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European Technical Assessment

ETA 11/0183 of 26/07/2016

(English language translation, the original version in Czech language)

I General Part

Technical Assessment Body issuing the ETA: Technical and Test Institute for Construction Prague	
Trade name of the construction product	**ETICS MAJSTER POL**
Product family to which the construction product belongs	Product area code: 4 External Thermal Insulation Composite Systems with rendering on expanded polystyrene EPS for the use as external insulation to walls of buildings.
Manufacturer	MAJSTER-POL Kosińscy Sp. Jawna Mienia 291 05-319 Ceglów http://majsterpol.pl/
Manufacturing plant	MAJSTER-POL Kosińscy Sp. Jawna Mienia 291 05-319 Ceglów
This European Technical Assessment contains	27 pages including 4 Annexes which form an integral part of this Assessment. Annex No. 5 Control Plan contains confidential information and is not included in the European Technical Assessment when that assessment is publicly disseminated.
This European Technical Assessment is issued in accordance with regulation (EU) No. 305/2011 on the basis of	ETAG 004, edition 2013, used as European Assessment Document (EAD)
This European Technical Assessment replaces:	

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

II Specific part

1 Technical description of the product

1.1 Definition and composition of the kit

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 (EPS) to be bonded or mechanically fixed onto a wall. 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 system is applied directly to the insulating boards, 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, 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.

Composition of the ETICS

Table No. 1

	Components	Coverage [kg/m^2]	Thickness [mm]
Insulation products with associated methods of fixing	**Bonded ETICS (fully or partially bonded) with supplementary anchors (according to ETA holder's prescriptions the minimal bonded surface shall be at least 40%).** **National application documents shall be taken into account.**		
	• Insulation product: EPS according to EN 13163:2012+A1:2015 see Annex No. 1 for product characteristics	/	50 to 300
	• Adhesives: - **STYROLEP K** - (portland cement and special fine additives requiring addition of water 0.25 l/kg)	3.0 to 4.5 (dry)	/
Insulation products with associated methods of fixing	**Mechanically fixed ETICS with anchors and supplementary adhesive (see Cl. 3.3.5 and Annex No. 2 for possible associations EPS/anchors)**		
	• Insulation product: EPS according to EN 13163:2012+A1:2015 see Annex No. 1 for product characteristics	/	50 - 300

	Components	Coverage [kg/m²]	Thickness [mm]
Insulation products with associated methods of fixing	• Supplementary adhesives: - **STYROLEP Z** - (portland cement and special fine additives requiring addition of water 0.25 l/kg)	3.0 to 4.5 (dry)	/
	• Anchors see Annex No. 2 for individual product characteristics. In addition to the following list. Other anchors can be used provided that they comply with the requirements introduced in the Annex No. 2.		
	- **Ejotherm NT U** plastic nailed-in anchors	ETA-05/0009	
	- **Ejotherm NTK U** plastic nailed-in anchors	ETA-07/0026	
	- **Ejotherm STR U, STR U 2G** plastic screw-in anchors	ETA-04/0023	
	- **EJOT H1 eco** plastic nailed-in anchors	ETA-11/0192	
	- **EJOT H3** plastic nailed-in anchors	ETA-14/0130	
	- **Bravoll PTH-KZ 60/8-La, Bravoll PTH 60/8-La,** plastic nailed-in anchors	ETA-05/0055	
	- **Bravoll PTH-S 60/8-La** plastic screw-in anchors	ETA-08/0267	
	- **Bravoll PTH 60/10-La, PTH-KZ 60/10-La,** plastic nailed-in anchors	ETA-08/0166	
	- **Bravoll PTH-SX** plastic screw-in anchors	ETA-10/0028	
	- **Bravoll PTH-X, PTH-EX** plastic nailed-in anchors	ETA-13/0951	
	- **KEW TSD 8** plastic nailed-in anchors	ETA-04/0030	
	- **KEW TSD-V 8** plastic nailed-in anchors	ETA-08/0315	
	- **KEW TSDL-V** plastic nailed-in anchors	ETA-12/0148	
	- **KEW TSD-V KN** plastic nailed-in anchors	ETA-13/0075	
	- **KOELNER TFIX-8M** plastic nailed-in anchors	ETA-07/0336	
	- **KOELNER KI-10, KI-10PA, KI-10M** plastic nailed-in anchors	ETA-07/0291	
	- **KOELNER KI-10N, KI-10NS** plastic nailed-in anchors	ETA 07/0221	
	- **KOELNER TFIX-8S a TFIX-8ST** plastic screw-in anchors	ETA-11/0144	

