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European Technical Assessment

**ETA-09/0026
of 04/09/2017**

General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

CERESIT CERETHERM WOOL CLASSIC

Product family to which the construction product belongs

External Thermal Insulation Composite System with rendering (ETICS)

Manufacturer

HENKEL POLSKA Operations Spółka z o.o.
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PL 02-672 Warsaw, Poland

Manufacturing plant

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This European Technical Assessment contains

17 pages including 2 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

Guideline for European Technical Approval ETAG 004, Edition 2013 "External Thermal Insulation Composite Systems with rendering", used as European Assessment Document (EAD)

This version replaces

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Specific Part

1 Technical description of the product

External Thermal Insulation Composite System with rendering CERESIT CERETHERM WOOL CLASSIC called ETICS in the following text is a kit comprising components which are factory-produced by the manufacturer or component suppliers. ETICS is made up on site from these components. 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 mineral wool (MW) to be bonded or mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table 1.

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 which are defined in clause 3.2.2.5 of ETAG 004. 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 components are delivered as a part of the kit.

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Insulation materials with associated methods of fixing	Bonded ETICS: fully bonded or fully bonded with supplementary mechanical fixings (bonded surface shall be 100%). National application documents shall be taken into account.		
	<ul style="list-style-type: none"> Insulation product: Mineral wool (MW) lamella according to EN 13162; see Annex 1 for product characteristics 	-	40 to 360
	<ul style="list-style-type: none"> Adhesives: CERESIT CT 180 cement based powder requiring addition of 0,19 to 0,21 l/kg of water CERESIT CT 190 cement based powder requiring addition of 0,26 to 0,28 l/kg of water 	about 5,0 ¹ (powder)	-
		about 5,0 ¹ (powder)	-
	Mechanically fixed ETICS with supplementary adhesive: according to manufacturer's recommendation the minimal bonded surface shall be 40% of the surface. National application documents shall be taken into account.		
	<ul style="list-style-type: none"> Insulation product: Mineral wool (MW) panels according to EN 13162; see Annex 1 for product characteristics Mineral wool (MW) lamella according to EN 13162; see Annex 1 for product characteristics 	-	80 to 360
		-	80 to 360
<ul style="list-style-type: none"> Anchors: see Annex 2 for product characteristics 	-	-	
<ul style="list-style-type: none"> Supplementary adhesives: see bonded ETICS 	-	-	

¹ refers to fully bonded system

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Base coat	<ul style="list-style-type: none"> CERESIT CT 190 cement based powder requiring addition of 0,26 to 0,28 l/kg of water 	4,0 to 5,0 (powder)	3,0 to 4,0
Glass fibre meshes	<ul style="list-style-type: none"> Standard glass fibre meshes CERESIT CT 325 see Annex 2 for product characteristics 	-	-
Key coats	<ul style="list-style-type: none"> CERESIT CT 15 ready to use liquid to be used with silicate finishing coats 	0,2 to 0,5	-
	<ul style="list-style-type: none"> CERESIT CT 16 ready to use liquid to be used with mineral, acrylic, silicate-silicone and silicone finishing coats 	0,2 to 0,5	-
Finishing coats	<ul style="list-style-type: none"> Mineral finishing coats: composition: sand, cement, mineral fillers, additives 		
	<ul style="list-style-type: none"> CERESIT CT 35 powder requiring addition of 0,20 to 0,22 l/kg of water ribbed structure particle size: 2,5; 3,5 mm 	2,5 to 4,0 (powder)	regulated by particle size
	<ul style="list-style-type: none"> CERESIT CT 137 powder requiring addition of 0,22 to 0,23 l/kg of water floated structure particle size: 1,5; 2,0 mm 	2,0 to 4,0 (powder)	regulated by particle size
	<ul style="list-style-type: none"> CERESIT CT 720 thin layered; powder requiring addition of 0,21 l/kg of water particle size: 1,0 mm 	about 2,0 (powder)	regulated by particle size
	<ul style="list-style-type: none"> Silicate finishing coats: composition: sand, silicate binder, mineral fillers, additives ready to use paste 		
	<ul style="list-style-type: none"> CERESIT CT 72 floated structure particle size: 1,0; 1,5; 2,0; 2,5 mm 	2,1 to 4,0	regulated by particle size
	<ul style="list-style-type: none"> CERESIT CT 73 ribbed structure particle size: 2,0; 3,0 mm 	2,5 to 3,8	regulated by particle size
	<ul style="list-style-type: none"> Silicone finishing coats: composition: sand, silicone resin, mineral fillers, additives ready to use paste 		
<ul style="list-style-type: none"> CERESIT CT 74 floated structure particle size: 1,0; 1,5; 2,0; 2,5 mm 	2,1 to 4,0	regulated by particle size	
<ul style="list-style-type: none"> CERESIT CT 75 ribbed structure particle size: 2,0; 3,0 mm 	2,5 to 2,7	regulated by particle size	
<ul style="list-style-type: none"> Silicate-silicone finishing coats: composition: sand, silicate binder, silicone resin, mineral fillers, additives; ready to use paste 			
<ul style="list-style-type: none"> CERESIT CT 174 floated structure particle size: 1,0; 1,5; 2,0 mm 	2,0 to 3,9	regulated by particle size	
<ul style="list-style-type: none"> CERESIT CT 175 ribbed structure particle size: 2,0 mm 	about 2,7	regulated by particle size	

