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## European Technical Approval

## ETA – 09/0042

(English translation prepared by TSUS - Original version in Slovak language)

**Trade name:**

*Obchodný názov:*

**KABE THERM EPS**

**Holder of approval:**

*Držiteľ osvedčenia:*

**Farby KABE Polska Sp. Z o.o.**

**ul. Slaska 88  
PL-40 742 Katowice  
Poland**

**Generic type and use of construction product:**

*Typ a účel použitia stavebného výrobku:*

**External Thermal Insulation Composite System with rendering on polystyrene for the use as external insulation to the walls of buildings**  
*Vonkajší tepelnoizolačný kompozitný systém s omietkou z penového polystyrénu pre použitie ako vonkajšia izolácia stien budov*

**Validity**

*Platnosť*

**from:**

*od:*

**to:**

*do:*

**16. 03. 2009**

**15. 03. 2014**

**Manufacturing plant:**

*Miesto výroby:*

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Poland**

**Farby KABE Polska Sp. z o.o.  
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**KABE THERM Sp. z o.o.  
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PL-32 007 Zabierzów  
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**This European Technical Approval contains:**

*Toto Európske technické osvedčenie obsahuje*

**19 pages including 1 annex**

*19 strán vrátane 1 prílohy*



Európska organizácia pre technické osvedčovanie  
European Organisation for Technical Approvals

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  - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products<sup>1</sup>, modified by the Concil Directive 93/68/EEC<sup>2</sup> and Regulation (EC) no. 1882/2003 of the European Parliament and of the Council<sup>3</sup>;
  - Act No. 90/1998 Coll. On construction products in wording of later regulations;
  - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC<sup>4</sup>;
  - Guideline for European Technical Approval of „External Thermal Insulation Composite Systems with rendering“ ETAG No. 004, edition 2000.
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<sup>1</sup> Official Journal of the European Communities no. L40, 11.2.1989, p. 12

<sup>2</sup> Official Journal of the European Communities no. L220, 30.8.1993, p. 1

<sup>3</sup> Official Journal of the European Union no. L284, 31.10.2003, p. 1

<sup>4</sup> Official Journal of the European Communities no. L17, 20.1.1994, p. 34

## II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

### 1. Definition of products and intended use

The External Thermal Insulation Composite System „KABE THERM“ called ETICS in the following text, is designed and installed in accordance with the ETA-holder’s design and installation instructions, deposited with Building Testing and Research Institute. The ETICS comprises the following components, which are factory-produced by the ETA-holder or a supplier. The holder is ultimately responsible for the ETICS.

This ETICS can be sold under the trade name „KABE THERM“ or the trade name „LAMITHERM“ . The annex 1 gives correspondence to trade names of used components.

#### 1.1 Definition of the construction product (kit)

	<b>Components</b> (see & 2.3 for further description, characteristics and performances of the components)	<b>Coverage (kg/m<sup>2</sup>)</b>	<b>Thickness (mm)</b>
Insulation materials with associated methods of fixing	<p>Bonded ETICS (partially 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"> <li>• <b>Insulation product:</b> EPS 70, EPS 80, EPS 100, EPS 200</li> <li>• <b>Adhesive:</b> <b>KOMBI</b> <b>THIN-SET Special</b> <b>KOMBI SPECIAL</b> (is identical with THIN SET Special)</li> </ul>	<p>/</p> <p>4,0 3,0-5,0 3,0-5,0</p>	<p>20-200</p> <p>/</p>
	<p>Mechanically fixed ETICS with anchors and supplementary adhesive (see &amp; 2.2.8.3 b) for possible associations EPS/anchors). According to ETA-holder’s prescription the minimal bonded surface shall be at last 40 %. National application documents shall be taken into account.</p> <ul style="list-style-type: none"> <li>• <b>Insulation products:</b> EPS 70 FASADA EPS OPEN/CLIMA</li> <li>• <b>Supplementary adhesives:</b> -<b>KOMBI</b> (cement based powder requiring addition of water 0,26l/kg) - <b>THIN-SET Special</b> (cement based powder requiring addition of water 0,24 l/kg) -<b>KOMBI SPECIAL</b> (cement based powder requiring addition of water 0,24 l/kg) KOMBI SPECIAL is identical with THIN-SET Special</li> <li>• <b>Anchors:</b> BRAVOLL® PTH-KZ 60/8-La, PTH-KZL 60/8- La, PTH 60/8-La, PTH-L 60/8- La ejotherm NT U, ejotherm STR U, ejotherm SDMT-plus DAS TH 10/50</li> </ul>	<p>/</p> <p>4,0 3,0-5,0 3,0-5,0</p>	<p>50 to 200</p> <p>/</p> <p>/</p> <p>/</p>

