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European Technical Assessment

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UBAtc Assessment Operator:
Belgian Construction Certification Association
Rue d'Arlon 53 - 1040 Brussels
www.bcca.be - info@bcca.be

Technical Assessment Body issuing the European Technical Assessment: UBAtc.
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product:	WILLCO ISOLATIESYSTEEM 1+3
Product family to which the construction product belongs:	External Thermal Insulation Composite System with Rendering on polystyrene for use as external insulation to the wall of buildings
Manufacturer:	Willco Products N.V. Kwalestraat 72 B-9320 Nieuwerkerken (Aalst)
Manufacturing plant:	Willco Products N.V. Kwalestraat 72 B-9320 Nieuwerkerken (Aalst)
Website:	www.willcoproducts.be
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	ETA-Guideline 004, amended November 2012, used as European Assessment Document (EAD)
This version replaces:	ETA 06/0023 issued on 2013/06/07
This European Technical Assessment contains:	10 pages, including 3 annexes which form an integral part of this ETA

European Organisation for Technical Assessment

Legal bases and general conditions

1. This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
   - Regulation (EU) N° 305/2011[1] of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
   - Commission Implementing Regulation (EU) N° 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
   - European Technical Approval Guideline (ETAG) 004, External Thermal Insulation Composite Systems with Rendering, used as European Assessment Document (EAD)

2. Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.

3. The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.

4. Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.

5. This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.

6. CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.

7. This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.

8. The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relate(s), is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.

9. According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned, which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use, which the manufacturer has submitted to the responsible TAB for the issuing of the European Technical Assessment.

10. Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.

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13. Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.

14. This European Technical Assessment was first issued by UBAtc on 4 June 2018, and replaces European Technical Approval, ETA 06/0128, issued on 7 June 2013. Compared with the European Technical Approval, No technical changes were introduced.

[1] OJEU, L 88 of 2011/04/04
[2] OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 Characteristics of the kit

1.1.1 General

This ETA is being issued for the products specified on the cover page on the basis of agreed data/information, deposited with the UBAtc, which identifies the products that have been assessed.

Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc 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/alterations to the ETA, shall be necessary.

1.1.2 Willco Isolatiesysteem 1+3

This European Technical Assessment specifies an ETICS (External Thermal Insulation Composite System with rendering), i.e. a kit comprising components which are factory-produced by the manufacturer or component suppliers. The ETICS manufacturer is ultimately responsible for all components of the ETICS specified in this ETA.

The ETICS kit comprises a factory-made insulation product of expanded polystyrene intended to be bonded onto a wall. The insulation product is faced with a rendering system consisting of more layers (site applied), one of which contains the reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles) to treat details of ETICS (connections, apertures, corners, parapets, sills...).

Assessment and performance of these components is not addressed in this ETA, however the ETICS manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

1.1.3 Composition of the ETICS

	Components (see Annexes I to III for further description, characteristics and performances of the components)	Coverage [kg/m²]	Thickness [mm]
Insulation materials with associated methods of fixing	**Bonded ETICS (fully bonded)**		
	Insulation product: Factory-prefabricated expanded polystyrene (EPS) according to EN 13163: - Willco Polystyreen Isolatieplaten 040, 035 - Willco Neopor Isolatieplaten 032		≤ 400 ≤ 200
	Adhesive (minimum bonded surface 40%): - Willco Kleef- en Uitvlakkingsmortel (cement based powder requiring addition of about 23% water)	3 – 4 (powder)	
	Anchors (if necessary): - Willco Pluggen HTS-P - Willco Pluggen HTR-P - Willco Pluggen HTH and anchors with ETA according to ETAG 014		
Insulation materials with associated methods of fixing	**Mechanical fixed ETICS with anchors and supplementary adhesive**		
	Insulation product: Factory-prefabricated expanded polystyrene (EPS) according to EN 13163: - Willco Polystyreen Isolatieplaten 040, 035 - Willco Neopor Isolatieplaten 032		60 – 400 80 –200
	Adhesive (minimum bonded surface 40%): - Willco Kleef- en Uitvlakkingsmortel (cement based powder requiring addition of about 23% water)	3 – 4 (powder)	
	Anchors: - Willco Pluggen HTS-P - Willco Pluggen HTR-P - Willco Pluggen HTH and anchors with ETA according to ETAG 014		
Base coat	Willco Kleef- en Uitvlakkingsmortel (cement based powder requiring addition of about 23% water)	3 – 4 (powder)	1,5 – 2,0
Glass fibre mesh	Willco Glasvezel Wit Fijn Glass fibre mesh with mass per unit area of about 150 g/m² (mesh size ca 4,05 mm x 3,70 mm)	0,150	

