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Member of



European Technical Assessment

**ETA-16/0426
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General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

DRYVIT OUTSULATION DM

Product family to which the construction product belongs

External Thermal Insulation Composite System with rendering (ETICS)

Manufacturer

Dryvit Systems USA (Europe) Spółka z o.o.
Krże Duże 7
PL 96-325 Radziejowice, Poland

Manufacturing plant

Dryvit Systems USA (Europe) Spółka z o.o.
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This European Technical Assessment contains

18 pages including 2 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

Guideline for European Technical Approval ETAG 004, Edition 2013 "External Thermal Insulation Composite Systems with rendering", used as European Assessment Document (EAD)

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Specific Part

1 Technical description of the product

External Thermal Insulation Composite System DRYVIT OUTSULATION DM called ETICS in the following text is a kit designed and installed in accordance with the manufacturer design and installation instructions deposited with the Instytut Techniki Budowlanej.

The ETICS comprises the following components, which are factory-produced by the manufacturer or component suppliers. ETICS is made up on site from these components. The ETICS manufacturer is ultimately responsible for ETICS.

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

The ETICS also includes ancillary materials which are defined in clause 3.2.2.5 of ETAG 004. They shall be used in accordance with the manufacturer's instruction.

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Insulation material with associated methods of fixing	Bonded ETICS: fully bonded or partially bonded (bonded surface shall be at least 40%). National application documents shall be taken into account.		
	<ul style="list-style-type: none"> Insulation product factory prefabricated expanded polystyrene (EPS) according to EN 13163 – see Annex 1 for product characteristics 	-	20 to 300
	<ul style="list-style-type: none"> Adhesives composition: sand, cement, synthetic resin, mineral fillers, additives DRYHESIVE PLUS cement based powder requiring addition of 0,22 to 0,24 l/kg of water GENESIS DM PLUS cement based powder requiring addition of 0,22 to 0,24 l/kg of water GENESIS DM PLUS WHITE cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,5 to 4,0 ¹ (powder)	-
		3,5 to 4,0 ¹ (powder)	-
		3,5 to 4,0 ¹ (powder)	-
	Mechanically fixed ETICS with supplementary adhesive: according to the manufacturer's recommendation the minimal bonded surface shall be 40%. National application documents shall be taken into account.		
	<ul style="list-style-type: none"> Insulation product factory prefabricated expanded polystyrene (EPS) according to EN 13163 – see Annex 1 for product characteristics 	-	50 to 300