Base coat	- <b>KOMBI</b> (cement based powder requiring addition of water 0,26l/kg). KOMBI consists of main components: portland cement, sand, specific additives.	4,0	Mean (dry): 3,4 Minimal (dry): 3,0
	- <b>THIN-SET Special</b> (cement based powder requiring addition of water 0,24l/kg). THIN-SET Special consists of main components: portland cement, sand, specific additives.	4,0	
	- <b>KOMBI SPECIAL</b> (cement based powder requiring addition of water 0,24l/kg). KOMBI SPECIAL consists of main components: portland cement, sand, specific additives. KOMBI SPECIAL is identical with THIN-SET Special.	4,0	
Glass fibres meshes	Standard mesh (glass fibres mesh with minimal mesh size 3,0 mm x 3,0 mm): <b>Vertex R117 A101</b> <b>Vertex R131 A101</b>	/	/
Key coat	Ready to use pigmented liquids:		
	• <b>Grunt Novalit GT</b> (used with NOVALIT T)	0,2	
	• <b>Grunt Permuro GT</b> (used with PERMURO)	0,2	
	• <b>Grunt Armasil GT</b> (used with ARMASIL)	0,3	
Finishing coats	• Ready to use pastes – silicate binder <b>NOVALIT T</b> (particle size 1,0; 1,5; 2,0; 2,5; 3,0 mm) floated and ribbed structure	1,6-4,5	Regulated by particles size
	• Ready to use pastes – acrylic binder: <b>PERMURO</b> (particle size 1,0; 1,5; 2,0; 2,5; 3,0 mm) floated and ribbed structure	1,6-4,5	
	• Ready to use pastes – silicone binder <b>ARMASIL T</b> (particle size 1,0; 1,5; 2,0; 2,5; 3,0 mm) floated structure	1,7-5,0	
Ancillary materials	Descriptions in accordance with & 3.2.2.5 of the ETAG 004. Remain under the ETA-holder responsibilities.		

## 1.2 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) with a reaction to fire classification A1 or A2-s2,d0 according to EN 13501-1 and a minimum density of 820 kg/m<sup>3</sup> or A1 according to the EC decision 96/603/EC as amended. The ETICS is designed to give the wall to which it is applied satisfactory thermal insulation.

The ETICS is made of non load-bearing construction elements. It does not contribute directly to the stability of the wall on which it is installed, but it can contribute to durability by providing enhanced protection from the effect of weathering.

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

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

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see § 7.2.1 of the ETAG no. 004) and shall be done in accordance with the national instructions.

The provisions made in this European Technical Approval (ETA) are based on an assumed intended working life of at least 25 years, provided that the conditions laid down in sections 4.2, 5.1 and 5.2 for the packaging, transport, storage and installation as well as appropriate use, maintenance and repair are met. The indications given as to the working life cannot be interpreted as a guarantee given by the manufacturer or the Approval 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.

## 2. Characteristics of the product and methods of verification

### 2.1 General

The identification tests and the assessment of the fitness for use of this ETICS according to the Essential Requirements were carried out in compliance with the "ETA Guidance no. 004" concerning External Thermal Insulation Composite Systems with rendering (called ETAG no. 004 in this ETA).

### 2.2 ETICS characteristics

#### 2.2.1 Reaction to fire

The reaction to fire was determined according to ETAG 004, clause 5.1.2.1. The product as defined under clause 1.1 reached the following classification.

