

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
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European Technical Assessment

ETA-05/0249
of 4 August 2023

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

weber.therm-Wärmedämm-Verbundsystem B 100/BM 400

Product family
to which the construction product belongs

Product area code: 4
External Thermal Insulation Composite System with
rendering on expanded polystyrene intended for the use
on building walls

Manufacturer

Saint-Gobain Weber GmbH
Schanzenstraße 84
40549 Düsseldorf
DEUTSCHLAND

Manufacturing plant

Saint-Gobain Weber GmbH
Niederlassung Wülfrath
Meiersberger Straße
42489 Wülfrath
DEUTSCHLAND

This European Technical Assessment
contains

27 pages including 7 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

040083-00-0404

This version replaces

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Specific Part

1 Technical description of the product

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

The ETICS kit comprises a prefabricated insulation product of expanded polystyrene (EPS) to be bonded and if necessary additionally mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table below.

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

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

2 Specification of the intended use in accordance with the applicable European assessment Document

The performances in Section 3 can only be assumed if the ETICS is used in accordance with the specifications and under the boundary conditions specified in Annexes 2 to 5.

The verifications and assessment methods on which this ETA is based lead to the assumption of a working life of the ETICS "weber.therm-Wärmedämm-Verbundsystem B 100/BM 400" of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the assumed economically reasonable working life of the works.

For 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 compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs are to be carried out as soon as the need has been identified.

The information on use, maintenance and repair is given in the manufacturer's technical documentation.

It is the responsibility of the manufacturer to ensure that this information is made known to the concerned people.

3 Characteristics of products and methods of verification

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the ETICS	(see annex 2) Euroclass according to EN 13501-1
Reaction to fire of the EPS-insulation product – Apparent density of the EPS-insulation product according to EN 1602	(see annex 2) Euroclass E according EN 13501-1 Value [kg/m ³]
Facade fire performance	no performance assessed
Propensity to undergo continuous smouldering of ETICS	no performance assessed

3.2 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance
Release of dangerous substances	no performance assessed
Water absorption Base coat after 1 hour after 24 hours	(see annex 3.1) Average [kg/m ²] Average [kg/m ²]
Rendering system after 1 hour after 24 hours	 Average [kg/m ²] Average [kg/m ²]
EPS insulation product	Maximum value 0,5 kg/m ²
Water-tightness of the ETICS Hygrothermal behaviour on the test wall	Pass without defects for ETICS with all base coats except "weber.therm 301". For ETICS with base coat "weber.therm 301" was no performance assessed.
Water-tightness of the ETICS Freeze/thaw behaviour	The water absorption of the base coats as well as the rendering systems is less than 0.5 kg/m ² for all configurations of the ETICS after 24 hours. The ETICS is so assessed as freeze/thaw resistant.
impact resistance	(see annex 3.2) Category
Water vapour permeability - Rendering system	(see annex 3.3) s _d value [m]
- EPS insulation product	μ = 20 - 70 Thickness of the insulation product ≤ 400 mm

3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
<p>Bond strength between base coat and EPS insulation product</p> <p>between adhesive and substrate</p> <p>between adhesive and EPS insulation</p>	<p>(see annex 4.1)</p> <ul style="list-style-type: none"> - Minimal value/ average [kPa], rupture type: Initial state (28 d immersion) - Minimal value/ average [kPa], rupture type: after hygrothermal cycles <p>(see annex 4.2)</p> <ul style="list-style-type: none"> - Thickness [mm] of the used adhesives - Minimal value [kPa], rupture type: Initial state (dry conditions) - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 7 d drying <p>(see annex 4.3)</p> <ul style="list-style-type: none"> - Thickness [mm] of the used adhesives - Minimal value [kPa], rupture type: Initial state (dry conditions) - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 2 h drying - Minimal value/ average [kPa], rupture type: after 2 d immersion in water, 7 d drying
Fixing strength (displacement test)	Test not required therefore no limitation of ETICS length required.
<p>Wind load resistance of ETICS pull-through test of fixing static foam block test</p>	<p>(see annex 4.4)</p> <ul style="list-style-type: none"> - R_{panel} [kN/fixing] - R_{joint} [kN/fixing] - Plate diameter of anchor ≥ 60 mm res. ≥ 90 mm - plate stiffness ≥ 0.3 kN/mm² - load resistance of the anchor plate ≥ 1.0 kN
<p>Tensile strength perpendicular to the faces of insulation product in dry conditions standard EPS</p> <p>elastified EPS</p>	<p>$\sigma_{\text{mt}} \geq 80$ kPa (bonded ETICS)</p> <p>$\sigma_{\text{mt}} \geq 100$ kPa] (bonded ETICS with anchors)</p> <p>$\sigma_{\text{mt}} \geq 150$ kPa (bonded ETICS with profiles)</p> <p>$\sigma_{\text{mt}} \geq 80$ kPa</p>

