



INSTYTUT TECHNIKI BUDOWLANEJ



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European Technical Assessment

**ETA-06/0081
of 30/12/2024**



General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

ATLAS

Product family to which the construction product belongs

External Thermal Insulation Composite System (ETICS) with rendering

Manufacturer

ATLAS spółka z o.o.
ul. Jana Kilińskiego 2
91-421 Łódź, Poland

Manufacturing plants

ATLAS manufacturing plants

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-06/0081 issued on 24/06/2016

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Specific Part

1 Technical description of the product

External Thermal Insulation Composite System with rendering ATLAS 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 expanded polystyrene (EPS) to be bonded 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/m ²)	Thickness (mm)
Thermal insulation products with methods of fixing	Bonded ETICS: fully bonded or partially bonded (bonded surface shall be at least 40%). National application documents shall be taken into account.		
	Insulation product: factory prefabricated standard expanded polystyrene (EPS) according to EN 13163; see Annex B – thermal insulation product characteristics	-	≤ 250
	factory prefabricated elastified expanded polystyrene (EPS) according to EN 13163; see Annex B – thermal insulation product characteristics	-	≤ 250
	Adhesives: ATLAS STOPTER K-10 cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 ⁽¹⁾ (powder)	-
	ATLAS STOPTER K-20 cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 ⁽¹⁾ (powder)	-
Base coats	ATLAS HOTER S cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 ⁽¹⁾ (powder)	-
	ATLAS HOTER U cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 ⁽¹⁾ (powder)	-
	ATLAS STOPTER K-20 cement based powder requiring addition of 0,20 to 0,22 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	3,0 to 3,5 (powder)	2,0 to 3,0
Glass fibre meshes	ATLAS HOTER U cement based powder requiring addition of 0,20 to 0,22 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	3,0 to 3,5 (powder)	2,0 to 3,0
	Standard and reinforced glass fibre meshes: see Annex C – glass fibre mesh characteristics	-	-

⁽¹⁾ refers to fully bonded system

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Key coats	• ATLAS CERPLAST composition: water, styroacrylat binder, mineral fillers, additives; ready to use liquid to be used with ATLAS CERMIT SN, DR mineral and ATLAS CERMIT N, R acryl, Tynk akrylowy ATLAS	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 N, R	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 N, R, Tynk akrylowo-silikonowy ATLAS, Tynk silikonowy ATLAS, Tynk silikonowo-silikatowy ATLAS	0,25 to 0,35	-
Finishing coats	• Mineral finishing coats composition: sand, cement, mineral fillers, additives powder requiring addition of water		
	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; floated 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	
	• Acrylic finishing coats composition: sand, acryl-copolymer binder, mineral fillers, additives ready to use paste		
	ATLAS CERMIT N acryl particle size: 1,5; 2,0; 3,0 mm; floated structure	2,5 to 4,5	regulated by particle size
	ATLAS CERMIT R acryl particle size: 2,0; 3,0 mm; ribbed structure	2,5 to 4,5	
	Tynk akrylowy ATLAS particle size: 1,5; 2,0 mm; floated structure	2,5 to 3,5	
	• Acrylic-silicone finishing coat composition: sand, acryl-copolymer binder, silicone resin, mineral fillers, additives ready to use paste		
	Tynk akrylowo-silikonowy ATLAS particle size: 1,5; 2,0 mm; floated structure	2,5 to 3,5	regulated by particle size
	• Silicone finishing coats composition: sand, silicone resin, mineral fillers, additives ready to use paste		
	ATLAS SILKON N particle size: 1,5; 2,0 mm; floated 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	

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	Tynk silikonowy ATLAS particle size: 1,5; 2,0 mm; floated structure	2,5 to 3,5	regulated by particle size
	• Silicate finishing coats composition: sand, acryl-copolymer binder, mineral fillers, additives ready to use paste		
	ATLAS SILKAT N particle size: 1,5; 2,0 mm; floated 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	
	• Silicone-silicate finishing coats composition: sand, silicate binder, silicone binder, mineral fillers, additives ready to use paste		
	Tynk silikonowo-silikatowy ATLAS particle size: 1,5; 2,0 mm; floated 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 (paints)	• ATLAS ARKOL E to be used optionally with all finishing coats composition: acrylic binder, pigments, additives ready to use liquid	0,125 to 0,25 ⁽²⁾	-
	• 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 E to be used optionally with mineral and acrylic finishing coats composition: acryl-copolymer binder, pigments, additives ready to use liquid	0,125 to 0,25 ⁽²⁾	-

