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## European Technical Assessment

**ETA 15/0232 – version 02  
of 09/02/2017**

### General Part

**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:** **Technický a skúšobný ústav stavebný, n. o.**

**Trade name of the construction product**

Baumit StarSystem Resolution

**Product family to which the construction product belongs**

Product area code: 4  
External Thermal Insulation Composite Systems with rendering on phenolic foam (PF) for the use as external insulation to walls of buildings

**Manufacturer**

Baumit Beteiligungen GmbH  
Wopfing 156  
A-2754 Waldegg  
Austria  
<http://www.baumit.at>

**Manufacturing plant**

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**This European Technical Assessment contains**

36 pages including 4 annexes which form an integral part of this assessment.

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

ETAG 004, edition June 2013, used as European Assessment Document (EAD).

**This version replaces**

ETA 15/0232 – version 01, issued on 21/03/2016

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## **Specific part**

### **1 Technical description of the product**

#### **1.1 General**

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. 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 phenolic foam board according to EN 13166 with 3 mm layer from Austrotherm EPS F-PLUS (grey EPS) bonded from both sides to be bonded or 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 or more layers (site applied), one of which 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 ...) to treat details of ETICS (connections, apertures, corners, parapets, sills ...). 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 part of the kit.

## 1.2 Composition of the ETICS

**Table 1 – Composition of the ETICS**

	<b>Components</b> (see Annex 1 for further description, characteristics and performances of the components)	<b>Coverage</b> kg/m <sup>2</sup>	<b>Thickness</b> mm
	<p>Mechanically fixed ETICS with anchors and supplementary adhesive (see Clause 2.2.8.3) for possible associations PF/anchors). According to ETA-holder's prescription the minimal bonded surface shall be at least 20 % (in case of using Baunit StarTrack see the minimal bonded surface shall be at least 40 %). National application documents shall be taken into account.</p> <ul style="list-style-type: none"> <li>• <b>Insulation products</b> Phenolic foam board acc. EN 13 166 with 3 mm layer from Austrotherm EPS F-PLUS bonded from both sides Baunit Resolution/Baunit ResolutionTherm/Austrotherm Resolution Fassadendämmplatte</li> <li>• <b>Supplementary adhesives (type of cement – see page 10)</b> <ul style="list-style-type: none"> <li>- <b>Baunit StarContact white/Baunit StarContact KBM/ Baunit KlebeSpachtel KBM</b> Preparation: mixing of 6 l water/25 kg powder Composition: mineral powder, white cement of types 1,2,3 base with silica sand and lime stone, dispersion powder, additives</li> <li>- <b>Baunit StarContact/Baunit KlebeSpachtel</b> Preparation: mixing of 6 l to 7 l water/25 kg powder Composition: mineral powder, grey cement of types 4,5,6,7 base with silica sand and lime stone, dispersion powder, additives</li> <li>- <b>Baunit NivoFix/Baunit PaneloFix/Baunit WDVS-Kleber</b> Preparation: mixing of 7 l to 8 l water/25 kg powder Composition: mineral powder, grey cement of types 4,5,6,7 base with silica sand and lime stone, dispersion powder, additives</li> <li><b>Baunit SupraFix/Baunit SupraKleber</b> Preparation: mixing of 4,5 l to 5,5 l water/25 kg powder Composition: mineral powder, grey cement of type 4 base with silica sand and lime stone, dispersion powder, additives</li> </ul> </li> <li>• <b>Anchors</b> See Annex 2 for list of anchors including special anchor Baunit StarTrack/Baunit KlebeAnker and their product characteristics.</li> </ul>	<p>2,5 to 5,0 (powder)</p> <p>2,5 to 5,50 (powder)</p> <p>2,5 to 5,0 (powder)</p> <p>2,5 to 5,0 (powder)</p>	<p>50 to 300</p> <p>/</p>
Base coats used onto insulation product	<ul style="list-style-type: none"> <li>• <b>Baunit StarContact/Baunit KlebeSpachtel</b> Preparation: mixing of 6 l to 7 l water/25 kg powder Composition: mineral powder, grey cement of types 4,5,6,7 base with silica sand and lime stone, dispersion powder, additives Applicability: always with key coat</li> </ul>	<p>7 to 8 (powder)</p>	<p>5,0 to 6,0</p>

	<ul style="list-style-type: none"> <li>• <b>Baumit StarContact white/Baumit StarContact KBM/ Baumit KlebeSpachtel KBM</b> Preparation: mixing of 6 l water/25 kg powder Composition: mineral powder, white cement of types 1,2,3 base with silica sand and lime stone, dispersion powder, additives Applicability: optional with or without key coat</li> </ul>	7 to 8 (powder)	5,0 to 6,0
Glass fibre meshes	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: (glass fibres mesh with mesh size approx. 4 mm and 4 mm, mass per unit area: min. 145 g/m<sup>2</sup>): <b>Baumit StarTex /Baumit Textilglasgitter/Baumit ProTex</b></li> </ul>	/	/
	<ul style="list-style-type: none"> <li>• Standard glass fibre mesh: (glass fibres mesh with mesh size approx. 3,5 mm and 3,8 mm, mass per unit area: min. 160 g/m<sup>2</sup>): <b>Baumit StarTex (160)</b></li> </ul>	/	/
Key coats	<ul style="list-style-type: none"> <li>• Baumit UniPrimer/Baumit UniversalGrund/Baumit StarPrimer ready to use pigmented liquid</li> </ul>	0,20 to 0,25	
	<ul style="list-style-type: none"> <li>• Baumit PremiumPrimer/Baumit Premium Primer DG27/ Baumit DecorGrundierung DG 27 ready to use pigmented liquid</li> </ul>	0,25	
Finishing coats	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicate binder Baumit SilikatTop/Baumit SilikatPutz (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,2	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicate binder Baumit NanoporTop/Baumit NanoporPutz (particles size 1,5/2,0/3,0 mm), floated structure</li> </ul>	2,5 to 4,2	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicone binder Baumit SilikonTop/Baumit SilikonPutz (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,2	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – silicone binder Baumit SiliporTop/Baumit SiliporPutz (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,2	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – acrylic binder Baumit GranoporTop/Baumit GranoporPutz (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,1	
	<ul style="list-style-type: none"> <li>• Ready to use pastes – acrylic binder Baumit StyleTop/Baumit ArtlineTop/Baumit ArtlinePutz (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,1	
	<ul style="list-style-type: none"> <li>• Powder product mixed with water – acrylic binder Baumit Fascina Special/Baumit Edelputz Spezial (particles size 1,0/2,0/3,0/4,0 mm), floated structure Preparation: mixing of 6,0 l to 7,5 l water/25 kg powder Composition: mineral powder, grey cement of type 7 base with silica sand, dispersion powder, additives</li> </ul>	2,2 to 5,5	