	Components (see Annexes I to III for further description, characteristics and performances of the components)	Coverage [kg/m²]	Thickness [mm]
Key coat	Willco Voorstrijk (ready to use pigmented silicone based liquid. To apply before the following finishing coats: Willco Silicoonharssierpleister & Willco Kunstharssierpleister)	0,15 – 0,25	
	Willco Silicaat Voorstrijk (ready to use pigmented silicate based liquid. To apply before the following finishing coat: Willco Silicaatsierpleister)	0,15 – 0,25	
Finishing coats	Willco Silicoonharssierpleister (ready to use paste – silicone - acrylic binder) (particle size 1 to 4 mm)	1,5 – 4,0	regulated by particle size
	Willco Kunstharssierpleister (ready to use paste – acrylic binder) (particle size 1,5 to 4 mm)	2,3 – 5,5	
	Willco Silicaatsierpleister (ready to use paste – silicate binder) (particle size 1 to 5 mm)	1,5 – 4,5	
Ancillary materials	Description in accordance with clause 3.2.2.5 of the ETAG 004 Remain under the ETA-holder responsibilities.		

2 Specification of the intended use(s) in accordance with the applicable EAD

2.1 General

This ETICS is intended for use as external insulation of buildings' walls. The walls are made of masonry (bricks, blocks, stones…) or concrete (cast on site or as prefabricated panels).

The characteristics of the walls shall be verified prior to use of the ETICS, especially regarding conditions for reaction to fire classification and for fixing of the ETICS. The ETICS is designed to give the wall to which it is applied satisfactory thermal insulation.

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

The ETICS may be used on new or existing (retrofit) vertical walls. It may 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 ETICS belongs to Category S/W2, according to EOTA Technical Report No 034.

The provisions made in this European Technical Assessment are based on the assumed working life of 25 years, provided that the ETICS is subject to appropriate installation, use and maintenance. These provisions are based upon the current state of the art and the available knowledge and experience.

The assumed working life of a system cannot be taken as a guarantee given by the producer, but is to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

Assumed intended working life means that it is expected that, when the working life has elapsed, the real working life may be, under normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

2.2 Provisions related to manufacturing, packaging, transportation and storage

2.2.1 Manufacturing

The product is applied on site according to the procedure laid down in the technical file deposited with the UBAtc.

2.2.2 Packaging, transportation and storage

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the people concerned.

2.3 Provisions related to the design and use of the product

2.3.1 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation.

Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different. Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the chapters 7.1 and 7.2 of ETAG 004 used as EAD, which summarizes how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

2.3.2 Use, maintenance and repair

The finishing coat shall normally be maintained in order to fully preserve the ETICS performance.

Maintenance includes at least:

- visual inspection of the ETICS,
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs should be performed as soon as the need has been identified.

It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance. Only products, which are compatible with the ETICS, shall be used.

The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made available to the people concerned.

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

3.1 General

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes I to III.

3.2 Mechanical resistance and stability

Not relevant.

3.3 Safety in case of fire - Reaction to fire (ETAG 004 – clause 5.1.2.1, EN 13501-1)

No performance assessed.

3.4 Hygiene, health and environment

3.4.1 Water absorption (ETAG 004 - clause 5.1.3.1)

3.4.1.1 Base coat

– 1 hour : Water absorption after < 1 kg/m²
– 24 hours: Water absorption after < 0,5 kg/m²

3.4.1.2 Rendering system

Rendering system: Willco Kleef- en Uitvlakkingsmortel with	Water absorption after 24 hours [kg/m²]	
	< 0,5	≥ 0,5
Willco Silicoonharssierpleister	x	
Willco Kunstharssierpleister		
Willco Silicaatsierpleister		

3.4.2 Water tightness (ETAG 004 - clause 5.1.3.2)

3.4.2.1 Hygrothermal behaviour

Hygrothermal cycles have been performed on a rig.

