

## Expanded Polystyrene Boards TERMONIUM PLUS fasada (facade)

### Description

Product in accordance with harmonized standard EN 13163:2012+A1:2015

TERMONIUM PLUS fasada (facade) EPS S EPS-EN 13163-T(1)-L(2)-W(2)-S(2)-P(5)-BS100-DS(N)2-DS(70,-)2-TR100

These are silver-grey boards produced from an innovative raw material, enhanced with e.g., a graphite composition, which when added to granules in the polystyrene production process, improves the board insulation properties, so that better or the same thermal insulation effects can be achieved with lower panel thicknesses. The boards can be produced with smooth or milled edges that allow overlapped or interlocking placement.

### Application

- external thermal insulation of facades carried out with ETICS (light-wet method)
- external thermal insulation made with light-dry method
- thermal insulation on the surface of stud walls
- thermal insulation of enclosed slot of cavity walls
- thermal insulation of ventilated slot of cavity walls
- insulation of tie beam, lintels
- insulation of balcony loggias
- thermal insulation of reveals
- thermal insulation of any layered walls
- thermal insulation in the form of a continuous external layer on the plinth wall
- filling the expansion joints

### Implementation

Polystyrene boards should be used according to the following recommendations, Technical and Quality Recommendation RTQ ITB 1260/2020 and guidelines included in the construction project.

When gluing TERMONIUM PLUS fasada polystyrene boards, use TO-KPS polyurethane adhesive

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for polystyrene (together with mechanical fasteners) or TO-KS adhesive for polystyrene, or TO-KU universal adhesive for polystyrene and mesh. If mechanical fasteners are used, they must be properly selected for the type of substrate and in accordance with the insulation technical project. For reinforced layer use TO-KU universal adhesive or TO-KUB white universal adhesive and fiberglass mesh reinforcement: TO-GOLD or TO-TERMONIUM.

In External Thermal Insulation Composite Systems (ETICS), once the boards have been attached to the external wall or other parts of the building, further stages of the insulation work should be carried out immediately, but with the appropriate technological break. This is necessary to achieve sufficient adhesion/strength of the adhesive used to fix the polystyrene board to the substrate. Starting subsequent stages of work on the glued polystyrene too soon, especially preparing the reinforced layer, may result in weakening of the bond and loss of adhesion between the glue and substrate or between the glue and polystyrene. The continuity of thermal insulation and elimination of possible gaps at board joints (after gluing) should be ensured by using Termo Organika Mounting Foam.

TERMONIUM PLUS façade boards must be protected from excessive heat gain during installation (dark colour absorbs sunlight).

### Safeguards and Environmental Protection

During thermal insulation works, shielding nets should be used on scaffolds which protect the façade against direct weather impact (sun, wind, rain, etc.) and reduce the impact of the works on the environment, as well as make it easier to maintain order on the site. It is best to use thermal tools for cutting or other works done on the boards. The leftovers after cutting of gridding should be handle by hand or, in the case of fine

particles, with mechanical equipment such as an industrial (or garden) vacuum cleaner. It is recommended to hand over the generated waste for recovery or recycling.

**Caution**

Do not use boards in direct contact with substances having destructive influence on EPS, e.g., organic solvents (acetone, benzene, nitro), etc. Possible visual differences do not affect the boards technical parameters.

**Packaging, Storage and Transportation**

TERMONIUM PLUS fasada expanded polystyrene boards are supplied only in the Manufacturer's original packaging. The packages are labelled with the CE marking and the required technical product information. The boards should be transported and stored in a manner that protects them from damage and the effects of weather conditions. Avoid prolonged sun exposure.

**Documentation**

- Declaration of Performance no. 015-DoP-180306
- RTQ ITB-1260/2020 Technical & Quality Recommendations of the Building Research Institute
- Certificate of compliance ITB-851/W\*
- PZH BK/B/0285/01/2018 Hygienic certificate
- Certificate No. 071/2018 of Type II Environmental Declaration (EPS boards)
- Certificate No. 081/2019 of Type II Environmental Declaration (Complete Insulation System)

\* Styrofoam subjected to voluntary certification and recommendation of the Building Research Institute (ITB), not resulting from the system of assessment and verification of constancy of performance.

