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European Technical Assessment

ETA-23/0033 of 03/01/2024

General Part

Technical Assessment Body issuing the European Technical Assessment: Technical and Test Institute for Construction Prague	
Trade name of the construction product	**VITALTHERM MW**
Product family to which the construction product belongs	Product area code: 4 External Thermal Insulation Composite Systems (ETICS) with renderings
Manufacturer	Vitalvernici Viale Francesco de Blasio 11/13 - 70132 Bari, Italy www.vitalvernici.it
Manufacturing plant(s)	Vitalvernici Viale Francesco de Blasio 11/13 - 70132 Bari, Italy
This European Technical Assessment contains	23 pages including 5 Annexes which form an integral part of this assessment. Annex No. 6 Control Plan contains confidential information and is not included in the European Technical Assessment when that assessment is publicly disseminated.
This European Technical Assessment is issued in accordance with regulation (EU) No. 305/2011 on the basis of	European Assessment Document (EAD) 040083-00-0404 External Thermal Insulation Composite Systems (ETICS) with renderings

Specific Parts

1 Technical description of the product

1.1 Composition of the product (kit)

Table 1

Use and variant	Component	Coverage [kg/m²]	Thickness [mm]
Adhesive 1	**LEGANKOL V2 AC** Powder requiring addition of water 0.16 – 0.20 l/kg Use as adhesive	3 – 5 (dry powder)	2 – 40
Thermal insulation product 1	**MW Board TR7.5** Factory made mineral wool (MW)	N/A	50 – 300
Thermal insulation product 2	**MW Board TR10** Factory made mineral wool (MW)	N/A	50 – 300
Anchors	**VITALTHERM TFIX 8S** Plastic anchors	N/A	N/A
Base coat 1	**LEGANKOL V2 AC** Powder requiring addition of water 0.16 – 0.20 l/kg Use as base coat	6 – 9 (paste)	3 – 6
Reinforcement 1	**VITALTHERM mesh 160** Standard glass fibre mesh (application in one layer) Embedded in base coat	0.16 – 0.20 (per layer)	< 1.0 (per layer)
Key coat 1	**PRIMER V1** Use optionally with finishing coat 1 and 3	0.15 – 0.20 (liquid)	< 0.2
Key coat 2	**PRIMER S1** Use optionally with finishing coat 2	0.15 – 0.20 (liquid)	< 0.2
Finishing coat 1	**SPATOLATO V1** Ready-to-use paste Acrylic based finishing coat Floated structure, application in one layer max. particle size 1.5 mm	2.0 – 3.0 (paste)	1.2 ~ 1.5
Finishing coat 2	**SPATOLATO S1** Ready-to-use paste Silicone based finishing coat Floated structure, application in one layer max. particle size 1.5 mm	2.0 – 3.0 (paste)	1.2 ~ 1.5
Finishing coat 3	**RESTAURMIX FB1** Powder to be mixed with 22-24% water Ethylene vinyl acetate based finishing coat Floated structure, application in two layer max. particle size 1.0 mm	3.0 – 5.0 (powder)	2.0

Types of the ETICS can be distinguished, depending on the fixing method of thermal insulation:

Table 2

Component	Type of ETICS	
	Bonded ETICS with supplementary anchors	**Mechanically fixed ETICS with anchors with supplementary adhesive**
Adhesive	**ADHESIVE 1** Min. 40 % area covered by adhesive	**ADHESIVE 1**
Thermal insulation product	In accordance with Table 1	In accordance with Table 1
Anchors	See Annex No. 4	See Annex No. 4

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

This product is an External Thermal Insulation Composite System (ETICS) with renderings (rendering system). The product is a kit, comprising from number of components.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) to treat details of ETICS (connections, apertures, corners, parapets, sills ...). Special fittings are not listed nor assessed in this ETA.

The ETICS is installed in accordance with Manufacturer´s installation instructions.

The ETICS may be used on new or existing (retrofit) vertical building walls. The walls can be made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels). The surface can be rendered or unrendered.

The ETICS is designed for use on vertical walls but can also be used on horizontal or inclined surfaces which are not exposed to precipitation.