⁽²⁾ decorative coats coverage in dm³/m²

⁽²⁾ decorative coats coverage in dm³/m²

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Decorative coats (paints)	• ATLAS SALTA N to be used optionally with Tynk akrylowy ATLAS, Tynk akrylowo-silikonowy ATLAS, Tynk silikonowy ATLAS, Tynk silikonowo-silikatowy ATLAS and ATLAS CERMIT SN, DR mineral finishing coats 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 EAD 040083-00-0404, clause 1.3.13.		

⁽²⁾ decorative coats coverage in dm³/m²

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

Performance of the ETICS related to the Basic Requirements is 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	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

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
Hygiene, health and the environment (BWR 3)			
3	Content, emission and/or release of dangerous substances – leachable substances	2.2.4	no performance assessed
4	Water absorption:	2.2.5	-
	– of the base coat and the rendering system	2.2.5.1	Annex A2
	– of the thermal insulation product	2.2.5.2	no performance assessed (see Annex B for thermal insulation product characteristics)
5	Water-tightness of the ETICS: Hygrothermal behaviour	2.2.6	Annex A3
6	Water-tightness of the ETICS: Freeze-thaw performance	2.2.7	Annex A3
7	Impact resistance	2.2.8	Annex A4
8	Water vapour permeability:	2.2.9	-
	– of the rendering system (equivalent air thickness s_d)	2.2.9.1	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)			
9	Bond strength:	2.2.11	-
	– bond strength between the base coat and the thermal insulation product (mortar or paste)	2.2.11.1	Annex A6
	– bond strength between the adhesive and the substrate	2.2.11.2	Annex A6
	– bond strength between the adhesive and the thermal insulation product	2.2.11.3	Annex A6
10	Fixing strength (transverse displacement test)	2.2.12	test not required because the ETICS fulfils the criteria $E \cdot d \leq 50.000 \text{ N/mm}$
11	Wind load resistance of ETICS:	2.2.13	-
	– pull-through tests of fixings	2.2.13.1	no performance assessed
	– static foam block test	2.2.13.2	no performance assessed
	– dynamic wind uplift test	2.2.13.3	no performance assessed
12	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
13	Shear strength and shear modulus of elasticity test of ETICS	2.2.15	no performance assessed (see Annex B for thermal insulation product characteristics)
14	Render strip tensile test	2.2.17	no performance assessed

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
15	Bond strength after ageing:	2.2.20	-
	– bond strength after ageing of finishing coat tested on the rig	2.2.20.1	Annex A7
	– bond strength after ageing of finishing coat not tested on the rig	2.2.20.2	no performance assessed
16	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 characteristics)
Protection against noise (BWR 5)			
17	Airborne sound insulation of ETICS	2.2.22.1	no performance assessed
18	Dynamic stiffness of the thermal insulation product	2.2.22.2	no performance assessed
19	Air flow resistance of the thermal insulation product	2.2.22.3	no performance assessed
Energy economy and heat retention (BWR 6)			
20	Thermal resistance and thermal transmittance of ETICS	2.2.23	Annex A8

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 Table 3 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 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 in 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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Anna Panek, MSc
Deputy Director of ITB