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	<ul style="list-style-type: none"> • Acrylic finishing coats composition: sand, acryl-copolymer binder, mineral fillers, additives; ready to use paste 		
	<ul style="list-style-type: none"> • CERESIT CT 60 thin-layered particle size: 0,5 mm 	1,5 to 2,0 (per 1 mm)	1,0 to 2,0
	<ul style="list-style-type: none"> • CERESIT CT 60 floated structure particle size: 1,0; 1,5; 2,0; 2,5 mm 	1,8 to 4,0	regulated by particle size
	<ul style="list-style-type: none"> • CERESIT CT 63 ribbed structure particle size: 3,0 mm 	about 3,7	regulated by particle size
	<ul style="list-style-type: none"> • CERESIT CT 64 ribbed structure particle size: 2,0 mm 	about 2,7	regulated by particle size
	<ul style="list-style-type: none"> • CERESIT CT 77 mosaic structure particle size: 0,8 to 2,0 mm • CERESIT CT 177 mosaic structure particle size: 1,0 to 1,6 mm 	3,0 to 4,5 about 4,0	regulated by particle size regulated by particle size
Decorative coats (paints)	<ul style="list-style-type: none"> • CERESIT CT 79 composition: sand, acryl-copolymer binder, silicone resin, mineral fillers, additives; ready to use paste floated structure particle size: 1,5 mm 	about 2,5	regulated by particle size
	<ul style="list-style-type: none"> • CERESIT CT 710 sandstone thin layered; ready to use paste composition: water, acryl-copolymer binder, sand, mineral fillers, additives particle size: 0,1 to 1,0 mm 	2,0 (per 1 mm)	1,0 to 2,0
	<ul style="list-style-type: none"> • CERESIT CT 710 granite thin layered; ready to use paste composition: water, acryl-copolymer binder, sand, mineral fillers, additives particle size: 0,1 to 2,0 mm 	2,0 (per 1 mm)	1,0 to 2,0
	<ul style="list-style-type: none"> • CERESIT CT 48 to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid 	about 0,3 l/m ²	-
	<ul style="list-style-type: none"> • CERESIT CT 49 to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid 	about 0,3 l/m ²	-
	<ul style="list-style-type: none"> • CERESIT CT 54 to be used optionally with all finishing coats composition: silicate binder, pigments, additives ready to use liquid 	about 0,3 l/m ²	-
<ul style="list-style-type: none"> • CERESIT CT 55 to be used optionally with all finishing coats composition: acryl-copolymer elatomeric binder, silicone resin, pigments, additives ready to use liquid 	about 0,3 l/m ²	-	
<ul style="list-style-type: none"> • CERESIT CT 721 to be used obligatory with CT 720 finishing coats composition: silicate binder, pigments, additives ready to use liquid 	0,2 to 0,3 l/m ²	-	

Table 1

Ancillary materials	Remain under the ETICS manufacturer responsibility. Anchors as supplementary mechanical fixings covered by ETA issued according to ETAG 014.
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2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

This ETICS is intended to be used as external thermal insulation of buildings' walls made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels) with or without rendering. The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS either by bonding or mechanically.