The ETICS is a non-load-bearing construction element and it does not contribute directly to the stability of the wall on which it is installed.

The ETICS provides additional thermal insulation and protection from effect of weathering.

The provisions made in this ETA are based on an assumed intended working life of at least 25 years, provided that the ETICS installed and maintained properly. The indications given as to the working life of the construction product cannot be interpreted as a guarantee, but are regarded as means for expressing the expected economically reasonable working life of the product.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advice his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

3 Performance of the product and references to the methods used for its assessment

Table 3

Essential characteristic	Assessment method (EAD clause)	Performance
Reaction to fire of ETICS	Cl. 2.2.1.1	See cl. 3.1.1
Reaction to fire of thermal insulation material	Cl. 2.2.1.2	No performance assessed (See Annex No. 2 and 3 for component characteristic)
Façade fire performance	Cl. 2.2.2	No performance assessed
Propensity to undergo continuous smouldering of ETICS	Cl. 2.2.3	No performance assessed
Content, emission and/or release of dangerous substances – leachable substances	Cl. 2.2.4	No performance assessed
Water absorption of the base coat and the rendering system	Cl. 2.2.5.1	See cl. 3.2.1
Water absorption of the insulation product	Cl. 2.2.5.2	No performance assessed (See Annex No. 2 and 3 for component characteristic)
Water-tightness of the ETICS: hygrothermal behaviour	Cl. 2.2.6	See cl. 3.2.2
Impact resistance	Cl. 2.2.8	See cl. 3.2.4
Water vapour permeability of the rendering system (equivalent air thickness s_d)	Cl. 2.2.9.1	See cl. 3.2.5
Water vapour permeability of thermal insulation product (water-vapour resistance factor)	Cl. 2.2.9.2	No performance assessed (See Annex No. 2 and 3 for component characteristic)
Bond strength between the base coat and the thermal insulation product (mortar or paste)	Cl. 2.2.11.1	See cl. 3.3.1
Bond strength between the adhesive and the substrate	Cl. 2.2.11.2	See cl. 3.3.2
Bond strength between the adhesive and the thermal insulation product	Cl. 2.2.11.3	See cl. 3.3.3
Render strip tensile test	Cl. 2.2.17	See cl. 3.3.5
Bond strength after ageing of finishing coat tested in the rig	Cl. 2.2.20.1	See cl. 3.3.6
Bond strength after ageing of finishing coat not tested in the rig	Cl. 2.2.20.2	See cl. 3.3.7
Tensile strength of the glass fibre mesh	Cl. 2.2.21.1 Cl. 2.2.21.2	No performance assessed (See Annex No. 5 for component characteristic)
Dynamic stiffness of the thermal insulation product	Cl. 2.2.22.2	No performance assessed (See Annex No. 2 and 3 for component characteristic)
Thermal resistance and thermal transmittance of ETICS	Cl. 2.2.23	See cl. 3.3.8
Thermal resistance of the thermal insulation product	Cl. 2.2.23.1	No performance assessed (See Annex No. 2 and 3 for component characteristic)

Table 4 – Table 21 lay down assessments of essential characteristics of specific combinations of ETICS components.

Any combination of components not meeting the criteria of Table 4 – Table 21 is assessed as "No performance assessed" in regard to the relevant essential characteristic.

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire of ETICS

Table 4

Reaction to fire of ETICS: A2-s1, d0	
Component	**ETICS configuration**
Adhesive	**ADHESIVE 1**
Thermal insulation product	Thermal insulation product 1 or 2 Max. apparent density (EN 1602): 101 kg/m3
Anchors	In accordance with Table 1
Base coat	**BASE COAT 1** in thickness of min. 6 mm
Reinforcement	Reinforcement 1 in max. two layers Provided reinforcement 1 has max. heat of combustion 6.61 MJ/Kg (1.05 MJ/m^2)
Key coat	In accordance with Table 1
Finishing coat	In accordance with Table 1
Decorative coat	Not to be used

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Water absorption of the base coat and the rendering system

