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European Technical Assessment

ETA-09/0266
of 28.03.2018

General part

Technical Assessment Body issuing the European Technical Assessment:

Österreichisches Institut für Bautechnik

Trade name:

StoTherm Classic 8

Product family to which the construction product belongs:

External Thermal Insulation Composite Systems with rendering on polystyrene (EPS) for the use as external insulation to walls of buildings.

Manufacturer:

Sto SE & Co. KGaA
Ehrenbachstraße 1
79780 Stühlingen
Germany

Manufacturing plant:

Sto SE & Co. KGaA
Ehrenbachstraße 1
D-79780 Deutschland
Deutschland

This European Technical Assessment contains:

20 pages including 1 Annex

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

EAD 040089-00-0404 - ETICS WITH RENDERINGS FOR THE USE ON TIMBER FRAME BUILDINGS, edition May 2016

This European Technical Assessment replaces:

ETA-09/0266 with validity from 11.11.2009 to 10.11.2014

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Specific parts

1. Technical description of the product

1.1 General

This product is an ETICS (External Thermal Insulation Composite System) with rendering - a kit comprising components which are factory-produced by the manufacturer or component suppliers.

The ETICS manufacturer is ultimately responsible for all components of the ETICS specified in this ETA. The ETICS kit comprises a prefabricated expanded polystyrene insulation product (EPS) to be bonded or bonded and mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

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

1.2 Composition of the kit

1.2.1 Composition of the ETICS

	Components	Coverage (kg/m ²)	Thickness (mm)
Insulation materials with associated methods of fixing	Bonded ETICS with and without supplementary mechanical fixing (partially or fully bonded. National application documents shall be taken into account)		
	➤ Insulation product factory-prefabricated expanded polystyrene (EPS) in accordance with EN 13163	/	30 to 300
	➤ Sto-Bossenplatte	/	50 to 300
	➤ Adhesives		
	- Sto-Dispersionskleber organic based ready to use paste	1,0 to 1,5 (paste)	/
	- StoPrefa Coll organic based ready to use paste	0,8 to 1,5 (paste)	/
	- StoColl RC organic based ready to use paste	1,2 to 1,6 (paste)	/
- StoColl Mineral HP Cement based powder with silica sand and additives	4,0 to 4,5 (powder)	/	
Insulation materials with associated methods of fixing	Mechanically fixed ETICS with and without supplementary adhesive (see § 2.3.3 a) for possible associations insulation product/anchors)		
	➤ Insulation product factory-prefabricated expanded polystyrene (EPS) in accordance with EN 13163	/	60 to 300
	➤ Sto-Bossenplatte	/	50 to 300
	➤ Adhesives:		
	- Sto-Dispersionskleber organic based ready to use paste	1,0 to 1,5 (paste)	/
	- StoPrefa Coll organic based ready to use paste	0,8 to 1,5 (paste)	/
	- StoColl RC organic based ready to use paste	1,2 to 1,6 (paste)	/
	- StoColl Mineral HP Cement based powder with silica sand and additives	4,0 to 4,5 (powder)	/
➤ Fixings			
- Sto-Schraubdübel H60 - Sto-Schraubdübel H60 A2 - Sto-Schraubdübel H60 E	/	/	
Base coat	- StoArmat Classic Ready to use paste (cement free): acrylic copolymere binder in watery dispersion, sili-cate particles, fibres and specific additives	3,0 to 4,0 (paste)	2,5 to 3,0
	- StoArmat Classic plus Ready to use paste (cement free): acrylic copolymere binder in watery dispersion, sili-cate particles, fibres and specific additives	3,0 to 4,0 (paste)	2,5 to 3,0