	Components	Coverage [kg/m^2]	Thickness [mm]
Insulation products with associated methods of fixing	- **KOELNER TFIX-8P** plastic nailed-in anchors	ETA-13/0845	
	- **WKRET - MET LFN ø 8, LFM ø 8** plastic nailed-in anchors	ETA-06/0080	
	- **FIXPLUG ø 8, FIXPLUG ø 10** plastic nailed-in anchors	ETA-11/0231	
	- **WKTHERM ø 8** plastic screw-in anchors	ETA-11/0232	
	- **WKTHERM S** plastic nailed-in anchors	ETA-13/0724	
	- **fischer TERMOZ 8U, 8UZ** plastic screw-in anchors	ETA-02/0019	
	- **fischer TERMOZ 8N, 8NZ** plastic screw-in anchors	ETA-03/0019	
	- **fischer TERMOZ CS 8** plastic screw-in anchors	ETA-13/0372	
	- **fischer TERMOZ 8SV** plastic screw-in anchors	ETA-06/0180	
	- **fischer TERMOFIX CF 8** plastic nailed-in anchors	ETA-07/0287	
	- **fischer termoz PN 8** plastic nailed-in anchors	ETA-09/0171	
	- **fischer termoz CN 8** plastic nailed-in anchors	ETA-09/0394	
	- **fischer termoz LO 8** plastic nailed-in anchors	ETA-10/0460	
	- **Hilti XI – FV** plastic gun nailed-in anchors	ETA-03/0004	
	- **Hilti SD - FV** plastic nailed-in anchors	ETA-03/0028	
	- **Hilti SDK - FV** plastic nailed-in anchors	ETA-07/0302	
Base coat	• **STYROLEP Z** portland cement and special fine additives requiring addition of water 0.25 l/kg	3.0 to 4.0 (dry matter)	3.0
Reinforcement	• Standard mesh applied in single layer see Annex No. 3 for product characteristics:		
	- **AKE 145 A**	/	/
	- **TG-22**	/	/
	- **Artikel 03-43**	/	/
	- **122**	/	/
	- **117S**	/	/

	Components	Coverage [kg/m^2]	Thickness [mm]
Reinforcement	- **Fiberglass Fabrics FF 145** - **Fiberglass Fabrics FF 160**	/ /	/ /
Key coat	- **MAJSTERGRUNT PODTYNKOWY AKRYLOWNY** - to be used with mineral/acrylic/mozaic finishing coats indicated hereafter - ready to use pigmented acrylic-resin dispersion liquid	0.25	0.05 – 0.10
	- **MAJSTERGRUNT PODTYNKOWY SILIKATOWY** - to be used with silicate finishing coats indicated hereafter - ready to use pigmented liquid consisting of polymer dispersions, mineral fillers and modifying agents and potassium water glass	0.25	0.05 – 0.10
	- **MAJSTERGRUNT PODTYNKOWY SILIKONOWY** - to be used with silicone finishing coats indicated hereafter - ready to use pigmented liquid consisting of polymer dispersions, mineral fillers as well as modifying agents and silicone resin	0.25	0.05 – 0.10
Finishing coats	• Ready to use powder - hydraulic binder - **MAJSTERTYNK MINERALNY KORNIK** - ribbed structure (particle size 1.5; 2.0; 2.5; 3.0 mm)	2.3– 4.2	Regulated by particle size
	- **MAJSTERTYNK MINERALNY BARANEK** - floated structure (particle size 1.0;1.5; 2.0; 2.5 mm)	1.6 – 3.9	
	- Mineral renderings shall always be used with finishing paint MAJSTERFARBA AKRYLOWA, MAJSTERFARBA SILIKATOWA, MAJSTERFARBA SILIKONOWA		
	• Ready to use paste - silicone binder: - **MAJSTERTYNK SILIKONOWY KORNIK** - ribbed structure (particle size 1.5; 2.0; 2.5; 3.0 mm)	2.3– 4.2	
	- **MAJSTERTYNK SILIKONOWY BARANEK** - floated structure (particle size 1.0;1.5; 2.0; 2.5 mm)	1.6 – 3.9	