Table 5

Water absorption of the reinforced base coat		
ETICS configuration requirements:	**After 1 h [kg/m²]**	**After 24 h [kg/m²]**
LEGANKOL V2 AC	**0.05**	**0.31**

Table 6

Water absorption of the complete rendering				
ETICS configuration requirements:			**After 1 h [kg/m²]**	**After 24 h [kg/m²]**
Base coat	**Finishing coat**	**Key coat**		
LEGANKOL V2 AC	**SPATOLATO V1**	All of key coats of Table 1	**0.03**	**0.11**
	SPATOLATO S1		**0.11**	**0.36**
	RESTAURMIX FB1		**0.15**	**0.58**

3.2.2 Water-tightness of the ETICS: hygrothermal behaviour

Table 7

Water-tightness of the ETICS: hygrothermal behaviour
Hygrothermal cycles have been performed on products tested in the hygrothermal rig. The ETICS passed the test and is assessed as **resistant to hygrothermal cycles**.

3.2.3 Water-tightness: freeze thaw performance

Table 8

Water-tightness: freeze thaw performance
The ETICS is **freeze-thaw resistant**, because the water absorption of both, reinforced base coat and the rendering system, are less than 0.5 kg/m² after 24 hours.

3.2.4 Impact resistance

Table 9

Impact resistance (products tested after immersion in water)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
LEGANKOL V2 AC	SPATOLATO V1	VITALTHERM mesh 160 All of key coats of Table 1	No – 3 J No – 10 J	No – 3 J No – 10 J	I
	SPATOLATO S1		No – 3 J Yes – 10 J	No – 3 J 32 – 10 J	II
	RESTAURMIX FB1		No – 3 J Yes – 10 J	No – 3 J 23 – 10 J	II

3.2.5 Water vapour permeability of the rendering system (equivalent air thickness s_d)

Table 10

Water vapour permeability of the rendering system (equivalent air thickness s_d)			
ETICS configuration requirements:			Equivalent air thickness s_d [m]
Base coat	Finishing coat	Reinforcement and key coat	
LEGANKOL V2 AC	SPATOLATO V1	VITALTHERM mesh 160 Without key coats	0.7
	SPATOLATO S1		0.4
	RESTAURMIX FB1		0.4
	SPATOLATO V1	VITALTHERM mesh 160 All adequate key coats of Table 1	0.6
	SPATOLATO S1		0.4
	RESTAURMIX FB1		0.4

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Bond strength between the base coat and the thermal insulation product (mortar or paste)

Table 11

Bond strength between the base coat and the thermal insulation product (mortar or paste)					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Base coat			Min.	Mean
In accordance with Table 1	LEGANKOL V2 AC	Initial state (dry condition)	In the insulation product	9	10
		After hygrothermal cycles	In the insulation product	7	9

3.3.2 Bond strength between the adhesive and the substrate

Table 12

Bond strength between the adhesive and the substrate					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Substrate	Adhesive (and tested thickness)			Min.	Mean
Concrete	LEGANKOL V2 AC (4 mm)	Initial state (dry condition)	In the adhesive	716	901
		2 days immersion and 2 hours drying	In the adhesive	691	792
		2 days immersion and min. 7 days drying	In the concrete	1334	1662

3.3.3 Bond strength between the adhesive and the thermal insulation product

Table 13

Bond strength between the adhesive and the thermal insulation product					
ETICS configuration requirements:		**Conditioning before the test**	**Rupture type**	**Bond strength [kPa]**	
Insulation product	**Adhesive (and tested thickness)**			**Min.**	**Mean**
In accordance with Table 1	**LEGANKOL V2 AC** (4 mm)	Initial state (dry condition)	In the insulation product	**6**	**7**
		2 days immersion and 2 hours drying	In the insulation product	**6**	**7**
		2 days immersion and min. 7 days drying	In the insulation product	**7**	**8**

