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European Technical Assessment ETA-06/0173 of 29/12/2022

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	ATLAS ROKER
Product family to which the construction product belongs	External Thermal Insulation Composite System with rendering (ETICS)
Manufacturer	ATLAS Spółka z o.o. ul. Jana Kilińskiego 2 PL 91-421 Łódź, Poland
Manufacturing plant	ATLAS Spółka z o.o. ul. Jana Kilińskiego 2 PL 91-421 Łódź, Poland
This European Technical Assessment contains	30 pages including 3 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"
This version replaces	ETA-06/0173 issued on 19/07/2016

This 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 should be identified as such.

Specific Part

1 Technical description of the product

External Thermal Insulation Composite System with rendering ATLAS ROKER called ETICS in the following text is a kit comprising components which are factory-produced by the manufacturer or purchased by the ETICS manufacturer from suppliers. ETICS is made up on site from these components. The ETICS manufacturer is ultimately responsible for all components of the ETICS kit specified in this ETA.

The ETICS comprises a factory-made thermal insulation product made of mineral wool (MW) to be bonded or mechanically fixed with supplementary adhesive onto a wall. The methods of fixing and the ETICS composition are specified in Table 1.

The thermal insulation product is faced with a rendering system consisting of several layers (site applied), one of which contains reinforcement. The rendering system is applied directly to the insulating panels, without any air gap or disconnecting layer.

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Thermal insulation product with method of fixing	**Bonded ETICS:** fully bonded or fully bonded with supplementary mechanical fixings (bonded surface shall be 100%).		
	• **Insulation product:** Mineral wool (MW) lamella according to EN 13162; see Annex B – thermal insulation product characteristics	-	≤ 250
	• **Adhesives:** **ATLAS ROKER W-20** cement based powder requiring addition of 0,20 to 0,25 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	4,5 to 5,5 [1] (powder)	-
	ATLAS ROKER W cement based powder requiring addition of 0,22 to 0,24 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	4,5 to 5,5 [1] (powder)	-
	ATLAS ROKER U cement based powder requiring addition of 0,22 to 0,24 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	4,5 to 5,5 [1] (powder)	-
	ATLAS STOPTER K-50 cement based powder requiring addition of 0,20 to 0,22 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	4,5 to 5,5 [1] (powder)	-
	Mechanically fixed ETICS with supplementary adhesive: according to the manufacturer's recommendation the minimal bonded surface shall be 40%. National application documents shall be taken into account.		
	• **Insulation product:** Mineral wool (MW) panels according to EN 13162; see Annex B – thermal insulation product characteristics	-	50 to 250

[1] refers to fully bonded system

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Thermal insulation product with method of fixing	• **Anchors:** see Annex C - anchors characteristics	-	-
	• **Supplementary adhesives:** see bonded ETICS	-	-
Base coats	• **ATLAS ROKER W-20** cement based powder requiring addition of 0,20 to 0,25 l/kg of water	5,5 to 6,5 (powder)	4,0 to 6,0
	• **ATLAS ROKER U** cement based powder requiring addition of 0,22 to 0,24 l/kg of water	5,5 to 6,5 (powder)	4,0 to 6,0
	• **ATLAS STOPTER K-50** cement based powder requiring addition of 0,20 to 0,22 l/kg of water	5,5 to 6,5 (powder)	4,0 to 6,0
Glass fibre meshes	• **Standard glass fibre meshes:** see Annex C – glass fibre meshes characteristics	-	-
Key coats	• **ATLAS CERPLAST** composition: water, styroacrylat binder, mineral fillers, additives ready to use liquid to be used with ATLAS CERMIT mineral	0,25 to 0,35	-
	• **ATLAS SILKAT ASX** composition: water, styroacrylat binder, silicone resin, additives ready to use liquid to be used with ATLAS SILKAT, Tynk silikatowy ATLAS	0,25 to 0,35	-
	• **ATLAS SILKON ANX** composition: water, styroacrylat binder, silicone resin, mineral fillers, additives ready to use liquid to be used with ATLAS SILKON, Tynk silikonowy ATLAS, Tynk silikonowo-silikatowy ATLAS	0,25 to 0,35	-
Finishing coats	• **Mineral finishing coats** composition: sand, cement, mineral fillers, additives		
	ATLAS CERMIT SN mineral powder requiring addition of 0,18 to 0,26 l/kg of water; particle size 1,5; 2,0; 2,5; 3,0 mm; grained structure	2,5 to 4,5	regulated by particle size
	ATLAS CERMIT DR mineral powder requiring addition of 0,18 to 0,26 l/kg of water; particle size 2,0; 3,0 mm; ribbed structure	2,5 to 4,5	
	ATLAS CERMIT WN powder requiring addition of 0,21 to 0,24 l/kg of water; particle size 1,0 mm; modelled structure	2,5 to 3,5	
	• **Silicone finishing coats** composition: water, silicone resin, sand, mineral fillers, additives ready to use paste		
	ATLAS SILKON N particle size 1,5; 2,0 mm; grained structure	2,5 to 3,5	regulated by particle size
	ATLAS SILKON R particle size 2,0 mm; ribbed structure	2,5 to 3,5	
	Tynk silikonowy ATLAS particle size 1,5; 2,0 mm; grained structure	2,5 to 3,5	