	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and acrylic binder Baumit CreativTop (particles size 1,0 (Fine)/1,5 (Vario)/3,0 (Trend)/4,0 mm (Max)), modelling and floated structure</li> </ul>	2,9 to 6,2	
	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and silicate binder Baumit StellaporTop (particles size 1,5/2,0/3,0 mm), floated structure (particles size 2,0/3,0 mm), ribbed structure</li> </ul>	2,5 to 4,2	
	<ul style="list-style-type: none"> <li>Ready to use pastes – acrylic binder Baumit MosaikTop (particles size 2,0 mm), floated structure</li> </ul>	5,5	
	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and acrylic binder Baumit FineTop/Baumit SilikonFine/Baumit UniTopFine (particles size 1,0 mm), floated structure</li> </ul>	2,0	
	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and acrylic binder Baumit NanoporFine/Baumit NanoporTop Fine (particles size 1,0 mm), floated structure</li> </ul>	2,0	
	<ul style="list-style-type: none"> <li>Ready to use pastes – acrylic binder Baumit GranoporFine (particles size 1,0 mm), floated structure</li> </ul>	2,0	
Decorative coats/ plasters*	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and acrylic binder Baumit CreativTop Silk/Baumit Creativ Top S-Fine (particles size 0,2 mm), floated structure</li> </ul>	1,8 to 4,0	0,5 to 2,0
	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone and acrylic binder Baumit CreativTop Pearl (particles size 0,5 mm), floated structure</li> </ul>	1,4	0,5 to 1,0
	<ul style="list-style-type: none"> <li>Ready to use pastes – silicone binder Baumit FillTop/Baumit UniTop Fill (particles size 0,5 mm), floated structure</li> </ul>	1,4	0,5 to 1,0
	* To be used optionally with all types of finishing coats mentioned above.		
Decorative coats/paints**	<ul style="list-style-type: none"> <li>Ready to use paint – silicate binder Baumit NanoporColor/Baumit NanoporFarbe</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – silicone binder Baumit StarColor</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – silicone binder Baumit SilikonColor/Baumit Silikon Farbe</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – silicate binder Baumit SilikatColor/Baumit SilikatFarbe</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – acrylic binder Baumit StyleColor/Baumit ArtlineFarbe</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – acrylic binder Baumit PuraColor (old name Baumit ProColor)</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – acrylic binder Baumit GranoporColor/Baumit GranoporFarbe</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – acrylic binder Baumit Metallic</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>Ready to use paint – silicate binder Baumit Lasur</li> </ul>	0,5	

	<ul style="list-style-type: none"> <li>• Ready to use paint – silicate binder Baumit Finish</li> </ul>	0,5	
	<ul style="list-style-type: none"> <li>• Ready to use paint – silicate binder Baumit Glitter</li> </ul>	0,5	
	** To be used optionally alone with all types of finishing coats mentioned above or with decorative plasters applying on finishing coats.		
Ancillary materials	Descriptions in accordance with 3.2.2.5 of the ETAG 004. Remain under the ETA-holder responsibilities.		

Cement types:

Cement Type 1	CEM I 52,5N white
Cement Type 2	CEM I 52,5R white
Cement Type 3	CEM I 42,5R white
Cement Type 4	CEM II/A-S 42,5R grey
Cement Type 5	CEM I 42,5R grey
Cement Type 6	CEM II/A-LL 42,5R grey
Cement Type 7	CEM I 52,5N grey

## **2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)**

### **2.1 Intended use**

This ETICS is intended for use as external insulation of buildings' walls. The walls are made of masonry (bricks, blocks, stones ...) or concrete (cast on site or as prefabricated panels). The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classifications and for fixing of the ETICS either by bonding or mechanically. The ETICS is designed to give the wall to which it is applied satisfactory thermal insulation.

The ETICS is made of non load-bearing construction elements. 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 effect of weathering.

The ETICS can be used on new or existing (retrofit) vertical walls. It can also be used on horizontal or inclined surfaces which are not exposed to precipitation.

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

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see 7.2.1 of the ETAG 004) and shall be done in accordance with the national instructions.

The provisions made in this European Technical Assessment (ETA) are based on an assumed intended working life of at least 25 years, provided that the conditions laid down in Clauses 4.2, 5.1 and 5.2 for the packaging, transport, storage and installation as well as appropriate use, maintenance and repair are met. The indications given as to the working life cannot be interpreted as a guarantee given by the manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

The ETICS belong to Category S/W2, according to EOTA Technical Report No. 034.

### **2.2 Manufacturing**

The European Technical Assessment is issued for the ETICS on the basis of agreed data/information, deposited with the Technical Assessment Body Technický a skúšobný ústav stavebný, n. o., which identified the ETICS that has been assessed and judged. Changes to the ETICS or production process, which could result in this deposited data/information being incorrect, shall be notified to the Technical Assessment Body Technický a skúšobný ústav stavebný, n. o. (TSÚS) before the changes are introduced. The Technical Assessment Body Technický a skúšobný ústav stavebný, n. o. will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alternations to the ETA, shall be necessary.

### **2.3 Design and installation**

The installation instructions including special installation techniques and provisions for the qualifications 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 7.1 and 7.2 of ETAG 004 used as EAD, which summarized 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 Packaging, 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(s) to ensure that this information is made known to the concerned people.

## **2.5 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 adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs should be performed as soon as the need has been identified.

It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance. Only products which are compatible with the ETICS shall be used.

The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is responsibility of the manufacturer(s) to ensure that these provisions are easily accessible to the concerned people.

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

### **3.0 The performances of the kit as described in this clause 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)**

##### **3.2.1 Reaction to fire (ETAG 004 – Clause 5.1.2.1, EN 13501-1)**

The reaction to fire was determined according to ETAG 004, Clause 5.1.2.1. The product as defined under Clause 1.1 reached the following classification stated in Table 1.



**Table 1 – Classification of reaction to fire for ETICS**

Configuration 1	Max. organic content	Flame retardant content	Euroclass according to EN 13501-1
Adhesives: Baumit StarContact white Baumit StarContact Baumt NivoFix Baumit SupraFix (tested for fire test)			
Insulation boards: Baumit Resolution PF – EN 13166-L1-WS2-W1-T1-S1-DS(N)-DS(70,90)-DS(-20,-)-TR60-CV-MU20 thickness: 50 mm to 300 mm Color: grey, $\lambda_D=0,022$ W/(m.k) reaction to fire: B-s1, d0 density: $35 \text{ kg/m}^3 \pm 12 \%$			
Base coats: <b>Baumit StarContact white</b> Baumit StarContact	Adhesive: 7,1 % $\pm$ 0,6 abs		
Glass fibre mesh: Baumit StarTex <b>Baumit StarTex (160)</b> tested in configuration mass per unit area: from $145 \text{ g/m}^2 \pm 8 \%$ to $160 \text{ g/m}^2 \pm 8 \%$	Base coat: 2,6 % $\pm$ 0,6 abs  Finishing coat: (10,9 $\pm$ 10) % rel.  Decorative coat (plaster): (9,1 $\pm$ 10) % rel.	PF: 0 %  Base coats 0 %  Other base coats: 0 %  Finishing coat: 0 %	B-s1, d0
Key coats: Baumit UniPrimer <b>Baumit PremiumPrimer</b>	Decorative coat (Paint): (20,9 $\pm$ 10) % rel.		
Finishing coats: Baumit SilikatTop Baumit NanoporTop Baumit SilikonTop Baumit Silipor Top Baumit GranoporTop <b>Baumit StyleTop</b> Baumit Fascina Special Baumit CreativTop Baumit StellaporTop Baumit MosaikTop Baumit FineTop Baumit NanoporFine Baumit GranoporFine			
Decorative coats/plasters: Baumit CreativTop Silk Baumit CreativTop Pearl <b>Baumit FillTop</b>			

Decorative coats/paints: Baunit NanoporColor Baunit StarColor Baunit SilikonColor Baunit SilikatColor Baunit StyleColor Baunit PuraColor (old name) Baunit ProColor) Baunit GranoporColor Baunit Metallic Baunit Lasur Baunit Finish <b>Baunit Glitter</b>			
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Mounting and fixing:

The assessment of reaction to fire for tested configuration is based on tests with maximal insulation layer thickness of SBI/200 mm, STN EN ISO 11925-2 and insulation material density 33,1 kg/m<sup>2</sup> and a render system with maximum organic content (2,6 % ± 0,6 abs) for base coat and (10,9 ± 10) % rel. for finishing coat and (9,1 ± 10) % rel. for decorative coat (plaster) and (20,9 ± 10) % rel. for decorative coat (paint) and thicknesses of grain sizes of finishing coats 1,0 mm and 4,0 mm.

