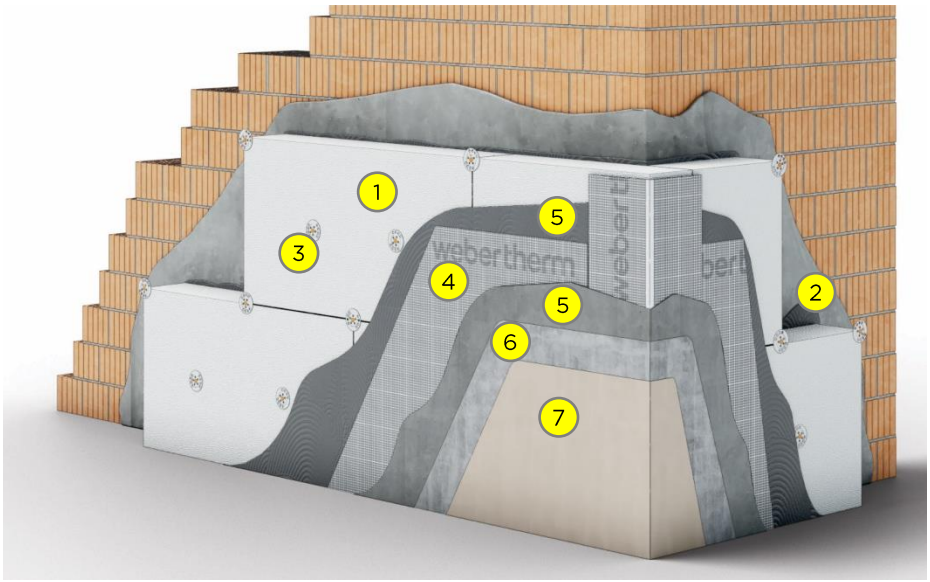
ETICS – External Thermal Insulation Composite System with renderings, for facades

ETICS_EPS_01

ETICS with EPS boards
webertherm classic

European Technical Assessment ETA-23/0313

External thermal insulation with expanded polystyrene (EPS) with or without graphite content



Thermal insulation product	1	Expanded polystyrene (EPS), produced in the factory, with/without graphite content – according to SR EN 13163 and according to the specifications of the present sheet
Adhesive for fixing the thermal insulation boards	2	**weber P39 max²** Adhesive for bonding expanded polystyrene (EPS) boards (with/without graphite content), in powder form, cement-based, with a high content of synthetic resins and reinforcing fibers - average layer thickness 10 mm
Anchors	3	**webertherm anchor** Anchors with polypropylene plate and glass fiber reinforced polypropylene nail, for the mechanical fixing of expanded polystyrene (EPS) boards in masonry or concrete or **webertherm anchor m** Anchor with polypropylene plate and metal nail, for fixing expanded polystyrene (EPS) boards in masonry
Base coat	5	**weber P39 max²** Base coat for reinforcing expanded polystyrene (EPS) boards (with/without graphite content), in powder form, cement-based, with a high content of synthetic resins and reinforcing fibers - average layer thickness 3,5 mm
Reinforcement	4	**webertherm mesh** Glass fibre mesh, resistant to the alkaline environment, with a minimum density of 145 g/m²
Key coat	6	**webertherm prime** Product based on organic dispersions, with the addition of special additives, for priming surfaces before applying Weber decorative renders
Finishing coat Decorative render	7	**webertherm decor** Ready-to-use decorative render, in paste form, based on organic dispersions and special additives - average layer thickness 1,5...2 mm (depending on granulation) type R930 – fine grain / type R830 – medium grain / type R630 – rolling grain

Reaction to fire
Class B-s1, d0

Water absorption
- after 1 h:
  ≤ 0,16 kg/m²
- after 24 h:
  < 0,5 kg/m²

Resistant to hygrothermal cycles

Freeze-thaw resistant

Impact resistance: Category III

Water vapour permeability of the rendering system
$s_d \leq 0,35$ [m]