3.3.4 Wind load resistance of ETICS – pull-through tests of fixings

Table 14

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
MW Board TR7.5 Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in dry condition: ≥ 9.7 kPa	Surface assembly or countersunk assembly (countersunk assembly only with single layer insulation product) with Anchors in accordance with Annex No. 4 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{panel} ⊗	Dry condition 23 °C and 50 % relative humidity of air	**0.261** **0.316** **0.261** **0.274** **0.282**	**0.279**
Load / displacement graph:					

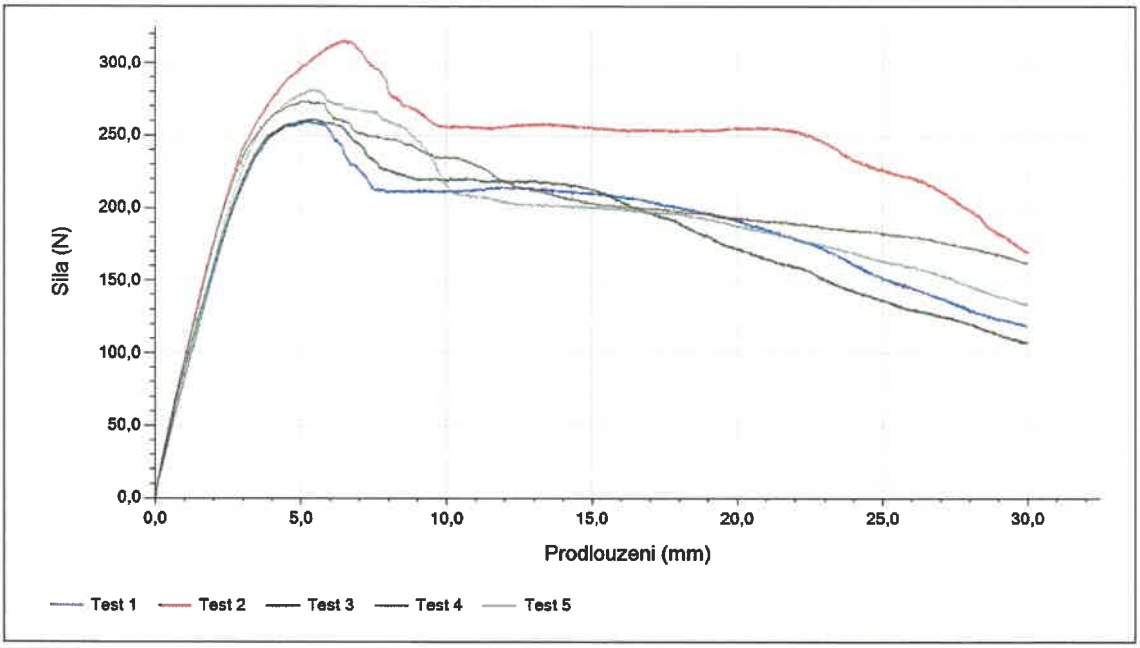
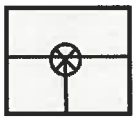


Table 15

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		**Tested position**	**Test conditions**	**Failure load per fixing [kN]**	
Insulation product	**Fixing**			**Individual**	**Mean**
MW Board TR7.5 Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in dry condition: ≥ 9.7 kPa	Surface assembly or countersunk assembly (countersunk assembly only with single layer insulation product) with Anchors in accordance with Annex No. 4 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{joint} 	Dry condition 23 °C and 50 % relative humidity of air	**0.231** **0.235** **0.199** **0.238** **0.187**	**0.218**
Load / displacement graph:					