Table A1.1

Configurations	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS ATLAS: - Adhesives: ATLAS STOPTER K-10, ATLAS STOPTER K-20, ATLAS HOTER S, ATLAS HOTER U - EPS panels: Class E according to EN 13501-1 - Glass fibre meshes: ATLAS 150, ATLAS 165, R 117 A 101 / AKE 145 / VERTEX 145, SSA 1363-150 SM0.5 - Base coats: ATLAS STOPTER K-20, ATLAS HOTER U - Key coats: ATLAS CERPLAST, ATLAS SILKAT ASX, ATLAS SILKON ANX - Finishing coats: Tynk akrylowy ATLAS, Tynk akrylowo-silikonowy ATLAS, Tynk silikonowy ATLAS, Tynk silikonowo-silikatowy ATLAS - Decorative coat: ATLAS SALTA N (with primer ATLAS ARKOL NX)	3,5%	0% (no flame retardant)	C – s2, d0
	-		
	-		
	3,5%		
	15,6%		
	10,8%		
ETICS ATLAS: - Adhesives: ATLAS STOPTER K-10, ATLAS STOPTER K-20, ATLAS HOTER S, ATLAS HOTER U - EPS panels: Class E according to EN 13501-1 - Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145, SSA 1363 SM(100) - Base coats: ATLAS STOPTER K-20, ATLAS HOTER U - Key coats: ATLAS CERPLAST, ATLAS SILKAT ASX - Finishing coats: ATLAS CERMIT SN, DR mineral, ATLAS SILKAT N, R - Decorative coats: ATLAS ARKOL S/SALTA S, ATLAS ARKOL N, ATLAS ARKOL E, ATLAS FASTEL NOVA/SALTA (with primers ATLAS ARKOL NX, ATLAS ARKOL SX)	3,5%	0% (no flame retardant)	B – s1, d0
	-		
	-		
	3,5%		
	15,6%		
	4,9%		
	19,9%		

ATLAS

Reaction to fire
Reaction to fire of the ETICS

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Table A1.2

Configurations	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS ATLAS: - Adhesives: ATLAS STOPTER K-10, ATLAS STOPTER K-20, ATLAS HOTER S, ATLAS HOTER U - EPS panels: Class E according to EN 13501-1 - Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145, SSA 1363 SM(100) - Base coats: ATLAS STOPTER K-20, ATLAS HOTER U - Key coats: ATLAS CERPLAST, ATLAS SILKAT ANX - Finishing coats: ATLAS CERMIT N, R acryl, ATLAS SILKON N, R - Decorative coats: ATLAS ARKOL N, ATLAS ARKOL E, ATLAS FASTEL NOVA/SALTA (with primers ATLAS ARKOL NX, ATLAS ARKOL SX)	3,5% - - 3,5% 15,6% 8,4% 19,9%	0% (no flame retardant)	B – s2, d0
Any other configuration – no performance assessed			

ATLAS

Reaction to fire
Reaction to fire of the ETICS

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Table A2.1

Water absorption of the reinforced base coat	After 1 hour (kg/m ²)	After 24 hours (kg/m ²)
ATLAS STOPTER K-20	0,03	0,35
ATLAS HOTER U	0,03	0,27

Table A2.2

Water absorption of the complete rendering		After 1 hour (kg/m ²)	After 24 hours (kg/m ²)
Rendering system: base coat: ATLAS STOPTER K-20 + key coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral	0,03	0,25
	ATLAS CERMIT DR mineral		
	ATLAS CERMIT N acryl	0,03	0,11
	ATLAS CERMIT R acryl		
	ATLAS SILKAT N	0,03	0,45
	ATLAS SILKAT R		
	ATLAS SILKON N	0,02	0,10
	ATLAS SILKON R		
	Tynk akrylowy ATLAS	0,20	0,14
	Tynk silikonowo-silikatowy ATLAS	0,20	0,23
Rendering system: base coat: ATLAS HOTER U + key coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral	0,05	0,28
	ATLAS CERMIT DR mineral		
	ATLAS CERMIT N acryl	0,01	0,13
	ATLAS CERMIT R acryl		
	ATLAS SILKAT N	0,12	0,46
	ATLAS SILKAT R		
	ATLAS SILKON N	0,02	0,29
	ATLAS SILKON R		
	Tynk akrylowy ATLAS	0,03	0,37
	Tynk silikonowo-silikatowy ATLAS	0,01	0,20
	Tynk silikonowy ATLAS	0,02	0,11
	Tynk akrylowo-silikonowy ATLAS	0,02	0,12

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Water absorption
 Water absorption of the base coat and the rendering system

Annex A2
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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 STOPTER K-20, the key-coats 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. Resistant to freeze-thaw performance.
The ETICS with the base coat ATLAS HOTER U, the key-coats 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. Resistant to freeze-thaw performance.