Table 1

Configuration	The declared organic content	The flame retardant content	Euroclass according to EN 13501-1: 2002
<b>Adhesive</b> THIN-SET Special KOMBI	max. 3,41 %	no flame retardant	B - s1, d0
<b>EPS panels</b> (from 50 mm to 200 mm)	-	in quantity ensuring Euroclass E according to EN 13 501-1:2003	
<b>Base coat</b> THIN-SET SPECIAL KOMBI	max. 3,41 %	no flame retardant	
<b>Finishing coats</b> NOVALIT T PERMURO ARMASIL T	max. 7,62 %	no flame retardant	
<b>All other configuration</b> (ETICS including insulation material with density bigger than 15 kg/m <sup>3</sup> )	-	-	

Mounting and fixing:

The assessment of reaction to fire is based on tests with maximum insulation layer thickness of SBI/200 mm, EN ISO 11 925-2/60 mm and insulation material density 15 kg/m<sup>3</sup> and a render system with maximum organic content and thickness 3 mm.

For the SBI this ETICS is mounted directly to a gypsum plasterboard substrate (reaction to fire A2) with a minimum density of 800 kg/m<sup>2</sup>.

For EN ISO 11925 test the ETICS was prepared without substrate.

The installation of the ETICS was carried out by the manufacturer (holder of approval) 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.

Extended application:

The test results covers arrangements with insulation material (EPS) of a lower thickness and density as well as render systems with a lower organic content.

### 2.2.2 Water absorption (capillarity test)

- Base coat **THIN-SET SPECIAL**
  - Water absorption after 1 hour < 1 kg/m<sup>2</sup>
  - Water absorption after 24 hours < 0,5 kg/m<sup>2</sup>
- Rendering systems:

THIN-SET Special		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Rendering system: base coat + finishing coats indicated hereafter (including key coat according to clause 1.1):	PERMURO	x	
	NOVALIT T	x	
	ARMASIL T	x	

- Base coat **KOMBI**
  - Water absorption after 1 hour < 1 kg/m<sup>2</sup>
  - Water absorption after 24 hours < 0,5 kg/m<sup>2</sup>
- Rendering systems:

KOMBI		Water absorption after 24 hours	
		< 0,5 kg/m <sup>2</sup>	≥ 0,5 kg/m <sup>2</sup>
Rendering system: base coat + finishing coats indicated hereafter (including key coat according to clause 1.1):	PERMURO	x	
	NOVALIT T	x	
	ARMASIL T	x	

### 2.2.3 Hygrothermal behaviour

- Hygrothermal cycles have been performed on a rig  
None of the following defects occur during the testing:
    - blistering or peeling of any finishing,
    - failure or cracking associated with joints between insulation product boards or profiles fitted with system,
    - detachment of render
    - cracking allowing water penetration to the insulation layer.
- The ETICS is so **assessed resistant to hygrothermal cycles**.

### 2.2.4 Freeze/thaw behaviour

- Rendering systems with all finishing coats: the water absorptions of both base coat and the rendering systems with all finishing coats are less than 0,5 kg/m<sup>2</sup> after 24 hours and so the corresponding configuration(s) of the ETICS are assessed as freeze/thaw resistant.

### 2.2.5 Impact resistance

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

	THIN-SET Special	Single standard mesh
<b>Rendering system:</b> base coat + finishing coats indicated hereafter (including key coat according to clause 1.1):	PERMURO	Category II
	NOVALIT T	Category III
	ARMASIL T	Category II

	KOMBI	Single standard mesh
<b>Rendering system:</b> base coat + finishing coats indicated hereafter (including key coat according to clause 1.1):	PERMURO	No performance determined
	NOVALIT T	No performance determined
	ARMASIL T	Category II

## 2.2.6 Water vapour permeability

<b>THIN-SET Special</b>		<b>Equivalent air thickness (m)</b>
<b>Rendering system:</b> base coat + finishing coats indicated hereafter (including key coat according to clause 1.1):	<b>PERMURO</b>	$\leq 2,0$ (test results obtained with finishing coat PERMURO:0,47, particles size 3,0 mm)
	<b>NOVALIT T</b>	$\leq 2,0$ (test results obtained with finishing coat NOVALIT T:0,18, particles size 3,0 mm)
	<b>ARMASIL T</b>	$\leq 2,0$ (test results obtained with finishing coat ARMASIL:0,25 , particles size 3,0 mm)

