

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-07/0236
of 8 December 2017

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

Meffert System B1 classic

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

Meffert AG
Farbwerke
Sandweg 15
55543 Bad Kreuznach
DEUTSCHLAND

Manufacturing plant

UAB Meffert Baltica
Marijampoles sav. - Trakiskiu km.
68115 MARIJAMPOLÉ
LITAUEN

This European Technical Assessment
contains

21 pages including 7 annexes which form an integral part
of this assessment

Annex 8 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.

European Technical Assessment

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Page 2 of 21 | 8 December 2017

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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 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 (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/m ²]	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
	- elastified EPS	–	≤ 200
	• Adhesives (minimum bonded surface 40 %)		
	– Meffert Klebe- und Spachtelmasse grau (cement based powder requiring addition of about 30 % of water)	4.5 to 7.0 (prepared)	–
	– Meffert Klebe- und Spachtelmasse AKS (cement based powder requiring addition of about 20 % of water)	6.0 to 7.5 (prepared)	–
	– Meffert Klebe- und Spachtelmasse weiß (cement based powder requiring addition of about 20 % of water)		
	– Meffert Klebe- und Spachtelmasse leicht (cement based powder requiring addition of about 20 % of water)	4.2 to 6.3 (prepared)	–
	– Meffert Spezialkleber (organic based ready to use paste)	2.0 to 3.0	–

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	Mechanically fixed ETICS with profiles and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product (see annex 1 for product characteristics) factory-prefabricated expanded polystyrene (EPS) <ul style="list-style-type: none"> – Standard-EPS • Supplementary adhesive (equal to bonded ETICS) • Profiles (see annex 3 for product characteristics) <ul style="list-style-type: none"> – Halteleiste PVC – Verbindungsleiste PVC Polyvinylchlorid (PVC) – Profiles • Anchors for profiles (see annex 2 for product characteristics) <ul style="list-style-type: none"> – WS 8 L – WS 8 N – ejothem SDK U – SDF-K plus – ejothem NK U 	–	60 to 200
	Mechanically fixed ETICS with anchors and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product (see annex 1 for product characteristics) factory-prefabricated expanded polystyrene (EPS) <ul style="list-style-type: none"> - standard EPS - elastified EPS • Supplementary adhesive (equal to bonded ETICS) • Anchors for insulation product (see annex 2 for product characteristics) all anchors with ETA according to EAD 330196-00-0604¹ with characteristics defined in annex 2 	– –	60 to 400 60 to 200
Base coat	Meffert Klebe- und Spachtelmasse AKS Meffert Klebe- und Spachtelmasse weiß Identical with the equally named adhesives given above	5.2 bis 7.8 (prepared)	4.0 to 6.0 (dry)

¹

EAD 330196-00-0604

Plastic anchors for fixing of external thermal insulation composite systems with rendering

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Glass fibre mesh	Meffert Glasgewebe fein Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm. (see annex 4 for product characteristics)	–	–
	Meffert Glasgewebe grob Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 200 g/m ² and mesh size of about 6.0 mm x 6.0 mm. (see annex 4 for product characteristics)	–	–
Key coat	Meffert Putzgrund Ready to use pigmented acrylic-resin dispersion liquid For the compatibility with the finishing coats see below.	0.15 to 0.20 l/m ²	–
finishing coat	<p>To use without key coat:</p> <ul style="list-style-type: none"> Thick layered cement based powder requiring addition of about 20 to 27 % of water: Meffert Mineralischer Edelkratzputz D (particle size 2.5 to 5.0 mm) <p>To use with key coat "Meffert Putzgrund" if applicable:*</p> <ul style="list-style-type: none"> Thin layered cement based powder requiring addition of about 27 to 33 % of water: Meffert Mineralischer Kratzputz/Kratzputz leicht (particle size 1.5 to 4.0 mm) Meffert Mineralischer Reibeputz (particle size 2.5 to 5.0 mm) Meffert Mineralischer Strukturputz (particle size 1.5 to 2.5 mm) Ready to use pastes – silicate/acrylic-resin binder: Meffert Silikat <ul style="list-style-type: none"> Reibeputz (particle size 2.0 and 3.0 mm) Kratzputz (particle size 1.5 to 3.0 mm) Ready to use pastes – acrylic-resin binder Meffert Siliconharz <ul style="list-style-type: none"> Reibeputz (particle size 2.0 and 3.0 mm) Kratzputz (particle size 1.5 to 3.0 mm) Meffert Kunstharz <ul style="list-style-type: none"> Reibeputz (particle size 2 and 3.0 mm) Kratzputz (particle size 1.5 to 3.0 mm) 	<p>14.0 to 20.0 (prepared)</p> <p>3.0 to 5.0 (prepared)</p> <p>3.0 to 4.5 (prepared)</p>	<p>7.0 to 10.0</p> <p>1.5 to 4.5</p> <p>Regulated by particle size</p>
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.

