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## European Technical Assessment

**ETA 15/0022 – version 04  
of 25/04/2017**

### 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**

FOVEO TECH S

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

Product area code: 4  
External Thermal Insulation Composite Systems with rendering on polystyrene for the use as external insulation to the walls of buildings

**Manufacturer**

Fabryka Farb i Lakierów Śnieżka SA  
Aleja Jana Pawła II 23  
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Poland  
<http://www.sniezka.pl>

**Manufacturing plant**

Fabryka Farb i Lakierów Śnieżka SA  
Aleja Jana Pawła II 23  
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**This European Technical Assessment contains**

21 pages including 3 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 15/0022 – version 03, issued on 29/02/2016

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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 rigid thermal insulation boards EPS 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 2.3 for further description, characteristics and performances of the components)	<b>Coverage</b> (kg/m <sup>2</sup> )	<b>Thickness</b> (mm)
Insulation materials with associated methods of fixing	Bonded ETICS (partially or fully bonded) with supplementary anchors. According to ETA-holder's prescription the minimal bonded surface shall be at least 40 %. National application documents shall be taken into account).		
	<ul style="list-style-type: none"> <li>• <b>Insulation product:</b> Rigid thermal insulation boards (EPS 70 F) according to EN 13163 (see Annex 1 for product characteristics)</li> </ul>	/	50 to 250
	<ul style="list-style-type: none"> <li>• <b>Adhesive:</b> <b>FOVEO TECH KS 10</b> Preparation: mixing of 5,5 l to 6,0 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</li> </ul>	4 to 5 (powder)	/
	<ul style="list-style-type: none"> <li>• <b>FOVEO TECH KS 20</b> Preparation: mixing of 5,5 l to 6,0 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</li> </ul>	- for boards adhesive border-dotted	
	<ul style="list-style-type: none"> <li>• <b>FOVEO TECH KU 11</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</li> </ul>	5 to 7 (powder)	/
	<ul style="list-style-type: none"> <li>• <b>FOVEO TECH KU 21</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</li> </ul>	- for boards adhesive full-area	
	<ul style="list-style-type: none"> <li>• <b>Supplementary anchors</b> (see Annex 2 for list of anchors and their product characteristics)</li> </ul>		

*To be continued*

**Table 1** (continued)

	<b>Components</b> (see 2.3 for further description, characteristics and performances of the components)	<b>Coverage</b> (kg/m <sup>2</sup> )	<b>Thickness</b> (mm)
Insulation materials with associated methods of fixing	<p>Mechanically fixed ETICS with anchors and supplementary adhesive (see 3.4.5) for possible associations EPS/anchors). According to ETA-holder's prescription 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> Rigid thermal insulation boards (EPS 70 F) according to EN 13163 (see Annex 1 for product characteristics)</li> <li>• <b>Supplementary adhesives</b> <b>FOVEO TECH KS 10</b> Preparation: mixing of 5,5 l to 6,0 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives <b>FOVEO TECH KS 20</b> Preparation: mixing of 5,5 l to 6,0 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives <b>FOVEO TECH KU 11</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives <b>FOVEO TECH KU 21</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</li> <li>• <b>Anchors</b> (see Annex 2 for list of anchors and their product characteristics)</li> </ul>	/	50 to 250
Base coats	<p><b>FOVEO TECH KU 11</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives <b>FOVEO TECH KU 21</b> Preparation: mixing of 5,75 l to 6,25 l water/25 kg powder Composition: fillers, Portland cement CEM I 42,5 R, special additives</p>	4,5 to 5 (powder)	Mean (dry): 3,5 Minimal (dry): 3,0
Glass fibre meshes	<p>Glass fibre meshes: <b>FOVEO TECH SW 145</b> <b>FOVEO TECH SW 165</b> (see Annex 3 for product characteristics)</p>	/	/

