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European Technical Assessment

ETA-20/0715
of 15.11.2025

General part

Technical Assessment Body issuing the European Technical Assessment	Österreichisches Institut für Bautechnik (OIB) Austrian Institute of Construction Engineering
Trade name of the construction product	RÖFIX WOFITHERM MASSIV HASIT HWF WDVS EcoWall FIXITherm.diffu, FIXITherm.wood KREISEL HW-Wärmedämmverbundsystem GREUTOL GreoTherm System HF
Product family to which the construction product belongs	External Thermal Insulation Composite Systems with rendering for the use as external insulation to walls of buildings
Manufacturer	FIXIT Trockenmörtel Holding AG Zugerstrasse 8A 6342 Baar SWITZERLAND
Manufacturing plant	Werk 1: RÖFIX; A-6832 Röthis Werk 2: HASIT; D-85356 Freising Werk 3: HASIT; CZ-34101 Hordazdovice Werk 4: HASIT; SK-90055 Lozorno Werk 5: HASIT; RO-401114 Turda Werk 6: KREISEL; PL-60462 Poznan Werk 7: FIXIT; CH-5113 Holderbank Werk 8: GREUTOL; CH-8112 Otelfingen
This European Technical Assessment contains	22 pages incl. 8 Annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 040083-00-0404 “External thermal insulation composite systems (ETICS) with renderings”

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Specific part

1. Technical description of the product

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. It's made up on site from these. The ETICS manufacturer is ultimately responsible for the ETICS.

The ETICS kit comprises a prefabricated wood fibre insulation board to be bonded and if necessary additional 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 base and finishing coat (site applied), the base coat 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 ...) for connection to adjacent building elements (apertures, corners, parapets...). 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.

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

The performances in Section 3 can only be assumed if the ETICS is used in accordance with the specifications and under the boundary conditions specified in Annexes 2 to 5.

The verifications and assessment methods on which this ETA is based lead to the assumption of a working life of the ETICS of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products relating to the assumed economically reasonable working life of the works.

For use, maintenance and repair, the finishing coat shall normally be maintained in order to fully preserve the ETICS performance. Maintenance includes at least:
- visual inspection of the ETICS,
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs are to be carried out as soon as the need has been identified. The information on use, maintenance and repair is given in the manufacturer's technical documentation.

It is the responsibility of the manufacturer to ensure that this information is made known to the concerned people.

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

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the ETICS	Euroclass acc. to EN 13501-1, see Annex 2
Reaction to fire of the insulation product	Euroclass E acc. to EN 13501-1, see Annex 2
Façade fire performance	No performance assessed

3.2 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance	
Release of dangerous substances	A written declaration was submitted by ETA-holder.	
Water absorption **Insulation product after 24 hours**	See Annex 3 Maximum value ≤ 2 [kg/m²]	
Watertightness of the ETICS **Hygrothermal behaviour on the test wall**	Pass without defects	
Impact resistance	Category, see Annex 3	
Water vapour permeability - Rendering system	S_d value [m], see Annex 3	
- WF insulation board	S_d ≤ 2 m	Thickness of insulation product 20 to 240 [mm]

3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Bond strength between base coat and insulation product	see Annex 4 - Minimal value/ average [kPa], rupture type: Initial state (28 d immersion) - Minimal value/ average [kPa], rupture type: after hygrothermal cycles
between adhesive and substrate	- Thickness [mm] of the used adhesives - Minimal value [kPa], rupture type: Initial state (dry conditions) - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 7 d drying
between adhesive and WF insulation board	- Thickness [mm] of the used adhesives - Minimal value [kPa], rupture type: Initial state (dry conditions) - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 7 d drying
Fixing strength (transverse displacement)	No performance assessed.
Wind load resistance of ETICS pull-through test of fixing static foam block test	see Annex 4
Tensile strength perpendicular to the faces in dry conditions WF insulation board	≥ 10 kPa
Shear strength of the ETICS WF insulation board	10 ≤ frk ≤ 30 [kPa]
Render strip tensile test	No performance assessed
Bond strength after ageing finishing coat tested on the rig finishing coat not tested on the rig	see Annex 4 Minimal value/ average[kPa], rupture type Minimal value/ average [kPa], rupture type

Essential characteristic	Performance
Tensile strength of the glass fibre mesh in the as-delivered state Standard mesh	see Annex 4 Average [N/mm]
Residual tensile strength of the glass fibre mesh after aging Standard mesh	see Annex 4 Average [N/mm]
Relative residual tensile strength of the glass fibre mesh after aging Standard mesh	see Annex 4 Average [%]
Elongation of the glass fibre mesh in the as-delivered state Standard mesh	see Annex 4 Average [N/mm]
Elongation of the glass fibre mesh after aging Standard mesh	see Annex 4 Average [%]

