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European Technical Assessment

ETA-24/0979
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General Part

Technical Assessment Body issuing the European Technical Assessment:

Technical and Test Institute for Construction Prague

Trade name of the construction product

Enveo therm^S Premium MW

Product family to which the construction product belongs

Product area code: 4
External Thermal Insulation Composite
Systems (ETICS) with renderings

Manufacturer

Saint-Gobain Construction Products CZ a.s.
Smrčková 2485/4, Libeň
180 00 Praha
Czech Republic
See Annex No. 1

Manufacturing plant(s)

This European Technical Assessment contains

48 pages including 5 Annexes which form an integral part of this assessment.
Annex No. 6 Control Plan contains confidential information and is not included in the European Technical Assessment when that assessment is publicly disseminated.

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

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Specific Parts

1 Technical description of the product

1.1 Composition of the product (kit)

Table 1

Use and variant	Component	Coverage [kg/m ²]	Thickness [mm]
Adhesive 1	EnveoKleber Excellent Powder requiring addition of water 0.24 l/kg Use as adhesive or supplementary adhesive	3 – 10 (dry powder)	2 – 20
Adhesive 2	EnveoKleber Premium Powder requiring addition of water 0.25 l/kg Use as adhesive or supplementary adhesive	3 – 10 (dry powder)	2 – 20
Adhesive 3	EnveoKleber Premium light Powder requiring addition of water 0.35 l/kg Use as adhesive or supplementary adhesive	3 – 10 (dry powder)	2 – 20
Thermal insulation product 1	Factory made mineral wool lamellas (MW) See Annex No. 3	N/A	40 – 300
Thermal insulation product 2	Factory made mineral wool panels (MW) See Annex No. 4	N/A	50 – 300
Anchors	Plastic anchors See Annex No. 5	N/A	N/A
Base coat 1	EnveoKleber Premium Powder requiring addition of water 0.25 l/kg Use as adhesive or supplementary adhesive	4 – 5 (dry powder)	3 – 5
Base coat 2	EnveoKleber Premium light Powder requiring addition of water 0.35 l/kg Use as adhesive or supplementary adhesive	4 – 5 (dry powder)	3 – 5
Reinforcement 1	EnveoTherm Mesh 131 Webertherm R131 Standard glass fibre mesh, one or two layers Embedded in base coat See Annex No. 6	0.150–0.172 (per layer)	< 1.0 (per layer)
Reinforcement 2	EnveoTherm Mesh 117 Webertherm R117 Standard glass fibre mesh, one or two layers Embedded in base coat See Annex No. 6	0.139–0.155 (per layer)	< 1.0 (per layer)
Reinforcement 3	EnveoTherm Mesh 3F Webertherm 3Force Standard glass fibre mesh with two wefts, one or two layers Embedded in base coat See Annex No. 6	0.150–0.166 (per layer)	< 1.0 (per layer)
Reinforcement 4	Standard glass fibre mesh, one or two layers Embedded in base coat See Annex No. 6	0.139–0.172 (per layer)	< 1.0 (per layer)
Key coat 1	EnveoGrund Mandatory use with finishing coats 1 – 17 Applied in one layer	0.20 – 0.24 (liquid)	< 0.2
Finishing coat 1	EnveoPutz Silicat Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 2	EnveoPutz Silicat Ready-to-use paste, floated structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 3	EnveoPutz Silicat Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0

Use and variant	Component	Coverage [kg/m ²]	Thickness [mm]
Finishing coat 4	EnveoPutz Silicon Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 5	EnveoPutz Silicon Ready-to-use paste, floated structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 6	EnveoPutz Silicon Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 7	EnveoPutz Premium Silicon Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 8	EnveoPutz Premium Silicon Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 9	EnveoPutz Premium Aqua Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 10	EnveoPutz Premium Aqua Ready-to-use paste, floated structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 11	EnveoPutz Premium Aqua Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 12	EnveoPutz Premium Clean Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 13	EnveoPutz Premium Clean Ready-to-use paste, floated structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 14	EnveoPutz Premium Clean Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 15	EnveoPutz Premium Active Ready-to-use paste, floated structure	2.2 – 2.7 (paste)	~ 1.5
Finishing coat 16	EnveoPutz Premium Active Ready-to-use paste, floated structure	3.1 – 3.8 (paste)	~ 2.0
Finishing coat 17	EnveoPutz Premium Active Ready-to-use paste, rilled structure	3.1 – 3.8 (paste)	~ 2.0

Types of the ETICS can be distinguished, depending on the fixing method of thermal insulation:

Table 2

Component	Type of ETICS		
	Purely bonded ETICS	Bonded ETICS with supplementary anchors	Mechanically fixed ETICS with anchors with supplementary adhesive
Adhesive	EnveoKleber Excellent or EnveoKleber Premium or EnveoKleber Premium light Min. 40 % area covered by adhesive	EnveoKleber Excellent or EnveoKleber Premium or EnveoKleber Premium light Min. 40 % area covered by adhesive	EnveoKleber Excellent or EnveoKleber Premium or EnveoKleber Premium light
Thermal insulation product	Thermal insulation product 1	Thermal insulation product 1	Thermal insulation product 1 or Thermal insulation product 2
Anchors	Not to be used	See Annex No. 5	See Annex No. 5

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

This product is an External Thermal Insulation Composite System (ETICS) with renderings (rendering system). The product is a kit, comprising from number of components.

The ETICS may include special fittings (e.g. base profiles, corner profiles ...) to treat details of ETICS (connections, apertures, corners, parapets, sills ...). Special fittings are not listed nor assessed in this ETA.

The ETICS is installed in accordance with Manufacturer's installation instructions.

The ETICS may be used on new or existing (retrofit) vertical building walls. The walls can be made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels). The surface can be rendered or unrendered.

The ETICS is designed for use on vertical walls but can also be used on horizontal or inclined surfaces which are not exposed to precipitation.

The ETICS is a non-load-bearing construction element and it does not contribute directly to the stability of the wall on which it is installed.

The ETICS provides additional thermal insulation and protection from effect of weathering.