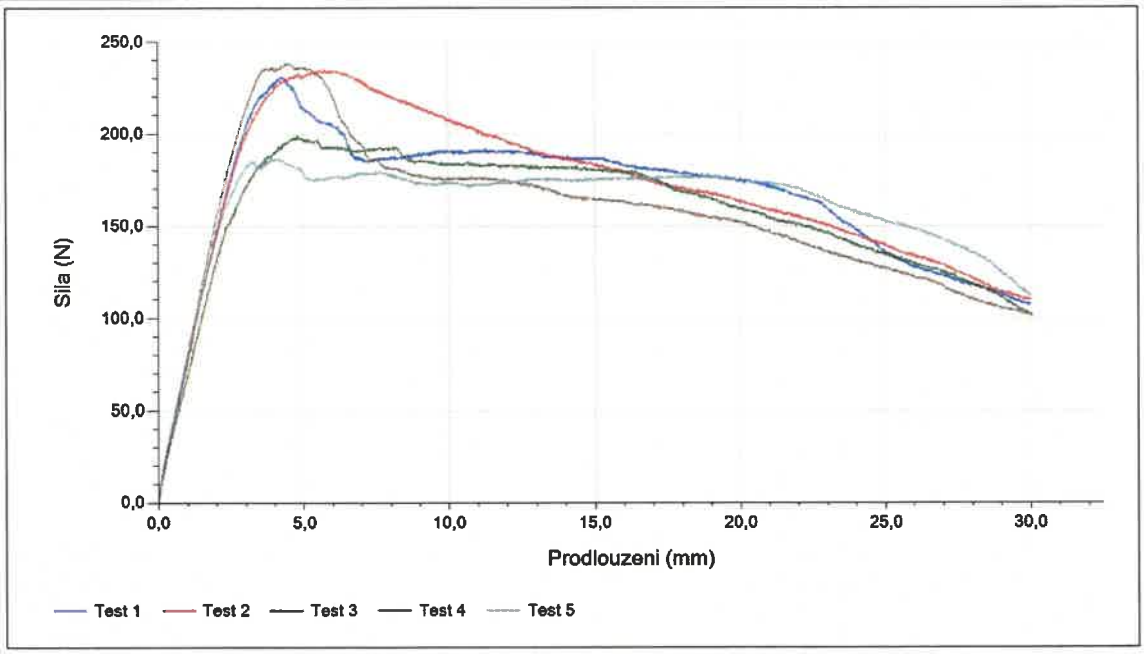


Table 16

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		**Tested position**	**Test conditions**	**Failure load per fixing [kN]**	
Insulation product	**Fixing**			**Individual**	**Mean**
MW Board TR7.5 Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in wet condition: ≥ 5.4 kPa	Surface assembly or countersunk assembly (countersunk assembly only with single layer insulation product) with Anchors in accordance with Annex No. 4 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{panel} ⊗	Wet condition 70 °C and 95 % relative humidity of air	**0.164** **0.155** **0.189** **0.156** **0.165**	**0.166**
Load / displacement graph:					

