

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-18/0788**  
**of 11 October 2018**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

MICOREA bridge deck waterproofing System

Product family  
to which the construction product belongs

Liquid applied bridge deck waterproofing kit

Manufacturer

Elmico AS  
Sagmoen 100  
2223 GALTERUD  
NORWEGEN

Manufacturing plant

Elmico AS  
Sagmoen 100  
2223 GALTERUD  
NORWEGEN

This European Technical Assessment  
contains

9 pages including 4 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

ETAG 033,  
used as EAD according to Article 66 Paragraph 3 of  
Regulation (EU) No 305/2011.

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## Specific Part

### 1 Technical description of the product

The liquid applied bridge deck waterproofing "MICOREA bridge deck waterproofing System" is a kit which consists of the components:

- primer "MICOPOX WP" on the basis of a two component waterbased epoxy material for mineral substrates
- waterproofing layer "MICOREA S 3" on the basis of a fast setting two-component polyurea system for spray application
- wear layer / tack coat "MICOPUR G" on the basis of a two-component solvent free polyurethane material sanded with quartz sand.

The built up of the bridge deck waterproofing is given in Annex A1.

The minimum layer thickness of the bridge deck waterproofing applied is 2.5 mm.

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

The kit is intended to be used on concrete bridge decks. The bridge deck waterproofing is assessed for the following use categories:

(A) with overlay and intended to receive vehicular traffic

- A.1 overlay of coarse bituminous mixture applied at  $(160\pm 10)^{\circ}\text{C}$  (CBM)
- A.2 overlay of mastic asphalt applied at  $220^{\circ}\text{C}$  to  $250^{\circ}\text{C}$  (MA)
- A.4 non asphaltic overlays

(C) without overlay (exposed) and un-trafficked (including special case of un-ballasted rail bridges).

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of working life of the product of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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.

The performance given in Section 3 is only valid if the liquid applied bridge deck waterproofing is used in compliance with the specifications and conditions given in Annex B and the installation instructions of the manufacturer stated in the technical documents.

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

#### 3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Bond strength to support	See Annex A2
Capacity to bridge cracks	See Annex A2
Resistance to chloride ion penetration	No performance assessed
Resistance to dynamic actions	See Annex A2
Resistance to heat impact	See Annex A2
Resistance to perforation	See Annex A2
Resistance to shear (to support)	See Annex A2
Watertightness	See Annex A2
Resistance of characteristics after exposure to:	
Water Alkali Heat ageing Oil, petrol, diesel, deicing salts Bitumen Freeze/thaw UV (only exposed areas) Abrasion / wear (only exposed areas)	See Annex A2
Serviceability:	
High and low service temperatures Capacities to penetrate pores in the support Resistance to flow (vertical surfaces) Applied thickness Effects of climatic conditions Effects of the quality of support (moisture content, day joints, section joints)	See Annex A2

#### 3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Release of dangerous substances	No performance assessed
Release scenario regarding BWR3:	S/W 2

#### 3.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Bond strength to overlay	See Annex A2
Resistance to shear (to overlay)	See Annex A2
Slipperiness (only use category C)	See Annex A2

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### 3.4 General aspects

The verification of durability and serviceability is part of testing the essential characteristics. Durability and serviceability are only ensured if the specifications of intended use according to Annex B and the specifications of the technical file of the manufacturer are kept.