The provisions made in this ETA are based on an assumed intended working life of at least 25 years, provided that the ETICS installed and maintained properly. The indications given as to the working life of the construction product cannot be interpreted as a guarantee, but are regarded as means for expressing the expected economically reasonable working life of the product.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advice his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

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

Table 3

Essential characteristic	Assessment method (EAD clause)	Performance
Reaction to fire of ETICS	Cl. 2.2.1.1	See cl. 3.1.1
Reaction to fire of thermal insulation material	Cl. 2.2.1.2	No performance assessed (See Annex No. 3 for component characteristic)
Façade fire performance	Cl. 2.2.2	No performance assessed
Propensity to undergo continuous smouldering of ETICS	Cl. 2.2.3	No performance assessed
Content, emission and/or release of dangerous substances – leachable substances	Cl. 2.2.4	No performance assessed
Water absorption of the base coat and the rendering system	Cl. 2.2.5.1	See cl. 3.2.1
Water absorption of the insulation product	Cl. 2.2.5.2	No performance assessed (See Annex No. 3 for component characteristic)
Water-tightness of the ETICS: hygrothermal behaviour	Cl. 2.2.6	See cl. 3.2.2
Water-tightness: freeze thaw performance	Cl. 2.2.7	See cl. 3.2.3
Impact resistance	Cl. 2.2.8	See cl. 3.2.4
Water vapour permeability of the rendering system (equivalent air thickness s_d)	Cl. 2.2.9.1	See cl. 3.2.5
Water vapour permeability of thermal insulation product (water-vapour resistance factor)	Cl. 2.2.9.2	No performance assessed (See Annex No. 3 for component characteristic)
Bond strength between the base coat and the thermal insulation product (mortar or paste)	Cl. 2.2.11.1	See cl. 3.3.1
Bond strength between the adhesive and the substrate	Cl. 2.2.11.2	See cl. 3.3.2
Bond strength between the adhesive and the thermal insulation product	Cl. 2.2.11.3	See cl. 3.3.3
Fixing strength (transverse displacement)	Cl. 2.2.12	No performance assessed
Wind load resistance of ETICS – pull-through tests of fixings	Cl. 2.2.13.1	See cl. 3.3.4
Wind load resistance of ETICS – static foam block test	Cl. 2.2.13.2	No performance assessed
Wind load resistance of ETICS – dynamic wind uplift test	Cl. 2.2.13.3	No performance assessed
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions	Cl. 2.2.14.1	No performance assessed (See Annex No. 3 for component characteristic)
Tensile test perpendicular to the faces of the thermal insulation product – in wet conditions	Cl. 2.2.14.2	No performance assessed
Shear strength and shear modulus of elasticity test of ETICS	Cl. 2.2.15	No performance assessed (See Annex No. 3 for component characteristic)
Render strip tensile test	Cl. 2.2.17	No performance assessed
Bond strength after ageing of finishing coat tested in the rig	Cl. 2.2.20.1	See cl. 3.3.5
Bond strength after ageing of finishing coat not tested in the rig	Cl. 2.2.20.2	See cl. 3.3.6

Essential characteristic	Assessment method (EAD clause)	Performance
Tensile strength of the glass fibre mesh	Cl. 2.2.21.1 Cl. 2.2.21.2	No performance assessed (See Annex No. 6 for component characteristic)
Airborne sound insulation of ETICS	Cl. 2.2.22.1	No performance assessed
Dynamic stiffness of the thermal insulation product	Cl. 2.2.22.2	No performance assessed
Air flow resistance of the thermal insulation product	Cl. 2.2.22.3	No performance assessed
Thermal resistance and thermal transmittance of ETICS	Cl. 2.2.23	See cl. 3.3.7
Thermal resistance of the thermal insulation product	Cl. 2.2.23.1	No performance assessed (See Annex No. 3 for component characteristic)

Table 4 – Table 36 lay down assessments of essential characteristics of specific combinations of ETICS components.

Any combination of components not meeting the criteria of Table 4 – Table 37 is assessed as “No performance assessed” in regard to the relevant essential characteristic.

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire of ETICS

Table 4

Reaction to fire of ETICS: A2-s1, d0	
Component	ETICS configuration
Adhesive	In accordance with Table 1
Thermal insulation product	Thermal insulation product 1 or 2 Max. apparent density (EN 1602): 105 kg/m ³
Anchors	In accordance with Table 1
Base coat	In accordance with Table 1
Reinforcement	In accordance with Table 1 in max. two layers
Key coat	In accordance with Table 1
Finishing coat	In accordance with Table 1

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Water absorption of the base coat and the rendering system

Table 5

Water absorption of the reinforced base coat		
ETICS configuration requirements:	After 1 h [kg/m ²]	After 24 h [kg/m ²]
EnveoKleber Premium	0.01	0.07
EnveoKleber Premium light	0.03	0.30

Table 6

Water absorption of the complete rendering				
ETICS configuration requirements:			After 1 h [kg/m ²]	After 24 h [kg/m ²]
Base coat	Finishing coat	Key coat		
EnveoKleber Premium	EnveoPutz Silicat floated	EnveoGrund	0.01	0.07
EnveoKleber Premium	EnveoPutz Silicat rilled	EnveoGrund	0.01	0.07
EnveoKleber Premium	EnveoPutz Silicon floated	EnveoGrund	0.00	0.03
EnveoKleber Premium	EnveoPutz Silicon rilled	EnveoGrund	0.02	0.07
EnveoKleber Premium	EnveoPutz Premium Silicon floated	EnveoGrund	0.01	0.09
EnveoKleber Premium	EnveoPutz Premium Silicon rilled	EnveoGrund	0.01	0.10
EnveoKleber Premium	EnveoPutz Premium Aqua floated	EnveoGrund	0.02	0.10
EnveoKleber Premium	EnveoPutz Premium Aqua rilled	EnveoGrund	0.01	0.08
EnveoKleber Premium	EnveoPutz Premium Clean floated	EnveoGrund	0.01	0.08
EnveoKleber Premium	EnveoPutz Premium Clean rilled	EnveoGrund	0.01	0.07
EnveoKleber Premium	EnveoPutz Premium Active floated	EnveoGrund	0.01	0.10
EnveoKleber Premium	EnveoPutz Premium Active rilled	EnveoGrund	0.01	0.06

Table 7

Water absorption of the complete rendering				
ETICS configuration requirements:			After 1 h [kg/m ²]	After 24 h [kg/m ²]
Base coat	Finishing coat	Key coat		
EnveoKleber Premium light	EnveoPutz Silicat floated	EnveoGrund	0.01	0.06
EnveoKleber Premium light	EnveoPutz Silicat rilled	EnveoGrund	0.01	0.08
EnveoKleber Premium light	EnveoPutz Silicon floated	EnveoGrund	0.00	0.03
EnveoKleber Premium light	EnveoPutz Silicon rilled	EnveoGrund	0.00	0.07
EnveoKleber Premium light	EnveoPutz Premium Silicon floated	EnveoGrund	0.01	0.07
EnveoKleber Premium light	EnveoPutz Premium Silicon rilled	EnveoGrund	0.01	0.09
EnveoKleber Premium light	EnveoPutz Premium Aqua floated	EnveoGrund	0.02	0.08
EnveoKleber Premium light	EnveoPutz Premium Aqua rilled	EnveoGrund	0.01	0.08
EnveoKleber Premium light	EnveoPutz Premium Clean floated	EnveoGrund	0.01	0.04
EnveoKleber Premium light	EnveoPutz Premium Clean rilled	EnveoGrund	0.01	0.07
EnveoKleber Premium light	EnveoPutz Premium Active floated	EnveoGrund	0.01	0.05
EnveoKleber Premium light	EnveoPutz Premium Active rilled	EnveoGrund	0.01	0.07

3.2.2 Water-tightness of the ETICS: hygrothermal behaviour

Table 8

Water-tightness of the ETICS: hygrothermal behaviour
Hygrothermal cycles have been performed on products tested in the hygrothermal rig. The ETICS passed the test and is assessed as resistant to hygrothermal cycles .

