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to Article 29 of the Regulation (EU)
No 305/2011 of the European
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MEMBER OF EOTA



European Technical Assessment ETA-12/0364 of 2018-01-11

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

ARDEX S1-K / ARDEX S 1-K C Watertight covering system

Product family to which the above construction product belongs:

Liquid applied watertight covering kit for wet room floors and walls

Manufacturer:

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This European Technical Assessment contains:

10 pages including 1 annex which form an integral part of the document

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

Guideline for European Technical Approval ETAG No 022 Watertight covering kits for wet room floors and/or walls, Part 1: Liquid applied coverings with or without wearing surface, Edition April 2007, used as European Assessment Document (EAD).

This version replaces:

The ETA with the same number issued on 2012-10-18 and expiry on 2017-10-18

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

General

ARDEX S1-K / ARDEX S 1-K C is a liquid applied one component membrane kit which serves as a watertight covering for wet room floors and walls beneath a wearing surface.

The kit consists of the following components:

Primer

ARDEX P 2D Primer is a solvent free polymer dispersion primer, for use on moisture sensitive substrates. The primer is intended to have a significant additional function in limiting the water vapour permeability of the kit. The primer is used where national provisions requires a damp proof membrane.

Membrane

The membrane is a one component system consisting of ARDEX S1-K / ARDEX S 1-K C solvent free liquid membrane on polymer dispersion base. ARDEX S 1-K C is a coloured version of the membrane.

Reinforcement

The reinforcements are ARDEX SK 12 Tricom, ARDEX SSB 11 and ARDEX SFB 10, which are used to bridge cracks and joints, and in connection between the floor and the wall and in corners. Alternatively, the connection between the floor and the wall and in corners can be reinforced with ARDEX SK 90 Tricom, ARDEX SK 270 Tricom, ARDEX IH 15 and ARDEX UH 15. Pipe penetrations are reinforced with ARDEX SK-W Tricom 120 x 120, ARDEX SK-R Tricom 200 x 200, ARDEX SK-S Tricom 150 x 150, ARDEX RM 12/22 or ARDEX RM 40/60. For reinforcement around floor gullies and/or large pipe penetrations ARDEX SK-F Tricom 425 x 425, ARDEX SK-G Tricom 350 x 350, ARDEX SK-B Tricom 100-200, ARDEX STA 40 x 40, ARDEX STA 40 x 120, ARDEX STA 40 x 240 or ARDEX Tätningsmätter 35 x 35 cm are used. The reinforcement is not intended to cover the entire floor and wall covering, but is used over joints and in corners and around pipe penetrations and floor gullies.

Adhesives

Adhesives covered by this ETA are: ARDEX X 7 G Flex, ARDEX X 7 G Plus, ARDEX X 701 F, ARDEX X 77, ARDEX X 77 S, ARDEX X 77 W, ARDEX X 78,

ARDEX X 78 S, ARDEX X 78 W, ARDEX X 32, ARDEX S 9, ARDEX Ditra FBM, ARDEX S 48, ARDEX WA, ARDEX EG 8, ARDEX X 6 and ARDEX CT 100

Kit build-up

The kit is constructed as follows:

- a layer of minimum 160 g/m² to 250 g/m² ARDEX P 2D Primer in one or two applications depending on substrate and required water vapour tightness
- reinforcement of in- and outgoing corners in walls, over joints or cracks in the substrate, around pipe penetrations, floor gullies and along the connection between floor and wall with ARDEX SK 12 Tricom, ARDEX SSB 11 and ARDEX SFB 10. Alternatively, the connection between the floor and the wall and in corners can be reinforced with ARDEX SK 90 Tricom, ARDEX SK 270 Tricom, ARDEX IH 15 and ARDEX UH 15. Pipe penetrations are reinforced with ARDEX SK-W Tricom 120 x 120, ARDEX SK-R Tricom 200 x 200, ARDEX SK-S Tricom 150 x 150, ARDEX RM 12/22 or ARDEX RM 40/60. For reinforcement around floor gullies and/or large pipe penetrations ARDEX SK-F Tricom 425 x 425, ARDEX SK-G Tricom 350 x 350, ARDEX SK-B Tricom 100-200, ARDEX STA 40 x 40, ARDEX STA 40 x 120, ARDEX STA 40 x 240 or ARDEX Tätningsmätter 35 x 35
- at least 1100 g/m² one component ARDEX S1-K / ARDEX S 1-K C distributed evenly over the surface in at least two applications
- a layer of ceramic tiles adhered to the kit with tile adhesive (ARDEX X 7 G Flex, ARDEX X 7 G Plus, ARDEX X 701 F, ARDEX X 77, ARDEX X 77 S, ARDEX X 77 W, ARDEX X 78, ARDEX X 78 S, ARDEX X 78 W, ARDEX X 32, ARDEX S 9, ARDEX Ditra FBM, ARDEX S 48, ARDEX WA, ARDEX EG 8, ARDEX X 6 and ARDEX CT 100).

