

Multipor external thermal insulation composite system WAP Facade insulation

<u>multipor</u>



Multipor external thermal insulation composite system: efficient thermal insulation for high-quality building solutions

In Germany, there is an aboveaverage number of buildings that have inadequate thermal insulation due to their age, resulting in high energy costs and uncomfortable living conditions in both summer and winter.

Poorly insulated external walls waste around a third of the heating energy.

Anyone investing in a property wants their capital to be well invested. A highly thermally insulating and ecological Multipor external thermal insulation composite system is a worthwhile investment that not only reduces energy costs, but also increases the value of the property. From the plinth to the roof, Multipor offers a fully coordinated, tested and building-authorised composite thermal insulation system that enables seamless and thermal bridgefree exterior walls from single-family homes to multi-storey buildings. The house is not wrapped in a plastic coat, but in a breathable functional jacket. The decisive physical building properties are the diffusion openness and the ability to regulate moisture.

The centrepiece is the Multipor mineral insulation board, which is made from lime, sand, cement and water. It is dimensionally stable and pressure-resistant, open to diffusion and, as a class A1 building material, non-combustible. bar. The mineral ETICS is rounded off with extensive system additions such as Multipor lightweight mortar, reinforcement mesh, reveal board or finishing render.

The system is particularly suitable for multi-storey residential buildings, as it fulfils all thermal and fire protection requirements without the need for special solutions such as fire barriers.

The intelligent Multipor external thermal insulation composite system fulfils all energy requirements of the current EnEV and offers an ecological and healthy solution for the external insulation of façades.

Advantages at a glance



Does not burn, does not smoulder, does not smoke

The mineral Multipor insulation system belongs to building material class A and is noncombustible. Even at the highest temperatures, there are no toxic vapours, smoke or dripping. It is therefore only logical that the Multipor external thermal insulation composite system WAP has already been successfully installed in kindergartens, schools, hospitals and other public buildings in many places. The system is also an excellent choice for multi-storey residential buildings, as it fulfils all thermal and fire protection requirements.



Protection against algae and fungi - without biocides

Surface moisture causes microbiological infestation. With the Multipor external thermal insulation composite system, this moisture does not occur in the first place. The mineral system absorbs moisture and releases it again. Rapid re-drying and a high heat storage capacity for an insulation material prevent algae and fungal infestation. Unlike many conventional, plastic-bound insulations, the Multipor external thermal insulation composite system does not require any toxic biocides.



Solid, dimensionally stable, woodpecker-proof

The pressure-resistant Multipor mineral insulation boards show their strong side everywhere, especially in facades subject to heavy mechanical loads. The comparatively high raw density of up to 115 kg/m³ enables a "quasi-monolithic" system structure that sounds like a solid wall when "tapped". Woodpecker damage is therefore not an issue and protection against rodents is also guaranteed.



System provider

Multipor offers a completely harmonised insulation system for façade insulation from the plinth to the roof. The extensive product range includes Multipor mineral insulation boards, accessories, tools and service.



Ecological and recyclable

The Multipor mineral insulation board is manufactured in an environmentally friendly way using the natural raw materials lime, sand, cement and water. The ingredients make Multipor an ecologically harmless building material. This has been confirmed by independent environmental institutes. Pure Multipor residues are also taken back in big bags from our plant in Stulln and returned to the production process there.



Perfectly harmonised system components



Compressive strength	\geq 300 kPa	CS II; 1.50 - 5.0 N/mm ²
Transverse tensile strength/adhesive tensile strength	\geq 80 kPa	\geq 250 kPa
Shear strength	\geq 30 kPa	-
Thermal conductivity	λ = 0.045 W/(mK) (rated value)	$\lambda_{_{10,dry}}$ = 0.18 W/(mK)
Water vapour diffusion resistance coefficient	μ = 3	$\mu \leq 10$
E-modulus	approx. 200 - 300 N/mm ²	approx. 2,000 N/mm ²
Water absorption – Short-term (24 h) according to DIN EN 1609 – Long-term (28 d) according to DIN EN 12087	$\begin{split} W_{\rho} &\leq 2.0 \text{ kg/m}^2 \\ W_{L^p} &\leq 3.0 \text{ kg/m}^2 \end{split}$	1
Water absorption - Capillary water absorption according to DIN EN 1015-18	-	W2, c \leq 0.2 kg/(m² min) ^{0,5}
Building material class	A1; non-combustible Melting point > 1,200°C	A2-s1, d0; non-flammable
Dimensions / delivery quantity	600 x 390 mm d = 60 - 300 mm (in 20 mm increments)	20 kg/bag
Material requirements	4.3 panels /m ²	approx. 30 litres/20 kg; Sufficient for approx. 6 m ² bonding or reinforcement at 5 mm layer thickness

