

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-06/0152
of 13 March 2024

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"RELIUS WDV-System V 710-V 810"

Product family
to which the construction product belongs

Product area code: 4
External Thermal Insulation Composite System with
rendering on mineral wool intended for use on building
walls.

Manufacturer

RELIUS Farbenwerke GmbH
Heimertinger Straße 10
87700 Memmingen
DEUTSCHLAND

Manufacturing plant

RELIUS Farbenwerke GmbH
Heimertinger Straße 10
87700 Memmingen
DEUTSCHLAND

This European Technical Assessment
contains

17 pages including 5 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

040083-00-0404

This version replaces

ETA-06/0152 issued on 14 June 2018

European Technical Assessment

ETA-06/0152

English translation prepared by DIBt

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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 is comprised a prefabricated insulation product of mineral wool (MW) to be bonded and if necessary additional mechanically fixed onto a wall.

The walls are made of masonry (bricks, blocks, stones...) or concrete (cast on site or as prefabricated panels). The methods of fixing and the relevant components are specified in annex 1 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 panels, 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 in accordance with the applicable European assessment Document

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 "RELIUS WDV-System V 710-V 810" 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 in relation 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	(see annex 2) Euroclass according to EN 13501-1
Reaction to fire of the MW-insulation product <ul style="list-style-type: none"> - Cross heat of combustion for the MW-insulation product EN ISO 1716 - Apparent density EN 1602 	(see annex 2) Euroclass A1 according EN 13501-1 Value [MJ/kg] Value [kg/m ³]
Facade fire performance	no performance assessed
Propensity to undergo continuous smouldering of ETICS	no performance assessed

3.2 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance
Release of dangerous substances	no performance assessed
Water absorption Base coat after 1 hour after 24 hours	(see annex 3.1) Average [kg/m ²] Average [kg/m ²]
Rendering system after 1 hour after 24 hours	Average [kg/m ²] Average [kg/m ²]
MW insulation product after 24 hours	Maximum value 3.0 kg/m ²
Water-tightness of the ETICS Hygrothermal behaviour on the test wall	Pass without defects
Water-tightness of the ETICS: Freeze/thaw behaviour	The water absorption of the base coats as well as the rendering systems with all finishing coats except "RELIUS Mineralputz" is less than 0.5 kg/m ² after 24 hours. The ETICS with the finishing coat "RELIUS Mineralputz" has been assessed as freeze/thaw resistant according to the simulated method.
Impact resistance	(see annex 3.2) Category
Water vapour permeability - Rendering system - MW insulation product	(see annex 3.3) s _d value [m] μ = 1 Thickness of the insulation product 200 mm

3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
<p>Bond strength</p> <p>between base coat and MW insulation product</p> <p>between adhesive and substrate</p> <p>between adhesive and MW insulation</p>	<p>(see annex 4.1)</p> <ul style="list-style-type: none"> - Minimal value/average [kPa], - Minimal value/average [kPa] <p>(see annex 4.2)</p> <ul style="list-style-type: none"> - Thickness [mm] of the used adhesives - Minimal value [kPa] - Minimal value/average [kPa] - Minimal value/average [kPa] <p>(see annex 4.3)</p> <ul style="list-style-type: none"> - Thickness [mm] of the used adhesives - Minimal value [kPa] - Minimal value/average [kPa] - Minimal value/average [kPa]
<p>Fixing strength (displacement test)</p>	<p>Test not required therefore no limitation of ETICS length required.</p>
<p>Wind load resistance of ETICS</p> <p>pull-through test of fixing</p> <p>static foam block test</p>	<p>(see annex 4.4)</p> <ul style="list-style-type: none"> - R_{panel} [kN/fixing], - R_{joint} [kN/fixing], - Plate diameter of anchor ≥ 60 mm, ≥ 90 mm res. ≥ 140 mm - plate stiffness ≥ 0.3 kN/mm² - load resistance of the anchor plate ≥ 1.0 kN
<p>Tensile strength perpendicular to the faces</p> <p>in dry conditions</p> <p>MW panel</p> <p>MW lamella</p> <p>in wet conditions</p> <ul style="list-style-type: none"> - series 2 - series 3 	<p>$\sigma_{\text{mt}} \geq 14$ kPa, $\sigma_{\text{mt}} \geq 5$ kPa (mechanically fixed ETICS with anchors and supplementary adhesive)</p> <p>$\sigma_{\text{mt}} \geq 80$ kPa (bonded ETICS)</p> <p>≥ 33 % of average value in dry conditions</p> <p>≥ 50 % of average value in dry conditions</p>