Note that the above mentioned amount of ARDEX S1-K / ARDEX S 1-K C corresponds to a dry film thickness of 0,5 mm (see section 3.8).

2 Specification of the intended use in accordance with the applicable EAD

The intended use of the covering kit is:

1. watertight covering for use beneath a wearing surface, normally in the form of tiles, on substrates of wood based panels, gypsum boards, fibre cement boards,

cement bonded boards, watertight boards made from a polystyrene core with a cement based glass fibre reinforced covering and concrete, i.e. moisture sensitive substrates, which are flexible and with jointing and susceptible to cracking

The kit can be used with the following types of floor gullies:

Circular and rectangular gullies made from stainless steel or plastic type PE, with flange for adhesion of the membrane or with clamping ring or with collar

2. Indoor applications, where the liquid applied kit is not exposed to temperatures (i.e. temperature of structure) below 5 °C and above 40 °C, in the following uses:

- Floor and wall surfaces with only occasional direct exposure to water, e.g. at a good distance from shower or bathtub.
- Floors and walls in shower areas or around bathtubs used for a few showers daily, e.g. in ordinary dwellings, multi-family houses and hotels
- Floor and wall surfaces with exposure to water more frequent or of longer duration than normally anticipated in dwellings, e.g. public wet rooms, schools and sport facilities.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the kit of 25 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR2)	
Reaction to fire	No performance assessed*)
3.3 Hygiene, health and the environment (BWR3)	
Dangerous substances	The kit does not contain/release DS specified in TR 034, dated March 2012**)
Vapour permeability	<p>The vapour permeability of the ARDEX S1-K / ARDEX S 1-K C membrane with primer when tested at 23°C and RH 93 → 50 %.</p> <p>The s_d value of the kit applied to the gypsum board is 60,0 m, which is equivalent to $Z_p = 3,06 \times 10^{11} \text{ Pa s m}^2/\text{kg}$ with 250 g/m² ARDEX P 2D in two applications (90 g/m² and 160 g/m²) and approx. 1100 g/m² ARDEX S1-K / ARDEX S 1-K C in two applications</p> <p>The s_d value of the kit applied to the gypsum board is 32,0 m, which is equivalent to $Z_p = 1,66 \times 10^{11} \text{ Pa s m}^2/\text{kg}$ with 160 g/m² ARDEX P 2D in one application and approx. 1100 g/m² ARDEX S1-K / ARDEX S 1-K C in two applications</p>
Moisture resistance	
Water tightness	Watertight according to EN 14891
Crack bridging ability	Assessment category 2: Crack width 0,75 mm
Bond strength	<p>ARDEX S1-K / ARDEX S 1-K C with ARDEX P 2D Primer and the tile adhesives given in II .1 on a concrete substrate all comply with</p> <p>Assessment category 2: Bond strength > 0,5 MPa</p> <p>ARDEX S1-K / ARDEX S 1-K C with ARDEX P 2D Primer and the tile adhesives given in II.1 on substrates***) of calcium silicate boards, gypsum boards, fibre cement boards, cement based boards and watertight boards made from a polystyrene core with a cement based glass fibre reinforced covering comply with</p> <p>Assessment category 2: Bond strength > 0,5 Mpa</p>
Scratching resistance	No performance determined

Characteristic	Assessment of characteristic
Joint bridging ability	ARDEX S1-K / ARDEX S 1-K C with ARDEX P 2D Primer and with either ARDEX SK 12 Tricom, ARDEX SSB 11 or SFB 10 Reinforcement comply with Assesment category 2: Watertight
Water tightness around penetrations	ARDEX S1-K / ARDEX S 1-K C with ARDEX P 2D Primer and ARDEX Reinforcement as described in section II.1 ****) comply with Assesment category 2: Watertight
3.7 Sustainable use of natural resources (BWR7)	Not relevant
3.8 Related aspects of durability and serviceability	
Resistance to temperature	Assessment category 2: Bond strength > 0,5 Mpa Crack bridging ability after ageing: 1,1 kg/m ² membrane ARDEX S1-K / ARDEX S 1-K C applied in two layers (equivalent thickness of membrane = 0,5 mm) Assessment category 2: Crack width 0,75 mm
Resistance to water	Assessment category 2: Bond strength > 0,5 MPa
Resistance to alkalinity	Assessment category 2: Bond strength > 0,5 MPa
Repairability	No performance assessed
Thickness	The required weight (wet) of the ARDEX S1-K / ARDEX S 1-K C membrane is 2,1 kg/m ² pr. mm dry thickness of the layer The minimum thickness of the membrane shall be 0,5 mm.
Applicability	Applicable

*) The kit is classified as B2 according to DIN 4102 part 1.