To be continued

**Table 1** (continued)

	<b>Components</b> (see 2.3 for further description, characteristics and performances of the components)	<b>Coverage</b> (kg/m <sup>2</sup> )	<b>Thickness</b> (mm)
Key coats for finishing coats	<b>FOVEO TECH PA 10</b> : key coat primer. (to be used under finishing coats FOVEO TECH TM 10, FOVEO TECH TA 11, FOVEO TECH TS 12, FOVEO TECH TSS 25, FOVEO TECH TPT 40)	0,2 to 0,4	/
	<b>FOVEO TECH PT 20</b> : key coat primer silicate. (to be used under finishing coat FOVEO TECH TT 20)		
	<b>FOVEO TECH PN 30</b> : key coat primer silicone. (to be used under finishing coat FOVEO TECH TN 30)		
Finishing coats	Ready to use paste - acrylate binder <b>FOVEO TECH TA 11</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,0 to 4,6	/
	Ready to use paste - acrylate-silicone binder <b>FOVEO TECH TS 12</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,0 to 4,6	
	Ready to use paste - silicate binder <b>FOVEO TECH TT 20</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,0 to 4,6	
	Ready to use paste - silicone binder <b>FOVEO TECH TN 30</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,0 to 4,6	
	Ready to use paste - silicate-silicone binder <b>FOVEO TECH TSS 25</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,0 to 4,6	

*To be continued*

Table 1 (concluded)

	<b>Components</b> (see 2.3 for further description, characteristics and performances of the components)	<b>Coverage</b> (kg/m <sup>2</sup> )	<b>Thickness</b> (mm)
Finishing coats	Ready to use paste - polymeric binder with addition Teflon <sup>®</sup> Surface Protector <b>FOVEO TECH TPT 40</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure	2,2 to 4,8	/
	Dry mortar - mineral binder <b>FOVEO TECH TM 10</b> (particle size 1,5 mm; 2,0 mm; 2,5 mm; 3,0 mm), floated and ribbed structure (suitable for use with facade paints)	2,0 to 4,0	
Key coats for facade paints	<b>FOVEO TECH GA 10</b> : key coat primer acrylate. (to be used only on finishing coat TM 10 under facade paint FOVEO TECH FA 10, FOVEO TECH FAT 15)	0,05 to 0,15 l/m <sup>2</sup>	/
	<b>FOVEO TECH GT 20</b> : key coat primer silicate (to be used only on finishing coat TM 10 under facade paint FOVEO TECH FT 20)		
	<b>FOVEO TECH GN 30</b> : key coat primer silicone (to be used only on finishing coat TM 10 under facade paint FOVEO TECH FN 30, FOVEO TECH FSS 25)		
Facade paints	Ready to use liquid - acrylate binder <b>FOVEO TECH FA 10</b> (to be use only with key coat on finishing coat TM 10)	0,1 to 0,2 l/m <sup>2</sup>	/
	Ready to use liquid - acrylate binder with addition Teflon <sup>®</sup> Surface Protector <b>FOVEO TECH FAT 15</b> (to be use only with key coat on finishing coat TM 10)		
	Ready to use liquid - silicate binder <b>FOVEO TECH FT 20</b> (to be use only with key coat on finishing coat TM 10)	0,1 to 0,2 l/m <sup>2</sup>	
	Ready to use liquid - silicone binder <b>FOVEO TECH FN 30</b> (to be use only with key coat on finishing coat TM 10)	0,1 to 0,2 l/m <sup>2</sup>	
	Ready to use liquid - silicate-silicone binder <b>FOVEO TECH FSS 25</b> (to be use only with key coat on finishing coat TM 10)	0,1 to 0,2 l/m <sup>2</sup>	
Ancillary materials	Remain under the manufacturer's responsibility		

NOTE 1 Facade paint FOVEO TECH FAT 15 Façade paint acrylate with Teflon<sup>®</sup> Surface Protector is used in the composition of ETICS interchangeably with the product: trade name FOVEO TECH FPT 40 Façade paint polymer with Teflon<sup>®</sup> Surface Protector.

## **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 in 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. 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 localised 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 chapter are valid provided that the components of the kit comply with Annexes 1 to 3.