None of the following defects occurred during the testing:

– blistering or peeling of any finishing,
– failure or cracking associated with joints between insulation product boards or profiles fitted with the ETICS,
– detachment of render,
– cracking allowing water penetration to the insulation layer.

The ETICS is therefore assessed resistant to hygrothermal cycles.

3.4.2.2 Freeze-thaw behaviour

The rendering system has been assessed as freeze/thaw resistant according to the freeze/thaw behaviour test.

3.4.3 Impact resistance (ETAG 004 - clause 5.1.3.3)

Rendering system: Base coat + key coat + reinforcement and finishing coat indicated hereafter:	Willco Glasvezel (single layer)
Willco Silicoonharssierpleister	category II
Willco Kunstharssierpleister	category III
Willco Silicaatsierpleister	category II

3.4.4 Water vapour permeability (ETAG 004 - clause 5.1.3.4)

Rendering system: Base coat + key coat + reinforcement and finishing coat indicated hereafter:	Equivalent air thickness s_d [m]
Willco Silicoonharssierpleister	≤ 2,0 (test result obtained with d = 3 mm: 0,5 m)
Willco Kunstharssierpleister	≤ 2,0 (test result obtained with d = 3 mm: 0,6 m)
Willco Silicaatsierpleister	≤ 2,0 (test result obtained with d = 3 mm: 0,6 m)

3.4.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR034)

According to the written declaration on dangerous substances submitted by the ETA-holder to the Technical Assessment Body the kit does not contain any dangerous substances. In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the kit 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.

Note: For dangerous substances falling under the scope of the CPR for which

- no assessment and verification methods are given (or cannot be found in TR 034); or
- "no performance determined" is declared; or
- the chosen verification and assessment method does not comply with the regulatory requirement of a particular Member State,

there might be the necessity for an additional assessment.

3.5 Safety and accessibility in use

3.5.1 Bond strength between base coat and insulation product (ETAG 004 - clause 5.1.4.1.1)

Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
≥ 0,08 MPa	≥ 0,08 MPa	test not required

3.5.2 Bond strength between adhesive and substrate / insulation product (ETAG 004 - clauses 5.1.4.1.2, 5.1.4.1.3)

		Initial state	48 h immersion in water + 2 h 23°C/50% RH	48 h immersion in water+ 7 days 23°C/50% RH
Willco Kleef- en Uitvlak-kings-mortel	Concrete	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	Insulation	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

The minimal bonded surface S, which shall exceed 20 %, is calculated as follows:

$$S\ (\%) = [0{,}03\ (MPa) * 100]/B$$

where

- B: minimum mean failure resistance of the adhesive to the insulation product in dry conditions
- 0,03 MPa corresponds to the minimum requirements.

The ETICS may be installed on the substrate with application of the adhesive on the following minimal surface:

	Tensile strength perpendicular to the face of the insulation product ≥ 80 kPa
Willco Kleef- en Uitvlakkings-mortel	40 %

3.5.3 Fixing strength (ETAG 004 - clause 5.1.4.2)

Test not required because the ETICS fulfils the following criterion: E x d < 50.000 N/mm (E = modulus of elasticity of the base coat – d = mean dried thickness of the base coat).

3.5.1 Wind load resistance (ETAG 004 - clause 5.1.4.3)

3.5.1.1 Using anchors

The following values apply only for anchors with a plate diameter of 60 mm listed in clause 1.1.3 mounted on the insulation plate surface.

