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European Technical Assessment

**ETA 14/0118 – version 05
of 09/02/2024**

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

NEW-THERM[®] SYSTEM/Crossin Front System/
STACHEMA PUR THERM/
TERRIX[®] EI-PU/TERRIX[®] EI-PIR

Product family to which the construction product belongs

Product area code: 4
THERMAL INSULATION PRODUCTS.
COMPOSITE INSULATING KITS/SYSTEMS.
External Thermal Insulation Composite Systems (ETICS)
with renderings

Manufacturer

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This European Technical Assessment contains

25 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

EAD 040083-00-0404

This version replaces

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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 polyurethane foam boards 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

	Components (see Annex 1 for further description, characteristics and performances of the components)	Coverage (kg/m ²)	Thickness (mm)
Insulation materials with associated methods of fixing	<p>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.</p> <ul style="list-style-type: none"> • Thermal insulation product Rigid polyurethane boards (PU) "TPD PU (identical to EUROPIR)" according to EN 13165 (see Annex 1 for product characteristics) • Adhesive NEW-THERM ST04/FS (identical to KOMBI P) Preparation: mixing of 6,5 l water/25 kg powder Composition: fillers, Portland cement CEM R52,5, special additives <ul style="list-style-type: none"> • Supplementary anchors (see Annex 2 for list of anchors and their product characteristics) 	/	20 to 200
	<p>Mechanically fixed ETICS with anchors and supplementary adhesive (see 3.16) for possible associations PU/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"> • Thermal insulation product Rigid polyurethane boards (PU) "TPD PU (identical to EUROPIR)" according to EN 13165 (see Annex 1 for product characteristics) • Supplementary adhesive NEW-THERM ST04/FS (identical to KOMBI P) Preparation: mixing of 6,5 l water/25 kg powder Composition: fillers, Portland cement CEM R52,5, special additives • Anchors (see Annex 2 for list of anchors and their product characteristics) 	/	50 to 200
Base coat	<ul style="list-style-type: none"> • NEW-THERM ST04/FS (identical to KOMBI P) Preparation: mixing of 6,5 l water/25 kg powder Composition: fillers, Portland cement CEM R52,5, special additives 	5,4 (powder)	4,0
Glass fibre meshes	<ul style="list-style-type: none"> • Standard glass fibre meshes: (see Annex 3 for product characteristics) R 117 A101 (area density: min. 145 g/m², mesh size 4,0 mm × 4,5 mm) R 131 A101 (area density: min. 160 g/m², mesh size 3,5 mm × 3,8 mm) SSA-1363-145 (area density: 150 g/m² ±5%, mesh size (5,7 mm × 4 mm) ±0,5 mm) SSA-1363-160 (area density: 160 g/m² ±5%, mesh size (5,1 mm × 4,1 mm) ±0,5 mm) 	/	/

	<p>LIFITEX PRO 145 (area density: 145 g/m² ±7%, mesh size 6 mm × 4 mm)</p> <p>LIFITEX PRO 165 (area density: 165 g/m² ±7%, mesh size 5 mm × 4 mm)</p>		
Key coats	<ul style="list-style-type: none"> • NOVALITH PUTZGRUND (identical to NOVALIT GT): ready to use pigmented liquid. (to be used under finishing coat NOVALITH DECKPUTZ) 	0,2 (l/m ²)	-
	<ul style="list-style-type: none"> • ARMASIL PUTZGRUND (identical to ARMASIL GT): ready to use pigmented liquid. (to be used under finishing coat ARMASIL DECKPUTZ) 	0,2 (l/m ²)	-
	<ul style="list-style-type: none"> • FIXASIL O: ready to use pigmented liquid. (to be used under finishing coat COLORSIL R) 	0,18 to 0,25	-
	<ul style="list-style-type: none"> • PENESIL O: ready to use pigmented liquid. (to be used under finishing coats SILCOLOR R and SILCOLOR ACTIVE LONGLIFE) 	0,15 to 0,25	-
Finishing coats	<ul style="list-style-type: none"> • Ready to use paste – silicate binder NOVALITH DECKPUTZ (identical to NOVALIT T) (particle size 1,5), floated structure 	2,5	
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder NOVALIT T AKORD (particle size 1,5), sprayed application 	2,4	
	<ul style="list-style-type: none"> • Ready to use paste – silicone binder ARMASIL DECKPUTZ (identical to ARMASIL T) (particle size 1,5), floated structure 	2,5	
	<ul style="list-style-type: none"> • Ready to use paste – silicone binder ARMASIL DECKPUTZ (identical to ARMASIL T) (particle size 2,0), floated structure 	3,5	
	<ul style="list-style-type: none"> • Ready to use paste – silicone binder ARMASIL T AKORD (particle size 1,5), sprayed application 	2,4	
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder COLORSIL R (particle size 1,5), floated structure 	2,0 to 2,4	
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder COLORSIL R (particle size 2,0), floated structure 	2,9 to 3,3	-
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder SILCOLOR RS (particle size 1,5), floated structure 	2,0 to 2,6	
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder SILCOLOR RS (particle size 2,0), floated structure 	2,9 to 3,6	
	<ul style="list-style-type: none"> • Ready to use paste – silicate binder SILCOLOR ACTIVE LONGLIFE (particle size 1,5), floated structure 	2,2 to 2,6	
<ul style="list-style-type: none"> • Ready to use paste – silicate binder SILCOLOR ACTIVE LONGLIFE (particle size 2,0), floated structure 	2,9 to 3,6		
Ancillary materials	Remain under the manufacturer's responsibility.		