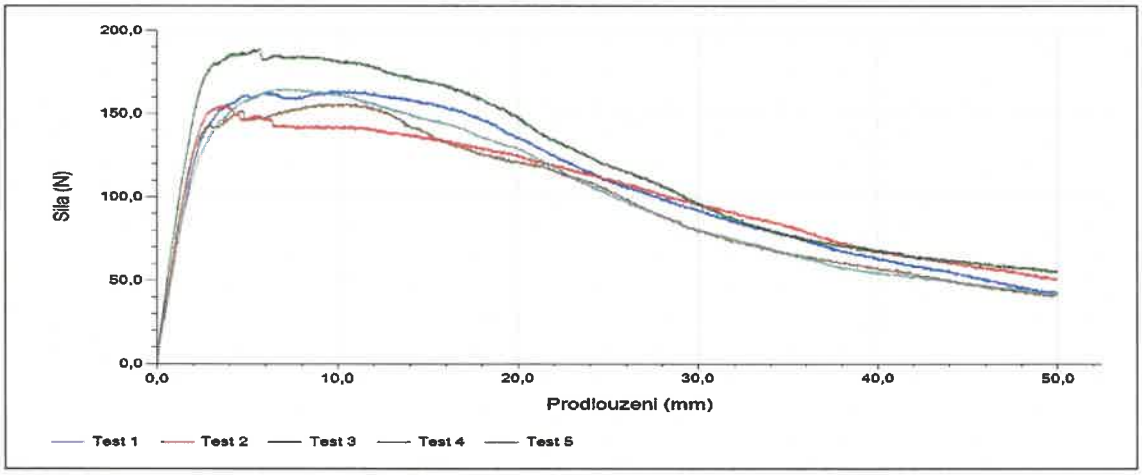
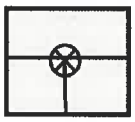
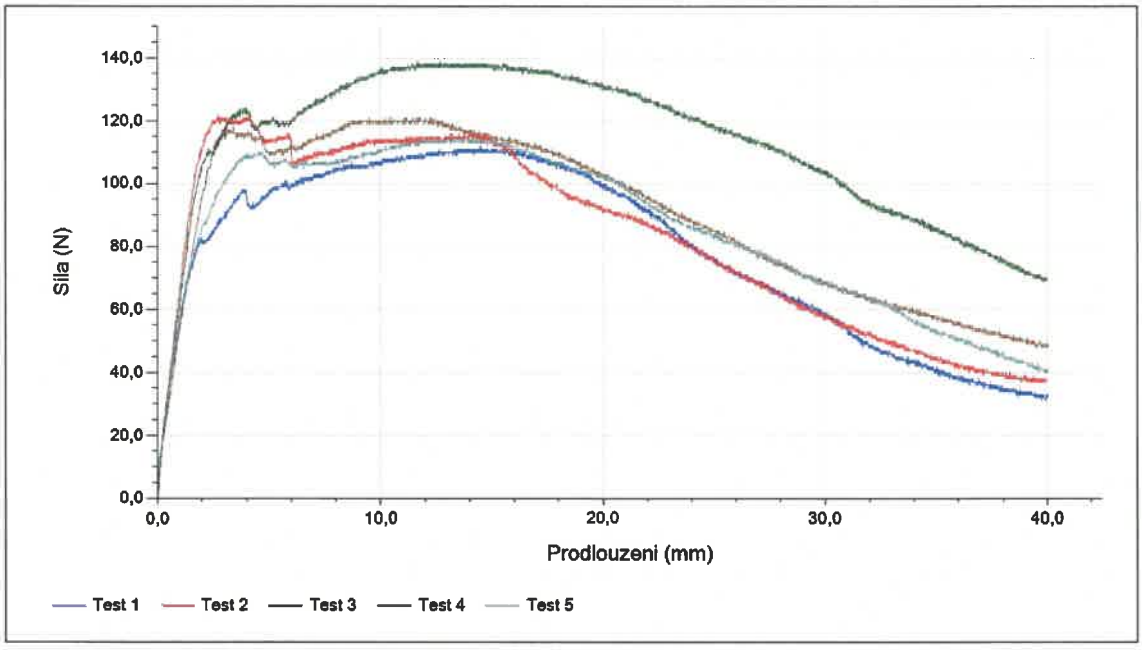


Table 17

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
MW Board TR7.5 Thickness: ≥ 50 mm or ≥ 70 mm for countersunk assembly Tensile strength in wet condition: ≥ 5.4 kPa	Surface assembly or countersunk assembly (countersunk assembly only with single layer insulation product) with Anchors in accordance with Annex No. 4 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{joint} 	Wet condition 70 °C and 95 % relative humidity of air	**0.112** **0.122** **0.139** **0.121** **0.115**	**0.122**
Load / displacement graph:					



3.3.5 Render strip tensile test

Table 18

Render strip tensile test					
ETICS configuration requirements:		w_{rk} of the flat side of the test specimen [mm]		w_{rk} of the patterned side of the test specimen [mm]	
Base coat	Reinforcement	Warp direction	Weft direction	Warp direction	Weft direction
LEGANKOL V2 AC	VITALTHERM mesh 160	0.12	0.13	0.14	0.14

3.3.6 Bond strength after ageing of finishing coat tested in the rig

Table 19

Bond strength after ageing of finishing coat tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
In accordance with Table 1	LEGANKOL V2 AC	SPATOLATO V1	In accordance with Table 1	In the insulation product	10	10
					10	
					10	
					9	
					10	
		SPATOLATO S1		In the insulation product	10	9
					9	
					9	
					9	
					8	
		RESTAURMIX FB1		In the insulation product	8	8
					8	
					8	
					8	
					7	