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 "Meffert System B1 classic" 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 or not 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 known 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 7.

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
Base coat	max. 3.7 %	no flame retardant	
EPS- insulation product	In quantity ensuring Euroclass E according to EN 13501-1	In quantity ensuring Euroclass E according to EN 13501-1	
Profile	-	-	
Anchors	-	-	
rendering system : Base coat with finishing coat and compatible key coat indicated hereafter:			
Meffert Mineralischer Edelkratzputz D	max. 0,6 %	no flame retardant	B – s1,do
Meffert Mineralischer - Kratzputz/Kratzputz leicht - Reibeputz - Strukturputz with Meffert Putzgrund			
Meffert Silikat Kratzputz/Reibeputz, with Meffert Putzgrund	max. 4.5 %		B – s2, d0

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Meffert Siliconharz Kratzputz/Reibeputz, with Meffert Putzgrund	max. 8.8 %	no flame retardant	B – s2, d0
Meffert Kunstharz Kratzputz/Reibeputz, with Meffert Putzgrund			

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/m ²	Water absorption after 24 h < 0.5 kg/m ²
Meffert Klebe- und Spachtelmasse AKS	x	x
Meffert Klebe- und Spachtelmasse weiß	x	x

Rendering system:

		Water absorption after 24 h	
		< 0.5 kg/m ²	≥ 0.5 kg/m ²
Rendering system: Base coats with finishing coat and compatible key coat indicated hereafter:	Meffert Mineralischer Edelkratzputz D	x	
	Meffert Mineralischer - Kratzputz/Kratzputz leicht - Reibeputz - Strukturputz with Meffert Putzgrund	x	
	Meffert Silikat Kratzputz/Reibeputz, with Meffert Putzgrund		x
	Meffert Siliconharz Kratzputz/Reibeputz, with Meffert Putzgrund	x	
	Meffert Kunstharz Kratzputz/Reibeputz, with Meffert Putzgrund		x

3.3.2 Hygrothermal behaviour (ETAG 004 – clause 5.1.3.2)

Hygrothermal cycles tests have not been performed for the ETICS.

Freeze/thaw behaviour

The ETICS with finishing coats "Meffert Silikat Kratzputz/Reibeputz" and "Meffert Kunstharz Kratzputz/Reibeputz" has been assessed as freeze/thaw resistant according to the simulated method.

3.3.3 Impact resistance (ETAG004 – clause 5.1.3.3)

The verified resistance to hard body impact of the ETICS in rendering combinations with "Meffert Glasgewebe grob" results in category II. The impact resistance of the ETICS in rendering combinations with "Meffert Glasgewebe fein" is not assessed.