Essential characteristic	Performance
Shear strength of the ETICS MW panel $\sigma_{mt} \geq 14$ kPa MW lamella $\sigma_{mt} \geq 80$ kPa MW panel $\sigma_{mt} \geq 5$ kPa	≥ 20 kPa ≥ 20 kPa ≥ 6 kPa
Shear modulus of the ETICS MW panel $\sigma_{mt} \geq 14$ kPa MW lamella $\sigma_{mt} \geq 80$ kPa MW panel $\sigma_{mt} \geq 5$ kPa	≥ 1.0 MPa ≥ 1.0 MPa ≥ 0.3 MPa
Render strip tensile test	(see annex 4.6) Crack width w_{rk} [m]
Bond strength after ageing finishing coat tested on the rig finishing coat not tested on the rig	(see annex 4.5) Minimal value/average [kPa], rupture type Minimal value/average [kPa], rupture type
Tensile strength of the glass fibre mesh in the as-delivered state	(see annex 4.7)
Residual tensile strength of the glass fibre mesh after aging	(see annex 4.7)
Relative residual tensile strength of the glass fibre mesh after aging	(see annex 4.7)
Elongation of the glass fibre mesh in the as-delivered state	(see annex 4.7)
Elongation of the glass fibre mesh after aging	(see annex 4.7)

3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
Airborne sound insulation of ETICS	no performance assessed
Dynamic stiffness of the MW insulation product	no performance assessed
Air flow resistance of the MW insulation product	no performance assessed

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance of ETICS	(see annex 5) Calculated value or measurement value R [(m ² · K)/W]
Thermal transmittance of ETICS	(see annex 5) Calculated value or measurement value U [W/(m ² · K)]

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

In accordance with EAD No. 040083-00-0404 the applicable European legal act is: 97/556/EC changed by 2001/596/EC.

The systems to be applied are:

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"RELIUS WDV-System V 710-V 810"	ETICS 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+
	ETICS in external wall not subject to fire regulations	any	2+
<p>⁽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)</p> <p>⁽²⁾ Products/materials not covered by footnote (1)</p> <p>⁽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)</p>			

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 13 March 2024 Deutsches Institut für Bautechnik

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beglaubigt:
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Annex 1

Composition of the ETICS

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	Bonded ETICS: <ul style="list-style-type: none"> • Insulation product factory-prefabricated mineral wool (MW) product* <ul style="list-style-type: none"> - MW lamella • Adhesives <ul style="list-style-type: none"> - RELIUS WDVS PHS KLEBER (cement based powder requiring addition of about 25 % of water) - RELIUS WDVS K.A.M. (cement based powder requiring addition of about 25 % of water) 	<div style="display: flex; align-items: center; justify-content: center;"> } <div style="margin-left: 10px;">ca. 4.0 (powder)</div> </div>	<div style="display: flex; align-items: center; justify-content: center;"> } <div style="margin-left: 10px;">≤ 200</div> </div>
	Mechanically fixed ETICS with anchors and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product factory-prefabricated mineral wool (MW) product* <ul style="list-style-type: none"> - MW panel - MW lamella • Supplementary adhesive (equal to bonded ETICS) • Anchors for insulation product all anchors with ETA according to EAD330196-00-0604¹ 	–	60 to 200
Base coat	RELIUS WDVS K.A.M. Identical with the equally named adhesive given above.	3.5 to 12.0 (powder)	On average: 3.0 to 10.0 (dry)
Glass fibre mesh	RELIUS GITTERGEWEBE Alkali- and slide-resistant glass fibre mesh with mass per unit area of about ca. 165 g/m ² and mesh size of about ca. 4.0 mm x 4.0 mm.	–	–
Key coat	RELIUS UNIVERSAL PUTZGRUND**** Ready to use pigmented acrylic-resin dispersion liquids For the compatibility with the finishing coats see below.	0.2 to 0.3 l/m ²	–

¹ EAD330196-01-0604

Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering (and previous versions)