¹ refers to fully bonded system

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Insulation material with associated methods of fixing	<ul style="list-style-type: none"> • Anchors: see Annex 2 for product characteristics 	-	-
	<ul style="list-style-type: none"> • Supplementary adhesives composition: (equal to bonded ETICS) DRYHESIVE PLUS cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,5 to 4,0 (powder)	-
	<ul style="list-style-type: none"> • GENESIS DM PLUS cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,5 to 4,0 (powder)	-
	<ul style="list-style-type: none"> • GENESIS DM PLUS WHITE cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,5 to 4,0 (powder)	-
Base coats	<ul style="list-style-type: none"> • GENESIS DM PLUS cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,0 to 3,5	2,0 to 3,0
	<ul style="list-style-type: none"> • GENESIS DM PLUS WHITE cement based powder requiring addition of 0,22 to 0,24 l/kg of water 	3,0 to 3,5	2,0 to 3,0
Glass fibre meshes	<ul style="list-style-type: none"> • Standard and reinforced glass fibre meshes see Annex 2 for product characteristics 	-	-
Key coats	<ul style="list-style-type: none"> • PRIMESIL ready to use liquid - silicate binder; to be used optionally with SLK finishing coats 	0,20 to 0,30	-
	<ul style="list-style-type: none"> • COLOR PRIME ready to use liquid - acryl-copolymer binder; to be used optionally with acrylic, silicone and siloxane finishing coats and obligatory with DRYTEX WOOD 	0,20 to 0,25	-
	<ul style="list-style-type: none"> • COLOR PRIME S ready to use liquid - acryl-copolymer binder; to be used optionally with acrylic, silicone and siloxane finishing coats 	0,20 to 0,30	-
	<ul style="list-style-type: none"> • ULTRA TEX PG ready to use liquid - acryl-copolymer binder; to be used obligatory with ULTRA TEX finishing coats 	0,35 to 0,40	-
	<ul style="list-style-type: none"> • DEMANDIT ready to use liquid - acryl-copolymer binder; to be used obligatory with CUSTOM BRICK finishing coats 	0,35 to 0,40	-
Finishing coats	<ul style="list-style-type: none"> • Acrylic finishing coats composition: acryl-copolymer binder, sand, mineral fillers, additives 		
	AMERISTONE / AMERISTONE T (TERRANEO) ready to use paste; grained structure; particle size: 0,8 to 2,5 mm	3,0 to 4,5	regulated by particle size
	STONEMIST / STONEMIST T ready to use paste; grained structure; particle size: 0,6 to 0,8 mm	2,6 to 3,5	regulated by particle size
	QUARZPUTZ PMR ready to use paste; ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE PMR ready to use paste; grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE 2 PMR ready to use paste; grained structure; particle size: 2,0 mm	3,3 to 3,8	regulated by particle size
	SANDPEBBLE FINE PMR ready to use paste; grained structure; particle size: 1,2 mm	2,0 to 2,1	regulated by particle size
	SANDBLAST PMR ready to use paste; grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	FREESTYLE PMR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	LYMESTONE PMR ready to use paste; grained structure; particle size: 0,6 mm	1,0 to 1,2	regulated by particle size
	ULTRA TEX PMR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	CUSTOM BRICK ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	QUARZPUTZ FD PMR ready to use paste; ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE FD PMR ready to use paste; grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE FINE FD PMR ready to use paste; grained structure; particle size: 1,2 mm	2,0 to 2,1	regulated by particle size
	SANDBLAST FD PMR ready to use paste; grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size
	FREESTYLE FD PMR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	• Silicone finishing coats composition: silicon-copolymer binder, acryl-copolymer binder, sand, mineral fillers, additives		
	QUARZPUTZ TR ready to use paste; ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE TR ready to use paste; grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE 2 TR ready to use paste; grained structure; particle size: 2,0 mm	3,3 to 3,8	regulated by particle size
	SANDPEBBLE FINE TR ready to use paste; grained structure; particle size: 1,2 mm	2,0 to 2,1	regulated by particle size
	SANDBLAST TR ready to use paste; grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size
	FREESTYLE TR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	LYMESTONE TR ready to use paste; grained structure; particle size: 0,6 mm	1,0 to 1,2	regulated by particle size
	ULTRA TEX TR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	CUSTOM BRICK TR ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	• Silicate finishing coats composition: silicate binder, sand, mineral fillers, additives		
	QUARZPUTZ SLK ready to use paste; ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE SLK ready to use paste; grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	SANDBLAST SLK ready to use paste; grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size
	• Siloxane finishing coats composition: siloxane binder, sand, mineral fillers, additives		
	QUARZPUTZ HDP ready to use paste; ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE HDP ready to use paste; grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	SANDPEBBLE FINE HDP ready to use paste; grained structure; particle size: 1,2 mm	2,0 to 2,1	regulated by particle size