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 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 2.3, 2.4., 2.5 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 belongs 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. 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.

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 know 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 1-3.

3.1 Reaction to fire (EAD 040083-00-0404 – Clause 2.2.1.1, EN 13501-1)

The reaction to fire was determined according to EAD 040083-00-0404, Clause 2.2.1.1 and EN 13501-1. The product as defined under Clause 1.1 reached the following classification stated in Table 2.

Table 2 – Reaction to fire classification of ETICS “NEW-THERM® SYSTEM“

Configuration 1	Max. organic content	Flame retardant content	Euroclass according to EN 13501-1
Adhesive: NEW-THERM ST04/FS (identical to KOMBI P)	Base coat: (1,0 ±0,6)% (measured 0,97%) Finishing coat (ARMASIL T AKORD): (14,62%)	TPD PU: declared by manufacturer Adhesive/Base coat: 0% Finishing coat: 0%	B-s2, d0
TPD PU (EN 13165) thickness: from 20 mm to 200 mm tested thickness: 180 mm reaction to fire: E declared density: 38 kg/m ² to 40 kg/m ²			
Base coat: NEW-THERM ST04/FS (identical to KOMBI P)			
Glass fibre meshes: R 117 A101 and R 131 A101 mass per unit area: from 145 g/m ² +8% to 160 g/m ² +8% SSA-1363-145 SSA-1363-160 LIFITEX PRO 145 LIFITEX PRO 165 (tested)			
Key coats: NOVALITH PUTZGRUND ARMASIL PUTZGRUND (tested) FIXASIL O PENESIL O			
Finishing coats: NOVALITH DECKPUTZ (identical to NOVALIT T) NOVALIT T AKORD ARMASIL DECKPUTZ (identical to ARMASIL T) ARMASIL T AKORD (tested)* COLORSIL R SILCOLOR RS SILCOLOR ACTIVE LONGLIFE			

*Note: Finishing coat ARMASIL T AKORD is the critical coat with the biggest amount of organic content.

Mounting and fixing:

The assessment of reaction to fire is based on tests with maximal insulation layer thicknesses of 180 mm, STN EN ISO 11925-2 and insulation material of declared density 38 kg/m² to 40 kg/m² and a base coat with organic content (1 ±0,6)% and render system with maximum organic content of finishing coat 14,62% and thickness 1,5 mm.

For the SBI this ETICS is mounted directly to a calcium silicate plasterboard substrate with reaction to fire A2, thickness (12 ±1) mm and density of 800 kg/m³.

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.

**3.2 Reaction to fire of thermal insulation material
(EAD 040083-00-0404 – Clause 2.2.1.2, EN 13501-1)**

The reaction to fire of thermal insulation (TPD PU) is assessed and classified to class E. Density is $38 \text{ kg/m}^3 \pm 15\%$.

**3.3 Façade fire performance
(EAD 040083-00-0404 – Clause 2.2.2)**

No performance assessed.

3.4 Content, emission and/or release of dangerous substances – leachable substances (EAD 040083-00-0404 – Clause 2.2.4)

No performance assessed.