3.3.4 Water vapour permeability (ETAG 004 – clause 5.1.3.4)

Rendering system: Base coats with finishing coat and compatible key coat indicated hereafter	Equivalent air thickness s_d
Meffert Mineralischer Edelkratzputz D	≤ 1.0 m (Test result obtained with a layer thickness 8 mm: 0.2 m)
Meffert Mineralischer - Kratzputz/Kratzputz leicht - Reibeputz - Strukturputz with Meffert Putzgrund	≤ 1.0 m (Test result obtained with Meffert Mineralischer Reibeputz with a layer thickness 3 mm: 0.1 m)
Meffert Silikat Kratzputz/Reibeputz, with Meffert Putzgrund	≤ 1.0 m (Test result obtained Meffert Silikat Reibeputz with a layer thickness 3 mm: 0.1 m)
Meffert Siliconharz Kratzputz/Reibeputz, with Meffert Putzgrund	≤ 1.0 m (Test result obtained with Meffert Siliconharz Reibeputz with a layer thickness 3 mm: 0.3 m)
Meffert Kunstharz Kratzputz/Reibeputz, with Meffert Putzgrund	≤ 1.0 m (Test result obtained with Meffert Kunstharz Reibeputz with a layer thickness 3 mm: 0.2 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 coats and insulation product (EPS) (ETAG 004 – clause 5.1.4.1.1)

Conditioning		
Initial state	After hygrothermal cycles	After freeze/thaw test
≥ 0.08 MPa	≥ 0.08 MPa	≥ 0.08 MPa

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

Adhesive	Substrate resp. insulation product	Conditioning		
		Initial state	2 d immersion in water and 2 h drying	2 d immersion in water and 7 d drying
Meffert Klebe- und Spachtelmasse grau	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
Meffert Klebe- und Spachtelmasse AKS	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa

Adhesive	Substrate resp. insulation product	Conditioning		
		Initial state	2 d immersion in water and 2 h drying	2 d immersion in water and 7 d drying
Meffert Klebe- und Spachtelmasse weiß	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
Meffert Klebe- und Spachtelmasse leicht	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
Meffert Spezialkleber	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 with all adhesives 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 coats with finishing coat and compatible key coat indicated hereafter	Meffert Mineralischer Edelkratzputz D	≥ 0.08 MPa
	Meffert Mineralischer - Kratzputz/Kratzputz leicht - Reibeputz - Strukturputz with Meffert Putzgrund	
	Meffert Silikat Kratzputz/Reibeputz, with Meffert Putzgrund	
	Meffert Siliconharz Kratzputz/Reibeputz, with Meffert Putzgrund	
	Meffert Kunstharz Kratzputz/Reibeputz, with Meffert Putzgrund	

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 profiles

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

3.4.5.2 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			Ø 60 mm	Ø 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

Apply to all anchors listed in the clause 1.2 mounted on the insulation panels surface				
Characteristics of the EPS (elastified EPS)	Thickness		≥ 60 mm	
	Tensile strength perpendicular to the faces		≥ 80 kPa	
	Shear modulus		≥ 0.3 N/mm²	
Plate diameter of anchor			Ø 60 mm	
Failure loads [N]	Anchors not placed at the panel joints (Static Foam Block Test)	R _{panel}	Minimal:	350
			Average:	360
	Anchors placed at the panel joints (Pull-through test)	R _{joint}	Minimal:	300
			Average:	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 [d]	Conditions of installation *
ejotherm STR U, ejotherm STR U 2G (ETA-04/0023)	100 mm > d \geq 80 mm (for standard and elastified EPS)	– Maximum installation depth of the anchor plate: 15 mm (\triangleq 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 (\triangleq 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 (\triangleq 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)

No performance assessed for the width of cracks.

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 $0.02 \text{ (m}^2 \cdot \text{K)/W}$.

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

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 [$\text{W}/(\text{m}^2 \cdot \text{K})$]

n : number of anchors per m^2

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:

$\chi_p = 0.004 \text{ W/K}$ 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.