**) In accordance with <http://europa.eu.int/-/comm/enterprise/construction/internal/dangsub/dangmain.htm>. In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

***) The assessment of the fitness for use of the kit on the generic description of the boards is based on test on the following specified substrates in addition to concrete according to EN 1323; Knauf gypsum wet room board (TOP 2000 Super), Rigips dry board, Sperrholz plywood, Spanplatte V100 chipboard, Gipsdiele gypsum plasterboard, cellular concrete blocks, LUX Elements building board foam panel

*****) In accordance with the provisions of ETAG 022 part 1 – Annex A, the kit has been tested with three types of floor gullies; three circular gullies, one made from stainless steel with a flange for floors with a membrane, one in PP plastic without a clamping ring and one in PP plastic with a clamping ring type KL/150

Aspects related to the performance of the product

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

The performance of the watertight membrane kit results from the characteristic values and categories.

The supplementing statements of the manufacturer stated in the MTD for design and application of the watertight system for creating a watertight covering under wearing surface for floors and walls in indoor wet areas shall be considered

The performance of the watertight membrane can be assumed only, if the following aspects are considered:

- only those components which are specified components of the kit can be used,
- the appropriate tools shall be used and adjuvant, precautions shall be taken,
- inspecting the substrate surface for cleanliness and correct treatment,
- inspection in the process of establishing the kit and of the finished watertight membrane and documentation of the results.

The information as to the handling of waste products shall be observed.

It is the manufacturer's responsibility to make sure that all those who utilize the kit will be appropriately informed about the specific conditions according to this ETA and the not confidential parts of the MTD deposited to this ETA.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 2003/655/EC of the European Commission as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

There is no declared fire performance, and hence the Decision 2003/655/EC of the European Commission with regard to reaction to fire is not relevant.

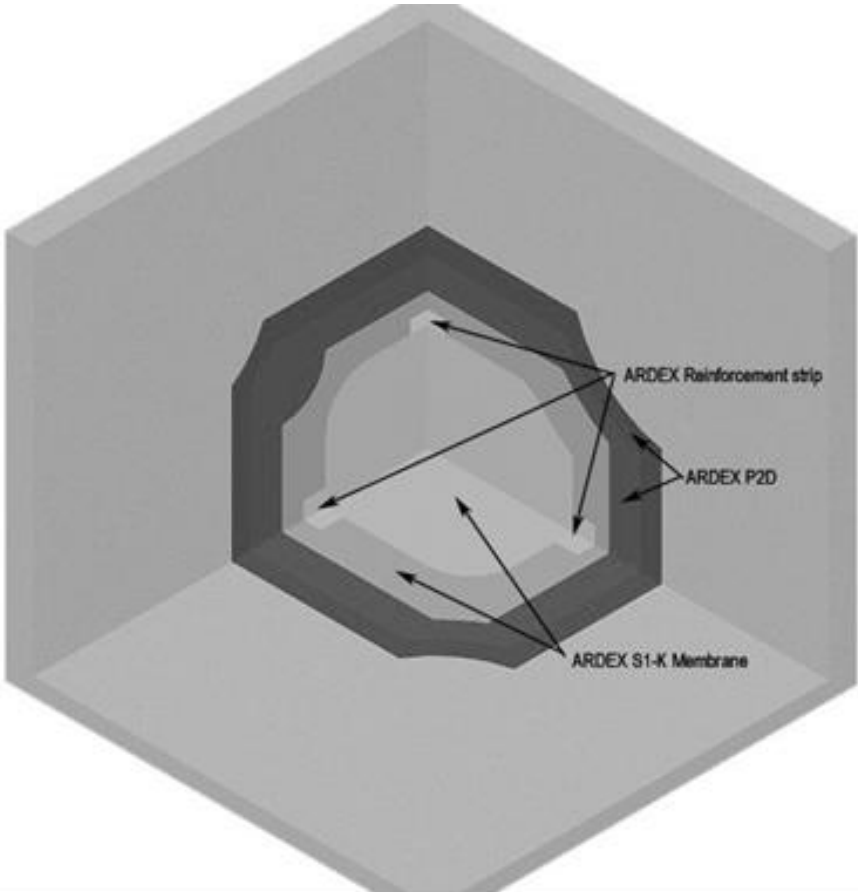
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2018-01-11 by



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ARDEX S1-K / ARDEX S 1-K C watertight covering kit	Annex 1
Principle build-up of the kit	of European Technical Assessment ETA-12/0364