

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body  
for construction products



## European Technical Assessment

ETA-15/0298  
of 19 November 2025

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Magmax WDVS EPS

Product family  
to which the construction product belongs

Product Area Code: 4  
External Thermal Insulation Composite Systems (ETICS)  
with renderings to be applied as external thermal  
insulation on the walls of buildings

Manufacturer

MAGNETIC d.o.o.  
Sesvetska cesta 64  
10360 SESVETE  
KROATIEN

Manufacturing plant

MAGNETIC d.o.o.  
Sesvetska cesta 64  
10360 SESVETE  
KROATIEN

This European Technical Assessment  
contains

20 pages including 6 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 040083-00-0404

This version replaces

ETA-15/0298 issued on 15 June 2015

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

## Specific Part

### 1 Technical description of the product

This product is an External Thermal Insulation Composite System (ETICS) with rendering - a kit comprising components which are factory-produced by the manufacturer or component suppliers. It's made up on site from these. The ETICS manufacturer is ultimately responsible for all components of the ETICS specified in this ETA.

The ETICS kit comprises a prefabricated insulation product of expanded polystyrene (EPS) to be bonded and if it necessary additionally mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in annex 1. The insulation product is faced with a rendering system consisting of one base coat and finishing coat (site applied), in which the base coat contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) for connection to adjacent building elements (apertures, corners, parapets ...). Assessment and performance of these components are not addressed in this ETA, however the ETICS manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

### 2 Specification of the intended use in accordance with the applicable European assessment Document

The performances in Section 3 can only be assumed if the ETICS is used in accordance with the specifications and under the boundary conditions specified in Annexes 2 to 5.

The verifications and assessment methods on which this ETA is based lead to the assumption of a working life of the ETICS "Magmax WDVS EPS" of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the assumed economically reasonable working life of the works.

For use, maintenance and repair, the finishing coat shall be maintained in order to fully preserve the ETICS performance. Maintenance includes at least:

- visual inspection of the ETICS,
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs are to be carried out as soon as the need has been identified.

The information on use, maintenance and repair is given in the manufacturer's technical documentation.

It is the responsibility of the manufacturer to ensure that this information is made known to the concerned people.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the ETICS	(see annex 2) Class according to EN 13501-1
Reaction to fire of the EPS insulation product – Apparent density of the EPS-insulation product according to EN 1602	(see annex 2) Class E according EN 13501-1 Value [kg/m <sup>3</sup> ]
Facade fire performance	no performance assessed

#### 3.2 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance
<b>Release of dangerous substances</b>	no performance assessed
<b>Water absorption</b> Base coat after 1 hour after 24 hours  Rendering system after 1 hour after 24 hours  EPS insulation after 24 hours	(see annex 3.1)  Mean value [kg/m <sup>2</sup> ] Mean value [kg/m <sup>2</sup> ]  Mean value [kg/m <sup>2</sup> ] Mean value [kg/m <sup>2</sup> ]  Maximum value 0,5 kg/m <sup>2</sup>
<b>Water-tightness of the ETICS: Hygrothermal behaviour on the test wall</b>	Passed without defects
<b>Water-tightness of the ETICS: freeze/thaw behaviour</b>	The water absorption of the base coats as well as the rendering systems is less than 0.5 kg/m <sup>2</sup> after 24 hours for all configurations of the ETICS. The ETICS is so assessed as free/thaw resistant.
<b>Impact resistance</b>	(see annex 3.2) Category
<b>Water vapour permeability</b> - Rendering system - EPS insulation	(see annex 3.3) s <sub>d</sub> value [m]  μ = 20 - 70 Thickness of the insulation product 400 [mm]