Essential characteristic	Performance
Shear strength of the ETICS	$20 \leq f_{rk} \leq 170$ [kPa]
shear modulus of the ETICS standard EPS elastified EPS	$1,0 \leq G_m \leq 2,0$ [MPa] $0,3 \leq G_m \leq 1,0$ [MPa]
Pull-through resistance of fixing from profiles	$\geq 0,5$ kN
Render strip tensile test	(see annex 4.5) crack width w_{rk} [mm]
Bond strength after ageing finishing coat tested on the rig finishing coat not tested on the rig	no performance assessed
Tensile strength of the glass fibre mesh in the as-delivered state	(see annex 4.6) Average [N/mm]
Residual tensile strength of the glass fibre mesh after aging	(see annex 4.6) Average [N/mm]
Relative residual tensile strength of the glass fibre mesh after aging	(see annex 4.6) Average [%]
Elongation of the glass fibre mesh in the as-delivered state	(see annex 4.6) Average [%]
Elongation of the glass fibre mesh after aging	(see annex 4.6) Average [%]

3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
Airborne sound insulation of ETICS	no performance assessed
Dynamic stiffness of the EPS insulation product	no performance assessed
Air flow resistance of the EPS insulation product	no performance assessed

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance of ETICS	(see annex 5) Calculated value or measurement value R [(m ² · K)/W]
Thermal transmittance of ETICS	(see annex 5) Calculated value or measurement value U [W/(m ² · K)]

English translation prepared by DIBt

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

In accordance with EAD No. 010083-00-0404 the applicable European legal act is: [97/556/EC changed by 2001/596/EC

The systems to be applied are:

Product	Intended use	Levels or classes (Reaction to fire)	Systems
"weber.therm-Wärmedämm-Verbundsystem B 100/BM 400"	ETICS 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+
	ETICS 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 European Assessment Document

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 4 August 2023 by Deutsches Institut für Bautechnik

Anja Rogsch
Head of Section

beglaubigt:
Windhorst

Annex 1

Composition of the ETICS

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	Bonded ETICS: <ul style="list-style-type: none"> • Insulation product factory-prefabricated expanded polystyrene (EPS)**** <ul style="list-style-type: none"> – standard EPS – elastified EPS • Adhesives (minimum bonded surface 40 %) <ul style="list-style-type: none"> – weber.therm 300 (cement based powder requiring addition of about 27 % of water) – weber.therm 301 (cement based powder requiring addition of about 25 % of water) – weber.therm 370 (cement based powder requiring addition of about 22 % of water) – weber.therm retec 700 (cement based powder requiring addition of about 27 % of water) – weber.therm retec 740 (cement based powder requiring addition of about 27 % of water) – weber.therm 302 (cement based powder requiring addition of about 31 % of water) – maxit multi Kleber und Armierungsmörtel E (cement based powder requiring addition of about 31 % of water) – weber.therm 304 (cement based powder requiring addition of about 30 % of water) – maxit multi Kleber und Armierungsmörtel PS (cement based powder requiring addition of about 30 % of water) 	<p style="text-align: center;">–</p> <p style="text-align: center;">about 5.0 (powder)</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">about 4.0 (powder)</p>	<p style="text-align: center;">≤ 400</p> <p style="text-align: center;">≤ 300</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p> <p style="text-align: center;">–</p>
	Mechanically fixed ETICS with profiles and supplementary adhesive: <ul style="list-style-type: none"> • Insulation product factory-prefabricated expanded polystyrene (EPS)**** <ul style="list-style-type: none"> – standard EPS • Supplementary adhesive (equal to bonded ETICS, minimum bonded surface 20 %) 	<p style="text-align: center;">–</p>	<p style="text-align: center;">60 to 200</p>

