

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

Draft ETA-10/0206 of 21 October 2019

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

SAKRET WDV-System Mineralwolle

Product family
to which the construction product belongs

Product area code: 4
External Thermal Insulation Composite System with
rendering on mineral wool for the use as external
insulation on building walls

Manufacturer

SAKRET GmbH
Osterhagener Straße 2
37431 Bad Lauterberg
DEUTSCHLAND

Manufacturing plant

SAKRET GmbH
Osterhagener Straße 2
37431 Bad Lauterberg
DEUTSCHLAND

This European Technical Assessment
contains

20 pages including 4 annexes which form an integral part
of this assessment

Annex 5 Control Plan contains confidential information
and is not included in the European Technical
Assessment when that assessment is publicly available

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

ETAG 004, edition 2000, amended 2013,
used as EAD according to Article 66 Paragraph 3 of
Regulation (EU) No 305/2011.

This version replaces

ETA-10/0206 issued on 27 September 2018

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

1.1 Definition 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. It's made up on site from these. 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 mineral wool (MW) to be bonded and if it 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 or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) 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.

1.2 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:		
	• Insulation product (see annex 1 for product characteristics) factory-prefabricated mineral wool (MW) product - MW lamella	–	≤ 400
	• Adhesives		
	- SAKRET Klebe- und Armierungsmörtel KAM (cement based powder requiring addition of about 20 - 25 % of water)	4.0 to 5.0 (prepared)	–
	- SAKRET Klebe- und Armierungsmörtel KAM-san (cement based powder requiring addition of about 20 - 25 % of water)	4.0 to 5.0 (prepared)	–
	- SAKRET Baukleber BK (zementgebundener) (cement based powder requiring addition of about 20 - 25 % of water)	about 4.0 (prepared)	–
	- SAKRET Klebe- und Armierungsmörtel leicht KAM-I (cement based powder requiring addition of about 25 - 30 % of water)	3.0 to 4.0 (prepared)	–
- SAKRET Klebe- und Armierungsmörtel KAM-E (cement based powder requiring addition of about 25 - 30 % of water)	3.0 to 4.0 (prepared)	–	

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	Mechanically fixed ETICS with profiles and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product (see annex 1 for product characteristics) factory-prefabricated mineral wool (MW) product <ul style="list-style-type: none"> - MW panel, $\sigma_{mt} \geq 14$ kPa • Supplementary adhesive (equal to bonded ETICS) • Profiles (see annex 3 for product characteristics) <ul style="list-style-type: none"> - SAKRET Halteleiste - SAKRET Verbindungsleiste Aluminium (Al) – profiles • Anchors for profiles (see annex 2 for product characteristics) <ul style="list-style-type: none"> - WS 8 L - ejothem SDK U - SDF-K plus - ejothem NK U • Anchors for insulation product if necessary (equal to mechanically fixed ETICS with anchors and supplementary adhesive, see below) 	–	60 to 200
	Mechanically fixed ETICS with anchors and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product (see annex 1 for product characteristics) 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 EAD330196-01-0604¹ with characteristics defined in annex 2 	– –	60 to 340 60 to 200
Base coat	SAKRET Klebe- und Armierungsmörtel KAM SAKRET Klebe- und Armierungsmörtel KAM-san SAKRET Klebe- und Armierungsmörtel leicht KAM-I SAKRET Klebe- und Armierungsmörtel KAM-E Identical with the equally named adhesives given above.	6.0 to 7.0 6.0 to 7.0 about 4.5 3.5 to 5.5	3.5 to 6.0 3.5 to 6.0 3.5 to 6.0 5.0 to 7.0

¹ EAD330196-01-0604 Plastic anchors for fixing of external thermal insulation composite systems with rendering