#### 3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

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

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

**Table 2 – Reaction to fire classification of ETICS FOVEO TECH S – configurations**

Configuration	Max. organic content/ max. heat of combustion	Flame retardant content	Euroclass according to EN 13501-1
Adhesives: FOVEO TECH KS 10 FOVEO TECH KS 20 FOVEO TECH KU 11 FOVEO TECH KU 21	Base coat: FOVEO TECH KU 11 3,1 % / 0,6 MJ/kg  Finishing coat: FOVEO TECH TA 11 13,7 % / 2,4 MJ/kg	Base coat: 0 %  Finishing coat: 0 %	B-s1, d0
EPS 70 F (EN 13163) thickness from 50 mm to 250 mm reaction to fire: E measured density (18,7 ± 0,3) kg/m <sup>3</sup>			
Base coat: FOVEO TECH KU 11 FOVEO TECH KU 21			
Glass fibre meshes: FOVEO TECH SW 145 FOVEO TECH SW 165			
Key coats for finishing coats: FOVEO TECH PA 10 FOVEO TECH PT 20 FOVEO TECH PN 30			
Finishing coats: FOVEO TECH TA 11 FOVEO TECH TS 12 FOVEO TECH TT 20 FOVEO TECH TN 30 FOVEO TECH TSS 25 FOVEO TECH TPT 40			

*To be continued*

**Table 2 (concluded)**

Configuration	Max. organic content/ max. heat of combustion	Flame retardant content	Euroclass according to EN 13501-1
Adhesives: FOVEO TECH KS 10 FOVEO TECH KS 20 FOVEO TECH KU 11 FOVEO TECH KU 21	Base coat: FOVEO TECH KU 11 3,1 % / 0,6 MJ/kg  Finishing coat: FOVEO TECH TM 10 0,6 % / 0,3 MJ/kg  Facade paint: FOVEO TECH FAT 15 38,0 % / 7,2 MJ/kg	Base coat: 0 % Finishing coat: 0 %	B-s1, d0
EPS 70 F (EN 13163) thickness from 50 mm to 250 mm reaction to fire: E measured density (18,7 ± 0,3) kg/m <sup>3</sup>			
Base coat: FOVEO TECH KU 11 FOVEO TECH KU 21			
Glass fibre meshes: FOVEO TECH SW 145 FOVEO TECH SW 165			
Key coat for Finishing coat: FOVEO TECH PA 10			
Finishing coat for Facade paints only: FOVEO TECH TM 10			
Key coats for Facade paints: FOVEO TECH GA 10 FOVEO TECH GT 20 FOVEO TECH GN 30			
Facade paints: FOVEO TECH FA 10 FOVEO TECH FAT 15 FOVEO TECH FT 20 FOVEO TECH FN 30 FOVEO TECH FSS 25			

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

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

**Table 3 – Water absorption of base coat**

		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
<b>Base coats</b>	FOVEO TECH KU 11 FOVEO TECH KU 21	X	

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

Base coats: FOVEO TECH KU 11 FOVEO TECH KU 21		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
<b>Rendering system:</b> Base coats indicated above + Key coats for finishing coats according to Clause 1.1 + Finishing coats indicated hereafter:	FOVEO TECH TA 11	X	
	FOVEO TECH TS 12	X	
	FOVEO TECH TT 20	X	
	FOVEO TECH TN 30	X	
	FOVEO TECH TSS 25	X	
	FOVEO TECH TPT 40	X	
<b>Rendering system:</b> Base coats indicated above + Key coat FOVEO TECH PA 10 + Finishing coat indicated hereafter: + Key coat for facade paints according to Clause 1.1 + Facade paints indicated hereafter:	FOVEO TECH TM 10 + FOVEO TECH FA 10	X	
	FOVEO TECH TM 10 + FOVEO TECH FAT 15	X	
	FOVEO TECH TM 10 + FOVEO TECH FT 20	X	
	FOVEO TECH TM 10 + FOVEO TECH FN 30	X	
	FOVEO TECH TM 10 + FOVEO TECH FSS 25	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 therefore 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 absorption of both base coats and the all rendering systems used in ETICS are less than 0,5 kg/m<sup>2</sup> after 24 hours and so the ETICS is 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**

Base coats: FOVEO TECH KU 11 FOVEO TECH KU 21		Single standard mesh
<b>Rendering systems:</b> Base coats indicated above + Key coats for finishing coats according to Clause 1.1 + Finishing coats indicated hereafter:	FOVEO TECH TA 11	Category II
	FOVEO TECH TT 20	
	FOVEO TECH TPT 40	
	FOVEO TECH TS 12	
	FOVEO TECH TSS 25	
	FOVEO TECH TN 30	
<b>Rendering systems:</b> Base coats indicated above + Key coat FOVEO TECH PA 10 + Finishing coat indicated hereafter: + Key coat for facade paints according to Clause 1.1 + Facade paints indicated hereafter:	FOVEO TECH TM 10 + FOVEO TECH FA 10	Category III
	FOVEO TECH TM 10 + FOVEO TECH FAT 15	
	FOVEO TECH TM 10 + FOVEO TECH FSS 25	
	FOVEO TECH TM 10 + FOVEO TECH FT 20	
	FOVEO TECH TM 10 + FOVEO TECH FN 30	