	Components	Coverage (kg/m ²)	Thickness (mm)
Base coat	- Sto-Amierungsputz: Ready to use paste (cement free): acrylic copolymere binder in watery dispersion, silicate particles, fibres and specific additives	ca. 3,5 (Paste)	Ø 2,0 Min. 1,8
	- StoPrefa Armat: Ready to use paste (cement free): acrylic copolymere binder in watery dispersion, silicate particles, fibres and specific additives	ca. 3,5 (Paste)	Ø 2,0 Min. 1,8
Glass fibre mesh	- Sto-Glasfasergewebe F mesh size approx. 4 mm x 4 mm	/	/
	- Sto-Glasfasergewebe mesh size approx. 6 mm x 6 mm	/	/
	- Sto-Abschirmgewebe AES mesh size approx. 4 mm x 4 mm	/	/
	- Sto-Panzergewebe mesh size approx. 7,5 mm x 7,5 mm	/	/
	- Sto-Bossengewebe mesh size approx. 4,0 mm x 4,0 mm	/	/
Finishing coat	➤ Ready to use pastes – synthetic binder		
	- Stolit K particle size 1,0/1,5/2,0/3,0/6,0 mm	2,0 to 6,5	Regulated by particle size
	- Stolit X-black particle size 1,0/1,5/2,0/3,0/6,0 mm	2,2 to 6,5	
	- Stolit R particle size 1,5/2,0/3,0/6,0 mm	2,2 to 6,1	
	- Stolit Effect particle size 3,0 mm	4,5 to 5,5	
	- Stolit MP particle size 0,5 mm	2,2 to 4,7	1,5 to 3,5
	- Stolit QS K particle size 1,0/1,5/2,0/3,0/6,0 mm	2,0 to 4,8	Regulated by particle size
	- Stolit QS R particle size 1,5/2,0/3,0/6,0 mm	2,2 to 4,5	
	- Stolit QS MP particle size 0,5 mm	2,2 to 4,7	1,5 to 3,5
	- StoSuperlit particle size 2,0	4,5 to 6,0	Regulated by particle size
	- StoNivellit + StoColor Silco particle size 0,5 mm	3,0 to 3,5	1,0 to 1,5
	- Stolit Milano	2,0 to 4,0	1,0 to 2,0
	- Stolit K 1,5 (particle size 1,5 mm) + Stolit Milano	about 2,3 about 3,0	2,0 to 3,0
- Sto-Ispolit K particle size 1,5/2,5/3,5 mm	2,3 to 4,3	Regulated by particle size	
- Sto-Ispolit R - particle size 1,5/2,5/3,5 mm	2,3 to 4,3		
- Sto-Ispolit MP particle size 0,5 mm	2,3 to 4,3	1,5 to 3,5	

	Components	Coverage (kg/m²)	Thickness (mm)
Finishing coat	➤ Ready to use paste – silicon resin - StoSilco K particle size 1,0/1,5/2,0/3,0 mm	2,0 to 5,0	Regulated by particle size
	- StoSilco R particle size 1,5/2,0/3,0 mm	2,9 to 4,5	
	- StoSilco MP particle size 0,5 mm	2,2 to 4,7	1,5 to 3,5
	- StoSilco blue K particle size 1,0/1,5/2,0/3,0 mm	1,8 to 5,0	Regulated by particle size
	- StoSilco blue MP particle size 0,5 mm	1,5 to 4,0	1,5 to 3,5
	- StoSilco QS K particle size 1,0/1,5/2,0/3,0 mm	2,0 to 5,0	Regulated by particle size
	- StoSilco QS R particle size 1,5/2,0/3,0 mm	2,9 to 4,5	
	- StoSilco QS MP particle size 0,5 mm	2,2 to 4,7	1,5 to 3,5
	➤ Ready to use paste – silicon resin - StoLotusan K particle size 1,0/1,5/2,0/3,0 mm	2,0 to 5,0	Regulated by particle size
	- StoLotusan MP particle size 0,5 mm	2,2 to 4,7	1,5 to 3,5
	- Sto-Silkolit K particle size 1,5/2,5/3,5 mm	2,3 to 4,3	Regulated by particle size
	- Sto-Silkolit R - particle size 1,5/2,5/3,5 mm	2,3 to 4,3	
	- Sto-Silkolit MP particle size 0,5 mm	2,3 to 4,3	1,5 to 3,5
	➤ Synthetic brick slips Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	3,0 to 4,0 76, 64 or 48 pieces/m ²	4,0 to 7,0
Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	3,0 to 4,0 780 – 2,4 pieces/m ²	4,0 to 7,0	
Decorative coats (optional)	➤ Ready to use paint - StoColor Silco - StoColor Silco G - StoColor X-black - StoColor Lotusan - StoColor Lotusan G - StoColor Jumbosil - StoColor Silco Variant - StoColor Silco Variant G - StoColor Maxicryl - StoColor Dryonic - StoColor Solical	0,20 to 0,40 l/m ²	/
Ancillary materials	Descriptions in accordance with § 3.2.2.5 of the ETAG 004 Remain under the ETA-holder responsibilities		

1.2.2 Characteristics of the insulation product

Description and characteristics	Bonded ETICS		Mechanically fixed ETICS with and without supplementary adhesive
	purely bonded	with supplementary mechanical fixings	with anchors
Reaction to fire / EN 13501-1	Euroclass E		
Thermal resistance	Defined in the CE marking referred to EN 13163		
Water absorption / EN 12086	$\leq 0,5 \text{ kg/m}^2$		
Water vapour diffusion resistance factor (μ) / EN 12086	≤ 60		
Tensile strength / EN 1607	$\geq 100 \text{ kPa}$ (TR100, TR150)		
Shear strength / EN 12090	$0,02 \leq f_{tk} \leq 0,10 \text{ [N/mm}^2\text{]}$		Not relevant
Shear modulus / EN 12090	$1,0 \leq G_m \leq 2,0 \text{ [N/mm}^2\text{]}$		Not relevant