For the SBI configuration this ETICS is mounted directly to a calcium silicate plasterboard substrate of reaction to fire classification A2-s1, d0 with a minimum density of 800 kg/m<sup>2</sup> ± 10 kg/m<sup>2</sup>.

The installation of the ETICS was carried out by the manufacturer (holder of assessment) following the manufacturer's specifications (instruction sheet) using a single layer of the glass fibre mesh all over the test specimen (no overlapping glass fibre mesh).

The test specimens were prefabricated and did not include any joints. The panel edges were rendered except the upper and bottom edges.

Anchors were not included in the tested ETICS as they have no influence on the test result.

Please note that in some member states the classification on the basis of SBI test is not accepted. Additional tests might be required e.g. large scale tests to demonstrate compliance with a member state's fire regulation.

Further the edges of the ETICS always have to be protected against fire.

NOTE A European reference fire scenario has not been laid down for facades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in facades. An additional assessment of ETICS according to national provisions (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

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

#### 3.3.1 Water absorption (ETAG 004 – Clause 5.1.3.1)

**Table 2 – Water absorption of base coats**

		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Base coat	Baunit StarContact white (5 mm)	x	
	Baunit StarContact (5 mm)	x	

**Table 3 – Water absorption of rendering coats**

Base coat		Water absorption after 24 hours	
Baunit StarContact white (thickness 5 mm)		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Rendering systems: base coat + key coats according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baunit SilikatTop	x	
	Baunit NanoporTop	x	
	Baunit SilikonTop	x	
	Baunit SiliporTop	x	
	Baunit GranoporTop	x	
	Baunit StyleTop	x	
	Baunit Fascina Special	x	
	Baunit CreativTop	x	
	Baunit StellaporTop	x	
	Baunit MosaikTop	x	
	Baunit FineTop	x	
	Baunit NanoporFine	x	
	Baunit GranoporFine	x	

**Table 4 – Water absorption of rendering coats**

Base coat Baumit StarContact (thickness 5 mm)		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Rendering systems: base coat + key coats according to Clause 1.1 + finishing coats indicated hereafter:	Baumit SilikatTop	x	
	Baumit NanoporTop	x	
	Baumit SilikonTop	x	
	Baumit SiliporTop	x	
	Baumit GranoporTop	x	
	Baumit StyleTop	x	
	Baumit Fascina Special	x	
	Baumit CreativTop	x	
	Baumit StellaporTop	x	
	Baumit MosaikTop	x	
	Baumit FineTop	x	
	Baumit NanoporFine	x	
	Baumit GranoporFine	x	

### 3.3.2 Watertightness (ETAG 004 – Clause 5.1.3.2)

#### 3.3.2.1 Hydrothermal behaviour (ETAG 004 – Clause 5.1.3.2.1)

Hygrothermal cycles have been performed on a rig. None of the following defects occurred during the testing:

- blistering or peeling of any finishing coat;
- failure or cracking associated with joints between insulation product boards or profiles fitted with ETICS;
- detachment of render coat;
- cracking allowing water penetration to the insulation layer (normally not bigger than 0,2 mm).

The ETICS is so assessed resistant to hygrothermal cycles, it means ETICS passed the test without defects.

#### 3.3.2.2 Freeze-thaw behaviour (ETAG 004 – Clause 5.1.3.2.2)

- The water absorptions of all two base coats used in this ETICS are less than 0,5 kg/m<sup>2</sup> after 24 hours and so **the corresponding configuration(s) of the ETICS are assessed as freeze/thaw resistant.**
- The water absorptions of all rendering systems are less than 0,5 kg/m<sup>2</sup> after 24 hours and so **the corresponding configuration(s) of the ETICS are assessed as freeze/thaw resistant.**

### 3.3.3 Impact resistance (ETAG 004 – Clause 5.1.3.3)

The resistance to hard body impacts (3 Joules and 10 Joules) leads to the following use categories.

**Table 5 – Use categories for ETICS according to impact resistance**

Baumit StarContact white (5 mm) + PF – EN 13166-L1-WS2-W1-T1-S1-DS(N)-DS(70,90)-DS(-20,-)-TR60-CV-MU20		Single standard mesh	Double standard mesh
Rendering systems: base coat + key coats according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baumit SilikatTop	Category II	Category I
	Baumit NanoporTop		
	Baumit SilikonTop		
	Baumit SiliporTop		
	Baumit GranoporTop		
	Baumit StyleTop		
	Baumit Fascina Special 1,0 mm	Category III	Category II
	Baumit Fascina Special 2,0 mm to 4,0 mm	Category II	Category I
	Baumit CreativTop	Category III	Category II
	Baumit StellaporTop	Category II	Category I
	Baumit MosaikTop		
	Baumit FineTop	Category III	Category II
	Baumit NanoporFine		
	Baumit GranoporFine		
	Baumit CreativTop Vario (1,5 mm) 2 Baumit Creativ Top Silk	Category II	Category I
Baumit Creativ Vario (1,5 mm) Baumit Creativ Top Pearl			

**Table 6 – Use categories for ETICS according to impact resistance**

Baumit StarContact (5 mm) + PF – EN 13166-L1-WS2-W1-T1-S1-DS(N)-DS(70,90)-DS(-20,-)-TR60-CV-MU20		Single standard mesh	Double standard mesh
Rendering systems: base coat + key coats according to Clause 1.1 + finishing coats indicated hereafter:	Baumit SilikatTop	Category II	Category I
	Baumit NanoporTop		
	Baumit SilikonTop		
	Baumit SiliporTop		
	Baumit GranoporTop		
	Baumit StyleTop		
	Baumit Fascina Special 1,0 mm	Category III	Category II
	Baumit Fascina Special 2,0 mm to 4,0 mm	Category II	Category I
	Baumit CreativTop	Category III	Category II
	Baumit StellaporTop	Category II	Category I
	Baumit MosaikTop		
	Baumit FineTop	Category III	Category II
	Baumit NanoporFine		
	Baumit GranoporFine		
	Baumit CreativTop Vario (1,5 mm) 2 Baumit Creativ Top Silk	Category II	Category I
Baumit Creativ Vario (1,5 mm) Baumit Creativ Top Pearl			