3.2.3 Water-tightness: freeze thaw performance

Table 9

Water-tightness: freeze thaw performance
The ETICS is freeze-thaw resistant , because the water absorption of both, reinforced base coat and the rendering system, are less than 0.5 kg/m ² after 24 hours.

3.2.4 Impact resistance

Table 10

Impact resistance (products tested after hygrothermal cycles on the rig)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium	EnveoPutz Silicat floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	20 – 3 J 27 – 10 J	III
EnveoKleber Premium	EnveoPutz Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 46 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Aqua floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 38 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Active floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 35 – 10 J	II

Table 11

Impact resistance (products tested after hygrothermal cycles on the rig)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium light	EnveoPutz Silicat floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 46 – 10 J	II
EnveoKleber Premium light	EnveoPutz Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 35 – 10 J	II
EnveoKleber Premium light	EnveoPutz Premium Aqua floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	18 – 3 J 54 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Active floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	19 – 3 J 87 – 10 J	III

Table 12

Impact resistance (products tested after immersion in water)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium	EnveoPutz Silicat floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	21 – 3 J 68 – 10 J	III
EnveoKleber Premium	EnveoPutz Silicat rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 57 – 10 J	II
EnveoKleber Premium	EnveoPutz Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	19 – 3 J 48 – 10 J	III
EnveoKleber Premium	EnveoPutz Silicon rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	38 – 3 J 68 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	28 – 3 J 73 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Silicon rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	37 – 3 J 75 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Aqua floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 75 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Aqua rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 59 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Clean floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 45 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Clean rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 55 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Active floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	26 – 3 J 71 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Active rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	41 – 3 J 53 – 10 J	III

Table 13

Impact resistance (products tested after immersion in water)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium	EnveoPutz Silicat floated	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 38 – 10 J	II
EnveoKleber Premium	EnveoPutz Silicat rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 40 – 10 J	II
EnveoKleber Premium	EnveoPutz Silicon floated	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 50 – 10 J	II
EnveoKleber Premium	EnveoPutz Silicon rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 47 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Silicon floated	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 47 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Silicon rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 37 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Aqua floated	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 42 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Aqua rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 44 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Clean floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	22 – 3 J 54 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Clean rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 64 – 10 J	II
EnveoKleber Premium	EnveoPutz Premium Active floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	21 – 3 J 35 – 10 J	III
EnveoKleber Premium	EnveoPutz Premium Active rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	38 – 3 J 42 – 10 J	III

Table 14

Impact resistance (products tested after immersion in water)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium light	EnveoPutz Silicat floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	27 – 3 J 30 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicat rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	31 – 3 J 57 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	31 – 3 J 42 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicon rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	21 – 3 J 61 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Silicon floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	27 – 3 J 52 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Silicon rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	23 – 3 J 51 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Aqua floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	23 – 3 J 45 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Aqua rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	28 – 3 J 47 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Clean floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	30 – 3 J 36 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Clean rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	23 – 3 J 55 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Active floated	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	22 – 3 J 75 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Active rilled	Reinforcement 1 or 2 or 3 or 4 and EnveoGrund	Yes – 3 J Yes – 10 J	26 – 3 J 60 – 10 J	III

Table 15

Impact resistance (products tested after immersion in water)					
ETICS configuration requirements:			Cracks	Max. impact diameter [mm]	Impact resistance category
Base coat	Finishing coat	Reinforcement and key coat			
EnveoKleber Premium light	EnveoPutz Silicat floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	24 – 3 J 42 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicat rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	29 – 3 J 45 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicon floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	23 – 3 J 38 – 10 J	III
EnveoKleber Premium light	EnveoPutz Silicon rilled	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 57 – 10 J	II
EnveoKleber Premium light	EnveoPutz Premium Silicon floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	24 – 3 J 48 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Silicon rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	30 – 3 J 69 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Aqua floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	22 – 3 J 49 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Aqua rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	30 – 3 J 49 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Clean floated	Reinforcement 3 EnveoGrund	No – 3 J Yes – 10 J	/ – 3 J 32 – 10 J	II
EnveoKleber Premium light	EnveoPutz Premium Clean rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	24 – 3 J 54 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Active floated	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	24 – 3 J 45 – 10 J	III
EnveoKleber Premium light	EnveoPutz Premium Active rilled	Reinforcement 3 EnveoGrund	Yes – 3 J Yes – 10 J	35 – 3 J 47 – 10 J	III

3.2.5 Water vapour permeability of the rendering system (equivalent air thickness s_d)

Table 16

Water vapour permeability of the rendering system (equivalent air thickness s_d)			
ETICS configuration requirements:			Equivalent air thickness s_d [m]
Base coat	Finishing coat	Key coat	
EnveoKleber Premium	EnveoPutz Silicat floated	EnveoGrund	0.4
EnveoKleber Premium	EnveoPutz Silicat rilled	EnveoGrund	0.2
EnveoKleber Premium	EnveoPutz Silicon floated	EnveoGrund	1.0
EnveoKleber Premium	EnveoPutz Silicon rilled	EnveoGrund	0.4
EnveoKleber Premium	EnveoPutz Premium Silicon floated	EnveoGrund	0.6
EnveoKleber Premium	EnveoPutz Premium Silicon rilled	EnveoGrund	0.5
EnveoKleber Premium	EnveoPutz Premium Aqua floated	EnveoGrund	0.9
EnveoKleber Premium	EnveoPutz Premium Aqua rilled	EnveoGrund	0.5
EnveoKleber Premium	EnveoPutz Premium Clean floated	EnveoGrund	0.7
EnveoKleber Premium	EnveoPutz Premium Clean rilled	EnveoGrund	0.4
EnveoKleber Premium	EnveoPutz Premium Active floated	EnveoGrund	0.3
EnveoKleber Premium	EnveoPutz Premium Active rilled	EnveoGrund	0.3

