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European Technical Assessment

ETA-08/0236 of 03.09.2018

English version prepared by ZAG

GENERAL PART

Organ za tehnično ocenjevanje, ki je izdal ETA *Technical Assessment Body issuing the ETA*	**ZAG Ljubljana**
Komercialno ime gradbenega proizvoda *Trade name of the construction product*	**JUBIZOL S70**
Družina proizvoda, ki ji gradbeni proizvod pripada *Product family to which the construction product belongs*	**External Thermal Insulation Composite Systems with rendering for the use as external insulation to timber frame buildings** Zunanji toplotnoizolacijski sestavljeni sistemi z ometom (ETICS) namenjeni za izolacijo na montažnih hišah z leseno nosilno konstrukcijo*for the use as external insulation of building walls*
Proizvajalec *Manufacturer*	**JUB d. o. o.** **Dol pri Ljubljani 28** **1262 Dol pri Ljubljani** **Slovenija** www.jub.si
Proizvodni obrati *Manufacturing plants*	**Obrat 1** *Plant 1* **Obrat 2** *Plant 2* **Obrat 3** *Plant 3* **Obrat 4** *Plant 4* **Obrat 5** *Plant 5*
Ta Evropska tehnična ocena vsebuje *This European Technical Assessment contains*	**35 strani vključno s 3 prilogami, ki so sestavni del te tehnične ocene** *35 pages including 3 Annexes which form an integral part of this assessment*
Ta Evropska tehnična ocena je izdana na podlagi Uredbe (EU) št. 305/2011 na osnovi *This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of*	**ETAG 004, izdaja 2013, ki se uporablja kot Evropski ocenitveni dokument (EAD)** *ETAG 004, edition 2013, used as European Assessment Document (EAD)*
Ta verzija zamenjuje *This version replaces*	**ETA-08/0236 izdano dne 29.06.2013** *ETA-08/0236 issued on 29.06.2013*

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SPECIFIC PART

1 Technical description of the product

1.1 General

This product is an ETICS (External Thermal Insulation Composite System) with rendering - 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 prefabricated insulation product of expanded polystyrene to be:
- purely bonded,
- bonded with supplementary mechanical fittings or
- mechanically fixed with supplementary adhesive.

The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (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.

1.2 Composition of the kit

1.2.1 Composition of the ETICS

The ETICS comprises the following: adhesive or mechanical fixings (anchors), insulation core, base coat reinforced with glass fibre mesh, key coat applied on the base coat, finishing coat and ancillary materials. The descriptions of the components are given in Tables 1 to 8 (commercial designations of the components are **bold**), while the compositions of the system are presented in Tables 8, 9 and 10.

Table 1: ETICS components - Adhesives.

Components (see § 3. for further description, characteristics and performances of the components)	
Adhesives	**Coverage (kg/m²)**
JUBIZOL ADHESIVE MORTAR - dry cement based adhesive requiring addition of ≃ 20 % water.	3,5 – 5,0 (powder)
JUBIZOL STRONG FIX - dry cement based adhesive requiring addition of ≃ 20 % water.	3,5 – 5,0 (powder)
JUBIZOL EPS ADHESIVE MORTAR - dry mix cement based adhesive requiring addition of ≃ 20 % water.	3,5 – 5.0 (powder)
JUBIZOL MICROAIR FIX - dry mix cement based adhesive requiring addition of ≃ 20 % water.	3,5 – 5.0 (powder)
JUBIZOL ADHESIVE - dry mix cement based adhesive requiring addition of ≃ 20 % water.	3,5 – 5,0 (powder)

Table 2: ETICS components - Insulation products.

Components (see § C. for further description, characteristics and performances of the components)		
Designation code of the insulation products	**Commercial designation of insulation products**	**Thickness (mm)**
EPS	EPS-EN 13163-T1-L1-W1-S2-P4-DS(N)2-DS(70,-)2 TR100-BS100	≤ 300

It is assumed that for composition of the ETICS can be applied only the EPS insulation products with at least equivalent properties as products listed in Table 2. Applicable product shall be further verified according to EN 13163 and ETAG 004 (Edition 2000, Amended August 2011 and February 2013).

Table 3: ETICS components – Anchors used onto EPS insulation.

Components (see § C. for further description, characteristics and performances of the components)
Ejotherm **STR U, STR U 2G, SDM-T plus, SDF-K plus, Ejotherm NT-U, NK-U, NTK-U, H1 Eco, H4 Eco, H3**
Hilti **SX-FV, SD-FV 8, D-FV, D-FV T, XI-FV, HTR, HTS, HTH**
Fischer Termoz **8U, Termoz 8N, Termoz KS8, Termoz 8 SV, Termoz 8 UZ**
Leskovec **Plastično pritrdilo PP, Pritrdilno sidro PSK, Pritrdilno sidro PPV***
Ranit **IsoFux NDT8LZ, ND8LZ, ND8LZ K, NDS8Z, NDM8Z, NDS90Z, NDM90Z, IsoFux**
Bravoll **PTH-KZ 60/8-L_a, PTH-KZL 60/8-L_a, PTH 60/8-L_a, PTH-L 60/8-L_a**
WKRET MET **LFN 8, LFM 8, LTX 8, LMX 8, LFN 10, LFM 10, LTX-10, LMX-10, LFN10, WKTHERM 8, WKTHERM 8S, FIXPLUG 8, FIXPLUG 10, ECO-DRIVE, ECO-DRIVE S, ECO-DRIVE W**

Table 4: ETICS components – Base coats.

Components (see § 3. for further description, characteristics and performances of the components)		
Base coats	**Coverage (kg/m²)**	**Thickness (mm)**
JUBIZOL ADHESIVE MORTAR - dry mix cement base coat powder requiring addition of 20 % water. It consists of aggregates, cement, dispersion powder, special additives.	4.2 – 8.4 (powder)	maximal (dry): 6 minimal (dry): 3
JUBIZOL STRONG FIX - dry mix cement base coat powder requiring addition of 20 % water. It consists of aggregates, cement, dispersion powder, special additives.	4.2 – 8.4 (powder)	maximal (dry): 6 minimal (dry): 3
JUBIZOL EPS ADHESIVE MORTAR - powdered high-elasticity cement-based mortar, refined with polymer binder, requiring addition of 20 % water. EPS Adhesive mortar consists of aggregates, cement, polymer binders, special additives.	4.2 – 5.6 (powder)	maximal (dry): 4 minimal (dry): 3
JUBIZOL MICROAIR FIX powdered high-elasticity cement-based mortar, refined with polymer binder, requiring addition of 20 % water. EPS Adhesive mortar consists of aggregates, cement, polymer binders, special additives.	4.2 – 5.6 (powder)	maximal (dry): 4 minimal (dry): 3
JUBIZOL CEMENT FREE BASE COAT - polymer based adhesive, paste form. It consists of aggregates, polymer, binders, special additives.	3,8 – 4,5 (powder)	maximal (dry): 3 minimal (dry): 2.5

Table 5: ETICS components – Reinforcement.

Components (see § 3. for further description, characteristics and performances of the components)
Reinforcement
JUBIZOL glass fibre mesh – where JUBIZOL glass fibre mesh denotate ETA-holder own designation.

Table 6: ETICS components – Key coat

Components (see § 3. for further description, characteristics and performances of the components)	
Key coat	**Coverage (l / m²)**
JUBIZOL Unigrund – liquid, water based acrylic slurry primer intended as a key coat for all finishing coats (except mineral based finishing coats Mineral Trowelled Render, Mineral Smooth Render and Nivellin D + Revitalcolor).	0.15 - 0.20
Acryl emulsion - liquid, water based acrylic primer intended as a key coat for the acrylic and mineral based finishing coats.	about 0.1
Acrycolor - liquid exterior acrylic waterborne facade paint as a key coat for the acrylic and mineral based finishing coats.	about 0.1
SILICATEprimer - liquid, water based silicate primer intended as a key coat for the silicate based finishing coats.	about 0.1
SILICONEprimer - liquid, water based silicone primer intended as a key coat for the silicone based finishing coats.	about 0.1

Table 7: ETICS components – finishing coats.