Table 1

	Components	Coverage (kg/m ²)	Thickness (mm)
Finishing coats	• Siloxane finishing coats composition: siloxane binder, sand, mineral fillers, additives		
	SANDBLAST HDP ready to use paste; grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size
	FREESTYLE HDP ready to use paste; grained structure; particle size: 0,6 mm	1,2 to 2,0	1,2 to 2,0
	LYMESTONE HDP ready to use paste; grained structure; particle size: 0,6 mm	1,0 to 1,2	regulated by particle size
	• Mineral finishing coats composition: sand, cement, mineral fillers, synthetic resin, additives		
	DRYTEX QUARZPUTZ powder requiring addition of 0,22 to 0,26 l/kg of water ribbed structure; particle size: 2,0 mm	2,6 to 2,8	regulated by particle size
	DRYTEX SANDPEBBLE powder requiring addition of 0,22 to 0,26 l/kg of water grained structure; particle size: 1,6 mm	2,6 to 2,8	regulated by particle size
	DRYTEX SANDBLAST powder requiring addition of 0,22 to 0,26 l/kg of water grained structure; particle size: 1,2 mm	2,2 to 2,5	regulated by particle size
	DRYTEX WOOD powder requiring addition of 0,22 to 0,26 l/kg of water grained structure; particle size: 0,5 mm	4,5 to 5,0	4,0 to 5,0
Decorative coats	• DEMANDIT to be used obligatory with mineral finishing coats ready to use liquid, acryl resin based	0,35 to 0,4	-
	• COLORSIL to be obligatory used with mineral finishing coats ready to use liquid, silicate binder based	0,35 to 0,4	-
	• SILSTAR to be used obligatory with mineral finishing coats ready to use liquid, silicone resin based	0,35 to 0,4	-
	• HYDROPHOBIC to be used obligatory with mineral finishing coats ready to use liquid; siloxane resin based	0,35 to 0,4	-
	• WOOD GLAZE to be used obligatory with DRYTEX WOOD ready to use liquid; acryl resin based	0,1 to 0,2	-
	• WOOD GLAZE MATT to be used obligatory with DRYTEX WOOD ready to use liquid; acryl resin based	0,1 to 0,2	-
Ancillary materials	Remain under the manufacturer's responsibility. Anchors as supplementary mechanical fixings covered by ETA issued according to ETAG 014.		

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

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

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

The ETICS is made of non load-bearing construction elements. It does not contribute directly to the stability of the wall on which it is installed, but it can contribute to durability by providing enhanced protection from the effects of weathering.

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

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

Design, installation, maintenance and repair shall take into account principles given in clause 7 of ETAG 004 and shall be done in accordance with national provisions.

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

Performances of the ETICS related to the Basic Requirements were determined in compliance with the ETAG 004.

Performances of the ETICS as described in this clause are valid provided that the components of the kit comply with Annexes 1 + 2.

3.1 Safety in the case of fire (BWR 2)

3.1.1 Reaction to fire (ETAG 004, clause 5.1.2.1)

Table 2

Configurations	Max. declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150 or Standard Plus 160) Finishing coats: QUARZPUTZ TR, QUARZPUTZ PMR (with relevant key coats: COLOR PRIME, COLOR PRIME S, ULTRA TEX PG, DEMANDIT) 	4% 4% 12,5%	0% (no flame retardant)	C – s2, d0
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150 or Standard Plus 160) Finishing coats: QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP (with relevant key coats: COLOR PRIME, COLOR PRIME S) 	4% 4% 12%	0% (no flame retardant)	B – s2, d0

Table 2

Configurations	Max. declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150 or Standard Plus 160) Finishing coats: AMERISTONE / AMERISTONE T (TERRANEO), STONEMIST / STONEMIST T (with relevant key coats: COLOR PRIME, COLOR PRIME S) 	4% 4% 11%	0% (no flame retardant)	B – s2, d0
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150 or Standard Plus 160) Finishing coats: QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR (with relevant key coats: COLOR PRIME, COLOR PRIME S) 	4% 4% 15%	0% (no flame retardant)	B – s2, d0
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150 or Standard Plus 160) Finishing coats: SANDPEBBLE PMR, SANDPEBBLE 2 PMR, SANDPEBBLE FINE PMR, SANDBLAST PMR, FREESTYLE PMR, LYMESTONE PMR, ULTRA TEX PMR, CUSTOM BRICK, SANDPEBBLE TR, SANDPEBBLE 2 TR, SANDPEBBLE FINE TR, SANDBLAST TR, FREESTYLE TR, LYMESTONE TR, ULTRA TEX TR, CUSTOM BRICK TR (with relevant key coats: COLOR PRIME, COLOR PRIME S, ULTRA TEX PG, DEMANDIT) 	4% 4% 13,5%	0% (no flame retardant)	B – s2, d0
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150) Finishing coats: DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST Decorative coats: DEMANDIT, SILSTAR, COLORSIL, HYDROPHOBIC 	4% 4% 4% 29%	0% (no flame retardant)	B – s1, d0

