

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0299
of 27 August 2015

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Magmax WDVS MW

Product family
to which the construction product belongs

Product area code 4
External Thermal Insulation Composite System with
rendering on mineral wool (MW) for the use as external
insulation to walls of building

Manufacturer

MAGNETIC d.o.o.
Sesvetska cesta 64
10360 SESVETE
KROATIEN

Manufacturing plant

MAGNETIC d.o.o.
Sesvetska cesta 64
10360 SESVETE
KROATIEN

This European Technical Assessment
contains

19 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

Guideline for European technical approval of "External
Thermal Insulation Composite Systems with Rendering",
ETAG 004, amended 2013,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

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Specific part

1 Technical description of the product

1.1 Definition and composition of the kit

This product is an ETICS (External Thermal Insulation Composite System) with rendering - a kit comprising components which are factory-produced by the manufacturer or component suppliers. It's made up on site from these. The ETICS manufacturer is ultimately responsible for the ETICS.

The ETICS kit comprises a prefabricated insulation product of mineral wool (MW) 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 panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) to treat details of ETICS (connections, apertures, corners, parapets, sills ...). Assessment and performance of these components is not addressed in this ETA, however the ETICS-manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

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 (see annex 1 for product characteristics) factory-prefabricated mineral wool (MW) product <ul style="list-style-type: none"> - MW lamella • Adhesives <ul style="list-style-type: none"> - Magmax Klebepachtel ds (cement based powder requiring addition of about 25 % of water) 	-	≤ 200
	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"> - "Magmax-Halteleiste Alu", - "Magmax-Verbindungsleiste Alu" Aluminium (PVC) profiles	-	60 to 200

	Components (National application documents shall be taken into account)	Coverage [kg/m ²]	Thickness [mm]
	<ul style="list-style-type: none"> Anchors for profiles (see annex 2 for product characteristics) <ul style="list-style-type: none"> - ejothem SK U - WS 8 L - WS 8 N - ejothem SDK U - IsoFux ND-8Z - SDF-K plus, SDF-S plus ejothem NK U		
Insulation material with associated method of fixing	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 adhesives (equal to bonded ETICS) Anchors for insulation product (see annex 2 for product characteristics) all anchors with ETA according to ETAG 014¹ with characteristics defined in annex 2 	– –	60 to 340 60 to 200
Base coat	Magmax Klebepachtel ds Identical with the equally named adhesives given above	6.5 – 13.0 (prepared)	5.0 – 10.0 (dry)
Glass fibre mesh	<ul style="list-style-type: none"> Standard mesh (see annex 4 for product characteristics) Magmax Armierungsgewebe M Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 210 g/m² and mesh size of about 8.0 mm x 8.0 mm 		–
Key coat	Magmax Universal-Grund Ready to use pigmented liquid - acrylic binder. To be used with all finishing coats indicated hereafter.	ca. 0,15 l/m ²	-

¹ ETAG 014

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]
Finishing coat	<p>To use with key coat "Magmax Universal-Grund" if applicable:</p> <ul style="list-style-type: none"> • Thick layered cement based powder requiring addition of about 22 % of water: <ul style="list-style-type: none"> - Magmax Edelkratzputz (particle size 2 – 3 mm) • Thin layered cement based powder requiring addition of about 27 % of water: <ul style="list-style-type: none"> - Magmax Münchner Rauhputz (particle size 2 - 3 mm) - Magmax Scheibenputz (particle size 1.5 – 2 – 3 - 4 mm) - Magmax Marmorputz (particle size 0.5 – 1 – 1.5 – 2 – 2.5 mm) • Thin layered cement based powder requiring addition of about 36 to 40 % of water: <ul style="list-style-type: none"> - Magmax Leichtedelputz (particle size 1.5 – 2 – 3 mm) • Ready to use paste – acrylic/vinyllic binder: <ul style="list-style-type: none"> - Magmax Kunstharzputz (particle size 1.5 – 2 – 3 – 4 mm) • Ready to use paste – acrylic/vinyllic/siloxane binder: <ul style="list-style-type: none"> - Magmax Silikonharzputz (particle size 1.5 – 2 – 3 mm) - Magmax Siloxanputz (particle size 1.5 – 2 – 3 mm) • Ready to use paste – silicate/acrylic binder: <ul style="list-style-type: none"> - Magmax Silikatputz (particle size 1 – 2 – 3 mm) 	<p>20.0 to 25.0 (prepared before scraping) About 14.0 (finished)</p> <p>3.5 to 5.0 (prepared)</p> <p>2.5 to 6.5 (prepared)</p> <p>1.6 to 8.0 (prepared)</p> <p>2.0 to 4.5 (prepared)</p> <p>2.0 to 4.0 (prepared)</p> <p>2.0 to 4.0 (prepared)</p> <p>2.0 to 4.0 (prepared)</p> <p>2.0 to 3.8 (prepared)</p>	<p>12.0 to 15.0</p> <p>8.0 to 12.0 (finished)</p> <p>Regulated by particle size</p> <p>1.0 to 5.0</p> <p>Regulated by particle size</p>
Ancillary material	Remain under the manufacturer responsibilities.		