1.2.3 Fixings

1.2.3.1 Anchors for insulation products:

Trade name	Plate diameter (mm)	characteristic resistances in the substrate	
Sto-Schraubdübel H60 / H60 A2 / H60 E	≥ 60	timber frame	$\geq 0,25 \text{ kN}$

The recommended characteristic resistance is made under the assumption of a safety factor of 3. The given characteristic depends on building and may therefore fluctuate. If insulation product is installed on a substrate acc. to clause 1.2 the mechanically fixation shall be done with a minimum depth of anchoring 5 mm through this substrate into the wooden frame construction (solid).

1.2.4 Render

The average value of the crack width of the base coat with the glass fibre mesh, measured at a render strain value of 50% is about 0,1 mm.

1.2.5 Glass fibres meshes

	Alkalis resistance			
	Residual resistance after ageing (N/mm)		Relative residual resistance: % (after ageing) of strength in the as delivered state	
	Warp	Weft	Warp	Weft
Sto-Glasfasergewebe	≥ 20	≥ 20	≥ 50	≥ 50
Sto-Glasfasergewebe F	≥ 20	≥ 20	≥ 50	≥ 50
Sto-Abschirmgewebe AES	≥ 20	≥ 20	≥ 50	≥ 50
Sto-Panzergewebe	≥ 20	≥ 20	≥ 40	≥ 40

1.3 Manufacturing

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

1.4 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation. Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different.

Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the EAD 040089-00-0404 "ETICS WITH RENDERINGS FOR THE USE ON TIMBER FRAME BUILDINGS", which summarizes how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

1.5 Packaging, transport and storage

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the concerned people.

1.6 Use, maintenance and repair

The finishing coat shall normally be maintained in order to fully preserve the ETICS performance. Maintenance includes at least:

- visual inspection of the ETICS
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs should be performed as soon as the need has been identified. It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance. Only products which are compatible with the ETICS shall be used.

The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the concerned people.

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

The ETICS are designed to give the timber frame building wall to which they are applied additional thermal insulation and protection from effects of weathering.

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

The surface for the application of ETICS can be a board substrate acc. to Annex 1 (wood based panels, solid wood panels, plasterboards, gypsum bonded boards, cement bonded boards, etc.).

The substrate has to be strong, dry and free of loose material. It may be necessary to protect the substrate against wetting and weathering before the application of the ETICS.

The thickness of the panels has to be superior or equal to 10 mm.

The board substrate must be suitable for humid conditions as specified in EN 13986.

If the insulation layer of the ETICS is WF according to hEN 13171, the insulation product can also be mounted direct to the timber frame, but it must be guaranteed that penetrating humidity has no effect on the timber frame/second insulation layer.

The ETICS can contribute to the durability of a timber frame building by providing enhanced protection from the effects of weathering.

ETICS are non load-bearing construction elements. They do not contribute directly to the stability of the timber frame building wall on which they are installed. The verification of the structural capacities of the wall and their suitability for the application of ETICS shall be in accordance with ETAG 007 (and its conversion into EAD), clause 5.1 using calculation methods (EN 1995-1-1, Eurocode 5 Part 1-1, etc) as well as verifications by testing (EN 380, EN 594, EN 595, EN 596, etc.) where the load bearing capacity is unable to calculate.

ETICS are not intended to ensure the air tightness of the timber frame building structure. The timber frame building wall as such has therefore to be airtight to:

- a) reduce the thermal transmittance of the wall
- b) avoid interstitial condensation due to convection.

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

3.1 Reaction to fire

Configuration according to clause 1.2.1	Maximum declared organic content of the rendering system	Minimum declared flame retardant content of the rendering system	Euroclass according to EN 13501-1 : 2002
StoTherm Classic 8	Base coat: 9,6 % Finishing coat: 8,0 %	Base coat: 10 % Finishing coat: 0,0 %	B – s2, d0

Note: A European reference fire scenario has not been laid down for facades. In some Member States, the classification of ETICS according to EN 13501-1: 2002 might not be sufficient for the use in facades. An additional assessment of ETICS according to national provisions (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

3.2 Water absorption (capillarity test)

- Base coat StoArmat Classic:
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0.5 kg/m²
- Rendering system:

		Wasseraufnahme nach 24 Stunden	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: StoArmat Classic + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	X	
	Stolit QS K/R/MP	X	
	StoNivellit + StoColor Silco	X	
	Stolit Milano	X	
	Stolit K1,5 + Stolit Milano	X	
	Sto-Ispolit K/R/MP	X	
	StoSuperlit	X	
	StoSilco K/R/MP	X	
	StoSilco blue K/MP	X	
	StoSilco QS K/R/MP	X	
	Sto-Silkolit K/R/MP		X
	StoLotusan K/MP		X
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	X	
	Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	X	

- Base coat StoArmat Classic plus:
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0.5 kg/m²
- Rendering system:

		Wasseraufnahme nach 24 Stunden	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: StoArmat Classic plus + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	X	
	Stolit QS K/R/MP	X	
	StoNivellit + StoColor Silco	X	
	Stolit Milano	X	
	Stolit K1,5 + Stolit Milano	X	
	Sto-Ispolit K/R/MP	X	
	StoSuperlit	X	
	StoSilco K/R/MP	X	
	StoSilco blue K/MP	X	
	StoSilco QS K/R/MP	X	
	Sto-Silkolit K/R/MP	X	
	StoLotusan K/MP	X	
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	X	
	Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	X	

- Base coat Sto-Armierungsputz:
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0.5 kg/m²
- Rendering system:

		Wasseraufnahme nach 24 Stunden	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: Sto-Armierungsputz + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	X	
	Stolit QS K/R/MP	X	
	StoNivellit + StoColor Silco	X	
	Stolit Milano	X	
	Stolit K1,5 + Stolit Milano	X	
	Sto-Ispolit K/R/MP	X	
	StoSuperlit		X
	StoSilco K/R/MP	X	
	StoSilco blue K/MP	X	
	StoSilco QS K/R/MP	X	
	Sto-Silkolit K/R/MP	X	
	StoLotusan K/MP	X	
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	X	
	Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	X	

- Base coat StoPrefa Armat:
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0.5 kg/m²

➤ Rendering system:

		Wasseraufnahme nach 24 Stunden	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: StoPrefa Armat + finishing coat indicated here- after:	Stolit K/R/MP/Effect/X-black	X	
	Stolit QS K/R/MP	X	
	StoNivellit + StoColor Silco	X	
	Stolit Milano	X	
	Stolit K1,5 + Stolit Milano	X	
	Sto-Ispolit K/R/MP	X	
	StoSuperlit		X
	StoSilco K/R/MP		X
	StoSilco blue K/MP	X	
	StoSilco QS K/R/MP	X	
	Sto-Silkolit K/R/MP		X
	StoLotusan K/MP		X
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	X	
	Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	X	

3.3 Watertightness

3.3.1 Moisture content and gradient

moisture content (% by mass): < 20 (< 15)
moisture gradient (% by mass): < 3

3.3.2 Hygrothermal behaviour

The hygrothermal performance has been passed without defects

3.3.3 Freeze/Thaw-Resistance

All render systems with a water absorption > 0,5 kg/m² the freeze/thaw resistance has been tested and has passed without defects.

3.4 Impact resistance

		Single standard mesh	Double standard mesh	Standard mesh with Sto-Panzer-gewebe
		Rendering system: StoArmat Classic + finishing coat indicated hereafter	Stolit K/R/MP/Effect/X-black	Category II
Stolit QS K/R/MP	Category II		Category I	
StoNivellit + StoColor Silco	Category II		Category I	
Sto-Ispolit K/R/MP	NPD			
StoSilco K/R/MP	Category II			Category I
StoSilco blue K/MP	NPD			
StoSilco QS K/R/MP	Category II			Category I
Sto-Silkolit K/R/MP	NPD			
Sto-Superlit	Category II		Category I	
StoLotusan K/MP	Category II		Category I	
Stolit Milano	Category II		Category I	
Stolit K 1,5 + Stolit Milano	Category II		Category I	
Sto-Klebe und Fugenmörtel + Sto-Flachverblender	On the briquettes		Category I	