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Finishing coats	• **Silicate finishing coats** composition: water, acryl-copolymer binder, sand, mineral fillers, additives ready to use paste		
	ATLAS SILKAT N particle size 1,5; 2,0 mm; grained structure	2,5 to 3,5	regulated by particle size
	ATLAS SILKAT R particle size 2,0 mm; ribbed structure	2,5 to 3,5	
	Tynk silikatowy ATLAS particle size 1,5; 2,0 mm; grained structure	2,5 to 3,5	
	• **Silicone-silicate finishing coat** composition: water, silicate binder, silicone binder, sand, mineral fillers, additives ready to use paste		
	Tynk silikonowo-silikatowy ATLAS particle size 1,5 mm; 2,0 mm; grained structure	2,5 to 3,5	regulated by particle size
Primers	• **ATLAS ARKOL SX** composition: water, styroacrylat binder, mineral fillers, silicone emulsion, additives ready to use liquid to be used with ATLAS ARKOL S / SALTA S	0,05 to 0,20	-
	• **ATLAS ARKOL NX** composition: water, styroacrylat binder, mineral fillers, silicone emulsion, additives ready to use liquid to be used with ATLAS ARKOL N, ATLAS FASTEL NOVA / SALTA, ATLAS SALTA N	0,05 to 0,20	-
Decorative coats	• **ATLAS ARKOL S / SALTA S** to be used optionally with all finishing coats composition: silicate binder, pigments, additives ready to use liquid	0,20 to 0,28 [2]	-
	• **ATLAS ARKOL N** to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 [2]	-
	• **ATLAS FASTEL NOVA / SALTA** to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 [2]	-
	• **ATLAS SALTA N** to be used optionally with Tynk silikonowy ATLAS, Tynk silikonowo-silikatowy ATLAS, ATLAS CERMIT SN and DR mineral composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 [2]	-
	• **ATLAS BEJCA** to be used optionally with ATLAS CERMIT WN composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 [2]	-
Ancillary materials	Remain under the ETICS manufacturer responsibility. The ETICS is supported with ancillary materials which are defined in clause 1.3.13 of EAD 040083-00-0404.		

[2] decorative coats coverage in dm^3/m^2

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

This ETICS is intended to be used as external thermal insulation applied on the walls of buildings. The walls are made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels) with or without rendering.

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

The ETICS gives the building wall to which it is applied additional thermal insulation and protection from effects of weathering.

The ETICS are non-load-bearing construction elements. They do not contribute directly to the stability of the wall on which they are installed.

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

The provisions made in this European Technical Assessment are based on an assumed working life of the ETICS of at least 25 years, provided that the conditions for the packaging, transport, storage, installation as well as appropriate use, maintenance and repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the product.

The information concerning packaging, transport, storage, maintenance and repair shall be given in the manufacturer's technical documentation.

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

Performances of the ETICS related to the Basic Requirements are given in Table 2.

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
Safety in case of fire (BWR 2)			
1	Reaction to fire:	2.2.1	-
	– reaction to fire of ETICS	2.2.1.1	see Annex A1
	– reaction to fire of the thermal insulation product	2.2.1.2	no performance assessed (see Annex B for thermal insulation product characteristics)
2	Façade fire performance	2.2.2	no performance assessed
3	Propensity to undergo continuous smouldering of ETICS	2.2.3	no performance assessed
Hygiene, health and the environment (BWR 3)			
4	Content, emission and/or release of dangerous substances – leachable substances	2.2.4	no performance assessed
5	Water absorption:	2.2.5	-
	– of the base coat and the rendering system	2.2.5.1	see Annex A2
	– of the thermal insulation product	2.2.5.2	no performance assessed (see Annex B for thermal insulation product characteristics)
6	Water-tightness of the ETICS: Hygrothermal behaviour	2.2.6	see Annex A3

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
7	Water-tightness: Freeze-thaw performance	2.2.7	see Annex A3
8	Impact resistance	2.2.8	see Annex A4
9	Water vapour permeability:	2.2.9	-
	– of the rendering system (equivalent air thickness s_d)	2.2.9.1	see Annex A5
	– of thermal insulation product (water-vapour resistance factor)	2.2.9.2	no performance assessed (see Annex B for thermal insulation product characteristics)
Safety and accessibility in use (BWR 4)			
10	Bond strength:	2.2.11	-
	– bond strength between the base coat and the thermal insulation product (mortar or paste)	2.2.11.1	see Annex A6
	– bond strength between the adhesive and the substrate	2.2.11.2	see Annex A6
	– bond strength between the adhesive and the thermal insulation product	2.2.11.3	see Annex A6
11	Fixing strength (transverse displacement test)	2.2.12	test not required because the ETICS fulfils the criteria $E \cdot d \leq 50.000$ N/mm
12	Wind load resistance of ETICS:	2.2.13	-
	– pull-through tests of fixings	2.2.13.1	see Annex A7
	– static foam block test	2.2.13.2	see Annex A7
	– dynamic wind uplift test	2.2.13.3	no performance assessed
13	Tensile test perpendicular to the faces of the thermal insulation product:	2.2.14	-
	– in dry conditions	2.2.14.1	no performance assessed (see Annex B for thermal insulation product characteristics)
	– in wet conditions	2.2.14.2	no performance assessed
14	Shear strength and shear modulus of elasticity test of ETICS	2.2.15	no performance assessed (see Annex B for thermal insulation product characteristics)
15	Render strip tensile test	2.2.17	no performance assessed
16	Bond strength after ageing:	2.2.20	-
	– bond strength after ageing of finishing coat tested on the rig	2.2.20.1	see Annex A8
	– bond strength after ageing of finishing coat not tested on the rig	2.2.20.2	see Annex A8
17	Mechanical and physical characteristics of the mesh:	2.2.21	-
	Tensile strength of the glass fibre mesh	2.2.21.1	no performance assessed (see Annex C for glass fibre mesh characteristic)

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
Protection against noise (BWR 5)			
18	Airborne sound insulation of ETICS	2.2.22.1	no performance assessed
19	Dynamic stiffness of the thermal insulation product	2.2.22.2	no performance assessed
20	Air flow resistance of the thermal insulation product	2.2.22.3	no performance assessed
Energy economy and heat retention (BWR 6)			
21	Thermal resistance and thermal transmittance of ETICS	2.2.23	see Annex A9

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

According to Decision 97/556/EC of the European Commission amended by the Decision 2001/596/EC, the systems of assessment and verification of constancy of performance (see Annex V to regulation (EU) No 305/2011) given in the following Table apply.