<b>KOMBI</b>		<b>Equivalent air thickness (m)</b>
<b>Rendering system:</b> base coat (including key coat according to clause 1.1) + finishing coats indicated hereafter:	<b>PERMURO</b>	$\leq 2,0$ (test results obtained with finishing coat PERMURO: 0,47, particles size 3,0 mm)
	<b>NOVALIT T</b>	$\leq 2,0$ (test results obtained with finishing coat NOVALIT T: 0,16, particles size 3,0 mm)
	<b>ARMASIL T</b>	$\leq 2,0$ (test results obtained with finishing coat ARMASIL: 0,2, particles size 3,0 mm)

## 2.2.7 Dangerous substances

A written declaration was submitted by the ETA-holder.

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

## 2.2.8 Safety in use

### 2.2.8.1 Bond strength

- Base coat **THIN-SET Special** onto expanded polystyrene

<b>Conditionings</b>		
<b>Initial state</b>	<b>After the hygrothermal cycles (on the rig)</b>	<b>After the freeze/thaw cycles (on samples)</b>
$\geq 0,08$ MPa	$\geq 0,08$ MPa	Test not required because freeze/thaw cycles not necessary

- Base coat **KOMBI** onto expanded polystyrene

<b>Conditionings</b>		
<b>Initial state</b>	<b>After the hygrothermal cycles (on the rig)</b>	<b>After the freeze/thaw cycles (on samples)</b>
$\geq 0,08$ MPa	$\geq 0,08$ MPa	Test not required because freeze/thaw cycles not necessary

- Adhesives **THIN-SET Special**, **KOMBI** onto substrate and expanded polystyrene (safety in use of the bonded ETICS)

		Conditionings		
		Initial state	48 h immersion in water + 2 h 23 °C/50% RH	48 h immersion in water + 7 days 23 °C/50% RH
<b>THIN-SET Special</b>	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Expanded polystyrene	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
<b>KOMBI</b>	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Expanded polystyrene	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

This ETICS can be installed on the substrate with application of the adhesive on a **minimal surface of 30 %** with adhesive **THIN-SET SPECIAL (KOMBI SPECIAL) and KOMBI**.

### 2.2.8.2 Fixing strength (displacement test)

- Test not required because the ETICS fulfils the following criteria: the bonded area exceeds 20 % in case of mechanically fixed systems with supplementary adhesive.

### 2.2.8.3 Wind load resistance

Safety in use of mechanically fixed ETICS using anchors

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

<b>Anchors for which the following failure loads apply</b>	Trade name	BRAVOLL® PTH-KZ 60/8-La BRAVOLL® PTH-KZL 60/8-La BRAVOLL® PTH 60/8-La BRAVOLL® PTH-L 60/8-La ejothem NT U ejothem STR U ejothem SDMT-plus DAS TH-10/50	
	Plate diameter (mm)	≥ 50	
<b>Characteristic of the insulation product panels for which the following failure loads apply</b>	Thickness (mm)	≥ 50	
	Tensile strength perpendicular to the face (kPa)	≥ 100	
Failure loads (N)	Anchors not placed at the panel joint (pull – through test)	R <sub>panel</sub>	Minimum: <b>400</b> Average: <b>413</b>
	Anchors placed at the panel joint (static foam block test)	R <sub>joint</sub>	Minimum: <b>253</b> Average: <b>257</b>

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

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

$n_{\text{panel}}$ : number (per  $\text{m}^2$ ) of anchors not placed at the panel joint  
 $n_{\text{joint}}$ : number (per  $\text{m}^2$ ) of anchors placed at the panel joint  
 $\gamma$ : national safety factor

### 2.2.9 Thermal resistance

The additional thermal resistance provided by the ETICS ( $R_{\text{ETICS}}$ ) to the substrate wall is calculated from the thermal resistance of the insulation product ( $R_D$ ), determined in accordance with clause 5.2.6.1 ETAG 004, and from the tabulated  $R_{\text{render}}$  value of the render system ( $R_{\text{render}}$  is about  $0,02 \text{ m}^2\cdot\text{K}/\text{W}$ ),

$$R_{\text{ETICS}} = R_D + R_{\text{render}} \text{ [(m}^2\cdot\text{K)/W]}$$

as described in:

EN ISO 6946-1: Building components and building elements – Thermal resistance and thermal transmittance – Calculation method.