Medium bond strength between the
- base coat and the thermal insulation product: ≥ 158 kPa
- adhesive and the substrate: ≥ 890 kPa
- adhesive and the thermal insulation product: ≥ 153 kPa

Thermal resistance
$R_{masonry+ETICS} = 4,945$ $(m^2 \cdot K)/W$ (and according to the specifications table)

Technical data

ETICS_EPS_01

Reaction to fire of ETICS

- Class B-s1, d0

Water absorption of the base coat and the rendering system

Water absorption of the reinforced base coat		
ETICS configuration requirements:	After 1 h [kg/m^2]	After 24 h [kg/m^2]
weber P39 max^2	0.04	0.29

Water absorption of the complete rendering system				
ETICS configuration requirements:			After 1 h [kg/m^2]	After 24 h [kg/m^2]
Base coat	Key coat	Finishing coat		
weber P39 max^2	webertherm prime	webertherm decor	0.16	0.48

Water-tightness of the ETICS: hygrothermal behaviour

Water-tightness of the ETICS: hygrothermal behaviour
ETICS resistant to hygrothermal cycles*
*The resistance to hygrothermal cycles allows ETICS to be evaluated in terms of avoiding water penetration and the appearance of important defects such as cracks > 0.2 mm, exfoliation, breaks in the plastering or insulating material, cracks in the joint area etc.

Water-tightness: freeze thaw performance

Water-tightness: freeze thaw performance
The ETICS is **freeze-thaw resistant**, because the water absorption of both the reinforced base coat and the rendering system are less than 0,5 kg/m^2 after 24 hours.

Impact resistance

Impact resistance (products tested after hygrothermal cycles on the rig)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Reinforcement and key coat	Finishing coat			
weber P39 max^2	webertherm mesh and webertherm prime	webertherm decor	Yes – 3 J Yes – 10 J	40 – 3 J 60 – 10 J	III

Water vapour permeability of the rendering system

Water vapour permeability of the rendering system (equivalent air thickness , s_d)			
ETICS configuration requirements:			Equivalent air thickness s_d [m]
Base coat	Key coat	Finishing coat	
weber P39 max^2	webertherm prime	webertherm decor	0.35

Bond strength between the base coat and the thermal insulation product

Bond strength between the base coat and the thermal insulation product (mortar or paste)					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Base coat			Min.	Mean
Expanded polystyrene EPS 80	weber P39 max^2	Initial state (dry condition)	In the insulation product	152	158
Expanded polystyrene EPS 80	weber P39 max^2	After hygrothermal cycles	In the insulation product	179	197

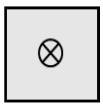
Bond strength between the adhesive and the substrate

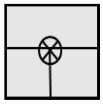
Bond strength between the adhesive and the substrate					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Substrate	Adhesive (and tested thickness)			Min.	Mean
Concrete	weber P39 max[2] (4 - 6 mm)	Initial state (dry condition)	In the adhesive	1230	1300
Concrete	weber P39 max[2] (4 - 6 mm)	2 days immersion and 2 hours drying	In the adhesive	797	890
Concrete	weber P39 max[2] (4 - 6 mm)	2 days immersion and min. 7 days drying	In the adhesive	1735	1870

Bond strength between the adhesive and the thermal insulation product

Bond strength between the adhesive and the thermal insulation product					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Adhesive (and tested thickness)			Min.	Med.
Expanded polystyrene EPS 80	weber P39 max[2] (4 - 6 mm)	Initial state (dry condition)	In the insulation product	148	160
Expanded polystyrene EPS 80	weber P39 max[2] (4 - 6 mm)	2 days immersion and 2 hours drying	In the insulation product	148	153
Expanded polystyrene EPS 80	weber P39 max[2] (4 - 6 mm)	2 days immersion and min. 7 days drying	In the insulation product	140	154