Table 3

Product	Intended use	Level or class (Reaction to fire)	System
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 Class 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 which is deposited at Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

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Krzysztof Kuczyński, PhD
Deputy Director of ITB

Table A1

Configuration	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS ATLAS ROKER: • Adhesives: ATLAS ROKER W-20, ATLAS ROKER W, ATLAS ROKER U, ATLAS STOPTER K-50	4,05%	0% (no flame retardant)	**A2 – s2, d0**
• MW boards density ≤ 135 kg/m^2 Class A1 acc. to EN 13501-1	-		
• Glass fibre meshes: ATLAS 150, ATLAS 165, R 117 A 101 / AKE 145 / VERTEX 145	-		
• Base coats: ATLAS ROKER W-20, ATLAS ROKER U, ATLAS STOPTER K-50	4,05%		
• Finishing coats: ATLAS CERMIT SN mineral, ATLAS CERMIT DR mineral, ATLAS CERMIT WN, Tynk silikonowy ATLAS, Tynk silikatowy ATLAS, Tynk silikonowo-silikatowy ATLAS (with relevant key coats)	10,57%		
• Decorative coats: ATLAS ARKOL S/SALTA S, ATLAS ARKOL N, ATLAS FASTEL NOVA/SALTA, ATLAS SALTA N, ATLAS BEJCA (with primers ATLAS ARKOL NX, ATLAS ARKOL SX)	22,7%		
ETICS ATLAS ROKER: • Adhesive: ATLAS ROKER W-20	4,05%	0% (no flame retardant)	**A2 – s2, d0**
• MW boards density ≤ 135 kg/m^2 Class A1 acc. to EN 13501-1	-		
• Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145	-		
• Base coat: ATLAS ROKER W-20	4,05%		
• Finishing coats: ATLAS CERMIT mineral, ATLAS SILKAT (with relevant key coats)	4,9%		
• Decorative coats: ATLAS ARKOL S/SALTA S, ATLAS ARKOL N, ATLAS FASTEL NOVA/SALTA (with relevant primers)	18,6%		
ETICS ATLAS ROKER: • Adhesive: ATLAS ROKER W-20	4,05%	0% (no flame retardant)	**B – s1, d0**
• MW boards density ≤ 135 kg/m^2 Class A1 acc. to EN 13501-1	-		
• Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145	-		
• Base coat: ATLAS ROKER W-20	4,05%		
• Finishing coat: ATLAS SILKON (with relevant key coat)	8,4%		
• Decorative coats: ATLAS ARKOL N, ATLAS FASTEL NOVA/SALTA (with relevant primers)	18,6%		
Any other configuration – no performance assessed			

Table A2.1

Water absorption of the reinforced base coat	After 1 hour (kg/m^2)	After 24 hours (kg/m^2)
ATLAS ROKER W-20	**0,058**	**0,264**
ATLAS ROKER U	**0,014**	**0,130**
ATLAS STOPTER K-50	**0,037**	**0,262**

Table A2.2

Water absorption of the rendering		After 1 hour (kg/m^2)	After 24 hours (kg/m^2)
Rendering system: Base coat: **ATLAS ROKER W-20** + relevant key coat + finishing coats indicated hereafter:	ATLAS CERMIT mineral, particle size 3,0 mm	**0,043**	**0,232**
	ATLAS CERMIT WN, particle size 1,0 mm	**0,021**	**0,114**
	ATLAS SILKAT, particle size 2,0 mm	**0,233**	**0,489**
	ATLAS SILKON, particle size 2,0 mm	**0,056**	**0,155**
	Tynk silikonowo-silikatowy ATLAS particle size 2,0 mm	**0,078**	**0,312**
	Tynk silikonowy ATLAS particle size 2,0 mm	**0,027**	**0,158**
Rendering system: Base coat: **ATLAS ROKER U** + relevant key coat + finishing coats indicated hereafter:	ATLAS CERMIT mineral, particle size 3,0 mm	**0,077**	**0,408**
	ATLAS CERMIT WN, particle size 1,0 mm	**0,054**	**0,140**
	Tynk silikatowy ATLAS, particle size 2,0 mm	**0,084**	**0,540**
	Tynk silikonowy ATLAS, particle size 2,0 mm	**0,057**	**0,180**
	Tynk silikonowo-silikatowy ATLAS particle size 2,0 mm	**0,059**	**0,343**
Rendering system: Base coat: **ATLAS STOPTER K-50** + relevant key coat + finishing coats indicated hereafter:	ATLAS CERMIT mineral, particle size 3,0 mm	**0,041**	**0,228**
	ATLAS CERMIT WN, particle size 1,0 mm	**0,029**	**0,094**
	Tynk silikatowy ATLAS, particle size 2,0 mm	**0,076**	**0,320**
	Tynk silokonowy ATLAS, particle size 2,0 mm	**0,045**	**0,164**
	Tynk silikonowo-silikatowy ATLAS particle size 2,0 mm	**0,083**	**0,265**

Table A3.1

Water-tightness of the ETICS: Hygrothermal behavior
The ETICS is assessed resistant to hygrothermal cycles on a rig. ETICS passed the test without defects. **Resistant to hygrothermal cycles.**

Table A3.2

Water-tightness of the ETICS: Freeze-thaw performance
The ETICS with the base coat **ATLAS ROKER W-20,** the relevant key-coat and **all finishing coats** according to Table 1 is assessed freeze-thaw resistant because of the water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours.
The ETICS with the base coat **ATLAS ROKER U,** the relevant key-coat and **mineral, silicone and silicone-silicate finishing coats** according to Table 1 is assessed freeze-thaw resistant because of the water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours.
The ETICS with the base coat **ATLAS ROKER U,** the relevant key-coat and **silicate finishing coat** according to Table 1 has water absorption of base coat and the rendering system is higher than 0,5 kg/m² after 24 hours. ETICS have been tested for freeze-thaw behavior and is assessed freeze-thaw resistant.
The ETICS with the base coat **ATLAS STOPTER K-50,** the relevant key-coat and **all finishing coats** according to Table 1 is assessed freeze-thaw resistant because of the water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours.