Table 17

Water vapour permeability of the rendering system (equivalent air thickness s_d)			
ETICS configuration requirements:			Equivalent air thickness s_d [m]
Base coat	Finishing coat	Key coat	
EnveoKleber Premium light	EnveoPutz Silicat floated	EnveoGrund	0.5
EnveoKleber Premium light	EnveoPutz Silicat rilled	EnveoGrund	0.2
EnveoKleber Premium light	EnveoPutz Silicon floated	EnveoGrund	1.2
EnveoKleber Premium light	EnveoPutz Silicon rilled	EnveoGrund	0.5
EnveoKleber Premium light	EnveoPutz Premium Silicon floated	EnveoGrund	0.7
EnveoKleber Premium light	EnveoPutz Premium Silicon rilled	EnveoGrund	0.5
EnveoKleber Premium light	EnveoPutz Premium Aqua floated	EnveoGrund	0.8
EnveoKleber Premium light	EnveoPutz Premium Aqua rilled	EnveoGrund	0.5
EnveoKleber Premium light	EnveoPutz Premium Clean floated	EnveoGrund	1.0
EnveoKleber Premium light	EnveoPutz Premium Clean rilled	EnveoGrund	0.5
EnveoKleber Premium light	EnveoPutz Premium Active floated	EnveoGrund	0.3
EnveoKleber Premium light	EnveoPutz Premium Active rilled	EnveoGrund	0.3

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Bond strength between the base coat and the thermal insulation product (mortar or paste)

Table 18

Bond strength between the base coat and the thermal insulation product (mortar or paste)					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Base coat			Min.	Mean
Insulation product 1	EnveoKleber Premium	Initial state (dry condition)	In the insulation product	45	59
Insulation product 2 (min TR 9 kPa)	EnveoKleber Premium	Initial state (dry condition)	In the insulation product	8	9
Insulation product 1	EnveoKleber Premium	After hygrothermal cycles	In the insulation product	44	53
Insulation product 2 (min TR 8 kPa)	EnveoKleber Premium	After hygrothermal cycles	In the insulation product	6	8

Table 19

Bond strength between the base coat and the thermal insulation product (mortar or paste)					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Base coat			Min.	Mean
Insulation product 1	EnveoKleber Premium light	Initial state (dry condition)	In the insulation product	51	56
Insulation product 2 (min TR 11 kPa)	EnveoKleber Premium light	Initial state (dry condition)	In the insulation product	10	11
Insulation product 1	EnveoKleber Premium light	After hygrothermal cycles	In the insulation product	47	52
Insulation product 2 (min TR 11 kPa)	EnveoKleber Premium light	After hygrothermal cycles	In the insulation product	7	8

3.3.2 Bond strength between the adhesive and the substrate

Table 20

Bond strength between the adhesive and the substrate					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Substrate	Adhesive (and tested thickness)			Min.	Mean
Concrete	EnveoKleber Excellent (3 - 5 mm)	Initial state (dry condition)	In the adhesive	1640	1816
Concrete	EnveoKleber Excellent (3 - 5 mm)	2 days immersion and 2 hours drying	In the adhesive	325	474
Concrete	EnveoKleber Excellent (3 - 5 mm)	2 days immersion and min. 7 days drying	In the adhesive	2652	3006

Table 21

Bond strength between the adhesive and the substrate					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Substrate	Adhesive (and tested thickness)			Min.	Mean
Concrete	EnveoKleber Premium (3 - 5 mm)	Initial state (dry condition)	In the adhesive	1517	1679
Concrete	EnveoKleber Premium (3 - 5 mm)	2 days immersion and 2 hours drying	In the adhesive	598	699
Concrete	EnveoKleber Premium (3 - 5 mm)	2 days immersion and min. 7 days drying	In the adhesive	1562	1963

Table 22

Bond strength between the adhesive and the substrate					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Substrate	Adhesive (and tested thickness)			Min.	Mean
Concrete	EnveoKleber Premium light (3 - 5 mm)	Initial state (dry condition)	In the adhesive	1322	1394
Concrete	EnveoKleber Premium light (3 - 5 mm)	2 days immersion and 2 hours drying	In the adhesive	695	810
Concrete	EnveoKleber Premium light (3 - 5 mm)	2 days immersion and min. 7 days drying	In the adhesive	1737	1920

3.3.3 Bond strength between the adhesive and the thermal insulation product

Table 23

Bond strength between the adhesive and the thermal insulation product					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Adhesive (and tested thickness)			Min.	Mean
Insulation product 1	EnveoKleber Excellent (3 - 5 mm)	Initial state (dry condition)	In the insulation product	41	52
Insulation product 1	EnveoKleber Excellent (3 - 5 mm)	2 days immersion and 2 hours drying	In between the insulation product and the adhesive	29	39
Insulation product 1	EnveoKleber Excellent (3 - 5 mm)	2 days immersion and min. 7 days drying	In the insulation product	49	60

Table 24

Bond strength between the adhesive and the thermal insulation product					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Adhesive (and tested thickness)			Min.	Mean
Insulation product 1	EnveoKleber Premium (3 - 5 mm)	Initial state (dry condition)	In the insulation product	55	67
Insulation product 1	EnveoKleber Premium (3 - 5 mm)	2 days immersion and 2 hours drying	In the insulation product	39	46
Insulation product 1	EnveoKleber Premium (3 - 5 mm)	2 days immersion and min. 7 days drying	In the insulation product	51	56

Table 25

Bond strength between the adhesive and the thermal insulation product					
ETICS configuration requirements:		Conditioning before the test	Rupture type	Bond strength [kPa]	
Insulation product	Adhesive (and tested thickness)			Min.	Mean
Insulation product 1	EnveoKleber Premium light (3 - 5 mm)	Initial state (dry condition)	In the insulation product	49	57
Insulation product 1	EnveoKleber Premium light (3 - 5 mm)	2 days immersion and 2 hours drying	In the insulation product	44	48
Insulation product 1	EnveoKleber Premium light (3 - 5 mm)	2 days immersion and min. 7 days drying	In the insulation product	41	52

3.3.4 Wind load resistance of ETICS – pull-through tests of fixings

Table 26

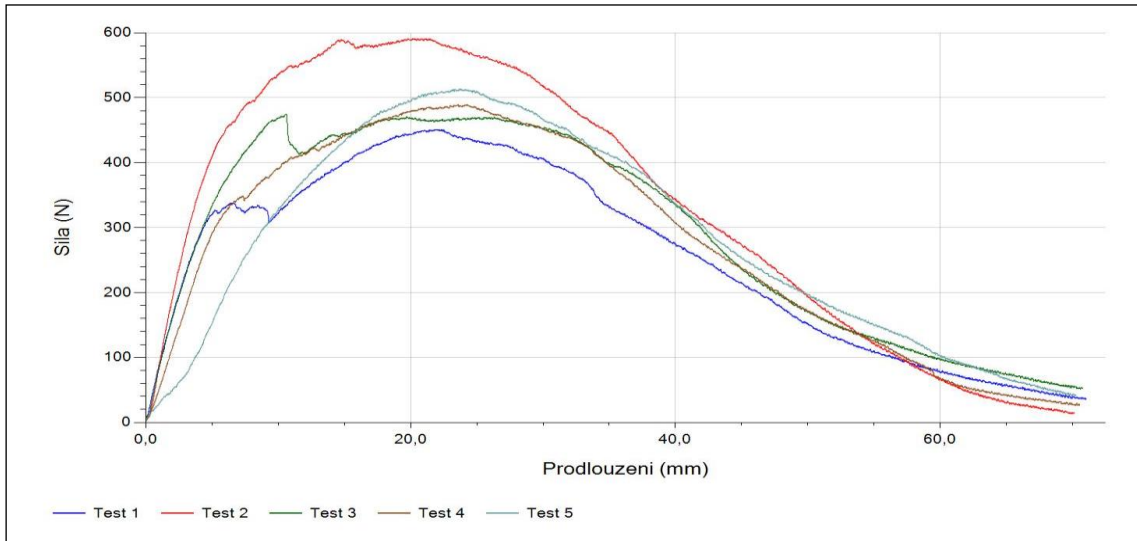
Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation product 1 Thickness: ≥ 50 mm or ≥ 100 mm for countersunk assembly Tensile strength in dry condition: ≥ 13 kPa	Surface assembly or countersunk assembly (only single layer insulation product) Anchors in accordance with Annex No. 5 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{panel} 	Dry condition 23 °C and 50 % relative humidity of air	0.451 0.591 0.475 0.490 0.514	0.504
Load / displacement graph:					
					

