

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-20/0336  
of 9 October 2023

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

WDVS BATI-THERM EPS

Product family  
to which the construction product belongs

Product area code: 4  
External Thermal Insulation Composite System with  
rendering on expanded polystyrene intended for use on  
building walls

Manufacturer

Bati-C S.A.  
30, rue de l'industrie à Bertrange  
8069 LUXEMBURG  
LUXEMBURG

Manufacturing plant

Bati-C S.A.  
30, rue de l'industrie à Bertrange  
8069 LUXEMBURG  
LUXEMBURG

This European Technical Assessment  
contains

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

This European Technical Assessment is  
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No 305/2011, on the basis of

040083-00-0404

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## 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 the table below.

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 "WDVS BATI-THERM 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 normally 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 Characteristics of products and methods of verification

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

Essential characteristic	Performance
Reaction to fire of the ETICS	(see annex 2) Euroclass 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) Euroclass E according EN 13501-1 Value [kg/m <sup>3</sup> ]
Facade fire performance	no performance assessed
Propensity to undergo continuous smouldering of ETICS	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 product after 24 hours	(see annex 3.1)  Average [kg/m <sup>2</sup> ] Average [kg/m <sup>2</sup> ]  Average [kg/m <sup>2</sup> ] Average [kg/m <sup>2</sup> ]  Maximum value 0.5 kg/m <sup>2</sup>
<b>Water-tightness of the ETICS</b> <b>Hygrothermal behaviour on the test wall</b>	Pass without defects for ETICS with all base coats except "Bati therm MMU". For ETICS with base coat "Bati therm MMU" was no performance assessed.
<b>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> for all configurations of the ETICS after 24 h. The ETICS is so assessed as freeze/thaw resistant.
<b>impact resistance</b>	(see annex 3.2) Category
<b>Water vapour permeability</b> - Rendering system - EPS insulation product	(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> between base coat and EPS insulation product</p> <p>between adhesive and substrate</p> <p>between adhesive and EPS insulation product</p>	<p>(see annex 4.1)</p> <ul style="list-style-type: none"> <li>- Minimal value/ average [kPa], rupture type: Initial state (28 d immersion)</li> <li>- Minimal value/ average [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>- Minimal value [kPa], rupture type: Initial state (dry conditions)</li> <li>- Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying</li> <li>- Minimal value/ average [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>- Minimal value [kPa], rupture type: Initial state (dry conditions)</li> <li>- Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying</li> <li>- Minimal value/ average [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> pull-through test of fixing static foam block test</p>	<p>(see annex 4.4)</p> <ul style="list-style-type: none"> <li>- <math>R_{\text{panel}}</math> [kN/fixing], see annex 4</li> <li>- <math>R_{\text{joint}}</math> [kN/fixing], see annex 4</li> <li>- Plate diameter of anchor <math>\geq 60</math> mm res. <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><b>Tensile strength perpendicular to the faces of insulation product</b> in dry conditions standard EPS</p> <p>elastified EPS</p>	<p><math>\sigma_{\text{mt}} \geq 80</math> kPa (bonded ETICS)</p> <p><math>\sigma_{\text{mt}} \geq 100</math> kPa (bonded ETICS with anchors)</p> <p><math>\sigma_{\text{mt}} \geq 150</math> kPa (bonded ETICS with profiles)</p> <p><math>\sigma_{\text{mt}} \geq 80</math> kPa</p>
<b>Shear strength of the ETICS</b>	$20 \leq f_{\text{tk}} \leq 170$ [kPa]
<p><b>Shear modulus of the ETICS</b> standard EPS</p> <p>elastified EPS</p>	<p><math>1.0 \leq G_{\text{m}} \leq 2.0</math> [MPa]</p> <p><math>0.3 \leq G_{\text{m}} \leq 1.0</math> [MPa]</p>

Essential characteristic	Performance
<b>Pull-through resistance of fixing from profiles</b>	$\geq 0,5$ kN
<b>Render strip tensile test</b>	(see annex 4.5) crack width $w_{rk}$ [mm]
<b>Bond strength after ageing</b> finishing coat tested on the rig finishing coat not tested on the rig	no performance assessed
<b>Tensile strength of the glass fibre mesh in the as-delivered state</b>	(see annex 4.6) Average [N/mm]
<b>Residual tensile strength of the glass fibre mesh after aging</b>	(see annex 4.6) Average [N/mm]
<b>Relative residual tensile strength of the glass fibre mesh after aging</b>	(see annex 4.6) Average [%]
<b>Elongation of the glass fibre mesh in the as-delivered state</b>	(see annex 4.6) Average [%]
<b>Elongation of the glass fibre mesh after aging</b>	(see annex 4.6) Average [%]