Table A4.1

Impact resistance				
ETICS after hygrothermal cycles on the rig				
ETICS with MW Panels according to Annex B and standard mesh (single layer)		**Cracks**	**Max. crack diameter (mm)**	**Impact resistance category**
Rendering system: base coat **ATLAS ROKER W-20** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J Yes – 10J	34,00 45,00	III
	ATLAS SILKAT	No – 3J No – 10J	- -	I
	ATLAS SILKON	No – 3J Yes – 10J	- 38,00	II
ETICS with MW Lamella according to Annex B and standard mesh (single layer)		**Cracks**	**Max. crack diameter (mm)**	**Impact resistance category**
Rendering system: base coat **ATLAS ROKER U** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J No – 10J	35,61 -	III
	Tynk silikatowy ATLAS	Yes – 3J No – 10J	38,11 -	III
	Tynk silikonowy ATLAS	Yes – 3J No – 10J	35,04 -	III
	Tynk silikonowo-silikatowy ATLAS	Yes – 3J No – 10J	42,04 -	III
Rendering system: base coat **ATLAS STOPTER K-50** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J Yes – 10J	33,34 51,31	III
	Tynk silikatowy ATLAS	No – 3J Yes – 10J	- 65,78	II

Table A4.2

Impact resistance				
ETICS after ageing on the small samples				
ETICS with MW Panels according to Annex B and standard mesh (single layer)		**Cracks**	**Max. crack diameter (mm)**	**Impact resistance category**
Rendering system: base coat **ATLAS ROKER W-20** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT WN	No – 3J Yes – 10J	- 55,00	II
	Tynk silikonowy ATLAS	Yes – 3J Yes – 10J	32,00 45,00	III
	Tynk silikonowo-silikatowy ATLAS	No – 3J No – 10J	- -	I
Rendering system: base coat **ATLAS ROKER U** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	No – 3J No – 10J	- -	I
	ATLAS CERMIT WN	No – 3J Yes – 10J	- 82,70	II
	Tynk silikonowy ATLAS	Yes – 3J Yes – 10J	34,00 56,00	III
	Tynk silikonowo-silikatowy ATLAS	No – 3J No – 10J	- -	I
Rendering system: base coat **ATLAS STOPTER K-50** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J Yes – 10J	37,07 94,53	III
	ATLAS CERMIT WN	Yes – 3J Yes – 10J	31,00 77,00	III
	Tynk silikatowy ATLAS	No – 3J Yes – 10J	- 65,00	II
	Tynk silikonowy ATLAS	Yes – 3J Yes – 10J	37,00 65,00	III
	Tynk silikonowo-silikatowy ATLAS	No – 3J Yes – 10J	- 50,00	II

Table A4.3

Impact resistance				
ETICS after ageing on the small samples				
ETICS with MW Lamella according to Annex B and standard mesh (single layer)		**Cracks**	**Max. crack diameter (mm)**	**Impact resistance category**
Rendering system: base coat **ATLAS ROKER W-20** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3 J Yes – 10 J	37,00 42,00	III
	ALTAS CERMIT WN	No – 3J Yes – 10J	- 55,00	II
	ATLAS SILKAT	No – 3J No – 10J	- -	I
	ATLAS SILKON	No – 3J Yes – 10J	- 37,00	II
	Tynk silikonowy ATLAS	No – 3J Yes – 10J	- 40,00	I
	Tynk silikonowo-silikatowy ATLAS	No – 3J No – 10J	- -	I
Rendering system: base coat **ATLAS ROKER U** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J Yes – 10J	32,00 63,00	III
	ALTAS CERMIT WN	Yes – 3J Yes – 10J	61,00 95,00	III
	Tynk silikatowy ATLAS	No – 3J No – 10J	- -	I
	Tynk silikonowy ATLAS	Yes – 3j Yes – 10J	59,00 57,00	III
	Tynk silikonowo-silikatowy ATLAS	No – 3J No – 10J	- -	I
Rendering system: base coat **ATLAS STOPTER K-50** (with the relevant key coat according to Table 1) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	Yes – 3J Yes – 10J	33,34 51,31	III
	ALTAS CERMIT WN	Yes – 3J Yes – 10J	28,85 93,78	III
	Tynk silikatowy ATLAS	No – 3J Yes – 10J	- 65,00	II
	Tynk silikonowy ATLAS	Yes – 3J Yes – 10J	31,00 60,00	III
	Tynk silikonowo-silikatowy ATLAS	Yes – 3J Yes – 10J	56,77 72,60	III