3.3.7 Bond strength after ageing of finishing coat not tested in the rig

Table 20

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
In accordance with Table 1	LEGANKOL V2 AC	SPATOLATO V1	In accordance with Table 1	In the insulation product	9	10
					10	
					9	
					11	
					9	
		SPATOLATO S1		In the insulation product	8	9
					9	
					9	
					8	
					10	
		RESTAURMIX FB1		In the insulation product	10	10
					10	
					10	
					9	
					9	

3.3.8 Thermal resistance and thermal transmittance of ETICS

Table 21

Thermal resistance and thermal transmittance of ETICS (R_{ETICS})	
Thermal resistance	**[(m²·K)/W]**
R_{render}	**0.02**
R_{ETICS}	**≥ 1.00**
See Annex No. 1 for information on calculation of thermal transmittance of ETICS In order to meet criteria of EAD 040083-00-0404, the R_{ETICS} calculated in line with Annex No. 1 has to be min. 1.0 (m²·K)/W.	

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

The applicable AVCP system is 2+ for any use except for uses subject to regulations on reaction to fire. For uses subject to regulations on reaction to fire the applicable AVCP systems regarding reaction to fire are 1 or 2+ depending on the conditions defined hereafter.

According to the Decision 97/556/EC as amended by Decision 2001/596/EC of the European Commission the systems of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Table 22

Product	Intended uses	Class(es) (reaction to fire)	Systems of assessment and verification of constancy of performance
External thermal insulation composite system/kits with rendering (ETICS)	in external wall subject to fire regulations	**A(1) – B(1) – C(1)**	**1**
		A(2) – B(2) – C(2) **A** (without testing) **D – E – F**	**2+**
	in external wall not subject to fire regulations	any	**2+**
(1) Materials for which the reaction to fire performance is susceptible to change during the production process (2) Materials for which the reaction to fire performance is not susceptible to change during the production process			

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD: 040083-00-0404

The manufacturer and the Technical and Test Institute for Construction Prague have agreed on a Control Plan which is deposited at the Technical and Test Institute for Construction Prague and it accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted on raw materials, manufactured and subcontracted components.

The manufacturer has defined special techniques of installation that shall always be followed.

Installation shall be done by qualified personnel trained in the special installation techniques defined by the manufacturer.

Notified body has to carry out the initial inspection of the manufacturing plant and of factory production control. Notified body also carries out continuous surveillance, assessment and evaluation of factory production control at least once per year.

Issued in Prague on 03/01/2024

by

Ing. Jiří Studnička, Ph.D.

Head of the Technical Assessment Body (TAB)

Annexes:

Annex No. 1	Thermal transmittance of ETICS
Annex No. 2	Thermal insulation product 1 – Mineral wool (MW board TR7.5)
Annex No. 3	Thermal insulation product 2 – Mineral wool (MW board TR10)
Annex No. 4	Mechanical fixing device – anchors
Annex No. 5	Reinforcement – glass fibre mesh

Annex No. 1 Thermal transmittance of ETICS

$$U_c = U + \Delta U \; [W/m^2 \cdot K]$$

U_c is corrected thermal transmittance of the entire wall, including thermal bridges.

U is thermal transmittance of the entire wall, including ETICS, without thermal bridges.

ΔU is correction term of the thermal transmittance for mechanical fixing devices.

$$U = \frac{1}{R_{ETICS} + R_{substrate} + R_{se} + R_{si}} \; [W/m^2 \cdot K]$$

$$R_{ETICS} = R_{insulation} + R_{render} \; [m^2 \cdot K/W]$$

Where: $R_{insulation}$ = insulation thickness / thermal conductivity coefficient [m^2·K/W]
R_{render} = 0.02 [m^2·K/W]

$R_{substrate}$ thermal resistance of the substrate wall [m^2·K/W].

R_{se} external surface thermal resistance [m^2·K/W].