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
Insulation material with associated method of fixing	<ul style="list-style-type: none"> • Profiles <ul style="list-style-type: none"> – PVC Halteleiste BM 400 – PVC Verbindungsleiste BM 400 Polyvinyl chloride (PVC) profiles • Anchors for profiles <ul style="list-style-type: none"> – WS 8 L – ejothem SDK U – SDF-K plus – ejothem NK U 		
	<p>Mechanically fixed ETICS with anchors and supplementary adhesive:</p> <ul style="list-style-type: none"> • Insulation product factory-prefabricated expanded polystyrene (EPS) **** <ul style="list-style-type: none"> – standard EPS – elastified EPS • Supplementary adhesive (equal to bonded ETICS, minimum bonded surface 40 %) • Anchors for insulation product all anchors with ETA according to EAD330196-01-0604¹ 	<p>–</p> <p>–</p>	<p>60 to 400</p> <p>60 to 300</p>
Base coat	<p>weber.therm 300 weber.therm 301 weber.therm retec 700 weber.therm retec 740 weber.therm 302 maxit multi Kleber und Armierungsmörtel E weber.therm 304 maxit multi Kleber und Armierungsmörtel PS Identical with the equally named adhesives given above.</p>	<p>} about 7.0</p> <p>about 7.0</p> <p>about 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p>	<p>5.0 to 7.0</p> <p>4.0 to 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p> <p>5.0 to 7.0</p>
Glass fibre mesh	<p>weber.therm 310 Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 200 g/m² and mesh size of about 8.0 mm x 8.0 mm.</p>	–	–
	<p>weber.therm 311¹ Alkali- and slide-resistant glass fibre mesh with mass per unit area of about 160 g/m² and mesh size of about 4.0 mm x 4.0 mm.</p>	–	–
Key coat	<p>weber.prim 403 Ready to use pigmented liquid with styrol-acrylat binder. For the compatibility with the finishing coats see below.</p>	about 0.3	

¹

EAD330196-01-0604

Plastic anchors made of virgin or non-virgin material for fixing of ETICS with renderings (and previous versions)

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]	
Finishing coat	to use without key coat:			
	<ul style="list-style-type: none"> Thick layered cement based powder requiring addition of about 20 % of water (scraped render): 			
	weber.top 200, 203, 204, 205, 206**	10.0 to 24.0	5.0 to 12.0	
	weber.top 200 AquaBalance	10.0 to 24.0	5.0 to 12.0	
	weber.top 203 AquaBalance	10.0 to 24.0	5.0 to 12.0	
	weber.top 204 AquaBalance	10.0 to 24.0	5.0 to 12.0	
	weber.top 206 AquaBalance	10.0 to 24.0	5.0 to 12.0	
	to use with key coat if applicable:***			
	<ul style="list-style-type: none"> Thin layered cement based powder requiring addition of 20 – 35 % of water: 			
	weber.star 220, 221, 222, 223** (particle size 1.5 – 2 – 3 – 4 and 5 mm)	2.5 to 5.0	regulated by particle size	
	weber.star 220 AquaBalance (particle size 1.5 – 2 – 3 – 4 and 5 mm)	2.5 to 5.0		
	weber.star 223 AquaBalance (particle size 1.5 – 2 – 3 – 4 and 5 mm)	2.5 to 5.0		
	weber.star 240, 241, 242, 244** (particle size 1.5 – 2 – 3 – 4 and 5 mm)	2.5 to 5.0		
	weber.star 240 AquaBalance (particle size 1.5 – 2 – 3 – 4 and 5 mm)	2.5 to 5.0		
	weber.star 244 AquaBalance (Korngröße 1.5 – 2 – 3 – 4 und 5 mm)	2.5 to 5.0		
	weber.star 260, 261**	3.0 to 5.0		3.0 to 5.0
	weber.star 260 AquaBalance	3.0 to 5.0		3.0 to 5.0
	weber.star 261 AquaBalance	3.0 to 5.0		3.0 to 5.0
	weber.star 270	4.0 to 5.0		3.0 to 5.0
	weber.star 271	about. 8.0	about 6.0	
weber.star 272, 280**	6.0 to 10.0	5.0 to 10.0		
weber.star 280 AquaBalance	6.0 to 10.0	5.0 to 10.0		
<ul style="list-style-type: none"> Ready to use paste – styrol-acrylat binder: 				
weber.pas 430, 431** (particle size 1.5 – 2 – 3 and 4 mm)	2.5 to 4.0	regulated by particle size		
weber.pas 430 AquaBalance (particle size 1.5 – 2 – 3 and 4 mm)	2.5 to 4.0			
weber.pas 431 AquaBalance (particle size 1.5 – 2 – 3 and 4 mm)	2.5 to 4.0			
<ul style="list-style-type: none"> Ready to use paste – silicate binder: 				
weber.pas 460, 461** (particle size 1 – 1.5 – 2 – 3 and 4 mm)	2.5 to 4.0			
weber.pas 460 AquaBalance (Korngröße 1 – 1,5 – 2 – 3 und 4 mm)	2.5 to 4.0			
weber.pas 461 AquaBalance (Korngröße 1 – 1.5 – 2 – 3 und 4 mm)	2.5 to 4.0			