4 Assessment and verification of constancy of performance 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
"Meffert System B1 classic"	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 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 December 2017 by Deutsches Institut für Bautechnik

Dirk Brandenburger
Head of Department

beglaubigt:
Windhorst

Annexes:

- Annex 1: Thermal insulation product characteristic
- Annex 2: Profiles
- Annex 3: Anchors
- Annex 4: Reinforcement
- Annex 5: Manufacturing plants
- Annex 6: Concordance list trade names foreign country
- Annex 6: Concordance list trade names Germany

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	with profiles 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 _{ip} ≤ 0.5		
Water vapour diffusion resistance factor; EN 12086:2013	μ = 20 – 78		
Tensile strength perpendicular to the faces in dry conditions** [kPa]; EN 1607:2013			
- standard EPS	σ _{mt} ≥ 80	σ _{mt} ≥ 100	σ _{mt} ≥ 150
- elastified EPS***	σ _{mt} ≥ 80	σ _{mt} ≥ 80	not used
Bending strength** [kPa]; EN 12089:2013	σ _b ≥ 50		
Apparent density [kg/m³]; EN 1602: 2013	ρ _a ≤ 30		
Shear strength** [kPa]; EN 12090: 2013	20 ≤ f _{tk} ≤ 170		
Shear modulus [MPa]; EN 12090: 2013			
- standard EPS	1.0 ≤ G _m ≤ 3.8		
- elastified EPS***	0.3 ≤ G _m ≤ 1.0	0.3 ≤ G _m ≤ 1.0	not used
Testing of characteristics see EN 13163:2015.			
* See the conditions of clause 3.2 for the EPS.			
** Minimal value of all single values			
*** Elastified EPS is made from standard EPS by short time high load pressing to reduce the dynamic stiffness. The protection against noise of the entire wall is improved by the use of elastified EPS related to an ETICS with standard EPS.			
**** Thermal insulation materials for mechanically fixed ETICS with profiles must circumferentially at the edges, 24 mm from the inner surface, get an approx. 3 mm wide and 13 to 18 mm deep groove cut-in at the factory.			

Annex 2: Anchors

All anchors with ETA according to EAD 330196-00-0604¹ 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.

The anchors listed in the Table in clause 1.2 with reference to the respective ETA shall be used in the mechanically fixed ETICS with profiles for fixing the horizontal profiles.

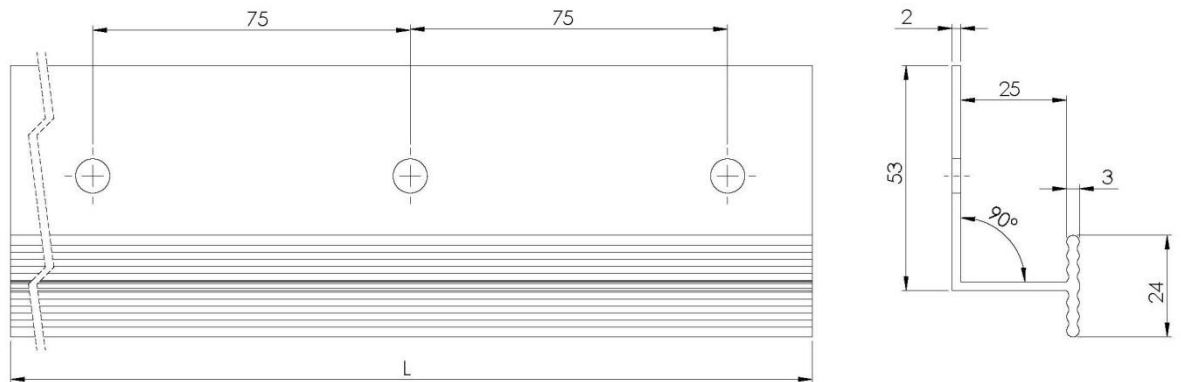
Trade name	ETA-number
WS 8 L	ETA-02/0019
WS 8 N	ETA-03/0019
ejotherm SDK U	ETA-04/0023
SDF-K plus	ETA-04/0064
ejotherm NK U	ETA-05/0009