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Finishing coat	<p>To use without key coat***:</p> <ul style="list-style-type: none"> Cement based powder requiring addition of about 27 % of water <p>RELIUS MINERALPUTZ RELIUS MINERAL-KRATZPUTZ** (particle size 2.0 to 3.0 and 4.0 mm) RELIUS MINERAL-RILLENPUTZ** (particle size size 2.0 to 3.0 and 4.0 mm) RELIUS WASCHELPUTZ (particle size 0.5 and 1.5 mm)</p>	<p>3.0 to 4.5 3.0 to 4.5</p> <p>4.0 to 11.0 (powder)</p>	<p>} regulated by particle size</p> <p>3.0 to 8.0</p>
Finishing coat	<p>To use with key coat "RELIUS UNIVERSAL PUTZGRUND" if applicable***:</p> <ul style="list-style-type: none"> Ready to use pastes – potassium RELIUS SILATPUTZ RELIUS SILAT EDELPUTZ K** (particle size 1.5 to 2.0 and 3.0 mm) RELIUS SILAT RILLENPUTZ R** (particle size 1.5 to 2.0 and 3.0 mm) Ready to use pastes – silicate/acrylic-resin: RELIUS SILCOSANPUTZ RELIUS SILCOSAN-KRATZPUTZ K** (particle size 1.5 and 2.0 mm) RELIUS SILCOSAN RILLENPUTZ R** (particle size 1.5 and 2.0 mm) Thin layered cement based powder requiring addition of about 27 % of water: RELIUS MINERAL STRUKTURPUTZ RELIUS MINERAL-KRATZPUTZ** (particle size 2.0 to 3.0 and 4.0 mm) RELIUS MINERAL-RILLENPUTZ** (particle size 3.0 and 4.0 mm) 	<p>2.8 to 5.0</p> <p>2.0 to 3.0</p> <p>3.5 to 4.5 (powder)</p>	<p>} Regulated by particle size</p>
Ancillary material	Remain under the manufacturer's responsibility.		
<p>* Factory-prefabricated panels and lamella made of mineral wool (MW) to EN 13162 with the following designation code and the other properties shall be used, provided that the manufacturer and the trade name of the MW are deposited with the DIBt. MW – EN 13162 – T5 – DS(T+) – WS – WL(P) – MU1</p> <p>** K / KM / R / RM indicates different structures of the finishing coats.</p> <p>*** The instruction to the installer concerning the use of a key coat remains the responsibility of the manufacturer.</p>			

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	max. 2.5 %	no flame retardant	A2 - s1,d0
Mineral wool insulation product	Euroclass A1 according to EN 13501-1	no flame retardant	
anchors	-	-	
Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1:			
RELIUS MINERALPUTZ RELIUS MINERAL STRUKTURPUTZ	max. 2.15%	no flame retardant	
RELIUS SILATPUTZ	max. 4.0 %	min. 8.0 %	
RELIUS SILCOSANPUTZ	max. 6,5 %	min. 5.0 %	

2.2 Cross heat of combustion for the MW-insulation product EN ISO 1716

PCS ≤ 1.1 MJ/kg

2.3 Apparent density EN 1602

Description and characteristics	MW panel	MW panel	MW lamella
Tensile strength perpendicular to the faces [kPa]; EN 1607 - in dry conditions*	$\sigma_{mt} \geq 14$	$\sigma_{mt} \geq 5$	$\sigma_{mt} \geq 80$
Apparent density [kg/m ³]; EN 1602	$120 \leq \rho_a \leq 150$	$100 \leq \rho_a \leq 150$	$80 \leq \rho_a \leq 150$
* Minimal value of all single values			

Annex 3

Hygiene, health and environment (BWR 3)

3.1 Water absorption (capillarity test)

Base coat:

Base coat	Thickness	Average water absorption [kg/m ²]	
		after 1h	after 24h
RELIUS WDVS K.A.M.	10 mm	0.02	0.25

Rendering system:

Finishing coat with base coat "RELIUS WDVS K.A.M." and compatible key coat indicated hereafter	Thickness	Average water absorption [kg/m ²]	
		after 1h	after 24h
RELIUS MINERALPUTZ	Base coat: 4 mm Finishing coat: 4 mm	0.25	0.77
RELIUS MINERAL STRUKTURPUTZ	Base coat: 4 mm Finishing coat: 4 mm	0.14	0.41
RELIUS SILATPUTZ	Base coat: 4 mm Finishing coat: 1,5 mm	0.02	0.23
RELIUS SILCOSANPUTZ	Base coat: 4 mm Finishing coat: 1,5 mm	0.07	0.44