EN 12524: Building materials and products – Hygrothermal properties – Tabulated design values.

If the thermal resistance can not be calculated, it can be measured on the complete ETICS as described:

EN 1934: Thermal performance of buildings – Determination of thermal resistance by hot box method using heat flow meter - Masonry.

The thermal bridges caused by mechanical fixing devices influence the thermal transmittance of the entire wall and shall be taken into account using the following calculation:

$$U_c = U + \Delta U \text{ [W/(m}^2\cdot\text{K)]}$$

where:

$U_c$  corrected thermal transmittance of the entire wall, including thermal bridges

$U$  thermal transmittance of the entire wall, including ETICS, without thermal bridges ( $\text{W}/\text{m}^2\cdot\text{K}$ )

$$U = 1 / [R_{\text{ETICS}} + R_{\text{substrate}} + R_{\text{se}} + R_{\text{si}}]$$

$R_{\text{substrate}}$  thermal resistance of the substrate wall [( $\text{m}^2\cdot\text{K}$ )/W]

$R_{\text{se}}$  external surface thermal resistance [( $\text{m}^2\cdot\text{K}$ )/W]

$R_{\text{si}}$  internal surface thermal resistance [( $\text{m}^2\cdot\text{K}$ )/W]

$\Delta U$  correction term of the thermal transmittance for mechanical fixing devices =  $\chi_p \cdot n$  (for anchors)

$\chi_p$  point thermal transmittance value of the anchor [W/K]. See EOTA Technical Report 25. If not specified in the anchors ETA, the following values apply:

= 0,002 W/K for anchors with a stainless steel screw with the head covered by plastic material and for anchors with an air gap at the head of the screw

= 0,004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material

= 0,008 W/K for all other anchors (worst case)

n number of anchors per m<sup>2</sup>

The influence of thermal bridges can also be calculated as described in:

EN ISO 10211: Thermal bridges in building – Heat flows and surface temperatures. Detailed calculations.

It should be calculated according to this standard if there are more than 16 anchors per m<sup>2</sup> foreseen.

The  $\chi_p$  – values given by manufacturer do not apply in this case.

## 2.2.10 Aspect of durability and serviceability

### 2.2.10.1 Bond strength after ageing

Rendering systems: <b>THIN-SET SPECIAL</b> + finishing coats indicated hereafter (including key coat according to clause 1.1):	After hygrothermal cycles (on the rig)	After freeze/thaw cycles
<b>PERMURO</b>	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
<b>NOVALIT T</b>	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
<b>ARMASIL T</b>	≥ 0,08 MPa	≥ 0,08 MPa

\*) Note: Cohesive rupture occurred

Rendering systems: <b>KOMBI</b> + finishing coats indicated hereafter (including key coat according to clause 1.1):	After hygrothermal cycles (on the rig) or after 7 days immersion in water + 7 days 23°C/50% RH	After freeze/thaw cycles
<b>PERMURO</b>	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
<b>NOVALIT T</b>	≥ 0,08 MPa	Test not required because freeze/thaw cycles not necessary
<b>ARMASIL T</b>	≥ 0,08 MPa	≥ 0,08 MPa

## 2.3 Components' characteristics

### 2.3.1 Insulation product

- Expanded polystyrene panels for bonded ETICS or mechanically fixed ETICS with anchors

Factory-prefabricated, uncoated boards with right edges, made of expanded polystyrene (EPS) according to EN 13163 and having the description and characteristics defined in the table below.