	Components	Coverage [kg/m^2]	Thickness [mm]
Finishing coats	• Ready to use paste - silicate binder: - **MAJSTERTYNK SILIKATOWY KORNIK** - ribbed structure (particle size 1.5; 2.0; 2.5; 3.0 mm)	2.3– 4.2	Regulated by particle size
	- **MAJSTERTYNK SILIKATOWY BARANEK** - floated structure (particle size 1.0;1.5; 2.0; 2.5 mm)	1.6 – 3.9	
	• Ready to use paste - acrylic binder: - **MAJSTERTYNK AKRYLOWY KORNIK** - ribbed structure (particle size 1.5; 2.0; 2.5; 3.0 mm)	2.3– 4.2	
	- **MAJSTERTYNK AKRYLOWY BARANEK** - floated structure (particle size 1.0;1.5; 2.0; 2.5 mm)	1.6 – 3.9	
	- **MAJSTERTYNK MOZAIKOWY** (particle size fine, medium and coarse)	3.0– 5.0	
Topcoat finish	- **MAJSTERFARBA AKRYLOWA** - to be used with mineral finishing coats - ready to use - pigmented styrene-acrylic dispersion	0.2 – 0.3 (in two coats)	0.05 – 0.10
	- **MAJSTERFARBA SILIKATOWA** - to be used with mineral finishing coats - ready to use - pigmented styrene-acrylic dispersion, potassium water glass	0.2 – 0.3 (in two coats)	0.05 – 0.10
	- **MAJSTERFARBA SILIKONOWA** - to be used with mineral finishing coats - ready to use - acrylic copolymer dispersion, silicone dispersion	0.2 – 0.3 (in two coats)	0.05 – 0.10
Ancillary materials	Remain under the manufacturer's responsibility		

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

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

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

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

The choice of the method of fixing depends on the characteristics of the substrate, which may need preparation (see cl. 7.2.1 of the ETAG 004) and shall be done in accordance with the national instructions.

The ETICS belong to Category S/W2, according to EOTA Technical Report No 034.

2.2 Manufacturing

The European Technical Assessment is issued for the ETICS on the basis of agreed data/information, deposited with the Technical and Test Institute Prague, which identifies the ETICS that has been assessed and judged.

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 chapters 7.1 and 7.2 of ETAG 004 used as EAD, which summarize 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 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 know to the concerned people.

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

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes 1 - 3.

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire (ETAG 004 - clause 5.1.2.1, EN 13501-1)

Table No. 2

Configuration	Organic content / heat of combustion	Flame retardant content	Euroclass according to EN 13501-1
Adhesive	- / max. 0.37 MJ/kg	No flame retardant	**B – s1, d0**
Boards of expanded polystyrene EPS Maximum density of 20 kg/m^3	/	In quantity ensuring Euroclass E according to EN 13501-1	
Base coat render	- / max. 0.48 MJ/kg	No flame retardant	
Glass fibre mesh	- / max. 8.40 MJ/kg	No flame retardant	
Finishing coats with acrylic binder Finishing coats with silicone binder Finishing coats with silicate binder Finishing coats with mineral binder	- / max. 2.80 MJ/kg	No flame retardant	
Protective paints (used with mineral finishing coats): MAJSTERFARBA AKRYLOWA MAJSTERFARBA SILIKATOWA MAJSTERFARBA SILIKONOWA	- / max. 7.39 MJ/kg	No flame retardant	

Note: A European reference fire scenario has not been laid down for facades. In some Member States, the classification of ETICS according to EN 13501-1 might not be sufficient for the use in facades. 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.

3.2 Hygiene, health and environment (BWR 3)

3.2.1 Water absorption (ETAG 004 - clause 5.1.3.1)

- Base coat **STYROLEP Z**:

Water absorption after 1 hour $< 1\ kg/m^2$

Water absorption after 24 hours $< 0.5\ kg/m^2$

- Rendering system:

Table No. 3

Rendering system: base coat **STYROLEP Z** + reinforcement and finishing coats indicated hereafter	**Water absorption after 24 hours**	
	$< 0.5\ kg/m^2$	**$\geq 0.5\ kg/m^2$**
MAJSTERTYNK AKRYLOWY BARANEK 1.0 mm	X	
MAJSTERTYNK AKRYLOWY BARANEK 2.5 mm	X	
MAJSTERTYNK AKRYLOWY KORNIK 1.5 mm	X	
MAJSTERTYNK AKRYLOWY KORNIK 3.0 mm	X	
MAJSTERTYNK MOZAIKOWY – fine grain	X	
MAJSTERTYNK MOZAIKOWY – coarse grain	X	
MAJSTERTYNK SILIKATOWY BARANEK 1.0 mm	X	
MAJSTERTYNK SILIKATOWY BARANEK 2.5 mm	X	
MAJSTERTYNK SILIKATOWY KORNIK 1.5 mm	X	
MAJSTERTYNK SILIKATOWY KORNIK 3.0 mm		X
MAJSTERTYNK SILIKONOWY BARANEK 1.0 mm	X	
MAJSTERTYNK SILIKONOWY BARANEK 2.5 mm	X	
MAJSTERTYNK SILIKONOWY KORNIK 1.5 mm	X	
MAJSTERTYNK SILIKONOWY KORNIK 3.0 mm	X	
MAJSTERTYNK MINERALNY BARANEK 1.0 mm + MAJSTERFARBA SILIKATOWA	X	
MAJSTERTYNK MINERALNY BARANEK 2.5 mm + MAJSTERFARBA SILIKATOVA		X
MAJSTERTYNK MINERALNY KORNIK 1.5 mm + MAJSTERFARBA SILIKATOVA	X	
MAJSTERTYNK MINERALNY KORNIK 3.0 mm + MAJSTERFARBA SILIKATOVA		X

3.2.2 Watertightness (ETAG 004 - clause 5.1.3.2)

3.2.2.1 Hygrothermal behaviour

Pass (without defects).

3.2.2.2 Freeze–thaw behaviour

Pass (without defects).

3.2.3 Impact resistance (ETAG 004 - clause 5.1.3.3)

Table No. 4

Render coating: base coat **STYROLEP Z** + reinforcement and finishing coats listed hereafter:	**Single standard mesh**
MAJSTERTYNK AKRYLOWY	Category III
MAJSTERTYNK SILIKATOWY	Category III
MAJSTERTYNK SILIKONOWY	Category III
MAJSTERTYNK MINERALNY	Category III
MAJSTERTYNK MOZAIKOWY	Category III

3.2.4 Water vapour permeability (ETAG 004 - clause 5.1.3.4)

Table No. 5

Rendering system: base coat **STYROLEP Z** + reinforcement and finishing coats indicated hereafter	**Equivalent air layer thickness s_d (m – average value)**
MAJSTERTYNK AKRYLOWY	0.43
MAJSTERTYNK SILIKATOWY	0.11
MAJSTERTYNK SILIKONOWY	0.37
MAJSTERTYNK MINERALNY	0.09
MAJSTERTYNK MOZAIKOWY	0.22

Table No. 6

Paints	Equivalent air layer thickness s_d (m – average value)
MAJSTERFARBA AKRYLOWA	0.15
MAJSTERFARBA SILIKATOWA	0.09
MAJSTERFARBA SILIKONOWA	0.09

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

Kit not assessed according to EOTA TR 034.

3.3 Safety and accessibility in use (BWR 4)

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

- Initial state: bond strength ≥ 0.080 MPa and a cohesive failure in the insulation product.
- After hygrothermal cycles: bond strength ≥ 0.149 MPa and a cohesive failure in the insulation product.
- After freeze-thaw cycles: test not required (see Cl. 3.2.2.2 of this ETA).

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

Table No. 7

		Initial state	48 hrs. immersion in water + 2 hrs. 23°C/50% RH	48 hrs. immersion in water + 7 days 23°C/50% RH
STYROLEP K	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	Expanded polystyrene (EPS)	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa

3.3.3 Bond strength after ageing (ETAG 004 - clauses 5.1.7.1)

- After ageing by hygrothermal cycles: bond strength ≥ 0.148 MPa and a cohesive failure in the insulation product
- After 7 days of immersion in water and 7 days of drying : ≥ 0.142 MPa and cohesive failure in insulation product

- After freeze-thaw cycles: ≥ 0.130 MPa and a cohesive failure in the insulation product.

3.3.4 Fixing strength (ETAG 004 - clause 5.1.4.2)

Test not required (no limitation of ETICS length).