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Base coat	SAKRET Klebe- und Armierungsmörtel Panzer KAM P Thin layered cement base powder requiring addition of 25 – 30 % of water, vinyl acetate ethylene dispersion -with SAKRET Armierungsgewebe -with SAKRET Panzergewebe und SAKRET Armierungsgewebe	5.5 to 9.0	3.0 to 5.0 5.0 to 8.0
Glass fibre mesh	SAKRET Armierungsgewebe Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm. (see annex 4 for product characteristics) Sakret Panzergewebe Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 335 g/m ² and mesh size of about 6.0 mm x 5.0 mm. (see annex 4 for product characteristics)	– –	– –
Key coat	SAKRET Putzgrund PG* Ready to use pigmented acrylic-resin dispersion liquid For the compatibility with the finishing coats see below		
Finishing coat	To use with key coat "SAKRET Putzgrund PG" if applicable: * <ul style="list-style-type: none"> • Ready to use paste – acrylic-silicate binder: SAKRET Silikatputz SK - Rillen-Reibputz (R) (particle size 1,5 – 2.0 and 3.0 mm) - Kratzputzstruktur (K) (particle size 1,5 – 2.0 and 3.0mm) • Ready to use paste – vinyl azetate binder: SAKRET Silikonharzputz SHP-K (particle size 1.5 – 2.0 und 3.0 mm) • Thin layered cement base powder requiring addition of about 25 % of water: SAKRET Modellierputz MP (particle size 1 and 2 mm) SAKRET Scheibenputz SBP (particle size 2 – 3 and 5 mm) SAKRET Edelleichtputz ELP - Rillenputzstruktur (R) (particle size 2.0 and 3.0 mm) - Scheibenputz-Struktur (K) (particle size 2.0 and 3.0 mm) SAKRET Münchner Rauputz extra MRPe (particle size 2 .0– 3.0 and 5.0 mm) SAKRET Klebe- und Armierungsmörtel KAM** 	2.5 to 4.5 2.5 to 4.5 2.3 to 4.2 3.0 to 6.0 (prepared) 2.7 to 5.5 (prepared) 2.3 to 3.3 1.8 bis 2.5 2.7 bis 6.0 (prepared) 2.5 to 3.0	regulated by partiale size 1.5 to 2.5

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Finishing coat	Application without key coat: <ul style="list-style-type: none"> Thick layered cement base powder requiring addition of about 25 % of water: SAKRET Kratzputz KP (particle size 3.0 mm) 	about 22.5 (prepared before scraping) about 14.0 (finished)	15.0 mm 8.0 to 12.0 mm
Ancillary material	Remains the responsibility of the manufacturer.		
* The instruction to the installer concerning the use of a key coat remains the responsibility of the ETA-holder.			
** The finishing coat "SAKRET Klebe- und Armierungsmörtel KAM" has to be used with the equally named base coat exclusively.			

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

2.1 Intended use

This ETICS is intended to be used as external insulation to the walls of buildings made of masonry (bricks, blocks, stones ...) or concrete (cast on site or as prefabricated panels) with and without rendering. 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. It shall be designed to give the wall to which it is applied satisfactory thermal insulation.

The ETICS is non load-bearing construction element. 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 effects of weathering.

The ETICS can be used on new or existing (retrofit) vertical walls.

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

The choice of the method of fixing depends on the characteristics of the substrate, which could need preparation (see clause 7.2.1 of ETAG 004) and on the national instructions.

The verifications and assessment methods on which this European Technical Assessment (hereinafter called ETA) is based lead to the assumption of a working life of the ETICS "SAKRET WDV-System Mineralwolle" 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.

2.2 Manufacturing

The ETA is issued for the ETICS on the basis of agreed data/information, deposited with the DIBt, which identifies the ETICS that has been assessed and judged. Changes to the ETICS or the components or their production process, which could result in this deposited data/information being incorrect, should be notified to the DIBt before the changes are introduced. The DIBt will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

2.3 Design and installation

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

Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different. Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the chapters 7.1 and 7.2 of ETAG 004 used as EAD, which 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 Packing, 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 to ensure that this information is made know to the concerned people.

2.5 Use, maintenance, 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 localised damaged areas due to accidents,
- the aspect maintenance with products adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

Only products which are compatible with the ETICS shall be used.

Necessary repairs should be performed 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 know to the concerned people.

3 Characteristics of products and methods of verification

3.0 General

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Annexes 1 to 4.