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation of ETICS

No performance assessed

3.4.2 Dynamic stiffness of the thermal insulation product

No performance assessed

3.4.3 Air flow resistance and thermal transmittance of ETICS
No performance assessed

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal resistance and thermal transmittance of ETICS

Thermal resistance R_{Render} = 0,02 m².K/W
Thermal resistance R_{ETICS} = 1,00 m².K/W

Calculation:

$U_c = U + \Delta U$ [W/m².K]

U_c corrected thermal transmittance of the entire wall, including thermal bridges
U thermal transmittance of the entire wall, including ETICS, without thermal bridges
ΔU correction term of the thermal transmittance for mechanical fixing devices

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

$R_{ETICS} = R_{insulation} + R_{Render}$ [m².K/W]

where:
$R_{insulation}$ insulation thickness / thermal conductivity coefficient [m²·K/W]
R_{Render} = 0,02 [m²·K/W]

$R_{substrate}$ thermal resistance of the substrate wall [m²·K/W].
R_{se} external surface thermal resistance [m²·K/W].
R_{si} internal surface thermal resistance [m²·K/W]

$$\Delta U = \chi P \times n + \Sigma \Psi i \times l_i \qquad [m^2.K/W]$$

where:

χ_p: point thermal transmittance value of the anchor [W/K]. Specified by the ETA for anchors or as follows:
= 0,002 [W/K] for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail
= 0,004 [W/K] for anchors with a galvanized carbon steel screw/nail with the head covered by at least 15 mm plastic material or a minimum 15 mm air gap at the head of the screw/nail
= 0.008 [W/K] for all other anchors (worst case)

n number of anchors per m². In case of n > 16, the Uc calculation does not apply.

Ψ_i inear thermal transmittance value of the profile [W/m·K]

l_i length of the profile per m²

The influence of thermal bridges may also be calculated as described in EN ISO 10211. In case of there are more than 16 pieces of anchors per m² the declared χ_P shall not be used. In such case calculation according to EN ISO 10211 shall be used.

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

According to EAD 040083-00-0404 the applicable European legal act is: 97/556/EC changed by 2001/596/EC.

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 Österreichisches Institut für Bautechnik.

Issued in Vienna, on 15.11.2025
by Österreichisches Institut für Bautechnik

The original document is signed by:

Thomas Rockenschaub
Deputy Managing Director

Annex 1

1.1 Composition of the ETICS

	Components	Coverage (kg/m²)	Thickness (mm)
Insulation materials with associated methods of fixing	**Mechanically fixed ETICS with anchors and supplementary adhesive**		
	➢ Insulation product: factory-prefabricated wood fibre (WF)	-	20 to 240
	➢ Adhesives: Aggregates, cement, sand, synthetic resin dispersion powder, additives		
	- [IA 680], [IA 675]	2,0 to 10,0 (Powder)	/
	- [IA 710], [IA 670]	3,0 to 12,0 (Powder)	/
	- [IA 720], [IA 670]	3,0 to 12,0 (Powder)	/
	- [IA 650], [IA 660]	3,0 to 12,0 (Powder)	
	- [IA 690]	3,0 to 12,0 (Powder)	
	➢ Fixings: **- tested in support with EN 1382 "Withdrawal capacity of timber fasteners"**	/	/
	- Staples	/	/
Base coat	Aggregates, cement, sand, synthetic resin dispersion powder, additives:		
	- [IA 680], [IA 675]	4,5 to 10,0 (powder)	3,0 to 12,0
	- [IA 710], [IA 670]	3,5 to 6,0 (powder)	3,0 to 8,0
	- [IA 720], [IA 670]	3,5 to 6,0 (powder)	3,0 to 8,0
Glass fibre mesh	➢ Standard glass fibre mesh: Mesh size between 3 mm and 7 mm:		
	- [IG 342], [IG 345]	/	/
Key coat	Organic based with mineral fillers and pigments:		
	- [SP 300]	0,25 (liquid)	/
	- [SP 310]	0,25 (liquid)	/