ATLAS	Annex A3 of European Technical Assessment ETA-06/0081
Water-tightness Water-tightness of the ETICS: Hygrothermal behavior Water-tightness of the ETICS: Freeze-thaw performance	

Table A4.1

Impact resistance				
ETICS after hygrothermal cycles on the rig				
ETICS with EPS TR100 panels according to Annex B and standard mesh (single layer)		Cracks	Max. crack diameter (mm)	Impact resistance category
Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral	Yes – 3 J	38,0	III ¹⁾
	ATLAS CERMIT DR mineral	Yes – 10 J	47,0	
	ATLAS CERMIT N acryl	No – 3 J	-	II ¹⁾
	ATLAS CERMIT R acryl	Yes – 10 J	46,0	
	ATLAS SILKAT N	No – 3 J	-	II ¹⁾
	ATLAS SILKAT R	Yes – 10 J	41,0	
	ATLAS SILKON N	Yes – 3 J	32,0	III ¹⁾
	ATLAS SILKON R	Yes – 10 J	47,0	
Rendering system: base coat ATLAS HOTER U + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral	Yes – 3 J	35,0	III ¹⁾
	ATLAS CERMIT DR mineral	Yes – 10 J	50,0	
	ATLAS CERMIT N acryl	No – 3 J	-	II ¹⁾
	ATLAS CERMIT R acryl	Yes – 10 J	38,0	
	ATLAS SILKAT N	No – 3 J	-	II ¹⁾
	ATLAS SILKAT R	Yes – 10 J	41,0	
	ATLAS SILKON N	Yes – 3 J	36,0	II ¹⁾
	ATLAS SILKON R	Yes – 10 J	42,0	
	Tynk akrylowy ATLAS	Yes – 3 J Yes – 10 J	52,0 70,0	III
	Tynk akrylowo-silikonowy ATLAS	Yes – 3 J Yes – 10 J	60,0 52,0	III
	Tynk silikonowy ATLAS	Yes – 3 J Yes – 10 J	37,0 37,0	III
	Tynk silikonowo-silikatowy ATLAS	No – 3 J Yes – 10 J	- 44,0	II

¹⁾ particle size 2,0 mm

ATLAS

Impact resistance

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Table A4.2

Impact resistance				
ETICS after ageing on the small samples				
ETICS with EPS TR100 panels according to Annex B and standard mesh (single layer)		Cracks	Max. crack diameter (mm)	Impact resistance category
Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	Tynk akrylowy ATLAS	Yes – 3 J Yes – 10 J	40,0 47,0	III
	Tynk akrylowo-silikonowy ATLAS	Yes – 3 J Yes – 10 J	47,0 42,0	III
	Tynk silikonowy ATLAS	Yes – 3 J Yes – 10 J	43,0 39,0	III
	Tynk silikonowo-silikatowy ATLAS	No – 3 J Yes – 10 J	- 32,0	II
ETICS with EPS TR100 panels according to Annex B and standard mesh (double layer)		Cracks	Max. crack diameter (mm)	Impact resistance category
Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	ATLAS SILKAT N ATLAS SILKAT R	No – 3 J No – 10 J	- -	II