	Components National application documents shall be taken into account	Coverage [kg/m ²]	Thickness [mm]
	<ul style="list-style-type: none"> Ready to use paste – acrylosiloxane binder: weber.pas 480, 481** (particle size 1.5 – 2 – 3 and 4 mm) weber.pas 480 AquaBalance (particle size 1.5 – 2 – 3 and 4 mm) weber.pas 481 AquaBalance (particle size 1.5 – 2 – 3 and 4 mm) 	2.5 to 4.0 2.5 to 4.0 2.5 to 4.0	
Ancillary material	Remains the responsibility of the manufacturer.		
<p>* The glass fibre mesh "weber.therm 311" has to be used with the base coat "weber.therm 301" with d < 5 mm only. ** The different numbers indicate different grain structures only. *** The instruction to the installer concerning the use of a key coat remains the responsibility of the manufacturer. **** Factory-prefabricated, uncoated panels made of expanded polystyrene (EPS) to EN 13163 shall be used.</p>			

Annex 2

Safety in case of fire (BWR 2)

2.1 Reaction to fire

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coats	max. 2.6 %	no flame retardant	B – s1,d0
EPS -insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Anchors	-	-	
Profiles	-	-	
All base coats with finishing coat and compatible key coat indicated in annex 1			
Thick layered cement based powder: - weber.top ...	max. 2.6 %	no flame retardant	
Thin layered cement based powder, with key coat "weber.prim 403": - weber.star ...			
Silicate based paste, with key coat "weber.prim 403": - weber.pas 460, 461 - weber.pas 460 AquaBalance - weber.pas 461 AquaBalance	max.6.8 %		

Configurations	Organic content	Flame retardant content	Euroclass according to EN 13501-1
Base coats:	max. 2.6 %	no flame retardant	B - s2,d0
EPS -insulation product	Euroclass E according to EN 13501-1	Euroclass E according to EN 13501-1	
Anchors	-	-	
Profiles	-	-	
Base coats with finishing coat and compatible key coat indicated in annex 1			
Organic based pastes, with key coat "weber.prim 403": - weber.pas 430, 431 - weber.pas 480, 481 - weber.pas 430 AquaBalance - weber.pas 431 AquaBalance - weber.pas 480 AquaBalance - weber.pas 481 AquaBalance	max. 8.5 %	no flame retardant	

2.2 Apparent density of the EPS-insulation product according to EN 1602

$\rho_a \leq 30 \text{ kg/m}^3$

Annex 3

Hygiene, health and environment (BWR 3)

3.1 Water absorption (capillarity test)

Base coat

Base coat	Average water absorption	
	after 1h [kg/m ²]	after 24h [kg/m ²]
weber.therm 300	0.04	0.26
weber.therm 301	0.04	0.22
weber.therm retec 700	0.04	0.26
weber.therm retec 740	0.04	0.26
weber.therm 302	0.09	0.23
maxit multi Kleber und Armierungsmörtel E	0.09	0.23
weber.therm 304	0.07	0.31
maxit multi Kleber und Armierungsmörtel PS	0.07	0.31