3.1 Mechanical resistance and stability (BWR 1)

not relevant

3.2 Safety in case of fire (BWR 2)

Reaction to fire (ETAG 004 - clause 5.1.2)

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1:2007
Base coat	max. 9.1 %	no flame retardant	
Mineral wool insulation product	in quantity ensuring Euroclass E according to EN 13501-1	no flame retardant	
Profile	-	-	
Anchors	-	-	
rendering system : Base coat with finishing coat and compatible key coat indicated in clause 1.2:			
SAKRET Silikatputz SK	max. 5.0 %	no flame retardant	A2 - s2,d0
SAKRET Siliconharzputz SHP-K	max. 7.5 %		A2 - s1,d0
SAKRET Modellierputz MP SAKRET Scheibenputz SBP SAKRET Edelleichtputz ELP SAKRET Münchner Rauputz extra MRPe SAKRET Klebe- und Armierungsmörtel KAM SAKRET Kratzputz KP	max. 2.8 %		

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Water absorption (capillarity test) (ETAG 004 - clause 5.1.3.1)

Base coat	Water absorption after 1 h < 1.0 kg/m ²	Water absorption after 24 h < 0.5 kg/m ²
SAKRET Klebe- und Armierungsmörtel KAM	x	x
SAKRET Klebe- und Armierungsmörtel KAM-san	x	x
SAKRET Klebe- und Armierungsmörtel leicht KAM-I	x	x
SAKRET Klebe- und Armierungsmörtel KAM-E	x	x
SAKRET Klebe- und Armierungsmörtel Panzer KAM P	x	x

English translation prepared by DIBt

Rendering system:

		Water absorption after 24 h	
		< 0.5 kg/m ²	≥ 0.5 kg/m ²
Rendering systems: all base coats with finishing coat and compatible key coat indicated in clause 1.2:	SAKRET Silikatputz SK	x	
	SAKRET Siliconharzputz SHP-K	x	
	SAKRET Modellierputz MP	x	
	SAKRET Scheibenputz SBP	x	
	SAKRET Edelleichtputz ELP	x	
	SAKRET Münchner Rauputz extra MRPe	x	
	SAKRET Klebe- und Armierungsmörtel KAM	x	
	SAKRET Kratzputz KP	x	

3.3.2 Hydrothermal behaviour (ETAG 004 - clause 5.1.3.2)

Pass (without defects)

3.3.3 Impact resistance (ETA G004 – clause 5.1.3.3)

Rendering system: Base coat "SAKRET Klebe- und Armierungsmörtel KAM" or "SAKRET Klebe- und Armierungsmörtel KAM-san" with finishing coat indicated hereafter:	Single standard mesh: SAKRET Armierungsgewebe
SAKRET Silikatputz SK (2 mm)	category I
SAKRET Modellierputz MP (3 mm)	category II
SAKRET Scheibenputz SBP (3 mm)	category II
SAKRET Edelleichtputz ELP (3 mm)	category II
SAKRET Münchner Rauputz extra MRPe (3 mm)	category II
SAKRET Kratzputz KP (10 mm)	category II

Rendering system: Base coat "SAKRET Klebe- und Armierungsmörtel leicht KAM-I" with finishing coat indicated hereafter:	Single standard mesh: SAKRET Armierungsgewebe
SAKRET Silikatputz SK (3 mm)	category III
SAKRET Modellierputz MP (3 mm)	category III
SAKRET Scheibenputz SBP (3 mm)	category III
SAKRET Edelleichtputz ELP (3 mm)	category III
SAKRET Münchner Rauputz extra MRPe (3 mm)	category III
SAKRET Kratzputz KP (10 mm)	category III

Rendering system: Base coat "SAKRET Klebe- und Armierungsmörtel Panzer KAM P" with finishing coat indicated hereafter:	Single standard mesh "SAKRET Armierungsgewebe" with additional "SAKRET Panzergewebe"
SAKRET Klebe- und Armierungsmörtel KAM (3 mm)	Category II
SAKRET Siliconharzputz SHP-K (2 mm)	
SAKRET Scheibenputz SPB (2 mm)	
SAKRET Silikatputz SK (2 mm)	

The impact resistance for all other combinations of base coat, finishing coat and mesh was unproved.

