Technical Product Information

WEM Climate Panel

Article no. 02001-3

Description

The WEM Climate Panel is a 25-mm-thick clay panel with integrated heating pipes that are made of oxygen-proof multi-ply composite material.

Ill. 1

Scope of application

The WEM Climate Panel is a room heating and cooling system that can be installed to wall and ceiling surfaces in drywall technique. The low-temperature heating can be used as an exclusive source of heating or to support the existing heating system. It is suitable for new construction as well as for renovation and refurbishment of old buildings. The drywall WEM Climate Panel is ideal for solid timber houses and timber frame houses.

Benefits

- High noise protection
- Very short drying time
- Simple and easy installation
- Minimum increase in humidity due to thin plaster coats
- Pure natural product without any harmful substances
- Permeable to vapour and capillary conductive material
- The multi-ply composite pipe with a diameter of 16 mm is completely impermeable to oxygen and vapour.

MVD Climate Panel

If the Climate Panels will be exposed to high humidity contents during later operation (e.g. due to condensation caused by high cooling loads) we recommend using MVD Climate Panels. This type of Climate Panel is moisture-resistant due to an admixed dispersion solution but offers almost the same permeability to vapour.

Materials	Panel	Milled construction loam, plant fibres, broken sand, acrylate dispersion (only MVD Climate Panels)
	Heating pipe	WEM Multi-Ply Composite Pipe, ∅ 16 x 2 mm (PE-RT/aluminium/PE-RT), tested as per DIN DVGW*
	Reinforcement	Glass-fibre fabric

Technical data	Max. temperature/pressure	max. 95 °C/10 bar
	Connecting technology	WEM® Press-Fit Fittings (press contour U16)
	Supply temperature	35°C to 45°C
	Power* *see page 4*	85 W/m² at T_O = 12.5 °C 170 W/m² at T_O = 22.5°C
	Bulk density	1400 kg/m³
	Compressive resistance σ_d	> 2.5 N/mm²
	Thermal conductivity λ	0.59 W/mK
	Specific thermal capacity C_p	1.0 kJ/kgK
	Vapour diffusion resistance μ	5 to 10
	Material class	A2 (non-combustible) as per DIN EN 13501-1
	Edge shape	Blunt
	Automatic control system	Room thermostats and motorized actuators in the heating manifold or thermostat valves (WEM Multibox)
	Fasteners	Screws, ∅ 4.5 to 6 mm, cramps
	To be ensured on site	Protect against moisture, store in dry location, installation temperature ≥ 5°C

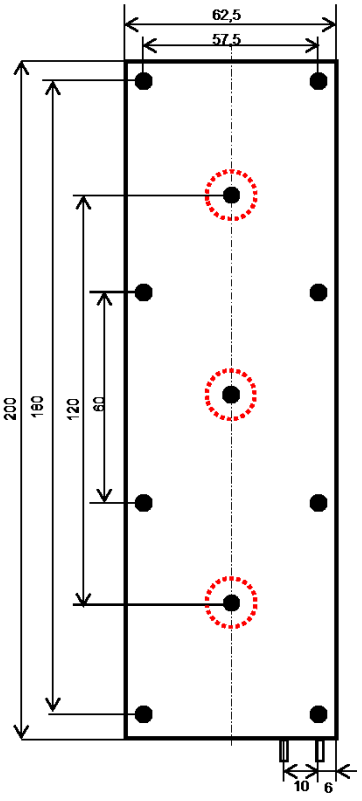
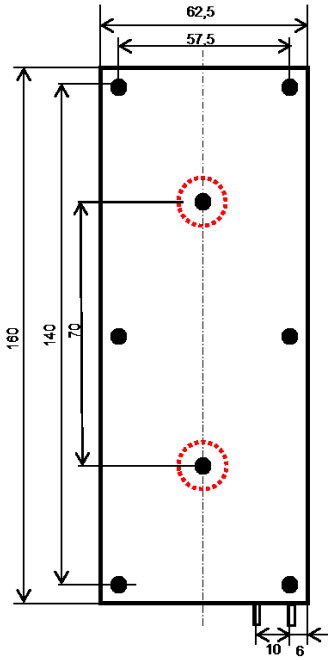
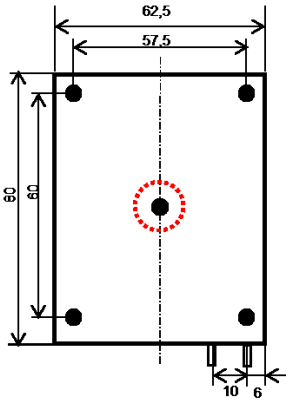
Noise protection	Solid structure	Reduction: 2.8 dB*
	Solid timber	Reduction: 8.5 dB*
	Timber frame	Reduction: 10.6 dB*

