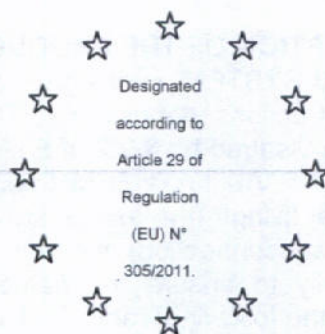




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European Organisation for  
Technical Assessment  
Organisation Européenne  
pour l'évaluation technique

## European Technical Assessment - ETA 19/0022 of 19/03/2019

(English language translation; the original version is in Italian)

### GENERAL PART

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Manufacturing plant

Distributor:

This European Technical Assessment contains:

This European Technical Assessment is issued in accordance with Regulation (EU) n° 305/2011, on the basis of

**"ALLFATHERM PREMIUM SYSTEM"**

**PAC 04: THERMAL INSULATION PRODUCTS.  
COMPOSITE INSULATING KITS/SYSTEMS.**  
External Thermal Insulation Composite System with renderings for the use as external insulation to the walls of buildings

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**11 pages**

**ETAG 004 Edition 2013, used as EAD  
(European Assessment Document)**

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## SPECIFIC PARTS

### 1. TECHNICAL DESCRIPTION OF THE PRODUCT

"ALLFATHERM PREMIUM SYSTEM" is designed and installed in accordance with the ETA Holder design and installation instructions, deposited at ITC-CNR.

According to categories envisaged by § 2.2 of ETAG 004 Edition 2013 (ETAG 004 in the following text), used as EAD, the kit "ALLFATHERM PREMIUM SYSTEM" is both bonded system with supplementary mechanical fixings (the fixings are used to provide stability until the adhesive has dried and act as a temporary connection) and mechanically fixed with supplementary adhesive (the adhesive is used primarily to ensure the flatness of the installed ETICS); it comprises the components described in the following Table 1 which are factory-made by the ETA Holder or by his suppliers. The ETA Holder is ultimately responsible for the kits.

#### 1.1 Components of the kits "ALLFATHERM PREMIUM SYSTEM"

The components of the kits are specified by the ETA Holder as follows:

| Bonded ETICS with supplementary mechanical fixings. (According to ETA holder's instructions bonded surface is at least 40%). National application documents shall be taken into account. |                                                                                                                                                                     |                                  |                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------|
|                                                                                                                                                                                          | Components                                                                                                                                                          | Coverage<br>(kg/m <sup>2</sup> ) | Thickness<br>(mm)   |
| Insulation products with associated methods of fixing                                                                                                                                    | <b>Adhesive</b><br>"VWS Mörtel Plus"<br>(cement CEM II AL 42.5 R based powder paste requiring addition of 22-24 % of water); particle size: 1.0 mm                  | 4 - 6                            | 5 - 7               |
|                                                                                                                                                                                          | <b>Insulation product</b><br>"Polyurethan Dämmplatte Class SK"<br>(PIR panels) (see further description at § 4.1.1)                                                 | //                               | min: 20<br>max: 200 |
|                                                                                                                                                                                          | <b>Anchors (supplementary)</b><br>Carbon Fix (ETA 15/0208)<br>STR Carbon (ETA 13/0009)<br>STR U and STR U 2G (ETA 04/0023)<br>H3 (ETA 14/0130)<br>STR H<br>STR H A2 | 4-6/m <sup>2</sup>               | See §4.2            |
| Base coat                                                                                                                                                                                | "VWS Mörtel Plus"<br>(cement CEM II AL 42.5 R based powder paste requiring addition of 22-24 % of water); particle size: 1.0 mm                                     | 4 - 6<br>(prepared product)      | 3 - 4 mm            |
| Reinforcement                                                                                                                                                                            | "Gittermatte"<br>(glass fibre mesh)<br>(mesh size: 4 x 5 mm)                                                                                                        | //                               | //                  |
| Key coat                                                                                                                                                                                 | "AC Putzgrund Mittel"<br>(acrylic watery solution)                                                                                                                  | 250 gr/m <sup>2</sup>            | 100 µ               |
| Finishing coat                                                                                                                                                                           | "Miropan Putz 1.5"<br>(ready to use paste based on acrylic resin)<br>particle size: 1.5 mm                                                                          | 2.5 - 3.5<br>(prepared product)  | 1.5 ± 0.1 mm        |
| Ancillary materials                                                                                                                                                                      | Descriptions in accordance with § 3.2.2.5 of the ETAG 004 remain under the ETA-holder responsibility                                                                |                                  |                     |
|                                                                                                                                                                                          | Base profiles in PVC: U profiles (length 200 cm - different sections) "Sockelschienen"                                                                              | //                               | 1                   |
|                                                                                                                                                                                          | Corner profiles in PVC: L-Profiles (length 250 cm - different sections) "Eckwinkel TYP A"                                                                           | //                               | 1                   |