	Characteristic	Value
Insulation product	Thickness [mm]	≥ 60
	Tensile strength perp. to face [kPa]	≥ 80
	Shear modulus [N/mm²]	≥ 1,0
Failure [N]	Anchors not placed at the panel joints R_{panel}	min = 350 mean = 360
	Anchors placed at the panel joints R_{joint}	min = 300 mean = 310

	Characteristic	Value
Insulation product	Thickness [mm]	≥ 60
	Tensile strength perp. to face [kPa]	≥ 100
	Shear modulus [N/mm²]	≥ 1,0
Failure [N]	Anchors not placed at the panel joints R_{panel} (static foam block test)	min = 510 mean = 520
	Anchors placed at the panel joints R_{joint} (pull-through test)	min = 400 mean = 430

	Characteristic	Value
Insulation product	Thickness [mm]	≥ 60
	Tensile strength perp. to face [kPa]	≥ 80
	Shear modulus [N/mm²]	≥ 0,3
Failure [N]	Anchors not placed at the panel joints R_{panel} (static foam block test)	min = 350 mean = 360
	Anchors placed at the panel joints R_{joint} (pull-through test)	min = 300 mean = 310

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

$$R_d = \frac{R_{panel} \times n_{panel} + R_{joint} \times n_{joint}}{\gamma}$$

with

- n_{panel}: the number (per m²) of anchors not placed at the panel joints
- n_{joint}: the number (per m²) of anchors placed at the panel joints
- γ: a national safety factor

3.5.2 Render strip tensile test

No performance assessed.

3.6 Protection against noise - Airborne sound insulation

No performance assessed.

3.7 Energy economy and heat retention - Thermal resistance

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

$$U_C = U + \chi_p \times n$$

where:

- $\chi_p \times n$ has only to be taken into account if it is greater than 0, 04 W/(m².K)
- U_C: global (corrected) thermal transmittance of the covered wall [W/ (m².K)]
- n: number of anchors (through insulation product) per m²
- χ_p: local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:

  = 0.002 W/K for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw ($\chi_p \times n$ negligible for n < 20)

  = 0.004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_p \times n$ negligible for n < 10)

  = negligible for anchors with plastic nails (reinforced or not with glass fibres)

- U: thermal transmittance of the current part of the covered wall (excluding thermal bridges) [W/ (m².K)] determined as follows:

$$U_C = \frac{1}{R_i + R_{render} + R_{substrate} + R_{se} + R_{si}}$$

where:

- R_i: thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m².K)/W
- R_{render}: thermal resistance of the render (about 0.02 in (m².K)/W or determined by test according to EN 12667 or EN 12664)
- $R_{substrate}$: thermal resistance of the substrate of the building (concrete, brick…) in (m².K)/W
- R_{se}: external superficial thermal resistance in (m².K)/W
- R_{si}: internal superficial thermal resistance in (m².K)/W

The value of thermal resistance of each insulation product shall be given in the manufacturer's documentation along with the possible range of thicknesses. In addition, the point thermal conductivity of anchors shall be given when anchors are used in the ETICS.

3.8 Aspects of durability and serviceability - Bond strength after ageing

Rendering system: Base coat + key coat + reinforcement and finishing coat indicated hereafter:	Bond strength after the hygrothermal cycles on the rig [MPa]
Willco Silicoonharssierpleister	≥ 0,08
Willco Kunstharssierpleister	
Willco Silicaatsierpleister	

3.9 Sustainable use of natural resources

No performance assessed.

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

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

According to the Commission Decision 97/556/EC[3], amended by the Commission Decision 2001/596/EC[4] and Commission Delegated Regulation (EU) 2016/364[5], the following system(s) of assessment and verification of constancy of performance apply.

Product(s)	Intended uses	Level(s) or class(es) (reaction to fire)	Assessment and verification of constancy of performance system(s)[a]
External thermal insulation composite systems/kits (ETICS) with rendering	In external wall not subject to fire regulations	Any	2+
	In external wall subject to fire regulations	(A1,A2,B,C)*	1
		(A1,A2,B,C)** & D,E (A1 to F)*** & NPD****	2+

[a] Systems1 and 2+ :See Regulation (EU) N° 305/2011, Annex V

*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)

**Products/materials not covered by footnote *

***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, as amended)

****'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)

5 Technical details necessary for the implementation of the AVCP system

5.1 General

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the Notified Body.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

5.2 The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

5.3 Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of ETICS are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

5.4 Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances),
- incoming (raw) materials specifications and declarations,
- references to European and/or international standards,
- technical data sheets.