Wind load resistance of ETICS

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation 1 (EPS) Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in dry condition: ≥ 177 kPa	Surface assembly or countersunk assembly with webertherm anchor or webertherm anchor m Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0,5 kN/mm	R_{panel} 	Dry condition 23 °C and 50 % relative air humidity	0.544 0.481 0.476 0.549 0.535	0.510

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation 1 (EPS) Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in dry condition: ≥ 177 kPa	Surface assembly or countersunk assembly with webertherm anchor or webertherm anchor m Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0,5 kN/mm	R_{joint} 	Dry condition 23 °C and 50 % relative air humidity	0.387 0.467 0.431 0.434 0.433	0.430

Bond strength after ageing of finishing coat tested in the rig

Bond strength after ageing of finishing coat tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Key coat	Finishing coat		Individual	Mean
Expanded polystyrene EPS 80	weber P39 max[2]	webertherm prime	webertherm decor	In between the insulation product and the base coat	165	151
				In between the insulation product and the base coat	138	
				In between the insulation product and the base coat	180	
				In between the insulation product and the base coat	153	
				In between the insulation product and the base coat	122	

Tensile strength of the glass fibre mesh

Tensile strength of the glass fibre mesh				
ETICS configuration requirements:	As-delivered state			
	Tensile strength [N/mm]		Elongation [%]	
	Warp	Weft	Warp	Weft
webertherm mesh	38	54	4.0	4.7

Tensile strength of the glass fibre mesh				
ETICS configuration requirements	After alkali ageing			
	Tensile strength [N/mm]		Elongation [%]	
	Warp	Weft	Warp	Weft
webertherm mesh	26	30	2.9	2.5

Thermal resistance and thermal transmittance of ETICS

Thermal resistance and thermal transmittance of ETICS (R_{ETICS})	
Thermal resistance	[$(m^2 \cdot K)/W$]
R_{render}	0.02
R_{ETICS}	≥ 1.00
In order to meet criteria of EAD 040083-00-0404, R_{ETICS} - min. 1,0 $(m^2 \cdot K)/W$	

Type of substrate	Polystyrene type - thickness	Calculated Thermal resistance R' (m^2K/W)	Calculated Thermal transmittance U' (W/m^2K)
Brick with vertical holes 250 mm	EPS 80 graphite(1) 100 mm(3)	3,784	0,264
	EPS 80 graphite(1) 150 mm(4)	5,049	0,198
	EPS 80(2) 100 mm(3)	3,711	0,269
	EPS 80(2) 150 mm(4)	4,945	0,202

Note: - thermal resistance calculations were performed for new constructions (dry state);
- the effect of thermal bridges (dowels etc.) on the total value of the thermal resistance was taken into account (according to the indications in EAD 040083-00-0404);
- the total thermal resistance value was calculated for the entire assembly made of solid support, the interior plaster (25 mm thick) and the ETICS system presented in this technical data sheet.

(1) thermal conductivity λ_{10dry} = 0,031 W/mk; (2) thermal conductivity λ_{10dry} = 0,038 W/mk; (3) fulfills the thermal resistance condition for non-residential buildings NZEB accd. to Mc 001-2022; (4) fulfills the thermal resistance condition for residential buildings NZEB accd. to Mc 001-2022

The current calculation is purely indicative. In order to establish the thermal efficiency of the building, the evaluation is done by the authorized factors of the project.