#### 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 [ $m^2 \cdot K/W$ ]
<b>Thermal transmittance of ETICS</b>	(see annex 5) Calculated value or measurement value U [ $W/(m^2 \cdot K)$ ]

English translation prepared by DIBt

**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
"WDVS BATI-THERM 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 9 October 2023 by Deutsches Institut für Bautechnik

Anja Rogsch  
Head of Section

*beglaubigt:*  
Keküllüoglu

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> (see annex 1 for product characteristics) 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> (minimum bonded surface 40 %) <ul style="list-style-type: none"> <li>- <b>Bati therm MMU</b> (cement based powder requiring addition of about 25 % of water)</li> <li>- <b>Bati therm MMLB</b> (cement based powder requiring addition of about 31 % of water)</li> <li>- <b>Bati therm MLB</b> (cement based powder requiring addition of about 30 % of water)</li> </ul> </li> </ul>	<p>–</p> <p>–</p> <p>about 5.0 (powder)</p> <p>about 4.0 (powder)</p>	<p>≤ 400</p> <p>≤ 300</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, minimum bonded surface 20 %)</li> <li>• <b>Profiles</b> <ul style="list-style-type: none"> <li>- Halteleisten PVC</li> <li>- Verbindungsleiste PVC</li> <li>Polyvinylchlorid (PVC) – Profiles</li> </ul> </li> <li>• <b>Anchors for profiles</b> <ul style="list-style-type: none"> <li>- WS 8 L</li> <li>- ejothem SDK U</li> <li>- SDF-K plus</li> <li>- ejothem NK U</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, minimum bonded surface 40 %)</li> <li>• <b>Anchors for insulation product</b> all anchors with ETA according to EAD330196-01-0604<sup>1</sup></li> </ul>	<p>–</p> <p>–</p>	<p>60 to 400</p> <p>60 to 300</p>

<sup>1</sup> EAD 330196-01-0604

Plastic anchors made of virgin or non-virgin material for fixing of ETICS with renderings (and previous versions)



	<b>Components</b> National application documents shall be taken into account	<b>Coverage</b> [kg/m <sup>2</sup> ]	<b>Thickness</b> [mm]
<b>Base coat</b>	<b>Bati therm MMU</b> <b>Bati therm MMLB</b> <b>Bati therm MLB</b> Identical with the equally named adhesives given above	about 7.0 about 7.0 5.0 to 7.0	4.0 to 7.0 5.0 to 7.0 5.0 to 7.0
<b>Glass fibre Mesh</b>	<b>WDVS-Glasgewebe Fein</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>Bati therm Quarzgrundierung</b> Ready to use pigmented liquid with styrol-acrylat binder. For the compatibility with the finishing coats see below.	about 0.3 l/m <sup>2</sup>	–
<b>Finishing coat</b>	<b>To use without key coat:</b> <ul style="list-style-type: none"> <li>Thick layered cement based powder requiring addition of about 20 % of water (scraped render):  <b>Bati EME**</b></li> </ul> <b>To use with key coat if applicable:**</b> <ul style="list-style-type: none"> <li>Thin layered cement based powder requiring addition of 20 – 35 % of water  <b>Bati EMM</b>                      (particle size 1.5 – 2.0 – 3.0 – 4.0 and 5.0 mm)</li> <li>Ready to use paste – styrol-acrylat binder:  <b>Bati fini Dispersion AV</b>                      (particle size 1.5 – 2.0 – 3.0 and 4.0 mm)</li> <li>Ready to use paste – silicate binder:  <b>Bati fini Silicate AV</b>                      (Korngröße 1.0 – 1,5 – 2.0 – 3.0 und 4.0 mm)</li> <li>Ready to use paste – acrylosiloxane binder:  <b>Bati fini Silicone AV</b>                      (particle size 1.5 – 2.0 – 3.0 and 4.0 mm)</li> </ul>	10.0 to 24.0   2.5 to 5.0  2.5 to 4.0  2.5 to 4.0  2.5 to 4.0	5.0 to 12.0      Regulated by particle size
<b>Ancillary material</b>	Remains the responsibility of the manufacturer.		
* Factory-prefabricated, uncoated panels made of expanded polystyrene (EPS) to EN 13163 shall be used. ** The instruction of the installer concerning the use of a key coat remain under the ETA-holder responsibilities.			