3.3.5 Wind load resistance (ETAG 004 - clause 5.1.4.3)

Table No. 8

Anchor description	Trade name		**See Annex No. 2**		
			Plate stiffness ≥ 0.3 < 0.4	Plate stiffness ≥ 0.4 < 0.6	Plate stiffness ≥ 0.6
			Surface assembly		
	Plate diameter [mm]		60 or more		
EPS characteristics	Thickness [mm]		≥ 50	≥ 60	≥ 100
	Tensile strength perpendicular to faces [kPa]		≥ 100	≥ 100	≥ 100
Maximal load	Anchors placed at the body of the insulation product	R_{panel}	min. value: **0.41 kN** mean value: **0.42 kN**	min. value: **0.63 kN** mean value: **0.66 kN**	min. value: **0.75 kN** mean value: **0.77 kN**
	Anchors placed at joints of the insulation product	R_{joint}	min. value: **0.36 kN** mean value: **0.39 kN**	min. value: **0.52 kN** mean value: **0.58 kN**	min. value: **0.56 kN** mean value: **0.57 kN**

Table No. 9

Anchor description	Trade name		See Annex No. 2	
			fischer Schlagdübel TERMOFIX CF 8 ETA-07/0287	Plate stiffness ≥ 0.6
	Assembly method		Countersunk assembly	
	Plate diameter [mm]		60	60
EPS characteristics	Thickness [mm]		≥ 100	≥ 100
	Tensile strength perpendicular to faces [kPa]		≥ 100	≥ 100
Maximal load	Anchors placed at the body of the insulation product	R_{panel}	min. value: **0.59 kN** mean value: **0.63 kN**	min. value: **0.61 kN** mean value: **0.65 kN**
	Anchors placed at joints of the insulation product	R_{joint}	min. value: **0.52 kN** mean value: **0.53 kN**	min. value: **0.59 kN** mean value: **0.63 kN**

3.3.6 Render strip tensile test

Table No. 10

		Glass fibre mesh AKE 145 A (VERTEX R 117 A101) (manufacturer: SAINT-GOBAIN ADFORS CZ s.r.o.)					
		crack width W_{typ} [mm]/ number of cracks at relative elongation ε					
load direction		**ε = 0.3 %**	**ε = 0.5 %**	**ε = 0.8 %**	**ε = 1.0 %**	**ε = 1.5 %**	**ε = 2.0 %**
warp	sample No. 1	-	≤ 0.05/2	≤ 0.05/8	≤ 0.05/13	≤ 0.05/15 ≤ 0.10/2	≤ 0.05/17 ≤ 0.10/6 ≤ 0.15/1
	sample No. 2	-	≤ 0.05/2	≤ 0.05/9	≤ 0.05/13	≤ 0.05/15 ≤ 0.10/2	≤ 0.05/18 ≤ 0.10/4 ≤ 0.15/3
	sample No. 3	-	≤ 0.05/2	≤ 0.05/9	≤ 0.05/14	≤ 0.05/16 ≤ 0.10/3	≤ 0.05/20 ≤ 0.10/5 ≤ 0.15/3
weft	sample No. 1	-	≤ 0.05/3	≤ 0.05/6	≤ 0.05/16	≤ 0.05/17 ≤ 0.10/2	≤ 0.05/19 ≤ 0.10/6 ≤ 0.15/4
	sample No. 2	-	≤ 0.05/3	≤ 0.05/7	≤ 0.05/16	≤ 0.05/18 ≤ 0.10/2	≤ 0.05/20 ≤ 0.10/7 ≤ 0.15/2
	sample No. 3	-	≤ 0.05/2	≤ 0.05/8	≤ 0.05/15	≤ 0.05/21 ≤ 0.10/2	≤ 0.05/21 ≤ 0.10/5 ≤ 0.15/3