Table 2

Configurations	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150) Finishing coats: QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK (with key coat PRIMESIL) 	4% 4% 7%	0% (no flame retardant)	B – s2, d0
ETICS DRYVIT OUTSULATION DM with EPS boards (reaction to fire Class E) and rendering system: <ul style="list-style-type: none"> Adhesives: DRYHESIVE PLUS, GENESIS DM PLUS / GENESIS DM PLUS WHITE Base coat: GENESIS DM PLUS / GENESIS DM PLUS WHITE (with glass fibre mesh Standard Plus 150) Finishing coats: DRYTEX WOOD (with key coat COLOR PRIME) Decorative coats: WOOD GLAZE, WOOD GLAZE MATT 	4% 4% 4% 99,9%	0% (no flame retardant)	B – s1, d0
All other configurations	-	-	no performance assessed

Note: European reference fire scenario has not been laid down for facades. In some Member States the classification according to EN 13501-1 might not be sufficient for the use in facades. An additional tests might be required to comply with national provisions (e.g. large scale tests).

Mounting and fixing

The assessment of reaction to fire is based on tests with an insulation layer (EPS) thickness of 180 mm – SBI test according to EN 13823, 60 mm – test according to EN ISO 11925-2 and a maximum insulation material (EPS) density of 20,0 kg/m³ as well as finishing coats with maximum organic content.

For the SBI test according to EN 13823, the ETICS is mounted directly to a substrate (Class A2-s1, d0) with a thickness of 12 mm.

For the test according to EN ISO 11925-2 no substrate is used.

The installation of the ETICS was carried out by the manufacturer following the manufacturer's specifications (instruction of installation) using a single layer of the glass fibre mesh all over the test specimen (no overlapping glass fibre mesh). The test specimens were prefabricated and did not include any joints.

Anchors were not included in the tested ETICS as they have no influence on the test results.

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Water absorption (ETAG 004, clause 5.1.3.1)

- Base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE:
 - water absorption after 1 hour < 1,0 kg/m²,
 - water absorption after 24 hours < 0,5 kg/m²,
- Rendering systems – according to Table 3.

Table 3

		Water absorption after 24 h	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coats indicated hereafter	AMERISTONE / AMERISTONE T (TERRANEO), STONEMIST / STONEMIST T	X	-
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDPEBBLE 2 PMR, SANDPEBBLE FINE PMR, SANDBLAST PMR, FREESTYLE PMR, LYMESTONE PMR, ULTRA TEX PMR, CUSTOM BRICK	X	-
	QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR	X	-
	QUARZPUTZ TR, SANDPEBBLE TR, SANDPEBBLE 2 TR, SANDPEBBLE FINE TR, SANDBLAST TR, FREESTYLE TR, LYMESTONE TR, ULTRA TEX TR, CUSTOM BRICK TR	X	-
	QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK	X	-
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST, DRYTEX WOOD	X	-
	QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP	X	-

3.2.2 Watertightness (ETAG 004, clause 5.1.3.2)

Heat-rain and heat-cold cycles have been performed on a rig. The ETICS is assessed as resistant to hygrothermal cycles.

The water absorption of both the base coat and the rendering system was lower than 0,5 kg/m² after 24 hours. The ETICS is therefore assessed as resistant to freeze/thaw behaviour.

3.2.3 Impact resistance (ETAG 004, clause 5.1.3.3)

Table 4

		Single standard mesh Standard Plus 150
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coat indicated hereafter	AMERISTONE / AMERISTONE T (TERRANEO)	Category II
	STONEMIST / STONEMIST T	Category III
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDBLAST PMR, FREESTYLE PMR, CUSTOM BRICK, LYMESTONE PMR	Category III
	QUARZPUTZ TR, SANDPEBBLE TR, SANDBLAST TR, FREESTYLE TR, ULTRA TEX TR, CUSTOM BRICK TR, LYMESTONE TR	Category III
	QUARZPUTZ SLK	Category II
	SANDPEBBLE SLK, SANDBLAST SLK	Category III
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST, DRYTEX WOOD	Category III