Table A5.1

	Finishing coat	Equivalent air thickness s_d, m
Rendering system: base coat **ATLAS ROKER W-20** (thickness 2 - 3 mm) (with the key-coat according to Table 1) + finishing and decorative coats indicated hereafter:	ATLAS CERPLAST + **ATLAS CERMIT SN mineral**	0,21
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT DR mineral** + ATLAS FASTEL NOVA / SALTA	0,12
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT SN mineral** + ATLAS SALTA N	0,24
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT WN**	0,44
	thickness 1,00 mm	
	ATLAS SILIKAT ASX + **ATLAS SILIKAT N**	0,20
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **ATLAS SILIKAT N** + ATLAS SALTA N	0,35
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **ATLAS SILIKON N**	0,75
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **ATLAS SILIKON N** + ATLAS SALTA N	0,95
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS**	0,51
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS SALTA N	0,59
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL S / SALTA S	0,39
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL N	0,44
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS FASTEL NOVA / SALTA	0,52
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS**	0,52
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS SALTA N	0,62
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL S / SALTA S	0,59
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL N	0,66
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS FASTEL NOVA / SALTA	0,57
	thickness 2,00 mm	

Table A5.2

	Finishing coat	Equivalent air thickness s_d, m
Rendering system: base coat **ATLAS ROKER U** (thickness 2 - 3 mm) (with the key-coat according to Table 1) + finishing and decorative coats indicated hereafter:	ATLAS CERPLAST + **ATLAS CERMIT DR mineral** + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S	0,23
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT SN mineral** + ATLAS ARKOL NX + ATLAS SALTA N	0,25
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT DR mineral** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,26
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT SN mineral** + ATLAS ARKOL NX + ATLAS ARKOL N	0,28
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT WN**	0,44
	thickness 1,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT WN** + ATLAS BEJCA	1,00
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL S / SALTA S	0,31
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,30
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS SALTA N	0,31
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL N	0,32
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS SALTA N	0,44
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL N	0,40
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,40
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS SALTA N	0,50
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SATA	0,49
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL S / SALTA S	0,52
	thickness 2,00 mm	

Table A5.3

	Finishing coat	Equivalent air thickness s_d, m
Rendering system: base coat **ATLAS STOPTER K-50** (thickness 2 - 3 mm) (with the key-coat according to Table 1) + finishing and decorative coats indicated hereafter:	ATLAS CERPLAST + **ATLAS CERMIT DR mineral**	0,49
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT DR mineral** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,73
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT DR mineral** + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S	0,85
	thickness 3,00 mm	
	ATLAS CERPLAST + **ATLAS CERMIT WN**	0,31
	thickness 1,00 mm	
	ATLAS SILIKAT ASX + **ATLAS CERMIT WN** + ATLAS BEJCA	0,42
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **Tynk silikatowy ATLAS**	0,91
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL S / SALTA S	0,69
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,70
	thickness 2,00 mm	
	ATLAS SILIKAT ASX + **Tynk silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS SALTA N	0,69
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS SALTA N	0,38
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS ARKOL N	0,35
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,29
	thickness 2,00 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS**	0,16
	thickness 1,50 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S	0,16
	thickness 1,50 mm	
	ATLAS SILIKON ANX + **Tynk silikonowo-silikatowy ATLAS** + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA	0,22
	thickness 1,50 mm	

ATLAS ROKER	**Annex A5.3** of European Technical Assessment ETA-06/0173
Water vapour permeability	

Table A6.1

Bond strength between the base coat and the insulation product					
Insulation product	Base coat	Conditioning before the test	Rupture type	Bond strength (kPa)	
				Min.	Mean
MW Panels	ATLAS ROKER W-20 (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	20	20
		After hygrothermal cycles (on the rig)	In the insulation product	20	20
MW Lamella	ATLAS ROKER U (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	80	80
		After hygrothermal cycles (on the rig)	In the insulation product	70	80
	ATLAS STOPTER K-50 (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	80	80
		After hygrothermal cycles (on the rig)	In the insulation product	80	80