Annex 3: Profiles

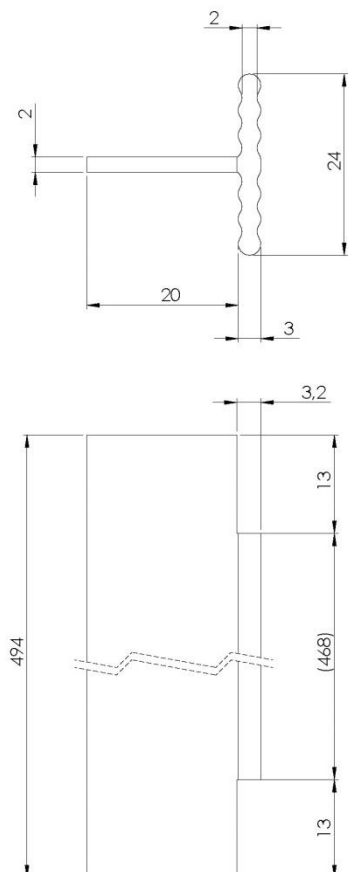
Polyvinyl chloride (PVC) profiles, PVC-U, EGL, 082-05-T33 to EN ISO 1163-1:1999 are to be used in the mechanically fixed ETICS with profiles.

The Pull-through resistance of fixings from profiles is ≥ 500 N.

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



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



Annex 4: Reinforcement (glass fibre mesh)

Characteristics (alkali resistance): Pass

	Description	Absolute strength after ageing [N/mm]	Relative residual strength after ageing, of the strength in the as-delivered state [%]
"Meffert Glasgewebe fein"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm	≥ 20	≥ 50
"Meffert Glasgewebe grob"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 200 g/m ² and mesh size of about 6.0 mm x 6.0 mm	≥ 20	≥ 50

Annex 5: Manufacturing plants

Manufacturing plant Hungary:

Meffert Hungária Kft
Rákoczi u. 6
2651 Rétság
Hungary

Manufacturing plant Germany:

Meffert AG Farbwerke
Werk Erfurt
Heckerstieg 4
99085 Erfurt

Concordance list trade names foreign country

Components	Trade name D	Trade name PL	Trade name CR	Trade name LT
Adhesive	Meffert Klebe und Spachtelmasse grau	PROFITHERM Baukleber	Profitec Klebe- und Spachtelmasse grau / Düfa Klebemörtel 1000 (Stavebni lepidlo OK 1000)	Düfa Baukleber
	Meffert Klebe und Spachtelmasse leicht	PROFITHERM Baukleber leicht	Profitec Klebe und Spachtelmasse leicht	Düfa Klebe und Spachtelmasse leicht
	Meffert Spezialkleber	PROFITHERM Spezialkleber	Profitec Spezialkleber	Düfa Spezialkleber
	Meffert Klebe und Spachtelmasse AKS	PROFITHERM Universalkleber II / II S	Profitec Universal Allroundmörtel 4 in 1 / Düfa Klebe- und Spachtelmasse A/B (Lepici sterkova hmota A / B)	Düfa Universalkleber
Adhesive/ Base Coat	Meffert Klebe und Spachtelmasse weiß	PROFITHERM Baukleber weiß	Profitec Klebe- und Spachtelmasse weiss	Düfa Universalkleber weiss (nicht im Programm, Name neu vergeben)
	Meffert Glasgewebe fein	PROFITHERM Glasgewebe	Düfa Skotextilni sitovina R131	Düfa Glasgewebe
Key coat	Meffert Putzgrund	PROFITHERM Profitec Unigrund	Profitec Putzgrund / Unigrund / Düfa OMÍTKOVÁ PENETRACE KOMFORT KOM4	Düfa Quarzgrund
Mineral finishing coat	Meffert Mineralischer	PROFITHERM Profitec Mineralischer	Profitec Mineralischer	DÜFA THERM Mineralischer
	Edelkratzputz	Edelkratzputz	Edelkratzputz	Edelkratzputz
	Kratzputz/Kratzputz leicht	Kratzputz/Kratzputz leicht	Kratzputz / Kratzputz leicht / SANNAVER DUO	Kratzputz/Kratzputz leicht
	Reibputz	Reibputz	Reibputz / SANNAVER DUO	Reibputz
Organic finishing coat	Strukturputz	Strukturputz	-----	Strukturputz
	Meffert Silikat	PROFITHERM Profitec Silikat	Silikat	DÜFA THERM Silikat
	Reibputz	Fassadenputz R	Profitec Fassadenputz R / Düfa Komfortputz SIR	Silikat Reibputz
	Kratzputz	Fassadenputz K	Profitec Fassadenputz K / Düfa Komfortputz SIK	Silikat Kratzputz
	Meffert Silikonharz	PROFITHERM Profitec Silikon/Siloxan	Silikon/Siloxan	DÜFA THERM Silikon/Siloxan
	Reibputz	Fassadenputz R	Profitec Fassadenputz R / Düfa Komfortputz SR	Reibputz
	Kratzputz	Fassadenputz K	Profitec Fassadenputz K / Düfa Komfortputz SK	Kratzputz
	Meffert Kunstharz	PROFITHERM Kunstharz	Kunstharz	DÜFA THERM Kunstharz
	Reibputz	Profitec Fassadenputz R / Düfa Reibputz / Reibputz PT-D11	Profitec Fassadenputz R / Düfa Fassaden-Komfortputz R	Reibputz
	Kratzputz	Profitec Fassadenputz K / Düfa Fassadenputz / Fassadenputz PD-11d / Fassadenputz-Investputz	Profitec Fassadenputz K / Düfa Fassaden-Komfortputz K	Kratzputz