Table 4

		Single standard mesh Standard Plus 150
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coat indicated hereafter	QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR	Category II
	QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP	Category II

Table 5

		Standard mesh Standard Plus 150 + reinforced mesh PANZER 260
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coat indicated hereafter	AMERISTONE / AMERISTONE T (TERRANEO) STONEMIST / STONEMIST T	Category II
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDBLAST PMR, FREESTYLE PMR, ULTRA TEX PMR, CUSTOM BRICK	Category II
	LYMESTONE PMR	Category III
	QUARZPUTZ TR, SANDPEBBLE TR, SANDBLAST TR, FREESTYLE TR, ULTRA TEX TR, CUSTOM BRICK TR, LYMESTONE TR	Category III
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST	Category II
	QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK	Category I

Table 6

		Single standard mesh Standard Plus 160
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coat indicated hereafter	STONEMIST / STONEMIST T	Category II
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDBLAST PMR, LYMESTONE PMR, ULTRA TEX TR, CUSTOM BRICK, FREESTYLE PMR	Category II
	QUARZPUTZ TR, SANDPEBBLE TR, SANDBLAST TR, ULTRA TEX TR, CUSTOM BRICK TR, LYMESTONE TR, FREESTYLE TR	Category II
	QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR	Category II
	QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP	Category III
	QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK	Category II
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST, DRYTEX WOOD	Category III

3.2.4 Water vapour permeability (ETAG 004, clause 5.1.3.4)**Table 7**

		Equivalent air thickness s_d
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coats indicated hereafter	AMERISTONE / AMERISTONE T (TERRANEO), STONEMIST / STONEMIST T	$\leq 1,0$ m AMERISTONE + COLOR PRIME: 0,65 m AMERISTONE T (TERRANEO) + COLOR PRIME: 0,66 m STONEMIST + COLOR PRIME: 0,60 m
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDPEBBLE 2 PMR, SANDPEBBLE FINE PMR, SANDBLAST PMR, FREESTYLE PMR, LYMESTONE PMR, ULTRA TEX PMR, CUSTOM BRICK	$\leq 1,0$ m QUARZPUTZ PMR: 0,40 m QUARZPUTZ PMR + COLOR PRIME S: 0,46 m QUARZPUTZ PMR + COLOR PRIME S: 0,46 m ULTRA TEX PMR + ULTRA TEX PG: 0,39 m CUSTOM BRICK + DEMANDIT: 0,39 m SANDPEBBLE PMR: 0,37 m SANDPEBBLE 2 PMR + COLOR PRIME: 0,25 m
	QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR	$\leq 1,0$ m QUARZPUTZ FD PMR + COLOR PRIME S: 0,25 m
	QUARZPUTZ TR, SANDPEBBLE TR, SANDPEBBLE 2 TR, SANDPEBBLE FINE TR, SANDBLAST TR, FREESTYLE TR, LYMESTONE TR, ULTRA TEX TR, CUSTOM BRICK TR	$\leq 1,0$ m QUARZPUTZ TR: 0,32 m QUARZPUTZ TR + COLOR PRIME: 0,39 m QUARZPUTZ TR + COLOR PRIME S: 0,45 m ULTRA TEX TR + ULTRA TEX PG: 0,32 m CUSTOM BRICK TR + DEMANDIT: 0,32 m SANDPEBBLE TR: 0,38 m SANDPEBBLE 2 TR + COLOR PRIME: 0,25 m
	QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK	$\leq 1,0$ m QUARZPUTZ SLK: 0,31 m SANDPEBBLE SLK + PRIMESIL: 0,15 m
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST, DRYTEX WOOD	$\leq 1,0$ m DRYTEX SANDPEBBLE + SILSTAR: 0,17 m DRYTEX QUARZPUTZ + HYDROPHOBIC: 0,16 m DRYTEX QUARZPUTZ + SILSTAR: 0,20 m DRYTEX WOOD + COLOR PRIME + WOOD GLAZE: 0,51 m DRYTEX WOOD + COLOR PRIME + WOOD GLAZE MATT: 0,23 m
	QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP	$\leq 1,0$ m QUARZPUTZ HDP + COLOR PRIME S: 0,21 m
Decorative coats	ULTRA TEX PG, DEMANDIT, SILSTAR	$\leq 0,12$ m
	COLORSIL	$\leq 0,07$ m

