



THERMAVAR™

PCM CLIMATE CEILING

Older buildings, churches, castles etc. all have an adequate thermal storage mass for retaining heat energy. This ensures that interiors remain nice and cool despite the summer heat outside. In lightweight constructions, where this thermal storage capacity is lacking, room temperatures quickly rise to a level that is equal to or even higher than the temperature outside. Conventionally, this problem is solved by installing air-conditioning systems which, however, are encumbered with economic and ecological drawbacks: They are expensive to buy and operate, and their energy consumption is huge. In addition, the room user's comfort is decreased by drafts, noise, and the dryness of the air.

The Thermavar™ PCM climate ceiling allows efficient air-conditioning of living spaces with minimum use of cooling machines. The use of Phase Change Materials in ceilings significantly improves the indoor climate. In addition, an energy saving of 25 to 50% can be achieved. The heating and ventilation system can simply be maintained with minor modifications. Only the ceiling tiles are replaced. More than 90% of office buildings have a system ceiling. It is precisely for this reason that phase change materials are so suitable for making existing installations more sustainable. The Thermavar™ PCM climate ceiling ensures a healthy and comfortable climate!



REDUCES ENERGY COSTS
FROM 25 TO 50%



SUSTAINABLE AND
ENVIRONMENT FRIENDLY



IDEAL FOR
RENOVATION



OPTIMAL INDOOR CLIMATE
AND THERMAL COMFORT



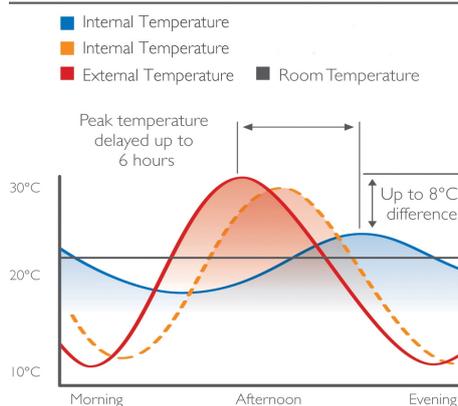
MAINTENANCE FREE
AND EASY TO INSTALL



HOW DOES IT WORK?

To make buildings more sustainable, we use the physical phenomenon that during phase transition of a substance a lot of energy is released or absorbed. This feature is used to control or dampen the temperature variation in a building or area. Applying phase change materials is actually nothing more than the creation of virtual building mass. The Phase Change Materials essentially work as a thermal battery. The Phase Change Materials in the ceiling absorb heat from the environment, which cools the environment. We usually use PCM22 for this, but PCM18 is also possible. PCM22 absorbs heat from the enclosure when the temperature rises above 22°C. The room is ventilated by supplying any necessary cooled fresh air and discharging warm air outside. This is done by means of air extraction grilles that are installed in the suspended ceiling. When the ambient temperature drops, the PCM solidifies. This in turn ensures heat emission to the environment. This is an advantage in winter, as the rooms cannot cool down too much.

Stabilizing effect of thermal mass on internal temperature.



It is necessary to ventilate the room by supplying outside air and by extracting warm air from the room. Air extraction grilles need to be installed in the suspended ceiling. At night during the summer period, cool night air is blown from outside over the warm ceilings to regenerate the phase change materials. The night power for the fans is the only energy supply required for this. In the morning, the phase change materials are completely solidified again and ready to provide a pleasant working climate.



TECHNICAL SPECIFICATIONS

basic ingredient	PCM18 or PCM22 (base material calcium chloride, salt hydrate) Non-toxic fire classification: DIN EN 13501-1 (non-flammable)
Cooling capacity per pouch	PCM18: 71 Wh PCM22: 66 Wh
Process temperatures	Solidification temperature: PCM18: 17°C PCM22: 21°C Melting temperature: PCM18: 19°C PCM22: 23°C Max. environment temperature: 50 °C
Dimensions and weight	Dimensions pouch: 270 x 570 x 5 mm Weight per pouch: 1,65 kg PCM filling per pouch: 1,5 kg Surface weight per m2: 9,9 kg
Pouch material	3-layer aluminium + film (high stability, optimised surface for charging and discharging PCM storage material, corrosion stable, UV stabilised)
Ceiling panel perforation	2.3 mm Ø, HOH 5 mm, circa 60%, other perforations upon request
Colour ceiling panel	RAL 9010, other colours upon request

