Deutsches Institut für Bautechnik

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Bautechnisches Prüfamt

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European Technical Assessment ETA-04/0005 of 9 January 2019

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	maxit Dämmsystem PS/ - PS Silence maxit Dämmsystem PS Speedy/ - PS Silence Speedy
Product family to which the construction product belongs	Product area code: 4 External Thermal Insulation Composite System with rendering on expanded polystyrene for use on building walls
Manufacturer	Franken Maxit Mauermörtel GmbH & Co. Azendorf 63 95359 Kasendorf DEUTSCHLAND
Manufacturing plant	Franken Maxit Mauermörtel GmbH & Co. Azendorf 63 95359 Kasendorf DEUTSCHLAND
This European Technical Assessment contains	19 pages including 4 annexes which form an integral part of this assessment Annex 5 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, edition2000, amended 2013, used as EAD according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.

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Specific Part

1 Technical description of the product

1.1 Definition of the kit

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 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 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 only difference between the ETICS is the structure of the surface of the expanded polystyrene panels used. The surface of the insulation panels used in the ETICS "maxit Dämmsystem PS Speedy/ - PS Silence Speedy" facing the substrate shows a saw-tooth-similar structure (see Annex 1).

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	–	≤ 300
	- elastified EPS	–	≤ 300
	• **Adhesives** (minimum bonded surface 40 %) (cement based powders with additional redispersible synthetic-resin powder and lightweight aggregate requiring addition of water in the ratio of weight approx. 1 : 3 (water : powder))		
	– **maxit multi Baukleber**	4.0 to 6.0 (prepared)	–
	– **maxit multi 280**		–
	– **maxit multi Kleber und Armierungsmörtel FM**		–
	– **maxit multi 285**		–
	– **maxit multi 290**		–
	– **maxit multi Kleber und Armierungsmörtel E**		–
	– **maxit multi 292**		–
	– **maxit multi Kleber und Armierungsmörtel PS**		–
	– **maxit multi 290 E**		–

	Components National application documents shall be taken into account	**Coverage [kg/m²]**	**Thickness [mm]**
Insulation material with associated method of fixing	**Mechanically fixed ETICS with anchors and supplementary adhesive:** • **Insulation product** (see annex 1 for product characteristics) factory-prefabricated expanded polystyrene (EPS) - 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 EAD330196-01-0604[1]	 – – 	 60 to 300 60 to 300
Base coat	**maxit multi Kleber und Armierungsmörtel FM** **maxit multi 285** **maxit multi 290** **maxit multi Kleber und Armierungsmörtel E** **maxit multi 292** **maxit multi Kleber und Armierungsmörtel PS** **maxit multi 290 E** Identical with the equally named adhesives given above.	about 8.0 (prepared)	Mean (dry): 6.0
Glass fibre mesh	**maxit Armierungsgewebe PS** Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 165 g/m² and mesh size of about 4.0 mm x 4.0 mm. (see annex 4 for product characteristics)	–	–
Key coat	Ready to use pigmented acrylic-resin dispersion liquids: **maxit Aufbrennsperre** **maxit prim 1050** **maxit Aufbrennsperre weiß** **maxit prim 1065** **maxit Edelputz Haftgrund** **maxit prim 1060** For the compatibility with the finishing coats see below.	 0.12 to 0.13 l/m²	 – – – – – –
Finishing coat	**To use with key coat "maxit Edelputz Haftgrund" if applicable or "maxit prim 1060":**[**] **Application without key coat:** • Ready to use paste - acrylic binder: **maxit spectra Kunstharzputz K / R**[*] (particle size 1.5 – 2.0 and 3.0 mm) **maxit spectra A** (particle size 1.5 – 2.0 and 3.0 mm)	 2.0 to 4.0 2.0 to 4.0	 regulated by particle size