| Mechanically fixed ETICS with supplementary adhesive. (According to ETA holder's instructions bonded surface is at least 40%). National application documents shall be taken into account. |                                                                                                                                                             |                                  |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------|
|                                                                                                                                                                                            | Components                                                                                                                                                  | Coverage<br>(kg/m <sup>2</sup> ) | Thickness<br>(mm)   |
| Insulation products with associated methods of fixing                                                                                                                                      | Adhesive (supplementary)<br>"VWS Mörtel Plus"<br>(cement CEM II AL 42.5 R based powder paste requiring addition of 22-24 % of water); particle size: 1.0 mm | 4 - 6                            | 5 - 7               |
|                                                                                                                                                                                            | Insulation product<br>"Polyurethan Dämmplatte Class SK"<br>(PIR panels) (see further description at § 4.1.1)                                                | //                               | min: 20<br>max: 200 |
|                                                                                                                                                                                            | Anchors<br>Carbon Fix (ETA 15/0208)<br>STR Carbon (ETA 13/0009)<br>STR U and STR U 2G (ETA 04/0023)<br>H3 (ETA 14/0130)                                     | 4-6/m <sup>2</sup>               | See §4.2            |
| Base coat                                                                                                                                                                                  | "VWS Mörtel Plus"<br>(cement CEM II AL 42.5 R based powder paste requiring addition of 22-24 % of water); particle size: 1.0 mm                             | 4 - 6<br>(prepared product)      | 3 - 4               |
| Reinforcement                                                                                                                                                                              | "Gittermatte"<br>(glass fibre mesh)<br>(mesh size: 4 x 5 mm)                                                                                                | //                               | //                  |
| Key coat                                                                                                                                                                                   | "AC Putzgrund Mittel"<br>(acrylic watery solution)                                                                                                          | 250 gr/m <sup>2</sup>            | 100 µ               |
| Finishing coat                                                                                                                                                                             | "Miropan Putz 1.5"<br>(ready to use paste based on acrylic resin)<br>particle size: 1.5 mm                                                                  | 2.5 - 3.5<br>(prepared product)  | 1.5 ± 0.1 mm        |
| Ancillary materials:                                                                                                                                                                       | Descriptions in accordance with § 3.2.2.5 of the ETAG 004 remain under the ETA-holder responsibility                                                        |                                  |                     |
|                                                                                                                                                                                            | Base profiles in PVC: U profiles (length 200 cm - different sections) "Sockelschienen"                                                                      | //                               | 1                   |
|                                                                                                                                                                                            | Corner profiles in PVC: L-Profiles (length 250 cm - different sections) "Eckwinkel TYP A"                                                                   | //                               | 1                   |

Tab. 1: Components of the kits

## 2. SPECIFICATION OF THE INTENDED USE IN ACCORDANCE WITH ETAG 004 USED AS EUROPEAN ASSESSMENT DOCUMENT

"ALLFATHERM PREMIUM SYSTEM" is intended for use as external thermal insulation composite system of buildings' walls and in particular for new and existing buildings whose facades can be made of masonry (bricks, concrete, stones, ...), in concrete cast on site or in prefabricated panels, or can be rendered and coated or uncoated; the substrate may need preparation as described in § 7.2.1 of ETAG 004, used as EAD.