**Properties of TERMONIUM PLUS fasada expanded polystyrene boards**

Properties	Class or level
Dimensional tolerance classes: <ul style="list-style-type: none"> <li>• thickness</li> <li>• length</li> <li>• width</li> <li>• rectangularity</li> <li>• flatness</li> </ul>	T(1) ± 1 mm L(2) ± 2 mm W(2) ± 2 mm S(2) ± 2 mm /m P(5) 5 mm
Bending strength level	BS100 ≥ 100 kPa
Class of dimensional stability under constant normal laboratory conditions	DS(N)2 ± 0,2 %
Level of dimensional stability under specified temperature and humidity conditions (48 h, 70°C)	DS(70,-)2 ≤ 2 %
Tensile resistance to a force perpendicular to front surfaces	TR100 ≥ 100 kPa
Shear strength	≥ 50 kPa
coefficient of rigidity	Gm > 1MPa
Declared thermal conductivity ratio $\lambda_{dec}$ , at a temperature of 10°C	0.031 W/(m·K)
Fire reaction class	E

**Number of boards in package, package volume, surface of boards in package, and declared thermal resistance for individual board thicknesses\***

Thickness [mm]	Number of boards in a package [pcs.]	Smooth boards: standard size 1000 x 500 [mm]		Milled boards: standard size 982 x 482 [mm]		Thermal resistance $R_D$ , [m <sup>2</sup> K/W]
		Volume of package [m <sup>3</sup> ]	Surface area of boards in package [m <sup>2</sup> ]	Volume of package [m <sup>3</sup> ]	Surface area of boards in package [m <sup>2</sup> ]	
10	60	0.300	30	-	-	0.30
20	30	0.300	15	-	-	0.60

Thickness [mm]	Number of boards in a package [pcs.]	Smooth boards: standard size 1000 x 500 [mm]		Milled boards: standard size 982 x 482 [mm]		Thermal resistance $R_D$ , [m <sup>2</sup> K/W]
		Volume of package [m <sup>3</sup> ]	Surface area of boards in package [m <sup>2</sup> ]	Volume of package [m <sup>3</sup> ]	Surface area of boards in package [m <sup>2</sup> ]	
30	20	0.300	10	-	-	0.95
40	15	0.300	7.5	-	-	1.25
50	12	0.300	6.0	0.284	5.68	1.60
60	10	0.300	5.0	0.284	4.73	1.90
70	8	0.280	4.0	0.265	3.79	2.25
80	7	0.280	3.5	0.265	3.31	2.55
90	6	0.270	3.0	0.256	2.84	2.90
100	6	0.300	3.0	0.284	2.84	3.20
110	5	0.275	2.5	0.26	2.37	3.50
120	5	0.300	2.5	0.284	2.37	3.85
130	4	0.260	2.0	0.246	1.89	4.15
140	4	0.280	2.0	0.265	1.89	4.50
150	4	0.300	2.0	0.284	1.89	4.80
160	3	0.240	1.5	0.227	1.42	5.15
170	3	0.255	1.5	0.241	1.42	5.45
180	3	0.270	1.5	0.256	1.42	5.80
190	3	0.285	1.5	0.270	1.42	6.10
200	3	0.300	1.5	0.284	1.42	6.45
210	2	0.210	1.0	0.199	0.95	6.75
220	2	0.220	1.0	0.208	0.95	7.10
230	2	0.230	1.0	0.218	0.95	7.40
240	2	0.240	1.0	0.227	0.95	7.70
250	2	0.250	1.0	0.237	0.95	8.05
260	2	0.260	1.0	0.246	0.95	8.35
270	2	0.270	1.0	0.256	0.95	8.70
280	2	0.280	1.0	0.265	0.95	9.00
290	2	0.290	1.0	0.275	0.95	9.35
300	2	0.300	1.0	0.284	0.95	9.65

\*) Other sizes and thicknesses are available on request.