### 3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
<p><b>Bond strength</b></p> <p>between base coat and EPS insulation</p> <p>between adhesive and substrate</p> <p>between adhesive and EPS insulation</p>	<p>(see annex 4.1)</p> <ul style="list-style-type: none"> <li>- Minimum value/Mean value [kPa], rupture type: Initial state (28 d immersion)</li> <li>- Minimum value/Mean value [kPa], rupture type: after hygrothermal cycles</li> </ul> <p>(see annex 4.2)</p> <ul style="list-style-type: none"> <li>- Thickness [mm] of the used adhesives</li> <li>- Minimum value/Mean value [kPa], rupture type: Initial state (dry conditions)</li> <li>- Minimum value/Mean value [kPa], rupture type: after 2 d immersion in water, 2 h drying</li> <li>- Minimum value/Mean value [kPa], rupture type: after 2 d immersion in water, 7 d drying</li> </ul> <p>(see annex 4.3)</p> <ul style="list-style-type: none"> <li>- Thickness [mm] of the used adhesives</li> <li>- Minimum value [kPa], rupture type: Initial state (dry conditions)</li> <li>- Minimum value/Mean value [kPa], rupture type: after 2 d immersion in water, 2 h drying</li> <li>- Minimum value/Mean value [kPa], rupture type: after 2 d immersion in water, 7 d drying</li> </ul>
<b>Fixing strength (displacement test)</b>	Test not required therefore no limitation of ETICS length required
<p><b>Wind load resistance of ETICS</b></p> <p>pull-through test of fixing</p> <p>static foam block test</p> <p>dynamic wind uplift test</p>	<p>(see annex 4.4)</p> <ul style="list-style-type: none"> <li>- <math>R_{panel}</math> [N/fixing],</li> <li>- <math>R_{joint}</math> [N/fixing],</li> <li>- Plate diameter of anchor <math>\geq 60</math> mm, <math>\geq 90</math> mm</li> <li>- plate stiffness <math>\geq 0.3</math> kN/mm<sup>2</sup></li> <li>- load resistance of the anchor plate <math>\geq 1.0</math> kN</li> </ul> <p>not applicable</p>
<p><b>Tensile strength perpendicular to the faces</b></p> <p>in dry conditions</p> <p>standard EPS</p> <p>elastified EPS</p>	<p><math>\sigma_{mt} \geq 80</math> kPa (bonded ETICS)</p> <p><math>\sigma_{mt} \geq 100</math> kPa (bonded ETICS with anchors)</p> <p><math>\sigma_{mt} \geq 150</math> kPa (bonded ETICS with profiles)</p> <p><math>\sigma_{mt} \geq 80</math> kPa (bonded or bonded ETICS with anchors)</p>
<p><b>Shear modulus of the ETCS</b></p> <p>standard EPS</p> <p>elastified EPS</p>	<p><math>1.0 \leq G_m \leq 3.8</math> [MPa]</p> <p><math>0.3 \leq G_m \leq 1.0</math> [MPa]</p>
<b>Pull-through resistance of fixings from profiles</b>	$\geq 0.5$ kN
<b>Render strip tensile test</b>	(see annex 4.5) crack width $w_{rk}$ [mm]

Essential characteristic	Performance
<b>Bond strength after ageing</b> finishing coat tested on the rig finishing coat not tested on the rig	(see annex 4.6) Minimum value/Mean value [kPa], rupture type Minimum value/Mean value [kPa], rupture type
<b>Tensile strength of the glass fibre mesh in the as-delivered state</b>	(see annex 4.7) Mean value [N/mm]
<b>Residual tensile strength of the glass fibre mesh after aging</b>	(see annex 4.7) Mean value [N/mm]
<b>Relative residual tensile strength of the glass fibre mesh after aging</b>	(see annex 4.7) Mean value [%]
<b>Elongation of the glass fibre mesh in the as-delivered state</b>	(see annex 4.7) Mean value [%]
<b>Elongation of the glass fibre mesh after aging</b>	(see annex 4.7) Mean value [%]

#### 3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
<b>Airborne sound insulation of ETICS</b>	no performance assessed
<b>Dynamic stiffness of the EPS insulation product</b>	no performance assessed
<b>Air flow resistance of the EPS insulation product</b>	no performance assessed

#### 3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
<b>Thermal resistance of ETICS</b>	(see annex 5) Calculated value or measurement value R [(m <sup>2</sup> · K)/W]
<b>thermal transmittance of ETICS</b>	(see annex 5) Calculated value or measurement value U [W/(m <sup>2</sup> · K)]

#### 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 040083-00-0404 the applicable European legal act is: 97/556/EC changed by 2001/596/EC

The systems to be applied are:

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"Magmax WDVS EPS"	ETICS in external wall subject to fire regulations	A1 <sup>(1)</sup> , A2 <sup>(1)</sup> , B <sup>(1)</sup> , C <sup>(1)</sup>	1
		A1 <sup>(2)</sup> , A2 <sup>(2)</sup> , B <sup>(2)</sup> , C <sup>(2)</sup> , D, E, (A1 to E) <sup>(3)</sup> , F	2+
	ETICS in external wall not subject to fire regulations	any	2+
<p><sup>(1)</sup> Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e. g. an addition of fire retardants or a limiting of organic material)</p> <p><sup>(2)</sup> Products/materials not covered by footnote (1)</p> <p><sup>(3)</sup> Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Classes A1 according to Commission Decision 96/603/EC)</p>			