	Components	Coverage (kg/m²)	Thickness (mm)
Finishing coat	➢ Lime-cement based powder: particle size 0,7/1,0/1,5/2,0/3,0/4,0/7,0/10,0 mm **[SE 714], [SE 715]** **[SE 716], [SE 717]** **[SE 750],** **[SE 799]** **[SE 773]** ➢ Ready to use paste – silicate binder: Particle size 1,0/1,5/2,0/3,0/6,0 mm **[SE 210]** ➢ Ready to use paste – acryl and silicon resin: particle size 1,0/1,5/2,0/3,0/6,0 mm **[SE 310]** Ready to use paste – acryl and silicon resin: particle size 1,0/1,5/2,0/3,0 mm **[SE 410]** ➢ Ready to use paste – silicate binder/silicon resin: Particle size 0,5/0,7/1,0/1,5/2,0/3,0/4,0/6,0 mm **[SE 510]** ➢ Ready to use paste – silicate binder/silicon resin: Particle size 0,7 mm **[SE 520]** Particle size 0,4 mm - **[SE 530]** ➢ Ready to use finishing paint Silicon emulsion and water based acrylic binder, aggregates, additives: - **[PE 410], [PE 419], [PE 429]**	2,0 to 7,0 (powder) 2,0 to 7,0 (powder) 2,0 to 7,0 (powder) 2,0 to 7,0 (powder) 1,8 to 24,0 (powder) 2,4 to 5,5 (paste) 2,4 to 4,0 (paste) 2,4 to 4,0 (paste) 2,4 to 5,5 (paste) 2,4 (paste) 2,4 (paste) 0,2 to 0,4 l (liquid)	Regulated by particle size Regulated by particle size
Finishing paint	➢ Silicate emulsion and water based acrylic binder, aggregates, additives: - **[PE 229]** ➢ Silicate emulsion, silicon resin emulsion, water based acrylic binder, aggregates, additives: - **[PE 516], [PE 519]** ➢ Silicate emulsion, silicon resin emulsion, water based acrylic binder, aggregates, additives: - **[PE 319]**	0,2 to 0,4 l (liquid) 0,2 to 0,4 l (liquid) 0,2 to 0,4 l (liquid)	Regulated by particle size

1.2 Characteristics of insulation material (WF)

Descriptions and characteristics	"180er-Platte"
Reaction to fire / EN 13501-1	Euroclass E - Thickness: 20 mm to 180 mm - density: 180 kg/m³
Thermal resistance ((m².K)/W)	Defined in the CE marking in ref. to EN 13171 "Thermal insulation products for buildings" -Factory made wood fibre (WF) products
Designation Code	WF-EN13171-T4-CS(10\Y)150-TR30-WS1,0-AF100-MU3
Water absorption (partial immersion) / EN 1609	≤ 1,0 kg/m²
Water vapour diffusion resistance factor / EN 12086	μ ≤ 3

Descriptions and characteristics	"140er-Platte"
Reaction to fire / EN 13501-1	Euroclass E - Thickness: 20 mm to 240 mm - density: 140 kg/m³
Thermal resistance ((m².K)/W)	Defined in the CE marking in ref. to EN 13171 "Thermal insulation products for buildings" -Factory made wood fibre (WF) products
Designation Code	WF-EN13171-T4-CS(10\Y)100-TR20-WS1,0-AF75-MU3
Water absorption (partial immersion) / EN 1609	≤ 1,0 kg/m²
Water vapour diffusion resistance factor / EN 12086	μ ≤ 3

Descriptions and characteristics	"110er-Platte"
Reaction to fire / EN 13501-1	Euroclass E - Thickness: 60 mm to 240 mm - density: 110 kg/m³
Thermal resistance ((m².K)/W)	Defined in the CE marking in ref. to EN 13171 "Thermal insulation products for buildings" -Factory made wood fibre (WF) products
Designation Code	WF-EN13171-T4-CS(10\Y)50-TR10-WS1,0-AF50-MU3
Water absorption (partial immersion) / EN 1609	≤ 1,0 kg/m²
Water vapour diffusion resistance factor / EN 12086	μ ≤ 3

Annex 2

Safety in case of fire (BWR 2)

2.1 Reaction to fire

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coat according to clause 1.2.1	≤ 4,9 %	no flame retardant	B – s1, d0
WF panel	Euroclass E - Thickness: 20 mm to 240 mm - Density: 110 to 180 kg/m³		
Anchors	-	-	
Rendering system Base coat with finishing coat and compatible key coat in clause 1.2:			
Primer according according to clause 1.2.1	≤ 29,5 %	no flame retardant	
Finishing coats according according to clause 1.2.1	≤ 10,3 %	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 13501-1:2020 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.

The installation of the ETICS was carried out by the manufacturer (ETA-holder) following the manufacturer's specifications (instruction sheet) using a single layer of glass fibre mesh all over the test specimen without overlapping.

Anchors were not included in this tested ETICS as they have no influence on the test result.

The test specimens were prefabricated and did not include any joints.

Further edges of the ETICS have to be protected against fire.

In some Member States, the classification of ETICS according to EN 13501-1: 2002 might not be sufficient for the use in facades.

2.2 Reaction to fire insulation product

The reaction to fire of insulation product covered by this ETA according to EN 13501-1 is class E.

2.3 Façade fire performance

No performance assessed.