3.2 Rendering system

Base coat "weber.therm 300", "weber.therm retec 700" und "weber.therm retec 740" with finishing coat and compatible key coat indicated in annex 1	Average water absorption	
	after 1h [kg/m ²]	after 24h [kg/m ²]
weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	0.15	0.45
weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271,272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	0.10	0.43
weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	0.05	0.46
weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	0.03	0.23
weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	0.05	0.13

Base coat "weber.therm 301", with finishing coat and compatible key coat indicated in annex 1	Average water absorption	
	after 1h [kg/m ²]	after 24h [kg/m ²]
weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	0.13	0.47
weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271,272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	0.08	0.47
weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	0.04	0.39
weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	0.07	0.42
weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	0.06	0.33

		Average water absorption	
		after 1h [kg/m ²]	after 24h [kg/m ²]
Base coat "weber.therm 302"and "maxit multi Kleber und Armierungsmörtel E" with finishing coat and compatible key coat indicated in annex 1	weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	0.17	0.46
	weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271,272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	0.03	0.24
	weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	0.10	0.44
	weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	0.07	0.45
	weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	0.06	0.43

		Average water absorption	
		after 1h [kg/m ²]	after 24h [kg/m ²]
Base coat "weber.therm 304"and "maxit multi Kleber und Armierungsmörtel PS" with finishing coat and compatible key coat indicated in annex 1	weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	0.13	0.43
	weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271,272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	0.05	0.27
	weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	0.10	0.42
	weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	0.09	0.44
	weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	0.07	0.38

3.2 Impact resistance t

Finishing coat (thickness ≥ 10 mm)	Base coats weber.therm 300, weber.therm retec 700, weber.therm retec740 und weber.therm 301, reinforced with mesh "weber.therm 310"
- weber.top 200, 203, 204, 205, 206 - weber.top 200 AquaBalance - weber.top 203 AquaBalance - weber.top 204 AquaBalance - weber.top 206 AquaBalance	category II

Finishing coat	Base coats weber.therm 302, maxit multi Kleber und Armierungsmörtel E, weber.therm 304, maxit multi Kleber und Armierungsmörtel PS reinforced with mesh "weber.therm 310"
<ul style="list-style-type: none"> - weber.top 200, 203, 204, 205, 206 - weber.top 200 AquaBalance - weber.top 203 AquaBalance - weber.top 204 AquaBalance - weber.top 206 AquaBalance 	category II
<ul style="list-style-type: none"> - weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271,272, 280 - weber.star 220 AquaBalance - weber.star 223 AquaBalance - weber.star 240 AquaBalance - weber.star 244 AquaBalance - weber.star 260 AquaBalance - weber.star 261 AquaBalance - weber.star 280 AquaBalance 	category III
<ul style="list-style-type: none"> - weber.pas 430, 431 - weber.pas 430 AquaBalance - weber.pas 431 AquaBalance 	category I
<ul style="list-style-type: none"> - weber.pas 460, 461 - weber.pas 460 AquaBalance - weber.pas 461 AquaBalance 	category I
<ul style="list-style-type: none"> - weber.pas 480, 481 - weber.pas 480 AquaBalance - weber.pas 481 AquaBalance 	category I

For the impact resistance of all other configurations of the ETICS no performance was assessed.

3.3 Water vapour permeability ETICS

Rendering system: Base coats "weber.therm 300", "weber.therm 301", "weber.therm retec 700" and "weber.therm retec 740"with finishing coat and key coat indicated in annex 1	Equivalent air thickness s_d
weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	≤ 1.0 m (Test result obtained with "weber.top 204", layer thickness 8 mm: 0.2 m)
weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271, 272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	≤ 1.0 m (Test result obtained with "weber.star 220", particle size 5 mm: 0.2 m)
weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	≤ 1.0 m (Test result obtained with "weber.pas 431", particle size 4 mm: 0.5 m)
weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	≤ 1.0 m (Test result obtained with "weber.pas 461", particle size 4 mm: 0.3 m)
weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	≤ 1.0 m (Test result obtained with "weber.pas 480", particle size 3 mm: 0.3 m)