2 Specification of the intended use in accordance with the applicable European assessment Document (hereinafter 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 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 is based lead to the assumption of a working life of the ETICS "Magmax WDVS MW" 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. 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).

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

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- 4.

3.1 Mechanical resistance and stability (BWR 1)

Not relevant

3.2 Reaction to fire (BWR 2) (ETAG 004 - clause 5.1.2)

Configurations	Organic content	Flame retardant content	Euro class according to EN 13501-1
Base coat with finishing coat and compatible key coat indicated hereafter			
Base coat: Magmax Klebespachtel ds	max. 2.4%	no flame retardant	A2-s1,d0
mineral wool	In quantity ensurig Euroclass A1 according to EN 13501-1	no flame retardant	
profiles	-	-	
anchors	-	-	
Finishing coat: Magmax Edelkratzputz Magmax Münchner Rauhputz Magmax Scheibenputz Magmax Marmorputz Magmax Leichtedelputz each with "Magmax Universalgrund"	max. 1.2 %	no flame retardant	
Magmax Kunstharzputz Magmax Silikonharzputz Magmax Siloxanputz Magmax Silikatputz each with "Magmax Universalgrund"	max. 9.7 %	min. 5%	

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3.3 Hygiene, health and environment (BWR 3)

3.3.1 Water absorption (capillarity test) (ETAG004 – clause 5.1.3.1)

- Base coat: **Magmax Klebespachtel ds**
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0.5 kg/m²
- Rendering systems:

		Water absorption after 24 hours	
		< 0.5 kg/m ²	< 0.5 kg/m ²
Rendering systems: Base coat: "Magmax Klebespachtel ds" + key coat "Magmax Universal-Grund" + finishing coats indicated hereafter:	"Magmax Edelkratzputz"	x	
	"Magmax Münchner Rauhputz"	x	
	"Magmax Scheibenputz"	x	
	"Magmax Marmorputz"	x	
	"Magmax Leichtedelputz"	x	
	"Magmax Kunstharzputz"	x	
	"Magmax Silikonharzputz"	x	
	"Magmax Siloxanputz" "	x	
	"Magmax Silikatputz"	x	

3.3.2 Hygrothermal behaviour (ETAG004 - clause 5.1.3.2)

Pass (without defects)

3.3.3 Impact resistance (ETAG004 – clause 5.1.3.3)

The verified resistance to hard body impact and to perforation of the ETICS lead to the following classification into categories.

The resistance to hard body impact of other rendering systems has not been verified (npd).

Rendering system: Base coat: "Magmax Klebespachtel ds" + finishing coat indicated hereafter:	Single mesh "Magmax Armierungsgewebe M"
"Magmax Edelkratzputz"	category I
"Magmax Münchner Rauhputz"	category II
"Magmax Scheibenputz"	category II
"Magmax Marmorputz"	category II
"Magmax Leichtedelputz"	category II
"Magmax Kunstharzputz"	category II
"Magmax Silikonharzputz"	category I
"Magmax Siloxanputz"	category I
"Magmax Silikatputz"	category II

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3.3.4 Water vapour permeability (ETAG004 – clause 5.1.3.4)

Requirement:

Rendering system: equivalent air thickness $s_d \leq 1.0$ m

Rendering system: base coat: "Magmax Klebepachtel ds" + finishing coat (evaluated without decorative coating or key coat):	Equivalent air thickness s_d
"Magmax Edelkratzputz"	≤ 1.0 m (Test result obtained with a layer thickness 13 mm: 0.17 m)
"Magmax Münchner Rauhputz"	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.20 m)
"Magmax Scheibenputz"	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.11 m)
"Magmax Marmorputz"	≤ 1.0 m (Test result obtained with a layer thickness 2.5 mm: 0.22 m)
"Magmax Leichtedelputz"	≤ 1.0 m (Test result obtained with a layer thickness 3 mm: 0.23 m)
"Magmax Kunstharzputz"	≤ 1.0 m (Test result obtained with a layer thickness 2 mm: 0.26 m)
"Magmax Silikonharzputz"	≤ 1.0 m (Test result obtained with a layer thickness 2 mm: 0.24 m)
"Magmax Siloxanputz"	≤ 1.0 m (Test result obtained with a layer thickness 2 mm: 0.22 m)
"Magmax Silikatputz"	≤ 1.0 m (Test result obtained with a layer thickness 2 mm: 0.12 m)