Note: A European reference fire scenario has not been laid down for facades. An additional assessment of ETICS according to national provisions (e.g. on the basis of a large-scale test or national fire façade tests) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

2.4 Propensity to undergo continuous smouldering of ETICS

No performance assessed

Annex 3

Hygiene, health and environment (BWR 3)

3.1 Water absorption (capillarity test) Rendering System

(base coat) and finishing coats indicated in clause 1.2.1	Average water absorption [kg/m²]	
	after 1h	after 24h
[SE 410], 6 mm	0,061	0,312
[SE 772], 4 mm	0,065	0,439
[SE 773], 4 mm	0,050	0,308
[SE 714], 5 mm	0,066	0,441
[SE 715], 7 mm	0,063	0,468
[SE 716], 4 mm	0,059	0,302
[SE 717], 2 mm	0,068	0,370
[SE 750], 10 mm	0,061	0,319
[SE 310], 6 mm	0,066	0,434
[SE 799], 4 mm	0,056	0,318
[SE 510], 6 mm	0,063	0,475
[SE 520], 0,7 mm	0,057	0,311
[SE 530], 0,4 mm	0,068	0,370
[SE 210], 6 mm	0,058	0,371

3.2 Water-tightness of the ETICS: hygrothermal behavior

Hygrothermal cycles have been performed on the hygrothermal rig.

None of the following defects occurred during the testing:
- blistering or peeling of any finishing coat;
- failure or cracking associated with joints between insulation product boards or profiles fitted with ETICS;
- detachment of render coat;
- cracking allowing water penetration to the insulation layer (normally not bigger than 0,2 mm).

The ETICS is assessed resistant to hygrothermal cycles, it means this ETICS passed the test without defects.

3.3 Impact resistance

[IA 680], [IA 675] (base coat) and finishing coats indicated in cl. 1.2.1	**[IG 342], [IG 345]** single standard layer		
	Maximum impact diameter:	Presence of cracks:	Impact category
[SE 714]	3 J: 0 mm 10 J: 32 mm	no (3 J) yes (10 J)	Category II
[SE 715]	3 J: 0 mm 10 J: 40 mm	no (3 J) yes (10 J)	Category II
[SE 716]	3 J: 0 mm 10 J: 30 mm	no (3 J) yes (10 J)	Category II
[SE 717]	3 J: 0 mm 10 J: 35 mm	no (3 J) yes (10 J)	Category II
[SE 750]	3 J: 0 mm 10 J: 45 mm	no (3 J) yes (10 J)	Category II
[SE 772]	3 J: 0 mm 10 J: 39 mm	no (3 J) yes (10 J)	Category II
[SE 773]	3 J: 0 mm 10 J: 40 mm	no (3 J) yes (10 J)	Category II

[IA 680], [IA 675] (base coat) and finishing coats indicated in cl. 1.2.1	**[IG 342], [IG 345]** single standard layer		
	Maximum impact diameter:	Presence of cracks:	Impact category
[SE 799]	3 J: 0 mm 10 J: 39 mm	no (3 J) yes (10 J)	Category II
[SE 210]	3 J: 0 mm 10 J: 40 mm	no (3 J) yes (10 J)	Category II
[SE 310]	3 J: 0 mm 10 J: 34 mm	no (3 J) yes (10 J)	Category II
[SE 410]	3 J: 0 mm 10 J: 39 mm	no (3 J) yes (10 J)	Category II
[SE 510]	3 J: 0 mm 10 J: 30 mm	no (3 J) yes (10 J)	Category II
[SE 520]	3 J: 0 mm 10 J: 32 mm	no (3 J) yes (10 J)	Category II
[SE 530]	3 J: 0 mm 10 J: 32 mm	no (3 J) yes (10 J)	Category II
[IA 680], [IA 675] (base coat) and finishing coats indicated in cl. 1.2.1	**[IG 342], [IG 345]** double standard layer		
	Maximum impact diameter:	Presence of cracks:	Impact category
[SE 714]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 715]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 716]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 717]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 750]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 772]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 773]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 799]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 210]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 310]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 410]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 510]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 520]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I
[SE 530]	3 J: 0 mm 10 J: 0 mm	no (3 J) no (10 J)	Category I