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 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 effects of weathering.

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

The provisions made in this European Technical Assessment are based on an assumed working life of the ETICS of at least 25 years, provided that the conditions for the packaging, transport, storage, installation as well as appropriate use, maintenance and repair are met. The indications given on 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.

Design, installation, maintenance and repair shall take into account principles given in clause 7 of ETAG 004 and shall be done in accordance with national provisions.

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

Performances of the ETICS related to the Basic Requirements were determined in compliance with the ETAG 004.

Performances of the ETICS as described in this clause are valid provided that the components of the kit comply with Annexes 1 ÷ 2.

3.1 Safety in the case of fire (BWR 2)

3.1.1 Reaction to fire (ETAG 004, clause 5.1.2.1)

Table 2

Configuration	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS CERESIT CERETHERM WOOL CLASSIC with MW boards (reaction to fire class A1) and rendering system: <ul style="list-style-type: none"> Adhesives: CT 180, CT 190 Base coat: CT 190 Finishing coats: CT 74, CT 75, CT 174, CT 175, CT 60, CT 63, CT 64, CT 79, CT 720 (with CT 16 key coat) Decorative coats: CT 48, CT 49, CT 54, CT 55, CT 721 	2,15% 2,15% 16,14% 35,65%	0% (no flame retardant)	B – s1, d0
ETICS CERESIT CERETHERM WOOL CLASSIC with MW boards (reaction to fire class A1) and rendering system: <ul style="list-style-type: none"> Adhesives: CT 180, CT 190 Base coat: CT 190 Finishing coats: CT 77, CT 177, CT 710 sandstone and granite (with CT 16 key coat) 	2,15% 2,15% 18,64%	0% (no flame retardant)	B – s2, d0
ETICS CERESIT CERETHERM WOOL CLASSIC with MW boards (reaction to fire class A1) and rendering system: <ul style="list-style-type: none"> Adhesives: CT 180, CT 190 Base coat: CT 190 Finishing coats: CT 35, CT 137, CT 72, CT 73, CT 720 (with CT 15, CT 16 key coats) Decorative coats: CT 48, CT 49, CT 54, CT 55 	2,15% 2,15% 17,60% 24,30%	0% (no flame retardant)	A2 – s1, d0
Any other configuration	no performance assessed		

Note: European reference fire scenario has not been laid down for facades. In some Member States the classification according to EN 13501-1 might not be sufficient for the use in facades. An additional tests might be required to comply with Member States national provisions (e.g. large scale tests).

Mounting and fixing

The assessment of reaction to fire is based on: SBI tests according to EN 13823, tests according to EN ISO 11925-2 and tests according to EN ISO 1716 with maximum insulation material (MW) density of 90,0 kg/m³ as well as finishing coats with maximum organic content.

For the SBI test according to EN 13823, the ETICS is mounted directly to a substrate (Class A2-s1, d0) with a thickness of 12 mm.

For the test according to EN ISO 11925-2 no substrate is used.

The installation of the ETICS was carried out by the manufacturer following the manufacturer's specifications (instruction of installation) 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.

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

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Water absorption (ETAG 004, clause 5.1.3.1)

- Base coat CERESIT CT 190:
 - water absorption after 1 hour < 1,0 kg/m²,
 - water absorption after 24 hours < 0,5 kg/m²,
- Rendering systems – according to Table 3.