Annex 7: Concordance list trade names Germany

Component	Trade name D	Trade name D – Profitec Therm	Trade name D - DinoTherm	Trade name D - TextTherm
Adhesive	Meffert Klebe und Spachtelmasse grau	P 1000 Klebe- und Spachtelmasse grau	Klebe- und Spachtelmasse grau	AK-Grau
	Meffert Klebe und Spachtelmasse leicht	P 1010 Klebe- und Spachtelmasse leicht	Klebe- und Spachtelmasse leicht	AK-Leicht
	Meffert Spezialkleber	P 1040 Spezialkleber	Spezialkleber	Dispersionskleber
	Meffert Klebe und Spachtelmasse AKS	P 1020 Universal Allroundmörtel 4in1	Klebe- und Spachtelmasse AKS	AKS-Faser
Adhesive / Base coat	Meffert Klebe und Spachtelmasse weiß	P 1005 Klebe- und Spachtelmasse weiß	Klebe- und Spachtelmasse weiß	AK-Weiß
	Meffert Glasgewebe fein	P 1500 Armierungsgewebe fein	Glasgewebe fein	Armierungsgewebe fein
Glas fibre mesh				
Key coat	Meffert Putzgrund	P 823 Putzgrund	Putzgrund grob	Quarzgrund LF
	Meffert Mineralischer			
Mineral finishing coat	Edelkratzputz	P 1750 Edelkratzputz	Edelkratzputz	Edelkratzputz
	Kratzputz/Kratzputz leicht	P 1702 Kratzputz / P 1722 Leichtputz	Mineralica / Mineralica Bella	Mineralputz K / Mineralputz K leicht
	Reibputz	P 1712 Rillenputz	Rillo	Mineralputz R
	Strukturputz	P 1740 Filz- und Faschenputz	Struktura	Filz- und Faschenputz
	Meffert Silikat			
	Reibputz	P 471 Silikat Fassadenputz R	DinoSil Reibputz außen	Silikat Fassadenputz R
Organic finishing coat	Kratzputz	P 476 Silikat Fassadenputz K	DinoSil Kratzputz außen	Silikat Fassadenputz K
	Meffert Siliconharz			
	Reibputz	P 721 Fassadenputz R	Reibputz außen	Fassadenputz R
	Kratzputz	P 726 Fassadenputz K	Kratzputz außen	Fassadenputz K
	Meffert Kunstharz			
	Reibputz	P 431 Silikon Fassadenputz R	Silicon Reibputz	Silicon Fassadenputz R
	Kratzputz	P 436 Silikon Fassadenputz K	Silicon Kratzputz	Silicon Fassadenputz K