## 3.3.4 Water vapour permeability (ETAG 004 – Clause 5.1.3.4)

Table 7 – Water vapour permeability of rendering systems

Baumit StarContact white (thickness 5 mm)		Equivalent air thickness (m)
Rendering systems: base coat + key coat according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baumit SilikatTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,533), THR is 8 mm
	Baumit NanoporTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit NanoporTop, floated structure, particles size 3,0 mm: 0,230), THR is 8 mm
	Baumit SilikonTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 3,0 mm: 0,579), THR is 8 mm
	Baumit SiliporTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SiliporTop, floated structure, particles size 3,0 mm: 0,658), THR is 8 mm
	Baumit GranoporTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,460), THR is 8 mm
	Baumit StyleTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,66), THR is 8 mm
	Baumit Fascina Special	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit Fascina special, floated structure, particles size 3,0 mm: 0,244), THR is 8 mm
	Baumit CreativTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit CreativTop Max, floated structure, particles size 4,0 mm: 0,379), THR is 9 mm
	Baumit StellaporTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StellaporTop, floated structure, particles size 3,0 mm: 0,531), THR is 8 mm
	Baumit MosaikTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit MosaikTop 2, floated structure, particles size 2,0 mm: 0,433), THR is 7 mm
	Baumit FineTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit FineTop, floated structure, particles size 1,0 mm: 0,340), THR is 6 mm
	Baumit NanoporFine	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit NanoporFine, floated structure, particles size 1,0 mm: 0,236), THR is 6 mm
	Baumit GranoporFine	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporFine, floated structure, particles size 1,0 mm: 0,351), THR is 6 mm

**Table 8 – Water vapour permeability of rendering systems**

Baumit StarContact (thickness 5 mm)	<b>Equivalent air thickness (m)</b>	
Rendering systems: base coat + key coat according to Clause 1.1 + finishing coats indicated hereafter:	Baumit SilikatTop	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,618), THR is 8 mm
	Baumit NanoporTop	$\leq 2,0$ (test results obtained with finishing coat Baumit NanoporTop, floated structure, particles size 3,0 mm: 0,337), THR is 8 mm
	Baumit SilikonTop	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 3,0 mm: 0,677), THR is 8 mm
	Baumit SiliporTop	$\leq 2,0$ (test results obtained with finishing coat Baumit SiliporTop, floated structure, particles size 3,0 mm: 0,760), THR is 8 mm
	Baumit GranoporTop	$\leq 2,0$ (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,455), THR is 8 mm
	Baumit StyleTop	$\leq 2,0$ (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,761), THR is 8 mm
	Baumit Fascina Special	$\leq 2,0$ (test results obtained with finishing coat Baumit Fascina special, floated structure, particles size 3,0 mm: 0,335), THR is 8 mm
	Baumit CreativTop	$\leq 2,0$ (test results obtained with finishing coat Baumit CreativTop Max, floated structure, particles size 4,0 mm: 0,481), THR is 9 mm
	Baumit StellaporTop	$\leq 2,0$ (test results obtained with finishing coat Baumit StellaporTop, floated structure, particles size 3,0 mm: 0,618), THR is 8 mm
	Baumit MosaikTop	$\leq 2,0$ (test results obtained with finishing coat Baumit MosaikTop 2, floated structure, particles size 2,0 mm: 0,528), THR is 7 mm
	Baumit FineTop	$\leq 2,0$ (test results obtained with finishing coat Baumit FineTop, floated structure, particles size 1,0 mm: 0,418), THR is 6 mm
	Baumit NanoporFine	$\leq 2,0$ (test results obtained with finishing coat Baumit NanoporFine, floated structure, particles size 1,0 mm: 0,340), THR is 6 mm
	Baumit GranoporFine	$\leq 2,0$ (test results obtained with finishing coat Baumit GranoporFine, floated structure, particles size 1,0 mm: 0,455), THR is 6 mm



**Table 9 – Water vapour permeability of rendering systems**

Baumit StarContact white (thickness 5 mm)		Equivalent air thickness (m)
Rendering systems: base coat + key coat according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baumit SilikatTop Baumit SilikatColor	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,606), THR is 8,4 mm
	Baumit SilikatTop Baumit StarColor	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,809), THR is 8,4 mm
	Baumit SilikatTop Baumit PuraColor (old name Baumit ProColor)	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,657), THR is 8,4 mm
	Baumit NanoporTop Baumit NanoporColor	$\leq 2,0$ (test results obtained with finishing coat Baumit NanoporTop, floated structure, particles size 3,0 mm: 0,247), THR is 8,4 mm
	Baumit SilikonTop Baumit SilikonColor	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 3,0 mm: 0,642), THR is 8,4 mm
	Baumit SilikonTop K1,5 Baumit FineTop K1	$\leq 2,0$ (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 1,5 mm: 0,737), THR is 6,7 mm
	Baumit SiliporTop Baumit FillTop	$\leq 2,0$ (test results obtained with finishing coat Baumit SiliporTop, floated structure, particles size 3,0 mm: 0,903), THR is 8,7 mm
	Baumit GranoporTop Baumit GranoporColor	$\leq 2,0$ (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,526), THR is 8,4 mm
	Baumit GranoporTop Baumit FillTop	$\leq 2,0$ (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,715), THR is 8,7 mm
	Baumit StyleTop Baumit StyleColor	$\leq 2,0$ (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,736), THR is 8,4 mm
	Baumit StyleTop Baumit Metallic	$\leq 2,0$ (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 1,048), THR is 8,3 mm
	Baumit StyleTop Baumit Finish	$\leq 2,0$ (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,672), THR is 8,3 mm
	Baumit StyleTop Baumit Finish Baumit Lasur	$\leq 2,0$ (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 1,059), THR is 8,5 mm

	Baumit Fascina Special Baumit NanoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit Fascina special, floated structure, particles size 3,0 mm: 0,252), THR is 8,4 mm
	Baumit CreativTop Baumit SilikonColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit CreativTop Max, floated structure, particles size 4,0 mm: 0,448), THR is 9,4 mm
	Baumit StellaporTop Baumit GranoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StellaporTop, floated structure, particles size 3,0 mm: 0,597), THR is 8,4 mm
	Baumit MosaikTop Baumit Glitter	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit MosaikTop 2, floated structure, particles size 2,0 mm: 0,831), THR is 8 mm
	Baumit NanoporFine Baumit NanoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit NanoporFine, floated structure, particles size 1,0 mm: 0,254), THR is 6,4 mm
	Baumit GranoporFine Baumit GranoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporFine, floated structure, particles size 1,0 mm: 0,417), THR is 6,4 mm

**Table 10 – Water vapour permeability of rendering systems**

Baumit StarContact (thickness 5 mm)		Equivalent air thickness (m)
Rendering systems: base coat + key coat according to Clause 1.1 + finishing coats indicated hereafter:	Baumit SilikatTop Baumit SilikatColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,611), THR is 8,4 mm
	Baumit SilikatTop Baumit StarColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,820), THR is 8,4 mm
	Baumit SilikatTop Baumit PuraColor (old name Baumit ProColor)	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikatTop, floated structure, particles size 3,0 mm: 0,662), THR is 8,4 mm
	Baumit NanoporTop Baumit NanoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit NanoporTop, floated structure, particles size 3,0 mm: 0,252), THR is 8,4 mm
	Baumit SilikonTop Baumit SilikonColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 3,0 mm: 0,646), THR is 8,4 mm
	Baumit SilikonTop K1,5 Baumit FineTop K1	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SilikonTop, floated structure, particles size 1,5 mm: 0,741), THR is 6,7 mm