**3.5 Water absorption of the base coat and the rendering systems
(EAD 040083-00-0404 – Clause 2.2.5.1)**

Table 3 – Water absorption of base coat

		Water absorption in kg/m^2 Mean value	
		After 1 hour	After 24 hours
Base coat	NEW-THERM ST04/FS	0,056	0,333

Table 4 – Water absorption of rendering systems

Base coat NEW-THERM ST04/FS		Water absorption in kg/m^2 Mean value	
		After 1 hour	After 24 hours
Rendering systems: base coat + key coat according to Clause 1.1 + finishing coats indicated hereafter:	NOVALITH DECKPUTZ 1,5 (tested on NOVALIT T 1,5)	0,123	0,434
	NOVALIT T AKORD	0,080	0,374
	ARMASIL DECKPUTZ	0,027	0,343
	ARMASIL T AKORD	0,032	0,207
	COLORSIL R	0,043	0,291
	SILCOLOR RS	0,040	0,245
	SILCOLOR ACTIVE LONGLIFE	0,026	0,197

**3.6 Water absorption of the thermal insulation product
(EAD 040083-00-0404 – Clause 2.2.5.2/EN 1609)**

The average value of water absorption of thermal insulation product “TPD PU” after 24 hours is $0,11 \text{ kg/m}^2$.

The maximum value of water absorption of thermal insulation product “TPD PU” after 24 hours is $0,135 \text{ kg/m}^2$.

3.7 Water-tightness of the ETICS: Hydrothermal behaviour (EAD 040083-00-0404 – Clause 2.2.6)

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.

3.8 Water-tightness of the ETICS: Freeze-thaw behaviour (EAD 040083-00-0404 – Clause 2.2.7)

The water absorption of base coat used in this ETICS is less than 0,5 kg/m² after 24 hours. However, **the corresponding configuration (base coat + glass fibre mesh applied on TPD PU) has been tested (no failure occurred), so ETICS is assessed as freeze/thaw resistant.**

The water absorption of all rendering systems used in this ETICS are less than 0,5 kg/m² after 24 hours and so **the corresponding configuration(s) of the ETICS is(are) assessed as freeze/thaw resistant.**

3.9 Impact resistance (EAD 040083-00-0404 – Clause 2.2.8)

Performance is stated by level expressed by Category II, III. The resistance to hard body impacts (3 Joules and 10 Joules) for rendering systems leads to the following use categories stated in Table 5.

Diameter of the impact has been measured.

The presence of any micro cracks, at the impact point and at the circumference is stated in Table 5.

Table 5 – Use categories for ETICS according to impact resistance

Base coat: NEW-THERM ST04/FS		Single standard mesh
Rendering systems: base coat (4,6 mm) indicated above + key coats according to Clause 1.1 + finishing coats indicated hereafter:	NOVALITH DECKPUTZ 1,5	Category III diameter of the impact: 30 mm/35 mm/33 mm/49 mm/55 mm (10 J) 28 mm/24 mm/22 mm/20 mm/3 1 mm (3 J) Presence of cracks: yes (3 J, 10 J)
	NOVALIT T AKORD	Category II diameter of the impact: 33 mm/31 mm/30 mm/37 mm/34 mm (10 J) 0 mm (3 J) Presence of cracks: yes (10 J)
	ARMASIL DECKPUTZ	Category III diameter of the impact: 24 mm/42 mm/35 mm/40 mm/50 mm (10 J) 20 mm/-/-/10 mm/15 mm (3 J) Presence of cracks: yes (3 J, 10 J)
	ARMASIL T AKORD	Category III diameter of the impact: 35 mm/41 mm/39 mm/31 mm/32 mm (10 J) 19 mm/20 mm/20 mm/23 mm/19 mm (3 J) Presence of cracks: yes (3 J, 10 J)

	COLORSIL R	<p>Category III diameter of the impact: 31 mm/36 mm/33 mm/38 mm/40 mm (10 J) 14 mm/16 mm/17 mm/17 mm/14 mm (3 J) Presence of cracks: yes (3 J, 10 J)</p>
	SILCOLOR RS	<p>Category III diameter of the impact: 40 mm/30 mm/35 mm/37 mm/42 mm (10 J) -/15 mm/-/20 mm/- (3 J) Presence of cracks: yes (3 J, 10 J)</p>
	SILCOLOR ACTIVE LONGLIFE	<p>Category II diameter of the impact: 25 mm/32 mm/25 mm/32 mm/ 35 mm (10 J) -/18 mm/-/ (3 J) Presence of cracks: yes (10 J)</p>