#### 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 19 November 2025 by Deutsches Institut für Bautechnik

Dirk Brandenburger  
Head of Department

*beglaubigt:*  
Klette

## Annex 1

### Composition of the ETICS

	Components National application documents shall be taken into account	Coverage [kg/m <sup>2</sup> ]	Thickness [mm]
Insulation material with associated method of fixing	<b>Bonded ETICS:</b> <ul style="list-style-type: none"> <li> <b>Insulation product</b>                      factory-prefabricated expanded polystyrene (EPS)                     <ul style="list-style-type: none"> <li>- standard EPS</li> <li>- elastified EPS</li> </ul> </li> <li> <b>Adhesives</b> <ul style="list-style-type: none"> <li>- <b>Magmax Klebspachtel grau</b> (cement based powder requiring addition of about 25 % of water)</li> <li>- <b>Magmax Klebspachtel weiß</b> (cement based powder requiring addition of about 25 % of water)</li> <li>- <b>Magmax Klebspachtel ds</b> (cement based powder requiring addition of about 25 % of water)</li> <li>- <b>Magmax Klebspachtel zf</b> (organic based ready to use paste)</li> </ul> </li> </ul>	<p>–</p> <p>–</p> <p>4.0 to 6.0</p> <p>4.0 to 6.0</p> <p>4.0 to 6.0 (prepared)</p> <p>3.0 to 4.0 (prepared)</p>	<p>≤ 400</p> <p>≤ 200</p> <p>–</p> <p>–</p> <p>–</p> <p>–</p>
	<b>Mechanically fixed ETICS with profiles and supplementary adhesive:</b> <ul style="list-style-type: none"> <li> <b>Insulation product</b>                      factory-prefabricated expanded polystyrene (EPS)                     <ul style="list-style-type: none"> <li>- standard EPS</li> </ul> </li> <li> <b>Supplementary adhesive</b>                      (equal to bonded ETICS)                 </li> <li> <b>Profiles</b> <ul style="list-style-type: none"> <li>- "Magmax-Halteleiste PVC" and</li> <li>- "Magmax-Verbindungsleiste PVC"</li> </ul>                     Polyvinyl chloride (PVC) profiles                 </li> <li> <b>Anchors for profiles</b> <ul style="list-style-type: none"> <li>- WS 8 L, WS 8 N</li> <li>- ejothem SDK U, ejothem NK U</li> <li>- SDF-K plus</li> </ul> </li> </ul>	<p>–</p>	<p>60 to 200</p>
	<b>Mechanically fixed ETICS with anchors and supplementary adhesive:</b> <ul style="list-style-type: none"> <li> <b>Insulation product</b>                      factory-prefabricated expanded polystyrene (EPS)                     <ul style="list-style-type: none"> <li>- standard EPS</li> <li>- elastified EPS</li> </ul> </li> <li> <b>Supplementary adhesive</b>                      (equal to bonded ETICS)                 </li> <li> <b>Anchors for insulation product</b>                      all anchors with ETA according to EAD 330196-01-0604<sup>1</sup> </li> </ul>	<p>–</p> <p>–</p>	<p>60 to 400</p> <p>60 to 200</p>
Base coat	<b>Magmax Klebspachtel grau</b> <b>Magmax Klebspachtel weiß</b> Identical with the equally named adhesives given above.	<p>4.5 to 7.5</p> <p>4.5 to 7.5</p>	<p>3.0 to 5.0</p> <p>3.0 to 5.0</p>

<sup>1</sup> EAD 330196-01-0604 Plastic anchors made of virgin or non-virgin material for fixing of external insulation composite systems with rendering