Components (see § 3. for further description, characteristics and performances of the components)		
Finishing coats	**Coverage (kg/m²)**	**Thickness (mm)**
JUBIZOL MINERAL finish T 2.0/2.5 – ready-mixed lime-cement based mortar requiring addition of water 20-23 %, based on lime, cement, aggregates, additives (in combination with all base coats except **JUBIZOL CEMENT FREE BASE COAT, JUBIZOL EPS ADHESIVE MORTAR** and **JUBIZOL MICROAIR FIX.**	2.6 to 3.1 (powder)	Regulated by the particle size distribution
JUBIZOL MINERAL finish S 1.5/2,0/2.5 – ready-mixed lime-cement based mortar requiring addition of water 20-23 %, based on lime, cement, aggregates, additives (in combination with all base coats except **JUBIZOL CEMENT FREE BASE COAT, JUBIZOL EPS ADHESIVE MORTAR** and **JUBIZOL MICROAIR FIX.**	2.6 to 3.6 (powder)	
Ready to use paste – **JUBIZOL SILICATE finish T 2.0/2.5** - based on potassium silicate and water-based acrylic binder, aggregates, additives. (in combination with all base coats except **JUBIZOL CEMENT FREE BASE COAT, JUBIZOL EPS ADHESIVE MORTAR** and **JUBIZOL MICROAIR FIX.**	2.5 to 3.2 (paste)	
Ready to use paste – **JUBIZOL SILICATE finish S 1.5/2.0/2.5** - based on potassium silicate and water-based acrylic binder, aggregates, additives (in combination with all base coats except **JUBIZOL CEMENT FREE BASE COAT, JUBIZOL EPS ADHESIVE MORTAR** and **JUBIZOL MICROAIR FIX.**	3.0 to 5.5 (paste)	
Ready to use paste – **JUBIZOL SILICONE finish T 2.0/2.5** - based on silicone emulsion and water-based acrylic binder, aggregates, additives (in combination with all base coats).	2.8 to 3.5 (paste)	
Ready to use paste – **JUBIZOL SILICONE finish S 1.5/2.0/2.5** - based on silicone emulsion and water-based acrylic binder, aggregates, additives (in combination with all base coats).	2.4 to 4.7 (paste)	
Ready to use paste –**JUBIZOL ACRYL finish T 2.0/2.5** - based on water-based acrylic binder, aggregates, additives (in comb. with all base coats).	2.5 to 3.2 (paste)	
Ready to use paste – **JUBIZOL ACRYL finish S /1.5/2.0/2.5** - based on water-based acrylic binder, aggregates, additives (in combination with all base coats).	2.5 to 5.0 (paste)	
NIVELIN D + façade paints* – ready-mixed polymer based mortar requiring addition of water ~ 30 %, based on polymer, lime, cement, aggregates, additives + liquid exterior micro reinforced acrylic waterborne anti-mildew paint (only in combination with **JUBIZOL ADHESIVE MORTAR** and **JUBIZOL STRONG FIX**) To be applied without key coat.	3.5 to 4.5 l/m² (powder + liq.)	
Ready to use paste – **JUBIZOL UNIXIL finish S 1,0/ 1.5/2.0/2.5** - based on water-based acrylic binders, mineral fillers, special additives (in combination with all base coats).	2.1 to 5.0 (paste)	
Ready to use paste – **JUBIZOL UNIXIL Winter finish S 1,0/ 1.5/2.0/2.5** - based on water-based acrylic binders, mineral fillers, special additives (in combination with all base coats.	2.1 to 5.0 (paste)	
Ready to use paste – **JUBIZOL UNIXIL finish T 2.0/2.5** - based on water-based acrylic binders, mineral fillers, special additives (in combination with all base coats).	2.5 to 3.2 (paste)	
Ready to use paste – **JUBIZOL NANO finish S 1,5/2,0/2,5** - based on water-based silicone and acrylic binders, nano structures, mineral fillers and special additives (in combination with all base coats.	2.6 to 4.7 (paste)	

Table 8: ETICS components – Façade paints.

Components (see § 3. for further description, characteristics and performances of the components)	
Façade paints	**Coverage (kg/m²)**
Acrylcolor – based on water-based acrylic binders, special additives (in combination with all finishing coats.	200 ml/m² (solution)
Revitalcolor - based on water-based acrylic binders, special additives, micro-reinforcing fibers (in combination with all finishing coats	270 ml/m² (solution)
Nanocolor - based on water-based silicone binders, special additives, special fillers, micro-reinforcing fibers (in combination with all finishing coats,.	270 ml/m² (solution)
Siliconecolor - based on water-based silicone binders, special additives, micro-reinforcing fibers (in combination with all finishing coats.	270 ml/m² (solution)
Silicatecolor - based on water-based potassium silicate binder, special additives (in combination with all finishing coats.	200 ml/m² (solution)
Décor Antique - based on water-based potassium silicate binder, special additives (in combination with all finishing coats	180 ml/m² (solution)
Trendcolor - based on water-based acrylic binders, siloxane, special additives, special fillers, micro-reinforcing fibers (in combination with all finishing coats	270 ml/m² (solution)

Table 9: Components to be applied for bonded ETICS.

Bonded ETICS 1
Adhesives JUBIZOL ADHESIVE MORTAR, JUBIZOL STRONG FIX, JUBIZOL EPS ADHESIVE MORTAR, JUBIZOL MICROAIR FIX, JUBIZOL ADHESIVE
Insulation EPS-EN 13163-T1-L1-W1-S2-P4-DS(N)2-DS(70,-)2-TR100-BS100
Anchors -
Base coats JUBIZOL ADHESIVE MORTAR, JUBIZOL STRONG FIX, JUBIZOL EPS ADHESIVE MORTAR, JUBIZOL MICROAIR FIX, JUBIZOL CEMENT FREE BASE COAT
Reinforcements Standard meshes (glass fibres meshes with grid size 3,5 mm and 5,0 mm)
Finishing coats JUBIZOL MINERAL finish T 2.0/2.5, JUBIZOL MINERAL finish S 1.5/2,0/2.5, JUBIZOL SILICATE finish T 2.0/2.5, JUBIZOL SILICATE finish S 1.5/2.0/2.5 , JUBIZOL SILICONE finish T 2.0/2.5, JUBIZOL SILICONE finish S 1.5/2.0/2.5, JUBIZOL ACRYL finish T 2.0/2.5, JUBIZOL ACRYL finish S /1.5/2.0/2.5, NIVELIN D + façade paints JUBIZOL UNIXIL finish S 1,0/ 1.5/2.0/2.5, JUBIZOL UNIXIL Winter finish S 1,0/ 1.5/2.0/2.5, JUBIZOL UNIXIL finish T 2.0/2.5, JUBIZOL NANO finish S 1,5/2,0/2,5
Façade paints Acrylcolor, Revitalcolor, Nanocolor, Siliconecolor, Silicatecolor, Décor Antique, Trendcolor

Table 10: Components to be applied to ETICS with supplementary mechanical fixings – anchors or ETICS fixed with supplementary adhesive.