3.10 Water vapour permeability (EAD 040083-00-0404 – Clause 2.2.9.1)

Table 6 – Water vapour permeability of rendering systems

Base coat: NEW-THERM ST04/FS		Equivalent air thickness (m)
Rendering systems: base coat indicated above + key coats according to Clause 1.1 + finishing coats indicated hereafter:	NOVALITH DECKPUTZ	0,3 (measured 0,34) (test results obtained with finishing coat NOVALITH DECKPUTZ, floated structure, particles size 2,0 mm, THR is 5,75 mm Protokol 90-22-0208, 4.08.2022
	NOVALIT T AKORD	0,5 (measured 0,54) (test results obtained with finishing coat NOVALIT T AKORD, sprayed application, particles size 1,5 mm, THR is 5,15 mm
	ARMASIL DECKPUTZ	0,6 (measured 0,58) (test results obtained with finishing coat ARMASIL DECKPUTZ, floated structure, particles size 2 mm, THR is 3,8 mm)
	ARMASIL T AKORD	no performance assessed
	COLORSIL R	0,4 (measured 0,42) (test results obtained with finishing coat COLORSIL R, floated structure, particles size 2 mm, THR is 7,58 mm
	SILCOLOR RS	0,4 (measured 0,35) (test results obtained with finishing coat SILCOLOR OS, ribbed structure structure, particles size 2,0 mm, THR is 7,12 mm
	SILCOLOR ACTIVE LONGLIFE	0,3 (measured 0,32) (test results obtained with finishing coat SILCOLOR O, ribbed structure, particles size 2,0 mm, THR is 6,74 mm

Note: THR is the total thickness of rendering system.

3.11 Water vapour permeability of thermal insulation product (EAD 040083-00-0404 – Clause 2.2.9.2)

The water vapour diffusion resistance factor of thermal insulation factor of thermal insulation product “TPD PU” is 100,2, the tested thickness is 60 mm.

3.12 Bond strength between base coat and thermal insulation product (EAD 040083-00-00-0404 – Clause 2.2.11.1)

Table 7 – Bond strength between base coat NEW-THERM ST04/FS and thermal insulation product TPD PU

Base coat	Conditionings		
	Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
NEW-THERM ST04/FS	Minimal value: 124 kPa Mean value: 144 kPa failure in the insulation product thickness: 3,31 mm	Minimal value: 58 kPa Mean value: 100 kPa failure in the insulation product thickness: 4,6 mm	Minimal value: 104 kPa Mean value: 110 kPa failure between base coat and insulation product thickness: 5,1 mm

3.13 Bond strength between adhesive and substrate (EAD 040083-00-0404 – Clauses 2.2.11.2)

Table 8 – Bond strength between adhesive NEW-THERM ST04/FS and substrate

		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
NEW-THERM ST04/FS	Concrete	Minimal value: 1 004 kPa Mean value: 1 140 kPa fulfils \geq 250 kPa	Minimal value: 704 kPa Mean value: 850 kPa fulfils \geq 80 kPa	Minimal value: 1 220 kPa Mean value: 1 390 kPa fulfils \geq 250 kPa

3.14 Bond strength between adhesive and thermal insulation product (EAD 040083-00-0404 – Clauses 2.2.11.3)

Table 9 – Bond strength between adhesive NEW-THERM ST04/FS and thermal insulation product

		Initial state	48 h immersion in water + 2 h 23 °C/50% RH	48 h immersion in water + 7 days 23 °C/50% RH
Adhesive NEW-THERM ST04/FS	Thermal insulation product TPD PU	Minimal value: 83 kPa Mean value: 123 kPa failure in the insulation product thickness of adhesive: 2,56 mm	Minimal value: 72 kPa Mean value: 110 kPa failure in the insulation product thickness of adhesive: 2,34 mm	Minimal value: 76 kPa Mean value: 120 kPa failure in the insulation product thickness of adhesive: 2,86 mm

The ETICS shall be installed on the substrate with application of the adhesive on the following minimal surfaces (% of total) according to Table 10:

Table 10 – Minimal admissible bonded surface area of adhesive NEW-THERM ST04/FS for mechanically fixed ETICS with supplementary adhesive to substrate

		Tensile strength perpendicular to the face of the insulation product
		\geq 120 kPa
NEW-THERM ST04/FS		40%

**3.15 Fixing strength
(EAD 040083-00-0404 – Clause 2.2.12)**

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.
- $E \times d = 3\,384,04 \text{ N/mm} < 50\,000 \text{ N/mm}$, where E is modulus of elasticity of the base coat NEW-THERM ST04/FS without glass fibre mesh and d is mean dried thickness of the base coat NEW-THERM ST04/FS.