	<b>Components</b> National application documents shall be taken into account	<b>Coverage</b> [kg/m <sup>2</sup> ]	<b>Thickness</b> [mm]
<b>Glass fibre mesh</b>	<b>Standard mesh: Magmax Armierungsgewebe F</b> Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m <sup>2</sup> and mesh size of about 4.0 mm x 4.0 mm	–	–
<b>Key coat</b>	<b>Magmax Silikat-Grund</b> Ready to use pigmented liquid – silicate/acrylic binder <b>Magmax Universal-Grund</b> Ready to use pigmented liquid – acrylic binder For the compatibility with the finishing coats see below.	about 0.15 l/m <sup>2</sup> about 0.20 l/m <sup>2</sup>	– –
<b>Finishing coat</b>	<b>To use with key coat "Magmax Universal-Grund" if applicable:*</b> <ul style="list-style-type: none"> <li>Thick layered cement based powder requiring addition of about 22 % of water: <b>Magmax Edelkratzputz</b> (particle size 3 mm)</li> <li>Thin layered cement based powder requiring addition of about 27 % of water: <b>Magmax Münchner Rauhputz</b> (particle size 2 – 3 mm) <b>Magmax Scheibenputz</b> (particle size 1.5 – 2 – 3 and 4 mm) <b>Magmax Marmorputz</b> (particle size 1 mm) (particle size 1.5 – 2 and 2,5 mm)</li> <li>Thin layered cement based powder requiring addition of 36 to 40 % of water: <b>Magmax Leichtedelputz</b> (Korngröße 1.5 – 2 bis 3 mm)</li> <li>Ready to use paste – acrylic/vinyllic binder: <b>Magmax Kunstharzputz</b> (particle size 1.5 – 2 – 3 and 4 mm)</li> <li>Ready to use paste – acrylic/vinyllic/siloxane binder <b>Magmax Silikonharzputz</b> (particle size 1.5 – 2 and 3 mm) <b>Magmax Siloxanputz</b> (particle size 1.5 – 2 and 3 mm)</li> </ul> <b>To use with key coat "Magmax Silikat-Grund" if applicable:*</b> <ul style="list-style-type: none"> <li>Ready to use pastes – silicate/acrylic binder: <b>Magmax Silikatputz</b> (particle size 1.5 – 2 and 3 mm)</li> </ul>	20.0 to 25.0  3.5 to 5.0 2.5 to 6.5  1.6 to 8.0 2.5 to 5.0  2.0 to 4.5  2.0 to 4.0  2.0 to 4.0 2.0 to 4.0  2.0 to 3.8	12.0 to 15.0  2.0 to 3.0 1.5 to 6.0  1.0 to 5.0 1.5 to 2.5  1.5 to 3.0  1.5 to 4.0  1.5 to 3.0 1.5 to 3.0  1.5 to 3.0
<b>Ancillary material</b>	Remains the responsibility of the manufacturer.		
* The instruction to the installer concerning the use of a key coat remains the responsibility of the manufacturer.			

## Annex 2

### Safety in case of fire (BWR 2)

#### 2.1 Reaction to fire

Configurations	Organic content	Flame retardant content	Class according to EN 13501-1
Base coat	max. 2.1 %	no flame retardant	
EPS insulation product	In quantity ensuring Class E according to EN 13501-1	In quantity ensuring Class E according to EN 13501-1	
Profile	-	-	
Anchors	-	-	
<b>rendering system:</b> Base coat with finishing coat and compatible key coat indicated in annex 1:			
Magmax Edelkratzputz Magmax Münchner Rauhputz Magmax Scheibenputz Magmax Marmorputz Magmax Leichtedelputz with Magmax Universal-Grund	max. 1.2 %	no flame retardant	B - s1,d0
Magmax Kunstharzputz Magmax Silikonharzputz Magmax Siloxanputz with Magmax Universal-Grund Magmax Silikatputz with Magmax Silikat-Grund	max. 7.5 %	min. 3 %	

#### 2.2 Apparent density of the EPS-insulation product according to EN 1602

$$\rho_a \leq 30 \text{ kg/m}^3$$

### Annex 3

#### Hygiene, health and environment (BWR 3)

##### 3.1 Water absorption

Base coat	Thickness [mm]	Mean value water absorption [kg/m <sup>2</sup> ]	
		after 1 h	after 24 h
Magmax Klebepachtel grau	5	0.02	0.19
Magmax Klebepachtel weiß	5	0.01	0.14