ETICS 2 with supplementary mechanical fixings or ETICS fixed with supplementary adhesive for EPS as insulation material
Adhesives JUBIZOL ADHESIVE MORTAR, JUBIZOL STRONG FIX, JUBIZOL EPS ADHESIVE MORTAR, JUBIZOL MICROAIR FIX, JUBIZOL ADHESIVE
Insulation EPS-EN 13163-T1-L1-W1-S2-P4-DS(N)2-DS(70,-)2-TR100-BS100
Anchors Ejotherm STR U, STR U 2G, SDM-T plus, SDF-K plus, Ejotherm NT-U, NK-U, NTK-U, H1 Eco, H4 Eco, H3 Hilti SX-FV, SD-FV 8, D-FV, D-FV T, XI-FV, HTR, HTS, HTH Fischer Termoz 8U, Termoz 8N, Termoz KS8, Termoz 8 SV, Termoz 8 UZ Leskovec Plastično pritrdilo PP, Pritrdilno sidro PSK, Pritrdilno sidro PPV* Ranit IsoFux NDT8LZ, ND8LZ, ND8LZ K, NDS8Z, NDM8Z, NDS90Z, NDM90Z, IsoFux Bravoll PTH-KZ 60/8-La, PTH-KZL 60/8-La, PTH 60/8-La, PTH-L 60/8-La WKRET MET LFN 8, LFM 8, LTX 8, LMX 8, LFN 10, LFM 10, LTX-10, LMX-10, LFN10, WKTHERM 8, WKTHERM 8S, FIXPLUG 8, FIXPLUG 10, ECO-DRIVE, ECO-DRIVE S, ECO-DRIVE W The wind load resistances of the anchor / insulation combinations determined according to clause 5.1.4.3 of ETAG 004 for granting presented ETA, are given in clause B.8.3. These wind load resistances can be adopted for further extension of the applicable anchor / insulation combinations, but only for extension on the insulation products side with the materials of the same type but thicker or materials of the same type and thickness, but with better mechanical properties.
Base coat JUBIZOL ADHESIVE MORTAR, JUBIZOL STRONG FIX, JUBIZOL EPS ADHESIVE MORTAR, JUBIZOL MICROAIR FIX, JUBIZOL CEMENT FREE BASE COAT
Reinforcements Standard meshes (glass fibre meshes with grid size 3,5 mm and 5,0 mm)
Finishing coats JUBIZOL MINERAL finish T 2.0/2.5, JUBIZOL MINERAL finish S 1.5/2,0/2.5, JUBIZOL SILICATE finish T 2.0/2.5, JUBIZOL SILICATE finish S 1.5/2.0/2.5 , JUBIZOL SILICONE finish T 2.0/2.5, JUBIZOL SILICONE finish S 1.5/2.0/2.5, JUBIZOL ACRYL finish T 2.0/2.5, JUBIZOL ACRYL finish S /1.5/2.0/2.5, NIVELIN D + façade paints JUBIZOL UNIXIL finish S 1,0/ 1.5/2.0/2.5, JUBIZOL UNIXIL Winter finish S 1,0/ 1.5/2.0/2.5, JUBIZOL UNIXIL finish T 2.0/2.5, JUBIZOL NANO finish S 1,5/2,0/2,5
Façade paints Acrylcolor, Revitalcolor, Nanocolor, Siliconecolor, Silicatecolor, Décor Antique, Trendcolor

Note: JUBIZOL SILICATE finish T 2.0/2.5 and JUBIZOL SILICATE finish S 1.5/2.0/2.5 can be applied in combination with all base coats except JUBIZOL CEMENT FREE BASE COAT). *NIVELIN D + façade paints* can be applied with JUBIZOL ADHESIVE MORTAR without key coat.

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

2.1 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-s1,d0 according to SIST EN 13501-1 and a minimum density of 820 kg/m^3 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 air-tightness 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 national instructions.

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

2.2 Manufacturing

The European Technical Assessment is issued for the ETICS on the basis of agreed data/information, deposited with the Zavod za gradbeništvo Slovenije (ZAG Ljubljana), which identifies the ETICS that has been assessed and judged. Changes to the ETICS or production process, which could result in the deposited data/information being incorrect should be notified to the ZAG Ljubljana before the changes are introduced. ZAG Ljubljana 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 alterations to the ETA, shall be necessary.

2.3 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 if performance are done taking into account general assumptions introduced in the chapter 7 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.

2.4 Packaging, transport 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 know to the concerned people.

2.5 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,
- repairing of localised damaged areas due to accidents,
- 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 know to the concerned people.

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

The identification tests and the assessment for the intended use of this ETICS according to the Essential Requirements were carried out in compliance with the ETA Guidance n. 004: External Thermal Insulation Composite Systems with Rendering - edition June 2013, used as EAD (called "ETAG 004, used as EAD", in this ETA).

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

The reaction to fire of the ETICS was determined according to the ETAG 004 clause 5.1.2.1. Results are summarized in below table.

Configuration	Maximum declared organic content of the rendering system	Declared flame retardant content of the rendering system	Maximum thickness of the ETICS (mm)	Classification according to SIST EN 13501-1
ETICS JUBIZOL S70 in combination with EPS insulation and all components listed in a Tables 9 and 10 of presented ETA.	14.2 %	0 %	≤ 300	B - s1, d0

**Note: An European reference fire scenario has not been laid down for façades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in façades. An additional assessment of ETICS according to national provisions (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.*

Mounting and fixing

The assessment of reaction to fire is based on two tests (SIST EN 13823 and SIST EN ISO 1716). The *SBI* test (SIST EN 13823) is done on a sample with insulation layer thickness 180 mm, (overall ETICS thickness 200 mm) and with EPS insulation material according to EN 13163. Selected rendering system is the one including finishing coat with maximum organic content, established.

For the SBI test this ETICS is mounted directly to a calcium silicate substrate (A2-s1, d0) with a minimum density of 820 kg/m^3.

The installation of the ETICS was carried out by the manufacturer, 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. 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.

Extended application

The test results covers arrangements with insulations material of a lower thickness and density as well as render systems (binder types) with lower organic content (i.e. all render systems, mentioned in this ETA).

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Water absorption (capillarity test)

The water absorption was determined according to the ETAG 004 clause 5.1.3.1. Results are summarized in below tables.

Base coat	Finishing coats (including key coat and façade paint acc. to clause 1.1)	Water absorption after 24 hours	
		< 0.5 kg/m²	≥ 0.5 kg/m²
JUBIZOL EPS ADHESIVE MORTAR	JUBIZOL MINERAL FINISH T	X	
	JUBIZOL MINERAL FINISH S		
	JUBIZOL SILICATE FINISH T	X	
	JUBIZOL SILICATE FINISH S		
	JUBIZOL SILICONE FINISH T	X	
	JUBIZOL SILICONE FINISH S		
	JUBIZOL ACRYL FINISH T	X	
	JUBIZOL ACRYL FINISH S		
	JUBIZOL UNIXIL FINISH S	X	
	JUBIZOL UNIXILFINISH T	X	
	JUBIZOL NANO FINISH S	X	
JUBIZOL MICROAIR FIX	JUBIZOL MINERAL FINISH T	X	
	JUBIZOL MINERAL FINISH S		
	JUBIZOL SILICATE FINISH T	X	
	JUBIZOL SILICATE FINISH S		
	JUBIZOL SILICONE FINISH T	X	
	JUBIZOL SILICONE FINISH S		
	JUBIZOL ACRYL FINISH T	X	
	JUBIZOL ACRYL FINISH S		
	JUBIZOL UNIXIL FINISH S	X	
	JUBIZOL UNIXILFINISH T	X	
	JUBIZOL NANO FINISH S	X	