Main assembly operations (1/3)

Main execution operations	Description
Preparing the support layer	• External thermal insulation works are carried out on concrete walls, brickwork, hollow brickwork (ceramic blocks) or autoclaved aerated concrete (AAC), on surfaces plastered with mortar based on hydraulic binders or directly on the brickwork. • The support layer must be dry, load-bearing, stable, clean, free of non-stick substances (grease spots, bitumen etc.), free of dust and not have any unevenness greater than 1 cm. • Concrete substrates must be older than 28 days and must be free of residues of separating formwork oil. In the case of old supports, all cracks must be repaired. • The flatness of the wall surface will be checked with the help of the straightedge and the leveling stick. In case of flatness deviations less than 1 cm, a thicker layer of adhesive mortar will be applied to the polystyrene boards.
Mounting the socle profile	• Draw with chalk rope the level at which the socle profile will be mounted, at a height of at least 30 cm above the ground. • Installation is started from the outer or inner corner of the building. Fixing is done using screws with dowels, at a distance of 30-50 cm, leaving a gap of 2-3 mm between the profiles. • For continuous jointing of the profiles, plastic connectors are used, which also provide the distance required for the expansion joint. • In case of an uneven substrate, the flatness of the profiles can be adjusted using plastic spacers, which are mounted between the metal profile and the wall. • The socle profile mounted in the area of the corners that delimit the building, is cut out in one piece, avoiding the joining of two profiles.
Bonding the expanded polystyrene boards	• Prepare the **weber P39 max²** adhesive, by mixing using an electric mixer, adding it to clean water, approx. 5,5 - 6,0 liters per 25 kg dry mortar; leave to rest approx. 5 minutes, re-mix, after which it can be used. • The product must be used within the next 90 minutes. • The surface of the expanded polystyrene boards will be cleaned of dust or other impurities, materials that could influence the adhesion. • The adhesive is applied with a notched trowel in a continuous strip, with a width of 60 - 100 mm, on the entire perimeter of the polystyrene board and at several points (2-3) in the central area, having a diameter of 100-150 mm, so that, when mounting, the adhesive covers at least 40% of the surface, with an average thickness of 10 mm. • In case of flat, even surfaces, the adhesive will be applied on the entire surface of the polystyrene board, using a 10-20 mm notched trowel. • The laying of expanded polystyrene boards is done starting on the socle profile, without joints, spaces between them and continuing upwards, on the wall of the building. • The boards are mounted interlaced (masonry type), including in the area of the corners of the facade, with a minimum gap of 15 cm between the previous and the next row, without adhesive in the joint areas. • Their positioning will be adjusted, immediately after bonding, by pressing or tapping lightly. • The verticality and flatness of the surface should be checked with the help of a straightener throughout the entire installing process of the boards. • At the corners of the facade, expanded polystyrene boards must be mounted in interlaced system, the joints between the boards must be clean and free of ahesive. • In the corner areas of the openings (windows or doors), expanded polystyrene boards should be mounted cut out in the shape of an "L", in such a way that the board is at no point narrower than 15 - 20 cm. • The joints between the boards should not coincide with the edges of windows and doors. • The area of the wall under the jamb is also insulated, using a thinner polystyrene board, but at least 3 cm thick. • If a gap larger than 10 mm remains between two adjacent boards, then it will be filled with a strip of expanded polystyrene. Narrow spaces (approx. 4 mm) will be filled with polyurethane foam, with a low degree of expansion.
Mounting the anchors	• After the curing of the adhesive, approx. 1-3 days after bonding the boards, they are also fixed mechanically with the help of anchors: **webertherm anchor** (anchors with polypropylene plate and a plastic nail) or **webertherm anchor m** (anchors with polypropylene plate and a metal nail) which will take on part of the loads resulting from the action of the wind. • The number of anchors per m^2 varies, depending on the height and type of facade area, wind speed and degree of exposure of the building. For buildings with a height less than 50 m, located in areas where the base value of the wind speed is less than 85 km/h, a number of 6 anchors / m^2 is sufficient for anchoring the thermal insulation boards in the current field of the facade. • The usual layout scheme of the anchors is with them on the edges and in the middle of the plate. • The holes for fixing the anchors will be made using the technique suitable for the type of wall, and the drill used will be chosen according to the diameter of the dowel and the length of the anchor. • Anchors are fixed by tapping in the case of concrete, full or hollow brick walls. • The plate should be buried 1-2 mm relative to the level of the thermal insulation board or flush with the surface of the board. • Cover the head of the anchor with adhesive, and after it dryies, remove the excess material, clean it from dust, so as to result a smooth surface.