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

The product does not contain dangerous substances specified in TR034 (edition May 2014) except

a biocidal product (< 1 % by weight) contains in finishing coat Magmax Kunstharzputz, Magmax Siloxanputz and MagmaxSilikonharzputz.

Contained active ingredients: Terbutryn, 2-Octyl-2H-isothiazol, Zinkpyrithion, Zinkoxid

3.4 Safety and accessibility in use (BWR 4)

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

Conditioning		
Initial state	After hygrothermal cycles	After freeze/thaw test
≥ 0.08 MPa	< 0.08 MPa ² but failure in the insulation product	Test not required because freeze/thaw cycles not necessary

² According to the EOTA GD 004 existing data was used after EOTA consensus has been reached that the deviations of the test methods use from EOTA test methods are not relevant or the results are on the safe side.

3.4.2 Bond strength between adhesive and substrate/insulation product (MW lamella) (ETAG 004 - clause 5.1.4.1.2 + 5.4.1.3)

		Initial state	48 hrs. immersion in water + 2 hrs. drying	48 hrs. immersion in water + 7 days drying
"Magmax Klebspachtel ds"	Concrete	≥ 0.25 MPa	≥ 0.08 MPa	≥ 0.25 MPa
	MW Lamella	≥ 0.08 MPa	≥ 0.03 MPa	≥ 0.08 MPa

Bonded surface:

With a bonded surface of 40 % the formula given in clause 6.1.4.1.3 of ETAG 004 is fulfilled and the use as bonded ETICS is possible.

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

Test not required (no limitation of ETICS length)

3.4.4 Wind load resistance (Insulation product MW) (ETAG 004 - clause 5.1.4.3)

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

3.4.4.1 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

3.4.4.2 Safety in use of mechanically fixed ETICS using anchors

Failure loads – Table 3

Apply to all anchors listed in the annex 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 annex 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: 560 Average: 690
	Anchors placed at the panel joints (Static Foam Block Test)	R_{joint}	Minimal: 380 Average: 390	Minimal: 440 Average: 540
	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 annex 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

The failure loads of Table 2 and 3 specified above only apply to the following anchors with deep mounting under the given conditions of installation:

Anchor	Thickness of the MW panel [d]	Conditions of installation*
ejothem STR U ejothem STR U 2G (ETA-04/0023)	100 mm > d ≥ 80 mm	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) – Maximum depth of die: 5 mm
	≥ 100 mm	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover) – Maximum depth of die: 20 mm
TERMOZ 8 SV (ETA-06/0180)	≥ 80 mm	– Maximum installation depth of the anchor plate: 15 mm (≙ thickness of insulation cover)

* According to the appropriate ETA of anchor

3.4.5 Render strip tensile test (ETAG004 – clause 5.5.4.1)

No performance determined for the width of cracks.

3.4.6 Protection against noise (BWR 5)

NPD (no performance determined)

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 $0.02 \text{ (m}^2 \cdot \text{K)/W}$.

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

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.

English translation prepared by DIBt

$U_c = U + \Delta U$	corrected thermal transmittance
$\Delta U = \Delta U_{\text{anchor}} + \Delta U_{\text{profile}}$	correction term for mechanical fixing devices (anchors, profiles)
$\Delta U_{\text{anchor}} = \chi_p \cdot n$	correction term for anchors
where: 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 technical approval
$\chi_p = 0.004 \text{ W/K}$	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 with the head covered by plastic material, and for anchors with an air gap at the head of the screw
$\Delta U_{\text{profile}} = \Psi \cdot l$	correction term for profiles; $\Delta U_{\text{profile}}$ is determined in accordance with EN ISO 10211:2007
where: Ψ	length thermal transmittance value of the profile [$\text{W}/(\text{m} \cdot \text{K})$]
l	length of profile per m^2 [m/m^2]

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

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

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

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"Magmax WDVS MW"	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 Deutsches Institut für Bautechnik.