Table 3

		Water absorption after 24 h	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: base coat CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 35	X	-
	CERESIT CT 137	X	-
	CERESIT CT 72, CT 73	X	-
	CERESIT CT 74, CT 75	X	-
	CERESIT CT 174, CT 175	X	-
	CERESIT CT 60, CT 63, CT 64	X	-
	CERESIT CT 79	X	-
	CERESIT CT 77	X	-
	CERESIT CT 177	X	-
	CERESIT CT 720 (with CT 721)	X	-
CERESIT CT 710 sandstone CERESIT CT 710 granite	X	-	

3.2.2 Watertightness (ETAG 004, clause 5.1.3.2)

Heat-rain and heat-cold cycles have been performed on a rig. The ETICS is assessed as resistant to hygrothermal cycles.

The water absorption of both the base coat and the rendering system was lower than 0,5 kg/m² after 24 hours. The ETICS is therefore assessed as resistant to freeze/thaw behaviour.

3.2.3 Impact resistance (ETAG 004, clause 5.1.3.3)

Table 4

Rendering system		Single standard mesh CERESIT CT 325
Rendering system: base coat CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 35, CT 137	Category III
	CERESIT CT 72 1,5 mm, CT 73	Category II
	CERESIT CT 72 1,0 mm	Category III
	CERESIT CT 74 1,5 mm, CT 75	Category II
	CERESIT CT 74 1,0 mm	Category III
	CERESIT CT 174, CT 175	Category II
	CERESIT CT 60 1,5 mm	Category II

Table 4

Rendering system		Single standard mesh CERESIT CT 325
Rendering system: base coat CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 60 0,5 mm	Category III
	CERESIT CT 60 1,0 mm	Category III
	CERESIT CT 63, CT 64	Category III
	CERESIT CT 79	Category I
	CERESIT CT 77	Category I
	CERESIT CT 177	Category I
	CERESIT CT 720 (with CT 721)	Category II
	CERESIT CT 710 sandstone	Category II
CERESIT CT 710 granite	Category I	

3.2.4 Water vapour permeability (ETAG 004, clause 5.1.3.4)

Table 5

		Equivalent air thickness s_d
Rendering system: base coat CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 35	$\leq 1,0$ CT 35 particle size 3,5 mm: 0,20 m CT 35 particle size 3,5 mm + CT 55: 0,32 m
	CERESIT CT 137	$\leq 1,0$ CT 137 particle size 2,5 mm: 0,10 m CT 137 particle size 2,5 mm + CT 55: 0,32 m
	CERESIT CT 72 CERESIT CT 73	$\leq 1,0$ CT 72 particle size 2,5 mm: 0,17 m CT 72 particle size 2,5 mm + CT 54: 0,23 m CT 72 particle size 2,5 mm + CT 55: 0,34 m CT 73 particle size 2,0 mm: 0,12 m CT 73 particle size 3,0 mm + CT 55: 0,67 m
	CERESIT CT 74 CERESIT CT 75	$\leq 1,0$ CT 74 particle size 2,5 mm: 0,25 m CT 74 particle size 2,5 mm + CT 42: 0,33 m CT 74 particle size 2,5 mm + CT 55: 0,51 m CT 75 particle size 2,0 mm: 0,21 m CT 75 particle size 3,0 mm + CT 55: 0,59 m
	CERESIT CT 174 CERESIT CT 175	$\leq 1,0$ CT 174 particle size 2,0 mm: 0,19 m CT 174 particle size 2,0 mm + CT 44: 0,36 m CT 174 particle size 2,0 mm + CT 48: 0,21 m CT 174 particle size 2,0 mm + CT 55: 0,51 m CT 175 particle size 2,0 mm: 0,20 m CT 175 particle size 2,0 mm + CT 54: 0,21 m CT 175 particle size 2,0 mm + CT 48: 0,29 m CT 175 particle size 2,0 mm + CT 44: 0,37 m
	CERESIT CT 60 CERESIT CT 63 CERESIT CT 64	$\leq 1,0$ m CT 60 particle size 2,5 mm: 0,22 m CT 60 particle size 2,5 mm + CT 55: 0,46 m CT 63 particle size 3,0 mm: 0,20 m