Main assembly operations (2/3)

Mounting of various profiles, reinforcement of the opening areas	Mounting the corner profile: • At the vertical corners of the wall, special profiles with reinforcing mesh will be mounted, **webertherm corner**. Apply a layer of base coat adhesive on both sides of the corner, on a width of 10 - 15 cm, after which the corner profile is mounted, by pressing and embedding in the base coat adhesive layer. Remove excess material and let it dry. Mounting the connection profile with the jamb: • For a tight and durable connection between the jamb and the thermal insulation system, a special connection profile is used. • Advantage - it avoids the appearance of thermal bridges through the hermetic connection between the jamb and the thermal insulation. Mounting of the connection profile with the window frame: • Bond strips of thermal insulating material with a thickness of at least 3 cm in the side areas of the openings. • For the flexible and tight connection between the window frame and the thermal insulation system (top, left and right, around the window), a connection profile with the window frame is used. • Cut the profile to the desired size, partially remove the protection from the adhesive side and bond it to the surface of the window frame, by pressing and simultaneously removing the protection. • The mesh part of the profile is embedded in the adhesive layer previously applied to the splits (side and top). Mounting the corner profile in the window and door areas: • To protect the corner areas of windows and doors, the **webertherm corner** profile is mounted. • Apply a layer of base coat adhesive on both sides of the corner, on a width of 10 - 15 cm, after which the corner profile is mounted, by pressing and embedding in the base coat adhesive layer. Remove excess material and let it dry. Mounting the corner profile with dropper: • To ensure the outflow of the water, thus protecting the wall, a corner profile with dropper is mounted. • Apply a layer of base coat adhesive on both sides of the corner, on a width of 10-15 cm, then mount the corner profile with dropper by pressing and embedding in the base coat adhesive layer. Remove excess material and let it dry. Reinforcement of the window frame area: • The adhesive is applied on the surface of the thermal insulation material from the window frame area, embedding mesh strips to ensure a continuous reinforcement together with the already mounted profiles (corner profile and window frame connection profile). Additional reinforcement of the corner areas at windows and doors: • In order to avoid the appearance of cracks in the area of the outer corners of the windows and doors, they are additionally reinforced, using **webertherm mesh** glass fibre mesh strips, approx. 40 x 30 cm. • Apply a layer of base coat adhesive to the corner areas of the opening and embed the reinforcing mesh strip in the adhesive, at an angle of 45° to the horizontal, then remove the excess material and let it dry. Reinforcement of expansion joint areas: • At the expansion joints of the building, special profiles with reinforcing mesh will be used and the installation instructions from the vertical corners will be followed. • The space left between the socle profiles and between the edges of the thermal insulation boards must be 2-3 cm. • The base coat adhesive is applied to the faces of the thermal insulating material and the expansion profile is embedded in the adhesive layer. Remove the excess material and let it dry.
Applying the base coat and embedding the glass fibre reinforcement mesh	• Before applying the base coat on the surface of the expanded polystyrene boards, any irregularities of flatness, traces of dust or other debris, impurities will be eliminated. • Prepare the adhesive / base coat **weber P39 max²**, by mixing using an electric mixer, by adding it to clean water, approx. 5,5 - 6,0 liters per 25 kg dry mortar, leave to rest approx. 5 minutes, re-mix, after which it can be used. • The base coat is spread in an even layer with an average thickness of 3 mm, with the help of a notched trowel with teeth sizes of 6x6 or 8x8 mm. • Glass fibre reinforcing mesh **webertherm mesh** is spread in vertical direction and is embedded in the adhesive layer, by pressing it from the inside to the edges of the strip, being careful not to make wrinkles (folds). Two adjacent reinforcing mesh strips will overlap at least 10 cm. • Apply the second layer of base coat, in a "wet on wet" system, in thickness of approx. 1.5 - 2 mm, leveling the surface so that the mesh is fully covered, and the total thickness of the reinforced mortar layer is at least 3,5 - 4 mm. • The best mechanical strength of the reinforced layer of base coat is achieved when the mesh is in the upper third of its thickness.
Applying the primer	• After proper drying of the base coat (5-7 days), remove all unevenness or traces left by the trowel and clean the prepared surface from dust. • Before applying decorative render, in order to reduce and even out the water absorption of the support and improve adhesion, the **webertherm prime** primer is applied, and left to dry for 12-24 hours. The color of the primer is chosen depending on the color of the decorative render. • Mix the contents of the bucket beforehand, after which the primer is applied with a brush or a paint roller over the entire surface to be rendered. • Decorative render can be applied only after complete drying of the primed surface, which takes approx. 12 - 24 hours.