The kit can be used on vertical walls. It can also be used on horizontal or inclined surfaces which are not exposed to precipitation. It is made of non load-bearing construction elements and the installed system 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 installed system is not intended to ensure the air tightness of the building structure.

The provisions made in this ETA are based on an assumed intended working life of at least 25 years, provided that the conditions laid down in section 2.2, 2.3, 2.4 of this ETA 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 by the Assessment Body, but should only be regarded as a mean for choosing the appropriate products in relation to the expected economically reasonable working life of the works.



## **2.1 Manufacturing**

The "ALLFATHERM PREMIUM SYSTEM" components shall correspond, as far as their composition and manufacturing process is concerned, to the products subject to the assessment tests. Manufacturing process scheme is deposited with ITC-CNR.

## **2.2 Installation**

### **2.2.1. General**

It is the responsibility of the ETA Holder to guarantee that the information about design and installation of the system "ALLFATHERM PREMIUM SYSTEM" are effectively communicated to the concerned people. These information can be given using reproductions of the respective parts of this European Technical Assessment. Besides, all the data concerning the execution shall be indicated clearly on the packaging and/or the enclosed instruction sheets using one or several illustrations. In any case, it is suitable to comply with national regulations and particularly concerning fire.

Only the components described in clause 1.1 with characteristics in accordance with clause 2 of this ETA can be used for the system "ALLFATHERM PREMIUM SYSTEM". The requirements given in ETAG 004, used as EAD, chapter 7, have to be considered.

### **2.2.2. Design**

The kit is both bonded system with supplementary mechanical fixings and mechanically fixed with supplementary adhesive. The minimal bonded surface area and the method of bonding shall comply with characteristics of the systems "ALLFATHERM PREMIUM SYSTEM" as well as the national regulations. In any case, the minimal bonded surface shall be at least 40%.

### **2.2.3. Execution**

The recognition and preparation of the substrate as well as the generalities about the execution of the system "ALLFATHERM PREMIUM SYSTEM", which are fully described in the current version of the ETA Holder Catalogue, shall be carried out in compliance with:

- chapter 7 of the ETAG 004, used as EAD;
- national regulations in effect, if any.

The particularities in execution linked to the method of bonding 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 period between 2 layers.

## **2.3 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 and, in case, by ETA Holder specifications.

The components have to be protected against damage.

## **2.4 Maintenance and repair of the works**

It is accepted that the finishing coat shall normally be maintained in order to fully preserve the system's performances.

Maintenance, which is clearly described in the current version of the ETA Holder Catalogue, includes:

- the repairing of localised damaged areas due to accidents,
  - the application of various products or paints, 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.



### 3. PERFORMANCE OF THE PRODUCT AND REFERENCES TO THE METHODS USED FOR ITS ASSESSMENT

The tests for the assessment of the performances of "ALLFATHERM PREMIUM SYSTEM" were carried out according to the tests mentioned in ETAG 004, used as EAD; the performances are valid only if the kit's components are exactly the ones mentioned at § 1 of this ETA.

#### 3.1 Safety in case of fire

##### 3.1.1 Reaction to fire "ALLFATHERM PREMIUM SYSTEM"

The reaction to fire has been determined according with § 5.1.2.1 of ETAG 004. Euroclass according to the Delegated Regulation (EU) 2016/364:

|                             | Organic content of the rendering system (%) | Flame retardant content of the rendering system (%) | Maximum thickness (mm) | Class      |
|-----------------------------|---------------------------------------------|-----------------------------------------------------|------------------------|------------|
| "ALLFATHERM PREMIUM SYSTEM" | base coat: 3.5%<br>finishing coat: 8%       | 0                                                   | 230                    | B – s1, d0 |

Tab. 2: Reaction to fire

#### Mounting and fixing

(for all end use applications given in 1.2 of this ETA)

The assessment of reaction to fire is based on tests with a maximum insulation layer thickness of SBI / 200 mm, EN 11925-2 / 60 mm and a maximum insulation material (PIR) density of 33.50 kg/m<sup>3</sup>. For the SBI test the system was mounted directly to a calcium silicate substrate (A2-s1, d0) with a minimum density of 815 kg/m<sup>3</sup>.