3.2 Impact resistance

Rendering system: Base coat "RELIUS WDVS K.A.M." with finishing coat and compatible key coat indicated hereafter	Single mesh: "RELIUS GITTERGEWEBE"
RELIUS UNIVERSAL PUTZGRUND und RELIUS SILATPUTZ	Category I
RELIUS UNIVERSAL PUTZGRUND und RELIUS SILCOSANPUTZ	Category I
RELIUS UNIVERSAL PUTZGRUND und RELIUS MINERAL STRUKTURPUTZ	Category II
RELIUS MINERALPUTZ	Category II

3.3 Water vapour permeability

Rendering system: Base coat "RELIUS WDVS K.A.M." with finishing coat and compatible key coat indicated hereafter	Equivalent air thickness s_d
RELIUS UNIVERSAL PUTZGRUND und RELIUS SILCOSANPUTZ	≤ 1.0 m (Test result obtained with structure K, particle size 3 mm: 0.3 m)
RELIUS UNIVERSAL PUTZGRUND und RELIUS SILATPUTZ	≤ 1.0 m (Test result obtained with structure K, particle size 3 mm: 0.2 m)
RELIUS UNIVERSAL PUTZGRUND und RELIUS MINERAL STRUKTURPUTZ	≤ 1.0 m (Test result obtained with structure KM, particle size 4 mm: 0.2 m)
RELIUS MINERALPUTZ	≤ 1.0 m (Test result obtained with structure KM, particle size 4 mm: 0.1 m)

Annex 4

Safety and accessibility in use (BWR 4)

4.1 Bond strength between base coat and MW lamella

		Conditioning		
		Initial state [kPa]	After hygrothermal cycles [kPa]	After freeze/thaw test
RELIUS WDVS K.A.M.	Average	no performance assessed	no performance assessed	Test not required because freeze/thaw cycles not necessary
	Minimal value	no performance assessed	no performance assessed	

4.2 Bond strength between adhesive and substrate

Substrate: concrete		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 hrs. drying [kPa]	2 d immersion in water and 7 days drying [kPa]
RELIUS WDVS PHS KLEBER (3 – 5 mm)	Average	540	900	1800
	Minimal value	290	560	1290
RELIUS WDVS K.A.M. (3 – 5 mm)	Average	700	no performance assessed	no performance assessed
	Minimal value	570	no performance assessed	no performance assessed

4.3 Bond strength between adhesive and MW lamella

		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 hrs. drying [kPa]	2 d immersion in water and 7 days drying [kPa]
RELIUS WDVS PHS KLEBER (3 – 5 mm)	Average	40*	30	30*
	Minimal value	30*	30	30*
RELIUS WDVS K.A.M. (3 – 5 mm)	Average	no performance assessed	no performance assessed	no performance assessed
	Minimal value	no performance assessed	no performance assessed	no performance assessed

* < 80 kPa, but failure in the insulation product

minimal bonded surface area

$$S [\%] = 0.03 \text{ N/mm}^2 \times 100 / 0.08 \text{ N/mm}^2$$

$$S = 37,5 \%$$

The minimal bonded surface S of bonded ETICS is 50 % (systemic).

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4.4 Wind load resistance

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product.

4.4.1 Safety in use of mechanically fixed ETICS using anchors

Failure loads – table 1

Apply to all anchors listed in the annex 1 mounted on the insulation panels surface			
Characteristics of the MW panels	Thickness		≥ 60 mm
	Tensile strength perpendicular to the faces		≥ 14 kPa
Plate diameter of anchor			≥ Ø 60 mm
Failure load [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R _{panel}	Minimal: 0.65 Average: 0.74
	Anchors placed at the panel joints (Static Foam Block Test)	R _{joint}	Minimal: 0.59 Average: 0.61
	Anchors not placed at the panel joints (Pull-through test, dry conditions)	R _{panel}	Minimal: 0.64 Average: 0.60
	Anchors not placed at the panel joints (Pull-through test, wet conditions) - series 2* - series 3*	R _{panel}	Minimal: 0.36 Average: 0.39 Minimal: 0.41 Average: 0.45
* according to EAD 040083-00-0404 clause 2.2.14.2			