Table 5

		Equivalent air thickness s_d
Rendering system: base coat CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 79	$\leq 1,0$ m CT 79 particle size 1,5 mm: 0,48 m CT 79 particle size 1,5 mm + CT 55: 0,65 m
	CERESIT CT 77	$\leq 1,0$ m CT 77 particle size 1,4 to 2,0 mm: 0,29 m
	CERESIT CT 177	$\leq 1,0$ m CT 177 particle size 1,0 to 1,6 mm: 0,32 m
	CERESIT CT 720 (with CT 721)	$\leq 1,0$ m CT 720 + CT 721: 0,33 m
	CERESIT CT 710 sandstone CERESIT CT 710 granite	$\leq 1,0$ m CT 710 sandstone: 0,59 m CT 710 granite: 0,59 m

3.2.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR 034)

The written declaration on dangerous substances was submitted by the manufacturer to the Technical Assessment Body.

Regarding dangerous substances there may be other requirements applicable to the ETICS falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Bond strength between base coat and insulation product (ETAG 004, clause 5.1.4.1.1)

Table 6

Bond strength between base coat and insulation product (MW lamella)			
Base coat	Initial state	After hygrothermal cycles (on the rig)	After freeze/thaw cycles
CERESIT CT 190	$\geq 0,08$ MPa	$\geq 0,08$ MPa	test not required because freeze/thaw cycles not necessary

3.3.2 Bond strength between adhesive / substrate and adhesive / insulation product (ETAG 004, clause 5.1.4.1.2 and 5.1.4.1.3)

Table 7

Bond strength between adhesive and substrate (concrete)				
Adhesives		Under dry conditions	48 h immersion in water + 2 h drying at (23±2)°C and (50±5)% RH	48 h immersion in water + 7 days drying at (23±2)°C and (50±5)% RH
CERESIT CT 180	Concrete	$\geq 0,25$ MPa	$\geq 0,08$ MPa	$\geq 0,25$ MPa
CERESIT CT 190	Concrete	$\geq 0,25$ MPa	$\geq 0,08$ MPa	$\geq 0,25$ MPa

Table 8

Bond strength between adhesive and insulation product (MW lamella)				
Adhesives		Under dry conditions	48 h immersion in water + 2 h drying at (23±2)°C and (50±5)% RH	48 h immersion in water + 7 days drying at (23±2)°C and (50±5)% RH
CERESIT CT 180	MW lamella	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
CERESIT CT 190	MW lamella	≥ 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 surface:

Table 9

	Tensile strength perpendicular to the faces of MW				
	≥ 7,5 kPa	≥ 10 kPa	≥ 15 kPa	≥ 80 kPa	≥ 100 kPa
CERESIT CT 180	40%	40%	40%	100%	100%
CERESIT CT 190					

3.3.3 Bond strength after ageing (ETAG 004, clause 5.1.7)

Table 10

		After hygrothermal cycles (MW lamella)
Rendering system: CERESIT CT 190 (with the key-coat) + finishing coat indicated hereafter:	CERESIT CT 35	≥ 0,08 MPa
	CERESIT CT 137	≥ 0,08 MPa
	CERESIT CT 72, CT 73	≥ 0,08 MPa
	CERESIT CT 74, CT 75	≥ 0,08 MPa
	CERESIT CT 174, CT 175	≥ 0,08 MPa
	CERESIT CT 60, CT 63, CT 64	≥ 0,08 MPa
	CERESIT CT 79	≥ 0,08 MPa
	CERESIT CT 77	≥ 0,08 MPa
	CERESIT CT 177	≥ 0,08 MPa
	CERESIT CT 720 (with CT 721)	≥ 0,08 MPa
CERESIT CT 710 sandstone CERESITCT 710 granite	≥ 0,08 MPa	

3.3.4 Fixing strength (ETAG 004, clause 5.1.4.2)

Test not required because the ETICS fulfils the criteria $E \cdot d \leq 50.000 \text{ N/mm}$.