**3.16 Wind load resistance
(EAD 040083-00-0404 – Clause 2.2.13)**

Safety in use of mechanically fixed ETICS using anchors

The following values only apply for the combination (anchor's trade name)/(TPD PU characteristics) mentioned in the first lines of Table 11.

Table 11 – Failure loads of combination of anchors described in below table and thermal insulation product TPD PU-EN 13165-TR120

Anchors for which the following failure loads apply	Trade name	Anchors according to list in Table 16 of Annex 2	
	Plate diameter (mm)	≥ 60	
Characteristic of the thermal insulation product panels for which the following failure loads apply	PU-EN 13165-T2-DS(-20,-)2-DS(70,90)3-CS(10/Y)150-TR120-WL(T)1,7-WL(P)0,32-WS(P)0,15		
	Thickness (mm)	≥ 50	
	Tensile strength perpendicular to the face (kPa)	≥ 120	
	Tensile strength perpendicular to the face (kPa) – measured value	137,5	
	Compressive strength at 10% deformation (kPa)	≥ 150	
	Compressive strength at 10% deformation (kPa) – measured value	178,1	
	Density (kg/m ³) – measured value	39,7	
Failure loads (N)	Anchors not placed at the panel joint (pull – through test)	R_{panel} :	Minimum: 553 Average: 669
Failure loads (N)	Anchors placed at the panel joint (pull – through test)	R_{joint} :	Minimum: 520 Average: 539

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

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

n_{panel} is number (per m²) of anchors placed at the body of the insulation product;
 n_{joint} is number (per m²) of anchors placed at joints of the thermal insulation products;
 γ_m is national safety factor.

3.17 Tensile strength perpendicular to the faces of the thermal insulation product (EAD 040083-00-0404 – Clause 2.2.14)

The minimal/mean value of tensile strength perpendicular to the faces of the thermal insulation product “TPD PU” is 122,5/137,5 kPa. Tested thickness of thermal insulation is 50 mm.

3.18 Shear strength and shear modulus of elasticity test of ETICS (EAD 040083-00-0404 – Clause 2.2.18)

The minimal/mean value of shear strength of the thermal insulation product “TPD PU” is 56,8/61,4 kPa. Tested thickness of thermal insulation is 60 mm. The minimal/mean value of shear modulus of elasticity of the thermal insulation product “TPD PU” is 1 083,1/1 239 kPa. Tested thickness of thermal insulation is 60 mm.

3.19 Render strip tensile test (EAD 040083-00-0404 – Clause 2.2.17)

The characteristic crack width w_{rk} for warp direction of rendering system with used evaluation method – exact procedure (I) of 2.2.17 EAD 040083-00-0404 is 0,106 mm for $\epsilon_{rk} = 0,8\%$.

The characteristic crack width w_{rk} for weft direction of rendering system with used evaluation method – exact procedure (I) of 2.2.17 EAD 040083-00-0404 is 0,206 mm for $\epsilon_{rk} = 0,8\%$.

3.20 Bond strength after ageing (EAD 040083-00-0404 – Clause 2.2.20)

Table 12 – Bond strength of rendering systems after ageing (EAD 040083-00-0404 – Clauses 2.2.20.1* and 2.2.20.2)**

Base coat: NEW-THERM ST04/FS		Individual values Mean value Thickness Type of failure	After freeze/thaw cycles
Rendering systems: base coat + key coats according to Clause 1.1 + finishing coats indicated hereafter:	NOVALITH DECKPUTZ*	136/121/137/142/94 kPa 126 kPa thickness 6,3 mm failure in the insulation	Test not performed because freeze/thaw cycles not necessary
	NOVALIT T AKORD*	91/113/81/87/66 kPa 90 kPa thickness 7,6 mm failure in the insulation	
	ARMASIL DECKPUTZ*	97/108/117/107/89 kPa 100 kPa thickness 5,6 mm failure in the insulation	
	ARMASIL T AKORD**	155/129/171/149/146 kPa 150 kPa thickness 6,4 mm failure in the insulation	
	COLORSIL R*	104/119/62/110/94 kPa 100 kPa thickness 7,2 mm failure in the insulation	
	SILCOLOR RS**	114/127/147/133/123 kPa 130 kPa thickness 5,3 mm failure in the insulation	
	SILCOLOR ACTIVE LONGLIFE**	109/84/113/122/117 kPa 110 kPa thickness 6,4 mm failure in the insulation	