Rendering system Base coats "Magmax Klebepachtel grau" or "Magmax Klebepachtel weiß" with finishing coat and key coat indicated hereafter	Thickness [mm]	Mean value water absorption [kg/m <sup>2</sup> ]	
		after 1 h	after 24 h
Magmax Edelkratzputz with Magmax Universal-Grund	10	0.07	0.21
Magmax Münchner Rauhputz with Magmax Universal-Grund	3	0.07	0.42
Magmax Scheibenputz with Magmax Universal-Grund	3	0.04	0.36
Magmax Marmorputz with Magmax Universal-Grund	2.5	0.04	0.27
Magmax Leichtedelputz with Magmax Universal-Grund	3	0.06	0.44
Magmax Kunstharzputz with Magmax Universal-Grund	2	0.04	0.33
Magmax Silikonharzputz with Magmax Universal-Grund	2	0.01	0.17
Magmax Siloxanputz with Magmax Universal-Grund	2	0.05	0.34
Magmax Silikatputz with Magmax Silikat-Grund	2	0.02	0.30

### 3.2 Impact resistance

<b>Rendering system:</b> Base coats "Magmax Klebespachtel grau" or "Magmax Klebespachtel weiß" with finishing coat and key coat indicated hereafter	Single-layered glass fibre mesh "Magmax Armierungsgewebe F"
Magmax Edelkratzputz with Magmax Universal-Grund	Category II
Magmax Münchner Rauhputz with Magmax Universal-Grund	Category II
Magmax Scheibenputz with Magmax Universal-Grund	Category II
Magmax Marmorputz with Magmax Universal-Grund	Category II
Magmax Leichtedelputz with Magmax Universal-Grund	Category II
Magmax Kunstharzputz with Magmax Universal-Grund	Category II
Magmax Silikonharzputz with Magmax Universal-Grund	Category II
Magmax Siloxanputz with Magmax Universal-Grund	Category II
Magmax Silikatputz with Magmax Silikat-Grund	Category II

### 3.3 Water vapour permeability

<b>Rendering system</b> Base coats "Magmax Klebespachtel grau" with finishing coat and key coat indicated hereafter	<b>Equivalent air thickness <math>s_d</math></b> (Result determined with a layer thickness of 5 mm for the base coat)
Magmax Edelkratzputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.1 m)
Magmax Münchner Rauhputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.1 m)
Magmax Scheibenputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.1 m)
Magmax Marmorputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 2.5 mm: 0.1 m)
Magmax Leichtedelputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.1 m)
Magmax Kunstharzputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 2 mm: 0.4 m)
Magmax Silikonharzputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 2 mm: 0.2 m)
Magmax Siloxanputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 2 mm: 0.2 m)
Magmax Silikatputz with Magmax Silikat-Grund	$\leq 1.0$ m (Test result obtained with particle size 2 mm: 0.1 m)

<b>Rendering system</b> Base coats "Magmax Klebespachtel weiß" with finishing coat and key coat indicated hereafter	<b>Equivalent air thickness <math>s_d</math></b> (Result determined with a layer thickness of 5 mm for the base coat)
Magmax Münchner Rauhputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.3 m)
Magmax Siloxanputz with Magmax Universal-Grund	$\leq 1.0$ m (Test result obtained with particle size 2 mm: 0.1 m)

No performance determined for all other combinations.

## Annex 4

### Safety and accessibility in use (BWR 4)

#### 4.1 Bond strength between base coat and insulation product (EPS)

		Rupture type	Conditioning		
			Initial state [kPa]	After hygro-thermal cycles [kPa]	After freeze/thaw test
Magmax Klebspachtel grau	Mean value	insulation material	153	148	Test not required because freeze/thaw cycles not necessary
	Minimum value		148	120	
Magmax Klebspachtel weiß	Mean value	insulation material	137	no performance assessed	
	Minimum value		127		

#### 4.2 Bond strength between adhesive and substrate

Substrate: Concrete		Rupture type	Conditioning		
			Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]
Magmax Klebspachtel grau	Mean value	in adhesive	530	599	646
	Minimum value		437	536	520
Magmax Klebspachtel weiß	Mean value	in adhesive	575	433	1029
	Minimum value		479	357	764
Magmax Klebspachtel zf	Mean value	in adhesive	535	83	790
	Minimum value		474	71	606
Magmax Klebspachtel ds	Mean value	in adhesive	373	178	1062
	Minimum value		326	163	978

#### 4.3 Bond strength between adhesive and insulation (EPS)

		Rupture type	Conditioning		
			Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]
Magmax Klebspachtel grau	Mean value	insulation material	153	72	128
	Minimum value		148	58	117
Magmax Klebspachtel weiß	Mean value	insulation material	137	88	100
	Minimum value		127	71	87
Magmax Klebspachtel zf	Mean value	insulation material	145	58	128
	Minimum value		127	36	112
Magmax Klebspachtel ds	Mean value	insulation material	118	79	159
	Minimum value		102	71	153

**Bonded surface:**

$$S [\%] = 0.03 \text{ N/mm}^2 \times 100 / 0.08 \text{ N/mm}^2$$

$$S = 37.5 \%$$

For bonded ETICS the calculated minimal bonded surface area is 40 %.