3.3.5 Wind load resistance (ETAG 004, clause 5.1.4.3)

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

$$R_d = (R_{\text{panel}} \times n_{\text{panel}} + R_{\text{joint}} \times n_{\text{joint}}) / \gamma$$

where:

n_{panel} : number (per m^2) of anchors not placed at the panel joints

n_{joint} : number (per m^2) of anchors placed at the panel joints

γ : national safety factor

Table 11

Anchors for which the following failure loads apply	Anchors according to Annex 2			
	Plate diameter of the anchor	≥ 60 mm		
Characteristics of the MW panels for which the following failure loads apply	Thickness	≥ 80 mm		
	Tensile strength perpendicular to the faces	$\geq 7,5$ kPa		
Failure load, kN	Anchors not placed at the panel joints (pull-through test), dry conditions	R_{panel}	Minimum value: Average value:	0,29 0,31
	Anchors not placed at the panel joints (pull-through test), wet conditions	R_{panel}	Minimum value: Average value:	0,22 0,24
	Anchors placed at the panel joints (static foam block test)	R_{joint}	Minimum value: Average value:	0,27 0,31

Table 12

Anchors for which the following failure loads apply and characteristics	Anchors according to Annex 2			
	Plate diameter of the anchor	≥ 60 mm		
Characteristics of the MW panels dual density for which the following failure loads apply	Thickness	≥ 80 mm		
	Tensile strength perpendicular to the faces	≥ 10 kPa		
Failure load, kN	Anchors not placed at the panel joints (pull-through test), dry conditions	R_{panel}	Minimum value: Average value:	0,39 0,42
	Anchors not placed at the panel joints (pull-through test), wet conditions	R_{panel}	Minimum value: Average value:	0,28 0,31
	Anchors placed at the panel joints (static foam block test)	R_{joint}	Minimum value: Average value:	0,33 0,36

Table 13

Anchors for which the following failure loads apply and characteristics	Anchors according to Annex 2			
		Plate diameter of the anchor		≥ 60 mm
Characteristics of the MW lamella for which the following failure loads apply	Thickness		≥ 80 mm	
	Tensile strength perpendicular to the faces		≥ 80 kPa	
Failure load, kN	Anchors placed at the panel joints (pull-through test), dry conditions	R_{joint}	Minimum value:	0,31
			Average value:	0,37
	Anchors placed at the panel joints (pull-through test), wet conditions	R_{joint}	Minimum value:	0,22
			Average value:	0,25
	Anchors placed at the panel joints (static foam block test)	R_{joint}	Minimum value:	0,24
			Average value:	0,26

The above given loads apply for anchors according to Annex 2 and also for all anchors if they meet the following criteria:

- covered by ETA according to ETAG 014,
- plate diameter ≥ 60 mm,
- plate stiffness of anchor ≥ 0,5 kN/mm,
- load resistance of anchor plate ≥ 1,23 kN,
- anchors mounted on the insulation panel surface.

3.3.6 Render strip tensile test (ETAG 004, clause 5.5.4)

No performance assessed.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation (ETAG 004, clause 5.1.5)

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal resistance and thermal transmittance (ETAG 004, clause 5.1.6)

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

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

- where: $\chi_p \cdot n$ to be taken into account if it is greater than 0,04 W/(m²·K)
- U_c : corrected thermal transmittance of the wall, including thermal bridges, W/(m²·K)
- n : number of anchors per m²
- χ_p : local influence of thermal bridge caused by an anchor; the values listed below can be taken into account if not specified in the anchor's ETA:
- = 0,002 W/K for anchors with a plastic screw, stainless steel screw with a head covered by plastic material 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 $n < 10$)
 = 0,008 W/K for all other anchors (worst case)

U: thermal transmittance of the current part of the wall including ETICS, without thermal bridges, $W/(m^2 \cdot K)$, determined as follows:

$$U = 1 : [R_i + R_{render} + R_{substrate} + R_{se} + R_{si}]$$

where: R_i : thermal resistance of the insulation product (according to declaration in reference to EN 13163) in $(m^2 \cdot K)/W$

R_{render} : thermal resistance of the render (about 0,02 in $(m^2 \cdot K)/W$ or determined by test according to EN 12667 or EN 12664)

$R_{substrate}$: thermal resistance of the substrate (e.g. concrete, brick) in $(m^2 \cdot K)/W$

R_{se} : external superficial thermal resistance in $(m^2 \cdot K)/W$

R_{si} : internal superficial thermal resistance in $(m^2 \cdot K)/W$

The value of thermal resistance of 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.