			Single standard mesh	Double standard mesh	Standard mesh with Sto-Panzer-gewebe
Rendering system: StoArmat Classic + finishing coat indicated hereafter	Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	Between briquettes (joints)	Category II		Category I
			Category II		Category I
Rendering system: StoArmat Classic plus + finishing coat indicated hereafter	Stolit K/R/MP/Effect/X-black		Category II		Category I
	Stolit QS K/R/MP		Category II		
	StoNivellit + StoColor Silco		Category III	Category II	
	Sto-Ispolit K/R/MP		Category II	NPD	
	Stolit Milano		Category II		Category I
	Stolit K 1,5 + Stolit Milano		Category II		
	StoSuperlit		Category II		
	StoSilco K/R/MP		Category II		Category I
	StoSilco blue K/MP		Category II	Category I	
	StoSilco QS K/R/MP		Category II		Category I
	Sto-Silkolit K/R/MP		Category II	NPD	
	StoLotusan K/MP		Category II		Category I
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender		Category I		
Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes		Category I			
Rendering system: Sto-Armi-erungsputz + finishing coat indicated hereafter	Stolit K/R/MP/Effect/X-black		Category II		Category I
	Stolit QS K/R/MP		Category II		Category I
	StoNivellit + StoColor Silco		Category III	Category II	
	Sto-Ispolit K/R/MP		Category II		NPD
	Stolit Milano		Category II		Category I
	Stolit K 1,5 + Stolit Milano		Category II		Category I
	StoSuperlit		Category I	Category II	
	StoSilco K/R/MP		Category II		Category II Category I
	StoSilco blue K/MP		Category II		NPD
	StoSilco QS K/R/MP		Category II		Category II
	Sto-Silkolit K/R/MP		Category II		NPD
	StoLotusan K/MP		Category II		Category I
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	On the briquettes	Category I		
Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	Between briquettes (joints)	Category II		Category I	

		Single standard mesh	Double standard mesh	Standard mesh with Sto-Panzer-gewebe	
Rendering system: StoPrefa Armat + finishing coat indicated hereafter	Stolit K/R/MP/Effect/X-black	Category II	Category II		
	Stolit QS K/R/MP	Category II	NPD		
	StoNivellit + StoColor Silco	Category II		Category I	
	Sto-Ispolit K/R/MP	Category II	NPD		
	Stolit Milano	Category I			
	Stolit K 1,5 + Stolit Milano				
	StoSuperlit	Category II		Category I	
	StoSilco K/R/MP	Category II	Category II	Category I	
	StoSilco blue K/MP		NPD		
	StoSilco QS K/R/MP	Category II		Category I	
	Sto-Silkolit K/R/MP	Category II	NPD		
	StoLotusan K/MP		Category II	Category I	
	Sto-Klebe- und Fugenmörtel + Sto-Flachverblender	On the briquettes	Category I		
	Sto-Klebe- und Fugenmörtel + Sto-Ecoshapes	Between briquettes (joints)	Category III	Category II	Category I

3.5 Water vapour permeability

		Equivalent air thickness (m)
Rendering system: StoArmat Classic + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≤ 1 m (test result obtained with particle size 2,0 mm: 0,4 m)
	Stolit QS K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,4 m)
	StoNivellit + StoColor Silco	≤ 1 m (test result obtained with particle size 2,5 mm: 0,6 m)
	Sto-Ispolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 0,9 m)
	Stolit Milano	≤ 1 m (test result: 0,5 m)
	Stolit K 1,5 + Stolit Milano	≤ 1 m (test result: 0,7 m)
	StoSilco K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,5 m)
	StoSilco blue K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,9 m)
	StoSilco QS K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,5 m)
	Sto-Silkolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 0,7 m)
	StoLotusan K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,4 m)
	Sto-Superlit	≤ 1 m (test result obtained with particle size 2,0 mm: 0,7 m)
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)

		Equivalent air thickness (m)
Rendering system: StoArmat Classic plus + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)
	Stolit QS K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)
	StoNivellit + StoColor Silco	≤ 1 m (test result: 0,9 m)
	Sto-Ispolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 1,0 m)
	Stolit Milano	≤ 1 m (test result: 1,0 m)
	Stolit K 1,5 + Stolit Milano	≤ 2 m (test result: 1,4 m)
	StoSilco K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,9 m)
	StoSilco blue K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)
	StoSilco QS K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,9 m)
	Sto-Silkolit K/R/MP	≤ 2 m (test result obtained with particle size 2,0 mm: 1,2 m)
	StoLotusan K/MP	≤ 1 m (test result obtained with particle size 1,0 mm: 0,8 m)
	StoSuperlit K	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	≤ 1 m (test result: 0,8 m)
Rendering system: Sto- Armierungs- putz + finishing coat indi- cated hereafter:	Stolit K/R/MP/Effect/X-black	≤ 1 m (test result obtained with particle size 6,0 mm: 0,7 m)
	Stolit QS K/R/MP	≤ 1 m (test result obtained with particle size 3,0 mm: 0,7 m)
	StoNivellit + StoColor Silco	≤ 1 m (test result obtained with particle size 2,7 mm: 0,5 m)
	Sto-Ispolit K/R/MP	≤ 2 m (test result obtained with particle size 2,5 mm: 1,4 m)
	Stolit Milano	≤ 1 m (test result obtained with particle size 3,6 mm: 0,7 m)
	Stolit K 1,5 + Stolit Milano	≤ 1 m (test result obtained with particle size 4,8 mm: 0,6 m)
	StoSilco K/R/MP	≤ 1 m (test result obtained with particle size 3,0 mm: 0,6 m)
	StoSilco blue K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 1,0 m)
	StoSilco QS K/R/MP	≤ 1 m (test result obtained with particle size 3,0 mm: 0,6 m)
	Sto-Silkolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 1,0 m)
	StoLotusan K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,4 m)
	StoSuperlit	≤ 1 m (test result obtained with particle size 2,0 mm: 0,7 m)
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	≤ 1 m (test result obtained with particle size 8,6 mm: 0,8 m)