R_{si} internal surface thermal resistance [m^2·K/W].

$$\Delta U = \chi_P \times n + \sum \Psi i \times l_i \; [m^2 \cdot K/W]$$

Where: χ_P is point thermal transmittance value of the anchor [W/K]. Specified by the ETA for anchors or as follows:

0.002 [W/K]	For anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail.
0.004 [W/K]	For anchors with a galvanized carbon steel screw/nail with the head covered by at least 15 mm plastic material or a minimum 15 mm air gap at the head of the screw /nail.
0.008 [W/K]	For all other anchors (the worst case).

n is number of anchors per m^2. In case n is more than 16, the U_c calculation does not apply.

Ψ_i is linear thermal transmittance value of the profile [W/m·K].

l_i is length of the profile per m^2.

The influence of thermal bridges can also be calculated as described in EN ISO 10211. If there are more than 16 pcs of anchors per m^2 the declared χ_P shall not be used. The EN ISO 10211 calculation shall be used in such case.

Annex No. 2 Thermal insulation product 1 – Mineral wool (MW board TR7.5)

Mineral wool (MW board TR7.5)	
Generic type **Fibre orientation longitudinal to the faces of the panel (boards)**	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Longitudinal to the faces of the panel (boards)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	No
Max. thermal conductivity coefficient λ_D:	max. 0.065 W/(m·K)
Short-term water absorption W_p:	max. 1.0 kg/m^2
Long-term water absorption W_{lp}:	max. 3.0 kg/m^2
Length:	max. ± 2.0 %
Width:	max. ± 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ:	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 7.5 kPa
Shear strength:	min. 20 kPa
Shear modulus:	min. 1000 kPa

Annex No. 3 Thermal insulation product 2 – Mineral wool (MW board TR10)

Mineral wool (MW board TR10)	
Generic type **Fibre orientation longitudinal to the faces of the panel (boards)**	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Longitudinal to the faces of the panel (boards)
Composite insulation product:	No
Multi-layered insulation product	Yes
Facing:	No
Coating:	No
Max. thermal conductivity coefficient λ_D:	max. 0.034 W/(m·K)
Short-term water absorption W_p:	max. 1.0 kg/m²
Long-term water absorption W_{lp}:	max. 3.0 kg/m²
Length:	max. ± 2.0 %
Width:	max. ± 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ:	max. 1 [-]
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 10 kPa
Shear strength:	min. 20 kPa
Shear modulus:	min. 1000 kPa

Annex No. 4 Mechanical fixing device – anchors

Plastic anchors for fixing external thermal insulation composite systems with rendering	
Generic type	
Requirements:	
Harmonized technical specification:	ETAG 014 or EAD 330196-00-0604 or EAD 330196-01-0604 or superseding harmonized technical specification
Setting:	to be screwed-in or nailed-in and: 1) to be installed flush with the insulation product with or without additional, flat, plate 2) to be installed countersunk (incision depth max. 20 mm) to the surface of the insulation product, without additional plate does not apply to multi-layered insulation products
Diameter of the anchor plate:	min. 60 mm
Load resistance of the anchor plate:	min. 0.316 kN
Plate stiffness:	min. 0.6 kN/mm
Material of the nail	plastics or metal

Annex No. 5 Reinforcement – glass fibre mesh

Specific type: **VITALTHERM mesh 160**	
Requirements:	
Harmonized technical specification:	040016-00-0404 or 040016-01-0404 or superseding harmonized technical specification
Mass per unit area	0,160 kg/m2 (± 5%)
Thickness:	0.43 (± 0.02) mm
Heat of combustion:	Max. 6.61 MJ/kg
Mesh size:	in warp/weft direction: (5.1 x 4.2) ± 0.5 mm
Mesh opening:	in warp/weft direction: (3.9 x 3.8) ± 0.5 mm
Residual tensile strength:	in warp direction: 1700 N/5cm in weft direction: 2000 N/5cm
Residual tensile strength retained after alkaline conditioning:	in warp direction: >1000 N/5cm in weft direction: >1000 N/5cm
Residual tensile strength:	in warp direction: min. 4.5 % in weft direction: min. 4.5 %
Residual tensile strength after alkaline ageing	in warp direction: min. 3.5 % in weft direction: min. 3.5 %