Description and characteristics		EPS panels
		For bonded or mechanically fixed ETICS with anchors
Reaction to fire/EN 13501-1		E
Thermal resistance ( $m^2 \cdot K/W$ )		Defined in the CE marking in reference to EN 13163 "Thermal insulation products for buildings"- Factory made products of expanded polystyrene
Thickness (mm)/EN 823		EPS-EN 13163 - T1
Length (mm)/EN 822		EPS-EN 13163 - L1
Width (mm)/EN 822		EPS-EN 13163 - W1
Squariness (mm)/EN 824		EPS-EN 13163 - S1
Flatness (mm)/EN 825		EPS-EN 13163 - P3
Surface condition		Cut surface (homogeneous and without „skin“)
Dimensional stability	specified temperature and humidity/EN 1604	EPS-EN 13163-DS (70,-)3
	laboratory condition/EN 1603	EPS-EN 13163-DS(N)5
Compression strength/EN 826		EPS-EN 13163-CS(10)70
Water absorption (partial immersion)/EN 1609		$< 1 \text{ kg/m}^2$
Water vapour diffusion resistance factor ( $\mu$ )/EN 12086-EN 13163		max. 100
Tensile strength perpendicular to the faces in dry conditions (kPa)/EN 1607		(EPS-EN-13163, TR100) $\geq 100$
Shear strength ( $N/mm^2$ )/EN12090		$\geq 0,02$
Shear modulus ( $N/mm^2$ )/EN12090		$\geq 1,0$

### 2.3.2 Anchors

Anchors for insulating product are used as a fixing device in mechanically fixed systems.

Trade name	Plate diameter (mm)	Characteristic resistance in the substrate
DAS TH 10/50 - La	50	see ETA 07/0271
ejotharm NT U	60	see ETA 05/0009
ejotharm STR U	60	see ETA 04/0023
ejotharm SDMT-plus	60	see ETA 04/0064
BRAVOLL <sup>®</sup> PTH-KZ 60/8-La, BRAVOLL <sup>®</sup> PTH-KZL 60/8- La, BRAVOLL <sup>®</sup> PTH 60/8- La, BRAVOLL <sup>®</sup> PTH-L 60/8- La	60	see ETA 05/0055

### 2.3.3 Render

The mean value of the crack width of the base coat THIN-SET Special with glass fibre Vertex R117 A101, measured a render strain value of 2 % is max. 0,2 mm.

The mean value of the crack width of the base coat THIN-SET Special with glass fibre Vertex R131 A101, measured a render strain value of 2 % is max. 0,2 mm.

The mean value of the crack width of the base coat KOMBI SPECIAL with glass fibre Vertex R117 A101, measured a render strain value of 2 % is about 0,5 mm.

The mean value of the crack width of the base coat KOMBI with glass fibre Vertex R117 A101, measured a render strain value of 2 % is about max. 0,19 mm.

The mean value of the crack width of the base coat KOMBI SPECIAL with the glass fibre mesh Vertex R131 A101: no performance determined.

The mean value of the crack width of the base coat KOMBI with the glass fibre mesh Vertex R131: no performance determined.

### 2.3.4 Glass fibre mesh

	Alkalis resistance			
	Residual strength after ageing (N/mm)		Relative residual resistance: % (after ageing) of the strength in the as delivered state	
	Warp	Weft	Warp	Weft
VERTEX R117 A101	≥ 20		≥ 50	
VERTEX R131 A101				

### **3.0 Evaluation and attestation of Conformity and CE marking**

#### **3.1 System of attestation of conformity**

According to the decision 97/556/EC of the European Commission, the system 2+ of attestation of conformity applies.

In addition, according to the decision 2001/596/EC of the European Commission, the systems 1 and 2+ of attestation of conformity apply with regard to reaction to fire.

Concerning the Euroclass B and F for the reaction to fire of the ETICS, the system of attestation of conformity, regarding other characteristics than reaction to fire, is system 2+. This system is described in the Council Directive 89/106/EEC Annex III, 2 (ii), First possibility as follows:

Declaration of conformity of the ETICS by the manufacturer on the basis of:

- a) Tasks of the manufacturer:
- Initial-type testing of the ETICS and the components
  - Factory Production Control
  - Testing of samples taken at the factory in accordance with a prescribed Control plan<sup>5</sup>
- b) Tasks of the Notified Body:
- Certification of factory production control based on:
  - Initial inspection of factory and factory production control
  - Continuous surveillance, assessment and approval of factory production control

Concerning the Euroclass B for the reaction to fire of the ETICS, the system of attestation of conformity, regarding reaction to fire characteristic, is system 1. This system 1 is described in the Council Directive 89/106/EEC Annex III, 2 (i), as follows:

Certification of conformity of the ETICS by a Notified Body on the basis of:

- c) Tasks for the manufacturer:
- Factory Production Control
  - Further testing of samples taken at the factory by the manufacturer in accordance with a prescribed Control plan<sup>5</sup>
- d) Tasks for the Notified Body:
- Initial type-testing of the ETICS and the components
  - Initial inspection of factory and factory production control
  - Continuous surveillance, assessment and approval of factory production control

### **3.2 Responsibilities**

#### **3.2.1 Task of the manufacturer**

##### **3.2.1.1 Factory production control**

The manufacturer shall exercise permanent internal control of production. All elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European Technical Approval.