Table A6.2

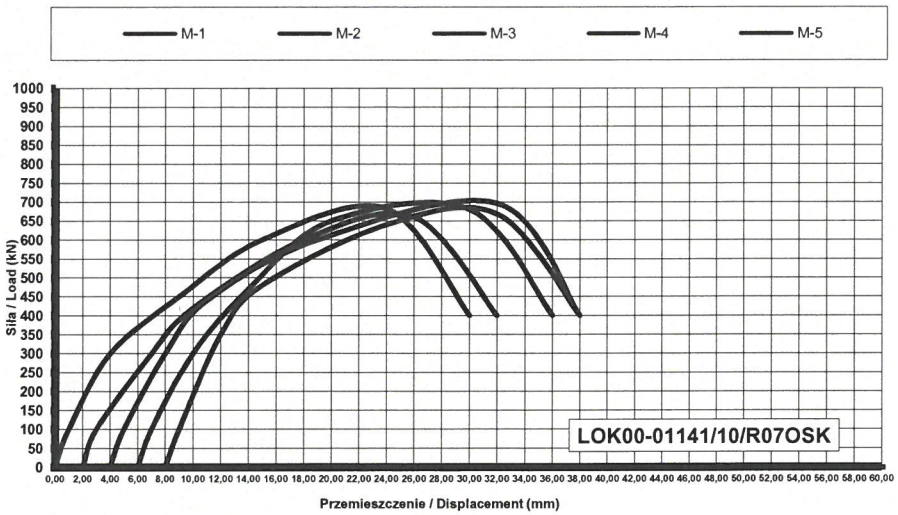
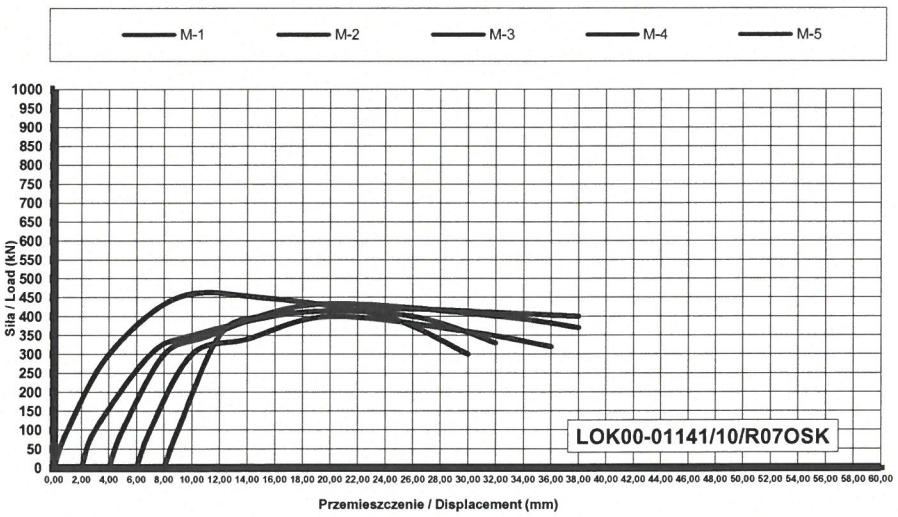
Bond strength between the adhesive and the substrate					
Substrate	Adhesive (and tested thickness)	Conditioning before the test	Rupture type	Bond strength (kPa)	
				Min.	Mean
Concrete	ATLAS ROKER W-20 (approx. 3 mm)	Initial state (dry conditions)	In the adhesive	990	1910
		2 days immersion and 2 hours drying	In the adhesive	770	880
		2 days immersion and min. 7 days drying	In the adhesive	1070	1300
	ATLAS ROKER U (approx. 3 mm)	Initial state (dry conditions)	In the adhesive	520	560
		2 days immersion and 2 hours drying	In the adhesive	180	200
		2 days immersion and min. 7 days drying	In the adhesive	1170	1220
	ATLAS STOPTER K-50 (approx. 3 mm)	Initial state (dry conditions)	In the adhesive	800	890
		2 days immersion and 2 hours drying	In the adhesive	520	610
		2 days immersion and min. 7 days drying	In the adhesive	1480	1630
	ATLAS ROKER W (approx. 3 mm)	Initial state (dry conditions)	In the adhesive	360	400
		2 days immersion and 2 hours drying	In the adhesive	160	160
		2 days immersion and min. 7 days drying	In the adhesive	650	720

ATLAS ROKER	**Annex A6.1** of European Technical Assessment ETA-06/0173
Bond strength	

Table A6.3

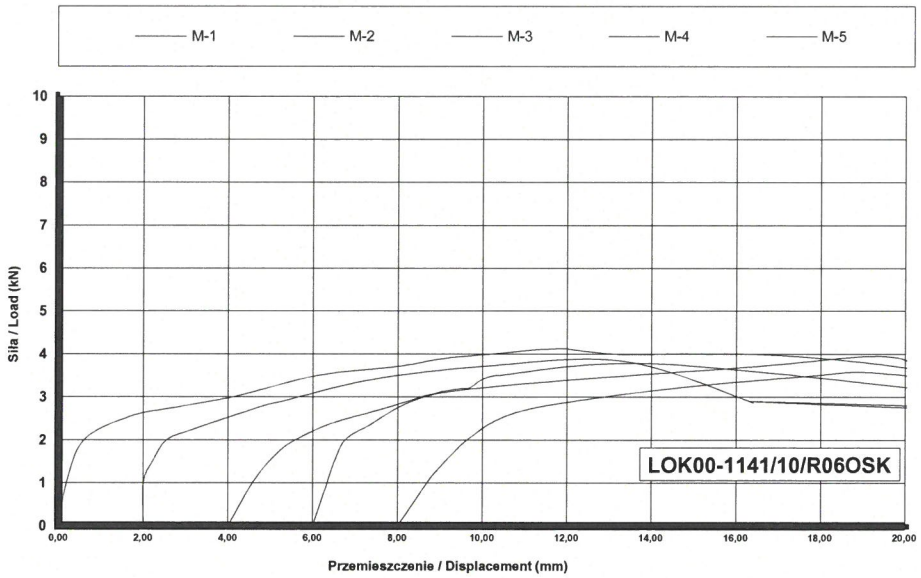
Bond strength between the adhesive and the insulation product					
Insulation product	**Base coat**	**Conditioning before the test**	**Rupture type**	**Bond strength (kPa)**	
				Min.	**Mean**
MW Panels	**ATLAS ROKER W-20 (approx. 3 mm)**	Initial state (dry conditions)	In the insulation product	**20**	**20**
		2 days immersion and 2 hours drying	In the insulation product	**10**	**20**
		2 days immersion and min. 7 days drying	In the insulation product	**20**	**20**
	ATLAS ROKER U (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**10**	**18**
		2 days immersion and 2 hours drying	In the insulation product	**10**	**16**
		2 days immersion and min. 7 days drying	In the insulation product	**10**	**18**
	ATLAS STOPTER K-50 (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**10**	**16**
		2 days immersion and 2 hours drying	In the insulation product	**10**	**14**
		2 days immersion and min. 7 days drying	In the insulation product	**10**	**20**
	ATLAS ROKER W (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**10**	**18**
		2 days immersion and 2 hours drying	In the insulation product	**10**	**14**
		2 days immersion and min. 7 days drying	In the insulation product	**10**	**18**
MW Lamella	**ATLAS ROKER W-20 (approx. 3 mm)**	Initial state (dry conditions)	In the insulation product	**70**	**100**
		2 days immersion and 2 hours drying	In the insulation product	**30**	**40**
		2 days immersion and min. 7 days drying	In the insulation product	**90**	**90**
	ATLAS ROKER U (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**80**	**80**
		2 days immersion and 2 hours drying	In the insulation product	**30**	**40**
		2 days immersion and min. 7 days drying	In the insulation product	**90**	**90**
	ATLAS STOPTER K-50 (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**75**	**82**
		2 days immersion and 2 hours drying	In the insulation product	**36**	**45**
		2 days immersion and min. 7 days drying	In the insulation product	**84**	**92**
	ATLAS ROKER W (approx. 3 mm)	Initial state (dry conditions)	In the insulation product	**87**	**91**
		2 days immersion and 2 hours drying	In the insulation product	**38**	**52**
		2 days immersion and min. 7 days drying	In the insulation product	**89**	**92**