Rendering system: Base coats "weber.therm 302", "maxit multi Kleber und Armierungsmörtel E", "weber.therm 304", "maxit multi Kleber und Armierungsmörtel PS" with finishing coat and key coat indicated hereafter (evaluated without key coat))	Equivalent air thickness s_d
weber.top 200, 203, 204, 205, 206 weber.top 200 AquaBalance weber.top 203 AquaBalance weber.top 204 AquaBalance weber.top 206 AquaBalance	≤ 1.0 m (Test results obtained with layer thickness of 12 mm: 0.16 m)
weber.star 220, 221, 222, 223, 240, 241, 242, 244, 260, 261, 270, 271, 272, 280 weber.star 220 AquaBalance weber.star 223 AquaBalance weber.star 240 AquaBalance weber.star 244 AquaBalance weber.star 260 AquaBalance weber.star 261 AquaBalance weber.star 280 AquaBalance	≤ 1.0 m (Test results obtained with layer thickness of 5 mm: 0.11 m)
weber.pas 430, 431 weber.pas 430 AquaBalance weber.pas 431 AquaBalance	≤ 1.0 m (Test results obtained with layer thickness of 3 mm: 0.20 m)
weber.pas 460, 461 weber.pas 460 AquaBalance weber.pas 461 AquaBalance	≤ 1.0 m (Test results obtained with layer thickness of 3 mm: 0.12 m)
weber.pas 480, 481 weber.pas 480 AquaBalance weber.pas 481 AquaBalance	≤ 1.0 m (Test results obtained with layer thickness of 3 mm: 0.16 m)

Annex 4

Safety and accessibility in use (BWR 4)

4.1 Bond strength between base coat and EPS

		Conditioning			
		Initial state [kPa]	After hygrothermal cycles [kPa]	After freeze/thaw test	
weber.therm 300 weber.therm retec 700 weber.therm retec 740	Average	100	No performance assessed	Test not required because freeze/thaw cycles not necessary	
	Minimal value	90			
weber.therm 301	Average	120			
	Minimal value	100			
weber.therm 302 maxit multi Kleber und Armierungsmörtel E	Average	124			122
	Minimal value	113			106
weber.therm 304 maxit multi Kleber und Armierungsmörtel PS	Average	124	122		
	Minimal value	113	106		

4.2 Bond strength between adhesive and substrate

Substrate: concrete		Conditioning		
		Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]
weber.therm 300 weber.therm retec 700 weber.therm retec 740	Average	620	No performance assessed	No performance assessed
	Minimal value	480		
weber.therm 301	Average	1070		
	Minimal value	760		
weber.therm 370	Average	1300		
	Minimal value	1200		
weber.therm 302 maxit multi Kleber und Armierungsmörtel E	Average	686	255	478
	Minimal value	641	179	327
weber.therm 304 maxit multi Kleber und Armierungsmörtel PS	Average	752	470	698
	Minimal value	628	396	621

4.3 Bond strength between adhesive and insulation product EPS

insulation product EPS		Conditioning				
		Initial state [kPa]	2 d immersion in water and 2 h drying [kPa]	2 d immersion in water and 7 d drying [kPa]		
weber.therm 300	Average	100	No performance assessed	No performance assessed		
	Minimal value	90				
weber.therm 301	Average	120				
	Minimal value	100				
weber.therm 370	Average	80				
	Minimal value	80				
weber.therm 302 maxit multi Kleber und Armierungsmörtel E	Average	100				
	Minimal value	80				
weber.therm 304 maxit multi Kleber und Armierungsmörtel PS	Average	110			70	110
	Minimal value	100			60	100

Minimal bonded surface area

$$S [\%] = 0.03 \text{ N/mm}^2 \times 100 / 0.08 \text{ N/mm}^2$$

$$S = 37.50 \%$$

The minimal bonded surface S of bonded ETICS is 40 %.