3.3.4 Water vapour permeability (ETAG004 – clause 5.1.3.4)

Rendering system: Base coat with finishing coat and compatible key coat indicated in clause 1.2:	Equivalent air thickness s_d
SAKRET Silikatputz SK	≤ 1.0 m (Test result obtained with a layer thickness 2 mm: 0.2 m)
SAKRET Siliconharzputz SHP-K	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.3 m)
SAKRET Modellierputz MP	≤ 1.0 m (Test result obtained with a layer thickness 1 mm: 0.1 m)
SAKRET Scheibenputz SBP	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)
SAKRET Edelleichtputz ELP	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.2 m)
SAKRET Münchner Rauputz extra MRPe	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.3 m)
SAKRET Klebe- und Armierungsmörtel KAM	≤ 1.0 m (Test result obtained with a layer thickness 5 mm: 0.1 m)
SAKRET Kratzputz KP	≤ 1.0 m (Test result obtained: 0.3 m)

3.3.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR 034)

Essential characteristic	Performance
Release of dangerous substances	no performance assessed

3.4 Safety and accessibility in use (BWR 4)

3.4.1 Bond strength between base coat and insulation product (MW-Lamelle) (ETAG 004 - clause 5.1.4.1.1)

Conditioning			
Base coat	Initial state	After hygrothermal cycles	After freeze/thaw test
SAKRET Klebe- und Armierungsmörtel KAM	≥ 0,08 MPa	< 0,08 MPa aber Versagen im Dämmstoff	Prüfung nicht erforderlich, da Frost/Tau-Zyklen nicht notwendig
SAKRET Klebe- und Armierungsmörtel KAM-san			
SAKRET Klebe- und Armierungsmörtel KAM-I		≥ 0,08 MPa	
SAKRET Klebe- und Armierungsmörtel KAM-E		≥ 0,08 MPa	
SAKRET Klebe- und Armierungsmörtel Panzer KAM-P		≥ 0,08 MPa	

3.4.2 Bond strength between base coat and substrate resp. insulation product (MW lamella) (ETAG 004 - clause 5.1.4.1.2 and 5.1.4.1.3)

Adhesive	Substrate resp. insulation product	Conditioning		
		Initial state	2 d immersion in water and 2 h drying	2 d immersion in water and 7 d drying
SAKRET Klebe- und Armierungsmörtel KAM	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	MW lamella	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
SAKRET Klebe- und Armierungsmörtel KAM-san	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	MW lamella	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
SAKRET Baukleber BK	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	MW lamella	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
SAKRET Klebe- und Armierungsmörtel leicht KAM-I	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	MW lamella	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa
SAKRET Klebe- und Armierungsmörtel KAM-E	Beton	≥ 0,25 MPa	≥ 0,08 MPa	≥ 0,25 MPa
	MW Lamelle	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

English translation prepared by DIBt

Bonded surface:

For the adhesives "SAKRET Klebe- und Armierungsmörtel KAM", "SAKRET Klebe- und Armierungsmörtel KAM-san", "SAKRET Klebe- und Armierungsmörtel KAM-E", "SAKRET Klebe- und Armierungsmörtel KAM-E", "SAKRET Klebe- und Armierungsmörtel Panzer KAM P" and "SAKRET Baukleber BK" the formula given in clause 6.1.4.1.3 of ETAG 004 is fulfilled with a bonded surface of 50 % and the use as bonded ETICS is possible.

For the adhesive "SAKRET Klebe- und Armierungsmörtel leicht KAM-l" the formula given in clause 6.1.4.1.3 of ETAG 004 is fulfilled with a bonded surface of 60 % and the use as bonded ETICS is possible.

3.4.3 Bond strength after ageing (ETAG 004 – clause 5.1.7.1):

Rendering system: Base coat with finishing coat indicated in clause 1.2	SAKRET Silikatputz SK	≥ 0.08 MPa
	SAKRET Siliconharzputz SHP-K	
	SAKRET Modellierputz MP	
	SAKRET Scheibenputz SBP	
	SAKRET Edelleichtputz ELP	
	SAKRET Münchner Rauputz extra MRPe	
	SAKRET Klebe- und Armierungsmörtel KAM	
	SAKRET Kratzputz KP	

3.4.4 Fixing strength (displacement test) (ETAG 004 - clause 5.1.4.2)

Test not required therefore no limitation of ETICS length required.

3.4.5 Wind load resistance (ETAG 004 - clause 5.1.4.3)

The following failure loads only apply to the listed combination of component characteristics and the characteristics of the insulation product given in annex 1.

