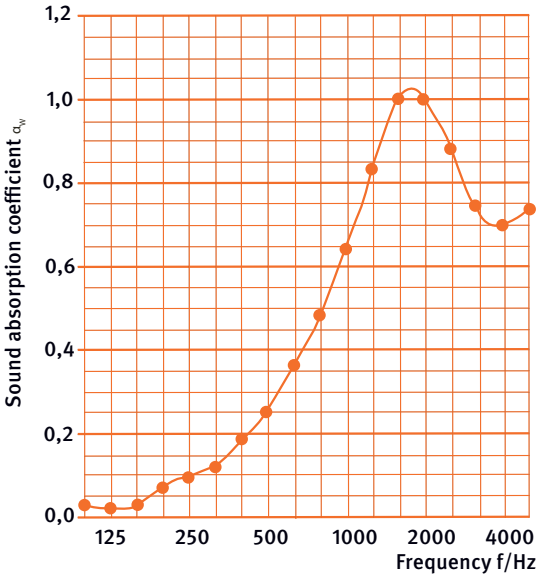
**Table 5:** Results of the reverberation chamber measurement according to DIN EN ISO 354:2003-12

## ERFURT-KLIMATEC PANELS WITH ACOUSTIC PLASTER GP 10 PRO AND OP 5 PRO

### KP 1000+ PRO WITH ACOUSTIC PLASTER




### KP 2500+ PRO WITH ACOUSTIC PLASTER




## REVERBERATION TIME

## HOW DOES THE AW VALUE ACTUALLY AFFECT THE ROOM ACOUSTICS?

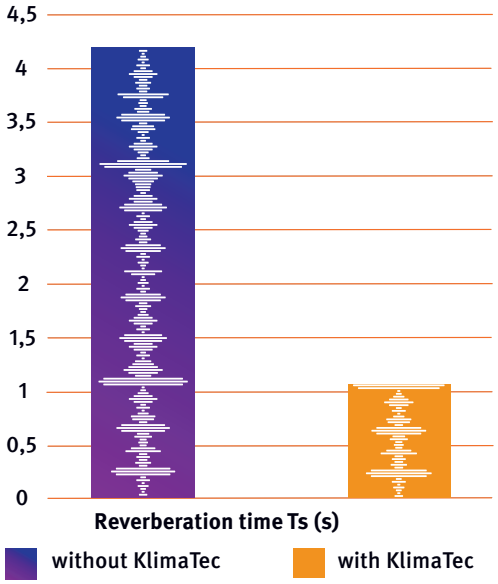
The reverberation time is used to objectively assess the room acoustics. Reverberation is the reflection of the sound waves from the surfaces. The longer the reverberation can be heard once the source of the sound has been shut off, the worse will be the ability for people to understand speech in the room. We calculated an example to show how the ERFURT Acoustic System would affect the reverberation time of a reference room:

### REFERENCE ROOM:

8.0 m x 15.0 m - 3.0 m2 ceiling height
15 m² windows, 2 m² door, walls and ceiling lime cement plaster, linoleum floor

### REFURBISHMENT:

Walls and ceiling with KP 2500+ PRO climate panels and ERFURT Acoustic Plaster




Use our Online Acoustic Calculator and be amazed by how ERFURT Acoustic Systems can improve the acoustics of your property

www.erfurt.com/akustiksystem

# Technical product data

## ACOUSTIC BASE PLASTER GP 10 PRO

| | |
|---|---|
| Material: | 2K container in a tub |
| Total weight: | 13.6 kg |
| Coverage: | approx. 8 m² with a layer thickness of 2 mm |
| Order number: | 1004494 |
| Contents: | 18 tubs per pallet |

## ACOUSTIC FINISHING PLASTER OP 5 PRO

| | |
|---|---|
| Material: | 2K container in a tub |
| Total weight: | 20.8 kg |
| Coverage: | approx. 8 m² with a layer thickness of 1 mm |
| Order number: | 1004495 |
| Contents: | 18 tubs per pallet |

# 6. LIGHTWEIGHT CONSTRUCTION

## ONE PANEL – MANY APPLICATIONS

The versatile ERFURT-KlimaTec Varioplatte VP 1000+ PRO lightweight construction panel is the all-rounder for a host of different uses – whether for stylish interior fit-outs, designing a bathroom, precise levelling of a base surface, or effective refurbishment of a plinth. Save time and money by relying on Varioplatte VP 1000+ PRO panels. The solution that adapts flexibly to your needs. The Varioplatte panel is resistant to moisture and frost, and so can be used both indoors and outdoors. And, thanks to its outstanding properties, it is the ideal alternative to conventional gypsum plaster and fibrous cement panels.