The manufacturer may only use components stated in the technical documentation of this European Technical Approval including Control plan<sup>5</sup>.

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<sup>5</sup> The control plan is a confidential part of the European Technical Approval and only handed over to the notified body or bodies involved in the procedure of attestation of conformity. See section 3.2.2.

For the components of the ETICS which ETA-holder does not manufacture by himself, he shall make sure that the factory production control carried out by the other manufactures gives the guaranty of the components compliance with the European Technical Approval.

The factory production control and the provisions taken by the ETA-holder for components not produced by himself shall be in accordance with the Control plan<sup>5</sup> relating to this European Technical Approval which is part of the technical documentation of this European Technical Approval. The control plan<sup>5</sup> is laid down in the context of the factory production control system operated by the manufacturer and deposited at Building Testing and Research Institute.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control plan<sup>5</sup>.

### 3.2.1.2 Other tasks of manufacturer

The manufacturer shall, on basis of a contract, involve a body (bodies) which is (are) notified for the tasks referred in section 3.1 in the field of ETICS in order to undertake the actions laid down in section 3.3. For this purpose, the Control plan<sup>5</sup> referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the Notified Bodies or Bodies involved.

For initial type testing (in case of system 2+), the results of the tests performed as part of the assessment for the European Technical Approval can be used unless there are changes in the production line or plant. In such cases, the necessary initial-type testing has to be agreed between the Approval Body Building Testing and Research Institute and the Notified Bodies involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provision of this European Technical Approval. The initial-type testing mentioned above could be taken over by the manufacturer for this declaration.

### 3.2.2 Tasks of Notified Bodies

The Notified Body (Bodies) shall perform the:

- initial type-testing of the product (for system 1)

The results of the tests performed as part of the assessment for the European Technical Approval can be used there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed between the "Building Testing and Research Institute" and the Notified Bodies involved.

- initial type-testing of the product

The results of the tests performed as part of the assessment for the European Technical Approval can be used there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed between the "Building Testing and Research Institute" and the Notified Bodies involved.

- initial inspection of factory and of factory production control

The Notified Body (Bodies) shall ascertain that, in accordance with the Control plan<sup>5</sup>, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in clause 2 of this ETA.

- continuous surveillance, assessment and approval of factory production control

The Notified Body (Bodies) shall visit the factory:

- At least twice a year for surveillance. Further agreement between the Approval Body Building Testing and Research Institute and the Notified Body involved, this frequency can be reduced to one a year after a probative period.

or

- At least one a year for a surveillance of this manufacturer having FPC system complying with EN ISO 9001 covering the manufacturing of the ETICS components. It has to be verified that the system of factory production control and the specified automated manufacturing process are maintained taking into account the Control plan<sup>5</sup>.

These tasks shall be performed in accordance with the provisions laid down in the Control plan<sup>5</sup> of this European Technical Approval.

The Notified Body (Bodies) shall retain the essential points of its (their) actions referred to above and state results obtained and conclusions drawn in (a) written report (reports).

In the case of Attestation of Conformity system 1:

- ✓ The Notified Body (Bodies) involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European Technical Approval.

In the case of Attestation of Conformity system 2+:

- ✓ The Notified Body (Bodies) involved by the manufacturer shall issue an EC certificate of conformity of the factory production control stating the conformity with the provisions of this European Technical Approval.

In cases where the provisions of the European Technical Approval and its Control plan<sup>5</sup> are no longer fulfilled, the Notified Body shall withdraw the certificate of conformity and inform the Approval Body Building Testing and Research Institute without delay.