ATLAS

Impact resistance

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Table A4.3

Impact resistance				
ETICS after ageing on the small samples				
ETICS with EPS TR80 panels according to Annex B and standard mesh (single layer)		Cracks	Max. crack diameter (mm)	Impact resistance category
Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral	Yes – 3 J	30,0	III ¹⁾
	ATLAS CERMIT DR mineral	Yes – 10 J	80,0	
	ATLAS CERMIT N acryl	Yes – 3 J	20,0	III ^{1), 2)}
	ATLAS CERMIT R acryl	Yes – 10 J	30,0	
	ATLAS SILKAT N	No – 3 J	-	II ^{1), 2)}
	ATLAS SILKAT R	No – 10 J	-	
	ATLAS SILKON N	No – 3 J	-	II ^{1), 2)}
	ATLAS SILKON R	Yes – 10 J	60,0	
Rendering system: base coat ATLAS HOTER U + key-coat + finishing coats indicated hereafter:	Tynk akrylowy ATLAS	Yes – 3 J Yes – 10 J	38,0 72,0	III
	Tynk akrylowo-silikonowy ATLAS	Yes – 3 J Yes – 10 J	34,0 51,0	III
	Tynk silikonowy ATLAS	Yes – 3 J Yes – 10 J	46,0 63,0	III
	Tynk silikonowo-silikatowy ATLAS	No – 3 J Yes – 10 J	- 54,0	II
	ATLAS CERMIT SN mineral	Yes – 3 J	30,0	III ¹⁾
	ATLAS CERMIT DR mineral	Yes – 10 J	70,0	
	ATLAS CERMIT N acryl	Yes – 3 J	65,0	III ^{1), 2)}
	ATLAS CERMIT R acryl	Yes – 10 J	30,0	
	ATLAS SILKAT N	No – 3 J	-	II ^{1), 2)}
	ATLAS SILKAT R	No – 10 J	-	
	ATLAS SILKON N	Yes – 3 J	25,0	III ^{1), 2)}
	ATLAS SILKON R	Yes – 10 J	40,0	
	Tynk akrylowy ATLAS	Yes – 3 J Yes – 10 J	30,0 51,0	III
	Tynk akrylowo-silikonowy ATLAS	Yes – 3 J Yes – 10 J	31,0 68,0	III
	Tynk silikonowy ATLAS	Yes – 3 J Yes – 10 J	44,0 67,0	III
	Tynk silikonowo-silikatowy ATLAS	No – 3 J Yes – 10 J	- 53,0	II
¹⁾ elastified EPS TR80				
²⁾ particle size 2,0 mm				

ATLAS

Impact resistance

Annex A4.3
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Table A5.1

Finishing coat		Equivalent air thickness s_d m
Rendering system: base coat ATLAS STOPTER K-20 (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS CERPLAST + ATLAS CERMIT SN mineral finishing coat thickness 3,0 mm	0,2
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA N finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA E finishing coat thickness 3,0 mm	0,2
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL E finishing coat thickness 3,0 mm	0,4
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT N acryl finishing coat thickness 3,0 mm	0,6
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA N finishing coat thickness 3,0 mm	1,1
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA E finishing coat thickness 3,0 mm	1,2
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 3,0 mm	1,0
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL E finishing coat thickness 3,0 mm	1,0
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 3,0 mm	1,0
	ATLAS SILKAT ASX + ATLAS SILKAT N finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS SALTA N finishing coat thickness 2,0 mm	0,3
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 2,0 mm	0,2
ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	ATLAS CERPLAST + ATLAS CERMIT SN mineral finishing coat thickness 3,0 mm	0,2
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA N finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA E finishing coat thickness 3,0 mm	0,2
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL E finishing coat thickness 3,0 mm	0,4
	ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 3,0 mm	0,3
	ATLAS CERPLAST + ATLAS CERMIT N acryl finishing coat thickness 3,0 mm	0,6
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA N finishing coat thickness 3,0 mm	1,1
ATLAS CERMIT N acryl ATLAS CERMIT R acryl	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA E finishing coat thickness 3,0 mm	1,2
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 3,0 mm	1,0
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL E finishing coat thickness 3,0 mm	1,0
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 3,0 mm	1,0
ATLAS SILKAT N ATLAS SILKAT R	ATLAS SILKAT ASX + ATLAS SILKAT N finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS SALTA N finishing coat thickness 2,0 mm	0,3
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS ARKOL N finishing coat thickness 2,0 mm	0,2
	ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA finishing coat thickness 2,0 mm	0,2