The panels are impact-resistant and can be bent, which make them easy to use. Handling is also virtually dust-free and straightforward. Simply score the panel with a Stanley knife and break along an edge. They can be directly coated with filler or tiled over. These panels can be screwed to wood or metal stud walls or directly adhered to the base surface using System Adhesive SR 6 PRO.

## SUSTAINABLE, NON-FLAMMABLE

The new Varioplatte VP 1000 PRO panel is made of 94% recycled waste glass. It is environmentally friendly and free of components that can be harmful to health.
The material is non-flammable (A2-s1,d0) and can also be used in areas with more stringent fire protection requirements.

## BREATHABLE – FOR HEALTHIER LIVING

Varioplatte VP 1000+ PRO panels are mineral-based, breathable and regulate the air humidity for a healthier indoor climate. The panels are very low-emissions.

- Made of recycled raw materials
- Lightweight
- Optimum adhesion e.g. for plaster, filler, adhesive
- Breathable Has a moisture-regulating effect
- Non-flammable
- Dimensionally stable No swelling or shrinkage
- Durable, shockproof and impact-resistant
- Moisture-resistant, so ideal for use in wet rooms
- Frost-proof
- Excellent load-bearing capacity
- Flexible

# Technical product data

## KLIMATEC VARIOPLATTE VP 1000+ PRO PANEL

| | |
|---|---|
| Material: | Expanded glass granulate |
| Order number: | 1004493 |
| Dimensions: | 120 x 80 x 1 cm |
| Total weight: | 5.2 kg/panel |
| Water vapour diffusion sd value: | approx. 0.15 m |
| Thermal conductivity λ: | 0.12 W/(mK) |
| Compressive strength: | 4 N/mm² |
| Bending tensile strength | 9 N /mm² |
| Flexural modulus: | 1800-2000 N/mm² |
| Reaction to fire: | A2-s1,d0 |
| Contents: | 120 panels/pallet |

## KLIMATEC VARIOPLATTE VP 1000+ EXTRA PRO PANEL

| | |
|---|---|
| Material: | Expanded glass granulate |
| Order number: | 1004527 |
| Dimensions: | 240 x 120 x 1 cm |
| Total weight: | 15.6 kg/panel |
| Water vapour diffusion sd value: | approx. 0.15 m |
| Thermal conductivity λ: | 0.12 W/(mK) |
| Compressive strength: | 4 N/mm² |
| Bending tensile strength | 9 N /mm² |
| Flexural modulus: | 1800-2000 N/mm² |
| Reaction to fire: | A2-s1,d0 |
| Contents: | 120* panels/pallet |

* Minimum order quantity: 6 pallets
Delivery time: approx. 3 weeks

## SYSTEM ADHESIVE SR 6 PRO

| | |
|---|---|
| Order number: | 1000098 |
| Container size: | 15 kg |
| Quantity: | approx. 2.2 kg/m²<br>with a 10 mm toothing / C5 |
| Working time: | approx. 30 min |

## APPLICATIONS OF THE VARIOPLATTE VP 1000+ PRO PANEL

- √ Interior walls
- √ Partitions, room dividers
- √ Ceilings
- √ Pitched roofs
- √ Dormer roofs/cladding
- √ Roof overhangs/soffits
- √ Cellars
- √ Pre-walls in sanitary facilities
- √ Cladding for bathtubs
- √ Wall / ceiling cladding in wet rooms
- √ Carport covers
- √ Outdoor kitchens
- √ Summer houses and gazebos
- √ ... and much more besides

Particularly low-emission:

*information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions)

Find more KlimaTec products at:

## FURTHER INFORMATION

www.erfurt.com/mould-remediation
www.erfurt.com/interior-wall-system
www.erfurt.com/insulating-wallpaper

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