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and types of construction

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European Technical Assessment

ETA-20/0278
of 8 December 2020

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

SECUFLEX SMT 1212

Product family
to which the construction product belongs

Fully bonded, pre-applied flexible sheet for waterproofing

Manufacturer

H-Bau Technik GmbH
Am Güterbahnhof 20
79771 Klettgau
DEUTSCHLAND

Manufacturing plant

Manufacturing plant 771

This European Technical Assessment
contains

11 pages including 6 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

EAD 030378-00-0605

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Specific part

1 Technical description of the product

"SECUFLEX SMT 1212" is a fully bonded, pre-applied flexible sheet for waterproofing with a three-layer structure, which consists of:

- flexible waterproofing sheet made of HDPE as sealing layer,
- pressure sensitive adhesive layer covering the entire surface of the flexible sheet as bonding layer to fresh concrete and
- special granules as protection against contamination and as bonding enhancer.

"SECUFLEX SMT 1212" is provided along one edge in the longitudinal direction with a 75 mm wide, factory-integrated, self-adhesive strip.

In addition, the following components are part of the product:

- "SECUFLEX MT 150": One-sided self-adhesive sealing tape with a laminated HDPE film.
- "SECUFLEX PT 150": One-sided self-adhesive sealing tape with special granules.

For an adequate application of the product – depending on the specific formwork and structure details (e.g. penetrations) – other adjuvants may be needed. In general, these adjuvants are given in the manufacturer's technical documents¹. In single cases the manufacturer is responsible to give guidance which detail treatment is required.

"SECUFLEX SMT 1212" is laid on a suitable substrate or attached to the formwork (pre-applied) with the granulated surface facing the fresh concrete. The full and permanent bond to concrete and the protection from lateral water migration are provided through the pressure sensitive adhesive layer as well as by the interlocking of the cement paste with the special granules.

The product is capable for crack bridging as well.

Longitudinal seams are overlapped and sealed using the integrated adhesive strip. Lateral/cut seams are joined together as a butt joint and sealed using the sealing tape "SECUFLEX MT 150" on the water side and then protected with the granulated sealing tape "SECUFLEX PT 150" on the concrete side.

The building envelope in contact with the ground is covered with the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212".

The components and the system setup of the product are given in Annex A.

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

The fully bonded, pre-applied flexible sheet for waterproofing is intended to be used for:

- envelope seal as waterproofing barrier (basement tanking),
- crack bridging and waterproof sealing of cracks and
- prevention of lateral water migration between barrier seal and concrete substrate.

The product is intended to be applied to a structure executed with waterproof concrete (concrete with high water penetration resistance).

¹ The manufacturer's technical documents comprise all information necessary for the production and the installation of the product as well as for repair of the waterproofing made from that and it is deposited with DIBt.

The intended use covers the contact with bitumen.

The intended use does not cover bridge deck waterproofing.

The performance given in Section 3 is only valid if the fully bonded, pre-applied flexible sheet for waterproofing is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fully bonded, pre-applied flexible sheet for waterproofing of at least 50 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.

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

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	see Annex A

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Mechanical strength - Tensile strength	see Annex A
Elongation at maximum tensile force	see Annex A
Resistance to static loading	see Annex A
Resistance to impact	see Annex A
Watertightness	see Annex A
Watertightness of joints with adhesive tape	see Annex A
Artificial ageing by long term exposure to elevated temperature	see Annex A
Water vapour transmission property	see Annex A
Alkali resistance in high pH solution	see Annex A
Acid resistance	see Annex A
Compatibility with bitumen	see Annex A
Shear resistance of joints	see Annex A
Resistance to tearing (nail shank)	see Annex A
Elongation at maximum tensile force and maximum tensile force at low temperatures ($-45^{\circ}\text{C} \pm 2^{\circ}\text{C}$)	see Annex A
Crack bridging ability	see Annex A
Peel resistance (180-degree peel)	see Annex A
Peel resistance (180-degree peel) after immersion in water	see Annex A
Peel resistance (180-degree peel) after exposure to elevated temperature (70°C)	see Annex A
Peel resistance (180-degree peel) after cleaning	see Annex A

Essential characteristic	Performance
Resistance to damage – water creep at leakage	see Annex A
Resistance to damage – water creep at leakage after cleaning	see Annex A
Watertightness of T-joints	see Annex A
Watertightness under intended use conditions (Tank-test)	see Annex A
Bond strength after water and thermal aging	see Annex A
Dimensional stability	see Annex A
Shear resistance of joints after water aging (50 °C)	see Annex A

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

In accordance with EAD No. 030378-00-0605, the applicable European legal act is: 1999/90/EC.

The system to be applied is: 2+

In addition, with regard to reaction to fire for products covered by this EAD the applicable European legal act is: 1999/90/EC, as amended by Decision 2001/596/EC.