Base coat	Finishing coats (including key coat and façade paint acc. to clause 1.1)	Water absorption after 24 hours	
		< 0.5 kg/m²	≥ 0.5 kg/m²
JUBIZOL ADHESIVE MORTAR	JUBIZOL MINERAL FINISH T	X	
	JUBIZOL MINERAL FINISH S		
	JUBIZOL SILICATE FINISH T	X	
	JUBIZOL SILICATE FINISH S		
	JUBIZOL SILICONE FINISH T	X	
	JUBIZOL SILICONE FINISH S		
	JUBIZOL ACRYL FINISH T	X	
	JUBIZOL ACRYL FINISH S		
	NIVELIN D + façade paints	X Result obtained for system NIVELIN D + Revitalcolor	
	JUBIZOL UNIXIL FINISH S	X	
	JUBIZOL UNIXILFINISH T	X	
	JUBIZOL NANO FINISH S	X	
JUBIZOL STRONG FIX	JUBIZOL MINERAL FINISH T	X	
	JUBIZOL MINERAL FINISH S		
	JUBIZOL SILICATE FINISH T	X	
	JUBIZOL SILICATE FINISH S		
	JUBIZOL SILICONE FINISH T	X	
	JUBIZOL SILICONE FINISH S		
	JUBIZOL ACRYL FINISH T	X	
	JUBIZOL ACRYL FINISH S		
	NIVELIN D + façade paints	X Result obtained for system NIVELIN D + Revitalcolor	
	JUBIZOL UNIXIL FINISH S	X	
	JUBIZOL UNIXILFINISH T	X	
	JUBIZOL NANO FINISH S	X	
JUBIZOL CEMENT FREE BASE COAT	JUBIZOL SILICONE FINISH T	X	
	JUBIZOL SILICONE FINISH S		
	JUBIZOL ACRYL FINISH T	X	
	JUBIZOL ACRYL FINISH S		
	JUBIZOL UNIXIL FINISH S	X	
	JUBIZOL UNIXILFINISH T	X	
	JUBIZOL NANO FINISH S	X	

3.3.2 Watertightness

3.3.2.1 Hygrothermal behaviour

The hygrothermal testing was obtained for rigs exposed to weathering conditioning. None of the following defects did not occurred 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 or cracking allowing water penetration to the insulation layer. The ETICS **is so assessed resistant to hygrothermal cycles**.

3.3.2.2 Freeze / thaw behaviour

As shown in Clause 3.3.1 of this European Technical Assessment, the water absorptions of of all the rendering systems of are less than 0.5 kg/m^2/24 h, therefore these ETICSes can be seen as freeze/thaw resistant without any further testing.

3.3.3 Impact resistance

The resistance to hard body impacts (3 Joules and 10 Joules) was obtained according to to ETAG 004 clause 5.1.3.3 and lead to the following categories:

Base coat	Finishing coats (including key coat and façade paints acc. to clause 1.1)	Single JUBIZOL mesh Category (I)	Double JUBIZOL mesh Category (I)
JUBIZOL EPS ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S	I	I
	JUBIZOL SILICATE FINISH S	I	I
	JUBIZOL SILICONE FINISH S	II	I
	JUBIZOL ACRYL FINISH S	I	I
	JUBIZOL UNIXIL FINISH S	III	II
	JUBIZOL NANO FINISH S	III	II
JUBIZOL MICROAIR FIX	JUBIZOL MINERAL FINISH S	I	I
	JUBIZOL SILICATE FINISH S	I	I
	JUBIZOL SILICONE FINISH S	II	I
	JUBIZOL ACRYL FINISH S	I	I
	JUBIZOL UNIXIL FINISH S	III	II
	JUBIZOL NANO FINISH S	III	II
JUBIZOL ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S	II	I
	JUBIZOL SILICATE FINISH S	II	II
	JUBIZOL SILICONE FINISH S	II	I
	JUBIZOL ACRYL FINISH S	II	I
	JUBIZOL UNIXIL FINISH S	II	II
	JUBIZOL NANO FINISH S	II	I
	NIVELIN D + façade paints	II	I
JUBIZOL STRONG FIX	JUBIZOL MINERAL FINISH S	II	I
	JUBIZOL SILICATE FINISH S	II	II
	JUBIZOL SILICONE FINISH S	II	I
	JUBIZOL ACRYL FINISH S	II	I
	JUBIZOL UNIXIL FINISH S	II	II
	JUBIZOL NANO FINISH S	II	I
	NIVELIN D + façade paints	II	I
JUBIZOL CEMENT FREE BASE COAT	JUBIZOL SILICONE FINISH S	I	-
	JUBIZOL ACRYL FINISH S	I	-
	JUBIZOL UNIXIL FINISH S	I	-
	JUBIZOL NANO FINISH S	I	-

3.3.4. Water vapour permeability

The water vapour permeability od the rendering systems were determined according to the ETAG 004 clause 5.1.3.4 and it is given in below table.

Base coat	Finishing coats (including key coat and façade paints acc. to clause 1.1)	Equivalent air thickness s_d (m)
JUBIZOL EPS ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S, T	0,1
	JUBIZOL SILICATE FINISH S, T	0,2
	JUBIZOL SILICONE FINISH S, T	0,3
	JUBIZOL ACRYL FINISH S, T	0,4
	JUBIZOL UNIXIL FINISH S, T	0,4
	JUBIZOL NANO FINISH S, T	0,3
JUBIZOL MICROAIR FIX	JUBIZOL MINERAL FINISH S, T	0,1
	JUBIZOL SILICATE FINISH S, T	0,2
	JUBIZOL SILICONE FINISH S, T	0,3
	JUBIZOL ACRYL FINISH S, T	0,4
	JUBIZOL UNIXIL FINISH S, T	0,4
	JUBIZOL NANO FINISH S, T	0,3
JUBIZOL ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S, T	0,1
	JUBIZOL SILICATE FINISH S, T	0,1
	JUBIZOL SILICONE FINISH S, T	0,2
	JUBIZOL ACRYL FINISH S, T	0,3
	JUBIZOL UNIXIL FINISH S, T	0,4
	JUBIZOL NANO FINISH S, T	0,3
	NIVELIN D + façade paints	0,1
JUBIZOL STRONG FIX	JUBIZOL MINERAL FINISH S, T	0,1
	JUBIZOL SILICATE FINISH S, T	0,1
	JUBIZOL SILICONE FINISH S, T	0,2
	JUBIZOL ACRYL FINISH S, T	0,3
	JUBIZOL UNIXIL FINISH S, T	0,4
	JUBIZOL NANO FINISH S, T	0,3
	NIVELIN D + façade paints	0,1
JUBIZOL CEMENT FREE BASE COAT	JUBIZOL SILICONE FINISH S, T	0,7
	JUBIZOL ACRYL FINISH S, T	0,7
	JUBIZOL UNIXIL FINISH S, T	0,9
	JUBIZOL NANO FINISH S, T	0,8

3.3.5 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 ETICS falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Product Directive, these requirements need also to be complied with, when and where they apply.

3.4 Safety in use (BWR 4)

3.4.1 Bond strength

Adhesive onto substrate and EPS insulation product (safety in use of the bonded ETICS).

Substrate	Conditionings		
	Initial state	After hygrothermal cycling - on the rig	After freeze / Thaw cycling
Base coat: **JUBIZOL EPS ADHESIVE MORTAR**			
EPS	≥ 0.08 MPa	≥ 0.08 MPa	Test not required
Base coat: **JUBIZOL MICROAIR FIX**			
EPS	≥ 0.08 MPa	≥ 0.08 MPa	Test not required
Base coat: **JUBIZOL ADHESIVE MORTAR**			
EPS	≥ 0.08 MPa	≥ 0.08 MPa	Test not required
Base coat: **JUBIZOL STRONG FIX**			
EPS	≥ 0.08 MPa	≥ 0.08 MPa	Test not required
Base coat: **JUBIZOL CEMENT FREE BASE COAT**			
EPS	≥ 0.08 MPa	≥ 0.08 MPa	Test not required

Note*: The failure always occurred in insulation product.

Adhesive onto substrate and EPS insulation product (safety in use of the bonded ETICS).