3.21 Tensile strength and elongation of the glass fibre mesh in the as-delivered state and after ageing (EAD 040083-00-0404 – Clauses 2.2.21.1 and 2.2.21.2)

Table 13 – Tensile strength and elongation of the glass fibre meshes

Mesh type (Trade name + ETA No.)	Characteristic	Warp direction	Weft direction
R 117 A101 (ETA 13/0392)	Mean value of tensile strength in the as delivered state	45 N/mm	47 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	23 N/mm	28 N/mm
	Mean value of elongation in the as delivered state	3,7%	4,2%
	Mean value of elongation after ageing	2,1%	2,4%
	Residual strength after ageing ($\geq 50\%$)	51,1%	59,6%
R 131 A101 (ETA 13/0392)	Mean value of tensile strength	48 N/mm	50 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	33 N/mm	38 N/mm
	Mean value of elongation in the as delivered state	3,9%	4,0%
	Mean value of elongation after ageing	2,9%	3,0%
	Residual strength after ageing ($\geq 50\%$)	68,8%	76,0%
SSA-1363-145 (ETA 16/0526)	Mean value of tensile strength	49 N/mm	50 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	25 N/mm	29 N/mm
	Mean value of elongation in the as delivered state	3,8%	3,7%
	Mean value of elongation after ageing	2,1%	2,3%
	Residual strength after ageing ($\geq 50\%$)	51%	58%
SSA-1363-160 (ETA 16/0526)	Mean value of tensile strength	43 N/mm	45 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	26 N/mm	29 N/mm
	Mean value of elongation in the as delivered state	3,6%	3,9%
	Mean value of elongation after ageing	2,3%	2,3%
	Residual strength after ageing ($\geq 50\%$)	60,5 N/mm	64,4 N/mm
LIFITEX PRO 145 (ETA 19/0428)	Mean value of tensile strength	51,1 N/mm	44,8 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	27,8 N/mm	64,5 N/mm
	Mean value of elongation in the as delivered state	3,8%	4,0%
	Mean value of elongation after ageing	2,1%	2,6%
	Residual strength after ageing ($\geq 50\%$)	54,4%	73,2%
LIFITEX PRO 165 (ETA 19/0428)	Mean value of tensile strength	41,3 N/mm	46,7 N/mm
	Mean value of tensile strength after ageing (≥ 20 N/mm)	20,8 N/mm	24,1 N/mm
	Mean value of elongation in the as delivered state	4,2%	5,0%
	Mean value of elongation after ageing	1,8%	1,7%
	Residual strength after ageing ($\geq 50\%$)	50,4%	51,6%

**3.22 Airborne sound insulation of ETICS
(EAD 040083-00-0404 – Clause 2.2.22.1)**

No performance assessed.

**3.23 Dynamic stiffness of the thermal insulation product
(EAD 040083-00-0404 – Clause 2.2.22.2)**

No performance assessed.

**3.24 Air flow resistance of the thermal insulation product
(EAD 040083-00-0404 – Clause 2.2.22.3)**

No performance assessed.

**3.25 Thermal resistance and thermal transmittance of ETICS
(EAD 040083-00-0404 – Clause 2.2.23)**

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/(m²·K);
- U_c global (corrected) thermal transmittance of the covered wall (W/(m²·K));
- n number of anchors (through insulation product) per m²;
- χ_p local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
- = 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/(m²·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 (m²·K)/W;
- R_{render} thermal resistance of the render (about 0,02 in (m²·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 (m²·K)/W;
- R_{se} external superficial thermal resistance in (m²·K)/W;
- R_{si} internal superficial thermal resistance in (m²·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.

3.26 Thermal resistance of the thermal insulation product (EAD 040083-00-0404 – Clause 2.2.23.1)

The value of thermal conductivity of thermal insulation product (TPD PU) with thickness less than 80 mm is 0,025 W/(m·K).

The value of thermal conductivity of thermal insulation product (TPD PU) with thickness equal and bigger than 80 mm and less than 120 mm is 0,024 W/(m·K).

The value of thermal conductivity of thermal insulation product (TPD PU) with thickness equal and bigger 120 mm is 0,023 W/(m·K).