see page 6

*DVGW = German Technical and Scientific Association for Gas and Water

	Climate Panel MV(D) 200	Climate Panel MV(D) 160	Climate Panel MV(D) 80
Dimensions	200 x 62.5 x 2.5 cm	160 x 62.5 x 2.5 cm	80 x 62.5 x 2.5 cm
Heating area	1.25 m²	1.0 m²	0.5 m²
Weight	approx. 43 kg	approx. 35 kg	approx. 18 kg
Water content	approx. 1.3 kg	approx. 1.1 kg	approx. 0.6 kg
Pipe length	12 m	10 m	5 m
Pressure drop	For information concerning the pressure drop see the document ‘Design’, page 4.		

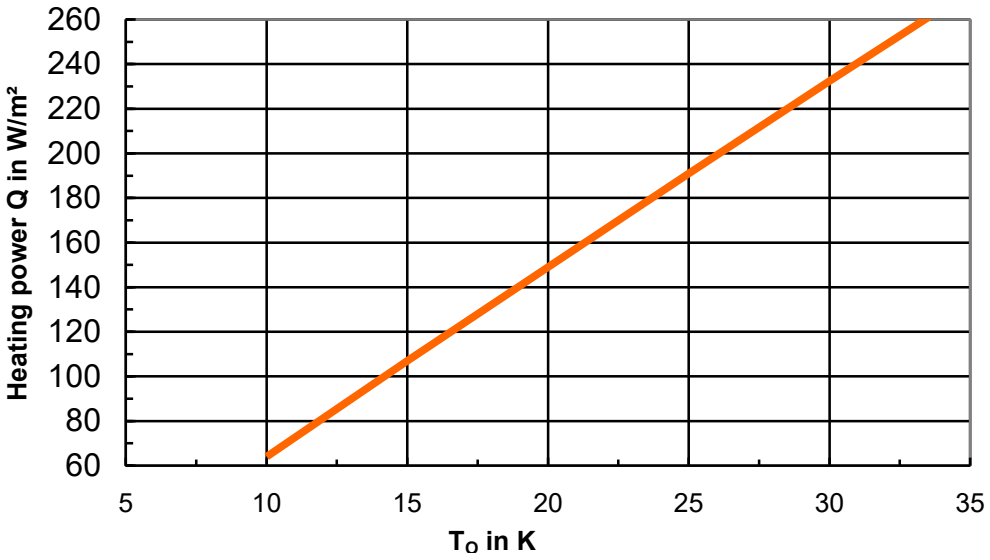
Dimensions and fastening points:

Climate Panel MV(D) 200	Climate Panel MV(D) 160	Climate Panel MV(D) 80
		

- Additional fasteners on ceilings and roof pitches (For MVD Climate Panels, the additionally required disk fasteners are installed at the factory)

Heating power

The heating power depends on the supply and return temperatures of the heating medium and the desired indoor temperature. The characteristic represents the heating output at different temperatures.



$$T_O = \frac{T_S + T_R}{2} - T_I$$

T_O = Mean overtemperature
T_S Supply temperature
T_R Return temperature
T_I Indoor temperature (e.g. 20 °C)

The table below gives an overview of typical temperature conditions and the associated heating power