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

**Table 6 – Water vapour permeability of rendering systems**

Base coats: FOVEO TECH KU 11 FOVEO TECH KU 21		Equivalent air thickness (m)
<b>Rendering systems:</b> Base coat indicated above + Key coats for finishing coats according to Clause 1.1 + Finishing coats indicated hereafter:	FOVEO TECH TA 11	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TA 11, ribbed structure, particles size 3,0 mm: 0,15 m)
	FOVEO TECH TS 12	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TS 12, ribbed structure, particles size 3,0 mm: 0,18 m)
	FOVEO TECH TT 20	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TT 20, ribbed structure, particles size 3,0 mm: 0,10 m)
	FOVEO TECH TN 30	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TN 30, ribbed structure, particles size 3,0 mm: 0,16 m)
	FOVEO TECH TSS 25	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TSS 25, ribbed structure, particles size 3,0 mm: 0,18 m)
	FOVEO TECH TPT 40	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TPT 40, ribbed structure, particles size 3,0 mm: 0,17 m)

*To be continued*

**Table 6 (concluded)**

Base coats: FOVEO TECH KU 11 FOVEO TECH KU 21		Equivalent air thickness (m)
<b>Rendering systems:</b> Base coats indicated above + Key coat FOVEO TECH PA 10 + Finishing coat indicated hereafter: + Key coat for facade paints according to Clause 1.1 + Facade paints indicated hereafter:	FOVEO TECH TM 10 + FOVEO TECH FA 10	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TM 10 ribbed structure, + FOVEO TECH FA 10 particles size 3,0 mm: 0,16 m)
	FOVEO TECH TM 10 + FOVEO TECH FAT 15	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TM 10 ribbed structure, + FOVEO TECH FAT 15 particles size 3,0 mm: 0,20 m)
	FOVEO TECH TM 10 + FOVEO TECH FSS 25	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TM 10 ribbed structure, + FOVEO TECH FSS 25 particles size 3,0 mm: 0,18 m)
	FOVEO TECH TM 10 + FOVEO TECH FT 20	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TM 10 ribbed structure, + FOVEO TECH FT 20 particles size 3,0 mm: 0,12 m)
	FOVEO TECH TM 10 + FOVEO TECH FN 30	$\leq 2,0$ (test results obtained with finishing coat FOVEO TECH TM 10 ribbed structure, + FOVEO TECH FN 30 particles size 3,0 mm: 0,13 m)

### 3.3.5 Release of dangerous substances (ETAG 004 – Clause 5.1.3.5, EOTA TR034)

A written declaration was submitted by the ETA-holder.

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.

## 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)

**Table 7 – Bond strength between base coat and insulation product EPS 70 F**

	Conditionings		
	Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
<b>Base coats:</b> FOVEO TECH KU 11 FOVEO TECH KU 21	$\geq 0,08$ MPa (cohesive rupture)	$\geq 0,08$ MPa (cohesive rupture)	Test not required because freeze/thaw cycles not necessary

### 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 8 – Bond strength between adhesive and substrate/EPS 70 F**

		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
<b>Adhesives:</b> FOVEO TECH KS 10 FOVEO TECH KS 20 FOVEO TECH KU 11 FOVEO TECH KU 21	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	EPS 70 F	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

The ETICS shall be installed on the substrate with application of the adhesive on the following minimal surfaces:

**Table 9 – Minimal bonded surface of adhesive to substrate**

	Tensile strength perpendicular to the face of the insulation product
<b>Adhesives:</b> FOVEO TECH KS 10 FOVEO TECH KS 20 FOVEO TECH KU 11 FOVEO TECH KU 21	40 %