Substrate	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
Adhesive: **JUBIZOL EPS ADHESIVE MORTAR**			
Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
Adhesive: **JUBIZOL MICROAIR FIX**			
Concrete	Concrete	Concrete	Concrete
EPS	EPS	EPS	EPS
Adhesive: **JUBIZOL ADHESIVE MORTAR**			
Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
EPS	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
Adhesive: **JUBIZOL STRONG FIX**			
Concrete	Concrete	Concrete	Concrete
EPS	EPS	EPS	EPS
Adhesive: **JUBIZOL ADHESIVE**			
Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
EPS	0,048 MPa	0,032 MPa	0,038 MPa

Note*: The failure always occurred in insulation product.

3.4.2 Bond strength after ageing

Bond strengths of the rendering systems after ageing is presented in a table below.

Base coat	Finishing coats (including key coat and façade paints acc. to clause 1.1)	After hygrothermal cycles (on the rig) or after 7 days immersion in water + 7 days 23 °C / 50 % RH (on samples)	After freeze / thaw cycles (on samples)
JUBIZOL EPS ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S, T	≥ 0.08 MPa	Test not required
	JUBIZOL SILICATE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICONE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL ACRYL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL UNIXIL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL NANO FINISH S, T	≥ 0.08 MPa	
JUBIZOL MICROAIR FIX	JUBIZOL MINERAL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICATE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICONE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL ACRYL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL UNIXIL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL NANO FINISH S, T	≥ 0.08 MPa	
JUBIZOL ADHESIVE MORTAR	JUBIZOL MINERAL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICATE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICONE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL ACRYL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL UNIXIL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL NANO FINISH S, T	≥ 0.08 MPa	
	NIVELIN D + façade paints	≥ 0.08 MPa	
JUBIZOL STRONG FIX	JUBIZOL MINERAL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICATE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL SILICONE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL ACRYL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL UNIXIL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL NANO FINISH S, T	≥ 0.08 MPa	
	NIVELIN D + façade paints	≥ 0.08 MPa	
JUBIZOL CEMENT FREE BASE COAT	JUBIZOL SILICONE FINISH S, T	≥ 0.08 MPa	
	JUBIZOL ACRYL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL UNIXIL FINISH S, T	≥ 0.08 MPa	
	JUBIZOL NANO FINISH S, T	≥ 0.08 MPa	

For the bonded ETICS, the minimal admissible bonded surface shall exceed 20%. Bonded surface shall be determined according following equation:

S = [0.03 (MPa) x 100] / B

Where: "S" is bonded surface (%) and "B" is minimum mean failure resistance of the adhesive to the insulation product in dry conditions,0.03 MPa correspond to the minimum requirements.

The bonded ETICS can so be installed on the substrate with application of the adhesive on the following minimal surfaces:

Adhesive	Insulation product EPS
JUBIZOL EPS ADHESIVE MORTAR	40 %
JUBIZOL MICROAIR FIX	40 %
JUBIZOL ADHESIVE MORTAR	30 %
JUBIZOL STRONG FIX	30 %
JUBIZOL ADHESIVE	40 %

3.4.3 Fixing strength (displacement test)

The determination of the fixing strength is not required as the ETICS fulfils the following criteria: E*d < 50000 N / mm. Where "E" is the elastic modulus of the base coat without the mesh and "d" presents the thickness of the dried base coat.

3.4.4 Wind load resistance

Safety in use of mechanically fixed ETICS using anchors. The following characteristic pull through values were determined according to ETAG 004 clause.5.1.4.3.1 and apply only for the combination (anchor's trade name) / (insulation panel's characteristics).

Safety in use of the mechanically fixed systems for anchor in EPS insulation

Anchors for which the following failure loads apply	Trade name	EJOT SDM-T plus (**ETA-04/0064**) EJOT SDF-K p (**ETA-04/0064**) EJOT Ejotherm NT-U (**ETA-05/0009**) EJOT Ejotherm NK-U (**ETA-05/0009**) EJOT Ejotherm NTK-U (**ETA-07/0026**) Hilti SX-FV (**ETA-03/0005**) Hilti SD-FV 8 (**ETA-03/0028**) Hilti XI-FV (**ETA-03/0004**) Hilti D-FV, (**ETA-05/0039**) Hilti D-FV T (**ETA-05/0039**) Hilti HTR (**ETA-16/0116**) Hilti HTS (**ETA-14/0400**) Hilti HTH (**ETA-15-0464**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Static Foam Block Test)*		R_{panel}	Minimal: 510 Mean: 520
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 400 Mean: 430

Anchors for which the following failure loads apply	Trade name	EJOT Ejotherm STR-U **(ETA-04/0023)**	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 80	
	Tensile strength perpendicular to the face (kPa)	≥ 100	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 550 Mean: 560
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 480 Mean: 500

Anchors for which the following failure loads apply	Trade name	EJOT **Ejotherm H1 Eco (ETA-11/0192)**	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60	
	Tensile strength perpendicular to the face (kPa)	≥ 150	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 632 Mean: 636
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 560 Mean: 597

Anchors for which the following failure loads apply	Trade name	EJOT **Ejotherm H1 Eco (ETA-11/0192)**	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 120	
	Tensile strength perpendicular to the face (kPa)	≥ 150	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 725 Mean: 759
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 588 Mean: 612

Anchors for which the following failure loads apply	Trade name	EJOT H3 (**ETA-14/0130** EJOT H4 ECO (**ETA-11/0192**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100		
	Tensile strength perpendicular to the face (kPa)	≥ 114		
Failure loads (N)	Anchors placed at the panel joints (Pull Through Test)		R_{joint}	Minimal: 735 Mean: 758

Anchors for which the following failure loads apply	Trade name	Fischer TERMOZ 8 N (**ETA-03/0019**), Fischer TERMOZ 8 U (**ETA-02/0019**), Fischer TERMOZ KS 8 (**ETA-04/0114**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50		
	Tensile strength perpendicular to the face (kPa)	≥ 150		
Failure loads (N)	Anchors not placed at the panel joints *(Static Foam Block Test)*		R_{panel}	Minimal: 440 Mean: 460
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 400 Mean: 410

Anchors for which the following failure loads apply	Trade name	Fischer TERMOZ 8 UZ (**ETA-02/0019**)	Fischer TERMOZ 8 SV (**ETA-06/0180**)	
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60	≥ 80	
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints R_{panel} *(Pull Through Test)* - unsunk	Minimal: 490 Mean: 530		
	Anchors not placed at the panel joints R_{panel} *(Pull Through Test)* - 15 mm sunk		Minimal: 550 Mean: 570	

Anchors for which the following failure loads apply	Trade name	EJOT **Ejotherm STR U 2G (ETA-04/0023)**		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60		
	Tensile strength perpendicular to the face (kPa)	≥ 150		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 666 Mean: 678
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 600 Mean: 621

Anchors for which the following failure loads apply	Trade name	EJOT **Ejotherm STR U 2G (ETA-04/0023)**		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 120		
	Tensile strength perpendicular to the face (kPa)	≥ 150		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 1050 Mean: 1100
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal:823 Mean: 833

Anchors for which the following failure loads apply	Trade name	WKRETMET LTX 8, LMX 8 (**ETA-08/0172**) WKTHERM 8 (**ETA-11/0232**) WKTHERM 8S (**ETA-1310724**) FIXPLUG 8, FIXPLUG 10 (**ETA-15/0373**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100		
	Tensile strength perpendicular to the face (kPa)	≥ 120		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 718 Mean: 757
	Anchors placed at the panel joints (Pull Through Test)		R_{joint}	Minimal: 589 Mean: 662

Anchors for which the following failure loads apply	Trade name	WKRET MET LFN-8 **(ETA-06/0080)**		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 670 Mean: 704
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 432 Mean: 446

Anchors for which the following failure loads apply	Trade name	WKRET MET LFM-8 **(ETA-06/0080)**		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 665 Mean: 706
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 441 Mean: 452

Anchors for which the following failure loads apply	Trade name	WKRET MET LTX-10 **(ETA-08/0172)**		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 520 Mean: 570
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 480 Mean: 510