Table 27

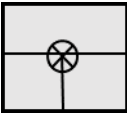
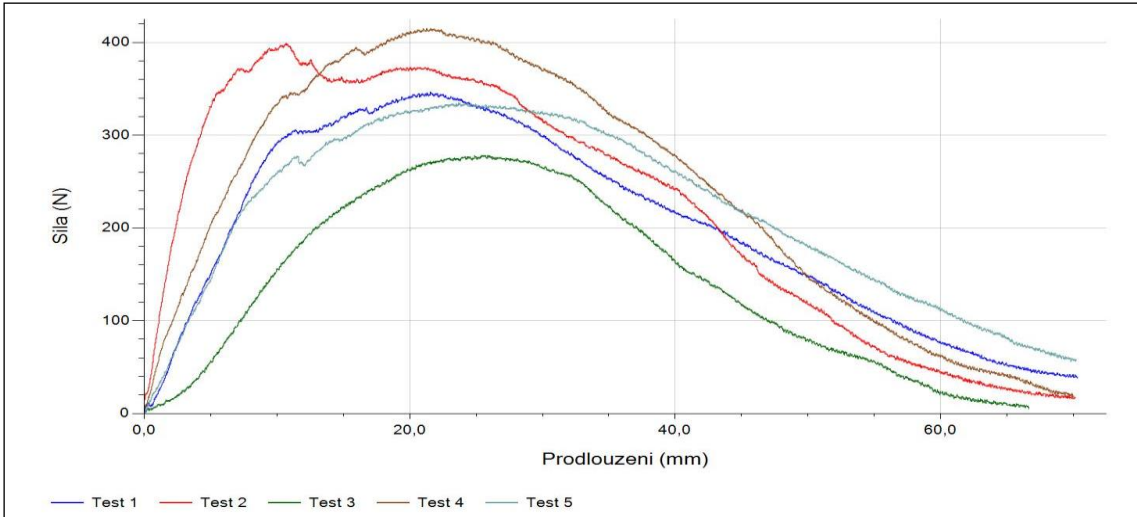
Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation product 1 Thickness: ≥ 50 mm or ≥ 100 mm for countersunk assembly Tensile strength in dry condition: ≥ 13 kPa	Surface assembly or countersunk assembly (only single layer insulation product) Anchors in accordance with Annex No. 5 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{joint} 	Dry condition 23 °C and 50 % relative humidity of air	0.347 0.399 0.278 0.415 0.335	0.355
Load / displacement graph:					
					

Table 28

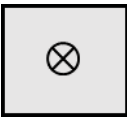
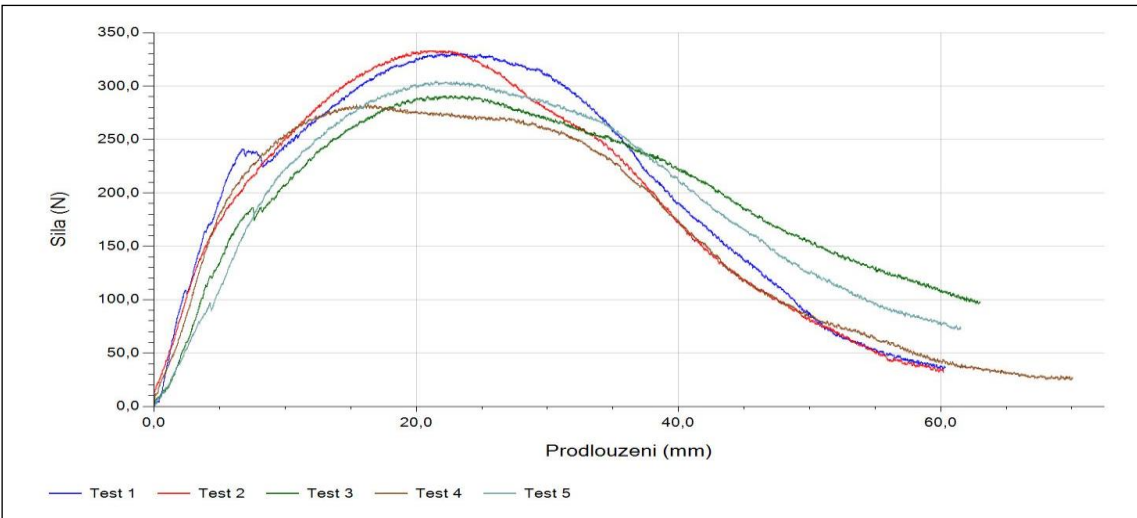
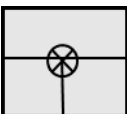
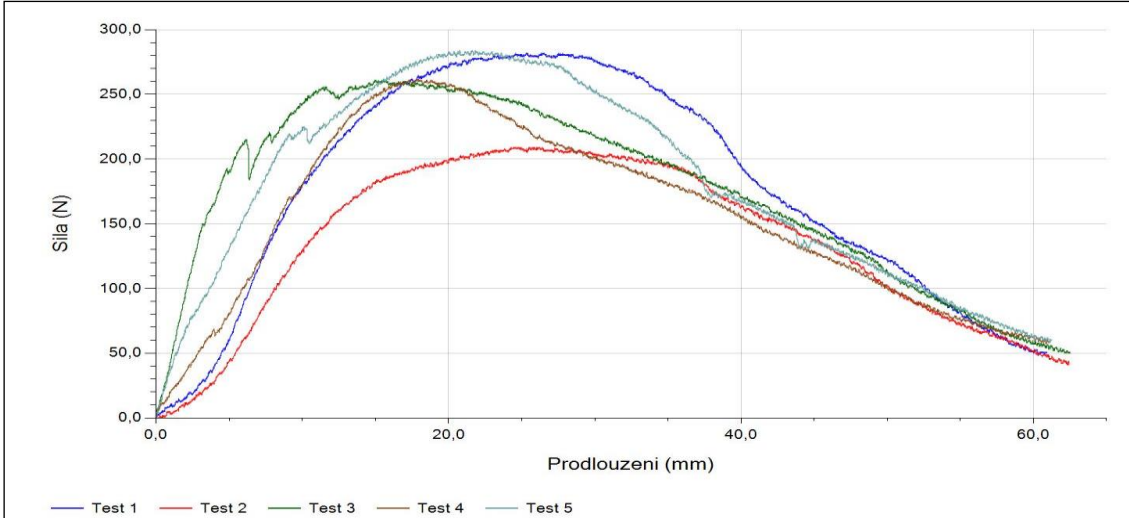
Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation product 1 Thickness: ≥ 50 mm or ≥ 100 mm for countersunk assembly Tensile strength in dry condition: ≥ 13 kPa Tensile strength in wet condition: ≥ 7 kPa	Surface assembly or countersunk assembly (only single layer insulation product) Anchors in accordance with Annex No. 5 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{panel} 	Wet condition 70°C and 95 % relative humidity of air	0.331 0.333 0.291 0.283 0.305	0.309
Load / displacement graph:					
					