### 3.4.3 Bond strength after ageing (ETAG 004 – Clause 5.1.7.1)

**Table 10 – Bond strength of rendering systems after ageing**

Base coats: FOVEO TECH KU 11 FOVEO TECH KU 21		After 7 days immersion in water + 7 days 23 °C/50% RH (on samples)	After the freeze/thaw cycles (on samples)
<b>Rendering systems:</b> Base coats indicated above + Key coats for finishing coats according to Clause 1.1 + Finishing coats indicated hereafter:	FOVEO TECH TA 11	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
	FOVEO TECH TS 12		
	FOVEO TECH TT 20		
	FOVEO TECH TN 30		
	FOVEO TECH TSS 25		
FOVEO TECH TPT 40			
<b>Rendering systems:</b> Base coats indicated above + Key coat FOVEO TECH PA 10 + Finishing coat indicated hereafter: + Key coat for facade paints according to Clause 1.1 + Facade paints indicated hereafter:	FOVEO TECH TM 10 + FOVEO TECH FA 10		
	FOVEO TECH TM 10 + FOVEO TECH FAT 15		
	FOVEO TECH TM 10 + FOVEO TECH FSS 25		
	FOVEO TECH TM 10 + FOVEO TECH FT 20		
	FOVEO TECH TM 10 + FOVEO TECH FN 30		

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

Test not required (no limitation of ETICS length) because the ETICS fulfils the following criteria:

- The bonded area exceeds 40 % in case of mechanically fixed systems with supplementary adhesive.
- $E \times d = 980 \text{ N/mm} < 50\,000 \text{ N/mm}$ , where  $E$  is modulus of elasticity of the base coat 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)/(EPS 70 F characteristics) mentioned in the first lines of each table.

**Table 11 – Failure loads of combination of anchors described in first line of table**

Anchors for which the following failure loads apply	Trade name	Wkret-met LFN Wkret-met LFM Bravoll PTH-S Bravoll PTH-SX Fisher termoz 8 SV Fisher TERMOZ 8 U Fisher TERMOZ 8 UZ Koelner KI8M Koelner TFIX-8M ejotherm NT U ejotherm STR U
	Plate diameter (mm)	≥ 60
Characteristic of rigid thermal insulation boards (EPS) according to EN 13163 for which the following failure loads apply	Thickness (mm)	≥ 50
	Tensile strength perpendicular to the face (kPa)	≥ 100 < 150
Failure loads (N)	Anchors placed not at the body of the boards EPS (pull - through test)	$R_{\text{panel}}$ : Minimum: 320 Average: 338
	Anchors placed at the body of the boards EPS (pull - through test)	$R_{\text{panel}}$ : Minimum: 370 Average: 380

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

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

where:  $n_{\text{panel}}$  is number (per  $\text{m}^2$ ) of anchors placed at the body of the insulation product;  
 $n_{\text{joint}}$  is number (per  $\text{m}^2$ ) of anchors placed at joints;  
 $\gamma_m$  is national safety factor.

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

The average value of the crack width of the base coat FOVEO TECH KU 11 with the glass fibre mesh FOVEO TECH SW 145 (ASGLATEX 03 - 55), measured at a render strain value of 2 % is for warp direction 0,24 mm and weft direction about 0,32 mm.

Width of crack (Render Strip Tensile Strength) with all other combinations was not performed: 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:

$$U_c = U + \chi_{p,n}$$

where:  $\chi_{p,n}$  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 ( $\chi_{p,n}$  negligible for  $n < 20$ );  
 = 0.004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ( $\chi_{p,n}$  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 12 – 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 is 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, 25 April 2017



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

## **Annexes**

- Annex 1 Insulation product characteristics
- Annex 2 Description and characteristics of the anchors
- Annex 3 Description and characteristics of the reinforcement