Baumit SiliporTop Baumit FillTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit SiliporTop, floated structure, particles size 3,0 mm: 0,910), THR is 8,7 mm
Baumit GranoporTop Baumit GranoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,528), THR is 8,4 mm
Baumit GranoporTop Baumit FillTop	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporTop, floated structure, particles size 3,0 mm: 0,731), THR is 8,7 mm
Baumit StyleTop Baumit StyleColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,741), THR is 8,4 mm
Baumit StyleTop Baumit Metallic	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 1,051), THR is 8,3 mm
Baumit StyleTop Baumit Finish	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 0,682), THR is 8,3 mm
Baumit StyleTop Baumit Finish Baumit Lasur	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StyleTop, floated structure, particles size 3,0 mm: 1,063), THR is 8,5 mm
Baumit Fascina Special Baumit NanoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit Fascina special, floated structure, particles size 3,0 mm: 0,267), THR is 8,4 mm
Baumit CreativTop Baumit SilikonColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit CreativTop Max, floated structure, particles size 4,0 mm: 0,451), THR is 9,4 mm
Baumit StellaporTop Baumit GranoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit StellaporTop, floated structure, particles size 3,0 mm: 0,600), THR is 8,4 mm
Baumit MosaikTop Baumit Glitter	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit MosaikTop 2, floated structure, particles size 2,0 mm: 0,834), THR is 8 mm
Baumit NanoporFine Baumit NanoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit NanoporFine, floated structure, particles size 1,0 mm: 0,265), THR is 6,4 mm
Baumit GranoporFine Baumit GranoporColor	<b>≤ 2,0</b> (test results obtained with finishing coat Baumit GranoporFine, floated structure, particles size 1,0 mm: 0,421), THR is 6,4 mm

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

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the kit falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet provisions of the EU Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

A written declaration was submitted by the ETA-holder – ETICS manufacturer.

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

### 3.4.1 Bond strength between base coat and insulation product (ETAG 004 – Clause 5.1.4.1.1)

- Base coat Baunit StarContact white onto PF (EN 13166 – TR60)

**Table 11 – Bond strength of base coat onto insulation product “Baunit Resolution”**

Conditionings		
Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
< 0,08 MPa	< 0,08 MPa*	Not performed
* Failure occurred in insulation product.		

- Base coat Baunit StarContact onto PF (EN 13166 – TR60)

**Table 12 – Bond strength of base coat onto insulation product “Baunit Resolution”**

Conditionings		
Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
< 0,08 MPa*	< 0,08 MPa*	Not performed
* Failure occurred in insulation product.		

**3.4.2 Bond strength between adhesive and substrate/insulation product (ETAG 004 – Clauses 5.1.4.1.2 and 5.1.4.1.3)**

**Table 13 – Bond strength of adhesive onto substrate and PF (EN 13166 – TR60) “Baumit Resolution”**

		Conditionings		
		Initial state	48 h immersion in water + 2 h 23 °C/50% RH	48 h immersion in water + 7 days 23 °C/50% RH
Baumit StarContact white	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation product “Baumit Resolution”	< 0,08 MPa* (min. 0,06 MPa)	≥ 0,03 MPa	< 0,08 MPa* (min. 0,053 MPa)
Baumit StarContact	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation product “Baumit Resolution”	< 0,08 MPa* (min. 0,058 MPa)	≥ 0,03 MPa	< 0,08 MPa* (min. 0,054 MPa)
Baumit NivoFix	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation product “Baumit Resolution”	< 0,08 MPa* (min. 0,051 MPa)	≥ 0,03 MPa	< 0,08 MPa* (min. 0,051 MPa)
Baumit SupraFix	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation product “Baumit Resolution”	< 0,08 MPa* (min. 0,058 MPa)	≥ 0,03 MPa	< 0,08 MPa* (min. 0,054 MPa)
Baumit StarContact	Special anchor Baumit Klebeanker	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
*Failure occurred in the insulation product.				

The ETICS shall be installed on the substrate with application of the adhesive on the following minimal surface (% of total) according to Table 14.

**Table 14 – Minimum admissible bonded surface area for mechanically ETICS with supplementary adhesive**

Tensile strength perpendicular to the faces of the insulation product	Minimum admissible bonded surface area for mechanically ETICS with supplementary adhesive
≥ 60 kPa (PF-EN 13166-TR60) (Baumit Resolution)	20 % with using anchors listed in Table 20 of this ETA except Baumit Klebeanker/Baumit StarTrack (if national application documents allow it)
	40 % with using anchors Baumit Klebeanker/Baumit StarTrack

**3.4.3 Bond strength after ageing (ETAG 004 – Clauses 5.1.7.1 and 5.1.7.2)**

**Table 15a – Bond strength of rendering systems after ageing (ETAG 004 – Clause 5.7.1.2 and 5.1.7.2)**

Baumit StarContact white		After 7 days immersion in water + 7 days 23 °C/50% RH (on samples)	After freeze/thaw cycles
Rendering systems: base coat + key coats according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baumit SilikatTop*	< 0,08 MPa but failure in the insulation	Test not performed because freeze/thaw cycles not necessary
	Baumit NanoporTop		
	Baumit SilikonTop		
	Baumit SiliporTop		
	Baumit GranoporTop		
	Baumit StyleTop		
	Baumit Fascina Special		
	Baumit CreativTop*		
	Baumit StellaporTop		
	Baumit MosaikTop		
	Baumit FineTop		
	Baumit NanoporFine*		
Baumit GranoporFine			
*The finishing coat was also tested for bond strength on rig after hydrothermal cycles.			

**Table 15b – Bond strength of rendering systems after ageing (ETAG 004 – Clause 5.7.1.2 and 5.1.7.2)**

Baumit StarContact		After 7 days immersion in water + 7 days 23 °C/50% RH (on samples)	After freeze/thaw cycles
Rendering systems: base coat + key coats according to Clause 1.1 (optionally no key coats) + finishing coats indicated hereafter:	Baumit SilikatTop*	< 0,08 MPa but failure in the insulation	Test not performed because freeze/thaw cycles not necessary
	Baumit NanoporTop*		
	Baumit SilikonTop		
	Baumit SiliporTop		
	Baumit GranoporTop		
	Baumit StyleTop		
	Baumit Fascina Special		
	Baumit CreativTop		
	Baumit StellaporTop		
	Baumit MosaikTop		
	Baumit FineTop		
	Baumit NanoporFine		
Baumit GranoporFine			

\*The finishing coat was also tested for bond strength on rig after hydrothermal cycles.

### 3.4.4 Fixing strength (ETAG 004 – Clause 5.1.4.2)

Test not required because the ETICS fulfills the following criteria:

- The bonded area exceeds 20 % in case of mechanically fixed systems with supplementary adhesive.
- $E \times d = 10\,503 \text{ N/mm} < 50\,000 \text{ N/mm}$ , where  $E$  is static modulus of elasticity of the base coat **Baumit StarContact** without glass fibre mesh and  $d$  is mean dried thickness of the base coat.
- $E \times d = 9\,666 \text{ N/mm} < 50\,000 \text{ N/mm}$ , where  $E$  is static modulus of elasticity of the base coat **Baumit StarContact white** without glass fibre mesh and  $d$  is mean dried thickness of the base coat.