The mounting of the specimen was carried out at ITC-CNR Laboratory by the Manufacturer following the specifications given in his ETA Technical Dossier and in his Recommendations, using a single layer of the glass fibre mesh all over the specimen (without overlapping the mesh). The specimen didn't include any joints nor anchors (anchors have no influence on the test results); the panel edges were rendered, excluding the bottom edge and the top of the specimen.

#### Extended application

The test results cover arrangements with insulation materials (PIR) of a lower thickness and density, as well as with rendering systems (binder types) with a lower organic content.

#### 3.2 Hygiene, health and the environment

##### 3.2.1 Water absorption (capillarity test)

The water absorption has been determined in accordance with § 5.1.3.1 of ETAG 004, used as EAD.

| Water absorption                                                                                                                        | after 1 hour            |                         | after 24 hours          |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                                                                                                                         | < 1.0 kg/m <sup>2</sup> | ≥ 1.0 kg/m <sup>2</sup> | < 0.5 kg/m <sup>2</sup> | ≥ 0.5 kg/m <sup>2</sup> |
| Base coat "VWS Mörtel Plus"                                                                                                             | X                       | not applicable          | X                       |                         |
| Rendering system made of:<br>- base coat " VWS Mörtel Plus "<br>- key coat "AC Putzgrund Mittel"<br>- finishing coat "Miropan Putz 1.5" | X                       | not applicable          | X                       |                         |

Tab. 3: Water absorption

##### 3.2.2 Hygrothermal behaviour (heat-rain and heat-cold cycles)

In accordance with the method envisaged in 5.1.3.2.1 ETAG 004, the kit has been applied on rig and the hygrothermal behaviour of the 2 alternatives has been assessed.

None of the following defects occurred:

- blistering or peeling of any paint finishing,



- failure or cracking associated with joints between insulation products boards or profiles fitted with the system,
- detachment of the render,
- cracking allowing water penetration to the insulation layer.

Assessment: the system "ALLFATHERM PREMIUM SYSTEM" is resistant to hygrothermal cycles.

### 3.2.3 Freeze thaw behaviour

As shown in Table 3 of this ETA, the water absorption of the base coat and of rendering systems is less than 0.5 kg/m<sup>2</sup> after 24 hours and so the system can be assessed as freeze/thaw resistant without any further testing.

### 3.2.4 Impact resistance

The tests have been performed on the rig after the hygrothermal cycles, in accordance with § 5.1.3.3 of ETAG 004. The systems were made with one single standard mesh. The resistance of the systems to hard body impacts (3 Joules and 10 Joules) leads to the following use category:

|                                                       |                |
|-------------------------------------------------------|----------------|
| "ALLFATHERM PREMIUM SYSTEM" with Single standard mesh | Use Category I |
|-------------------------------------------------------|----------------|

Tab. 4: Category of impact resistance

### 3.2.5 Water vapour permeability (Resistance to water vapour diffusion)

The water vapour permeability has been determined in accordance with § 5.1.3.4 of ETAG 004.

| Water vapour permeability                                                                                                                                                                                         | Acceptance criteria (m) | Equivalent air thickness (m) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|
| Rendering system made of:<br>- insulation "Polyurethan Dämmplatte Class SK"<br>- base coat "VWS Mörtel Plus" (3.0 mm)<br>- key coat "AC Putzgrund Mittel" (100 µ)<br>- finishing coat "Miropan Putz 1.5" (1.5 mm) | ≤ 2.0                   | 0.476                        |

Tab. 5: Water vapour permeability

### 3.2.6 Release of dangerous substances

(in accordance with § 5.1.3.5 of ETAG 004, and with EOTA TR 034)

The external thermal insulation composite system neither contains nor releases the dangerous substances specified in EOTA TR 034 (October 2015).

A written declaration in this respect was made by the manufacturer. In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products regulation 305/2011, these requirements need also to be complied with, when and where they apply.