3.4 Water vapour permeability ETICS

Equivalent air thickness of the				system
base coat		**finishing coat**		
[IA 680], [IA 675]	4 mm	[SE 714], 4 mm	0,007 m	0,20 m
		[SE 715], 4 mm	0,006 m	0,20 m
		[SE 716], 4 mm	0,007 m	0,20 m
		[SE 717], 4 mm	0,006 m	0,20 m
		[SE 750], 10 mm	0,006 m	0,20 m
		[SE 772], 4 mm	0,006 m	0,10 m
		[SE 773], 4 mm	0,006 m	0,10 m
		[SE 210], 6 mm	0,006 m	0,30 m
		[SE 310], 4 mm	0,007 m	0,30 m
		[SE 410], 3 mm	0,006 m	0,40 m
		[SE 510], 6 mm	0,006 m	0,30 m
		[SE 520], 6 mm	0,008 m	0,10 m
		[SE 530], 6 mm	0,006 m	0,10 m
		[SE 799], 4 mm	0,006 m	0,10 m
[IA710], [IA 670]	4 mm	[SE 714], 4 mm	0,007 m	0,20 m
		[SE 715], 4 mm	0,006 m	0,20 m
		[SE 716], 4 mm	0,007 m	0,20 m
		[SE 717], 4 mm	0,006 m	0,20 m
		[SE 750], 10 mm	0,006 m	0,20 m
		[SE 772], 4 mm	0,006 m	0,10 m
		[SE 773], 4 mm	0,006 m	0,10 m
		[SE 210], 6 mm	0,006 m	0,30 m
		[SE 310], 4 mm	0,007 m	0,30 m
		[SE 410], 3 mm	0,006 m	0,40 m
		[SE 510], 6 mm	0,006 m	0,30 m
		[SE 520], 6 mm	0,008 m	0,10 m
		[SE 530], 6 mm	0,006 m	0,10 m
		[SE 799], 4 mm	0,006 m	0,10 m

Equivalent air thickness of the				system
base coat		**finishing coat**		
[IA720], [IA 670]	4 mm	[SE 714], 4 mm	0,007 m	0,20 m
		[SE 715], 4 mm	0,006 m	0,20 m
		[SE 716], 4 mm	0,007 m	0,20 m
		[SE 717], 4 mm	0,006 m	0,20 m
		[SE 750], 10 mm	0,006 m	0,20 m
		[SE 772], 4 mm	0,006 m	0,10 m
		[SE 773], 4 mm	0,006 m	0,10 m
		[SE 210], 6 mm	0,006 m	0,30 m
		[SE 310], 4 mm	0,007 m	0,30 m
		[SE 410], 3 mm	0,006 m	0,40 m
		[SE 510], 6 mm	0,006 m	0,30 m
		[SE 520], 6 mm	0,008 m	0,10 m
		[SE 530], 6 mm	0,006 m	0,10 m
		[SE 799], 4 mm	0,006 m	0,10 m

Equivalent air thickness of primer (optional)		Water vapour permeability of the primer
[SP 300]	0,1 mm	NPA
[SP 310]	0,1 mm	NPA

Equivalent air thickness of primer (optional)	Water vapour resistance factor
WF boards	MU1

Annex 4

4 Safety and accessibility in use (BWR 4)

4.1 Render strip tensile test

No performance assessed.

4.2 Bond strength between base coats and insulation board

Substrate: WF insulation		Conditioning	
		Initial state [MPa]	After hygrothermal cycles [MPa]
[IA 680], [IA 675]	Average	0,014 / 100% Type 1	0,022 / 100% Type 1
	Minimum value	0,010	0,016
[IA710], [IA 670]	Average	0,012 / 100% Type 1	0,022 / 100% Type 1
	Minimum value	0,010	0,015
[IA720], [IA 670]	Average	0,011 / 100% Type 1	0,022 / 100% Type 1
	Minimum value	0,010	0,015

4.3 Bond strength between adhesive and substrate

Substrate: concrete		Conditioning		
		Initial state [kPa]	48 hrs. immersion in water and 2 hrs. drying [kPa]	48 hrs. immersion in water and 7 days drying [kPa]
All adhesives According to Annex 1	Average	≥ 250*	≥ 80	≥ 250*
	Minimal value	≥ 80*	≥ 60	≥ 200*
(*) cohesive rupture in the adhesive The tested thickness of all base coats given in this table is ≥ 5,0 mm				

4.4 Bond strength between adhesive and insulation product

Substrate: insulation product		Conditioning		
		Initial state [kPa]	48 hrs. immersion in water and 2 hrs. drying [kPa]	48 hrs. immersion in water and 7 days drying [kPa]
All adhesives According to Annex 1	Average	10*	< 10*	< 10*
	Minimal value	10*	< 10*	< 10*
(*) cohesive rupture in the adhesive The tested thickness of all base coats given in this table is ≥ 5,0 mm				

4.5 Fixing strength

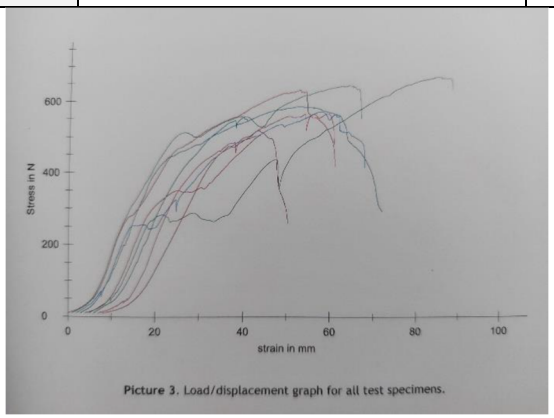
Not tested, because the ETICS fulfills the following criteria:
The bonded area exceeds 20 % in case of mechanically fixed systems with supplementary adhesive.