3.2.5 Release of dangerous substances (ETAG 004 - clause 5.1.3.5, EOTA TR 034)

The written declaration on dangerous substances was submitted by the manufacturer to the Technical Assessment Body.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the ETICS falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Bond strength between base coat and insulation product (ETAG 004, clause 5.1.4.1.1)

Table 8

Bond strength between base coat and insulation product (EPS panels)			
Base coat	Initial state	After hygrothermal cycles (on the rig)	After freeze/thaw cycles
GENESIS DM PLUS / GENESIS DM PLUS WHITE	$\geq 0,08$ MPa	$\geq 0,08$ MPa	test not required because freeze/thaw cycles not necessary

3.3.2 Bond strength between adhesive / substrate and adhesive / insulation product (ETAG 004, clause 5.1.4.1.2 and 5.1.4.1.3)

Table 9

Bond strength between adhesive and substrate (concrete)				
Adhesives		Under dry conditions	48 h immersion in water + 2 h drying at (23±2)°C and (50±5)% RH	48 h immersion in water + 7 days drying at (23±2)°C and (50±5)% RH
DRYHESIVE PLUS	Concrete	$\geq 0,25$ MPa	$\geq 0,08$ MPa	$\geq 0,25$ MPa
GENESIS DM PLUS / GENESIS DM PLUS WHITE	Concrete	$\geq 0,25$ MPa	$\geq 0,08$ MPa	$\geq 0,25$ MPa
Bond strength between adhesive and insulation product (EPS panels)				
Adhesives		Under dry conditions	48 h immersion in water + 2 h drying at (23±2)°C and (50±5)% RH	48 h immersion in water + 7 days drying at (23±2)°C and (50±5)% RH
DRYHESIVE PLUS	EPS panels	$\geq 0,08$ MPa	$\geq 0,03$ MPa	$\geq 0,08$ MPa
GENESIS DM PLUS / GENESIS DM PLUS WHITE	EPS panels	$\geq 0,08$ MPa	$\geq 0,03$ MPa	$\geq 0,08$ MPa
Bonded surface area: at least 40%.				

3.3.3 Bond strength after ageing (ETAG 004, clause 5.1.7)

Table 10

		After hygrothermal cycles
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coats indicated hereafter	AMERISTONE / AMERISTONE T (TERRANEO), STONEMIST / STONEMIST T	$\geq 0,08$ MPa
	QUARZPUTZ PMR, SANDPEBBLE PMR, SANDPEBBLE 2 PMR, SANDPEBBLE FINE PMR, SANDBLAST PMR, FREESTYLE PMR, LYMESTONE PMR, ULTRA TEX PMR, CUSTOM BRICK	$\geq 0,08$ MPa

Table 10

		After hygrothermal cycles
Rendering system: base coat GENESIS DM PLUS / GENESIS DM PLUS WHITE + finishing coats indicated hereafter	QUARZPUTZ FD PMR, SANDPEBBLE FD PMR, SANDPEBBLE FINE FD PMR, SANDBLAST FD PMR, FREESTYLE FD PMR	$\geq 0,08 \text{ MPa}$
	QUARZPUTZ TR, SANDPEBBLE TR, SANDPEBBLE 2 TR, SANDPEBBLE FINE TR, SANDBLAST TR, FREESTYLE TR, LYMESTONE TR, ULTRA TEX PR, CUSTOM BRICK TR	$\geq 0,08 \text{ MPa}$
	QUARZPUTZ SLK, SANDPEBBLE SLK, SANDBLAST SLK	$\geq 0,08 \text{ MPa}$
	DRYTEX QUARZPUTZ, DRYTEX SANDPEBBLE, DRYTEX SANDBLAST, DRYTEX WOOD	$\geq 0,08 \text{ MPa}$
	QUARZPUTZ HDP, SANDPEBBLE HDP, SANDPEBBLE FINE HDP, SANDBLAST HDP, FREESTYLE HDP, LYMESTONE HDP	$\geq 0,08 \text{ MPa}$

3.3.4 Fixing strength (ETAG 004, clause 5.1.4.2)

Test not required because the ETICS fulfils the criteria given in clause 5.1.4.2.