5.5 Control Plan (as a part of FPC)

The manufacturer and the Technical Assessment Body have agreed a Control Plan, which is deposited with the UBAtc in documentation, which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Products not manufactured by the ETICS manufacturer shall also be tested according to the Control Plan. It shall be demonstrated to the Notified Body that the FPC system contains elements securing that the ETICS manufacturer takes products conforming to the Control Plan from his supplier(s).

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the ETICS manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform the UBAtc without delay.

[3] OJEU, L229, 20/08/1997

[4] OJEU, L209, 02/08/2001

[5] OJEU, L 68, 15/03/2016, p. 4

6 References

EN 822 Thermal insulating products for building applications - Determination of length and width

EN 823 Thermal insulating products for building applications - Determination of thickness

EN 824 Thermal insulating products for building applications - Determination of squareness

EN 825 Thermal insulating products for building applications - Determination of flatness

EN 1604 Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions

EN 1609 Thermal insulating products for building applications - Determination of short term water absorption

EN 12086 Thermal insulating products for building applications - Determination of water vapour transmission properties

EN 12090 Thermal insulating products for building applications - Determination of shear behaviour

EN 12664 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products of medium and low thermal resistance

EN 12667 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance

EN 13163 Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products - Specification

EN 13501-1 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

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

Annex I
Insulation product characteristics

Description and characteristics	Reference	EPS panels
Reaction to fire	EN 13501-1	Class E
Thermal resistance	EN 13163	defined in the CE marking in reference to EN 13163 "thermal insulation products for buildings" – factory made products of expanded polystyrene.
Thickness	EN 823	± 2 mm
Length	EN 822	± 2 mm
Width	EN 822	± 2 mm
Squareness	EN 824	≤ 2 mm/m
Flatness	EN 825	≤ 4 mm
Surface condition	/	cut surface (homogeneous and without "skin")
Dimensional stability	Specified temperature and humidity / EN 1604 (48 h 70°C, 90% R.H.))	Length and width: ≤ 1 % Thickness: ≤ 1 %
	Laboratory conditions / EN 1603 (23°C, 50% R.H.)	Length and width: ≤ 0,2 %
Water absorption (partial immersion)	EN 1609 – EN 12087	≤ 0,5 kg/m²
Water vapour diffusion resistance factor (μ)	EN 12086	20 to 60
Tensile strength perpendicular to the faces in dry conditions	EN 1607	Willco polystyreen Isolatieplaten 040, 035: TR 80, TR 100, TR 150 Willco Neopor Isolatieplaten 032*: TR 80
Shear strength	EN 12090	≥ 0,02 MPa
Shear modulus of elasticity	EN 12090	Willco polystyreen Isolatieplaten 040, 035: ≥ 1,0 MPa Willco Neopor Isolatieplaten 032*: ≥ 0,3 MPa

*Willco Neopor Isolatieplaten 032 is Willco Polystyreen Isolatieplaten 040, 035, which is put for a short time under high pressure in order to reduce the dynamic stiffness. As a result the sound insulation of the wall with Willco Neopor Isolatieplaten 032 is better than a wall with Willco Polystyreen Isolatieplaten 040, 035.

Annex II

Description and characteristics of the anchors

The characteristic pull-out strength of anchor is determined according to ETAG 004, clause 5.3.4.1.

The characteristic pull-out strength of the anchor is given in the ETA of the anchor:

Trade name	Plate diameter [mm]	ETA number
Willco Pluggen HTS-P	60	14/0400
Willco Pluggen HTR-P		16/0116
Willco Pluggen HTH	75	15/0464

Additionally all anchors with ETA according to ETAG 014 with characteristics having the description below shall be used:

- plate diameter of anchor ≥ 60 mm resp. ≥ 90 mm
- plate stiffness ≥ 0,3 kN/mm
- load resistance of the anchor plate ≥ 1,0 kN

These characteristics and the characteristic tension resistance of the anchors shall be taken from the corresponding ETA.

Annex III

Description and characteristics of the reinforcement

Mesh trade name	Alkali resistance	
	Residual resistance after ageing [N/mm]	Relative residual resistance: % (after ageing) of the strength in the as delivered state
Willco Glasvezel Wit Fijn	≥ 20	≥ 50

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This European Technical Assessment has been issued by UBAtc asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,

Peter Wouters,
Director

On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,

Benny De Blaere,
Director general

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