### **3.3 CE marking**

The CE marking shall be affixed either on the product itself, on a label attached to it, on its packaging or on the commercial documents accompanying the components of the ETICS. The letters «CE» shall be followed by the identification number of the Notified Body involved and be accompanied by the following additional information:

- the name or identification mark and address of the ETA-holder,
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity of Factory Production Control (system 2+),
- the number of the EC certificate of conformity for the ETICS (system 1),
- the number of the European Technical Approval,
- the ETICS trade name,
- the number of the ETAG.

## **4 Assumptions under which the fitness of the product for the intended use was favourably assessed**

### **4.1 Manufacturing**

The European Technical Approval is issued for the ETICS on the basis of agreed data/information, deposited with the Approval Body Building Testing and Research Institute, which identifies 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, should be notified to the Approval Body Building Testing and Research Institute before the changes are introduced. The Approval Body Building Testing and Research Institute 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.

## **4.2 Installation**

### **4.2.1 General**

It is the responsibility of the ETA-holder to guarantee that the information about design and installation of this ETICS are easily accessible to the concerned people. These information can be given using reproductions of the respective parts of the European Technical Approval. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction sheets using one or several illustrations.

In any case, the user shall comply with the national regulations and particularly concerning fires and wind load resistance.

Only the components described in clause 1.1 with the characteristics according to clause 2 this ETA can be used for the ETICS.

The requirements given in ETAG 004, chapter 7, as well as the information of paragraph 4.2.2 and 4.2.3, have to be considered.

### **4.2.2 Design**

- To bond the ETICS, the minimal bonded surface and the method of bonding shall comply with characteristics of the ETICS (see § 2.2.8.1 of this ETA) as well as the national regulations. In any case the minimal bonded surface shall be at least 20 %.
- To mechanically fix the ETICS, the choice and the rate of the fixings shall be determined concerning:
  - the design wind load suction and the national regulations (taking into account the national safety factors, the design rules, ...)
  - the characteristic resistance of the anchors into the considered substrate (see installation parameters – effective anchorage depth, characteristic resistance in the ETA of the anchor,
  - the safety in use of the ETICS (cf. § 2.2.8) according to the method of fixing.

### **4.2.3 Execution**

The recognition and preparation of the substrate as well as the generalities about the execution of the ETICS shall be carried out in compliance with:

- chapter 7 of the ETAG 004 with, in case of bonded ETICS, imperative removal of any existing organic finishes,
- national regulations in effect.

The particularities in execution linked to the different methods of fixing and the application of the rendering system shall be handled in accordance with ETA-holder prescriptions. In particular it is suitable to comply with the quantities of rendering applied, the thickness regularity and the drying periods between two layers.

## **5 Indications to the manufacturers**

### **5.1 Packaging, transport and storage**

Packaging of the components has to be such that the products are protected from moisture during transport and storage, unless other measures are foreseen by the manufacturer for this purpose.

The components have to be protected against damage.

It is the responsibility of the manufacturer(s) to ensure that these provisions are easily accessible to the concerned people.

## 5.2 Use, maintenance and repair

The finishing coat shall normally be maintained in order to fully preserve the ETICS' s performances.

Maintenance includes at least:

- 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 done rapidly.

It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance.

It is responsibility of the manufacturer(s) to ensure that these provisions are easily accessible to the concerned people.

Zuzana Sternova  
Head of Approval Body

<b>ETICS</b>		<b>KABE THERM EPS</b>	
Adhesives	THIN-SET Special		
	KOMBI SPECIAL		
	KOMBI		
Base coats	THIN-SET Special		
	KOMBI SPECIAL		
	KOMBI		
Key coats	Grunt Novalit GT	NOVALITH PUTZGRUND	
	Grunt Permuro GT	PERMURO PUTZGRUND	
	Grunt Armasil GT	ARMASIL PUTZGRUND	
Finishing coats	NOVALIT T	NOVALITH DECKPUTZ	
	PERMURO	PERMURO DECKPUTZ	
	ARMASIL T	ARMASIL DECKPUTZ	
<b>KABE THERM EPS</b>		<b>Annex 1</b> <b>of European Technical Approval</b> <b>ETA- 09/0042</b>	
<b>Trade name of the components</b>			