Main assembly operations (3/3)

Applying the decorative render	• **webertherm decor** decorative render will be applied at an air temperature and support temperature ranging from + 5°C to + 30°C . Do not apply during strong wind, rain or surfaces directly exposed to sunlight. The freshly applied render should be protected from sunlight, rain, frost or other weather effects, for 24-48 hours or until completely dry. • The application is started from top to bottom and is carried out without interruption on the surface of a facade, using the "wet on wet" method to avoid the appearance of joints and defects of structures. It can be interrupted at the boundaries between two shades of colors, at corners and other edges, vertical and horizontal joints. • The previously homogenized decorative render (mixing the contents of the bucket) is spread on the support with the help of a stainless steel trowel and leveled to the thickness of the largest grain in the material (1,5-2 mm depending on the grain), thus obtaining a thin and even layer. • The "agglomerated" structure type is obtained with a plastic trowel, by circular troweling, and the "scratched" structure type is obtained by linear or circular troweling of decorative render after approx. 5-15 minutes or immediately after application, depending on weather conditions (when the material no longer sticks to the plastic trowel). • The final structure can be influenced by the thickness of the layer and the way of troweling. In conditions of high humidity and low temperatures, the realization of the structure requires a test sample in advance.

ETICS system design and execution

The ETICS system will be executed on the basis of a technical project realised and verified by the authorized factors, according to the legislation in force.
The indications presented in this document are purely indicative, following, in part, examples according to the Guide on the design and execution of thermal rehabilitation works of residential buildings – indicative GP 123-2013.
Consequently, the present indicative information relates, in part, to certain types of buildings (blocks of flats), but is not limited to them. For the application of the system in different design conditions, technical projects will be drawn up according to the specific technical regulations (type of building, seismic risk and type of structure, other requirements etc.).

Determination of the required number of mechanical fixing anchors

The number of anchors per m^2 is influenced by:
- The characteristic pull-out force from the support
- Pull-through force through insulation
- Loads given by wind effect, the self-weight of the insulation
- Building height
- Location of the construction
- Geographical area

etc.

Height of facade area	Facade area type	Number of anchors per m^2 (indicative)
Up to 50 m height	current	min. 6 anchors / m^2
	edge	Determination by calculation
Over 50 m height	any	

For edge (corner) areas, the number of fixing anchors shall be calculated for the pullout force ≥ 0.8 kN/anchor.

