BASIC OPERATING INSTRUCTIONS

MULTIPOR for interior insulation

1. 20 kg dry glue mortar is mixed with 8 l of water.
2. Applying the solution on MULTIPOR board.
3. Positioning and sliding of the board.
4. The glue mortar is applied with a thickness of 10 to 12 mm, or up to 20 mm, if the boards are thicker, all over the surface of the board with the help of a toothed trowel.
5. If necessary, the surface is smoothed out with cement and sand mortar.
6. Applying MULTIPOR glue mortar as bottom layer for the reinforcement mesh.
7. The reinforcement mesh is positioned on the wall and fixed to the glue solution.
8. The reinforcement mesh is pressed on the glue solution with the help of the trowel. Then the surface can be smoothed or structured.

MULTIPOR for interior insulation of ceilings

1. The glue mortar is applied as bottom layer for the reinforcement mesh.
2. Applying MULTIPOR glue mortar as bottom layer for the reinforcement mesh.
3. The reinforcement mesh is positioned on the wall and fixed to the glue solution.
4. The reinforcement mesh is pressed on the glue solution with the help of the trowel. Then the surface can be smoothed or structured.

MULTIPOR mineral heat insulation boards
Specific points in installing MULTIPOR boards on ceilings

1. Plastering
2. Fixing of dowels – they are used if necessary according to calculations
3. Reinforcement mesh
4. MULTIPOR glue mortar
5. MULTIPOR mineral heat insulation board
6. Existing walling

Fixing of dowels

- In case of heavier lining it is necessary to fix dowels.
- Usually it is sufficient to fix one dowel in the middle of each heat insulation board.

In case of heavier lining it is necessary to fix dowels.

No glue mortar is applied between the boards.

MULTIPOR glue mortar
MULTIPOR heat insulation board
Chamfered edge of the board

Usually it is sufficient to fix one dowel in the middle of each heat insulation board.

MULTIPOR mineral heat insulation boards
MULTIPOR mineral heat insulation boards are a product, brand new and unique for the Bulgarian market. Their production started in the XELLA Bulgaria EOOD factory in the city of Dobrich in 2012.

The new insulation boards are produced from completely natural raw materials – cement, lime, sand and water following a non-waste environmentally-friendly technology.

MULTIPOR is being used for over 15 years in Europe now with an area of more than 4 million sq m insulated with this innovative material until this moment. Bulgaria is the second country in the world, where the innovative material is produced.

The new heat insulation boards MULTIPOR are non-combustible, vapour permeable, they contain no fibres and are pressure resistant. MULTIPOR boards provide not only additional heat insulation, but also something more – their ability to breathe creates a healthy microclimate, contributing to the prevention of must formation in the premises.
Advantages

Ecological
The mineral, non-fibre heat insulation MULTIPOR boards are composed of entirely natural raw materials – cement, sand, lime and water. The few and non-exhaustible in nature ingredients permit the formation of an ecological heat insulation material, the positive features of which are not exhausted with its heat insulation properties.

Heat insulation
The MULTIPOR heat insulation boards have a declared thermal conductivity coefficient $\lambda = 0.045$ W/mK. MULTIPOR heat insulation results not only in the reduction of the monthly bills for heating and cooling, but also in the increase of the immovable property value.

Fire safety
The new MULTIPOR insulation boards possess the highest fire classification A1. They are particularly fit for places of higher fire risk. A major advantage is that in case of fire they, unlike other heat insulation materials, do not ignite and emit gases, harmful to man and environment.

Lined with MULTIPOR walls improve the safety of the rooms they surround from the point of view of fire protection.

Must protection
The good heat insulation properties of the material, combined with its porous structure decrease considerably the probability of must formation in the premises. The MULTIPOR interior heat insulation regulates humidity in the room thanks to its ability to absorb the humid vapours at their peaks and release them back slowly when the relative humidity in the room goes down. The “breathing” feature of the material contributes to the creation of a healthy microclimate and comfortable living environment in the rooms.

Easy to process
The low volume weight and the hard surface of the MULTIPOR heat insulation boards make them easy to process on the spot without the need for special tools. To fix the material the only thing you need is a light MULTIPOR mortar.

Firm fasade
The firmness of the material makes it possible to fix the boards by using glue and to cover them with plaster then.

Durability
MULTIPOR mineral heat insulation boards do not grow old, i.e. over the years no considerable changes of the quality and structure of the material are observed.
Dimensions and specification

<table>
<thead>
<tr>
<th>Board dimensions d x l x h, (mm)</th>
<th>Quantity per pack (m²)</th>
<th>Masonry area from 1 pack (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50x600x500*</td>
<td>1,80</td>
<td>36</td>
</tr>
<tr>
<td>75x600x500</td>
<td>1,80</td>
<td>24</td>
</tr>
<tr>
<td>100x600x500</td>
<td>1,92</td>
<td>19,20</td>
</tr>
<tr>
<td>125x600x500</td>
<td>1,80</td>
<td>14,40</td>
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<tr>
<td>150x600x500</td>
<td>1,80</td>
<td>12,00</td>
</tr>
<tr>
<td>200x600x500</td>
<td>1,92</td>
<td>9,60</td>
</tr>
</tbody>
</table>

