Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-05/0203 of 8 February 2018

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	Diessner WDV-System Polystyrol
Product family to which the construction product belongs	Product area code: 4 External Thermal Insulation Composite System with rendering on expanded polystyrene for the use as external insulation of building walls
Manufacturer	Diessner GmbH & Co KG Lack- und Farbenfabrik Tempelhofer Weg 38-42 12347 Berlin
Manufacturing plant	Diessner GmbH & Co KG Lack- und Farbenfabrik Tempelhofer Weg 38-42 12347 Berlin
This European Technical Assessment contains	17 pages including 3 annexes which form an integral part of this assessment Annex 4 Control Plan contains confidential information and is not included in the European Technical Assessment when that assessment is publicly available
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	ETAG 004, edition 2000, amended 2013, used as EAD according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.
This version replaces	ETA-05/0203 issued on 14 November 2012

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Specific Part

1 Technical description of the product

1.1 Definition of the kit

This product is an ETICS (External Thermal Insulation Composite System) 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 additional 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 key 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 is 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.

1.2 Composition of the ETICS

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Insulation material with associated method of fixing	**Bonded ETICS:** • **Insulation product** (see annex 1 for product characteristics) factory-prefabricated expanded polystyrene (EPS) - standard EPS	– –	≤ 400
	• **Adhesives** - **Diessner Klebe- und Armierungsmörtel KAM** (cement based powder requiring addition of about 20 – 25 % of water) - **Diessner Systemklebe- und Spachtelmasse SKS** (cement based powder requiring addition of about 20 - 25 % of water) - **Diessner Klebe- und Armierungsmörtel leicht KAM-l** (cement based powder requiring addition of about 20 - 30 % of water) - **Diessner Baukleber BK** (cement based powder requiring addition of about 20 - 25 % of water)	4.0 – 5.0 (prepared) 4.0 – 5.0 (prepared) 3.0 – 4.0 (prepared) about 4.0 (prepared)	– – – -
	Mechanically fixed ETICS with anchors and supplementary adhesive: • **Insulation product** (see annex 1 for product characteristics) factory-prefabricated expanded polystyrene (EPS) - standard EPS	– –	60 to 400

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
	• **Supplementary adhesive** (equal to bonded ETICS) • **Anchors for insulation product** all anchors with ETA according to EAD330196-00-0604[1] with characteristics defined in annex 2		
Base coat	**Diessner Klebe- und Armierungsmörtel KAM** **Diessner Systemklebe- und Spachtelmasse SKS** **Diessner Klebe- und Armierungsmörtel leicht KAM-l** Identical with the equally named adhesives given above.	6.0 – 10.0 6.0 – 10.0 4.5 – 7.0 (prepared)	3.5 – 6.0 3.5 – 6.0 3.5 – 6.0
Glass fibre mesh	**Diessner Armierungsgewebe** (see annex 3 for product characteristics) Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m² and mesh size of about 4.0 mm x 4.0 mm.	–	–
Key coat	**Diessner Putzgrund** Ready to use pigmented acrylic-resin dispersion liquid To be used with all thin layered finishing coats indicated hereafter.	ca. 0,15 l/m²	–
Finishing coat	**To use with key coat "Diessner Putzgrund" if applicable **:** • Ready to use paste – acrylic binder: **Diessner Kunstharzputz** - Rillen-Reibeputz (R) (particle size 1.5 – 2 and 3 mm) - Kratzputzstruktur (K) (particle size 1.5 – 2 and 3 mm) • Ready to use paste – acrylosioxane binder: **Diessner Siliconharzputz** - Rillen-Reibeputz (R) (particle size 1.5 – 2 and 3 mm) - Kratzputzstruktur (K) (particle size 1.5 – 2 and 3 mm) • Ready to use paste – acrylic-silicate binder: **Diessner Silikatputz** - Rillen-Reibeputz (R) (particle size 1.5 – 2 and 3 mm) - Kratzputzstruktur (K) (particle size 1.5 – 2 and 3 mm) • Thin layered cement based powders requiring addition of about 25 % of water: **Diessner Modellierputz** (particle size 1 and 2 mm) **Diessner Scheibenputz** (particle size 2 – 3 and 5 mm)	 2.5 – 4.3 2.3 – 3.8 2.3 – 4.2 2.4 – 4.2 2.5 – 4.5 2.5 – 4.5 3.0 – 6.0 (prepared) 2.7 – 5.5 (prepared)	regulated by particle size