Anchors for which the following failure loads apply	Trade name	WKRET MET LMX-10 (**ETA-08/0172**)	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50	
	Tensile strength perpendicular to the face (kPa)	≥ 100	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 520 Mean: 570
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 460 Mean: 490

Anchors for which the following failure loads apply	Trade name	Leskovec PLASTIČNO PRITRDILO PP (**ETA-05/0149**)	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50	
	Tensile strength perpendicular to the face (kPa)	≥ 100	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal : 450 Mean: 465
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 377 Mean: 395

Anchors for which the following failure loads apply	Trade name	Leskovec PRITRDILNO SIDRO PSK (**ETA-05/0148**)	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50	
	Tensile strength perpendicular to the face (kPa)	≥ 100	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 561 Mean: 589
	Anchors placed at the panel joints *(Pull Through Test)*	R_{joint}	Minimal: 492 Mean: 520

Anchors for which the following failure loads apply	Trade name	Leskovec PRITRDILNO SIDRO PPV (**ETA-12/0331**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 404 Mean: 411
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 450 Mean: 487

Anchors for which the following failure loads apply	Trade name	Ranit IsoFux NDT8LZ, ND8LZ and ND8LZ K (**ETA-05/0080**) Ranit IsoFux NDS8Z, NDM8Z, NDS90Z and NDM90Z (**ETA-07/0129**) Ranit IsoFux (**ETA-04/0032**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 80		
	Tensile strength perpendicular to the face (kPa)	≥ 100		
Failure loads (N)	Anchors not placed at the panel joints *(Static Foam Block Test)*		R_{panel}	Minimal: 503 Mean: 513
	Anchors placed at the panel joints *(Pull Through Test)*		R_{joint}	Minimal: 520 Mean: 540

Anchors for which the following failure loads apply	Trade name	Bravoll PTH 60/8-L_a and PTH-L 60/8-L_a (**ETA-05/0055**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 60		
	Tensile strength perpendicular to the face (kPa)	≥ 90		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 502 Mean: 514

Anchors for which the following failure loads apply	Trade name	Bravoll PTH-KZ 60/8-L_a, PTH-KZL 60/8-L_a (**ETA-05/0055**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 50		
	Tensile strength perpendicular to the face (kPa)	≥ 90		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 409 Mean: 415

Anchors for which the following failure loads apply	Trade name	WKRET MET LTX 10 (**ETA-08/0172**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100		
	Tensile strength perpendicular to the face (kPa)	≥ 120		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 718 Mean: 757
	Anchors placed at the panel joints (Pull Through Test)		R_{joint}	Minimal: 589 Mean: 662

Anchors for which the following failure loads apply	Trade name	WKRET MET ECO DRIVE (**ETA-13/0107**)		
	Plate diameter (mm)	60 or more		
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100		
	Tensile strength perpendicular to the face (kPa)	≥ 120		
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*		R_{panel}	Minimal: 607 Mean: 676
	Anchors placed at the panel joints (Pull Through Test)		R_{joint}	Minimal: 561 Mean: 592

Anchors for which the following failure loads apply	Trade name	EJOT STR U 2G (**ETA-04/0023**)	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100	
	Tensile strength perpendicular to the face (kPa)	≥ 105	
Failure loads (N)	Anchors placed at the panel joints (Pull Through Test)	R_{joint}	Minimal: 735 Mean: 758

Anchors for which the following failure loads apply	Trade name	EJOT STR U 2G (**ETA-04/0023**)	
	Plate diameter (mm)	60 or more	
Characteristics of the EPS panels for which the following failure loads apply	Thickness (mm)	≥ 100	
	Tensile strength perpendicular to the face (kPa)	≥ 114	
Failure loads (N)	Anchors not placed at the panel joints *(Pull Through Test)*	R_{panel}	Minimal: 779 Mean: 824
	Anchors placed at the panel joints (Pull Through Test)	R_{joint}	Minimal: 735 Mean: 758

A head plate diameter is the most influential parameter to the various testing results (assuming similar plate stiffness). Failure loads for larger plates are therefore expected to be higher, thus the given values are on the "safe side".

For calculation of the required number of the anchors per unit area, the following formula shall be used:

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

Where npanel is number of anchors per m² not placed at the panel joints, njoint is number of anchors per m² placed at the panel joint and γ is safety factor.

3.4.5 Render strip tensile test

a) JUBIZOL EPS ADHESIVE MORTAR

There are **no cracks** of the base coat with the glass fibres mesh, measured at a render strain value of **0.3 %,** while at all subsequent required render strain values: **0.5 %; 0.8%; 1.0%; 1.5%; 2.0%** the mean value of the crack width of the reinforced base coat, measured in warp and weft direction is about **0.1 mm.**

b) JUBIZOL MICROAIR FIX

There are **no cracks** of the base coat with the glass fibres mesh, measured at a render strain value of **0.3 %,** while at all subsequent required render strain values: **0.5 %; 0.8%; 1.0%; 1.5%; 2.0%** the mean value of the crack width of the reinforced base coat, measured in warp and weft direction is about **0.1 mm.**

c) JUBIZOL ADHESIVE MORTAR

The mean value of the crack width of the base coat with the glass fibre mesh, measured at a render strain value of **0.8 %** is about **0.2 mm** in warp direction and is about **0.1 mm** in weft direction.

d) JUBIZOL STRONG FIX

The mean value of the crack width of the base coat with the glass fibre mesh, measured at a render strain value of **0.8 %** is about **0.2 mm** in warp direction and is about **0.1 mm** in weft direction.

e) JUBIZOL CEMENT FREE BASE COAT

There are **no cracks** of the base coat with the glass fibre mesh, measured at a render strain value of **0.3 %, 0.5 %, 0.8 %, 1.0 %, 1.5 %** and **2.0 %** in warp and weft direction.

3.5 Protection against noise (BWR 5)

3.5.1 Airborne sound insulation

No performance assessed.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 Thermal resistance

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

$$U = U_c + \chi_p.n \quad , \quad \text{where:}$$

$\chi_p.n$ has only to be taken into account if it is greater than 0.04 W/(m².K)

U: global 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 ($\chi_p.n$ negligible for n < 20)

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

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

Uc: 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: Ri: thermal resistance of the insulation product - see CE marking in reference to EPS SIST EN 13163 ((m².K)/W)
Rrender: thermal resistance of the render (about 0.02 (m².K)/W)
Rsubstrate: thermal resistance of the substrate of the building (concrete, brick ...) ((m².K)/W)
Rse: external superficial thermal resistance ((m².K)/W)
Rsi: internal superficial thermal resistance ((m².K)/W)

3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.8 Characteristics of the components

3.8.1 Insulation product

The description and characteristics of the insulation products applied in presented ETICS are given in below tables:

Characteristics of the expanded polystyrene (EPS) boards.

Description and characteristics		EPS panels for bonded ETICS and for mechanically fixed ETICS with anchors
Reaction to fire / SIST EN 13501-1		E (all thicknesses)
Thermal resistance ((m².K)/W)		Defined in reference to EN 13163
Thickness (mm) / SIST EN 823		EPS-EN 13163 - T1
Length (mm) / SIST EN 822		EPS-EN 13163 – L1
Width (mm) / SIST EN 822		EPS-EN 13163 – W1
Squareness (mm) / SIST EN 824		EPS-EN 13163 - S2
Flatness (mm) / SIST EN 825		EPS-EN 13163 - P4
Surface condition		Cut surface (homogeneous and without "skin")
Dimen-sional stability under:	specified temperature and humidity / SIST EN 1604	EPS-EN 13163-DS (70,-)2
	laboratory condition / SIST EN 1603	EPS-EN 13163-DS(N)2
Water absorption (partial immersion) / SIST EN 1609		< 0.5 kg/m2
Water vapour diffusion resistance factor (μ) / SIST EN 12086 – SIST EN 13163		< 60
Tensile strength perpendicular to the faces in dry conditions / SIST EN 1607		≥ 100 kPa; EPS-EN 13163 - TR 100
Shear strength (N/mm²) / SIST EN 12090		≥ 0.02
Shear modulus (N/mm²) / SIST EN 12090		≥ 1.0
Bending strength / SIST EN 12089		≥ 100 kPa; EPS-EN 13163 – BS 100

3.8.2 Anchors

Anchors for insulation product (used as an ancillary component without contribution to resistance to wind load resistance or as a fixing device in mechanically fixed systems).