		Equivalent air thickness (m)
Rendering system: StoPrefa Armat + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≤ 1 m (test result obtained with particle size 6,0 mm: 0,5 m)
	Stolit QS K/R/MP	≤ 2 m (test result obtained with particle size 2,0 mm: 1,1 m)
	StoNivellit + StoColor Silco	≤ 1 m (test result obtained with particle size 3,0 mm: 0,5 m)
	Sto-Ispolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 0,9 m)
	Stolit Milano	≤ 2 m (test result obtained with particle size ca. 1 mm: 1,2 m)
	Stolit K 1,5 + Stolit Milano	≤ 2 m (test result obtained with particle size ca. 2 mm: 1,6 m)
	StoSilco K/R/MP	≤ 1 m (test result obtained with particle size 3,0 mm: 0,5 m)
	StoSilco blue K/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,6 m)
	StoSilco QS K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,9 m)
	Sto-Silkolit K/R/MP	≤ 1 m (test result obtained with particle size 2,5 mm: 0,7 m)
	StoLotusan K/MP	≤ 1 m (test result obtained with particle size 3,0 mm: 0,4 m)
	StoSuperlit	≤ 1 m (test result obtained with particle size 2,0 mm: 0,5 m)
Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	≤ 1 m (test result: 0,8 m)	

3.6 Dangerous substances

According to the manufacturer's declaration "StoTherm Classic 8" does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 as well as EOTA TR 034 (General ER 3 Checklist for ETAGs/CUAPs/ETAs- Content and/or release of dangerous substances in products/kits), edition March 2012.

A written declaration in this respect was submitted by the ETA-holder.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.7 Bond strength between all base coat and insulation product

Initial state	Conditionings	
	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
$\geq 0,08$ MPa	$\geq 0,08$ MPa	npd

3.8 Adhesives onto substrate and insulation product (safety in use of the bonded ETICS)

		Conditionings		
		Initial state	(23 ± 2) °C and (95 ± 5) % RH for 7 days	(23 ± 2) °C and (95 ± 5) % RH for 7 days and 7 days drying at (23 ± 2) °C and (50 ± 5) % RH
Sto-Dispersionskleber	External board *	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
	Insulation product	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
StoPrefa Coll	External board *	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
	Insulation product	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
StoColl RC	External board *	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
	Insulation product	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
StoColl Mineral HP	External board *	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa
	Insulation product	≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

* External boards: All surfaces (boards, panels, etc.) according to clause 2

3.9 Fixing strength (displacement test)

U_e (displacement corresponding to the elasticity limit) = 2,5 mm

3.10 Wind load resistance

3.10.1 Safety in use of mechanically fixed ETICS using Sto-Schraubdübel according to clause 1.2.1

The following values only apply for the combination (anchor plate characteristics) / (insulation product characteristics) mentioned in this table. All anchors which shall be used are shown in the control plan and the declaration of performance.

Anchors for which the following failure loads apply and characteristics:		Sto-Schraubdübel			
		Plate diameter of anchor		≥ Ø 60 mm	
Characteristic of the insulation product for which the following failure loads apply		Thickness		≥ 60 mm	
		Tensile strength perpendicular to the face		≥ 100 kPa	
Failure load [N]	Anchors not placed at the panel joints (pull through test; dry conditions)	R_{panel}	Minimum:	510	720
	Anchors placed at the panel joints (pull through test; dry conditions)	R_{joint}	Average:	520	730
			Minimum:	400	430
			Average:	430	470

The wind load resistance of the ETICS R_d is calculated as follow:

$$R_d = \frac{Q_1 \times C_s \times C_a}{m} = \frac{2,0 \text{ kPa}}{m}$$

$$R_d \geq S_d$$

Where:

- R_d design resistance
- S_d wind load suction
- Q_1 test result
- C_s statical correction factor
- C_a geometric factor
- m national safety factor of resistance for normal materials (partial safety factor to be chosen in function of the type of failure which occurred and the ageing of material properties concerned).