[1] EAD330196-00-0604 Plastic anchors for fixing of external thermal insulation composite systems with rendering

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
	Diessner Edelleichtputz		
	- Rillenputzstruktur (R) (particle size 2 and 3 mm)	2.3 – 3.3	regulated by particle size
	- Scheibenputz-Struktur (K) (particle size 2 and 3 mm)	1.8 – 2.5	
	Diessner Münchner Rauputz (particle size 2 – 3 and 5 mm)	2.7 – 6.0 (prepared)	
	Diessner Klebe- und Armierungsmörtel KAM**	2.5 – 3.0	1.5 – 2.5
	• Thick layered cement based powder requiring addition of about 25 % of water:		
	Diessner Kratzputz KP (particle size 3 mm)	22.5 (prepared before scraping) about 14.0 (finished)	15 mm 8 – 12 mm
Ancillary material	Remains the responsibility of the manufacturer.		

* The instruction to the installer concerning the use of a key coat remains the responsibility of the manufacturer.

** The finishing coat "Diessner Klebe- und Armierungsmörtel KAM" has to be used with the equally named base coat exclusively.

2. Specification of the intended use in accordance with the applicable European assessment Document (hereinafter called EAD)

2.1 Intended use

This ETICS is intended to be used as external insulation to the walls of buildings made of masonry (bricks, blocks, stones …) or concrete (cast on site or as prefabricated panels) with and without rendering. The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS either by bonding or mechanically. It shall be designed to give the wall to which it is applied satisfactory thermal insulation.

The ETICS is non load-bearing construction element. It does not contribute directly to the stability of the wall on which it is installed, but it can contribute to durability by providing enhanced protection from the effects of weathering.

The ETICS can be used on new or existing (retrofit) vertical walls.

The ETICS is not intended to ensure the air tightness of the building structure.

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see clause 7.2.1 of ETAG 004) and on the national instructions.

The verifications and assessment methods on which this European Technical Assessment (hereinafter called ETA) is based lead to the assumption of a working life of the ETICS " Diessner WDV-System Polystyrol " 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.

2.2 Manufacturing

The ETA is issued for the ETICS on the basis of agreed data/information, deposited with the DIBt, which identifies the ETICS that has been assessed and judged. Changes to the ETICS or the components or their production process, which could result in this deposited data/information being incorrect, should be notified to the DIBt before the changes are introduced. The DIBt will decide whether such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

2.3 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation.
Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different. Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the chapters 7.1 and 7.2 of ETAG 004 used as EAD, which summarize how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

2.4 Packing, transport and storage

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer to ensure that this information is made know to the concerned people.

2.5 Use, maintenance, 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 adapted and compatible with the ETICS (possibly after washing or ad hoc preparation)

Only products which are compatible with the ETICS shall be used.

Necessary repairs should be performed 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 know to the concerned people.

3 Characteristics of products and methods of verification

3.0 General

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes 1 to 3.

3.1 Mechanical resistance and stability (BWR 1)

not relevant

3.2 Safety in case of fire (BWR 2)

Reaction to fire (ETAG 004 – clause 5.1.2)

Configurations	**Organic content**	**Flame retardant content**	**Euroclass according to EN 13501-1:2007**
Base coat	max. 2.4 %	no flame retardant/ min. x %	
EPS - insulation product	in quantity ensuring Euroclass E according to EN 13501-1	in quantity ensuring Euroclass E according to EN 13501-1	
Anchors	-	-	
rendering system : Base coat with finishing coat and compatible key coat indicated in clause 1.2:			
Diessner Modellierputz, Diessner Scheibenputz, Diessner Edelleichtputz, Diessner Münchner Rauputz, Diessner Kratzputz KP	max. 1.1 %	no flame retardent	B - s1,d0
Diessner Silikatputz	max. 5.0 %	no flame retardent	B - s2,d0
Diessner Kunstharzputz, Diessner Siliconharzputz, Diessner Klebe- und Armierungsmörtel KAM	max. 7.8 %	no flame retardent	B - s2,d0