### 3.4.5 Wind load resistance (ETAG 004 – Clause 5.1.4.3)

Safety in use of mechanically fixed ETICS using anchors

The following values only apply for the combination (anchor's trade name)/ (Phenolic foam board's characteristics) mentioned in the first lines of each table.

**Table 16 – Failure loads of combination of anchors described in below table and insulation product – PF-EN 13166-TR60**

<b>Anchors for which the following failure loads apply</b>		Trade name	<b>Anchors according to list in Table 20 and mentioned in Annex 2</b>	
		Plate diameter (mm)	≥ 60	
<b>Characteristic of the insulation product panels for which the following failure loads apply</b>		PF-EN 13166-L1-WS2-W1-T1-S1-DS(N)-DS(70,90)-DS(-20,-)-TR60-CV-MU20		
		Thickness (mm)	≥ 50	
		Tensile strength perpendicular to the face (kPa)	≥ 60	
<b>Failure loads (N)</b>	Anchors not placed at the panel joint (pull – through test)	$R_{\text{panel}}$	Minimum:	<b>570</b>
	Anchors placed at the panel joint (pull – through test)	$R_{\text{joint}}$	Average:	<b>580</b>
			Minimum:	<b>490</b>
			Average:	<b>530</b>

**Table 17 – Failure loads of combination of anchors described in below table and insulation product – PF-EN 13166-TR60**

<b>Anchors for which the following failure loads apply</b>		Trade name	<b>Baumit KlebeAnker/ Baumit StarTrack</b>	
		Plate diameter (mm)	≥ 60	
<b>Characteristic of the insulation product panels for which the following failure loads apply</b>		Thickness (mm)		
		≥ 100		
		Tensile strength perpendicular to the face (kPa)		
≥ 60				
<b>Failure loads (N)</b>	1 anchor placed at the centre of sample with dimension 200 mm × 200 mm (pull through test), calculated from 10 results	$R_{\text{panel}}$	Minimum:	<b>486</b>
			Average:	<b>503</b>

The wind load resistance of the ETICS  $R_d$  is calculated as follows:

$$R_d = [R_{\text{panel}} \times n_{\text{panel}} + R_{\text{joint}} \times n_{\text{joint}}] / \gamma$$

where

$n_{\text{panel}}$  is number (per m<sup>2</sup>) of anchors not placed at the panel joint;

$n_{\text{joint}}$  is number (per m<sup>2</sup>) of anchors placed at the panel joint;

$\gamma$  is national safety factor.

### 3.4.5 Render strip tensile test (ETAG 004 – Clause 5.5.4.1)

The mean value of the crack width of the base coats with the glass fibres mesh Baumit StarTex and **Baumit StarTex (160)** have not been tested (No performance assessed).



### 3.5 Protection against noise (BWR 5)

#### 3.5.1 Airborne sound insulation (ETAG 004 – Clause 5.1.5.1)

No performance assessed.

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

#### 3.6.1 Thermal resistance (ETAG 004 – Clause 5.1.6.1)

The thermal transmittance of the substrate wall covered by the ETICS is calculated in accordance with the standard EN ISO 6946:

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

where  $\chi_p \cdot n$  has only to be taken into account if it is greater than 0,04 W/(m<sup>2</sup>.K);  
 $U_c$  global (corrected) thermal transmittance of the covered wall (W/(m<sup>2</sup>.K));  
 $n$  number of anchors (through insulation product) per m<sup>2</sup>;  
 $\chi_p$  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:  
 = 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 ( $\chi_p \cdot n$  negligible for  $n < 20$ );  
 = 0,004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ( $\chi_p \cdot n$  negligible for  $n < 10$ );  
 = negligible for anchors with plastic nails (reinforced or not with glass fibres ...);  
 $U$  thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ (m<sup>2</sup>.K)) determined as follows:

$$U_c = \frac{1}{R_i + R_{render} + R_{substrate} + R_{se} + R_{si}}$$

where  $R_i$  thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m<sup>2</sup>.K)/W;  
 $R_{render}$  thermal resistance of the render (about 0,02 in (m<sup>2</sup>.K)/W or determined by test according to EN 12667 or EN 12664);  
 $R_{substrate}$  thermal resistance of the substrate of the building (concrete, brick ...) in (m<sup>2</sup>.K)/W;  
 $R_{se}$  external superficial thermal resistance in (m<sup>2</sup>.K)/W;  
 $R_{si}$  internal superficial thermal resistance in (m<sup>2</sup>.K)/W.

The value of thermal resistance of each insulation product shall be given in the manufacturer's documentation along with the possible range of thicknesses. In addition, the point thermal conductivity of anchors shall be given when anchors are used in the ETICS.

### 3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

#### 4 Assessment and verification of constancy of performance (hereinafter 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 AVCP systems (further described in Annex V to Regulation (EU) No. 305/2011) 1 and 2+ apply.

**Table 18 – Assessment and verification of constancy of performance system**

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
External thermal insulation composite systems/kits (ETICS) with rendering	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+
	in external wall not subject to fire regulations	any	2+
<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). <sup>(2)</sup> Products/materials not covered by footnote <sup>(1)</sup> . <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).			

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

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the Notified Body.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

##### 1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

##### 2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of ETICS are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

##### 3) Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances);
- incoming (raw) materials specifications and declarations;
- references to European and/or international standards;
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the Technický a skúšobný ústav stavebný, n. o. have agreed a Control Plan which is deposited with the Technický a skúšobný ústav stavebný, n. o. in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Products not manufactured by the ETICS manufacturer shall also be tested according to the Control Plan. It must be demonstrated to the Notified Body that the FPC system contains elements securing that the ETICS manufacturer takes products conforming to the Control Plan from his supplier(s).

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the ETICS manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform Technický a skúšobný ústav stavebný, n. o. without delay.

**Technický a skúšobný ústav stavebný, n. o.**  
Building Testing and Research Institute  
Studená 3, 821 04 Bratislava, Slovak Republic

On behalf of the Technický a skúšobný ústav stavebný, n. o.  
Bratislava, 09 February 2017



prof. Ing. Zuzana Sternová, PhD.  
Head of Technical Assessment Body

**Annexes**

- Annex 1 Insulation product characteristics
- Annex 2 List, description and characteristics of the anchors
- Annex 3 Description and characteristics of the reinforcement
- Annex 4 Correspondence between trade names used for components Baunit StarSystem Resolution