Anchors used onto EPS insulation. All the anchors minimal plate diameters are of 60 mm.

Trade name	Characteristic pull-out strength of anchor
EJOT **Ejoterm STR-U**	See ETA - 04/0023
EJOT **Ejotherm STR U 2G**	See ETA- 04/0023
EJOT **SDM-T plus, SDF-K plus**	See ETA - 04/0064
EJOT **Ejoterm NT-U, Ejoterm NK-U**	See ETA - 05/0009
EJOT **Ejoterm NTK-U**	See ETA - 07/0026
EJOT **H1 Eco, H4 Eco**	See ETA- 11/0192
EJOT**H3**	See ETA- 14/0130
Hilti **SX-FV**	See ETA - 03/0005
Hilti **SD-FV 8**	See ETA - 03/0028
Hilti **D-FV, D-FV T**	See ETA - 05/0039
Hilti **XI-FV**	See ETA - 03/0004
Hilti **HTR**	See ETA - 16/0116
Hilti **HTS**	See ETA - 14/0400
Hilti **HTH**	See ETA - 15/0464
Fischer **TERMOZ 8 U**	See ETA - 02/0019
Fischer **TERMOZ 8 N**	See ETA - 03/0019
Fischer **TERMOZ KS 8**	See ETA - 04/0114
Fischer **TERMOZ 8 SV**	See ETA - 06/0180
Fischer **TERMOZ 8 UZ**	See ETA - 02/0019
Leskovec Plastično pritrdilo **PP**	See ETA - 05/0149
Leskovec Pritrdilno sidro **PSK**	See ETA - 05/0148
Leskovec Pritrdilno sidro **PPV**	See ETA - 12/0331
Ranit **IsoFux**	See ETA - 04/0032
Ranit **IsoFux NDT8LZ, ND8LZ, ND8LZ K**	See ETA - 05/0080
Ranit **IsoFux NDS8Z, NDM8Z, NDS90Z, NDM90Z**	See ETA - 07/0129
Bravoll **PTH-KZ 60/8-L_a**	See ETA - 05/0055
Bravoll **PTH-KZL 60/8-L_a**	See ETA - 05/0055
Bravoll **PTH 60/8-L_a**	See ETA - 05/0055
Bravoll **PTH-L 60/8-L_a**	See ETA - 05/0055
WKRET MET **LFN-8, LFM-8**	See ETA-06/0080
WKRET MET **LTX 10, LMX-10**	See ETA-08/0172
WKRET MET **LFN 10, LFM 10**	See ETA-17/0450
WKRET MET **LTX 8, LMX 8**	See ETA 16/0509
WKRET MET **WKTHERM 8**	See ETA 11/0232
WKRET MET **WKTHERM 8S**	See ETA-1310724
WKRET MET **FIXPLUG8, FIXPLUG 10**	See ETA-15/0373
WKRET MET **ECO-DRIVE, ECO-DRIVE S, ECO-DRIVE W**	See ETA-13/0107

3.8.3 Glass fibres mesh

Glass fibre meshes with 3.5 mm to 5.0 mm wide grids of fibres.

	Alkalis resistance	
	GLASS FIBRES MESH	
	Warp	Weft
Residual mean strength after ageing (N/mm) – mean value	≥ 20	≥ 20
Relative residual resistance after ageing of the strength in the as delivered state(%)	≥ 50	≥ 50

4 Assessment and verification of constancy of performance (AVCP)

According to the decision 97/556/EC of the European Commission[1] amended by the the European Commission decision 2001/596/EC, the AVCP systems (further described in Annex V to Regulation (EU) No 305/2011) 1 and 2+ apply.

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
External thermal insulation composite systems/kits (ETICS) with rendering	in external wall subject to fire regulations	A1 (1), A2 (1), B (1), C (1)	1
		A1 (2), A2 (2), B (2), C (2), D, E, (A1 to E) (3), F	2+
	in external wall not subject to fire regulations	any	2+

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

(2) Products/materials not covered by footnote (1)

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

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the Control plan deposited at the Slovenian National Building and Civil Engineering Institute (ZAG).

Issued in Ljubljana on 03. 09. 2018

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Signed by:

Franc Capuder, M.Sc.

Use ETICS
Adhesives JUBIZOL ADHESIVE MORTAR JUBIZOL STRONG FIX JUBIZOL EPS ADHESIVE MORTAR, JUBIZOL MICROAIR FIX JUBIZOL ADHESIVE
Insulations EPS* EPS-EN 13163-T1-L1-W1-S2-P4-DS(N)2-DS(70,-)2-TR100-BS100 **It is assumed that for composition of the ETICS can be applied only the EPS insulation products with at least equivalent properties as products listed in Table 2. Applicable product shall be further verified according to relevant harmonized specifications and ETAG 004 (Edition 2000, Amended August 2011 and February 2013).*
Base coat JUBIZOL ADHESIVE MORTAR JUBIZOL STRONG FIX JUBIZOL EPS ADHESIVE MORTAR JUBIZOL MICROAIR FIX JUBIZOL CEMENT FREE BASE COAT
Glass fibre meshes JUBIZOL glass fibre meshes
Key coats + Finishing coats *Acrycolor or Acryl emulsion + JUBIZOL MINERAL FINISH T 2.0/2.5* *Acrycolor or Acryl emulsion + JUBIZOL MINERAL FINISH S 1.5/2,0/2.5* *JUBIZOL Unigrund or SILICATEprimer + JUBIZOL SILICATE finish T 2.0/2.5* *JUBIZOL Unigrund or SILICATEprimer + JUBIZOL SILICATE finish S 1.5/2.0/2.5* *JUBIZOL Unigrund or SILICONEprimer + JUBIZOL SILICONE finish T 2.0/2.5* *JUBIZOL Unigrund or SILICONEprimer + JUBIZOL SILICONE finish S 1.5/2.0/2.5,* *JUBIZOL Unigrund Acrycolor or Acryl emulsion + JUBIZOL ACRYL finish T 2.0/2.5* *JUBIZOL Unigrund , Acrycolor or Acryl emulsion + JUBIZOL ACRYL finish S 1.5/2.0/2.5* *JUBIZOL Unigrund, Acrycolor or Acryl emulsion + JUBIZOL UNIXIL finish S 1.0/1.5/2.0/2.5* *JUBIZOL Unigrund , Acrycolor or Acryl emulsion + JUBIZOL UNIXIL finish T 2.0/2.5* *JUBIZOL Unigrund or SILICONEprimer + JUBIZOL NANO finish S 1.5/2.0/2.5* *Nivelin D + Revitalcolor* *Nivelin D + Acrylcolor* *Nivelin D + Jubosilcolor Sillicone* *Nivelin D + Siliconecolor* *Nivelin D + Silicatecolor* *Nivelin D + Nanocolor* *Nivelin D* + Décor Antique *Nivelin D* + Trendcolor
Anchors Ejotherm STR U, STR U 2G, SDM-T plus, SDF-K plus, Ejotherm NT-U, NK-U, NTK-U, H1 Eco, H4 Eco, H3 Hilti SX-FV, SD-FV 8, D-FV, D-FV T, XI-FV, HTR, HTS, HTH Fischer Termoz 8U, Termoz 8N, Termoz KS8, Termoz 8 SV, Termoz 8 UZ Leskovec Plastično pritrdilo PP, Pritrdilno sidro PSK, Pritrdilno sidro PPV* Ranit IsoFux NDT8LZ, ND8LZ, ND8LZ K, NDS8Z, NDM8Z, NDS90Z, NDM90Z, IsoFux Bravoll PTH-KZ 60/8-La, PTH-KZL 60/8-La, PTH 60/8-La, PTH-L 60/8-La WKRET MET LFN 8, LFM 8, LTX 8, LMX 8, LFN 10, LFM 10, LTX-10, LMX-10, LFN10, WKTHERM 8, WKTHERM 8S, FIXPLUG 8, FIXPLUG 10, ECO-DRIVE, ECO-DRIVE S, ECO-DRIVE W
Façade paints Acrylcolor, Revitalcolor, Nanocolor, Siliconecolor, Silicatecolor, Décor Antique, Trendcolor