Table 29

Wind load resistance of ETICS					
Assessed by means of: pull-through tests of fixings					
ETICS configuration requirements:		Tested position	Test conditions	Failure load per fixing [kN]	
Insulation product	Fixing			Individual	Mean
Insulation product 1 Thickness: ≥ 50 mm or ≥ 100 mm for countersunk assembly Tensile strength in dry condition: ≥ 13 kPa Tensile strength in wet condition: ≥ 7 kPa	Surface assembly or countersunk assembly (only single layer insulation product) Anchors in accordance with Annex No. 5 Plate diameter: ≥ 60 mm Plate stiffness: ≥ 0.6 kN/mm	R_{joint} 	Wet condition 70°C and 95 % relative humidity of air	0.282 0.209 0.261 0.262 0.284	0.260
Load / displacement graph:					
					

3.3.5 Bond strength after ageing of finishing coat tested in the rig

Table 30

Bond strength after ageing of finishing coat tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1 (min. TR 12 kPa)	EnveoKleber Premium	EnveoPutz Silicat floated or rilled	EnveoGrund	In the insulation product	11	12
				In the insulation product	12	
				In the insulation product	11	
				In the insulation product	13	
				In the insulation product	11	
Insulation product 1 (min. TR 8 kPa)	EnveoKleber Premium	EnveoPutz Silicon floated or rilled	EnveoGrund	In the insulation product	10	8
				In the insulation product	8	
				In the insulation product	7	
				In the insulation product	8	
				In the insulation product	8	
Insulation product 1 (min. TR 8 kPa)	EnveoKleber Premium	EnveoPutz Premium Aqua floated or rilled	EnveoGrund	In the insulation product	10	8
				In the insulation product	8	
				In the insulation product	7	
				In the insulation product	7	
				In the insulation product	6	
Insulation product 1 (min. TR 11 kPa)	EnveoKleber Premium	EnveoPutz Premium Active floated or rilled	EnveoGrund	In the insulation product	11	11
				In the insulation product	11	
				In the insulation product	12	
				In the insulation product	12	
				In the insulation product	9	

Table 31

Bond strength after ageing of finishing coat tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1 (min. TR 9 kPa)	EnveoKleber Premium light	EnveoPutz Silicat floated or rilled	EnveoGrund	In the insulation product	10	9
				In the insulation product	10	
				In the insulation product	8	
				In the insulation product	7	
				In the insulation product	10	
Insulation product 1 (min. TR 9 kPa)	EnveoKleber Premium light	EnveoPutz Silicon floated or rilled	EnveoGrund	In the insulation product	10	9
				In the insulation product	10	
				In the insulation product	8	
				In the insulation product	8	
				In the insulation product	9	
Insulation product 1 (min. TR 9 kPa)	EnveoKleber Premium light	EnveoPutz Premium Aqua floated or rilled	EnveoGrund	In the insulation product	10	9
				In the insulation product	8	
				In the insulation product	9	
				In the insulation product	9	
				In the insulation product	9	
Insulation product 1 (min. TR 10 kPa)	EnveoKleber Premium light	EnveoPutz Premium Active floated or rilled	EnveoGrund	In the insulation product	9	10
				In the insulation product	11	
				In the insulation product	10	
				In the insulation product	9	
				In the insulation product	11	

3.3.6 Bond strength after ageing of finishing coat not tested in the rig

Table 32

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1	EnveoKleber Premium	EnveoPutz silicat floated or rilled	EnveoGrund	In the insulation product	59	59
				In the insulation product	62	
				In the insulation product	58	
				In the insulation product	55	
				In the insulation product	62	
Insulation product 1	EnveoKleber Premium	EnveoPutz silicon floated or rilled	EnveoGrund	In the insulation product	58	62
				In the insulation product	62	
				In the insulation product	68	
				In the insulation product	60	
				In the insulation product	64	
Insulation product 1	EnveoKleber Premium	EnveoPutz Premium Silicon floated or rilled	EnveoGrund	In the insulation product	60	63
				In the insulation product	61	
				In the insulation product	66	
				In the insulation product	66	
				In the insulation product	60	
Insulation product 1	EnveoKleber Premium	EnveoPutz Premium Aqua floated or rilled	EnveoGrund	In the insulation product	47	54
				In the insulation product	59	
				In the insulation product	43	
				In the insulation product	55	
				In the insulation product	66	

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1	EnveoKleber Premium	EnveoPutz Premium Clean floated or rilled	EnveoGrund	In the insulation product	62	63
				In the insulation product	58	
				In the insulation product	57	
				In the insulation product	71	
				In the insulation product	66	
Insulation product 1	EnveoKleber Premium	EnveoPutz Premium Active floated or rilled	EnveoGrund	In the insulation product	64	62
				In the insulation product	49	
				In the insulation product	61	
				In the insulation product	66	
				In the insulation product	71	

Table 33

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1	EnveoKleber Premium light	EnveoPutz silicat floated or rilled	EnveoGrund	In the insulation product	63	61
				In the insulation product	65	
				In the insulation product	63	
				In the insulation product	57	
				In the insulation product	57	
Insulation product 1	EnveoKleber Premium light	EnveoPutz silicon floated or rilled	EnveoGrund	In the insulation product	62	60
				In the insulation product	60	
				In the insulation product	57	
				In the insulation product	62	
				In the insulation product	59	
Insulation product 1	EnveoKleber Premium light	EnveoPutz Premium Silicon floated or rilled	EnveoGrund	In the insulation product	62	62
				In the insulation product	59	
				In the insulation product	67	
				In the insulation product	64	
				In the insulation product	56	
Insulation product 1	EnveoKleber Premium light	EnveoPutz Premium Aqua floated or rilled	EnveoGrund	In the insulation product	47	50
				In the insulation product	50	
				In the insulation product	50	
				In the insulation product	50	
				In the insulation product	52	