The system to be applied is: 3

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

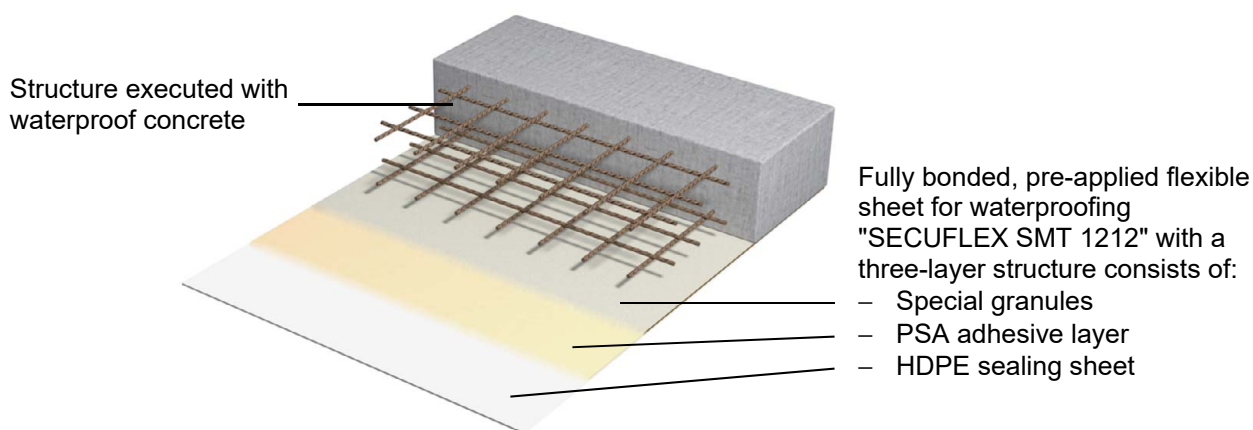
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 8 December 2020 by Deutsches Institut für Bautechnik

Dipl.-Ing. Bettine Hemme
Head of Section

beglaubigt:
Hannoun

System set-up:



Additional description of the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212"

Length	20 m (+ 0.3 / - 0.1 m)
Width	1200 mm (+ 10 / - 5 mm)
Straightness	≤ 20 mm/10 m
Thickness (d_{eff}) ¹⁾	0.9 mm (+ 10 / - 5%)
Mass per unit area	1550 g/m ² ± 10 %

Performance of the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212"

Characteristic	Performance
Reaction to fire	Class E
Mechanical strength - Tensile strength longitudinal and transverse	≥ 700 N/50 mm
Elongation at maximum tensile force longitudinal and transverse	≥ 10 %
Elongation at break longitudinal and transverse	≥ 500 %
Elongation at maximum tensile force and maximum tensile force at low temperatures (-45°C)	
Tensile strength longitudinal and transverse	≥ 1000 N/50 mm
Elongation at maximum tensile force longitudinal and transverse	≥ 10 %
Elongation at break longitudinal and transverse	≥ 250 %
Resistance to static loading	20 kg
Resistance to impact (drop height)	600 mm
Resistance to tearing (nail shank) longitudinal and transverse	≥ 500 N

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System built-up, description and performance of product

Annex A1

Performance of the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212" (Continued)

Characteristic	Performance
Water vapour transmission property	$\mu = 700\ 000$
Watertightness	Watertight, test pressure: 500 kPa ³⁾
Watertightness of joint with adhesive strip⁵⁾ applies to: longitudinal seams with "integrated adhesive strip"; lateral/cut seams with "SECUFLEX MT 150" + "SECUFLEX PT 150"	Watertight, test pressure: 100 kPa ³⁾
Watertightness of T-joints applies to: T-joints of "integrated adhesive strip" and "SECUFLEX MT 150" + "SECUFLEX PT 150"	Watertight, test pressure: 100 kPa ³⁾
Watertightness under intended use conditions (Tank-test) (SECUFLEX SMT 1212 with "integrated adhesive strip" and "SECUFLEX MT 150" + "SECUFLEX PT 150", 1mm construction joint)	Watertight, reference hydrostatic pressure: 2 bar ⁴⁾ (test pressure: 500 kPa)
Crack bridging ability (crack width: 2.0 mm)	Watertight, no cracks, no detachment or formation of blisters, reference hydrostatic pressure: 2 bar ⁴⁾ (test pressure: 500 kPa)
Resistance to damage – water creep at leakage	$\leq 20\text{ mm}$
Resistance to damage – water creep at leakage after cleaning	$\leq 25\text{ mm}$
Peel resistance (180-degree peel)	$\geq 100\text{ N}$
Peel resistance (180-degree peel) after immersion in water 7- and 56-days normal air conditioning	$\geq 100\text{ N}$
7-, 28- and 56-days water immersion	$\geq 100\text{ N}$
Peel resistance (180-degree peel) after exposure to elevated temperature (70°C) 56-days normal air conditioning	$\geq 100\text{ N}$
28- and 56-days thermal aging (70°C)	$\geq 50\text{ N}$
Peel resistance (180-degree peel) after cleaning	$\geq 100\text{ N}$
Shear resistance of joints applies to: longitudinal seams with "integrated adhesive strip"; lateral/cut seams with "SECUFLEX MT 150" + "SECUFLEX PT 150"	$\geq 400\text{ N/50 mm}$, fracture in joint
Shear resistance of joints after water aging (50 °C) applies to: longitudinal seams with "integrated adhesive strip"; lateral/cut seams with "SECUFLEX MT 150" + "SECUFLEX PT 150" 7-, 14-, 28- and 56-days hot water aging (50 °C)	$\geq 400\text{ N/50 mm}$, fracture in joint; $\pm 20\%$ max. deviation from state of delivery