4

Good reasons for the Multipor external thermal insulation composite system

The Multipor thermal insulation composite system fully fulfils all the requirements for high-quality façade insulation:

Fire protection

The Multipor external thermal insulation composite system with appropriately approved finishing plasters belongs to flammability class A and is non-combustible. Dripping of burning material and the formation of toxic smoke are ruled out.

The installation of fire barriers is not necessary. This eliminates the need for tedious and error-prone material changes in the system. This makes processing simple and logistics efficient.

BRANDRIEGEL not required!

An ETICS with a uniform Multipor finish from the base to the roof is non-combustible. The installation of fire barriers is therefore not an issue.

Thermal insulation

The Multipor thermal insulation composite system fulfils or exceeds the increasingly stringent requirements of the EnEV simply and easily. Mineral and fibre-free, the Multipor mineral insulation board offers a new quality of thermal insulation: solid, a 100% homogeneous material and highly insulating with a thermal conductivity of

 λ = 0.045 W/(mK). Both in new construction as well as in existing buildings

optimal solutions for upgrading the energy efficiency of the building.

Sound insulation

In residential buildings, it is important to minimise the noise input from outside. Street noise is in the low frequency range and is perceived as extremely unpleasant. An external wall insulated with a Multipor external thermal insulation composite system counteracts this. The sound insulation level of an external wall, which is relevant for sound insulation certification, can be positively upgraded - by up to 2 dB depending on the external wall construction. This makes Multipor one of the best insulation systems, especially in the low-frequency range (traffic noise), and significantly improves the quality of living.



Multipor withstands high levels of heat

The Multipor external thermal insulation composite system WAP and its system components at a glance

The Multipor external thermal insulation composite system (WAP) is a high-quality insulation solution that fulfils all the requirements of modern construction. The products are subject to ongoing internal and external quality monitoring in the factories, with careful handling during processing and in the subsequent trades rounding off the product quality.



7

Design examples Multipor external thermal insulation composite system

System structure, 2-layer bonding up to 300 mm



External thermal insulation composite system WAP 19-003

Plinth insulation with protruding ETICS



External thermal insulation composite system WAP 19-052

Horizontal section window



External thermal insulation composite system WAP 19-020

Plinth insulation, ETICS flush with plinth



External thermal insulation composite system WAP 19-051

Eaves connection with roof overhang

Image: second se

External thermal insulation composite 19-026 system WAP

External venetian blind with plaster base plate II



External thermal insulation composite system WAP 19-044

Connection of flush-mounted or front-mounted window



External thermal insulation composite system WAP 19-054

001 Ytong masonry

- 06 Thermal insulation
- 07 Reinforced concrete ceiling
- 39 Impact sound insulation
- 40 Floating screed
- 068 Base plaster
- 081 Interior plaster
- 088 Multipor sealing slurry
- 111 Separating or protective layer
- 117 Elastic sealing tape
- 119 Plaster end profile
- 120 Multipor plinth insulation board
- 132 Mineral fibre board
- 149 Pre-compressed sealing tape
- 168 Masonry present169 Interior plaster available
- 173 Multipor lightweight mortar
- 174 Multipor reinforcing mesh www.multipor.de/konstruktionsbeispiele

Gable connection



External thermal insulation composite system WAP 19-028

175	Corner protection rail	
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200 Ytong/Silka masonry

249 Multipor mineral insulation board WAP

264 Dimpled film

284 Base coat

285 System-compliant finishing render

289 Fabric angle

326 Multipor screw anchors

Processing instructions



Plastic plinth rail, dowelled



Plinth end with fabric angle



Cutting the mineral insulation board



Customisation of the insulation board



Apply Multipor lightweight mortar to insulation board



Full-surface application of mortar



Edge bead point bonding for larger irregularities



Press on Multipor mineral insulation board and float in



Slab offset building corner



Sanding the surface



Set dowels



Reinforcement arrows above window opening



Fabric corner profile on outside corner



Overinsulation of external venetian blind box (min. 60 mm)