[1] EAD330196-01-0604 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]**
Finishing coat	**To use with key coat "maxit Aufbrennsperre", "maxit prim1050", "maxit Aufbrennsperre weiß" oder "maxit prim 1065" if applicable **:**		
	• Gebrauchsfertige Paste – Bindemittel Silikonharzemulsion:		
	maxit silco Siliconharzputz K/R* (particle size 1.5 – 2.0 and 3.0 mm)	2.0 to 4.0	
	maxit silco A (particle size 1.5 – 2.0 and 3.0 mm)	2.0 to 4.0	
	• Ready to use paste - silicate binder:		
	maxit sil Silikatputz K/R* (particle size 1.5 – 2.0 and 3.0 mm)	2.0 to 4.0	
	maxit sil A (particle size 1.5 – 2.0 and 3.0 mm)	2.0 to 4.0	
	• Thin layered cement based powder requiring addition of about 27 % of water:		
	maxit ip color K/R* (particle size 1.0 – 2.0 – 3.0 and 4.0 mm)	2.0 to 6.0 (prepared)	regulated by particle size
	maxit ip color 42 R* (Korngröße 1,0 – 2,0 – 3,0 und 4,0 mm)	2.0 to 6.0 (prepared)	
	maxit ip color 44 K* (Korngröße 1,0 – 2,0 – 3,0 und 4,0 mm)	2.0 to 6.0 (prepared)	
	maxit ip color plus K/R* (particle size 2.0 – 3.0 and 4.0 mm)	3.0 to 6.0 (prepared)	
	maxit ip color plus K* (particle size 2.0 – 3.0 and 4.0 mm)	3.0 to 6.0 (prepared)	
	maxit ip color plus R* (particle size 2.0 – 3.0 and 4.0 mm)	3.0 to 6.0 (prepared)	
	maxit ip Leichtoberputz K/R* (particle size 1.5 – 2.0 – 3.0 and 4.0 mm)	2.0 to 5.0 (prepared)	
	• Thick layered cement based powder requiring addition of about 20 % of water:		
	maxit ip Edelkratzputz FM	10.0 to 24.0 (prepared)	5.0 to 12.0
	maxit tip 52	10.0 to 24.0 (prepared)	5.0 to 12.0
Ancillary material	Remains the responsibility of the manufacturer.		

* K / P indicates different structures of the finishing coats.
** 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 maxit Dämmsystem PS/- PS Silence" and "maxit Dämmsystem PS Speedy/- PS Silence Speedy " 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 4.

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. 2.6 %	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	
profiles	-	-	
anchors	-	-	
rendering system: Base coat with finishing coat indicated in clause 1.2:			
maxit spectra Kunstharzputz K/R maxit spectra A	max. 6.8 %	no flame retardant	B – s2,do
maxit silco Siliconharzputz K/R maxit silco A			

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1: 2007
maxit ip color K/R, maxit color 42 R, maxit color 44 K, maxit ip color plus K/R, maxit ip color plus K, maxit ip color plus R, maxit ip Leichtoberputz K/R, maxit ip Edelkratzputz FM maxit ip 52	max. 1.9 %	no flame retardant	B – s2,do
maxit sil Silikatputz K/R maxit sil A particles size 1.5 mm	max. 4.9 %		B – s1,do
maxit sil Silikatputz K/R maxit sil A particles size 2.0 and 3.0 mm			no performance assessed

3.3 Hygiene, health and environment (BWR 3)

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

All base coats	Water absorption after 1 h < 1.0 kg/m²	Water absorption after 24 h < 0.5 kg/m²
maxit multi Kleber und Armierungsmörtel FM	x	x
maxit multi 285	x	x
maxit multi 290	x	x
maxit multi Kleber und Armierungsmörtel E	x	x
maxit multi 292	x	x
maxit multi Kleber und Armierungsmörtel PS	x	x
maxit multi 290 E	x	x

Rendering system:

		Water absorption after 24 h	
		< 0.5 kg/m²	≥ 0.5 kg/m²
Rendering system: Base coat with finishing coat indicated in clause 1.2:	maxit spectra Kunstharzputz K/R	x	
	maxit spectra A	x	
	maxit silco Siliconharzputz K/R	x	
	maxit silco A	x	
	maxit sil Silikatputz K/R	x	
	maxit sil A	x	
	maxit ip color K/R	x	
	maxit ip color 42 R	x	
	maxit ip color 44 K	x	
	maxit ip color plus K/R	x	
	maxit ip color plus K		
	maxit ip color plus R		

		Water absorption after 24 h	
		< 0.5 kg/m²	≥ 0.5 kg/m²
Rendering system: Base coat with finishing coat indicated in clause 1.2:	maxit ip Leichtoberputz K/R	x	
	maxit ip Edelkratzputz FM	x	
	maxit ip 52	x	

3.3.2 Hygrothermal behaviour (ETAG 004 – clause 5.1.3.2)

Pass (without defects).