### Additional products
- Light MULTIPOR mortar for gluing and coating
- MULTIPOR mesh
- Fixing dowels

### Necessary tools
- Trowel for glue solution
- Hand-saw
- Grinding board
- Float
- Stirring mixer

**Technical data**

- **Thermal conductivity** $\lambda_p$ W/(mK) 0,045
- **Specific weight** $c$ l/(kgm³) 1600
- **Volume weight** kg/m³ between 100 and 115
- **Vapour permeability** $\mu$ 3
- **Noise absorption factor** $\alpha_1$ 0,35
- **Fire classification** A1 class – non-combustible
- **Water absorption (short term)** kg/m² $< 2.0$ (EN 1609:1996–Al1:2006)
- **Compression strength** kPa $> 350$
- **Board dimensions** mm 600 x 500
- **Thicknesses** mm 50 75 100 125 150 200
- **Heat penetration resistance** $R_p$ (m²K)/W $1.17$ $2.22$ $2.70$ $3.33$ $4.44$

* Always consult the company experts
\lambda = 0.045 \text{ W/mK}
The **MULTIPOR** circle – the efficient heat insulation at one view

- All walls are designed with lime-cement plastering on the inside and on the outside, and for stone masonry – only on the inside.
- The calculations are made under the following conditions: 23°C and 50% humidity of the inner air.

<table>
<thead>
<tr>
<th>U</th>
<th>Heat transmission coefficient of the wall before insulation in W/m²K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of <strong>MULTIPOR</strong> insulation in mm.</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>Heat transmission coefficient of the wall after insulation in W/m²K</td>
</tr>
</tbody>
</table>

**MULTIPOR** mineral heat insulation boards
Why interior heat insulation?
It is possible to increase the energy efficiency of buildings, which are monuments of culture or buildings where the exterior facade cannot be changed for other reasons, only by installing interior insulation.
The right material
When insulating the wall on the inside it is very important to make the right choice of material to avoid the unpleasant consequences as accumulation of humidity in the wall structure and the formation of must in the premises afterwards. The “breathing” feature of MULTIPOR provides a healthy micro-climate in the premises and reduces the probability of must formation.

Installation
The exact dimensions, the low volume weight and the firm surface of the MULTIPOR mineral boards make them easy and fast to install. The boards are fixed directly on the wall by using MULTIPOR glue mortar, which is applied all over the board surface. After gluing MULTIPOR on the wall, the surface is treated again with glue mortar, the mesh is positioned then by fixing it to the glue mortar. At the end a suitable decoration plastering or paint is applied.
MULTIPOR is extremely suitable for insulation of ceilings between rooms with different operational temperatures. Along with the improved energy efficiency of the premises, MULTIPOR provides also additional fire protection.
Warm floors

A significant reduction of heat loss can be achieved not only by exterior wall insulation. Very often the high loss of heat is due to the non-insulated floors and ceilings. This leads not only to the increase of heating expenses, but also to uncomfortable dwelling conditions. The additional insulation of ceilings of underground premises, adjacent to living ones, improves the comfort of the occupants and ensures additional fire prevention.

Fire protection of underground garages

In underground garages the additional non-combustible heat-insulation increases the fire-protection of the premises. MULTIPOR has the highest fire classification and in case of fire it does not emit toxic gases.

Along with the fire prevention the MULTIPOR heat insulation boards reduce the noise levels in the building since the porous structure of the material helps absorbing the noise and hinders its passing to the upper premises.

Easy to install

Here again as for interior installation, the installation of MULTIPOR mineral heat insulation boards is easy and fast. The hard structure of the material permits its easy processing to the desired shapes and dimensions. Thanks to the exact dimensions and the low volume weight the boards can be positioned in places with high ceilings. The MULTIPOR installation procedure is the same as that for the interior insulation. The surface of the ceiling must be clean and free from dust. If the surface is even, the boards are glued by applying glue all over their surface. If the surface is uneven or insufficiently sound, it is necessary to additionally fix it with dowels in the glue mortar. Here again the MULTIPOR glue mortar can be used as a finishing layer, reinforced with mesh.
The continuous increase of heating and cooling costs compel old dwellings owners to install additional insulation in their homes. Newly built houses are at the same time obliged to meet the increasingly stricter and higher requirements for energy efficiency. The combined MULTIPOR mineral-based heat insulation system offers the best decision in both cases.

**MULTIPOR**

for fasade heat insulation

The continuous increase of heating and cooling costs compel old dwellings owners to install additional insulation in their homes. Newly built houses are at the same time obliged to meet the increasingly stricter and higher requirements for energy efficiency. The combined MULTIPOR mineral-based heat insulation system offers the best decision in both cases.
Fast and easy

The MULTIPOR board firm structure and exact dimensions make them easy to install with minimum cost and efforts.

Safe

MULTIPOR have the highest fire classification and in case a fire occurs incidentally they stop the spreading of the flames. Unlike other heat insulation materials, they do not, furthermore, emit gases harmful to man and environment.

Durability

The homogenous and hard surface of the heat insulation boards contributes to the preservation of the completeness of the façade and reduces the expenses for its subsequent maintenance.

Insulation of reinforced concrete elements

We can use MULTIPOR mineral heat insulation boards as reinforced concrete insulation in order to reduce the heat bridge influence.

Note: To be used as exterior heat insulation only in certified exterior insulation systems.