Issued in Berlin on 27 August 2015 by Deutsches Institut für Bautechnik

Dirk Brandenburger
Head of Department

beglaubigt:
Windhorst

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Annexes:

- Annex 1: Insulation product characteristics
- Annex 2: Anchors
- Annex 3: Profiles
- Annex 4: Reinforcement

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Annex No. 1: Insulation product characteristics

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 ≤ 1.3		
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	$\geq 33\%$ of average value in dry conditions $\geq 50\%$ 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 (MW panel, $\sigma_{mt} \geq 14$ kPa) 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 No. 2: Anchors

All anchors with ETA according to ETAG 014¹ with characteristics having then description below shall be used in 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 1.1 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
ejothem SK U	ETA-02/0018
WS 8 L	ETA-02/0019
WS 8 N	ETA-03/0019
ejothem SDK U	ETA-04/0023
IsoFux ND-8Z	ETA-04/0032
SDF-K plus, SDF-S plus	ETA-04/0064
ejothem NK U	ETA-05/0009

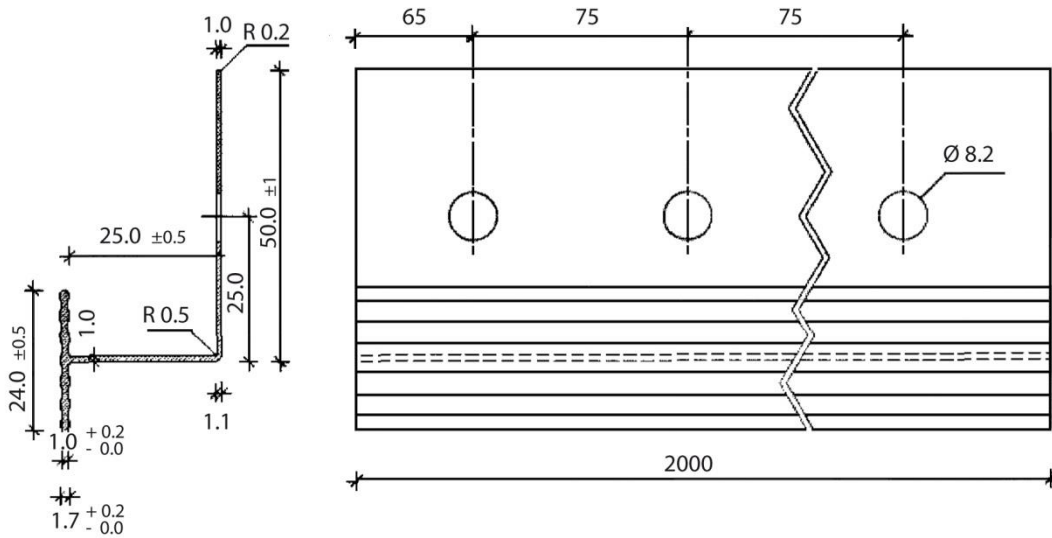
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Annex No. 3: Profiles

Aluminium (Al) profiles, EN AW-6060 T66 to EN 755-2:2008 with the measurements according to Annex 1 are to be used in the mechanically fixed ETICS with profiles.

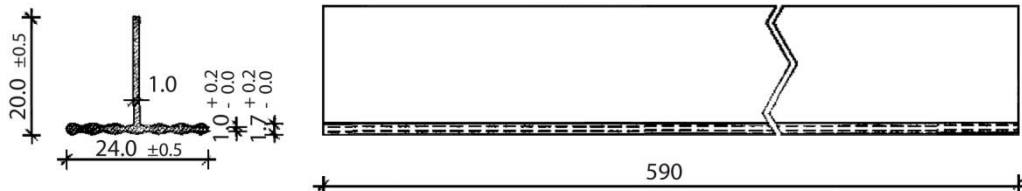
The Pull-through resistance of fixings from profiles is ≥ 500 N.

Horizontal profil – "Magmax-Halteleiste Alu" (dimensions in mm)



Vertical connection profile – "Magmax-Verbindungsleiste Alu" (dimensions in mm)

Länge 590 mm



Annex No. 4: Reinforcement (glass fibre mesh)

Characteristics (alkali resistance): pass

	Description	Strength after ageing	
		Absolute strength after ageing (N/mm)	Relative residual strength after ageing, of the strength in the asdelivered state (%)
"Magmax Armierungsge webe M"	Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 210 g/m ² and mesh size of about 8.0 mm x 8.0 mm	≥ 20	≥ 50