4.6 Wind load resistance

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product. All anchors which shall be used are shown in the control plan and the declaration of performance.

4.6.1 Safety in use of mechanically fixed ETICS using anchors

Anchors for which the following failure loads apply	Trade name	Anchors with valid ETA		
	Plate diameter (mm)	≥ ∅ 60		
Characteristics of the insulation product panels for which the following failure loads apply	Thickness (mm)	≥ 40		
	Tensile strength perpendicular to the face (kPa)	≥ 80 (tested value 85,7)		
Failure load [kN]	Anchors not placed at the panel joints (pull through test)	R_{panel}	Minimum: Average:	0,44 0,49
	Anchors placed at the panel joints (pull through test)	R_{joint}	Minimum: Average:	0,42 0,45
	Static foam block test	F_{Dowel}	Minimum: Average:	0,43 0,47



Load displacement graph for all test specimens

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

$$R_d = (R_{panel} + n_{panel} + R_{joint} \text{ X } n_{joint}) / \gamma$$

where:

η_{panel}: number (per m²) of anchors not placed at the panel joint
η_{ioint}: number (per m²) of anchors placed at the panel joint
γ: national safety factor

4.7 Wind load resistance – dynamic wind uplift test

No performance assessed.

4.8 Bond strength after aging

		after hygrothermal cycles (on the rig)
Rendering systems: [IA 680], [IA 675] + finishing coats indicated hereafter:	[SE 714], [SE 715], [SE 716], [SE 717], [SE 750], [SE 772], [SE 773], [SE 799]	0,07 MPa
	[SE 210]	0,06 MPa
	[SE 310]	0,05 MPa
	[SE 410]	0,05 MPa
	[SE 510]	0,06 MPa
	[SE 520]	0,06 MPa
	[SE 530]	0,05 MPa
Rendering systems: [IA 710], [IA 670] + finishing coats indicated hereafter:	[SE 714], [SE 715], [SE 716], [SE 717], [SE 750], [SE 772], [SE 773], [SE 799]	0,07 MPa
	[SE 210]	0,06 MPa
	[SE 310]	0,05 MPa
	[SE 410]	0,05 MPa
	[SE 510]	0,06 MPa
	[SE 520]	0,06 MPa
	[SE 530]	0,05 MPa
Rendering systems: [IA 720], [IA 670] + finishing coats indicated hereafter:	[SE 714], [SE 715], [SE 716], [SE 717], [SE 750], [SE 772], [SE 773], [SE 799]	0,07 MPa
	[SE 210]	0,06 MPa
	[SE 310]	0,05 MPa
	[SE 410]	0,05 MPa
	[SE 510]	0,06 MPa
	[SE 520]	0,06 MPa
	[SE 530]	0,05 MPa

4.9 Fixing strength (transverse displacement)

No performance assessed.

4.10 Reinforcement (glass fibre mesh)

IG 342], [IG 345]	warp direction	weft direction	acceptance criteria
mean of the tensile strength in N/50mm	1.254 - 2.374	2.312 - 2.718	–
mean of the tensile strength in N/50mm after ageing	1.168 - 2.149	1.297 - 2.594	–
tearing strength after ageing in %	51 - 75 %	52 - 95,4 %	≥ 50 %
tearing strength after ageing in N/mm	23,4 - 31,0 N/mm	29,8 - 51,9 N/mm	≥ 20 N/mm

A detailed list of all glass fibre meshes which may be used in this system are given in factory control plan (FPC) and in declaration of performance (DOP) of the ETICS. The FPC is deposited at the OIB.

Annex 5

5 Protection against noise (BWR 5)

5.1 Airborne sound insulation of ETICS

No performance assessed.

5.2 Dynamic stiffness of insulation product

No performance assessed

5.3 Air flow resistance of insulation product

No performance assessed

Annex 6

6 Energy economy and heat retention (BWR 6)

6.1 Thermal resistance and thermal transmittance of ETICS

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

$$U_c = U + \chi_p \cdot n$$

where

- $\chi_p \cdot n$ has only to be taken into account if it is greater than 0,04 W/(m²·K);
- U_c global (corrected) thermal transmittance of the covered wall (W/(m²·K));
- n number of anchors (through insulation product) per m²;
- χ_p local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
  - = 0,002 W/K for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw ($\chi_p \cdot n$negligible for n < 20);
  - = 0,004 W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_p \cdot n$negligible for n < 10);
  - = negligible for anchors with plastic nails (reinforced or not with glass fibres …);
- U thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ (m²·K)) determined as follows:

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

where

- R_i thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m²·K)/W;
- R_{render} thermal resistance of the render (about 0,02 in (m²·K)/W or determined by test according to EN 12667 or EN 12664);
- $R_{substrate}$ thermal resistance of the substrate of the building (concrete, brick …) in (m²·K)/W;
- R_{se} external superficial thermal resistance in (m²·K)/W;
- R_{si} internal superficial thermal resistance in (m²·K)/W.