#### 4.4 Wind load resistance

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product.

##### 4.4.1 Safety in use of mechanically fixed ETICS using profiles

Characteristics of the EPS (standard EPS)	Dimensions	500 mm x 500 mm
	Thickness	≥ 60 mm
	<b>Tensile strength perpendicular to the faces</b>	<b>≥ 150 kPa</b>
	Shear modulus	≥ 1.0 N/mm <sup>2</sup>
Failure loads [N / panel] (Static Foam Block Test)	Horizontal profiles fixed every 30 cm and 49.4 cm long vertical connection profiles	Minimal: 950 Mean value: 1010

##### 4.4.2 Safety in use of mechanically fixed ETICS using anchors

Apply to all anchors listed in the annex 1 mounted on the insulation panels surface				
Characteristics of the EPS (standard EPS)	Thickness		≥ 60 mm	
	<b>Tensile strength perpendicular to the faces</b>		<b>≥ 100 kPa</b>	
	Shear modulus		≥ 1.0 N/mm <sup>2</sup>	
Plate diameter of anchor			∅ 60 mm	∅ 90 mm
Failure loads [N/anchor]	Anchors not placed at the panel joints (Static Foam Block Test)	$R_{\text{panel}}$	Minimal: 510 Mean value: 520	Minimal: 720 Mean value: 730
	Anchors placed at the panel joints (Pull-through test)	$R_{\text{joint}}$	Minimal: 400 Mean value: 430	Minimal: 430 Mean value: 470

Apply to all anchors listed in the annex 1 mounted on the insulation panels surface				
Characteristics of the EPS (elastified EPS)	Thickness		≥ 60 mm	
	<b>Tensile strength perpendicular to the faces</b>		<b>≥ 80 kPa</b>	
	Shear modulus		≥ 0.3 N/mm <sup>2</sup>	
Plate diameter of anchor			∅ 60 mm	
Failure loads [N/anchor]	Anchors not placed at the panel joints (Static Foam Block Test)	$R_{\text{panel}}$	Minimal: 350 Mean value: 360	
	Anchors placed at the panel joints (Pull-through test)	$R_{\text{joint}}$	Minimal: 300 Mean value: 310	

The failure loads specified above for a plate diameter of anchor of 60 mm apply to the following anchors with deep mounting but only on the following conditions of installation:

Anchor	Thickness of the EPS	Conditions of installation*
ejotherm STR U, ejotherm STR U 2G (ETA-04/0023)	≥ 80 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm ( $\triangleq$ thickness of insulation cover) – Incision depth: 20 mm
	≥ 100 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm ( $\triangleq$ thickness of insulation cover) – Incision depth: 35 mm
TERMOZ 8 SV (ETA-06/0180)	≥ 80 mm (for standard EPS only)	– Maximum installation depth of the anchor plate: 15 mm ( $\triangleq$ thickness of insulation cover)
* according to the appropriate ETA of anchor		

#### 4.5 Render strip tensile test

The Mean value of crack width of the base coat reinforced with the glass fibre meshes measured at a render strain value of 1 % is:

Base coat "Magmax Klebepachtel grau" with glass fibre mesh indicated hereafter	Mean value of crack width $w_{m(1\%)}$
"Magmax Armierungsgewebe F"	0.18 mm

For the base coat "Magmax Klebepachtel weiß" was no performance assessed.