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Table A5.2

		Finishing coat	Equivalent air thickness s_d m
Rendering system: base coat ATLAS STOPTER K-20 (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS SILKON N ATLAS SILKON R	ATLAS SILKAT ASX + ATLAS SILKON N <i>finishing coat thickness 2,0 mm</i>	0,5
		ATLAS SILKAT ASX + ATLAS SILKON N + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,9
		ATLAS SILKAT ASX + ATLAS SILKON N + ATLAS ARKOL NX + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,8
		ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,9
		ATLAS CERPLAST + Tynk akrylowy ATLAS <i>finishing coat thickness 2,0 mm</i>	0,3
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,3
	Tynk akrylowy ATLAS	ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS SALTA E <i>finishing coat thickness 2,0 mm</i>	0,4
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,4
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,4
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS <i>finishing coat thickness 2,0 mm</i>	0,3
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,3
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,4
	Tynk akrylowo-silikonowy ATLAS	ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,3
		ATLAS SILKON ANX + Tynk silikonowy ATLAS <i>finishing coat thickness 2,0 mm</i>	0,4
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,6
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS ARKOL S / SALTA S <i>finishing coat thickness 2,0 mm</i>	0,4
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,6
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,4
	Tynk silikonowy ATLAS		
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Table A5.3

Finishing coat		Equivalent air thickness s_a m
Rendering system: base coat ATLAS STOPTER K-20 (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS <i>finishing coat thickness 2,0 mm</i>	0,4
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,5
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS ARKOL S / SALTA S <i>finishing coat thickness 2,0 mm</i>	0,5
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,5
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,5

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Table A5.4

		Finishing coat	Equivalent air thickness s_a m	
Rendering system: base coat ATLAS HOTER U (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	ATLAS CERPLAST + ATLAS CERMIT SN mineral <i>finishing coat thickness 3,0 mm</i>	0,2	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA N <i>finishing coat thickness 3,0 mm</i>	0,2	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS SALTA E <i>finishing coat thickness 3,0 mm</i>	1,2	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S <i>finishing coat thickness 3,0 mm</i>	0,2	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS ARKOL N <i>finishing coat thickness 3,0 mm</i>	0,3	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL E <i>finishing coat thickness 3,0 mm</i>	0,3	
		ATLAS CERPLAST + ATLAS CERMIT SN mineral + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 3,0 mm</i>	0,2	
		ATLAS CERMIT N acryl ATLAS CERMIT R acryl	ATLAS CERPLAST + ATLAS CERMIT N acryl <i>finishing coat thickness 3,0 mm</i>	0,4
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA N <i>finishing coat thickness 3,0 mm</i>		1,4	
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS SALTA E <i>finishing coat thickness 3,0 mm</i>		1,3	
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS ARKOL N <i>finishing coat thickness 3,0 mm</i>		0,8	
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL E <i>finishing coat thickness 3,0 mm</i>		0,8	
	ATLAS CERPLAST + ATLAS CERMIT N acryl + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 3,0 mm</i>		0,8	
	ATLAS SILKAT N ATLAS SILKAT R		ATLAS SILKAT ASX + ATLAS SILKAT N <i>finishing coat thickness 2,0 mm</i>	0,2
			ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL SX + ATLAS ARKOL S / SALTA S <i>finishing coat thickness 2,0 mm</i>	0,2
		ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i>	0,2	
		ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i>	0,2	
		ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i>	0,2	
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Table A5.5

Finishing coat		Equivalent air thickness s_d m
Rendering system: base coat ATLAS HOTER U (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS SILKON N ATLAS SILKON R	ATLAS SILKAT ASX + ATLAS SILKON N <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS SILKAT ASX + ATLAS SILKON N + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i> 0,9
		ATLAS SILKAT ASX + ATLAS SILKON N + ATLAS ARKOL NX + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i> 0,8
		ATLAS SILKAT ASX + ATLAS SILKAT N + ATLAS ARKOL NX + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,8
		ATLAS CERPLAST + Tynk akrylowy ATLAS <i>finishing coat thickness 2,0 mm</i> 0,3
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i> 0,3
	Tynk akrylowy ATLAS	ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS SALTA E <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS CERPLAST + Tynk akrylowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,3
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i> 0,7
		ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i> 0,6
	Tynk akrylowo-silikonowy ATLAS	ATLAS SILKON ANX + Tynk akrylowo-silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,6
		ATLAS SILKON ANX + Tynk silikonowy ATLAS <i>finishing coat thickness 2,0 mm</i> 0,3
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS SALTA N <i>finishing coat thickness 2,0 mm</i> 0,6
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS ARKOL S / SALTA S <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS ARKOL N <i>finishing coat thickness 2,0 mm</i> 0,6
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,4
		ATLAS SILKON ANX + Tynk silikonowy ATLAS + ATLAS FASTEL NOVA / SALTA <i>finishing coat thickness 2,0 mm</i> 0,4