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

6.2 Thermal resistance of the thermal insulation product

The detailed values of the thermal resistance of the thermal insulation products used in this system are given in the list of insulation products of factory control plan (FPC) and in the declaration of performance (DOP) of the insulation product. The FPC is deposited at the OIB. The range of value of WF insulation boards used in this ETICS is between 0,037 W/(m·K) and 0,040 W/(m·K).

Annex 7

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) The 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 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 Österreichisches Institut für Bautechnik have agreed a Control Plan which is deposited with the Österreichisches Institut für Bautechnik 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 before acceptance.

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

Annex 8

Reference list of further trade names

Product	Fixit-Group	FIXIT	GREUTOL	HASIT	RÖFIX	KREISEL
Adhesive	[IA 650] alt [IA 660] neu	FIXIT IA 650	GREUTOL IA 650	HASIT IA 650	RÖFIX W50 Klebespachtel RÖFIX W50 CAM	KREISEL IA 650
	IA 710] alt [IA 670] neu	FIXIT 435	GREUTOL IA 710	HASIT Dieplast 804 grau	RÖFIX POLYSTAR (grau) RÖFIX RasoBasic RÖFIX RasoBasic CAM	KREISEL IA 710
	[IA 720] alt [IA 670] neu	FIXIT IA 720	GREUTOL IA 720	HASIT Dieplast 804 weiß	RÖFIX POLYSTAR (weiß) RÖFIX Polystar CAM RÖFIX RasoBasic RÖFIX RasoBasic CAM	KREISEL IA 720
	[IA 675]	FIXIT 433 Combiputz leicht	GREUTOL Combi-Putz 488		RÖFIX Poly Light RÖFIX Poly Light CAM RÖFIX Polystar Light mineralisch RÖFIX Poly Light mineralisch	-
	[IA 680]	FIXIT 439	GREUTOL Combi light 432, GREUTOL Combi-Putz 488	HASIT Dieplast 860 light	RÖFIX Unistar Light RÖFIX Unistar Light CAM RÖFIX Unistar Light mineralisch RÖFIX Unistar MINERAL RÖFIX Unistar Light XL	KREISEL IA 680
	[IA 690]	FIXIT 469 Sockelmörtel Combi 1K	RÖFIX Collstar	HASIT Dieplast 874	RÖFIX Collstar	KREISEL IA 690
Base Coat	[IA 710]	FIXIT 435	GREUTOL IA 710	HASIT Dieplast 804 grau	RÖFIX POLYSTAR (grau) RÖFIX RasoBasic RÖFIX RasoBasic CAM	KREISEL IA 710
	[IA 720]	FIXIT IA 720	GREUTOL IA 720	HASIT Dieplast 804 weiß	RÖFIX POLYSTAR (weiß) RÖFIX Polystar CAM RÖFIX RasoBasic RÖFIX RasoBasic CAM	KREISEL IA 720
	[IA 675]	FIXIT 433 Combiputz leicht	GREUTOL Combi-Putz 488		RÖFIX Poly Light RÖFIX Poly Light CAM RÖFIX Polystar Light mineralisch RÖFIX Poly Light mineralisch	-
	[IA 680]	FIXIT 439 Klebe- und Einbettmörtel Uni leicht	GREUTOL Combi light 432	HASIT Dieplast 860 Light HASIT Dieplast 868 Allstar Light	RÖFIX Unistar Light RÖFIX Unistar Light CAM RÖFIX Unistar Light mineralisch RÖFIX Unistar MINERAL RÖFIX Unistar Light XL	KREISEL IA 680
Glass fibre mesh	[IG 342]	-	-	HASIT Armie-rungsgewebe rot	RÖFIX P50 Armerungsgewebe	KREISEL Armierungsgewebe
	[IG 345]	FIXIT Armierungsgewebe 7x7	GREUTOL Armierungsgewebe 7x7	HASIT Armierungsgewebe weiß	RÖFIX P100 Armierungsgewebe	
Key Coat	[SP 300]	FIXIT 475 Grudierung für min. Deckputze	GREUTOL Voranstrich mineral	HASIT Putzgrund UNI	RÖFIX Putzgrund UNI	KREISEL SP 300
	[SP 310]	FIXIT 471 Putzgrund Premium	GREUTOL Voranstrich UNI	HASIT Putzgrund PREMIUM	RÖFIX Putzgrund Premium	KREISEL SP 310