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

In accordance with ETAG 033 used as EAD, the applicable European legal act is: 2003/722/EC.  
The system to be applied is: 2+

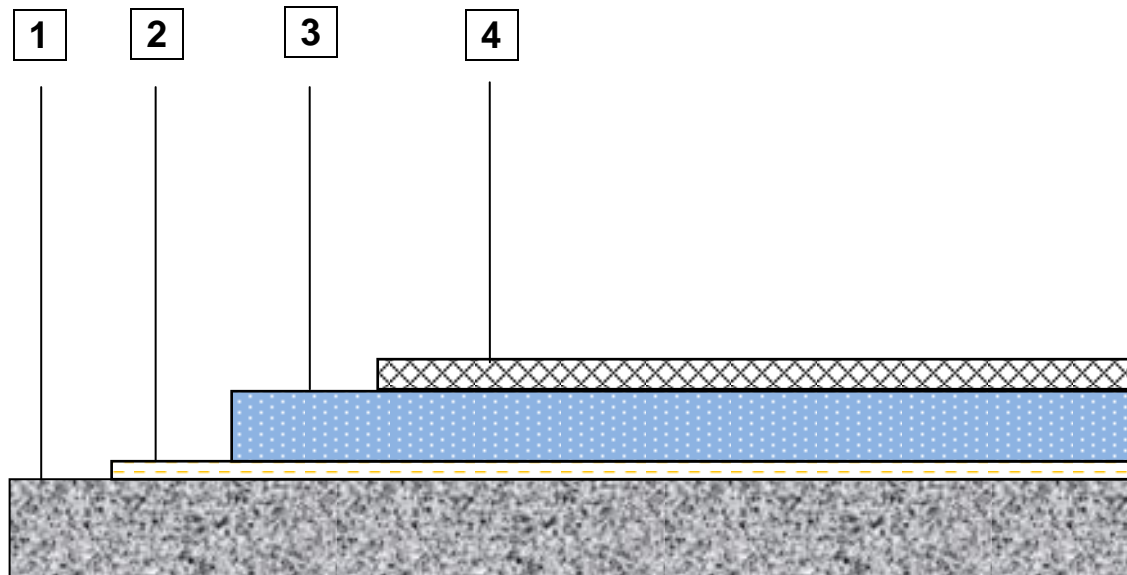
### 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

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

Issued in Berlin on 11 October 2018 by Deutsches Institut für Bautechnik

BD dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Hemme



1	substrate	Concrete bridge deck
2	primer	Micopox WP (consume 0,2-0,3 kg/m <sup>2</sup> )
3	waterproofing layer	Micorea S 3 (minimum consume 2,5 kg/m <sup>2</sup> )
4	wear layer / tack coat	Micopur G (minimum consume 0,8 kg/m <sup>2</sup> ) and quartz sand 1 – 3 mm (ca. 3 kg/m <sup>2</sup> )

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MICOREA bridge deck waterproofing System

**Built up of the bridge deck waterproofing**

Annex A1

Essential characteristic	Proved under test conditions (P,S,T) <sup>(1)</sup>	Value
Bond strength to support	P1, S0, T5 P1, FT, T5 P2, S0, T5 P1, MA, T5 P3, S0, T5 P4, S0, T5	3,0 Mpa > LV = 1.0 MPa 2,6 Mpa > LV = 1.0 MPa > LV = 1.0 MPa 1,5 MPa 1,9 MPa 2,3 MPa
Capacity to bridge cracks	P1, MA, HA, T1, P1, UV, T1	pass pass
Resistance to CI penetration	-	no performance assessed
Resistance to dynamic actions		pass (for A.1, A.2, A.4, C)
Resistance to compaction	P1, CBM, T5	pass
Resistance to heat impact	P1, MA, T5	pass
Resistance to perforation	P1, S0, T5	pass I <sub>3</sub>
Resistance to shear to support	P1, MA, T5 P1, CBM, T5 P1, xx, FT, T5	1,9 MPa, max. deformation 4 mm 1,0 MPa, max. deformation 4 mm
Resistance to shear to overlay	P1, MA, T5 P1, LMA, T5 P1, xx, FT, T5	1,9 MPa, max. deformation 4 mm no performance assessed no performance assessed
Watertightness	P1, S0, T5 P1, UV, T5	watertight watertight
Bond strength to overlays	P1, MA, T5 P1, CBM, T5 P1, Sx, FT, T5	1,5 MPa 0,7 MPa no performance assessed
Slipperiness	P1, S0, T5	78 units
Resistance to Materials in contact: Change of micro hardness	Water Alkalinity Bitumen	-3 IHRD -2 IHRD +2 IHRD
Change of mass	Water Alkalinity	+6,04 % -0,5 %
Change of tensile strength	P1, HA, T1	+3,2 Mpa, +13%
Change of elongation	P1, HA, T1	-1 %, -0,2%
Resistance to Materials in contact:	Oil, petrol, diesel, de-icing salt	acceptable
Resistance to Heat aging Change of tensile strength Change of elongation	P1, HA, T1	+1,1 Mpa, +4,5% -21 %, -5,5%
Aspects of serviceability: High / low service temperature Capacity to penetrate pores Resistance to flow Effects of climate conditions Moisture content of substrate Effects of day joints	P1, S0, T5	pass pass pass pass pass pass
Minimum thickness		2.5 mm
Release of dangerous substances		no performance assessed