Table No. 11

		Glass fibre mesh TG-22 (manufacturer: Textilglas Polska Sp. z o.o.)					
		crack width W_{typ} [mm]/ number of cracks at relative elongation ε					
load direction		**ε = 0.3 %**	**ε = 0.5 %**	**ε = 0.8 %**	**ε = 1.0 %**	**ε = 1.5 %**	**ε = 2.0 %**
warp	sample No. 1	-	≤ 0.05/2	≤ 0.05/7	≤ 0.05/12	≤ 0.05/17 ≤ 0.10/1	≤ 0.05/21 ≤ 0.10/6 ≤ 0.15/1
	sample No. 2	-	≤ 0.05/3	≤ 0.05/10	≤ 0.05/13	≤ 0.05/17 ≤ 0.10/3	≤ 0.05/22 ≤ 0.10/5 ≤ 0.15/2
	sample No. 3	-	≤ 0.05/5	≤ 0.05/9	≤ 0.05/14	≤ 0.05/17 ≤ 0.10/3	≤ 0.05/21 ≤ 0.10/6 ≤ 0.15/2
weft	sample No. 1	-	≤ 0.05/1	≤ 0.05/5	≤ 0.05/13	≤ 0.05/919 ≤ 0.10/1	≤ 0.05/20 ≤ 0.10/7 ≤ 0.15/3
	sample No. 2	-	≤ 0.05/2	≤ 0.05/9	≤ 0.05/16	≤ 0.05/19 ≤ 0.10/4	≤ 0.05/24 ≤ 0.10/5 ≤ 0.15/2
	sample No. 3	-	≤ 0.05/1	≤ 0.05/10	≤ 0.05/14	≤ 0.05/19 ≤ 0.10/4	≤ 0.05/23 ≤ 0.10/8 ≤ 0.15/3

No performance assessed for glass fibre meshes **Artikel 03-43, 122, 117S, Fiberglass Fabrics FF 145 and Fiberglass Fabrics FF 160.**

The characteristic crack width W_{rk} [mm] at a render strain value of 0.8%, determined with simple Method II pursuant to ETAG 004, cl. 5.5.4.1.

Table No. 12

	Characteristic width of cracks W_{rk} [mm] at render strain value of 0.8%	
	Warp direction	**Weft direction**
AKE 145 A	0.050	0.050
TG-22	0.050	0.050
Artikel 03-43	No performance assessed	No performance assessed
122	No performance assessed	No performance assessed
117S	No performance assessed	No performance assessed
Fiberglass Fabrics FF 145	No performance assessed	No performance assessed
Fiberglass Fabrics FF 160	No performance assessed	No performance assessed

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal resistance

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

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

as described in:

- EN ISO 6946: Building components and building elements - Thermal resistance and thermal transmittance - Calculation method.
- EN ISO 10456: Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values.

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

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

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

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

where:

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

$$U = 1/[R_{ETICS} + R_{SUBSTRATE} + R_{SE} + R_{SI}]$$

$R_{SUBSTRATE}$ thermal resistance of the substrate wall $[(m^2 \cdot K)/W]$
R_{SE} external surface thermal resistance $[(m^2 \cdot K)/W]$
R_{SI} internal surface thermal resistance $[(m^2 \cdot K)/W]$

ΔU correction term of the thermal transmittance for mechanical fixing devices = χ_p * n (for anchors)

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

= 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by plastic material, and for anchors with an air gap at the head of the screw/nail
= 0.004 W/K for anchors with a galvanized steel screw/nail with the head covered by a plastic material
= 0.008 W/K for all other anchors (worst case)

n number of anchors per m²

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

EN ISO 10211: Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations

It shall be calculated according to this standard if there are more than 16 anchors per m² foreseen. The χ_p-values given by the manufacturer do not apply in this case.

3.6 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

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

Table No. 13

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 he 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:

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:

1) ETA

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

2) Basic manufacturing process

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

3) 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.

4) Control Plan (as a part of FPC)

   The manufacturer and the Technical and Test Institute for Construction Prague have agreed a Control Plan which is deposited with the Technical and Test Institute for Construction Prague 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 must 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 referring to the Control Plan once again.

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 Technical and Test Construction Institute Prague without delay.

Issued in Prague on 26/07/2016

By

Ing. Mária Schaan

Head of the Technical Assessment Body

Annexes:

Annex No. 1	Insulation product characteristics
Annex No. 2	Anchors, description of individual product characteristics contained in the ETA
Annex No. 3	Description of glass fibre mesh
Annex No. 4	Variations of the trade names components of the ETICS