Product	Fixit-Group	FIXIT	GREUTOL	HASIT	RÖFIX	KREISEL
Finishing Coat (Powder)	[SE 714]	FIXIT 777 Edelputz	GREUTOL Edelputz 400 Vollabrieb / Rillenstruktur	HASIT 715 OPTI Scheibenputz HASIT 705 Kornstrukturputz HASIT 250 Renoplus HASIT 252 Renodesign	RÖFIX SE 714	KREISEL SE 714
	[SE 715]	FIXIT 777 Edelputz	GREUTOL Edelputz 400 Vollabrieb / Rillenstruktur	HASIT 704 OPTI Kratzputzstruktur HASIT 706 OPTI Edelkratzputzstruktur	RÖFIX 715 Edelputz Spezial RÖFIX 776 Schlämm- und Waschputz	KREISEL SE 715
	[SE 716]	FIXIT SE 716	GREUTOL SE 716	HASIT 710 LITHIN Rillenputzstruktur	RÖFIX SE 716	KREISEL SE 716
	[SE 750]	FIXIT 764 Kellenwurf	GREUTOL Kellenwurf 300	HASIT 700 LITHIN Kellenwurf	RÖFIX 750 Kellenwurf	KREISEL SE 750
	[SE 772]	FIXIT SE 772	GREUTOL SE 772	HASIT SE 772	RÖFIX 772 Kratzputz	KREISEL SE 772
	[SE 773]	FIXIT 793 Steinputz	GREUTOL Steinputz 793	HASIT 725 Kratzputz opti 1	RÖFIX 773 Stoneline	KREISEL SE 773
	[SE 799]	FIXIT 745 Designputz	GREUTOL Multimörtel 406 / GREUTOL Multispachtel 407	HASIT SE 799	RÖFIX Designputz	KREISEL SE 799
Finishing Coat (Paste)	[SE 210]	Silikatputz aussen	Silikatputz aussen	HASIT SE 210 Mineral	RÖFIX Silikatputz RÖFIX GREEN	KREISEL Silikatputz
	[SE 310]	FIXIT 710 Universal Kunstharzputz	GREUTOL Deckputz aussen Vollabrieb Univrsal	HASIT SE 310 ELAST	RÖFIX Kunstharzputz	KREISEL Kunstharzputz
	[SE 410]	FIXIT 740 Si Silikonharzputz	GREUTOL Silikondeckputz 365/366	HASIT SE 410 PROTECT	RÖFIX Silikonharzputz Protect, RÖFIX Silikonharzputz Premium, RÖFIX FIBRA, RÖFIX DARK, RÖFIX SIL	KREISEL Silikonharzputz Protect
	[SE 510]	FIXIT 740 SI Silikonharzputz	GREUTOL Silikonharz Deckputz 361 / 360	HASIT SE 510 SISI VITAL	RÖFIX SiSi- Putz Vital, RÖFIX SiSi- Putz Kreativ, SiSi-Futura	KREISEL SiSi-Putz Vital
	[SE 520]	FIXIT Anticofino	-	HASIT SE 520	RÖFIX Anticofino	FIXIT Anticofino
	[SE 530]	FIXIT Decofino	-	HASIT SE 530	RÖFIX Decofino	KREISEL Decofino
Finishing Paint	[PE 229]	Fixit 784 OF	GREUTOL GreoColor OptiSilc OF	HASIT PE 228 SILICATE SOL	RÖFIX PE 229 SOL SILIKAT	KREISEL PE 229
	[PE 319]	Fixit 782	GREUTOL Greo Color OptiTop	HASIT PE 319 OUT SIDE	RÖFIX PE 319 OUT SIDE	KREISEL PE 319
	[PE 410]	Fixit 785 evo	GREUTOL Greo Color Dispersion Aussen	HASIT PE 410 EGALISATION	RÖFIX PE 410 EGALISATION	KREISEL PE 410
	[PE 419]	FIXIT PE 419		HASIT PE 419	RÖFIX PE 419 ETICS	KREISEL PE 419
	[PE 429]	FIXIT PE 429	GREUTOL Greo Color OptiSilc	HASIT PE 429 SILOSAN	RÖFIX PE 429 SILOSAN	KREISEL PE 429
	[PE 516]	Fixit 786	-	HASIT PE 516 SISI MICRO	RÖFIX PE 516 SISI MICRO	KREISEL PE 516
	[PE 519]	Fixit 786 Si Silikat-Slikon-Überrolfarbe	GREUTOL OptiTop	HASIT PE 519 SISI OUT DOOR, HASIT PE 519 SISI IMPRESSIVE	RÖFIX PE 519 PREMIUM SISI, RÖFIX PE 519 PREMIUM DARK	KREISEL PE 519

Note: Finishing paints optional for [SE 714], [SE 715], [SE 716], [SE 717], [SE 750], and [SE 799].