3.4.5.1 Safety in use of mechanically fixed ETICS using profiles

Failure loads – Table 1

MW panels	Dimensions	625 mm x 800 mm
	Thickness	≥ 60 mm
	Tensile strength perpendicular to the faces	≥ 14 kPa
Failure loads [N/panel] (Static Foam Block Test)	Horizontal profiles with a vertical distance of 625 mm, fixed every 30 cm and vertical connection profiles No additional anchors in MW panel	Mindestwert: 1200 Mittelwert: 1250

Failure loads – Table 2

MW panels	Dimensions	625 mm x 800 mm
	Thickness	≥ 60 mm
	Tensile strength perpendicular to the faces	≥ 14 kPa
Failure loads [N/panel] (Static Foam Block Test)	Horizontal profiles with a vertical distance of 625 mm, fixed every 30 cm and vertical connection profiles Two additional anchors per MW panel , plate diameter ≥ 60 mm, mounted on the MW panel surface	Mindestwert: 2200 Mittelwert: 2400

3.4.5.2 Safety in use of mechanically fixed ETICS using anchors

Failure loads – Table 3

Apply to all anchors listed in the clause 1.2 mounted on the insulation panels surface			
Characteristics of the MW panels	Thickness		≥ 60 mm
	Tensile strength perpendicular to the faces		≥ 14 kPa
Versagenslast [N]	Anchors not placed at the panel joints (Static Foam Block Test)	R_{panel}	Mindestwert: 650 Mittelwert: 740
	Anchors placed at the panel joints (Static Foam Block Test)	R_{joint}	Mindestwert: 590 Mittelwert: 610
	Anchors not placed at the panel joints (Pull-through test, dry conditions)	R_{panel}	Mindestwert: 640 Mittelwert: 690
	Anchors not placed at the panel joints (Pull-through test, wet conditions) - series 2* - series 3*	R_{panel}	Mindestwert: 360 Mittelwert: 390 Mindestwert: 410 Mittelwert: 450
* according to ETAG 004 clause 5.2.4.1.2 test method (2)			

Failure loads – Table 4

Apply to all anchors listed in the clause 1.2 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 loads [N]	Anchors not placed at the panel joints (Static Foam Block Test)	R_{panel}	Minimal: 480 Average: 490	Minimal: 56 Average: 69
	Anchors placed at the panel joints (Static Foam Block Test)	R_{joint}	Minimal: 380 Average: 390	Minimal: 44 Average: 54
	Anchors not placed at the panel joints (Pull-through test, dry conditions)	R_{panel}	Minimal: 540 Average: 610	npd
	Anchors not placed at the panel joints (Pull-through test, wet conditions) - series 2*	R_{panel}	Minimal: 400 Average: 460	npd
* according to ETAG 004 clause 5.2.4.1.2 test method (2)				

Failure loads – Table 5

Apply to all anchors listed in clause 1.2 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 loads [N]	Anchors placed at the panel joints (Pull-through test, dry condition)	R_{joint}	Minimal: 620 Average: 660
	Anchors placed at the panel joints (Pull-through test, wet condition)	R_{joint}	Minimal: 510 Average: 570
	Anchors placed at the panel joints (Static Foam Block Test)	R_{joint}	Minimal: 710

3.4.6 Render strip tensile test (ETAG 004 – clause 5.5.4.1)

The average value of crack width of the base coat "SAKRET Klebe- und Armierungsmörtel KAM-san" reinforced with the glass fibre mesh "SAKRET Armierungsgewebe" measured at a render strain value of 0.5 % is about 0.08 mm.

The average value of crack width of the base coat coat "SAKRET Klebe- und Armierungsmörtel leicht KAM-l" reinforced with the glass fibre mesh "SAKRET Armierungsgewebe" measured at a render strain value of 1 % is about 0.11 mm.

No performance was assessed for all other combinations of base coat and reinforcement.

3.5 Protection against noise (BWR 5)

NPD (no performance assessed)

3.6 Energy economy and heat retention (BWR 6)

3.6.1 Thermal resistance

The nominal value of the additional thermal resistance R provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946:2007 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 $0.02 (m^2 \cdot K)/W$.