#### 4.6 Bond strength after ageing

Rendering system Base coats "Magmax Klebespachtel grau" with finishing coat indicated hereafter		Rupture Type	after hygro- thermal cycles [kPa]	7 d immersion in water and 7 d drying [kPa]
Magmax Münchner Rauhputz with Magmax Universal-Grund	Mean value	insulation material		112
	Minimum value			76
Magmax Scheibenputz with Magmax Universal-Grund	Mean value	insulation material	148	
	Minimum value		130	
Magmax Marmorputz with Magmax Universal-Grund	Mean value	insulation material		103
	Minimum value			92
Magmax Leichtedelputz with Magmax Universal-Grund	Mean value	insulation material	146	
	Minimum value		130	
Magmax Edelkratzputz with Magmax Universal-Grund	Mean value	insulation material	156	
	Minimum value		130	
Magmax Silikonharzputz with Magmax Universal-Grund	Mean value	insulation material		142
	Minimum value			122
Magmax Siloxanputz with Magmax Universal-Grund	Mean value	no performance assessed		
	Minimum value			
Magmax Kunstharzputz with Magmax Universal-Grund	Mean value	insulation material		129
	Minimum value			107
Magmax Silikatputz with Magmax Silikat-Grund	Mean value	insulation material	144	
	Minimum value		120	

#### 4.7 Reinforcement (glass fibre mesh)

"Magmax Armierungsgewebe F"	Mean value warp	Mean value weft
Tensile strength in as-delivered state	≥ 48 N/mm	≥ 50 N/mm
Residual tensile strength after aging	≥ 33 N/mm	≥ 38 N/mm
Relative residual tensile strength after aging	≥ 50 %	≥ 50 %
Elongation in as-delivered state	3.9 %	4.0 %
Elongation after aging	2.9 %	3.0 %

## Annex 5 Energy economy and heat retention (BWR 6))

### thermal resistance

The nominal value of the additional thermal resistance  $R$  provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946 from the nominal value of the insulation product's thermal resistance  $R_D$  given accompanied to the CE marking and from the thermal resistance of the rendering system  $R_{render}$  which is about  $0.02 \text{ (m}^2 \cdot \text{K)/W}$ .

$$R = R_D + R_{render}$$

The thermal bridges caused by mechanical fixing (anchors, profiles) increases the thermal transmittance  $U$ . This influence had to take into account according to EN ISO 6946.

$$U_c = U + \chi_p \cdot n$$

Where: $U_c$ :	corrected thermal transmittance [ $\text{W}/(\text{m}^2 \cdot \text{K})$ ]
$n$ :	number of anchors per $\text{m}^2$
$\chi_p$ :	local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
$\chi_p = 0.004 \text{ W/K}$	for anchors with a galvanized steel screw with the head covered by a plastic material
$\chi_p = 0.002 \text{ W/K}$	for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw

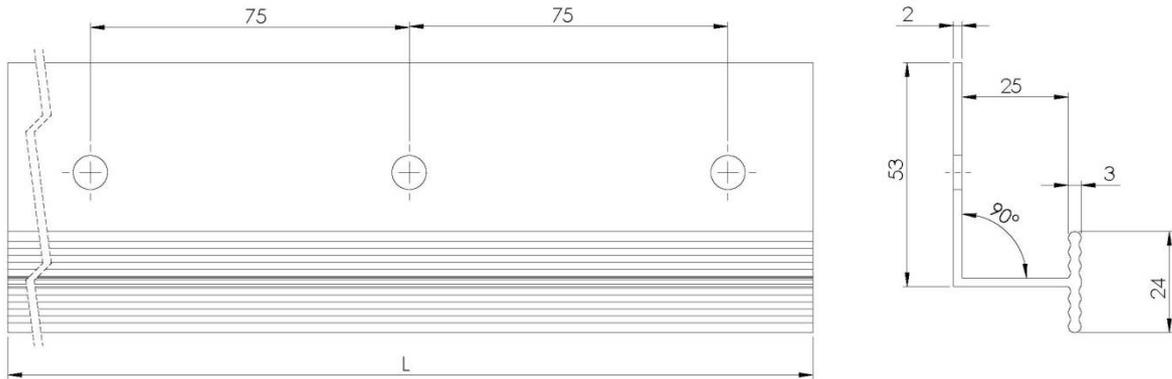
The thermal bridges caused by profiles are negligible.

## Annex 6 Profiles

Polyvinyl chloride (PVC) profiles, PVC-U, EGL, 082-05-T33 to EN ISO 1163-1 are to be used in the mechanically fixed ETICS with profiles.

The Pull-through resistance of fixings from profiles is  $\geq 0.5$  kN.

### Horizontal profile – "Magmax-Halteleiste PVC" (dimensions in millimetres)



### Vertical connection profile – "Magmax-Verbindungsleiste PVC" (dimensions in millimetres)