Components of the ETICS JUBIZOL S70	**Annex 1** of the European Technical Assessment **ETA–08/0236**

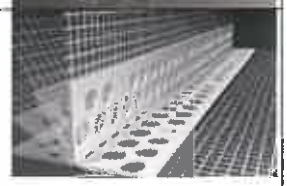
ZAVOD ZA GRADBENIŠTVO SLOVENIJE LJUBLJANA 17

Original trade name	Alternative trade names
JUBIZOL ALU BASE PROFILE	JUBIZOL ALU OSNOVNA LETEV
JUBIZOL CORNER PVC PROFILE	JUBIZOL PVC VOGALNIK Z MREŽICO
JUBIZOL DRIP PROFILE PRO,	JUBIZOL ODKAPNI PROFIL
JUBIZOL FLEX CORNER PROFILE	JUBIZOL FLEKSIBILNI VOGALNIK
JUBIZOL DILETATION E PROFILE	JUBIZOL DILATACIJSKI PROFIL E
JUBIZOL DILETATION V PROFILE	JUBIZOL DILATACIJSKI PROFIL V
JUBIZOL SNAP-ON PROFILE	JUBIZOL NATIČNI PROFIL
JUBIZOL DRIP PROFILE LIGHT	JUBIZOL ODKAPNI PROFIL LIGHT
JUBIZOL PRACTIC PVC PROFILE	JUBIZOL PVC VZNOŽNI ODKAPNI PROFIL
JUBIZOL SHUTTER PROFILE	JUBIZOL ROLETNI PROFIL
JUBIZOL STOP PROFILE,	JUBIZOL STOP ZAKLJUČNI PROFIL
JUBIZOL METAL ROOF-EDGE JOINT	JUBIZOL ZAK.PROF.ZA PLOČEVINO
JUBIZOL BALCONY PROFILE	JUBIZOL ALU ODKAPNA LETEV BALKON

Original and alternative trade names of the components of the ETICS JUBIZOL S70	**Annex 2 (4/4)** of the European Technical Assessment **ETA–08/0236**

ZAVOD ZA GRADBENIŠTVO SLOVENIJE LJUBLJANA 17

The ETA holder recommends the ancillary materials presented in below table to be used for ETICS JUBIZOL S70 preparation

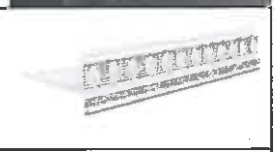
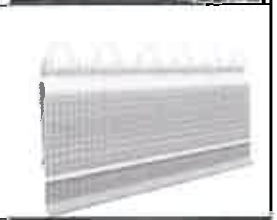
Finishing components		
Trade names	**Descriptions**	**Images**
JUBIZOL ALU BASE PROFILE	The ALU base profile is used for horizontal set-up of thermal insulating plates in the contact insulation system. It enables a perfect structural and visual finish and closure of the system. The base profile protects the system against mechanical damage and drains rainwater off the system.	
JUBIZOL CORNER PVC PROFILE	The corner profile is used for reinforcing all window or door corners, edges and jambs in the contact insulation system.	
JUBIZOL DRIP PROFILE PRO	The drip profile with an exposed drip ledge for finishing plaster and water drain-off at the top jambs of building openings in the contact insulation system. The guide rail on this profile enables the installation of this profile on openings wider than 2,5m.	
JUBIZOL WINDOW PROFILE STANDARD	Profile enabling a flexible junction of the window or door frame with plaster/render in the contact insulation system. The profile is completely hidden and can be used for windows and door frames of any colors. May be installed before or after the insulation boards are installed.	
JUBIZOL WINDOW PROFILE 2D	Profile enabling a flexible junction of the window or door frame with plaster/render in the contact insulation system. This profile creates a flexible joint in two directions. The protective lamella (soft PVC) shields from weather influences and dirt. May be installed before or after the insulation boards are installed.	
JUBIZOL WINDOW PROFILE 3D	Profile enabling a flexible junction of the window or door frame with plaster/render in the contact insulation system. This profile creates a flexible joint in three directions. The protective membrane (soft PVC) shields the expansion tape from weather influences and dirt. May only be installed before the insulation boards are installed.	
JUBIZOL FLEX CORNER PROFILE	This corner profile has a variable angle for reinforcing all window or door corners, edges and jambs in the contact insulation system.	

Note*: Descriptions in accordance with § 3.2.2.5 of the ETAG 004 remain under the ETA-holder responsibilities

Ancillary materials - finishing profiles of the ETICS JUBIZOL S70	**Annex 3 (1/2)** of the European Technical Assessment **ETA–08/0236**

ZAVOD ZA GRADBENIŠTVO SLOVENIJE LJUBLJANA 17

The ETA holder recommends the ancillary materials presented in below table to be used for ETICS JUBIZOL S70 preparation

Finishing components		
Trade names	**Trade names**	**Trade names**
JUBIZOL DILETATION E PROFILE	Dilatation profile for movement joints in even, plane walls. The movement joint is resistant to all weather influences. The profile prevents penetration of moisture under the insulating material.	
JUBIZOL DILETATION V PROFILE	Dilatation profile for movement joints in inner corners of walls. The movement joint is resistant to all weather influences. The profile prevents penetration of moisture under the insulating material.	
JUBIZOL SNAP-ON PROFILE	Profile mounted directly on the ALU base profile. It extends the drip ledge of the ALU base profile, bridges over joints between ALU base profiles and prevents the occurrence of cracks from the ALU base profile upwards.	
JUBIZOL DRIP PROFILE LIGHT	Drip profile with an exposed drip ledge, which is hidden under the plaster or render. The profile is used for the creation if drip edges at the top of openings and overhangs up to 2,5m.	
JUBIZOL PRACTIC PVC PROFILE	The profile is inserted between the base and facade layers of insulation. Its drip ledge provides a perfect water drain-off from the system and eliminates capillarity rise under the insulating material.	
JUBIZOL SHUTTER PROFILE	The shutter profile enables flexible joints between "exterior furnishing" and ETICS. The profile prevents hairline cracks and enables attachment of protective foil for windows during ETICS installation.	
JUBIZOL STOP PROFILE	The stop profile is used for closing up of the plaster in places of transition to a different color or grain size or a transition to a different surface.	
JUBIZOL METAL ROOF-EDGE JOINT	This joint profile is used for flexible junction of plumber's elements and facade in the point of connection to sheet metal in the contact insulation system. It ensures perfect water drain-off from the system and eliminates capillarity rise under the insulating material.	
JUBIZOL BALCONY PROFILE	The balcony profile is installed at the edge of balconies. It prevents the formation of smudges created by rainwater on the facade underneath balcony edges.	

Note*: Descriptions in accordance with § 3.2.2.5 of the ETAG 004 remain under the ETA-holder responsibilities.

Ancillary materials - finishing profiles of the ETICS JUBIZOL S70

Annex 3 (2/2)
of the European Technical Assessment
ETA–08/0236