3.3.5 Wind load resistance (ETAG 004, clause 5.1.4.3)

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

$$R_d = (R_{\text{panel}} \times n_{\text{panel}} + R_{\text{joint}} \times n_{\text{joint}}) / \gamma$$

where:

- n_{panel} : number (per m^2) of anchors not placed at the panel joints
 n_{joint} : number (per m^2) of anchors placed at the panel joints
 γ : national safety factor

Table 11

Anchors for which the following failure loads apply	Anchors according to Annex 2			
	Plate diameter of the anchor		$\geq 60 \text{ mm}$	
Characteristics of the EPS panels for which the following failure loads apply	Thickness		$\geq 50 \text{ mm}$	
	Tensile strength perpendicular to the faces		$\geq 100 \text{ kPa}$	
Failure load, kN	Anchors not placed at the panel joint (pull-through test)	R_{panel}	Minimum value: Average value:	0,471 0,498
	Anchors placed at the panel joint (pull-through test)	R_{joint}	Minimum value: Average value:	0,407 0,428
	Anchors placed at the panel joint (static foam block test)	R_{joint}	Minimum value: Average value:	0,596 0,649

The above given loads apply for anchors according to Annex 2 and all other anchors if they meet the following criteria:

- covered by ETA according to ETAG 014,
- plate diameter $\geq 60 \text{ mm}$,

- plate stiffness of anchor $\geq 0,5$ kN/mm,
- load resistance of anchor plate $\geq 2,1$ kN,
- anchors mounted on the insulation panel surface.

3.3.6 Render strip tensile test (ETAG 004, clause 5.5.4)

No performance assessed.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation (ETAG 004, clause 5.1.5)

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal resistance and thermal transmittance (ETAG 004, clause 5.1.6)

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

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

- where: $\chi_p \cdot n$ has only to be taken into account if it is greater than $0,04 \text{ W}/(\text{m}^2 \cdot \text{K})$
- U_c : corrected thermal transmittance of the covered wall ($\text{W}/(\text{m}^2 \cdot \text{K})$)
- n : number of anchors (through insulation product) per m^2
- χ_p : local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:
- = $0,002 \text{ W/K}$ for anchors with a plastic screw, stainless steel screw with a head covered by plastic material and for anchors with an air gap at the head of the screw ($\chi_p \cdot n$ negligible for $n < 20$)
 - = $0,004 \text{ W/K}$ for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_p \cdot n$ negligible for $n < 10$)
 - = $0,008 \text{ W/K}$ for all other anchors (worst case)
- U : thermal transmittance of the current part of the covered wall (excluding thermal bridges) ($\text{W}/(\text{m}^2 \cdot \text{K})$) determined as follows:

$$U = 1 : [R_i + R_{\text{render}} + R_{\text{substrate}} + R_{\text{se}} + R_{\text{si}}]$$

- where: R_i : thermal resistance of the insulation product (according to declaration in reference to EN 13163) in $(\text{m}^2 \cdot \text{K})/\text{W}$
- R_{render} : thermal resistance of the render (about $0,02$ in $(\text{m}^2 \cdot \text{K})/\text{W}$ or determined by test according to EN 12667 or EN 12664)
- $R_{\text{substrate}}$: thermal resistance of the substrate (e.g. concrete, brick) in $(\text{m}^2 \cdot \text{K})/\text{W}$
- R_{se} : external superficial thermal resistance in $(\text{m}^2 \cdot \text{K})/\text{W}$
- R_{si} : internal superficial thermal resistance in $(\text{m}^2 \cdot \text{K})/\text{W}$