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 14 – 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 ⁽¹⁾ , A2 ⁽¹⁾ , B ⁽¹⁾ , C ⁽¹⁾	1
		A1 ⁽²⁾ , A2 ⁽²⁾ , B ⁽²⁾ , C ⁽²⁾ , D, E, (A1 to E) ⁽³⁾ , F	2+
	in external wall not subject to fire regulations	Any	2+
⁽¹⁾ Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material). ⁽²⁾ Products/materials not covered by footnote (1). ⁽³⁾ Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC).			

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

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 2024

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

Annexes

- Annex 1 Thermal insulation product characteristics
- Annex 2 Description and characteristics of the anchors
- Annex 3 Description and characteristics of the reinforcement
- Annex 4 Correspondence between trade names used for components in ETICS
"NEW-THERM® SYSTEM" identical to "Crossin Front System" and "STACHEMA PUR THERM" and TERRIX® EI-PU, TERRIX® EI-PIR

Annex 1

Thermal insulation product characteristics

Table 15 – Characteristics of TPD PU

Trade name	TPD PU Designation code according to EN 13165: PU-EN 13165-T2-DS(-20,-)2-DS(70,90)3-CS(10/Y)150-TR120-WL(T)1,7-WL(P)0,32-WS(P)0,15, dimension: 1 000 mm × 600 mm		
Reaction to fire according to EN 13501-1	Density (kg/m ³)	Maximum thickness (mm)	Class
$d_w = 20$ mm to 200 mm	38 to 40	200	E
Density according to EN 1602	38 kg/m ³ to 40 kg/m ³		
Width, tolerancy	600 mm ±5 mm		
Length, tolerancy	1 000 mm ±7,5 mm		
Thickness	PU-EN 13165-T2		
Squareness according to EN 824	max. 5 mm/m		
Flatness according EN 825	max. 5 mm		
Short term water absorption by partial immersion according EN 1609	max. 0,5 kg/m ²		
Long term water absorption by partial immersion according EN 12087 (method 1A)	max. 0,5 kg/m ²		
Long term water absorption by immersion according EN 12087 (method 2A)	max. 1,7%		
Water vapour diffusion resistance factor (μ) according to EN 12086	81-109		
Dimensional stability under specified temperature and humidity / EN 1604	max. ±2%		
Compressive strength according to EN 826	min. 150 kPa		
Tensile test perpendicular to the faces according to EN 1607	min. 120 kPa		
Shear strength according to EN 12090	min. 0,02 N/mm ²		
Shear modulus according to EN 12090	min. 1,0 N/mm ²		
Thermal resistance to be calculated according to the following formula	$R_{ins} = d_{ins}/\lambda_{ins}$	R_{ins} is thermal resistance of TPD PU d_{ins} is thickness of TPD PU (m) λ_{ins} (see declared values under clause 3.26)	

Annex 2

Description and characteristics of anchors

Table 16 – 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
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
TERMOFIX CF 8	Nailed-in plastic anchor with steel nail 0,5 kN/mm/1,65 kN Use of category: A, B, C	60	ETA-07/0287
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
fisher Termoz CN 8 (tested for pull through)	0,4 kN/mm/1,6 kN Use of category: A, B, C, D	60	ETA-09/0394
fisher Termoz PN 8	0,4 kN/mm/1,6 kN Use of category: A, B, C	60	ETA-09/0171
fisher Termoz CS 8	0,6 kN/mm/1,7 kN Use of category: A, B, C, D, E	60	ETA-14/0372
fisher Termoz CS II 8	1,29 kN/mm/2,61 kN Use of category: A, B, C, D, E	60	ETA-14/0372
Koelner KI-10 Koelner N-10PA	0,5 kN/mm/2,1 kN Use of category: A, B, C, D, E	60	ETA-07/0291
Koelner KI-10M	0,4 kN/mm/2,6 kN Use of category: A, B, C	60	ETA-07/0291
Koelner TFIX-8M	1,0 kN/mm/1,75 kN Use of category: A, B, C	60	ETA-07/0336
Koelner TFIX-8S Koelner TFIX-8ST	0,6 kN/mm/2,04 kN Use of category: A, B, C, D, E	60	ETA-11/0144
Bravoll PTH 60/8 Bravoll PTH-KZ 60/8	Nailed-in plastic anchor with polyamide (PTH-KZ) (steel –PTH-KZ) nail and plastic head 0,4 kN/mm/1,6 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	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	Nailed-in plastic anchor 0,5 kN/mm/1,8 kN Use of category: A, B, C, D, E	60	ETA-10/0028
Bravoll PTH-X	Nailed-in plastic anchor with polyamide nail 0,6 kN/mm/1,5 kN Use of category: A, B, C, D	60	ETA-13/0951