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Water absorption (capillarity test) (ETAG 004 – clause 5.1.3.1)

Base coat	Water absorption after 1 h < 1.0 kg/m²	Water absorption after 24 h < 0.5 kg/m²
Diessner Klebe- und Armierungsmörtel KAM	x	x
Diessner Systemklebe- und Spachtelmasse SKS	x	x
Diessner Klebe- und Armierungsmörtel leicht KAM-I	x	x

Rendering system:

		Water absorption after 24 hours	
		< 0.5 kg/m²	**≥ 0.5 kg/m²**
Rendering systems: Base coat with finishing coat and compatible key coat indicated in clause 1.2:	Diessner Kunstharzputz	x	
	Diessner Siliconharzputz	x	
	Diessner Silikatputz	x	
	Diessner Modellierputz	x	
	Diessner Scheibenputz	x	
	Diessner Edelleichtputz	x	
	Diessner Münchner Rauputz	x	
	Diessner Klebe- und Armierungsmörtel KAM	x	
	Diessner Kratzputz KP	x	

3.3.2 Hygrothermal behaviour (ETAG 004 – clause 5.1.3.2)

Pass (without defects)

3.3.3 Impact resistance (ETA G004 – clause 5.1.3.3)

The verified resistance to hard body impact of the ETICS results in the classification into categories listed below.

Rendering system: Base coat "Diessner Klebe- und Armierungsmörtel KAM" oder "Diessner Systemklebe- und Spachtelmasse SKS" with finishing coat indicated in clause 1.2:	Single standard mesh: "Diessner Armierungsgewebe"
Diessner Kunstharzputz (3 mm)	category II
Diessner Siliconharzputz (3 mm)	category II
Diessner Silikatputz (2 mm)	category I
Diessner Modellierputz (3 mm)	category II
Diessner Scheibenputz (3 mm)	category II
Diessner Edelleichtputz (3 mm)	category II
Diessner Münchner Rauputz (3 mm)	category II
Diessner Kratzputz KP (10 mm)	category II

Rendering system: Base coat "Diessner Klebe- und Armierungsmörtel leicht KAM-l" with finishing coat indicated in clause 1.2:	Single standard mesh: "Diessner Armierungsgewebe"
Diessner Kunstharzputz (3 mm)	category I
Diessner Siliconharzputz (3 mm)	category I
Diessner Silikatputz (2 mm)	category I
Diessner Modellierputz (3 mm)	category III
Diessner Scheibenputz (3 mm)	category III

Rendering system: Base coat "Diessner Klebe- und Armierungsmörtel leicht KAM-I" with finishing coat indicated in clause 1.2:	Single standard mesh: "Diessner Armierungsgewebe"
Diessner Edelleichtputz (3 mm)	category III
Diessner Münchner Rauputz (3 mm)	category III
Diessner Kratzputz KP (10 mm)	category I

The impact resistance of all other configurations of the ETICS is not determined (npd).

3.3.4 Water vapour permeability (ETAG 004 – clause 5.1.3.4)

Rendering system: Base coat "Diessner Klebe- und Armierungsmörtel KAM" oder "Diessner Systemklebe- und Spachtelmasse SKS" oder "Diessner Klebe- und Armierungsmörtel leicht KAM-I" with finishing coat indicated in clause 1.2:	**Equivalent air thickness s_d**
Diessner Modellierputz	≤ 1,0 m (Test result obtained with layer thickness t = 1 mm: 0.1 m)
Diessner Scheibenputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.2 m)
Diessner Edelleichtputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.2 m)
Diessner Münchner Rauputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.3 m)
Diessner Klebe- und Armierungs-mörtel KAM	≤ 1,0 m (Test result obtained with layer thickness t = 5 mm: 0.1 m)
Diessner Kratzputz KP	≤ 1,0 m (Test result obtained with layer thickness t = 10 mm: 0.3 m)
Diessner Siliconharzputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.3 m)
Diessner Silikatputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.1 m)
Diessner Kunstharzputz	≤ 1,0 m (Test result obtained with layer thickness t = 3 mm: 0.4 m)

3.3.5 Release of dangerous substances (ETAG 004 – clause 5.1.3.5, EOTA TR 034)

Essential characteristic	**Performance**
Release of dangerous substances	no performance assessed