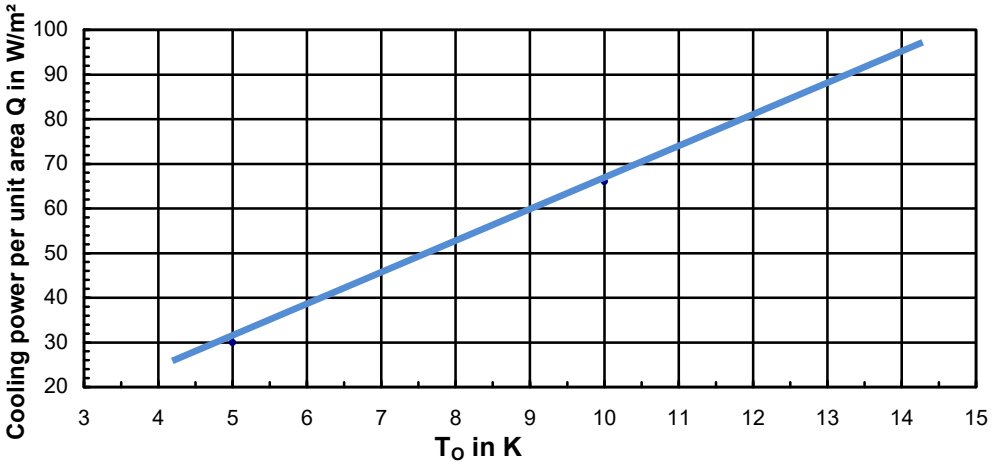
T_{Supply} [°C]	T_{Return} [°C]	Q [Watt/m²]
35	30	85
40	35	128
45	35	150
45	40	170
50	40	190
50	45	212
55	45	232
55	50	255

The specified values only apply if WEM Clay Plaster was used and the plaster coat does not exceed a thickness of 8 mm.

Characteristic taken from the test report in accordance with DIN EN 442; testing institute: HLK Stuttgart, 02/2004

Cooling power

The cooling power depends on the supply and return temperatures of the heating medium and the desired indoor temperature. The characteristic represents the cooling output at different temperatures.



$$T_O = \frac{T_R - T_S}{\ln\left[\frac{T_I - T_S}{T_I - T_R}\right]}$$

T_U =	Logarithmic undertemperature
T_S	Supply temperature
T_R	Return temperature
T_I	Indoor temperature

The table below gives an overview of typical temperature conditions and the associated cooling power

T_{Indoor} [°C]	T_{Supply} [°C]	T_{Return} [°C]	Q [Watt/m²]
23	16	18	37
	16	20	28
	18	20	24
	18	22	-
25	16	18	52
	16	20	42
	18	20	37
	18	22	28
27	16	18	66
	16	20	57
	18	20	52
	18	22	41

The specified values only apply if WEM Clay Plaster was used and the plaster coat does not exceed a thickness of 8 mm.

Characteristic taken from the test report in accordance with DIN 4715-1; testing institute: HLK Stuttgart, 02/2004

Noise protection

A master thesis at the University of Koblenz examined the influence of WEM Clay Panels 25 mm (LP) and Climate Panels on three typical wall structures:

Solid structure: 175 mm lime-sand bricks with a cement plaster coat of 10 mm thickness

Solid timber: 170 mm solid construction timber (Holz 100)

Timber frame: Timber frames 6/12 cm with 12 cm wood fibres, planked on both sides with diagonal boarding (2.5 cm)

	Solid structure	**Solid timber**	**Timber frame**
Without planking	55.0 dB	39.3 dB	35.0 dB
1 x Clay Panel + 8 mm clay finish coat	57.8 dB *Reduction: 2.8 dB*	47.8 dB *Reduction: 8.5 dB*	45.6 dB *Reduction: 10.6 dB*
2 x Clay Panel + 16 mm fine finish clay coat	58.5 dB *Reduction: 3.5 dB*	56.9 dB *Reduction: 17.2 dB*	47.7 dB *Reduction: 10.6 dB*
80 mm wood fibres + Clay Panel + 8 mm clay finish coat	64.2 dB *Reduction: 9.2 dB*	60.2 dB *Reduction: 20.9 dB*	58.9 dB *Reduction: 23.9 dB*