**Annex 1**

**Insulation product characteristics**

**Table 19 – Characteristics of the insulation product(s)**

<b>Description and characteristics</b>		Phenolic foam board acc. EN 13 166 with 3 mm layer from Austrotherm EPS F-PLUS bonded from both sides Designation code: PF – EN 13166-L1-WS2-W1-T1-S1-DS(N)-DS(70,90)-DS(-20,-)-TR60-CV-MU20 <b>Trade name: Baunit Resolution</b>
		<b>for mechanically fixed ETICS with anchors and supplementary adhesive</b>
Reaction to fire / STN EN 13501-1		Euroclass B-s1, d0 (thickness from 20 to 300 mm, density: 35 kg/m <sup>3</sup> ± 12 %)
Thermal resistance ((m <sup>2</sup> .K)/W)		Defined in the CE marking in reference to EN 13166:2012+A1:2015 "Thermal insulation products for buildings – Factory made phenolic foam (PF) products - Specification" $\lambda_{ins}$ : <b>&lt; 0,022 W/(m·K)</b> (declared value)
Thickness (mm) / EN 823		PF - EN 13166 – <b>T1</b>
Length (mm) / EN 822		PF - EN 13166 – <b>L1</b>
Width (mm) / EN 822		PF - EN 13166 – <b>W1</b>
Squareness (mm) / EN 824		PF - EN 13166 – <b>S1</b>
Flatness (mm) / EN 825		in line with Table 3 of EN 13166: 2012+A1: 2015
Surface condition		Cut surface (homogeneous and without "skin")
Dimensional stability under	Defined temperature / EN 1603	PF - EN 13166 – <b>DS(N)</b>
	Specified temperature and humidity condition/ EN 1604	PF - EN 13166 – <b>DS(70,90)</b>
	- 20 °C	PF - EN 13166 – <b>DS(-20,-)</b>
Bending strength according to EN 12089		≥ 200 kPa
Compressive stress or compressive strength (kPa) / EN 826		PF - EN 13166 – <b>CS(Y)100</b> ≥ 100 kPa
Tensile strength perpendicular to the faces in dry conditions / EN 1607		PF - EN 13166 – TR60 ≥ 60 kPa and < 70 kPa
Short term water absorption by partial immersion / EN 1609		PF - EN 13166 – WS2 < 1,0 kg/m <sup>3</sup>
Water vapour diffusion resistance factor ( $\mu$ ) / EN 12086		PF - EN 13166 – MU20 ≥ 20
Apparent density / EN 1602		PF - EN 13166 – AD 35 kg/m <sup>3</sup> ± 12 %

## Annex 2

## List, description and characteristics of anchors

Table 20 – References to ETAs for anchors used in ETICS

Trade name	Description Plate stiffness/Load resistance of the anchor plate	Plate diameter mm	Characteristic resistance in substrate stated in
EJOT ejotherm NTK U	Nailed-in plastic anchor with polyamide nail and plastic head 0,5 kN/mm/1,4 kN Use of category: A, B, C	60	ETA-07/0026
Ejot H1 eco	Nailed-in plastic anchor with steel nail 0,6 kN/mm/1,4 kN Use of category: A, B, C	60	ETA-11/0192
Ejot H4 eco	Nailed-in plastic anchor with polyamide nail 0,6 kN/mm/1,4 kN Use of category: A, B, C, D, E	60	ETA-11/0192
EJOT H3	Nailed-in plastic anchor with polyamide nail 0,6 kN/mm/1,25 kN Use of category: A, B, C	60	ETA-14/0130
Ejotherm STR U Ejotherm STR U 2G	Screwed-in plastic anchor with steel screw and plastic head 0,6 kN/mm/2,08 kN Use of category: A, B, C, D, E	60	ETA-04/0023
ejotherm NT U ejotherm NK U	Nailed-in plastic anchor with steel nail 0,6 kN/mm/2,43 kN Use of category: A, B, C	60	ETA-05/0009
Hilti SD-FV 8 with doublehead HDT-FV90	Nailed-in plastic anchor with polyamide nail 0,3 kN/mm/1,55 kN Use of category: A, B, C	60	ETA-03/0028
Hilti ETICS-Anchor D-FV Hilti ETICS-Anchor D-FV T	Screwed-in plastic anchor with steel screw 0,8 kN/mm/1,93 kN Use of category: A, B, C, D, E	60	ETA-05/0039
Hilti fixing element XI-FV	plastic part made of polyethylene 0,4 kN/mm/1,6 kN	60	ETA-03/0004
Hilti D8-FV (used only with thermal insulation bigger than 100 mm)	Screwed-in plastic anchor with screw of galvanised steel 0,63 kN/mm/3,16 kN Use of category: A, B, C, D, E Used for thickness of PF from 100 mm	60	ETA-07/0288
Hilti SX-FV	Fixing element from polyethylene with sleeve from stainless steel 0,7 kN/mm/1,73 kN Use of category: A, B, C	60	ETA-03/0005
Hilti SDX 8	Nailed in plastic anchor with nail made from polyamide 0,6 kN/mm/1,6 kN Use of category: A, B, C, D, E	60/65	ETA-14/0399
Hilti SDK-FV 8	Nailed in plastic anchor with nail made from polyamide 0,5 kN/mm/1,48kN Use of category: A, B, C	60	ETA-07/0302

KOELNER TFIX-8M	Nailed-in anchor with nail of galvanised steel 1,0 kN/mm/1,75 kN Use of category: A, B, C	60	ETA-07/0336
KOELNER TFIX 8S KOELNER TFIX 8ST	Screwed-in anchor with screw of galvanised steel 0,6 kN/mm/2,04 kN Use of category: A, B, C, D (for KOELNER TFIX 8S) Use of category: A, B, C, D, E (for KOELNER TFIX 8ST)	60	ETA-11/0144
KOELNER TFIX-8P	Nailed-in plastic anchor with nail of galvanised steel 0,3 kN/mm/1,38 kN Use of category: A, B, C, D, E	60	ETA-13/0845
KOELNER KI-10N KOELNER KI-10NS	Nailed-in plastic anchor with steel nail 0,5 kN/mm/1,23 kN Use of category: B, C, D, E (for KOELNER KI-10N) Use of category: A, B, C, D, E (for KOELNER KI-10NS)	60	ETA-07/0221
KI-10, KI-10PA KI-10M	Nailed-in plastic anchor with polypropylene nail 0,5 kN/mm/2,1 kN (for KI-10, KI-10PA) 0,4 kN/mm/2,6 kN (for KI-10M) Use of category: A, B, C, D, E	60	ETA-07/0291
Fischer Termoz 8 N Fischer Termoz 8 NZ	Nailed-in plastic anchor with steel nail 0,5 kN/mm/1,34 kN Use of category: A, B, C (for Fischer Termoz 8 N) Use of category: A, B, C, D (for Fischer Termoz 8 NZ)	60	ETA-03/0019
Fischer Termoz CN 8	Nailed-in polypropylene anchor 0,4 kN/mm/1,6 kN Use of category: A, B, C, D	60	ETA-09/0394
Fischer Termoz 8 SV	Screwed-in anchor with screw of galvanised steel 1,1 kN/mm/2,13 kN Use of category: A, B, C, D, E	60	ETA-06/0180
Fischer Termoz 8 U Fischer Termoz 8 UZ	Screwed-in plastic anchor with steel screw and plastic head 0,5 kN/mm/2,45 kN Use of category: A, B, C, E (valid for Fischer Termoz 8 U) Use of category: A, B, C, D (valid for Fischer Termoz 8 U)	60	ETA-02/0019
Fischer Termoz PN8	Nailed-in plastic anchor with polyamide nail 0,4 kN/mm/1,6 kN Use of category: A, B, C	60	ETA-09/0171
KEW TSD-V	Nailed in anchor with galvanised steel nail 1,24 kN/mm/1,75 kN Use of category: A, B, C	60	ETA-08/0315
KEW TSBD	Nailed in anchor with galvanised steel nail 1,6 kN/mm/2,22 kN Use of category: A, B, C, D	60	ETA-08/0314