3.4 Safety and accessibility in use (BWR 4)

3.4.1 Bond strength between base coat and insulation product (EPS) (ETAG 004 – clause 5.1.4.1.1)

	Conditioning		
Base coat	**Initial state**	**After hygrothermal cycles**	**After freeze/thaw test**
Diessner Klebe- und Armierungsmörtel KAM	≥ 0,08 MPa	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
Diessner Systemklebe- und Spachtelmasse SKS	≥ 0,08 MPa	≥ 0,08 MPa	
Diessner Klebe- und Armierungsmörtel leicht KAM-l	≥ 0,08 MPa	≥ 0,08 MPa	

3.4.2 Bond strength between adhesive and substrate resp. insulation product (EPS) (ETAG 004 – clauses 5.1.4.1.2 and 5.1.4.1.3)

		Conditioning		
Adhesive	**Substrate resp. insulation product**	**Initial state**	**2 d immersion in water and 2 h drying**	**2 d immersion in water and 7 d drying**
Diessner Klebe- und Armierungs-mörtel KAM	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	EPS	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
Diessner System-klebe- und Spach-telmasse SKS	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	EPS	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
Diessner Klebe- und Armierungs-mörtel leicht KAM-l	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	EPS	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
Diessner Baukleber BK	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	EPS	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

Bonded surface:

For bonded ETICS the calculated minimal bonded surface area, according to ETAG 004, clause 6.1.4.1.3 is 40 %.

3.4.3 Bond strength after ageing (ETAG 004 – clause 5.1.7.1):

Rendering system: Base coat "Diessner Klebe- und Armierungsmörtel KAM" oder "Diessner Systemklebe- und Spachtelmasse SKS" oder "Diessner Klebe- und Armierungsmörtel leicht KAM-l"with finishing coat indicated in clause 1.2	Diessner Kunstharzputz	≥ 0.08 MPa
	Diessner Siliconharzputz	
	Diessner Silikatputz	
	Diessner Modellierputz	
	Diessner Scheibenputz	
	Diessner Edelleichtputz	
	Diessner Münchner Rauputz	
	Diessner Klebe- und Armierungsmörtel KAM	
	Diessner Kratzputz KP	

3.4.4 Fixing strength (displacement test) (ETAG 004 – clause 5.1.4.2)

Test not required therefore no limitation of ETICS length required.

3.4.5 Wind load resistance (ETAG 004 – clause 5.1.4.3)

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product given in annex 1.

3.4.5.1 Safety in use of mechanically fixed ETICS using anchors

Apply to all anchors listed in the clause 1.2 mounted on the insulation panels surface				
Characteristics of the EPS **(standard EPS)**	Thickness		≥ 60 mm	
	Tensile strength perpendicular to the faces		**≥ 100 kPa**	
	Shear modulus		≥ 1.0 N/mm²	
Plate diameter of anchor			∅ 60 mm	∅ 90 mm
Failure loads [N]	Anchors not placed at the panel joints (Static Foam Block Test)	R_{panel}	Minimal: 510 Average: 520	Minimal: 720 Average: 730
	Anchors placed at the panel joints (Pull-through test)	R_{joint}	Minimal : 400 Average: 430	Minimal: 430 Average: 470

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 [d]	Conditions of installation *
ejotherm STR U, ejotherm STR U 2G (ETA-04/0023)	100 mm > d ≥ 80 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) – Maximum depth of die: 5 mm
	≥ 100 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) – Maximum depth of die: 20 mm
TERMOZ 8 SV (ETA-06/0180)	≥ 80 mm (for standard EPS only)	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover)
* according to the appropriate ETA of anchor		

3.4.6 Render strip tensile test (ETAG 004 – clause 5.5.4.1)

The average value of crack width of the base coat "Diessner Systemklebe- und Spachtelmasse" reinforced with the glass fibre mesh “Diessner Armierungsgewebe" measured at a render strain value of 0.5% is about 0.08 mm.

The average value of crack width of the base coat "Diessner Klebe- und Armierungsmörtel leicht KAM-l" reinforced with the glass fibre mesh “Diessner Armierungsgewebe" measured at a render strain value of 1% is about 0.11 mm.