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Performance of product

Annex A2

Performance of the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212" (Continued)

Characteristic	Performance
Artificial ageing by long term exposure to elevated temperature	
Thermal aging for 24 weeks at 70 °C: Durability of watertightness	Watertight at test pressure of 60 kPa ²⁾ before and after aging (durable against thermal aging)
Visible defects	Free of visible defects
Change of tensile properties (longitudinal) / state of delivery – Tensile strength – Elongation at maximum tensile force – Modulus of elasticity	± 20 %
Oxidation induction time (isothermal OIT)	≥ 3 min
Overall aging behaviour in the course of test time (4, 8, 16 and 24 weeks) at all aging temperatures (23, 40 and 70 °C)	Durable against thermal aging, free of visible defects, tensile properties and OIT within above given performance ranges, no linear change
Alkali resistance in high pH solution	
Durability of watertightness	Watertight at test pressure of 60 kPa ²⁾ before and after immersion (durable against alkali)
Change of tensile properties (longitudinal) / state of delivery – Tensile strength – Elongation at maximum tensile force – Modulus of elasticity	± 20 %
Acid resistance	
Durability of watertightness	Watertight at test pressure of 60 kPa ²⁾ before and after immersion (durable against acid)
Change of tensile properties (longitudinal) / state of delivery – Tensile strength – Elongation at maximum tensile force – Modulus of elasticity	± 20 %

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Performance of product

Annex A3

**Performance of the fully bonded, pre-applied flexible sheet for waterproofing "SECUFLEX SMT 1212"
(Continued)**

Characteristic	Performance
Compatibility with bitumen	
Durability of watertightness	Watertight at test pressure of 60 kPa ²⁾ before and after exposure (durable against bitumen)
Change of tensile properties (longitudinal) / reference value – Tensile strength – Elongation at maximum tensile force – Modulus of elasticity	± 20 %
Bond strength after water and thermal aging	
2 days after constructing (early formwork stripping)	≥ 0.40 MPa
7-days standard atmosphere conditioning (reference value)	≥ 0.40 MPa
28-days water immersion	≥ 0.40 MPa; ± 10 % deviation from reference value
56-days water immersion	≥ 0.45 MPa; ± 15 % deviation from reference value, no linear drop
28-days thermal aging (70°C)	≥ 0.25 MPa; ± 35 % deviation from reference value
56-days thermal aging (70°C)	≥ 0.3 MPa; ± 25 % deviation from reference value, no linear drop
Dimensional stability longitudinal and transverse	± 0.5 %

¹⁾ effective thickness in accordance with EN 1849-2

²⁾ test pressure for "Type T" as of EN 13967

³⁾ actual water pressure in the test (free sheet)

⁴⁾ reference hydrostatic pressure (the relevant water load for the intended use) equals the actual test pressure under intended use conditions (applied state) divided by a safety factor of 2.5

⁵⁾ assessment method of "Watertightness of T-joints" is used for assessing wide joints

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Performance of product

Annex A4

1. SECUFLEX SMT 1212

HDPE sealing sheet as fully bonded, pre-applied flexible sheet for waterproofing with adhesive layer and special granular material.

20 m x 1200 mm x 1.2 mm (overall thickness)



3. SECUFLEX MT 150

One-sided self-adhesive sealing tape with laminated HDPE film for sealing and connecting butt joints on the water side.

50 m x 150 mm x 0.3 mm (overall thickness)



4. SECUFLEX PT 150

One-sided self-adhesive sealing tape with special granular material for application on the concrete side, e.g. for protecting butt joints

20 m x 150 mm x 1.0 mm (overall thickness)



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Product components

Annex A5

Installation

The performance of the fully bonded, pre-applied flexible sheet for waterproofing can be assumed only, if the installation is carried out according to the installation instructions stated in the technical documents of the manufacturer, in particular taking account of the following points:

- installation by appropriately trained personnel,
- installation of only those components which are specified components of the product, e. g. "SECUFLEX MT 150" and "SECUFLEX PT 150",
- installation with the required tools and adjuvant,
- precautions during installation,
- inspecting the substrate surface for stability, cleanliness, flatness and correct treatment,
- keeping the boundary conditions (e.g. temperature range, humidity),
- inspecting during installation and of the finished waterproofing and documentation of the results,
- securing the waterproofing sheet in place during installation, reinforcement works and concreting,
- appropriate fixation, maximum / minimum fixing distances,
- treatment of details, e.g. penetrations, corners, free ends, in accordance with manufacturer's technical documents,
- protection against dirt and mechanical damage, if necessary, cleaning and/or repairing the waterproofing sheet before concreting.

SECUFLEX SMT 1212 H-BAU TECHNIK GMBH	Annex B
Intended use Specifications	