## Annex 1

## Insulation product characteristics

Table 13 – Characteristics of EPS 70 F

Trade name	<b>EPS 70 F</b> Designation code according to EN 13163: EPS-EN13163-T1-L2-W2-Sb2-P5-BS115-CS(10)70-DS(N)2-DS(70;-)2-TR100		
Reaction to fire according to EN 13501-1	<b>Density</b> (kg/m <sup>3</sup> )	<b>Maximum thickness</b> (mm)	<b>Class</b>
$d_w = 50$ mm to 250 mm	13,5 to 18,0	250	E
Density according to EN 1602	13,5 kg/m <sup>3</sup> to 18,0 kg/m <sup>3</sup>		
Width, tolerance	500 mm $\pm$ 2 mm		
Length, tolerance	1 000 mm $\pm$ 2 mm		
Thickness, tolerance	50 mm to 250 mm $\pm$ 1 mm		
Squareness according to EN 824	$\pm$ 2 mm/1 000 mm		
Flatness according EN 825	max. 5 mm		
Water vapour diffusion resistance factor ( $\mu$ ) according to EN 12086	20 to 40		
Dimensional stability	under constant normal laboratory conditions / EN 1603	max. $\pm$ 0,2 %	
	under specified temperature and humidity / EN 1604	max. $\pm$ 2 %	
Compressive strength at 10 % pressing according to EN 826	min. 70 kPa		
Tensile test perpendicular to the faces according to EN 1607	min. 100 kPa max. 150 kPa		
Flexural strength according to EN 12089	min. 115 kPa		
Shear strength according to EN 12090	min. 55 kPa		
Thermal resistance	Defined in the CE marking in reference to EN 13163 (m <sup>2</sup> .K/W) "Thermal insulation products for buildings – Factory made products of expanded polystyrene"		

## Annex 2

## Description and characteristics of anchors

Table 14 – 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
Wkret-met LFN φ 8 mm	Nailed-in plastic anchor (polypropylene) with plastic nail (polyamide) 0,5 kN/mm/1,8 kN Use of category: B, C, D, E	60	ETA-06/0080
Wkret-met LFN φ 10 mm	Nailed-in plastic anchor (polypropylene) with plastic nail (polyamide) 0,5 kN/mm/2,0 kN Use of category: B, C, D, E		ETA-06/0105
Wkret-met LFM φ 8 mm	Screwed-in anchor (polypropylene) with steel screw 0,5 kN/mm/2,2 kN Use of category: A, B, C, D, E	60	ETA-06/0080
Wkret-met LFM φ 10 mm	Screwed-in anchor (polypropylene) with steel screw 0,5 kN/mm/2,4 kN Use of category: A, B, C, D, E		ETA-06/0105
Bravoll PTH-S	Screwed-in plastic anchor with steel screw 0,5 kN/mm/1,8 kN Use of category: A, B, C, D, E	60	ETA-10/0028
Bravoll PTH-SX	Nailed-in plastic anchor 0,5 kN/mm/1,8 kN Use of category: A, B, C, D, E	60	ETA-10/0028
Fisher termoz 8 SV	Screwed-in anchor (polyamide) with steel screw 1,1 kN/mm/2,13 kN Use of category: A, B, C, D, E	60	ETA-06/0180
Fisher TERMOZ 8 U Fisher 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	60	ETA-02/0019
KOELNER KI8M	Nailed-in plastic anchor with steel nail 1,21 kN/mm/2,32 kN Use of category: A, B, C	60	ETA-06/0191
KOELNER TFIX-8M	1,0 kN/mm/1,75 kN Use of category: A, B, C	60	ETA-07/0336
ejotherm NT 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
ejotherm STR U	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

### Annex 3

#### Description and characteristics of the reinforcement

Table 15 – Description and characteristics of the reinforcements

Trade name		Description	Alkalis resistance (5.6.7.1 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
FOVEO TECH SW 145	ASGLATEX 03 - 55	Glass fibre mesh: Mesh size: 4,0 mm × 5,0 mm Area density: min. 145 g/m <sup>2</sup>	≥ 20		≥ 50	
	HALICO A150	Glass fibre mesh: Mesh size: 4,7 mm × 5,0 mm Area density: (150 ± 5) g/m <sup>2</sup>				
	AKE 145	Glass fibre mesh: Mesh size: 4,0 mm × 4,5 mm Area density: min. 145 g/m <sup>2</sup>				
FOVEO TECH SW 165	ASGLATEX 03 - 1	Glass fibre mesh: Mesh size: 4,0 mm × 4,0 mm Area density: (160 ± 5) g/m <sup>2</sup>	≥ 20		≥ 50	
	HALICO A165	Glass fibre mesh: Mesh size: 3,8 mm × 4,5 mm Area density: (165 ± 3) g/m <sup>2</sup>				
	OPTIMA - NET 165	Glass fibre mesh: Mesh size: 3,5 mm × 4,0 mm Area density: (165 ± 5) g/m <sup>2</sup>				