<sup>(1)</sup> Key see Annex A 3

MICOREA bridge deck waterproofing System

**Essential characteristics and classifications**

Annex A2

<b>P</b>	<b>Categories for sample preparation, as short keys to characterise the kit</b>
<b>P1 = NC</b>	Normal application condition at 23 °C and 50 % rel. humidity
<b>P2 = SC</b>	Severe application conditions for minimum and maximum temperatures and maximum rel. humidity given by the manufacturer
<b>P3 = MC</b>	High moisture content of the concrete base specimen
<b>P4 = OA</b>	Overlapping areas: day joints, section joints
<b>S</b>	<b>Categories of stress conditions before testing</b>
<b>S0</b>	No stress before testing
<b>S1</b>	Heat impact
<b>S1.1 = MA</b>	Application of mastic asphalt with maximum application temperature $\geq 220$ °C up to 250°C, declared by the manufacturer
<b>S1.2 = LMA</b>	Application of mastic asphalt with minimum application temperature $< 200$ °C, declared by the manufacturer
<b>S1.3 = CBM</b>	Application and compaction of coarse bituminous mixture with 170 °C
<b>S2 = HA</b>	Heat ageing at 70 °C
<b>S3 = FT</b>	Freeze-Thaw cycles
<b>S4 = UV</b>	Artificial weathering and water and UV
<b>S5</b>	Materials in contact
<b>S5.1 = Wa</b>	Water
<b>S5.2 = Al</b>	Alkali
<b>S5.3 = Bi</b>	Bitumen
<b>T</b>	<b>Categories of temperature conditions for testing</b>
<b>T1 = -30°C</b>	Extreme low temperature -30 °C
<b>T2 = -20°C</b>	Severe low temperature -20 °C
<b>T3 = -10°C</b>	Low temperature -10 °C
<b>T4 = 0°C</b>	Moderate Low temperature 0 °C
<b>T5 = 23°C</b>	Normal temperature 23 °C
<b>T6 = 40°C</b>	High temperature 40 °C

for detailed information see ETAG 033

MICOREA bridge deck waterproofing System

**Explanation of key signs**

Annex A3



**Installation**

The essential characteristics can be assumed only, if the installation is carried out according to the installation instructions stated in the technical documentation by the manufacturer, in particular taking account of the following points:

- installation by appropriately trained personnel,
- installation of only those components which are marked components of the kit,
- installation with the required tools and adjuvant,
- precautions during installation,
- specific guidance on process control on site,
- inspecting the substrate surface for cleanliness, acceptable surface structure and correct preparation before applying the product,
- inspecting compliance with suitable weather and curing conditions,
- ensuring a thickness of the watertight covering of at least 2.5 mm by processing appropriate minimum quantities of material,
- inspections during installation and of the finished watertight membrane and documentation of the results,
- ensuring of maximum and minimum application temperature of the asphalt for the overlay,
- handling of waste products.

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MICOREA bridge deck waterproofing System	Annex B1
<b>Intended Use Specifications</b>	