## Annex 2

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

#### 2.1 Reaction to fire

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coat	max. 2.6 %	no flame retardant	B - s1,do
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
profiles	-	-	
anchors	-	-	
<b>rendering system:</b> Base coat with finishing coat and compatible key coat indicated in annex 1:			
Thick layered cement based powder: Bati EME Bati EMM	max. 2.6 %	no flame retardant	
Silicate based paste, with key coat "Bati therm Quarzgrundierung": Bati fini Silicate AV	max. 6.8 %		

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coat	max. 2.6 %	no flame retardant	B - s2,do
EPS- insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
profiles	-	-	
anchors	-	-	
<b>rendering system:</b> Base coat with finishing coat and compatible key coat indicated in annex 1:			
Organic based paste, with key coat "Bati therm Quarzgrundierung": Bati fini Dispersion AV Bati fini Silicone AV	max. 8.5 %	no flame retardant	

#### 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 (capillarity test)

Base coat	Average water absorption	
	after 1 h [kg/m <sup>2</sup> ]	after 24 h [kg/m <sup>2</sup> ]
Bati therm MMU	0.04	0.22
Bati therm MMLB	0.09	0.23
Bati therm MLB	0.07	0.31

##### Rendering system:

		Average water absorption	
		after 1 h [kg/m <sup>2</sup> ]	after 24 h [kg/m <sup>2</sup> ]
base coat "Bati therm MMU" with finishing coat and compatible key coat indicated in annex 1:	Bati EME	0.13	0.47
	Bati EMM	0.08	0.47
	Bati fini Dispersion AV	0.04	0.39
	Bati fini Silicate AV	0.07	0.42
	Bati fini Silicone AV	0.06	0.33

		Average water absorption	
		after 1 h [kg/m <sup>2</sup> ]	after 24 h [kg/m <sup>2</sup> ]
base coat "Bati therm MMLB" with finishing coat and compatible key coat indicated in annex 1:	Bati EME	0.17	0.46
	Bati EMM	0.03	0.24
	Bati fini Dispersion AV	0.10	0.44
	Bati fini Silicate AV	0.07	0.45
	Bati fini Silicone AV	0.06	0.43

		Mittelwert Wasseraufnahme	
		nach 1 h [kg/m <sup>2</sup> ]	nach 24 h [kg/m <sup>2</sup> ]
base coat "Bati therm MLB" with finishing coat and compatible key coat indicated in annex 1:	Bati EME	0.13	0.43
	Bati EMM	0.05	0.27
	Bati fini Dispersion AV	0.10	0.42
	Bati fini Silicate AV	0.09	0.44
	Bati fini Silicone AV	0.07	0.38

English translation prepared by DIBt

### 3.2 Impact resistance

For the impact resistance of all configurations of the ETICS was no performance assessed.

### 3.3 Water vapour permeability ETICS

Rendering system: Base coat "Bati therm MMU" with finishing coat and compatible key coat indicated in annex 1	Equivalent air thickness $s_d$
- Bati EME	$\leq 1.0$ m (Test result obtained with layer thickness 8 mm: 0.2 m)
- Bati EMM	$\leq 1.0$ m (Test result obtained with particle size 5 mm: 0.2 m)
- Bati fini Dispersion AV	$\leq 1.0$ m (Test result obtained with particle size 4 mm: 0.5 m)
- Bati fini Silicate AV	$\leq 1.0$ m (Test result obtained with particle size 4 mm: 0.3 m)
- Bati fini Silicone AV	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.3 m)

Rendering system: Base coat "Bati therm MMLB", "Bati therm MLB" with finishing coats indicated hereafter (evaluated without key coat)	Equivalent air thickness $s_d$
- Bati EME	$\leq 1.0$ m (Test result obtained with layer thickness 12 mm: 0.2 m)
- Bati EMM	$\leq 1.0$ m (Test result obtained with particle size 5 mm: 0.1 m)
- Bati fini Dispersion AV	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.2 m)
- Bati fini Silicate AV	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.1 m)
- Bati fini Silicone AV	$\leq 1.0$ m (Test result obtained with particle size 3 mm: 0.2 m)

**Annex 4**

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

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

		Conditioning		
		Initial state [kPa]	After hygrothermal cycles [kPa]	After freeze/thaw test
Bati therm MMU	Average	120	no performance assessed	Test not required because freeze/thaw cycles not necessary
	Minimal value	100		
Bati therm MMLB	Average	124	122	
	Minimal value	113	106	
Bati therm MLB	Average	124	122	
	Minimal value	113	106	

**4.2 Bond strength between adhesive and substrate**

Substrate: concrete		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]
Bati therm MMU	Average	1070	no performance assessed	no performance assessed
	Minimal value	760		
Bati therm MMLB	Average	686	255	478
	Minimal value	641	179	327
Bati therm MLB	Average	752	470	698
	Minimal value	628	396	621

**4.3 Bond strength between adhesive and insulation product EPS**

insulation product EPS		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]
Bati therm MMU	Average	100	no performance assessed	no performance assessed
	Minimal value	90		
Bati therm MMLB	Average	100	no performance assessed	no performance assessed
	Minimal value	80		
Bati therm MLB	Average	110	70	110
	Minimal value	100	60	100