## 3.3 Safety in use

### 3.3.1 Bond strength

The bond strength has been determined in accordance with § 5.1.4.1 of ETAG 004.

| Bond strength between:                                                                                                                                                                      | Acceptance criteria                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| base coat "VWS Mörtel Plus" and insulation product "Polyurethan Dämmplatte Class SK"<br>(§ 5.1.4.1.1):<br>- under dry conditions                                                            | ≥ 0.08 MPa                             |
| adhesive "VWS Mörtel Plus" and substrate (concrete) (§ 5.1.4.1.2):<br>- under dry conditions<br>- 2 days of water immersion + 2 hours drying<br>- 2 days of water immersion + 7 days drying | ≥ 0.25 MPa<br>≥ 0.08 MPa<br>≥ 0.25 MPa |



|                                                                                                    |            |
|----------------------------------------------------------------------------------------------------|------------|
| adhesive "VWS Mörtel Plus" and insulation product "Polyurethan Dämmplatte Class SK" (§ 5.1.4.1.3): |            |
| - under dry conditions                                                                             | ≥ 0.08 MPa |
| - 2 days of water immersion + 2 hours drying                                                       | ≥ 0.03 MPa |
| - 2 days of water immersion + 7 days drying                                                        | ≥ 0.08 MPa |

Tab. 6: Bond strength between "VWS Mörtel Plus" and different substrates

### 3.3.2 Fixing strength

The Fixing strength (Displacement test) is not required in accordance with what envisaged in § 5.1.4.2 of ETAG 004.

#### 3.3.2.1 Wind load resistance (Pull through of fixing)

The following values only apply for the combination (anchor's trade name / PIR panel's characteristics) mentioned in the table.

|                                                                                                         |                                                            |                    |                  |                              |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------|------------------|------------------------------|
| Anchors for which the following failure loads apply                                                     | Trade name                                                 | ETA number         |                  |                              |
|                                                                                                         | "Carbon Fix"                                               | ETA 15/0208)       |                  |                              |
|                                                                                                         | "STR Carbon"                                               | ETA 13/0009        |                  |                              |
|                                                                                                         | "STR U" and "STR U 2G"                                     | ETA 04/0023        |                  |                              |
|                                                                                                         | "H3"                                                       | ETA 14/0130        |                  |                              |
|                                                                                                         | Plate diameter (mm)                                        | ≥ 60               |                  |                              |
| Characteristics of "Polyurethan Dämmplatte Class SK" panels for which the following failure loads apply | Thickness (mm)                                             | ≥ 20               |                  |                              |
|                                                                                                         | Tensile strength perpendicular to the face (kPa)           | ≥ 80               |                  |                              |
| Failure loads (N)                                                                                       | Anchors not placed at the panel joints (pull-through test) | $R_{\text{panel}}$ | In dry condition | Minimal: 564<br>Average: 581 |

Tab. 7: Wind load resistance pull-through tests

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:

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

### 3.4 Protection against noise

#### 3.4.1 Airborne sound insulation (ETAG 004 used as EAD, § 5.1.5)

No Performance Determined.



### 3.5 Energy economy and heat retention

#### 3.5.1 Thermal resistance

The additional thermal resistance provided by the ETICS ( $R_{ETICS}$ ) to the substrate wall is calculated from the thermal resistance of the insulation product ( $R_D$ ), determined in accordance with 5.2.6.1, and from the tabulated  $R_{render}$  value of the render system ( $R_{render}$  is about  $0.02 \text{ m}^2\text{K/W}$ ),

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

as described in:

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

- EN ISO 10456: Building materials and products - Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values.

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

EN 1934: "Thermal insulation - Determination of steady state thermal transmission properties - Calibrated and guarded hot box".

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:

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

With:

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

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

$$U = \frac{1}{R_{ETICS} + R_{substrate} + R_{se} + R_{si}}$$

$R_{substrate}$  thermal resistance of the substrate wall [(m<sup>2</sup>×K)/W]

$R_{se}$  external surface thermal resistance [(m<sup>2</sup>×K)/W]

$R_{si}$  internal surface thermal resistance [(m<sup>2</sup>×K)/W]

$\Delta U$  correction term of the thermal transmittance for mechanical fixing devices

$= \chi_p \cdot n \text{ (for anchors)} + \sum \psi_i \cdot l_i \text{ (for profiles)}$

$\chi_p$  point thermal transmittance value of the anchor [W/K]. See Technical Report n°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>

$\psi_i$  linear thermal transmittance value of the profile [W/(m×K)]

$l_i$  length of the profile per m<sup>2</sup>

The influence of thermal bridges can also be calculated as described in: EN ISO 10211: Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations.