3.5 Protection against noise (BWR 5)

For the protection against noise no performance was assessed for this product.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 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 6946:2007 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 (m² ·K)/W.

$R = R_D + R_{render}$

The thermal bridges caused by 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 [W/(m² ·K)]
	n:	number of anchors per m²
	χ_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:
	χ_p = 0.004 W/K	for anchors with a galvanized steel screw with the head covered by a plastic material
	χ_p = 0.002 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

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

According to the European Commission decision 97/556/EC amended by the European Commission decision 2001/596/EC, the assessment and verification of constancy of performance system (AVCP) applies suitable following table (see Annex V to Regulation (EU) No 305/2011).

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"Diessner WDV-System Polystyrol"	in external wall subject to fire regulations	A1 (1), A2 (1), B (1), C (1)	1
		A1 (2), A2 (2), B (2), C (2), D, E, (A1 to E) (3), F	2+
	in external wall not subject to fire regulations	any	2+

(1) 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)
(2) Products/materials not covered by footnote (1)
(3) 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)

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

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 8 February 2018 Deutsches Institut für Bautechnik

Wolfgang Misch
p. p. Head of Department

beglaubigt:
Hartstock

Annexes:

Annex 1: Thermal insulation product characteristic

Annex 2: Anchors

Annex 3: Reinforcement

Annex 1: Thermal insulation product characteristic

Factory-prefabricated, uncoated panels made of expanded polystyrene (EPS) to EN 13163:2015 shall be used, having the description and characteristics defined in the Table below.

Description and characteristics	For bonded ETICS	For mechanically fixed ETICS with anchors and supplementary adhesive
Reaction to fire; EN 13501-1:2007	Class E*	
Thermal resistance [(m²·K)/W]	Defined in the CE marking in reference to EN 13163:2015	
Tolerances		
Length; EN 822:2013	± 0.6 % or ± 3 mm whichever gives the greatest numerical tolerance (class L3)	
Width [mm]; EN 822:2013	± 2 (class W2)	
Thickness [mm]; EN 823:2013	± 1 (class T1)	
Squareness [mm/m]; EN 824:2013	± 2 (class S2)	
Flatness [mm/m]; EN 825:2013	5 (class P5)	
Dimensional stability under		
- laboratory conditions [%]; EN 1603:2013	± 0.2 (class DS(N)2)	
- specified temperature and humidity conditions [%]; EN 1604:2013	2 (level DS(70,-)2 or level DS(70,-)1)	
Water absorption (long term partial immersion) [kg/m²]; EN 12087:2013	$W_{lp} \leq 0.5$	
Water vapour diffusion resistance factor; EN 12086:2013	$\mu = 20 - 78$	
Tensile strength perpendicular to the faces in dry conditions** [kPa]; EN 1607:2013 - standard EPS	$\sigma_{mt} \geq 80$	$\sigma_{mt} \geq 100$
Bending strength** [kPa]; EN 12089:2013	$\sigma_b \geq 50$	
Apparent density [kg/m³]; EN 1602:2013	$\rho_a \leq 30$	
Shear strength** [kPa]; EN 12090:2013	$20 \leq f_{\tau k} \leq 170$	
Shear modulus [MPa]; EN 12090:2013 - standard EPS	$1.0 \leq G_m \leq 3.8$	
Testing of characteristics see EN 13163:2015.		

* See the conditions of clause 3.2 for the EPS.
** Minimal value of all single values

Annex 2: Anchors

All anchors with ETA according to EAD330196-00-0604[1] with characteristics having the description below shall be used in the mechanically fixed ETICS:

- plate diameter of anchor ≥ 60 mm resp. ≥ 90 mm
- plate stiffness ≥ 0.3 kN/mm
- load resistance of the anchor plate ≥ 1.0 kN

These characteristics and the characteristic tension resistance of the anchors shall be taken from the corresponding ETA.

Annex 3: Reinforcement (glass fibre mesh)

Characteristics (alkali resistance): Pass

	Description	**Residual strength after ageing [N/mm]**	**Relative residual strength after ageing, of the strength in the as-delivered state [%]**
"Diessner Armierungsgewebe"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about160 g/m² and mesh size of about 4.0 mm x 4.0 mm	≥ 20	≥ 50