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Water vapour permeability

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Table A5.6

Finishing coat		Equivalent air thickness s_d m
Rendering system: base coat ATLAS HOTER U (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS	0,4
	<i>finishing coat thickness 2,0 mm</i>	
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS SALTA N	0,5
	<i>finishing coat thickness 2,0 mm</i>	
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS ARKOL S / SALTA S	0,5
	<i>finishing coat thickness 2,0 mm</i>	
	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS ARKOL N	0,5
	<i>finishing coat thickness 2,0 mm</i>	
Tynk silikonowo-silikatowy ATLAS	ATLAS SILKON ANX + Tynk silikonowo-slikatowy ATLAS + ATLAS FASTEL NOVA / SALTA	0,5
	<i>finishing coat thickness 2,0 mm</i>	

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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
EPS panels	ATLAS STOPTER K-20 (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	80	100
		After hygrothermal cycles (on the rig)		150	150
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	110	130
		After hygrothermal cycles (on the rig)		90	110

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 STOPTER K-10 (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	920	1090
		2 days immersion and 2 hours drying	failure in the adhesive	390	420
		2 days immersion and min. 7 days drying	failure in the adhesive	1490	1950
	ATLAS STOPTER K-20 (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	940	1260
		2 days immersion and 2 hours drying	failure in the adhesive	360	380
		2 days immersion and min. 7 days drying	failure in the adhesive	1620	1840
	ATLAS HOTER S (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	610	1140
		2 days immersion and 2 hours drying	failure in the adhesive	770	860
		2 days immersion and min. 7 days drying	failure in the adhesive	690	1670
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	530	1180
		2 days immersion and 2 hours drying	failure in the adhesive	320	390
		2 days immersion and min. 7 days drying	failure in the adhesive	850	1250

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Bond strength

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Table A6.3

Bond strength between the adhesive and the insulation product					
Insulation product	Adhesive (and tested thickness)	Conditioning before the test	Rupture type	Bond strength (kPa)	
				Min.	Mean
EPS panels	ATLAS STOPTER K-10 (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	80	90
		2 days immersion and 2 hours drying		80	90
		2 days immersion and min. 7 days drying		80	90
	ATLAS STOPTER K-20 (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	110	110
		2 days immersion and 2 hours drying		70	70
		2 days immersion and min. 7 days drying		80	90
	ATLAS HOTER S (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	90	100
		2 days immersion and 2 hours drying		60	70
		2 days immersion and min. 7 days drying		80	90
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	110	110
		2 days immersion and 2 hours drying		60	60
		2 days immersion and min. 7 days drying		80	100

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Bond strength

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Table A7.1

Bond strength after ageing of finishing coat tested on the rig				
Insulation product	ETICS configuration		Rupture type	Bond strength (kPa)
				Individual Mean
EPS TR100 panels	Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral failure in the insulation product	120	110
			140	
			130	
			90	
			90	
		ATLAS CERMIT N acryl ATLAS CERMIT R acryl failure in the insulation product	160	140
			120	
			110	
			140	
		ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R failure in the insulation product	120	130
			140	
			110	
			140	
		ATLAS SILKON N ATLAS SILKON R failure in the insulation product	150	160
			180	
			170	
			160	
		ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral failure in the insulation product	140	90
			130	
			60	
			110	
			90	
	Rendering system: base coat ATLAS HOTER U + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT N acryl ATLAS CERMIT R acryl failure in the insulation product	140	160
			150	
			180	
			170	
		ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R failure in the insulation product	160	160
			170	
			150	
			170	
		ATLAS SILKON N ATLAS SILKON R failure in the insulation product	150	160
			120	
			120	
			130	
		ATLAS SILKON N ATLAS SILKON R failure in the insulation product	80	120
			130	