4.4 Wind load resistance

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

4.4.1 Wind load resistance of ETICS mechanically fixed with profiles

Characteristics of the EPS (standard EPS)	Dimensions	500 mm x 500 mm
	Thickness	≥ 60 mm
	Tensile strength perpendicular to the faces	≥ 150 kPa
	Shear modulus	≥ 1.0 N/mm ²
Failure load [kN/panel] (Static Foam Block Test)	Horizontal profiles fixed every 30 cm and 49.4 cm long vertical connection profiles	Minimal: 0.95 Average: 1.01

4.4.2 Safety in use of mechanically fixed ETICS using anchors

Apply to all anchors listed in annex 1 mounted on the insulation panels surface				
Characteristics of the EPS (standard EPS)	Thickness		≥ 60 mm	
	Tensile strength perpendicular to the faces		≥ 100 kPa	
	Shear modulus		≥ 1.0 N/mm ²	
Plate diameter of anchor		∅ 60 mm	∅ 90 mm	
plate stiffness		≥ 0.3 kN/mm		
load resistance of the anchor plate		≥ 1.0 kN		
Failure loads [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R _{panel}	Minimal: 0.51 Average: 0.52	Minimal: 0.72 Average: 0.73
	Anchors placed at the panel joints (Pull-through test)	R _{joint}	Minimal: 0.40 Average: 0.43	Minimal: 0.43 Average: 0.47

Apply to all anchors listed in annex 1 mounted on the insulation panels surface				
Characteristics of the EPS (elastified EPS)	Thickness		≥ 60 mm	
	Tensile strength perpendicular to the faces		≥ 80 kPa	
	Shear modulus		≥ 0.3 N/mm ²	
Plate diameter of anchor		∅ 60 mm		
plate stiffness		≥ 0.3 kN/mm		
load resistance of the anchor plate		≥ 1.0 kN		
Failure loads [kN]	Anchors not placed at the panel joints (Static Foam Block Test)	R _{panel}	Minimal: 0.35 Average: 0.36	
	Anchors placed at the panel joints (Pull-through test)	R _{joint}	Minimal: 0.30 Average: 0.31	

The failure loads specified above for a plate diameter of anchor of 60 mm apply to the following anchors with deep mounting but only on the following conditions of installation:

Anchor	Thickness of the EPS panel [t]	Conditions of installation *
ejotherm STR U, ejotherm STR U 2G (ETA-04/0023)	t ≥ 80 mm	– Maximum installation depth of the anchor plate: 15 mm (△ thickness of insulation cover) – Incision depth: 20 mm
	t ≥ 100 mm	– Maximum installation depth of the anchor plate: 15 mm (△ thickness of insulation cover) – Incision depth: 35 mm
TERMOZ 8 SV (ETA-06/0180)	t ≥ 80 mm (only for standard-EPS)	– Maximum installation depth of the anchor plate: 15 mm (△ thickness of insulation cover)

* according to the appropriate ETA of anchor

4.5 Render strip tensile test

The average value of crack width of the reinforced base coats measured at a render strain value of 1 % is:

Base coat	Glass fibres mesh	Average value of crack width $w_{m(1\%)}$
weber.therm 300	weber.therm 310	0.10 mm
weber.therm 301	weber.therm 310	0.07 mm
weber.therm 301	weber.therm 311	0.13 mm
weber.therm retec 700	weber.therm 310	0.10 mm
weber.therm retec 740	weber.therm 310	0.10 mm
maxit multi Kleber und Armierungsmörtel E	weber.therm 310	0.10 mm
weber.therm 302	weber.therm 310	0.10 mm
maxit multi Kleber und Armierungsmörtel PS	weber.therm 310	0.10 mm
weber.therm 304	weber.therm 310	0.10 mm

4.6 Reinforcement (glass fibre mesh)

weber.therm 310	Average warp	Average weft
Tensile strength in as-delivered state	2380 N / 50 mm	3120 N / 50 mm
Residual tensile strength after aging	1560 N / 50 mm	1690 N / 50 mm
Relative residual tensile strength after aging	65.0 %	54.0 %
Elongation in as-delivered state	3.2 %	3.7 %
Elongation after aging	2.5 %	2.5 %

weber.therm 311	Average warp	Average weft
Tensile strength in as-delivered state	2170 N / 50 mm	2400 N / 50 mm
Residual tensile strength after aging	1120 N / 50 mm	1330 N / 50 mm
Relative residual tensile strength after aging	51.0 %	55.0 %
Elongation in as-delivered state	3.4 %	3.3 %
Elongation after aging	2.9 %	2.9 %

Annex 5

5 Energy economy and heat retention (BWR 6)

5.1 Thermal resistance

The nominal value of the additional thermal resistance R provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946 from the nominal value of the insulation product's thermal resistance R_D given accompanied to the CE marking and from the thermal resistance of the rendering system R_{render} which is about $0.02 \text{ (m}^2 \cdot \text{K)/W}$.