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 1	EnveoKleber Premium light	EnveoPutz Premium Clean floated or rilled	EnveoGrund	In the insulation product	45	58
				In the insulation product	53	
				In the insulation product	50	
				In the insulation product	74	
				In the insulation product	66	
Insulation product 1	EnveoKleber Premium light	EnveoPutz Premium Active floated or rilled	EnveoGrund	In the insulation product	51	49
				In the insulation product	35	
				In the insulation product	42	
				In the insulation product	64	
				In the insulation product	53	

Table 34

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 2 (min. TR 11 Kpa)	EnveoKleber Premium	EnveoPutz Premium silicon floated or rilled	EnveoGrund	In the insulation product	11	11
				In the insulation product	11	
				In the insulation product	12	
				In the insulation product	11	
				In the insulation product	12	
Insulation product 2 (min. TR 11 Kpa)	EnveoKleber Premium	EnveoPutz Premium Clean floated or rilled	EnveoGrund	In the insulation product	11	11
				In the insulation product	10	
				In the insulation product	12	
				In the insulation product	12	
				In the insulation product	11	

Table 35

Bond strength after ageing of finishing coat NOT tested in the rig						
ETICS configuration requirements:				Rupture type	Bond strength [kPa]	
Insulation product	Base coat	Finishing coat	Key coat		Individual	Mean
Insulation product 2 (min. TR 11 Kpa)	EnveoKleber Premium light	EnveoPutz Premium Silicon floated or rilled	EnveoGrund	In the insulation product	11	11
				In the insulation product	11	
				In the insulation product	12	
				In the insulation product	11	
				In the insulation product	9	
Insulation product 2 (min. TR 11 Kpa)	EnveoKleber Premium	EnveoPutz Premium Clean floated or rilled	EnveoGrund	In the insulation product	11	11
				In the insulation product	10	
				In the insulation product	11	
				In the insulation product	10	
				In the insulation product	12	

3.3.7 Thermal resistance and thermal transmittance of ETICS

Table 36

Thermal resistance and thermal transmittance of ETICS (R_{ETICS})	
Thermal resistance	$[(m^2 \cdot K)/W]$
R_{render}	0.02
R_{ETICS}	≥ 1.00
See Annex No. 2 for information on calculation of thermal transmittance of ETICS In order to meet criteria of EAD 040083-00-0404, the R_{ETICS} calculated in line with Annex No. 2 has to be min. 1.0 $(m^2 \cdot K)/W$.	

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

The applicable AVCP system is 2+ for any use except for uses subject to regulations on reaction to fire. For uses subject to regulations on reaction to fire the applicable AVCP systems regarding reaction to fire are 1 or 2+ depending on the conditions defined hereafter.

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

Table 37

Product	Intended uses	Class(es) (reaction to fire)	Systems of assessment and verification of constancy of performance
External thermal insulation composite system/kits with rendering (ETICS)	in external wall subject to fire regulations	A ⁽¹⁾ – B ⁽¹⁾ – C ⁽¹⁾	1
		A ⁽²⁾ – B ⁽²⁾ – C ⁽²⁾ A (without testing) D – E – F	2+
	in external wall not subject to fire regulations	any	2+
(1) Materials for which the reaction to fire performance is susceptible to change during the production process			
(2) Materials for which the reaction to fire performance is not susceptible to change during the production process			

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD: 040083-00-0404

The manufacturer and the Technical and Test Institute for Construction Prague have agreed on a Control Plan which is deposited at the Technical and Test Institute for Construction Prague and it accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted on raw materials, manufactured and subcontracted components.

The manufacturer has defined special techniques of installation that shall always be followed.

Installation shall be done by qualified personnel trained in the special installation techniques defined by the manufacturer.

Notified body has to carry out the initial inspection of the manufacturing plant and of factory production control. Notified body also carries out continuous surveillance, assessment and evaluation of factory production control at least once per year.

Issued in Prague on 28/07/2025

by

Ing. Jiří Studnička, Ph.D.

Head of the Technical Assessment Body (TAB)

Annexes:

- | | |
|-------------|------------------------------------|
| Annex No. 1 | List of manufacturing plants |
| Annex No. 2 | Thermal transmittance of ETICS |
| Annex No. 3 | Thermal insulation product 1 |
| Annex No. 4 | Thermal insulation product 2 |
| Annex No. 5 | Mechanical fixing device – anchors |
| Annex No. 6 | Reinforcement – glass fibre mesh |

Annex No. 1 List of manufacturing plants

1. SAINT-GOBAIN HUNGARY KFT.
2085 Pilisvörösvár, Bécsi út 07/5 hrsz, Hungary
2. Saint-Gobain Construction Products, s.r.o.
Stará Vajnorská 139, 831 04 Bratislava, Slovakia
3. SAINT-GOBAIN GRAĐEVINSKI PROIZVODI D.O.O.
Apatin – Somborska 122, 25260 Apatin, Serbia
4. SAINT-GOBAIN GRAĐEVINSKI PROIZVODI D.O.O.
Topola – Bulevar Vožda Karađorđa 126, 34310 Topola, Serbia
5. SAINT-GABAIN BULGARIA
9155 Izvorsko, Bulgaria
6. SAINT-GABAIN BULGARIA
2230 Kostinbrod 13 Imperator Konstantin Veliki str., Bulgaria

Annex No. 2 Thermal transmittance of ETICS

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

U_c is corrected thermal transmittance of the entire wall, including thermal bridges.

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

ΔU is correction term of the thermal transmittance for mechanical fixing devices.

$$U = \frac{1}{R_{ETICS} + R_{substrate} + R_{se} + R_{si}} [W/m^2 \cdot K]$$

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

Where: $R_{insulation}$ = insulation thickness / thermal conductivity coefficient [$m^2 \cdot K/W$]

$R_{render} = 0.02 [m^2 \cdot K/W]$

$R_{substrate}$ thermal resistance of the substrate wall [$m^2 \cdot K/W$].

R_{se} external surface thermal resistance [$m^2 \cdot K/W$].

R_{si} internal surface thermal resistance [$m^2 \cdot K/W$].

$$\Delta U = \chi_P \times n + \sum \Psi_i \times l_i [m^2 \cdot K/W]$$

Where: χ_P is point thermal transmittance value of the anchor [W/K]. Specified by the ETA for anchors or as follows:

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 (the worst case).

n is number of anchors per m^2 . In case n is more than 16, the U_c calculation does not apply.

Ψ_i is linear thermal transmittance value of the profile [$W/m \cdot K$].

l_i is length of the profile per m^2 .

The influence of thermal bridges can also be calculated as described in EN ISO 10211. If there are more than 16 pcs of anchors per m^2 the declared χ_P shall not be used. The EN ISO 10211 calculation shall be used in such case.