Number of anchors / m^2 (indicative, according to GP 123-2013 Guide)				
Wind speed values	Exposure, Terrain or Area	Building height		
		≤ 10 [m]	10 - 25 [m]	25 - 50 [m]
< 85 km/h	I , II , III	6	6	6
85 - 115 km/h	I	8	8	10
	II	6	6	8
	III	6	6	8
> 115 - 135 km/h	I	10	12	12
	II	8	10	10
	III	6	8	10

Legend:
I - Open land, isolated object, wind power is not reduced by surrounding buildings
II - Wind power is slightly reduced by surrounding objects (scattered buildings and H < 10 m)
III - Wind power is strongly reduced by surrounding objects (urban agglomerations)

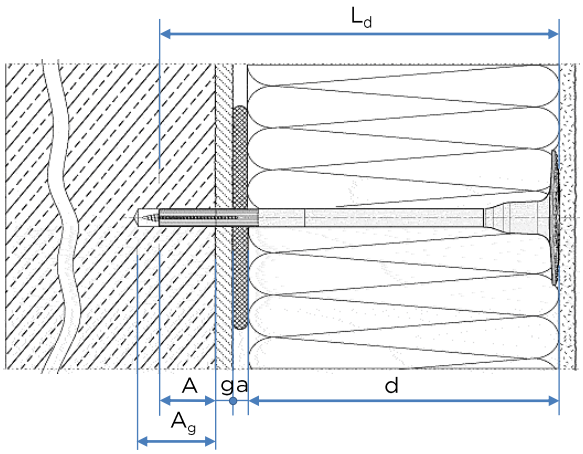
NOTE:
As a rule, fixing anchors are designed to take over, exclusively, loads from the wind. That is why it is mandatory to fix the heat-insulating material both with adhesive and mechanically, with specific fixing anchors.

Tipo-size of the anchors

The length of the anchor (L_d) is determined taking into account the thickness of the thermal insulation material, the thickness of the adhesive layer, the thickness of the existing render (if applicable) and the minimum anchoring length.

$$L_d = A + g + a + d$$

The depth in the wall of the hole for the anchor (A_g) will exceed by approx. 10 mm the anchor length (A) *



*Attention:
For the appropriate design of the fixings and the appropriate execution, please consult the Technical Data Sheets and Declarations of Performance of the anchors **webertherm anchor** or, respectively, **webertherm anchor m, with the values of strength, embedment depths, type, condition and support size etc. - specific to each anchor typo-dimension.**

- **webertherm anchor - Ld = 70...220 mm - for fixing in concrete, solid brickwork, ceramic blocks with vertical holes, lightweight concrete blocks, autoclaved aerated concrete (AAC) etc. - with minimum embedment depths of 25 mm, 40 mm or 60 mm, depending on the type of support.**
- **webertherm anchor m - Ld = 140...300 mm - for fixing in solid brick masonry, ceramic blocks with vertical holes, lightweight concrete blocks, autoclaved aerated concrete (AAC) etc. - with minimum embedment depths of 60 mm.**

Anchoring details

The "T" fixing scheme (Fig. 1.) is used in the case of thermal insulation with expanded polystyrene (EPS) boards, with the anchors mounted at the intersection points between the vertical and horizontal joints and an anchor in the middle of each board.

The "W" fixing scheme (Fig. 2.) is recommended in the case of thermal insulation with stone wool (MW) slabs, rarely used for anchoring expanded polystyrene (EPS) boards.

Fig. 1.