Annex No. 1 Insulation product characteristics

Description and characteristics		Regulation	Declared characteristics of EPS boards	
			Class, level according to 13163:2012+A1:2015	Value
Reaction to fire		EN 13501 -1+A1:2010	E	Apparent density ≤ 20 kg/m^3
Thermal resistance		EN 12667	Defined in CE mark in accordance with EN 13163	
Thickness		EN 823	T(1)	± 1 mm
Length		EN 822	L(2)	± 2 mm
Width			W(2)	± 2 mm
Squareness		EN 824	S(2)	± 2 mm/m
Flatness		EN 825	P(5)	5 mm
Surface		ETAG 004	Cut surface (homogenous, without coating)	
Dimensional stability	Under defined temperature and humidity conditions	EN 1604	DS(70,90)1	1%
	Under constant laboratory conditions	EN 1603	DS(N)2	± 0.2%
Short term water absorption at partial immersion		EN 1609	---	< 1 kg/m^2
Diffusion factor (μ)		EN 13163	MU 20 – 40 MU 30 – 70	20 - 70
Tensile strength perpendicular to the faces of insulation product		EN 1607	TR100	≥ 100 kPa
Shear strength		EN 12090	SS20	≥ 20 kPa
Shear modulus of elasticity			GM1000	≥ 1000 kPa

Note: Classes and levels for individual characteristics comply with EN 13163: 2012+A1:2015. Only insulation products of the same or better declared characteristics as stated in the table above can be used in this ETICS.

Reaction to fire E has to be proved for every insulation product also at 10 mm products thickness.

Annex No. 2 Anchors, description of individual product characteristics contained in the ETA

Trade name	Plate diameter (mm)	Characteristic pull-out resistance	Plate stiffness (kN/mm)	Load at plate rupture (kN)
Surface assembly				
Ejotherm NT U	60	See ETA-05/0009	0.60	2.43
Ejotherm NTK U	60	See ETA-07/0026	0.50	1.44
Ejotherm STR U, STR U 2G	60	See ETA-04/0023	0.60	2.08
EJOT H1 eco	60	See ETA-11/0192	0.60	1.40
EJOT H3	60	See ETA-14/0130	0.60	1.25
BRAVOLL PTH-KZ 60/8-La	60	See ETA – 05/0055	0.70	2.10
BRAVOLL PTH-60/8-La			0.60	1.63
BRAVOLL PTH-S 60/8-La	60	See ETA - 08/0267	0.90	2.60
BRAVOLL PTH 60/10-La, PTH-KZ 60/10-La	60	See ETA - 08/0166	0.70	1.36
BRAVOLL PTH-SX	60	See ETA - 10/0028	0.70	1.80
BRAVOLL PTH-X	60	See ETA - 13/0951	0.60	1.50
BRAVOLL PTH-EX			0.60	1.40
KEW TSD 8	60	See ETA-04/0030	0.60	1.60
KEW TSD-V 8	60	See ETA-08/0315	1.20	1.75
KEW TSDL-V	60	See ETA-12/0148	1.20	1.75
KEW TSD-V KN	60	See ETA-13/0075	1.20	1.75
KOELNER TFIX-8M	60	See ETA-07/0336	1.00	1.75
KOELNER KI-10, KI-10PA	60	See ETA-07/0291	0.39	0.81
KOELNER KI-10M			0.45	0.85
KOELNER KI-10N, KI-10NS	60	See ETA 07/0221	0.50	1.23
KOELNER TFIX-8S a TFIX-8ST	60	See ETA-11/0144	0.60	2.04
KOELNER TFIX-8P	60	See ETA-13/0845	0.30	1.38
WKRET - MET LFN ø 8	60	See ETA-06/0080	0.50	1.28
WKRET - MET LFM ø 8			0.50	1.26

Trade name	Plate diameter (mm)	Characteristic pull-out resistance	Plate stiffness (kN/mm)	Load at plate rupture (kN)
FIXPLUG ø 8	60	See ETA-11/0231	0.60	1.70
FIXPLUG ø 10			0.60	1.50
WKTHERM ø 8	60	See ETA-11/0232	0.60	4.30
Klimas Wkret-med screw-in plug eco-drive	60	See ETA-13/0107	0.60	2.80
WKTHERM S	60	See ETA-13/0724	0.60	4.30
fischer TERMOZ 8U	60	See ETA-02/0019	0.50	2.45
fischer TERMOZ 8UZ			0.50	0.54
fischer TERMOZ 8N	60	See ETA-03/0019	0.50	1.34
fischer TERMOZ 8NZ			0.50	1.43
fischer TERMOZ CS 8	60	See ETA-13/0372	0.60	1.70
fischer TERMOZ 8SV	60	See ETA-06/0180	1.10	2.13
fischer TERMOFIX CF 8	60	See ETA-07/0287	0.50	1.65
fischer termoz PN 8	60	See ETA-09/0171	0.40	1.60
fischer termoz CN 8	60	See ETA-09/0394	0.40	1.60
fischer termoz LO 8	60	See ETA-10/0460	0.70	1.80
fischer termoz SV II ecotwist	60	See ETA-12/0208	0.96	1.90
Hilti XI – FV	60	See ETA-03/0004	0.40	1.60
Hilti SD - FV	60	See ETA-03/0028	0.30	1.55
Hilti SDK - FV	60	See ETA-07/0302	0.50	1.48