Apply reinforcing plaster



Insert reinforcing mesh



Plaster in reinforcing mesh



Texturing finishing plaster

Solutions for fastening loads



Careful slotting of the plaster shell



Inserting the Multipor spiral plug



Installation of the Multipor device carrier

The fastening of loads depends on the expected load and stress. A distinction is made between light and heavy loads.

Fastening light loads

Light static loads of up to 6 kg pull-out load can be fixed in the Multipor mineral insulation board with the Multipor spiral plug. The plug can be inserted directly without drilling. Before the Multipor spiral plug (50 mm, 85 mm, 120 mm) is carefully screwed in with a Torx bit T 40, the render shell including the reinforcement mesh must be carefully slit with a cutter knife to prevent damage to the façade and the Multipor mineral insulation board.

For devices weighing less than 5 kg, such aslights or motion detectors, the Multipor telescopic device carrier is used, which is installed before the insulation work. The integrated cable routing enables convenient and safe connection to the electrical cable.

Fastening heavy loads and dynamic loads Heavy loads from 6 kg, all movable and variable loads as well as dynamic loads/stresses must not be fastened in the Multipor mineral insulation board. In this case, we recommend fixing to the load-bearing substrate.





249 Multipor mineral insulation board WAP 285 System-compliant mineral finishing render 291 Heavy-duty bracket

Solutions for transitions, connections and terminations



Multipor plastering bead W32-plus



Inserted window sill



Multipor plastering moulding W31



Multipor fabric corner angle



Multipor expansion joint profile

Window connection with Multipor plastering strips

Multipor plastering strips are suitable for window connections. Their advantage is that on the one hand they have a seal to the frame and on the other hand they can be easily worked into the plaster thanks to the weldedon fabric strip. The profiles have adhesive strips for protective films. This means that windows can be protected from dirt and driving rain during the installation phase.

Window sill connection with Multipor joint sealing tape

Multipor offers suitable solutions for connecting both aluminium and natural stone window sills by using fabric corner brackets, joint sealing tape, butt connectors and profile strips.

Roller shutter and external venetian blind boxes with Multipor plastering profile For roller shutter and external venetian blind boxes that are to be integrated into the Multipor external thermal insulation composite system, connections must be made to the boxes and guide rails. Special Multipor plastering profiles are available for the connection to the guide rails.

Building and reveal corners with Multipor fabric corner profile Multipor fabric corner profiles with welded-on fabric are available for

building and reveal corner profiles with weided-on fabric are available for building and reveal corners. The fabric pieces must be integrated into the surface reinforcement of the Multipor external thermal insulation composite system with sufficient overlap.

Movement and expansion joints with Multipor movement joint profile Movement and expansion joints in the existing construction must be incorporated into the insulation level and must not be insulated over under any circumstances. The Multipor expansion joint profile is suitable for bridging these joints and preventing uncontrolled cracks.

Solutions for the plinth area



The Multipor plinth insulation board is the ideal complementary product for façade insulation. It is solid, weatherresistant, highly thermally insulating and non-combustible thanks to its classification as building material class A1. In combination with Multipor façade insulation, this creates a uniform external thermal insulation composite system from the plinth to the roof, which eliminates thermal bridges and makes the installation of fire barriers unnecessary.

The advantages at a glance:

- Resistant, even under the toughest conditions
- Does not burn, does not glow, does not smoke
- No change of material in the system no thermal bridges
- Standardised façade structure
- Efficient logistics
- Easy and safe to process

Product characteristics Multipor base insulation board

Rules and regulations	European Technical Assessment ETA 05/0093
Dry bulk density	100 - 115 kg/m³
Compressive strength	≥ 300 kPa
Transverse tensile strength/adhesive tensile strength	≥ 80 kPa
Thermal conductivity	λ = 0.045 W/(mK) (rated value)
Water vapour diffusion resistance coefficient	= 3
Dimensions	600 x 390 mm d = 100 - 240 mm (in 20 mm increments)
Material requirements	4.3 panels/m ²