Bravoll PTH-EX	Nailed-in plastic anchor with steel nail 0,6 kN/mm/1,4 kN Use of category: A, B, C, D	60	ETA-13/0951
ejotharm NTK U	Nailed-in plastic anchor with polyamide nail and plastic head 0,5 kN/mm/1,44 kN Use of category: A, B, C	60	ETA-07/0026
ejotharm NT U ejotharm 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
ejotharm STR U ejotharm 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
EJOT H1 eco EJOT H4 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
WK THERM S	0,6 kN/mm/4,3 kN Use of category: A, B, C, D, E	60	ETA-13/0724
WK THERM Ø8	0,6 kN/mm/4,3 kN Use of category: A, B, C	60	ETA-11/0232
FIXPLUG 8	0,6 kN/mm/1,4 kN Use of category: A, B, C, D, E	60	ETA-15/0373
FIXPLUG 10	0,6 kN/mm/1,6 kN Use of category: A, B, C, D, E	60	ETA-15/0373
eco-drive	0,6 kN/mm/2,8 kN Use of category: A, B, C, D, E	60	ETA-13/0107

Annex 3

Description and characteristics of the reinforcement

Table 17 – Description and characteristics of the reinforcement

Trade name and characteristics and their parameters		
R 117 A101	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(4,7 × 5,8) mm 152 g/m ² 6,64 MJ/kg
R 131 A101	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(4,0 × 4,6) mm 167 g/m ² 5,80 MJ/kg
SSA-1363-145	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(5,7 × 4,0) mm ± 0,5 mm 150 g/m ² ±5% 6,44 MJ/kg
SSA-1363-160	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(5,1 × 4,1) mm ± 0,5 mm 160 g/m ² ±5% 6,41 MJ/kg
LIFITEX PRO 145	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(6 × 4) mm 145 g/m ² ±7% max. 5,53 MJ/kg
LIFITEX PRO 165	Mesh size (average value) Mass per unit area (average value) Heat combustion (average value)	(5 × 4) mm 165 g/m ² ±7% max. 6,12 MJ/kg

Annex 4

Correspondence between trade names used for components in ETICS

“NEW-THERM® SYSTEM” (identical to ETICS “Crossin Front System” and “STACHEMA PUR THERM” and TERRIX® EI-PU, TERRIX® EI-PIR)

ETICS	NEW-THERM® SYSTEM	Crossin Front System	STACHEMA PUR THERM	TERRIX® EI-PU TERRIX® EI-PIR
Adhesive	NEW-THERM ST04/FS (identical to KOMBI P and to TERRIX AD-AB)	Crossin Front FS	CHEMA SET SPECIAL P	TERRIX® AD-AB
Thermal insulation	TPD PU (identical to EUROPIR)	Crossin TPD PU	TPD PU	TERRIX® IN-PU (identical to EUROPIR)
Base coat	NEW-THERM ST04/FS (identical to KOMBI P)	Crossin Front FS	CHEMA SET SPECIAL P	TERRIX® AD-AB
Glass fibre meshes	R 117 A101			
	R 131 A101			
	SSA-13163-145			
	SSA-13163-160			
	LIFITEX PRO 145			
	LIFITEX PRO 165			
Key coats	NOVALITH PUTZGRUND		–	–
	ARMASIL PUTZGRUND	Crossin Front A grunt	–	–
	NOVALIT GT	–	–	TERRIX® PR-PS-R
	ARMASIL GT	–	–	TERRIX® PR-SN-R
	–	–	FIXASIL O	–
	–	–	PENESIL O	–
	–	–	–	–
Finishing coats	NOVALITH DECKPUTZ		–	–
	NOVALIT T	-	-	TERRIX® RD-PS
	NOVALIT T AKORD	-	-	TERRIX® RD-PS-S
	ARMASIL DECKPUTZ	Crossin Front A	–	–
	ARMASIL T	–	–	TERRIX® RD-SN
	ARMASIL T AKORD	-	-	TERRIX® RD-SN-S
	–	–	COLORSIL R	–
	–	–	SILCOLOR RS	–
	–	–	SILCOLOR ACTIVE LONGLIFE	–