Trade name	Plate diameter (mm)	Characteristic pull-out resistance	Plate stiffness (kN/mm)	Load at plate rupture (kN)
Countersunk assembly				
Ejotherm STR U, STR U 2G	60	See ETA-04/0023	0.60	2.08
fischer TERMOZ 8 SV	60	See ETA-06/0180	1.10	2.13
BRAVOLL PTH-SX	60	See ETA-10/0028	0.50	1.80
KOELNER TFIX-8ST	60	See ETA-11/0144	0.60	2.04

In addition to this list, anchors assessed In accordance with ETAG 014 can be used provided that such anchors meet the following requirements:

	Requirements	
Plate diameter	≥ 60 mm	
Plate stiffness	Surface assembly:	≥ 0.3 kN/mm
	Countersunk assembly:	≥ 0.5 kN/mm
Rupture force of anchor´s plate	≥ Higher of figures R_{panel} and R_{joint} in relevant table in Cl. 3.3.5	

Annex No. 3 Description of glass fibre mesh

	Description	Strength after ageing	
	Standard fibre mesh applied in one or two layers with aperture size	Absolute strength after ageing [N/mm]	Relative residual strength after ageing, of the strength in the as-delivered state [%]
AKE 145 A	4.0 x 4.5 mm	≥ 20	≥ 50
TG-22	5.0 x 5.0 mm		
Artikel 03-43	3.6 x 4.9 mm		
117S	5.0 x 4.0 mm		
122	4.0 x 4.0 mm		
Fiberglass Fabrics FF 145	5.0 x 4.0 mm		
Fiberglass Fabrics FF 160	4.0 x 4.0 mm		

Annex 4 - variations of the trade names components of the ETICS

	Adhesive - Trade name
	STYROLEP K
trade name No. 2	Mesterpuds SK
trade name No. 3	Meister K-Styroporkleber
	Base coat - Trade name
	STYROLEP Z
trade name No. 2	Mesterpuds SZ
trade name No. 3	Meister Z-Armierungskleber
	Key coats - Trade name
	MAJSTERGRUNT PODTYNKOWY AKRYLOWY
trade name No. 2	Mestergrunder akryl
trade name No. 3	Meister Akryl Grundierung
	MAJSTERGRUNT PODTYNKOWY SILIKATOWY
trade name No. 2	Mestergrunder silikat
trade name No. 3	Meister Silikat Grundierung
	MAJSTERGRUNT PODTYNKOWY SILIKONOWY
trade name No. 2	Mestergrunder silikone
trade name No. 3	Meister Silikon Grundierung
	Finishing coats - Trade name
	MAJSTERTYNK AKRYLOWY
trade name No. 2	Mesterpuds akryl
trade name No. 3	Meister Akrylputz
	MAJSTERTYNK SILIKATOWY
trade name No. 2	Mestrpuds silikat
trade name No. 3	Meister Silikatputz
	MAJSTERTYNK SILIKONOWY
trade name No. 2	Mesterpuds silikone
trade name No. 3	Meister Silikonputz
	MAJSTERTYNK MINERALNY
trade name No. 2	Mesterpuds mineral
trade name No. 3	Meister Mineralputz

	Finishing coats - Trade name
	MAJSTERTYNK MOZAIKOWY
trade name No. 2	Mesterpuds mosaic
trade name No. 3	Meister Mosaicputz-Buntsteinputz Sockelputz
	Protective paints - Trade name
	MAJSTERFARBA AKRYLOWA
trade name No. 2	Mester Maling akryl
trade name No. 3	Meister Akrylfarbe
	MAJSTERFARBA SILIKATOWA
trade name No. 2	Mester Maling silikat
trade name No. 3	Meister Silikatfarbe
	MAJSTERFARBA SILIKONOWA
trade name No. 2	Mester Maling silikone
trade name No. 3	Meister Silikonfarbe