3.6 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

According to Decision 97/556/EC of the European Commission amended by the Decision 2001/596/EC, 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 14

Product	Intended use	Level or class (Reaction to fire)	System
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 Class A1 according to Commission Decision 96/603/EC)

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

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Anna Panek, MSc
Deputy Director of ITB

Factory-prefabricated mineral wool (MW) panels and lamella according to EN 13162		
Description and characteristics	MW lamella	MW panels
Reaction to fire EN 13501-1	Class A1	
Thermal resistance (m²·K)/W	Defined in the CE marking in reference to EN 13162	
Thickness EN 823	MW-EN 13162 – T5	
Dimensional stability under specified temperature and humidity EN 1604	MW-EN 13162 – DS(TH)	
Short-term water absorption (partial immersion) EN 1609	MW-EN 13162 – WS	
Long-term water absorption (partial immersion) EN 12087	MW-EN 13162 – WL(P)	
Water vapour diffusion resistance factor (μ) EN 12086	1	
Tensile strength perpendicular to the faces in dry conditions EN 1607	MW-EN 13162 – TR80 MW-EN 13162 – TR100	MW-EN 13162 – TR7,5 MW-EN 13162 – TR10 MW-EN 13162 – TR15
Tensile strength perpendicular to the faces in wet conditions (kPa) ETAG 004, clause 5.2.4.1.2	≥ 40 (TR80) ≥ 50 (TR100)	≥ 3,5 (TR7,5) ≥ 5,0 (TR10) ≥ 7,5 (TR15)
Shear strength (MPa) EN 12090	≥ 0,02	-
Shear modulus (MPa) EN 12090	≥ 1,0	-

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Thermal insulation product characteristic

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Anchors

Anchor trade name	Plate diameter (mm)	Description of the anchor and characteristics resistance in the substrate
KI-10N	≥ 60	see ETA-07/0221
TFIX-8M	≥ 60	see ETA-07/0336
TFIX-8S	≥ 60	see ETA-11/0144
TFIX-8ST	≥ 60	see ETA-11/0144
WK THERM ϕ 8	≥ 60	see ETA-11/0232
WK THERM ϕ S8	≥ 60	see ETA-13/0724
eco-drive W	≥ 60	see ETA-13/0107
EJOT STR U 2G	≥ 60	see ETA-04/0023
EJOT H1 eco	≥ 60	see ETA-11/0192

In addition every anchor meeting the following criteria can be used:

- ETA according to ETAG 014
- plate diameter ≥ 60 mm
- plate stiffness ≥ 0,5 kN/mm
- load resistance of the plate ≥ 1,23 kN

Glass fibre meshes

Standard mesh trade name	Description	Alkalis resistance	
		Residual resistance after ageing, N/mm	Relative residual resistance, (after ageing) of the strength in the as delivered state, %
VERTEX 145 A / R 117 A 101	mass per unit area: 147 g/m ² mesh size: 3,5 x 4,5 mm	≥ 20	≥ 50
ST 2924-100/7	mass per unit area: 158 g/m ² mesh size: 3,9 x 4,0 mm	≥ 20	≥ 50
OMFA 117-S	mass per unit area: 145 g/m ² mesh size: 4,5 x 3,0 mm	≥ 20	≥ 50
OMFA 122	mass per unit area: 160 g/m ² mesh size: 3,5 x 3,5 mm	≥ 20	≥ 50
SSA-5433-SM	mass per unit area: 165 g/m ² mesh size: 4,0 x 4,0 mm	≥ 20	≥ 50
SKLOTEX A2-101 (145)	mass per unit area: 145 g/m ² mesh size: 5,0 x 5,0 mm	≥ 20	≥ 50
OMT 999	mass per unit area: 145 g/m ² mesh size: 4,6 x 4,0 mm	≥ 20	≥ 50

CERESIT CERETHERM WOOL CLASSIC

Anchors characteristic. Glass fibre mesh characteristic

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