Table A7.1

Anchors	Anchors according to Annex C Surface assembly			
	Plate diameter of the anchor, mm		≥ 60	
MW Panels	Thickness, mm		≥ 50	
	Tensile strength perpendicular to the faces, kPa		≥ 10	
Failure load, kN	Anchors not placed at the panel joints (pull-through test), dry conditions	R_{panel}	Individual value: Mean value:	0,68; 0,66; 0,70; 0,68; 0,67 **0,68**
	Anchors not placed at the panel joints (pull-through test), wet conditions	R_{panel}	Individual value: Mean value:	0,45; 0,41; 0,40; 0,43; 0,42 **0,42**
Load / displacement graphs				
Test conditions: dry condition 23 °C / 50 % RH				
Test conditions: wet condition 70 °C / 95 % RH				

ATLAS ROKER	**Annex A7.1** of European Technical Assessment ETA-06/0173
Wind load resistance of ETICS Pull-through test of fixings	

Table A7.2

Anchors	**Anchors according to Annex C Surface assembly**			
	Plate diameter of the anchor, mm		≥ 60	
MW Panels	Thickness, mm		≥ 50	
	Tensile strength perpendicular to the faces, kPa		≥ 10	
Failure load, kN	Anchors placed at the panel joints (static foam block test)	R_{joint}	Individual value: Mean value:	0,52; 0,48; 0,47; 0,49; 0,45 **0,48**
Load / displacement graphs				
Test conditions: dry condition 23 °C / 50 % RH				

ATLAS ROKER	**Annex A7.2** of European Technical Assessment ETA-06/0173
Wind load resistance of ETICS Static foam block test of fixings	

Table A8.1

Bond strength after ageing of finishing coat tested on the rig					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
MW Panels	**Rendering system:** base coat **ATLAS ROKER W-20** (with key-coat) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**30**	**30**
			In the insulation product	**30**	
			In the insulation product	**30**	
			In the insulation product	**30**	
			In the insulation product	**30**	
		ATLAS SILIKAT	In the insulation product	**20**	**30**
			In the insulation product	**30**	
			In the insulation product	**30**	
			In the insulation product	**30**	
			In the insulation product	**20**	
		ATLAS SILIKON	In the insulation product	**20**	**30**
			In the insulation product	**30**	
			In the insulation product	**30**	
			In the insulation product	**40**	
			In the insulation product	**30**	
MW Lamella	**Rendering system:** base coat **ATLAS STOPTER K-50** + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**80**	**80**
			In the insulation product	**70**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
		Tynk silikatowy ATLAS	In the insulation product	**90**	**80**
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**70**	

Table A8.2

Bond strength after ageing of finishing coat tested on the rig					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
MW Lamella	**Rendering system:** base coat **ATLAS ROKER U** + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**80**	**80**
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
		Tynk silikonowy ATLAS	In the insulation product	**80**	**80**
			In the insulation product	**80**	
			In the insulation product	**70**	
			In the insulation product	**80**	
			In the insulation product	**80**	
		Tynk silikatowy ATLAS	In the insulation product	**80**	**80**
			In the insulation product	**70**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
		Tynk silikonowo-silikatowy ATLAS	In the insulation product	**80**	**80**
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	

Table A8.3

Bond strength after ageing of finishing coat not tested on the rig (small samples)					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
MW Lamella	**Rendering system:** base coat **ATLAS ROKER W-20** (with key-coat) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**60**	**80**
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**90**	
		ATLAS SILKAT	In the insulation product	**110**	**110**
			In the insulation product	**110**	
			In the insulation product	**120**	
			In the insulation product	**90**	
			In the insulation product	**120**	
		ATLAS SILKON	In the insulation product	**100**	**110**
			In the insulation product	**120**	
			In the insulation product	**100**	
			In the insulation product	**90**	
			In the insulation product	**120**	
		Tynk silikonowy ATLAS	In the insulation product	**100**	**90**
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**100**	
			In the insulation product	**80**	
		Tynk silikonowo-silikatowy ATLAS	In the insulation product	**90**	**80**
			In the insulation product	**80**	
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**80**	

Table A8.4

Bond strength after ageing of finishing coat not tested on the rig (small samples)					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
MW Lamella	**Rendering system:** base coat **ATLAS ROKER U** (with key-coat) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**100**	**100**
			In the insulation product	**110**	
			In the insulation product	**100**	
			In the insulation product	**100**	
			In the insulation product	**100**	
		ATLAS CERMIT WN	In the insulation product	**80**	**100**
			In the insulation product	**90**	
			In the insulation product	**110**	
			In the insulation product	**120**	
			In the insulation product	**100**	
		Tynk silikatowy ATLAS	In the insulation product	**90**	**90**
			In the insulation product	**100**	
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**80**	
		Tynk silikonowy ATLAS	In the insulation product	**80**	**90**
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**90**	
		Tynk silikonowo-silikatowy ATLAS	In the insulation product	**80**	**80**
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**80**	