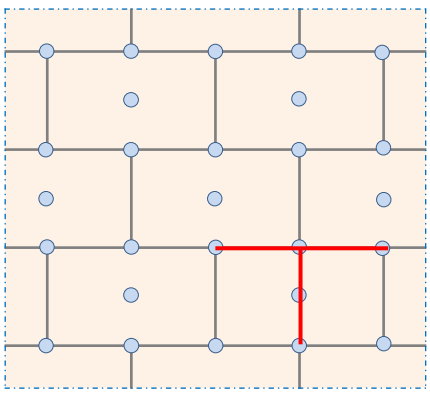
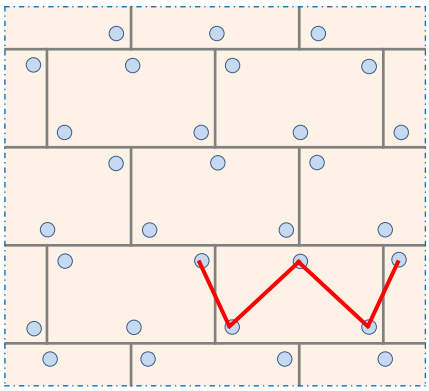
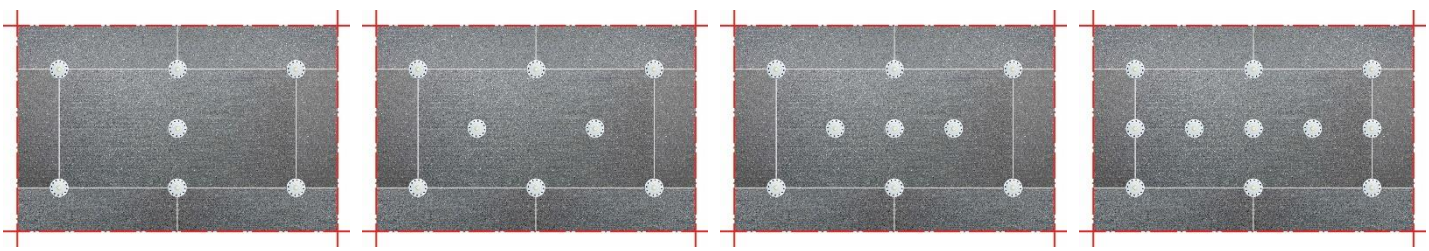


Fig. 2.



Layout schemes of anchors

Examples of anchor arrangement schemes:



6 anchors / m² | 8 anchors / m² | 10 anchors / m² | 12 anchors / m²

The instructions for the execution of the system in this Technical Data Sheet represent the main aspects that need to be known for this product, which complete and/or customize the general rules of execution for ETICS type thermal insulation works (for more information access the QR code). The execution of the works is done exclusively according to the prescribed tasks and the details of the technical project, drawn up and verified according to the legislation in force.

Characteristics of the thermal insulation product - expanded polystyrene (EPS) with/without graphite content, produced in the factory – according to SR EN 13163

Characteristic	Specification
Thermal conductivity	max. 0,038 W/mK
Short-term water absorption	max. 1,0 kg/m^2
Reaction to fire	class E or higher
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 100 kPa
Shear strength	min. 20 kPa
Shear modulus	min. 1000 kPa

Material consumption per m^2

Note:

The consumption was calculated on a reference wall surface with the dimensions

H x L = 4 m x 10 m.

Does not include:

- accessories (socle profile, corner profile, profile with dropper etc.);
- technological losses.

Material	Unit cons.	unit
Expanded polystyrene (EPS) boards with/without graphite content	1	m^2
weber P39 max^2 Adhesive for bonding expanded polystyrene (EPS) boards - medium layer thickness 10 mm	5	kg
webertherm anchor Anchors with polypropylene plate and plastic nail or **webertherm anchor m** Anchors with polypropylene plate and metal nail	6*	pcs
weber P39 max^2 Base coat adhesive for reinforcing expanded polystyrene (EPS) boards - medium layer thickness 3,5 mm	4	kg
webertherm mesh Glass fibre mesh, with a minimum density of 145 g/m^2	1,1	m
webertherm prime Primer for decorative renders	0,25 - 0,30	kg
webertherm decor Decorative render, based on organic dispersions (average layer thickness 1,5...2 mm)		
• R930 – fine grain	2,7 - 3,2	kg
• R830 – medium grain	3,2 - 3,7	kg
• R630 – rolling grain	1,8 - 2,4	kg

* indicative value. The number of anchors will be chosen based on the technical project, following verifications and calculations.

The present average unit consumptions are indicative, advisory in nature. The documentation of the quotations for constructions and commercial orders will be made exclusively by the authorized factors of the project, the present information being only indicative, the quantities may differ per project.