It shall 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 the manufacturer do not apply in this case.

### 3.6 Sustainable use of natural resources

No Performance Determined.



### 3.7 Aspects of durability and serviceability

#### 3.7.1 Bond strength after ageing

The bond strength of the system after ageing has been determined following the method envisaged in § 5.1.7.1.1 of ETAG 004, used as EAD.

| Bond strength after ageing on the rig                                                                                                                          | Acceptance criteria     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Bond strength between base coat "VWS Mörtel Plus" + "AC Putzgrund Mittel" + finishing coat "Miropan Putz 1.5" and insulation "Polyurethan Dämmplatte Class SK" | $\geq 0.08 \text{ MPa}$ |

Tab. 8: Bond strength after ageing

### 4. Component's characteristics and parameters

The tests on components have been carried out in accordance with § 5.2 and to Annex C of ETAG 004, used as EAD, in order to verify the declared values; the results were positive; where the declared values were not given by the Applicant, the value of ETAG 004, used as EAD, have been adopted.

#### 4.1 Insulation product

##### 4.1.1 "Polyurethan Dämmplatte Class SK"

PIR panels with right edges covered with saturated glass felt. Their characteristics are given in the following table.

| Descriptions and characteristic                                                                      | PIR Panels                              |
|------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Reaction to fire (EN 13501-1)                                                                        | Euroclass E                             |
| Water absorption by partial immersion (EN 1609)<br>thickness: 100 mm<br>density: $35 \text{ kg/m}^3$ | $\leq 1 \text{ kg/m}^2$                 |
| Water vapour permeability ( $\mu$ ) (EN 12086)<br>thickness: 100 mm                                  | $56.00 \pm 2$                           |
| Tensile strength (kPa) (EN 1607)                                                                     | 80                                      |
| Compression CS(10) kPa (EN 826)                                                                      | 150                                     |
| Shear strength (EN 12090)                                                                            | $\geq 0.02 \text{ N/mm}^2$              |
| Shear modulus of elasticity (EN 12090)                                                               | $\geq 1.00 \text{ N/mm}^2$              |
| Conductivity ( $\lambda_D$ ) (EN 12667)<br>thickness $< 80 \text{ mm}$                               | $\leq 0.028 \text{ W/mK}$               |
| Conductivity ( $\lambda_D$ ) (EN 12667)<br>thickness $\geq 80 \text{ mm} < 120 \text{ mm}$           | $\leq 0.026 \text{ W/mK}$               |
| Conductivity ( $\lambda_D$ ) (EN 12667)<br>thickness $\geq 120 \text{ mm}$                           | $\leq 0.025 \text{ W/mK}$               |
| Thermal resistance for the minimum thickness (20 mm) (EN 12667)                                      | $0.71 \text{ m}^2\text{K/W}$            |
| Thickness (EN 823)                                                                                   | T2 (EN 13165)                           |
| Length (EN 822)                                                                                      | $1200 \pm 7.5 \text{ mm}$<br>(EN 13165) |
| Width (EN 822)                                                                                       | $600 \pm 5 \text{ mm}$<br>(EN 13165)    |
| Squareness (EN 824)                                                                                  | $\leq 6 \text{ mm/m}$ (EN 13165)        |
| Flatness (EN 825)                                                                                    | $\leq 5 \text{ mm}$ (EN 13165)          |
| Surface conditions                                                                                   | Cut surface                             |
| Density (EN 1602)                                                                                    | $35 \pm 2 \text{ kg/m}^3$               |
| Dimensional stability (23° ± 2°C, 50 ± 5% RH) (EN 1603)                                              | $< 2$                                   |
| Dimensional stability (70° ± 2°C, 90 ± 5% RH for 48 hours) (EN 1604)                                 | thickness $\leq 40 \text{ mm}$ : $< 3$  |
|                                                                                                      | thickness $> 40 \text{ mm}$ : $< 4$     |