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

The thermal bridges caused by mechanical fixing devices (anchors profiles) increase the thermal transmittance U . This influence had to take into account according to EN ISO 6946:2007.

$$U_c = U + \Delta U$$

$$\Delta U = \Delta U_{anchor} + \Delta U_{profile}$$

$$\Delta U_{anchor} = \chi_p \cdot n$$

where: n

$$\chi_p$$

$$\chi_p = 0.004 \text{ W/K}$$

$$\chi_p = 0.002 \text{ W/K}$$

$$\Delta U_{profil} = \Psi \cdot l$$

mit Ψ

$$l$$

corrected thermal transmittance

correction term for mechanical fixing devices (anchors, profiles)

correction term for anchors

number of anchors per m^2

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 technical approval

for anchors with a galvanized steel screw with the head covered by a plastic material

for anchors with a stainless steel screw with the head covered by plastic material, and for anchors with an air gap at the head of the screw

correction term for profiles; ΔU_{profil} is determined in accordance with EN ISO 10211:2007

length thermal transmittance value of the profile [$W/(m \cdot K)$]

length of profile per m^2 [m/m^2]

4 Assessment and verification of constancy of performance 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 assessment and verification of constancy of performance system (AVCP) applies suitable following table (see Annex V to Regulation (EU) No 305/2011).

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"SAKRET WDV-System Mineralwolle"	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 bis E) ⁽³⁾ , F	2+
	in external wall not subject to fire regulations	beliebig	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 European Assessment Document (EAD)

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 21 October 2019 by Deutsches Institut für Bautechnik

Dirk Brandenburger
Head of Department

beglaubigt:
Windhorst

European Technical Assessment
ETA-10/0206
English translation prepared by DIBt

Page 16 of 20 | 21 October 2019

Annexes:

- Annex 1: Thermal insulation product characteristic
- Annex 2: Anchors
- Annex 3: Profiles
- Annex 4: Reinforcement

Annex 1: Thermal insulation product characteristic

Factory-prefabricated panels and lamella made of mineral wool (MW) to EN 13162:2008 with the following designation code and the other properties having the description in the Table below 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

Description and characteristics	MW panel	MW panel	MW lamella
Reaction to fire; EN 13501-1:2007	Class A1		
Gross heat of combustion [MJ/kg]; EN ISO 1716:2002	PCS ≤ 1.02		
Thermal resistance [(m ² · K)/W]	Defined in the CE marking in reference to EN 13162:2008		
Tensile strength perpendicular to the faces [kPa]; EN 1607:1997 - in dry conditions*	$\sigma_{mt} \geq 14$	$\sigma_{mt} \geq 5$	$\sigma_{mt} \geq 80$
- in wet conditions** Average value - series 2 - series 3	≥ 33 % of average value in dry conditions ≥ 50 % of average value in dry conditions		
Compressive strength* [kPa]; EN 826:1996	$\sigma_m \geq 40$	$\sigma_m \geq 4$	$\sigma_m \geq 40$
Apparent density [kg/m ³]; EN 1602:1996	$120 \leq \rho_a \leq 150$	$100 \leq \rho_a \leq 150$	$80 \leq \rho_a \leq 150$
Shear strength* [kPa]; EN 12090:1997	$20 \leq f_{tk} \leq 100$	$6 \leq f_{tk} \leq 100$	$20 \leq f_{tk} \leq 100$
Shear modulus [MPa]; EN 12090:1997	$1.0 \leq G_m \leq 2.0$	$0.3 \leq G_m \leq 2.0$	$1.0 \leq G_m \leq 2.0$
* Minimal value of all single values ** According to ETAG 004 clause 5.2.4.1.2 test method (2) **** Thermal insulation materials for mechanically fixed ETICS with profiles must circumferentially at the edges, 24 mm from the inner surface, get an approx. 3 mm wide and 13 to 18 mm deep groove cut-in at the factory.			

Annex 2: Anchors

All anchors with ETA according to EAD330196-01-0604 with characteristics having the description below shall be used in the mechanically fixed ETICS:

- plate diameter of anchor ≥ 60 mm resp. ≥ 90 mm or ≥ 140 mm
- plate stiffness ≥ 0.3 kN/mm
- load resistance of the anchor plate ≥ 1.0 kN

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

The anchors listed in the Table in clause 1.2 with reference to the respective ETA shall be used in the mechanically fixed ETICS with profiles for fixing the horizontal profiles.