The Multipor plinth insulation board is always processed with the mineral, flexible Multipor sealing slurry. Further information and processing instructions at www.multipor.de

Product characteristics Multipor sealing slurry

Delivery form	Bagged goods
Compressive strength	\geq 15 N/mm ²
Fresh mortar density	approx. 1.83 g/m ³
Layer thickness Bonding	5.0 mm
Layer thickness of reinforcement	4.0 - 5.0 mm
Consumption:	
– Bonding	6.25 kg/m ²
 Coating 	6.25 kg/m ²
Weight per bag	25 kg
Pallet contents	49 bags

Ventilated curtain wall façade with Multipor



A ventilated rainscreen cladding (VHF) with Multipor is a sensible alternative to a thermal insulation composite system. Just like external thermal insulation composite systems, ventilated rainscreen façades offer the possibility of adapting an existing building to the increased energy requirements with appropriate insulation thicknesses and without loss of usable floor or living space. They are robust and have the advantage of being able to be combined with numerous materials, such as clinker brick slips or thick plaster coatings.

The Multipor mineral insulation board has building authority approval for use as an insulating material within a VCW and offers many advantages:

- Multipor mineral insulation boards are pressure-resistant and dimensionally stable.
- The substructure can be fixed directly to the Multipor mineral insulation boards, which significantly reduces the thermal bridge losses of the substructure compared to conventional systems.
- Multipor mineral insulation boards have a handy format, are easy to work with and can be laid horizontally or vertically.
- Multipor mineral insulation boards are capillary-active and open to diffusion.



to be able to set creative accents.

With the ventilated curtain wall façade, the weather skin is separated from the insulation by an air layer. The air layer ensures for constant ventilation of the outer skin.

Recycling and disposal





Multipor mineral insulation boards are the ecological solution for sustainable construction and renovation. Manufactured on the basis of sand, lime, cement and water, the result is a mineral and natural insulating material that is ideal for environmentally and healthconscious customers and building owners.

Residual and waste pieces can be disposed of as unmixed construction waste in class II landfills or recycled easily and cost-effectively by returning them to production. Multipor provides big bags for this purpose, which can be ordered at www.multipor-werkzeugshop.de.

Multipor mineral insulation boards are delivered shrink-wrapped on reusable pallets. The foil can be disposed of by INTERSEROH Dienstleistungs GmbH on request. Pallets are subject to the EPAL exchange principle and thus ensure a cross-sector pallet exchange.









RECYCLING -NO PROBLEM! Multipor represents the

ecological and sustainable alternative when using of insulation materials!

Multipor is ecological and sustainable. This is confirmed by the certificates awarded by Natureplus, the Institut für Bauen und Umwelt e.V. and the eco-INSTITUT in Cologne.

References speak louder than words

Prefabricated building refurbishment Eisenach



Complex façade renovation made easy W h e n renovating a block of prefabricated buildings in Eisenach in eastern Germany, the aim was to improve thermal insulation and appearance. The existing façade had considerable defects. In addition to detachment of the plaster due to weathering, there was also heavy algae growth and holes caused by woodpeckers. The planners and building owners prevented such damage by using a solid Multipor ETICS with mineral finishing render. In addition, the non-combustible insulation material offered a high level of fire protection as well as improved sound insulation. Thanks to the simple application of the Multipor mineral insulation boards, the planned structure of the façade with projections and recesses as well as window reveals and cornices could be realised without additional sheet metal covering.

RATIO-Land Baunatal

Contemporary and unusual façade

Since 2012, one of the largest shopping centres in northern Hesse has been shining in new splendour: the RATIO-Land Baunatal. As part of the extension, the focus was on fire protection and thermal insulation coupled with the desire to give the façade a contemporary and unusual design. Multipor convinced here with strong arguments. The insulation system is not only non-combustible, but also ensures low energy and operating costs, as the construction achieves a U-value of 0.24 W/(m²K). Thanks to the mineral structure of the Multipor



mineral insulation board, the surfaces of the façade could be optimally sanded and curves could be produced with the highest quality workmanship. The result is an energetically and aesthetically pleasing and flawless façade construction with an outstanding long-distance effect.

Xella customer information

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www.multipor.de

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