Table A8.5

Bond strength after ageing of finishing coat not tested on the rig (small samples)					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
MW Lamella	**Rendering system:** base coat **ATLAS STOPTER K-50** (with key-coat) + finishing coats indicated hereafter:	ATLAS CERMIT mineral	In the insulation product	**900**	**100**
			In the insulation product	**100**	
			In the insulation product	**110**	
			In the insulation product	**110**	
			In the insulation product	**110**	
		ATLAS CERMIT WN	In the insulation product	**80**	**90**
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**90**	
		Tynk silikatowy ATLAS	In the insulation product	**90**	**90**
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**80**	
			In the insulation product	**90**	
		Tynk silikonowy ATLAS	In the insulation product	**80**	**90**
			In the insulation product	**90**	
			In the insulation product	**90**	
			In the insulation product	**80**	
			In the insulation product	**90**	
		Tynk silikonowo-silikatowy ATLAS	In the insulation product	**100**	**100**
			In the insulation product	**100**	
			In the insulation product	**120**	
			In the insulation product	**100**	
			In the insulation product	**100**	

Table A9

Thermal resistance	
Thermal resistance	**[(m²·K)/W]**
R_{render}	**0,02**
R_{ETICS}	**≥ 1,00**

Information on calculation of thermal resistance and thermal transmittance of ETICS:

The additional thermal resistance provided by the ETICS (R_{ETICS}) to the substrate wall is calculated from the thermal resistance of the thermal insulation product ($R_{insulation}$), determined in accordance with clause 2.2.23.1, and from either the tabulated R render value of the render system (R_{render} is about 0.02 m²K/W) or R_{render} determined by test according to EN 12667 or EN 12664 (depending on expected thermal resistance).

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

as described in EN ISO 10456.

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

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

with: U_c corrected thermal transmittance of the entire wall, including thermal bridges

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

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

$R_{substrate}$ 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]

ΔU correction term of the thermal transmittance for mechanical fixing devices

$= \chi_p \cdot n$ (for anchors) (formula for U_c)

χ_p point thermal transmittance value of the anchor [W/K]. If not specified in ETA for anchors, the following values apply:

= 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 n is more than 16, the formula for U_c is not applied

The influence of thermal bridges can also be calculated as described in EN ISO 10211.

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

Table B1

Factory-prefabricated mineral wool (MW) Lamella and Panels according to EN 13162		
Description and characteristics	**MW lamella**	**MW Panels**
Reaction to fire EN 13501-1	Class A1	
Thermal resistance (m²·K)/W	Defined in the CE marking in reference to EN 13162	
Thickness EN 823	MW-EN 13162 – T5	
Dimensional stability under specified temperature and humidity EN 1604	MW-EN 13162 – DS(TH)	
Short-term water absorption (partial immersion) EN 1609	MW-EN 13162 – WS	
Long-term water absorption (partial immersion) EN 12087	MW-EN 13162 – WL(P)	
Water vapour diffusion resistance factor (μ) EN 12086	1	
Tensile strength perpendicular to the faces in dry conditions EN 1607	MW-EN 13162 – TR80 MW-EN 13162 – TR90 MW-EN 13162 – TR100	MW-EN 13162 – TR10 MW-EN 13162 – TR15
Shear strength (kPa) EN 12090	≥ 20	
Shear modulus (kPa) EN 12090	≥ 1000	

Table C1

Anchor trade name [1)]	Plate diameter (mm)	Description of the anchor and characteristic resistance in the substrate
WKĘT-MET ŁMXϕ10 and ŁTXϕ10	≥ 60	see ETA-08/0172
KOELNER TFIX-8M	≥ 60	see ETA-07/0336
KOELNER TFIX-8S and TFIX-8ST	≥ 60	see ETA-11/0144
KOELNER KI-10, KI-10PA and KI-10M	≥ 60	see ETA-07/0291
KOELNER KI-10 N and KI-10NS	≥ 60	see ETA-07/0221
ejotherm STR U and SDK-U	≥ 60	see ETA-04/0023
ejotherm NT U and NK U	≥ 60	see ETA-05/0009
ejotherm SDM-T plus U, SDF-K plus and SDF-S plus	≥ 60	see ETA-04/0064
Hilti SD-FV	≥ 60	see ETA-03/0028
Fisher TERMOZ 8N and 8NZ	≥ 60	see ETA-03/0019
Fisher TERMOZ PN8	≥ 60	see ETA-09/0171
BRAVOLL PTH-S 60/8-La	≥ 60	see ETA-08/0267
BRAVOLL PTH-SL 60/8-La	≥ 60	see ETA-08/0267
ThermoDrive-V2	≥ 60	see ETA-22/0611

[1)] **In addition anchors meeting the following criteria can be used:**

- covered by ETA acc. to ETAG 014 or EAD 330196-00-0604 or EAD 330196-01-0604
- plate diameter ≥ 60 mm
- plate stiffness of anchor ≥ 0,4 kN/mm
- load resistance of anchor plate ≥ 1,64 kN
- anchors mounted on the insulation panel surface

ATLAS ROKER	**Annex C1** of European Technical Assessment ETA-06/0173
Anchors characteristic	

Table C2

Standard mesh trade name	Description	Direction	Tensile strength N/mm (average value)		Elongation ε % (average value)	
			In the as-delivered state	After alkalis conditioning	In the as-delivered state	After alkalis conditioning
R 117 A 101 / AKE 145 / VERTEX 145	see ETA-13/0392	warp	23	23	2,1	2,1
		weft	28	28	2,4	2,4
SSA 1363-145	see ETA-16/0526	warp	49	25	3,8	2,1
		weft	50	29	3,7	2,3
ATLAS 150	see ETA-16/0526	warp	46	24	3,7	1,9
		weft	44	24	3,5	1,9
ATLAS 165	see ETA-16/0526	warp	43	26	3,6	2,3
		weft	45	29	3,9	2,3

ATLAS ROKER	**Annex C2** of European Technical Assessment ETA-06/0173
Glass fibre mesh characteristics	