The above given loads apply for all anchors if they meet the following criteria:

- plate diameter of anchor ≥ 60 mm
- plate stiffness of anchor $\geq 0,5$ kN/mm
- load resistance of anchor plate $\geq 1,0$ kN

3.11 Thermal resistance

The thermal transmittance of the substrate wall covered by the ETICS is calculated in accordance with the standard EN ISO 6946:

$$U = U_c + \chi_{p \cdot n}$$

- Where:
- $\chi_{p \cdot n}$ has only to be taken into account if it is greater than $0,04$ W/($m^2 \cdot K$)
 - U : global thermal transmittance of the covered wall (W/ ($m^2 \cdot K$))
 - n : number of anchors (through insulation product) per m^2
 - χ_p : local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
 - = $0,002$ W/K for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw ($\chi_{p \cdot n}$ negligible for $n < 20$)
 - = $0,004$ W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_{p \cdot n}$ negligible for $n < 10$)
 - = negligible for anchors with plastic nails (reinforced or not with glass fibres ...)
 - U_c : thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ ($m^2 \cdot K$)) determined as follows:

$$U_c = \frac{1}{R_i + R_{render} + R_{substrate} + R_{se} + R_{si}}$$

- Where:
- R_i : thermal resistance of the insulation product (according to declaration in reference to EN 13163) in ($m^2 \cdot K$)/W
 - R_{render} : thermal resistance of the render (about 0.02 in ($m^2 \cdot K$)/W)
 - $R_{substrate}$: thermal resistance of the substrate of the building (concrete, brick ...) in ($m^2 \cdot K$)/W
 - R_{se} : external superficial thermal resistance in ($m^2 \cdot K$)/W
 - R_{si} : internal superficial thermal resistance in ($m^2 \cdot K$)/W

The value of thermal resistance of each insulation product shall be given in the Declaration of performance along with the possible range of thicknesses. In addition, the point thermal conductivity of anchors shall be given when anchors are used in the ETICS.

3.12 Airborne sound insulation

Single improvement values determined by testing, ETICS configuration and substrate characteristics for which the values are valid:

Insulation product	Rendering system	ETICS fixing	Substrate description	ETICS performance
Insulation type: EPS Range of thickness: 60 to 300 mm maximum dynamic stiffness: NPD air flow resistance: NPD	minimum mass of the rendering system: depending on ETICS-thickness	<i>mechanical fixing</i> type: anchors and clips acc. to clause 1.2 maximum number per m ² : depending on calculation	type: heavy wall - mass per unit: depending on wall construction	$\Delta R_w = \text{NPD}$ $\Delta R_w + C = \text{NPD}$ $\Delta R_w + C_{tr} = \text{NPD}$

3.13 Bond strength after ageing

		after hygrothermal cycles	after freeze/thaw cycles
Rendering system: StoArmat Classic + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≥ 0,08 MPa	NPD
	Stolit QS K/R/MP	≥ 0,08 MPa	
	StoNivellit + StoColor Silco	≥ 0,08 MPa	
	Sto-Ispolit K/R/MP	≥ 0,08 MPa	
	Stolit Milano	≥ 0,08 MPa	
	Stolit K 1,5 + Stolit Milano	≥ 0,08 MPa	
	StoSilco K/R/MP	≥ 0,08 MPa	
	StoSilco blue K/MP	≥ 0,08 MPa	
	StoSilco QS K/R/MP	≥ 0,08 MPa	
	Sto-Silkolit K/R/MP	≥ 0,08 MPa	
	StoLotusan K/MP	≥ 0,08 MPa	≥ 0,08 MPa
	StoSuperlit	≥ 0,08 MPa	NPD
Sto-Klebe und Fugenmörtel + Sto-Flachverblender	≥ 0,08 MPa		
Sto-Klebe und Fugenmörtel + Sto-Ecoshapes			
Rendering system: StoArmat Classic plus + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≥ 0,08 MPa	NPD
	Stolit QS K/R/MP	≥ 0,08 MPa	
	StoNivellit + StoColor Silco	≥ 0,08 MPa	
	Sto-Ispolit K/R/MP	≥ 0,08 MPa	
	Stolit Milano	≥ 0,08 MPa	
	Stolit K 1,5 + Stolit Milano	≥ 0,08 MPa	
	StoSilco K/R/MP	≥ 0,08 MPa	
	StoSilco blue K/MP	≥ 0,08 MPa	
	StoSilco QS K/R/MP	≥ 0,08 MPa	
	Sto-Silkolit K/R/MP	≥ 0,08 MPa	
	StoLotusan K/MP	≥ 0,08 MPa	
	StoSuperlit	≥ 0,08 MPa	
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender	≥ 0,08 MPa	
Sto-Klebe und Fugenmörtel + Sto-Ecoshapes			