3.3.3 Impact resistance (ETAG 004 – clause 5.1.3.3)

The verified resistance to hard body impact results in the classification into categories listed below:

base coat / **finishing coat**	maxit multi Kleber und Armierungsmörtel FM, maxit multi 285, maxit multi 290	maxit multi Kleber und Armierungsmörtel E, maxit multi 292, maxit multi Kleber und Armierungsmörtel PS, maxit multi 290 E
maxit spectra Kunstharzputz K/R	Category I	
maxit spectra A	Category I	
maxit silco Siliconharzputz K/R	Category I	
maxit silco A	Category I	
maxit sil Silikatputz K/R	Category I	
maxit sil A	Category I	
maxit ip color K/R	Category II	Category III
maxit ip color 42 R	Category II	Category III
maxit ip color 44 K	Category II	Category III
maxit ip color plus K/R	Category II	Category III
maxit ip color plus K	Category II	Category III
maxit ip color plus R	Category II	Category III
Leichtoberputz K/R	Category II	Category III
maxit ip Edelkratzputz FM	Category II	
maxit ip 52	Category II	

3.3.4 Water vapour permeability (ETAG 004 – clause 5.1.3.4)

Rendering system: All base coats with finishing indicated in clause 1.2 (evaluated without key coat)	**Equivalent air thickness s_d**
maxit spectra Kunstharzputz K/R	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.2 m)
maxit spectra A	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.2 m)
maxit silco Siliconharzputz K/R	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.2 m)
maxit silco A	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.2 m)
maxit sil Silikatputz K/R	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.1 m)
maxit sil A	≤ 1.0 m (Test result obtained with a layer thickness 3 mm : 0.1 m)
maxit ip color K/R	≤ 1.0 m (Test result obtained with a layer thickness 5 mm : 0.1 m)
maxit ip color 42 R	≤ 1.0 m (Test result obtained with a layer thickness 5 mm : 0.1 m)
maxit ip color 44 K	≤ 1.0 m (Test result obtained with a layer thickness 5 mm : 0.1 m)
maxit ip color plus K/R	≤ 1.0 m (Test result obtained with a layer thickness 5 mm : 0.1 m)
maxit ip color plus K	≤ 1,0 m (Ergebnis ermittelt mit einer Schichtdicke von 5 mm : 0,1 m)
maxit ip color plus R	≤ 1,0 m (Ergebnis ermittelt mit einer Schichtdicke von 5 mm 0,1 m)
maxit ip Leichtoberputz K / R	≤ 1,0 m (Ergebnis ermittelt mit einer Schichtdicke von 5 mm : 0,1 m)
maxit ip Edelkratzputz FM	≤ 1.0 m (Test result obtained with a layer thickness 12 mm : 0.2 m)
maxit ip 52	≤ 1.0 m (Test result obtained with a layer thickness 12 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 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**
maxit multi Kleber und Armierungsmörtel FM	≥ 0.08 MPa	≥ 0.08 MPa	Test not required because freeze/thaw cycles not necessary
maxit multi 285	≥ 0.08 MPa	≥ 0.08 MPa	
maxit multi 290	≥ 0.08 MPa	≥ 0.08 MPa	
maxit multi Kleber und Armierungsmörtel E	≥ 0.08 MPa	≥ 0.08 MPa	
maxit multi 292	≥ 0.08 MPa	≥ 0.08 MPa	
maxit multi Kleber und Armierungsmörtel PS	≥ 0,08 MPa	≥ 0,08 MPa	
maxit multi 290 E	≥ 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**
maxit multi Baukleber	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi 280	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi Kleber und Armierungs-mörtel FM	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi 285	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi 290	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi Kleber und Armierungs-mörtel E	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi 292	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa

		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**
maxit multi Kleber und Armierungs-mörtel PS	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
maxit multi 290 E	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)

For the rendering system (base coat with each finishing coat indicated in clause 1.2) was proofed its bond strength after ageing by experience on site.

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

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			∅ 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 ≥ 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 reinforced base coats measured at a render strain value of 1 % is:

Base coat	Average value of crack width $w_{m(1\%)}$
maxit multi Kleber und Armierungsmörtel FM	0.08 mm
maxit multi 285	0.08 mm
maxit multi 290	0.08 mm
maxit multi Kleber und Armierungsmörtel E	0.10 mm
maxit multi 292	0.10 mm
maxit multi Kleber und Armierungsmörtel PS	0.10 mm
maxit multi 290 E	0.10 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
"maxit Dämmsystem PS/- PS Silence" and "maxit Dämmsystem PS Speedy/- PS Silence Speedy	ETICS 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+
	ETICS 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 9 January 2019 by Deutsches Institut für Bautechnik

Dirk Brandenburger
Head of Department

beglaubigt:
Windhorst

Annexes:

Annex 1: Thermal insulation product characteristic

Annex 2: Anchors

Annex 3: Surface structure of insulation panels used in ETICS

Annex 4: 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	$\sigma_{mt} \geq 80$	$\sigma_{mt} \geq 100$
- elastified EPS***	$\sigma_{mt} \geq 80$	$\sigma_{mt} \geq 80$
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	$1.0 \leq G_m \leq 3.8$	
- elastified EPS***	$0.3 \leq G_m \leq 1.0$	$0.3 \leq G_m \leq 1.0$
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.