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

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

$$U_c = U + \chi_p \cdot n$$

- Where:
- U_c : corrected thermal transmittance [$\text{W}/(\text{m}^2 \cdot \text{K})$]
 - n : number of anchors per m^2
 - χ_p : local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
 - $\chi_p = 0.004 \text{ W/K}$ for anchors with a galvanized steel screw with the head covered by a plastic material
 - $\chi_p = 0.002 \text{ W/K}$ for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw

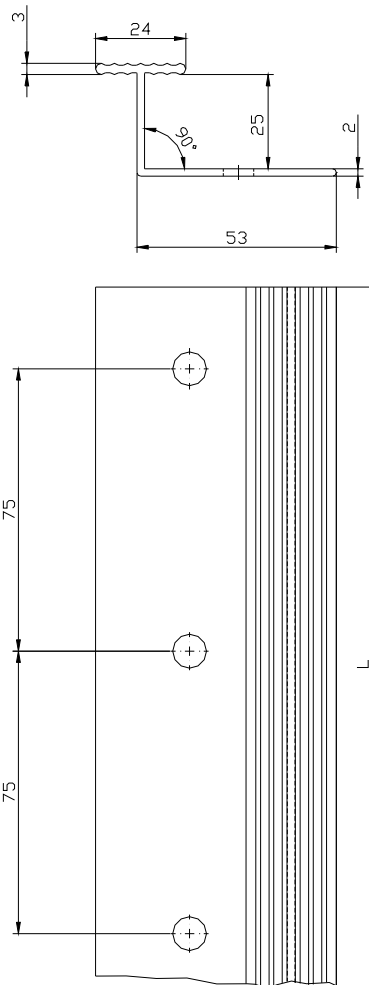
The thermal bridges caused by profiles are negligible.

Annex 6:
Profiles

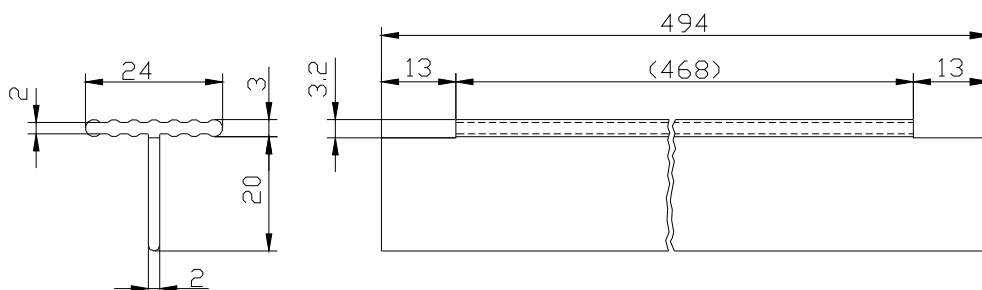
Polyvinyl chloride (PVC) profiles, PVC-U, EGL, 082-05-T33 to EN ISO 1163-1:1999 are to be used in the mechanically fixed ETICS with profiles.

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

Horizontal profile – "PVC Halteleiste BM 400" (dimensions in millimetres)



Vertical connection profile – "PVC Verbindungsleiste BM 400" (dimensions in millimetres)



annex 7:

Trade names of the components

Components	Trade names acc. to the table in annex 1	Further trade names
Adhesive	weber.therm 301	weber.therm family KS grob weber.therm freestyle KS weber.therm prestige KS
Base coat	weber.therm 301	weber.therm family KS grob weber.therm freestyle KS weber.therm prestige KS
Glass fibre meshes	weber.therm 311	weber.therm Textilglasgittergewebe
Key coat	weber.prim 403	weber Putzgrund
Finishing coats	weber.star 223	weber.min freestyle RP
	weber.pas 430, 431	weber Kunstharzputz
	weber.pas 460, 461	weber Silikatputz weber extraClean
	weber.pas 461	weber decofino weber modelfino
	weber.pas 480, 481	weber Silikonharzputz