		after hygrothermal cycles	after freeze/thaw cycles
Rendering system: Sto-Armi-erungsputz + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≥ 0,08 MPa	NPD
	Stolit QS K/R/MP	≥ 0,08 MPa	
	StoNivellit + StoColor Silco	≥ 0,08 MPa	
	Sto-Ispolit K/R/MP	≥ 0,08 MPa	
	Stolit Milano	≥ 0,08 MPa	
	Stolit K 1,5 + Stolit Milano	≥ 0,08 MPa	
	StoSilco K/R/MP	≥ 0,08 MPa	
	StoSilco blue K/MP	≥ 0,08 MPa	
	StoSilco QS K/R/MP	≥ 0,08 MPa	
	Sto-Silkolit K/R/MP	≥ 0,08 MPa	
	StoLotusan K/MP	≥ 0,08 MPa	
	StoSuperlit	≥ 0,08 MPa	
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel +	≥ 0,08 MPa	
Rendering system: StoPrefa Ar-mat + finishing coat indicated hereafter:	Stolit K/R/MP/Effect/X-black	≥ 0,08 MPa	NPD
	Stolit QS K/R/MP	≥ 0,08 MPa	
	StoNivellit + StoColor Silco	≥ 0,08 MPa	
	Sto-Ispolit K/R/MP	≥ 0,08 MPa	
	Stolit Milano	≥ 0,08 MPa	
	Stolit K 1,5 + Stolit Milano	≥ 0,08 MPa	
	StoSilco K/R/MP	≥ 0,08 MPa	
	StoSilco blue K/MP	≥ 0,08 MPa	
	StoSilco QS K/R/MP	≥ 0,08 MPa	
	Sto-Silkolit K/R/MP	≥ 0,08 MPa	
	StoLotusan K/MP	≥ 0,08 MPa	≥ 0,08 MPa
	StoSuperlit	≥ 0,08 MPa	NPD
	Sto-Klebe und Fugenmörtel + Sto-Flachverblender Sto-Klebe und Fugenmörtel + Sto-Ecoshapes	≥ 0,08 MPa	

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

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

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
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 Classes A1 according to Commission Decision 96/603/EC)

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the Notified Body.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of ETICS are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

3) Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances),
- incoming (raw) materials specifications and declarations,
- references to European and/or international standards,
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the Österreichisches Institut für Bautechnik have agreed a Control Plan which is deposited with the Österreichisches Institut für Bautechnik in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Products not manufactured by the ETICS manufacturer shall also be tested according to the Control Plan. It must be demonstrated to the Notified Body that the FPC system contains elements securing that the ETICS manufacturer takes products conforming to the Control Plan from his supplier(s).

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the ETICS manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform the Österreichisches Institut für Bautechnik without delay.

Issued in Vienna, on 28.03.2018

The original document is signed by:

Rainer Mikulits
Managing Director

Annex 1

Board Norm	Type	Sto- Dispersionskleber & StoPrefa Coll			StoColl RC			StoColl Mineral HP		
		Dry	Wet	Re-dry	Dry	Wet	Re-dry	Dry	Wet	Re-dry
EN 636	Sperrholzplatte plywood	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
EN 634-2	Zementgebundene Spanplatte cement bonded par- ticleboards (geschliffen / unge- schliffen / glatte Oberfläche)	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
EN 300	OSB/3 (geschliffen / unge- schliffen)	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
EN 13353 + A1	Massivholzplatte / solid wood panels (SWP)	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
EN 312	Spanplatte particleboards	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
EN 520 + A1	Gipsplatte plasterboards	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
EN 622-2	Holzfaserplatte / hart fibreboards / hard	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
EN 622-3	Holzfaserplatte / medium fibreboards / medium	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
EN 622-5	MDF Faserplatte/ fibreboards MDF	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
Z-9.1-382	MDF Faserplatte/ fibreboards MDF	---	---	---	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08
EN 316	Holzfaserplatte fibreboard	---	---	---	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08
EN 14080	Brettschichtholz- Element	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	---	---	---
ETA- 14/0349 Z-9.1-559	Brettsperrholz	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
Product data sheet 2016	Brettsperrholz / Funierschichtholz	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
ETA- 07/0087	Faserzementplatte/ Cement fibre board	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
ETA- 13/0609	Faserzementplatte/ Cement fibre board	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08
ETA- 03/0050	Gipsfaserplatte / Gypsum fibre board	---	---	---	≥ 0,08	≥ 0,03	≥ 0,08	≥ 0,08	≥ 0,03	≥ 0,08