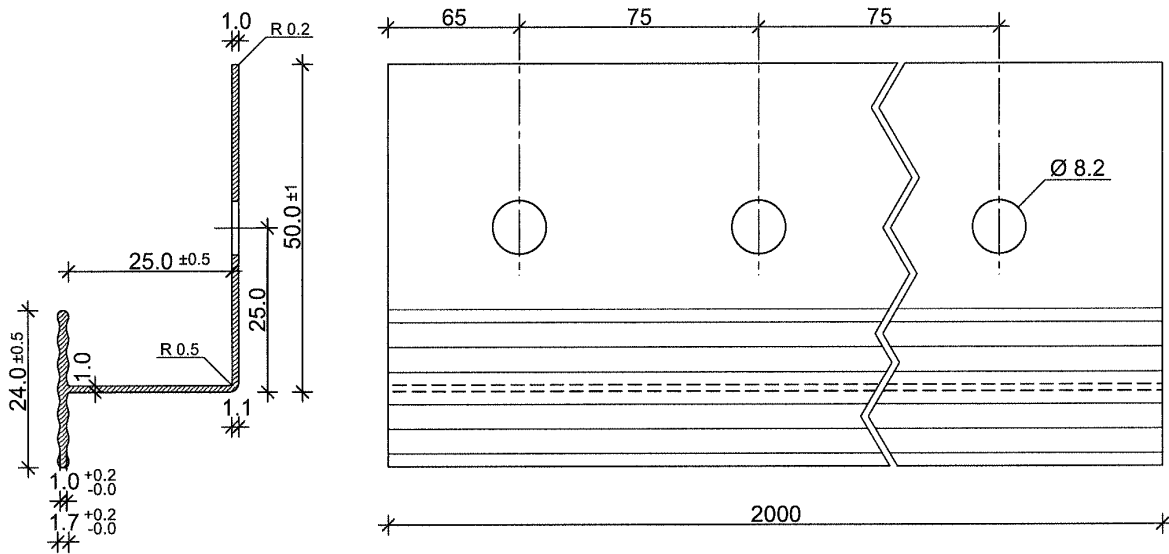
Trade name	ETA-number
WS 8 L	ETA-02/0019
ejothem SDK U	ETA-04/0023
SDF-K plus	ETA-04/0064
ejothem NK U	ETA-05/0009

Annex 3: Profiles

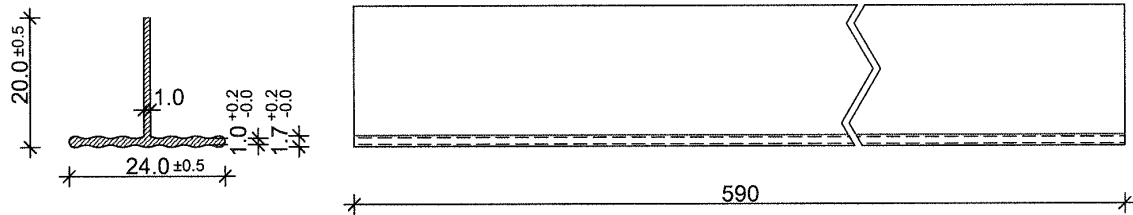
Aluminium (Al) profiles, EN AW-6060 T66 to EN 755-2:2008 are to be used in the mechanically fixed ETICS with profiles.

The Pull-through resistance of fixings from profiles is ≥ 500 N.

Horizontal profile – "SAKRET Halteleiste" (dimensions in millimetres)



Vertical connection profile – "SAKRET Verbindungsleiste" (dimensions in millimetres)



Annex 4: Reinforcement (glass fibre mesh)

Characteristics (alkali resistance): Pass

	Description	Residual strength after ageing [N/mm]	Relative residual strength after ageing, of the strength in the as-delivered state [%]
"SAKRET Armierungsgewebe"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m ² and mesh size of about 4.0 mm x 4.0 mm	≥ 20	≥ 50
"SAKRET Panzergewebe"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 335 g/m ² and mesh size of about 5.0 mm x 6.0 mm	≥ 20	≥ 50