Annex 2: Anchors

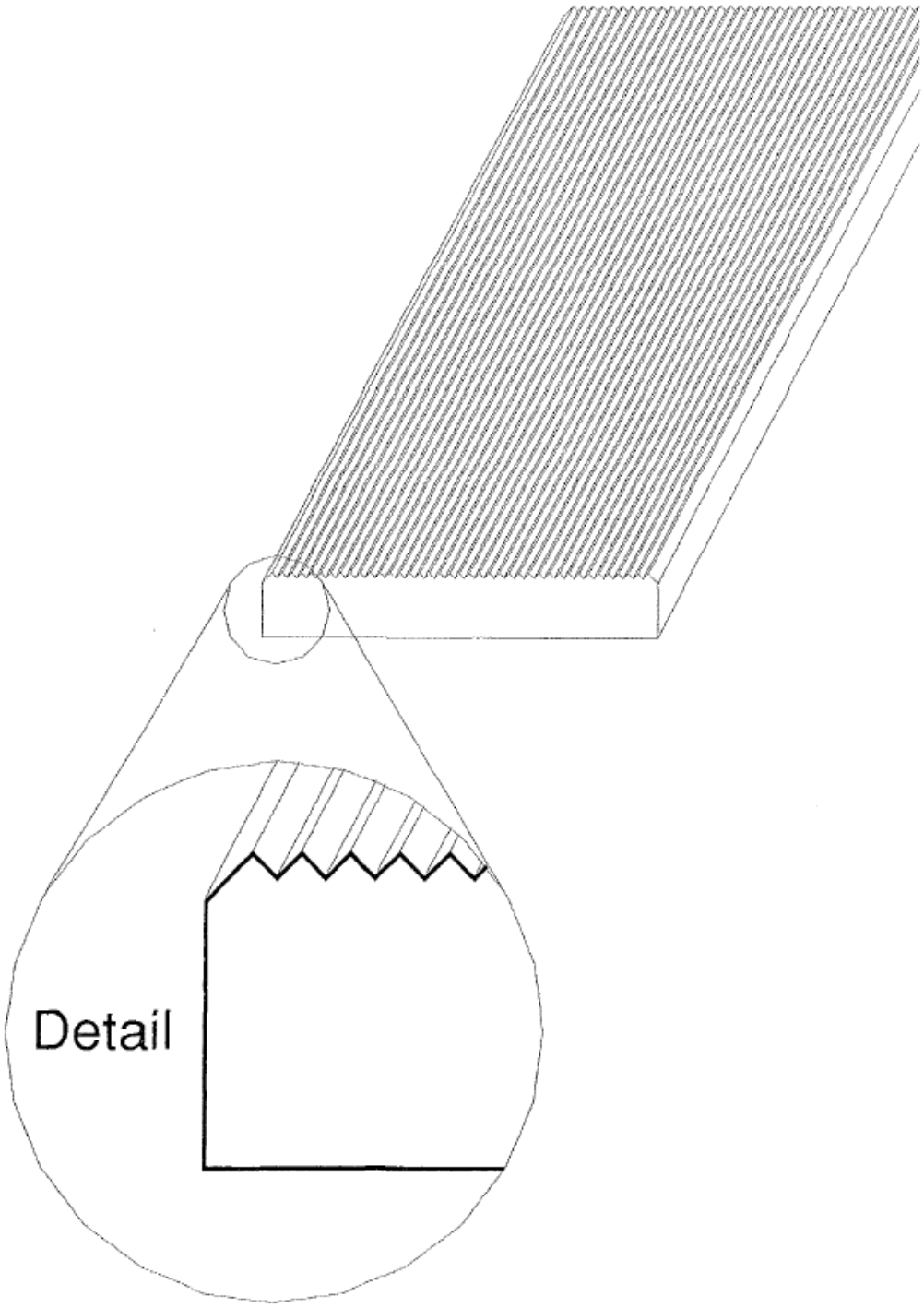
All anchors with ETA according to EAD330196-01-0604[1] with characteristics having the description below shall be used in the mechanically fixed ETICS:

- 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: Surface structure of insulation panels used in ETICS

Surface structure of insulation panels used in ETICS
"maxit Dämmsystem PS Speedy/ - PS Silence Speedy"



Annex 4: 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 [%]**
"maxit Armierungsgewebe PS"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 165 g/m² and mesh size of about 4 mm x 4 mm	≥ 20	≥ 50