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

3.6 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

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

Table 12

Product	Intended use	Level or class (Reaction to fire)	System
External thermal insulation composite systems/kits (ETICS) with rendering	in external wall subject to fire regulations	A1 ⁽¹⁾ , A2 ⁽¹⁾ , B ⁽¹⁾ , C ⁽¹⁾	1
		A1 ⁽²⁾ , A2 ⁽²⁾ , B ⁽²⁾ , C ⁽²⁾ , D, E, (A1 to E) ⁽³⁾ , F	2+
	in external wall not subject to fire regulations	any	2+

⁽¹⁾ Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

⁽²⁾ Products/materials not covered by footnote ⁽¹⁾

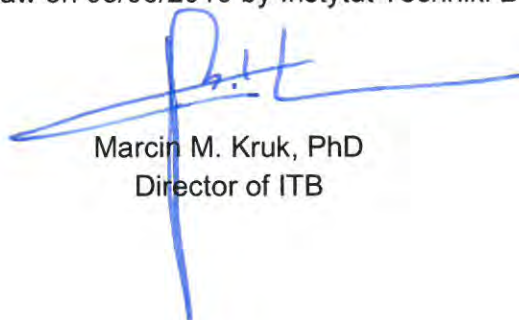
⁽³⁾ Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC)

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at Instytut Techniki Budowlanej.

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

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Marcin M. Kruk, PhD
Director of ITB

Description and characteristics		EPS panels according to EN 13163
Reaction to fire EN 13501-1		Class E Thickness: 20 mm to 300 mm density: $\leq 20,0 \text{ kg/m}^3$
Thermal resistance ($\text{m}^2\cdot\text{K}/\text{W}$)		Defined in the CE marking in reference to EN 13163
Thickness (mm) EN 823		EPS-EN 13163 – T1
Length (mm) EN 822		EPS-EN 13163 – L2
Width (mm) EN 822		EPS-EN 13163 – W2
Squareness (mm/m) EN 824		EPS-EN 13163 – S2
Flatness (mm/m) EN 825		EPS-EN 13163 – P5
Surface condition		Cut surface (homogeneous and without “skin”)
Dimensional stability	laboratory conditions EN 1603	EPS-EN 13163 – DS(N)2
	specified temperature and humidity EN 1604	EPS-EN 13163 – DS(70,-)1 EPS-EN 13163 – DS(70,-)2
Short-term water absorption (partial immersion) (kg/m^2) EN 1609		$\leq 1,0$
Water vapour diffusion resistance factor (μ) EN 12086		20 to 60
Tensile strength perpendicular to the faces in dry conditions EN 1607		EPS-EN 13163 – TR 100
Bending strength (kPa) EN 12089		≥ 75
Shear strength (MPa) EN 12090		$\geq 0,02$
Shear modulus (MPa) EN 12090		$\geq 1,0$

DRYVIT OUTSULATION DM

Thermal insulation product characteristic

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Anchors

Anchor trade name	Plate diameter (mm)	Description of the anchor and characteristics resistance in the substrate
TFIX-8M	≥ 60	ETA-07/0336
KI-10	≥ 60	ETA-07/0291
ejotharm STR U	≥ 60	ETA-04/0023
ejotharm NT U	≥ 60	ETA-05/0009

In addition every anchor meeting the following criteria can be used:

- ETA according to ETAG 014
- plate diameter ≥ 60 mm
- plate stiffness ≥ 0,5 kN/mm
- load resistance of the plate ≥ 2,1 kN

Glass fibre meshes

Glass fibre mesh trade name	Description	Alkaline resistance	
		Residual resistance after ageing, N/mm	Relative residual resistance, after ageing, of the strength in the as delivered state, %
Standard Plus 160 (SSA-1363 F+)	standard mesh mass per unit area: 160 g/m ² mesh size of about: 3,6 x 3,8 mm	≥ 20	≥ 50
Standard Plus 150	standard mesh mass per unit area: 150 g/m ² mesh size of about: 3,6 x 4,3 mm	≥ 20	≥ 50
PANZER 260	reinforced mesh mass per unit area: 260 g/m ² mesh size of about: 7,0 x 7,0 mm	≥ 20	≥ 50

DRYVIT OUTSULATION DM

Anchors characteristic.
Glass fibre meshes characteristic

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