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Bond strength after ageing

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Table A7.2

Bond strength after ageing of finishing coat tested on the rig					
Insulation product	ETICS configuration		Rupture type	Bond strength (kPa)	
				Individual	Mean
EPS TR80 panels	Rendering system: base coat ATLAS HOTER U + key-coat + finishing coats indicated hereafter:	Tynk akrylowy ATLAS	failure in the insulation product	80	90
				100	
				100	
				80	
				90	
		Tynk akrylowo-silikonowy ATLAS	failure in the insulation product	110	90
				100	
				80	
				80	
				90	
		Tynk silikonowy ATLAS	failure in the insulation product	80	80
				80	
				90	
				80	
				90	
		Tynk silikonowo-silikatowy ATLAS	failure in the insulation product	100	90
				90	
				90	
				80	
				90	

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Bond strength after ageing

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Table A7.3

Bond strength after ageing of finishing coat not tested on the rig					
Insulation product	ETICS configuration		Rupture type	Bond strength (kPa)	
				Individual	Mean
EPS TR80 panels	Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	Tynk akrylowy ATLAS	failure in the insulation product	140	140
				140	
				140	
				130	
				140	
		Tynk akrylowo-silikonowy ATLAS	failure in the insulation product	120	120
				130	
				120	
				120	
		Tynk silikonowy ATLAS	failure in the insulation product	130	130
				130	
				130	
				110	
		Tynk silikonowo-silikatowy ATLAS	failure in the insulation product	110	120
				120	
				120	
				120	
EPS elastified TR80 panels	Rendering system: base coat ATLAS STOPTER K-20 + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	failure in the insulation product	90	90
				90	
				90	
				90	
				90	
		ATLAS CERMIT N acryl ATLAS CERMIT R acryl	failure in the insulation product	90	90
				90	
				90	
				90	
				90	

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Bond strength after ageing

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Table A8

Thermal resistance	[(m ² ·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 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).

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

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:

$$U_c = U + \Delta U \text{ [W/(m}^2\text{·K)]}$$

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

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

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.

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Thermal resistance and thermal transmittance of ETICS

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Table B1

Factory-prefabricated expanded polystyrene (EPS) panels according to EN 13163		
Description and characteristics		EPS panels
Reaction to fire EN 13501-1		Class E
Thermal resistance (m ² ·K)/W		Defined in the CE marking
Thickness EN 823		EPS-EN 13163 – T1
Length EN 822		EPS-EN 13163 – L2
Width EN 822		EPS-EN 13163 – W2
Squariness EN 824		EPS-EN 13163 – S5
Flatness EN 825		EPS-EN 13163 – P5
Dimensional stability	under laboratory conditions EN 1603	EPS-EN 13163 – DS(N)2
	under specified temperature and humidity EN 1604	EPS-EN 13163 – DS(70,-)1 EPS-EN 13163 – DS(70,-)2
Short-term water absorption (partial immersion) (kg/m ²) EN 1609		≤ 1,0
Water vapour diffusion resistance factor (μ) EN 12086		20 to 60
Tensile strength perpendicular to the faces in dry conditions EN 1607		EPS-EN 13164 – TR80 (standard and elastified ¹⁾ EPS) EPS-EN 13164 – TR100 (standard EPS)
Bending strength (kPa) EN 12089		≥ 75
Shear strength (MPa) EN 12090		≥ 0,02
Shear modulus (MPa) EN 12090		1,0 ≤ G _m ≤ 3,0 (standard EPS) 0,3 ≤ G _m ≤ 1,0 (elastified* EPS)
¹⁾ elastified EPS is made from standard EPS by short time high load pressing to reduce the dynamic stiffness		

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Thermal insulation product characteristics

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Table C1

Glass fibre 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	ETA-13/0392	warp	23	23	2,1	2,1
		weft	28	28	2,4	2,4
SSA 1363-145	ETA-16/0526	warp	49	25	3,8	2,1
		weft	50	29	3,7	2,3
ATLAS 150	ETA-16/0526	warp	46	24	3,7	1,9
		weft	44	24	3,5	1,9
ATLAS 165	ETA-16/0526	warp	43	26	3,6	2,3
		weft	45	29	3,9	2,3

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Glass fibre mesh characteristics

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