English translation prepared by DIBt

**Minimal bonded surface area**

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

$$S = 37.50 \%$$

The minimal bonded surface S of bonded ETICS 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 [kN/panel] (Static Foam Block Test)	Horizontal profiles fixed every 30 cm and 49.4 cm long vertical connection profiles	Minimal: 0.95 Average: 1.01

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

Apply to all anchors listed in 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		Ø 60 mm	Ø 90 mm	
plate stiffness		≥ 0.3 kN/mm		
load resistance of the anchor plate		≥ 1.0 kN		
Failure loads [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R <sub>panel</sub>	Minimal: 0.51 Average: 0.52	Minimal: 0.72 Average: 0.73
	Anchors placed at the panel joints (Pull-through test)	R <sub>joint</sub>	Minimal: 0.40 Average: 0.43	Minimal: 0.43 Average: 0.47

Apply to all anchors listed in 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		Ø 60 mm		
plate stiffness		≥ 0.3 kN/mm		
load resistance of the anchor plate		≥ 1.0 kN		
Failure load [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R <sub>panel</sub>	Minimal: 0.35 Average: 0.36	
	Anchors placed at the panel joints (Pull-through test)	R <sub>joint</sub>	Minimal: 0.30 Average: 0.31	

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 MW panel [t]	Conditions of installation*
ejothem STR U, ejothem STR U 2G (ETA-04/0023)	t ≥ 80 mm	– Maximum installation depth of the anchor plate: 15 mm ( $\triangle$ thickness of insulation cover) – Incision depth: 20 mm
	t ≥ 100 mm	– Maximum installation depth of the anchor plate: 15 mm ( $\triangle$ thickness of insulation cover) – Incision depth: 35 mm
TERMOZ 8 SV (ETA-06/0180)	t ≥ 80 mm (for standard EPS only)	– Maximum installation depth of the anchor plate: 15 mm ( $\triangle$ thickness of insulation cover)
* according to the appropriate ETA of anchor		

#### 4.5 Render strip tensile test

The average value of crack width of the base coat measured at a render strain value of 1 % is:

Base coat	Glass fibre mesh	Average value of crack width $w_{m(1\%)}$
Bati therm MMU	WDVS-Gewebe Fein	0.13 mm
Bati therm MMLB	WDVS-Gewebe Fein	0.10 mm
Bati therm MLB	WDVS-Gewebe Fein	0.10 mm

#### 4.6 Reinforcement (glass fibre mesh)

WDVS-Gewebe Fein	Average warp	Average weft
Tensile strength in as-delivered state	2170 N / 50 mm	2400 N / 50 mm
Residual tensile strength after aging	1120 N / 50 mm	1330 N / 50 mm
Relative residual tensile strength after aging	51.0 %	55.0 %
Elongation in as-delivered state	3.4 %	3.3 %
Elongation after aging	2.9 %	2.9 %

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

### Thermal resistance und thermal transmittance

The nominal value of the additional thermal resistance  $R$  provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946:2007 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 6946:2007

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

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.



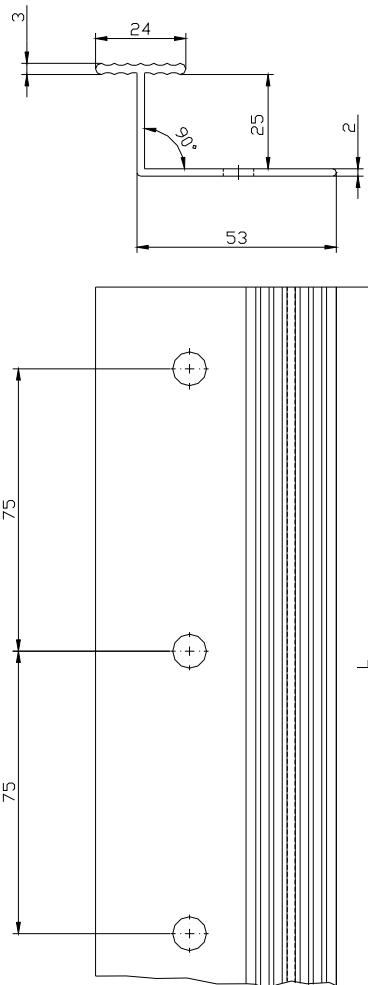
**Annex 6:**

**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  $\geq 500$  N.

**Horizontal profile – "PVC Halteleiste" (dimensions in millimetres)**



**Vertical connection profile – "PVC Verbindungsleiste" (dimensions in millimetres)**