Annex No. 3 Thermal insulation product 1

Mineral wool (MW)	
Generic type	
Fibre orientation perpendicular to the faces of the panels (lamellas)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Perpendicular to the faces of the panel (lamellas)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Long-term water absorption W_{lp} :	max. 3.0 kg/m ²
Length:	max. $\pm$ 2.0 %
Width:	max. $\pm$ 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ :	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 80 kPa
Shear strength:	min. 20 kPa
Shear modulus:	min. 1000 kPa

Mineral wool (MW)	
Generic type	
Fibre orientation perpendicular to the faces of the panels (lamellas)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Perpendicular to the faces of the panel (lamellas)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Long-term water absorption W_{lp} :	max. 3.0 kg/m ²
Length:	max. $\pm$ 2.0 %
Width:	max. $\pm$ 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ :	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 80 kPa
Shear strength:	min. 20 kPa
Shear modulus:	min. 1000 kPa
Compressive strength:	min. 20 kPa

Mineral wool (MW)	
Generic type	
Fibre orientation perpendicular to the faces of the panels (lamellas)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Perpendicular to the faces of the panel (lamellas)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ :	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 80 kPa
Shear strength:	min. 20 kPa
Shear modulus:	min. 1000 kPa

Annex No. 4 Thermal insulation product 2

Mineral wool (MW)	
Generic type	
Fibre orientation longitudinal to the faces of the panels (boards)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Longitudinal to the faces of the panel (boards)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed (thin mineral-based coat improving adhesion)
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Long-term water absorption W_{ip} :	max. 3.0 kg/m ²
Length:	max. $\pm$ 2.0 %
Width:	max. $\pm$ 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ :	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 7.5 kPa

Mineral wool (MW)	
Generic type	
Fibre orientation longitudinal to the faces of the panels (boards)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Longitudinal to the faces of the panel (boards)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed (thin mineral-based coat improving adhesion)
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Long-term water absorption W_{lp} :	max. 3.0 kg/m ²
Length:	max. $\pm$ 2.0 %
Width:	max. $\pm$ 1.5 %
Thickness:	T5
Squareness:	max. 5 mm/m
Flatness:	max. 6 mm
Dimensional stability:	DS(70,90)
Reaction to fire of thermal insulation material:	A1
Water vapour permeability of thermal insulation product (water-vapour resistance factor) μ :	MU1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 7.5 kPa
Compressive strength:	min. 20 kPa

Mineral wool (MW)	
Generic type	
Fibre orientation longitudinal to the faces of the panels (boards)	
Requirements:	
Harmonized technical specification:	EN 13162
Direction of fibres:	Longitudinal to the faces of the panel (boards)
Composite insulation product:	No
Multi-layered insulation product	No
Facing:	No
Coating:	Allowed (thin mineral-based coat improving adhesion)
Max. thermal conductivity coefficient λ_D :	max. 0.065 W/(m·K)
Short-term water absorption W_p :	max. 1.0 kg/m ²
Reaction to fire of thermal insulation material:	A1
Tensile test perpendicular to the faces of the thermal insulation product – in dry conditions:	min. 7.5 kPa

Annex No. 5 Mechanical fixing device – anchors

Plastic anchors for fixing external thermal insulation composite systems with rendering	
Generic type	
Requirements:	
Harmonized technical specification:	ETAG 014 or EAD 330196-00-0604 or EAD 330196-01-0604 or superseding harmonized technical specification
Setting:	to be screwed-in or nailed-in and: 1) to be installed flush with the insulation product with or without additional, flat, plate 2) to be installed countersunk (incision depth max. 20 mm) to the surface of the insulation product, without additional plate does not apply to multi-layered insulation products
Diameter of the anchor plate:	min. 60 mm
Load resistance of the anchor plate:	min. 1.25 kN
Plate stiffness:	min. 0.6 kN/mm
Material of the nail	plastics or metal

Annex No. 6 Reinforcement – glass fibre mesh

Standard glass fibre mesh	
EnveoTherm Mesh 131 Webertherm R131	
Requirements:	
Harmonized technical specification:	040016-00-0404 or 040016-01-0404 or superseding harmonized technical specification
Mass per unit area:	0.154 to 0.171 kg/m ²
Heat of combustion:	Max. 5.8 MJ/kg
Mesh opening:	in warp direction: 3.0 to 4.5 mm in weft direction: 3.3 to 4.3 mm
Residual tensile strength retained after alkaline conditioning:	in warp direction: min. 20 N/mm in weft direction: min. 20 N/mm
Residual tensile strength after alkaline ageing	in warp direction: min. 50 % in weft direction: min. 50 %

Standard glass fibre mesh	
EnveoTherm Mesh 117 Webertherm R117	
Requirements:	
Harmonized technical specification:	040016-00-0404 or 040016-01-0404 or superseding harmonized technical specification
Mass per unit area:	0.139 to 0.154 kg/m ²
Heat of combustion:	Max. 6.64 MJ/kg
Mesh opening:	in warp direction: 3.0 to 4.5 mm in weft direction: 4.1 to 5.1 mm
Residual tensile strength retained after alkaline conditioning:	in warp direction: min. 20 N/mm in weft direction: min. 20 N/mm
Residual tensile strength after alkaline ageing	in warp direction: min. 50 % in weft direction: min. 50 %

Standard glass fibre mesh (with two wefts)	
EnveoTherm Mesh 3F Webertherm 3Force	
Requirements:	
Harmonized technical specification:	040016-00-0404 or 040016-01-0404 or superseding harmonized technical specification
Mass per unit area:	0.157 to 0.173 kg/m ²
Heat of combustion:	Max. 8.74 MJ/kg
Mesh opening:	in warp direction: 4.9 to 6.3 mm in first weft direction: 5.4 to 6.8 mm in second weft direction: 5.6 to 7.0 mm
Residual tensile strength retained after alkaline conditioning:	in warp direction: min. 20 N/mm in weft direction: min. 20 N/mm

Standard glass fibre mesh (with two wefts)	
EnveoTherm Mesh 3F Webertherm 3Force	
Requirements:	
Residual tensile strength after alkaline ageing	in warp direction: min. 50 % in weft directions: min. 50 %

Standard glass fibre mesh	
Generic type	
Requirements:	
Harmonized technical specification:	040016-00-0404 or 040016-01-0404 or superseding harmonized technical specification
Mass per unit area:	0.139 to 0.172 kg/m ²
Heat of combustion:	Max. 8.74 MJ/kg
Mesh opening:	in warp direction: 3.0 to 4.5 mm in weft direction: 4.1 to 5.1 mm
Residual tensile strength retained after alkaline conditioning:	in warp direction: min. 20 N/mm in weft direction: min. 20 N/mm
Residual tensile strength after alkaline ageing	in warp direction: min. 50 % in weft directions: min. 50 %