Tab. 9: Characteristics of Insulation product "Polyurethan Dämmplatte Class SK"

## 4.2 Anchors

Anchors in plastic: (one-piece plastic anchors consisting of a collar and a nail) different lengths in relation with thickness of insulation

| Trade name and description                                                      | Measures (mm)                          | Characteristic resistance in the substrate |
|---------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------|
| "STR H "<br>Glass reinforced polyamide anchor.<br>(Only supplementary fix)      | Plate diameter: 60<br>Nail diameter: 8 | //                                         |
| "STR H A2"<br>Glass reinforced polyamide anchor.<br>(Only supplementary fix)    | Plate diameter: 60<br>Nail diameter: 8 | //                                         |
| "Carbon Fix"<br>Polyethylene HD anchor.<br>Use category A, B, C, D, E           | Plate diameter: 60<br>Nail diameter: 8 | see ETA 15/0208                            |
| "STR Carbon"<br>Polyethylene HD anchor. Use<br>category A, B, C, D, E           | Plate diameter: 60<br>Nail diameter: 8 | see ETA 13/0009                            |
| "STR U" and "STR U 2G"<br>Polyethylene HD anchor. Use<br>category A, B, C, D, E | Plate diameter: 60<br>Nail diameter: 8 | See ETA 04/0023                            |
| "H3" Polyethylene HD anchor.<br>Use category A, B, C                            | Plate diameter: 60<br>Nail diameter: 8 | see ETA 14/0130                            |

Tab. 10: Characteristics of anchors

## 4.3 Rendering system

### 4.3.1 Rendering system (base coat + reinforcement)

The test has been carried out in accordance with § 5.5.4.1 of ETAG 004

| Rendering system strain value | mean value of cracks in warp direction (mm) | mean value of cracks in weft direction (mm) |
|-------------------------------|---------------------------------------------|---------------------------------------------|
| 1.0 %                         | $w \leq 0.10$                               | $w \leq 0.10$                               |

Tab. 11: Rendering system strip tensile test results (w = crack's width)

## 4.4 Reinforcement (glass fibre mesh)

The reinforcement is a glass fibre mesh and its characteristics have been verified through the Identification methods envisaged in Annex C of ETAG 004.

### 4.4.1 Residual strength of reinforcement after ageing:

| Strength after ageing                                                               | Results                                         | Acceptance criteria                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Residual strength after ageing                                                      | $\geq 20 \text{ N/mm}$                          | $\geq 20 \text{ N/mm}$                          |
| Relative residual resistance (% after ageing) of strength in the as delivered state | $\geq 50 \%$ of the value at as delivered state | $\geq 50 \%$ of the value at as delivered state |

Tab. 12: Residual strength after ageing



**5. Assessment and Verification of Constancy of Performance (hereinafter AVCP) system applied, with reference to its legal base**

According to Decision 97/556/EC<sup>1</sup> of the European Commission amended by the Decision 001/596/EC, the AVCP (see Annex V to Regulation (EU) 305/2011) given in the following table applies.

| 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 <sup>(1)</sup> , A2 <sup>(1)</sup> , B <sup>(1)</sup> , C <sup>(1)</sup>                                      | 1      |
|                                                                           |                                                  | A1 <sup>(2)</sup> , A2 <sup>(2)</sup> , B <sup>(2)</sup> , C <sup>(2)</sup> , D, E, (A1 to E) <sup>(3)</sup> , F | 2+     |
|                                                                           | in external wall not subject to fire regulations | any                                                                                                              | 2+     |

Tab. 13: AVCP system

<sup>(1)</sup> Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).

<sup>(2)</sup> Products/materials not covered by footnote (1).

<sup>(3)</sup> Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC).

Considering the Euroclass B for the reaction to fire and that no stage in production process has been identified that corresponds to an improvement of the reaction to fire classification, the system of Attestation of Conformity is System 2+ (see Annex V to Regulation (EU) 305/2011 for tasks and responsibilities).

**6. Technical details necessary for the implementation of the AVCP system, as provided for in ETAG 004 used EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the Control Plan which is deposited at ITC CNR.

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 ITC CNR and the Notified Body.

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