KEW TSD 8	Nailed in anchor with galvanized steel nail 0,6 kN/mm/1,6 kN Use of category: A, B, C, D	60	ETA-04/0030
Bravoll PTH-KZ Bravoll PTH-KZL Bravoll PTH Bravoll PTH-L	Nailed-in plastic anchor with polyamide (PTH-KZ) (steel – PTH-KZ) nail and plastic head 0,4 kN/mm/1,8 kN Use of category (Bravoll PTH 60/8): A, B Use of category (Bravoll PTH-KZ 60/8): A, B, C, D	60	ETA-05/0055
Bravoll PTH-S 60/8-La	Screwed-in plastic anchor with steel screw 0,9 kN/mm/2,6 kN Use of category: A, B, C, D, E	60	ETA-08/0267
Bravoll PTH SX	Screwed-in plastic anchor with plastic screw 0,5 kN/mm/1,8 kN Use of category: A, B, C, D, E	60	ETA-10/0028
Bravoll PTH X Bravoll PTH-EX	Nailed-in plastic anchor with polyamide (PTH X) or steel screw (PTH-EX) 0,6 kN/mm/1,5 kN Use of category: A, B, C, D	60	ETA-13/0951
IsoFux NDS8Z IsoFux NDS90Z IsoFux NDM90Z IsoFux NDM8Z	Nailed-in plastic anchor with steel screw 0,9 kN/mm/2,2 kN Use of category: A, B, C	60	ETA-07/0129
IsoFux Rocket	Screwed-in plastic anchor with steel screw 1,1 kN/mm/2,5 kN Use of category: A, B, C, E	60	ETA-12/0093
Baumit Klebeanker/Baumit StarTrack/KlebeAnker JJ A8+	Use of category: A, B, C, E	60	ETA-06/0015
Baumit Klebeanker/Baumit StarTrack/ KlebeAnker Duplex JJ A8S	Use of category: A, B, C, E	60	ETA-12/0064

In ETICS “Baumit StarSystem Resolution” can be used also other types of anchors as stated in Table 20, after adding them to the control plan of manufacturer of ETICS on previous agreement between Technický a skúšobný ústav stavebný, n. o. (TSÚS) and Baumit Beteiligungen GmbH. These additional anchors will be added to listed anchors in Table 20 of ETA in the next coming version.

**Annex 3**

**Description and characteristics of the reinforcement**

**Table 21 – Description and characteristics of the reinforcement**

Mesh trade name	Description	Alkalis resistance (5.6.7.1 of ETAG 004)			
		Residual strength after ageing (N/mm)		Relative residual resistance: % (after ageing) of the strength in the as delivered state	
		Warp	Weft	Warp	Weft
Baunit StarTex/Baunit Textilglasgitter/Baunit ProTex	Standard mesh: Mesh size: 4 mm × 4,5 mm Mass per unit area: min. 145 g/m <sup>2</sup>	≥ 20		≥ 50	
Baunit StarTex (160)	Standard mesh: Mesh size: 3,5 mm × 3,8 mm Mass per unit area: min. 160 g/m <sup>2</sup>	≥ 20		≥ 50	



**Annex 4**

**Correspondence between trade names used for components**

Adhesives	Baumit StarContact		Baumit KlebeSpachtel	
	Baumit StarContact white	Baumit StarContact KBM		Baumit KlebeSpachtel KBM
	Baumit NivoFix	Baumit PaneloFix		Baumit WDVS-Kleber
	Baumit SupraFix		Baumit SupraKleber	
Insulation boards	Baumit Resolution	Baumit ResolutionTherm		Austrotherm Resolution Fassadenplatte
Special anchor	Baumit KlebeAnker		Baumit StarTrack	
Base coats	Baumit StarContact		Baumit KlebeSpachtel	
	Baumit StarContact white	Baumit StarContact KBM		Baumit KlebeSpachtel KBM
Glass fibre meshes	Baumit StarTex	Baumit Textilglasgitter		Baumit ProTex
	Baumit StarTex (160)			
Key coats	Baumit UniPrimer		Baumit UniversalGrund	
	Baumit PremiumPrimer	Baumit PremiumPrimer DG 27		Baumit DecorGrundierung DG 27
Finishing coats	Baumit GranoporTop		Baumit GranoporPutz	
	Baumit SilikonTop		Baumit SilikonPutz	
	Baumit CreativTop			
	Baumit StyleTop	Baumit ArtlineTop		Baumit ArtlinePutz
	Baumit NanoporTop		Baumit NanoporPutz	
	Baumit SilikatTop		Baumit SilikatPutz	
	Baumit SiliporTop		Baumit SiliporPutz	
	Baumit Fascina Special	Baumit Classico Special	Baumit Edelputz Spezial	Baumit ScheibenPutz SEP
	Baumit StellaporTop			

	Baumit MosaikTop		
	Baumit FineTop	BaumitSilikonFine	Baumit UniTop Fine
	Baumit NanoporFine		Baumit NanoporTop Fine
	Baumit GranoporFine		
Decorative coat/plaster	Baumit CreativTop Silk		Baumit CreativTop S-Fine
	Baumit FillTop		Baumit UniTop Fill
	Baumit CreativTop Pearl		
Decorative coat/paint	Baumit NanoporColor		Baumit NanoporFarbe
	Baumit StarColor		
	Baumit SilikonColor		Baumit SilikonFarbe
	Baumit SilikatColor		Baumit SilikatFarbe
	Baumit StyleColor		Baumit ArtlineFarbe
	Baumit PuraColor		Baumit ProColor
	Baumit GranoporColor		Baumit GranoporFarbe
	Baumit Metallic		
	Baumit Lasur		
	Baumit Finish		
	Baumit Glitter		

**Combination of finishing coats and decorative coats**

	Baunit NanoporColor	Baunit StarColor	Baunit SilikonColor	Baunit SilikatColor	Baunit PuraColor (old name Baunit ProColor)	Baunit GranoporColor	Baunit StyleColor
Baunit NanoporTop	x	x			x		
Baunit StyleTop	x	x	x		x	x	x
Baunit SilikonTop	x	x	x		x	x	x
Baunit SilikatTop	x	x	x	x	x		x
Baunit SiliporTop	x	x	x		x	x	x
Baunit StellaporTop	x	x	x		x	x	x
Baunit GranoporTop	x	x	x	x	x	x	x
Baunit CreativTop	x	x	x		x	x	x
Baunit FineTop	x	x	x		x	x	x
Baunit NanoporFine	x	x			x		
Baunit GranoporFine	x	x	x	x	x	x	x

**Combination of finishing coats and decorative coats**

	Baunit Metallic	Baunit Lasur	Baunit Glitter	Baunit Finish	Baunit CreativTop Silk	Baunit CreativTop Pearl	Baunit FillTop
Baunit NanoporTop	x	x	x	x	x	x	x
Baunit StyleTop	x	x	x	x	x	x	x
Baunit SilikonTop	x	x	x	x	x	x	x
Baunit SilikatTop	x	x	x	x	x	x	x
Baunit SiliporTop	x	x	x	x	x	x	x
Baunit StellaporTop	x	x	x	x	x	x	x
Baunit GranoporTop	x	x	x	x	x	x	x
Baunit CreativTop	x	x	x	x	x	x	x
Baunit FineTop	x	x	x	x	x	x	x
Baunit NanoporFine	x	x	x	x	x	x	x
Baunit GranoporFine	x	x	x	x	x	x	x
Baunit MosaikTop				x			