Failure loads – table 2

Apply to all anchors listed in the annex 1 mounted on the insulation panels surface				
Characteristics of the MW panels		Thickness		≥ 80 mm
		Tensile strength perpendicular to the faces		≥ 5.0 kPa
Plate diameter of anchor			≥ Ø 90 mm	≥ Ø 140 mm
Failure load [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R _{panel}	Minimal: 0.48 Average: 0.49	Minimal: 0.56 Average: 0.69
	Anchors placed at the panel joints (Static Foam Block Test)	R _{joint}	Minimal: 0.38 Average: 0.39	Minimal: 0.44 Average: 0.54
	Anchors not placed at the panel joints (Pull-through test, dry conditions)	R _{panel}	Minimal: 0.54 Average: 0.61	no performance assessed
	Anchors not placed at the panel joints (Pull-through test, wet conditions) - series 2*	R _{panel}	Minimal: 0.40 Average: 0.46	no performance assessed
* according to EAD 040083-00-0404 clause 2.2.14.2				

Failure loads – Table 3

Apply to all anchors listed in the annex 1 mounted on the insulation panels surface				
Characteristics of the MW lamella		Thickness		≥ 60 mm
		Tensile strength perpendicular to the faces		≥ 80 kPa
Plate diameter of anchor			≥ Ø 140 mm	
Failure load [kN]	Anchors placed at the panel joints (Pull-through test, dry condition)	R _{joint}	Minimal: 0.62 Average: 0.66	
	Anchors placed at the panel joints (Pull-through test, wet condition)	R _{joint}	Minimal: 0.51 Average: 0.57	
	Anchors placed at the panel joints (Static Foam Block Test)	R _{joint}	Minimal: 0.71	

The failure loads specified above with a plate diameter of anchor of 60 mm apply to the following anchors with deep mounting only under the following conditions:

Anchor	Thickness of the MW panel [t]	Conditions of installation*
ejotherm STR U (ETA-04/0023)	t ≥ 80 mm	<ul style="list-style-type: none"> – Maximum installation depth of the anchor plate: 15 mm (≅ thickness of insulation cover) – Cutting depth 20 mm
	t ≥ 100 mm	<ul style="list-style-type: none"> – Maximum installation depth of the anchor plate: 15 mm (≅ thickness of insulation cover) – Cutting depth 35 mm
* according to the appropriate ETA of anchor		

4.5 Bond strength after aging

Base coat "RELIUS WDVS K.A.M." with finishing coat and key coat indicated hereafter		7 d immersion in water and 7 d drying [kPa]	After hygrothermal cycles [kPa]
RELIUS MINERALPUTZ	Average	no performance assessed	
	Minimal value	no performance assessed	
RELIUS MINERAL STRUKTURPUTZ	Average	no performance assessed	
	Minimal value	no performance assessed	
RELIUS SILATPUTZ	Average	no performance assessed	
	Minimal value	no performance assessed	
RELIUS SILCOSANPUTZ	Average	no performance assessed	
	Minimal value	no performance assessed	

4.6 Render strip tensile test

The average value of crack width of the base coats reinforced with the different glass fibre meshes measured at a render strain value of 1 % is:

Base coat	Glass fibre mesh	Average value of crack width w_m (1%)
RELIUS WDVS K.A.M.	RELIUS GITTERGEWEBE	0.15 mm

4.7 Reinforcement (glass fibre mesh)

RELIUS GITTERGEWEBE	Average warp	Average weft
Tensile strength in as-delivered state	2438 N / 50 mm	2872 N / 50 mm
Residual tensile strength after aging	1267 N / 50 mm	1607 N / 50 mm
Relative residual tensile strength after aging	51.97 %	64.95 %
Elongation in as-delivered state	no performance assessed	no performance assessed
Elongation after aging	no performance assessed	no performance assessed

Annex 5

Energy economy and heat retention (BWR 6)

5.1 Thermal resistance and thermal transmittance

The nominal value of the additional thermal resistance R provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946 from the nominal value of the insulation product's thermal resistance R_D given accompanied to the CE marking and from the thermal resistance of the rendering system R_{render} which is about $0.02 \text{ (m}^2 \cdot \text{K)/W}$.

$$R = R_D + R_{render}$$

The thermal bridges caused by mechanical fixing (anchors, profiles) increases the thermal transmittance U . This influence had to take into account according to EN ISO 6946

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

Where: U_c :	corrected thermal transmittance [$\text{W}/(\text{m}^2 \cdot \text{K})$]
n :	number of anchors per m^2
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:
$\chi_p = 0.004 \text{ W/K}$	for anchors with a galvanized steel screw with the head covered by a plastic material
$\chi_p = 0.002 \text{ W/K}$	for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw