

MFWA Leipzig GmbH

Testing, inspection and certification body for
building materials, building products and construction systems

Business Division V – Geotechnics

Dr.-Ing. Ute Hornig

Working Group 5.1 – Structural Sealing

General Building Supervisory Test Certificate

Test certificate number:

P-SAC 02 / 5.1 / 17 - 085

Subject:

wolfseal KB 16 –

Joint sheets fully coated with polymer bitumen on both sides for internal joint waterproofing in accordance with administrative regulations Technical Building Regulations (VwV TB) Baden-Württemberg dated 20/12/2017 serial no. C 3.30 Sealing for construction joints and nominal crack cross-sections in concrete components with high resistance against water penetration which cannot be assigned to products C 2.10.2 and C 2.10.3 in section C 2

Client:

Roland Wolf GmbH
Grosses Wert 21
89155 Erbach

First issued:

23 March 2012

Issue date:

17 May 2019

Valid until:

16 May 2024

This General Building Supervisory Test Certificate consists of 8 pages.

This General Building Supervisory Test Certificate may only be reproduced in its entirety. The German written form with original signatures and the original stamp of the authorised signatory/signatories shall be deemed the legally binding form. The General Terms and Conditions (GTCs) of MFWA Leipzig GmbH apply.

Accredited testing, inspection and certification body under the State Building Regulations (SAC 02) and notified body under the Building Products Ordinance (NB 0800).

Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen Leipzig mbH (Leipzig Institute for Materials Research and Testing – MFWA Leipzig GmbH)

Registered office: Hans-Weigel-Str. 2b, 04319 Leipzig, Germany

Managing Director: Dr.- Ing. habil. Jörg Schmidt

Commercial register: Amtsgericht Leipzig (Leipzig Local Court)

HRB 17719

VAT reg. no.: DE 813200649

Tel.: +49 (0) 341 - 6582-105

Fax: +49 (0) 341 - 6582-199

A General provisions

- (1) This General Building Supervisory Test Certificate serves to prove the usability of the building product as defined by the State Building Regulations. It supplements and replaces the General Building Supervisory Test Certificate P-SAC 02/5.1/16-434 dated 14/09/2016.
- (2) The General Building Supervisory Test Certificate does not replace the legally required permits, approvals and certificates required for the implementation of construction projects.
- (3) The General Building Supervisory Test Certificate is issued without prejudice to the rights of third parties, particularly private property rights.
- (4) Manufacturers and distributors of the building product must provide copies of the General Building Supervisory Test Certificate to the user of the building product without prejudice to more detailed regulations laid down in the "Special provisions", and must point out that the General Building Supervisory Test Certificate must be present at the place of use. Copies of the General Building Supervisory Test Certificate must be provided to the authorities involved upon request.
- (5) The General Building Supervisory Test Certificate may only be reproduced in its entirety. The publication of extracts requires the consent of the Leipzig Institute for Materials Research and Testing (MFPA Leipzig). Texts and drawings from promotional literature may not contradict the General Building Supervisory Test Certificate. Translations of the General Building Supervisory Test Certificate must include the following information: "Translation of the original German version not checked by MFPA Leipzig".
- (6) The General Building Supervisory Test Certificate is issued in a revocable manner. The provisions can be subsequently amended and modified, particularly if new technical knowledge requires this.

B Special provisions

1 Object and area of use

1.1 Object

The general construction supervision test report applies to the manufacture and use of the joint sheet *wolfseal KB 16* of the company *Roland Wolf GmbH* as internal joint waterproofing in accordance with the administrative regulations for Technical Building Regulations (VwV TB) Baden-Württemberg dated 20/12/2017 serial no. C 3.30 "Sealing for construction joints and nominal crack cross-sections in concrete components with high resistance against water penetration which cannot be assigned to products C 2.10.2 and C 2.10.3 in Section C 2".

The sealing system is a joint sheet metal coated on both sides with polymer-bitumen. In a dry state, the colour of the coating is black. In addition to the joint sheet, the waterproofing system also includes fixing clamps and mounting brackets and, for the glued version, the *HILTI HIT-HY 170* butt joint grout.



1.2 Area of use

(1) The joint sheet by the *wolfseal KB 16* company *Roland Wolf GmbH* can be used for internally sealing structural joints (maximum joint width of 0.25 mm) in concrete structural elements with high water penetration resistance against:

- rising damp and non-pressurised water as well as against
- pressurised water.

The waterproofing system is dependent on the design of the overlapping joints with an embedment depth of 3 cm in the concrete up to a maximum water pressure of

- 0.8 bar (8 m water column) for non-glued overlapping joints or
- 2.0 bar (20 m water column) for overlapping joints bonded with *HILTI HIT-HY 170* butt joint grout

applicable and suitable for water change zones. The seal meets the requirements of the service class A for the exposure classes 1 and 2 in accordance with the WU guideline¹.

(2) Use is subject to compliance with the processing guidelines and the provisions for implementation laid down in Section 4.

2 Provisions for the building product

2.1 Properties and composition

(1) In its initial state, the 167 mm-wide joint sheet *wolfseal KB 16* has an overall thickness of approx. 1.2 mm with the following structure:

- polymer-bitumen coating approx. 0.3 mm
- steel sheet, galvanised, approx. 0.64 mm
- polymer-bitumen coating approx. 0.3 mm

The *wolfseal KB 16* is delivered in 2 m-long sections as well as in a 10 m or 25 m roll and is fully coated on both sides. The black coating is protected on each side by a film which protects against unintentional adhesion and is available in two versions: 100 mm wide white, unprinted and 100 mm wide blue, printed. The films overlap by approx. 1 cm at the longitudinal edges of the sheets and also overlap by approx. 1 cm in the middle area of the sheet. The film is to be removed prior to concreting of the corresponding section. The coating has the following properties in its as-delivered state:

- Colour black
- Consistency viscoplastic, sticky



¹ Directive of the German Committee for Reinforced Concrete (Deutscher Ausschuss für Stahlbeton – DAfStb): Water-impermeable concrete structures (WU Guideline), version November 2003

- Density 0.99 g/cm³ (23°C)
- Fusion point 102°C according to DIN EN 1427
- Needle penetration 93 0.1 mm according to DIN EN 1426

The mass per unit area of *wolfseal KB 16* with protective film is 1.02 kg/m on average.

- (2) With the proven operating capability established during two watertightness tests with a minimum embedment depth of 30 mm and a joint opening of 0 to 0.25 mm, when fully coated on both sides and taking a safety factor into account, the *wolfseal KB 16* Joint Sheet can in practise be used with a safety factor of 2.5 to a water pressure of 0.8 bar for non-bonded overlapping joints or 2.0 bar for overlapping joints bonded with *HILTI HIT-HY 170* butt joint grout. The sheets are normally flammable according to DIN 4102, Part 1 (05/1998) and are not considered to produce flaming droplets or particles in a fire within the meaning of this standard.
- (3) The properties of the building product were determined during the course of identification, properties and watertightness tests based on the fundamental testing principles PG – FBB, Part 1: Sealing for construction joints and planned break cross-sections, version dated July 2009 and version dated October 2012. A description of the tests and the presentation of the results can be found in test reports PB 5.1/11-435 dated 20/03/2012 and PB 5.1/17-085-1 dated 03/05/2019. *wolfseal KB 16* The Joint Sheet must be equivalent to the material tested in the usability test. It must possess the technical characteristics stated in Section 2.1 (1).

2.2 Manufacture, packaging, transport, storage, identification

- (1) The *wolfseal KB 16* Joint Sheet and *wolfseal KB 16* Roll Goods are manufactured at the factory. The coating is manufactured in a factory designated by the testing centre. Assembly is carried out at the client's factory. Changes to the formulation or a change in the supplying factory must be reported to the testing centre without delay.
- (2) Packaging, transport and storage must be carried out in such a way that the *wolfseal KB 16* Joint Sheet is not immersed in water, not soiled, not exposed to direct sunlight for longer periods and the coating as well as protective foil are not damaged. This information must be on the packaging.
- (3) The information relating to requirements from other fields of law which is mentioned on the packaging must be observed.



2.3 Declaration of conformity

(1) The building product must be marked by the manufacturer with the conformity symbol (Ü-symbol) in accordance with the conformity regulations of the relevant states. Identification may only take place if the prerequisites according to Section 3, Verification of conformity, are met. The Ü-symbol, together with the information specified there:

- Manufacturing factory
- General Building Supervisory Test Certificate number

must be attached to the packaging or, if this is not possible, to the delivery note or the package leaflet. Identification may only take place if the prerequisites according to Section 3 are met.

(2) The following information must be included on the building product's packaging or on the package leaflet:

- Product name
- Batch number
- Intended purpose
- Reference to the associated processing specification



3 Verification of conformity

3.1 General

According to the administrative regulation on Technical Building Regulations (VwV TB) Baden-Württemberg dated 20/12/2017 serial no. C 3.30, the building product's conformity with the requirements laid down in this General Building Supervisory Test Certificate is verified by means of a declaration of conformity made by the manufacturer (MDC) based on a factory production control (FPC) and initial testing of the building product prior to conformation of conformity (initial testing – IT) by a testing centre accredited for this purpose by the building supervisory authorities.

3.2 Initial testing of the building product by an accredited testing centre

Initial testing can be omitted, because the samples for the tests performed in the context of verifying usability were taken from the manufacturing factory's ongoing production operations.

3.3 Factory production control

The manufacturer must set up a factory production control according to DIN 18200:2000-5. Continuous monitoring of production is required for this purpose, whereby it is ensured that the manufactured products comply with the provisions laid down in the General Building Supervisory Test Certificate.

The factory production control must include the tests described below. The results determined may not deviate from the technical characteristics stated in Section 2.1, or must lie within the stated tolerance ranges.

Compliance with the requirements specified in section 2.1 must be checked in each factory:

coating per delivery:

- Inspection of the initial materials on the basis of the manufacturer's declarations

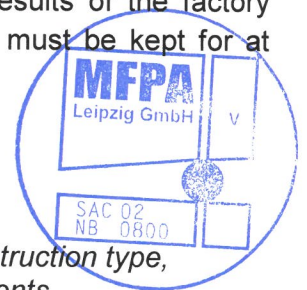
for each batch of joint sheets or at least each 1000 m length of joint sheet

- Weight per unit length $\pm 10\%$
- Total sheet thickness $- 2\% / + 5\%$

The test criteria mentioned above must be complied with. The results of the factory production control must be recorded and evaluated. The records must be kept for at least 5 years and submitted to the testing centre upon request.

The records must contain at least the following information:

- *Designation of the building materials/construction type,*
- *Type of the check,*
- *Date of the manufacture and check of the building product/construction type,*
- *Result of the checks and, if relevant, comparison with requirements,*
- *Signature of whoever is responsible for the factory production control.*



In the event of an unsatisfactory check result, the manufacturer must immediately take the necessary steps to correct the fault, and must separate the affected products. In the context of the factory production control, it must be ensured that building products that do not meet the requirements are not marked with the Ü-symbol, and that they cannot be mistaken for conforming products. Once the fault has been corrected, the relevant check must be repeated without delay inasmuch as this is technically possible and necessary to verify correction of the fault.

3.4 Declaration of conformity

The building product's conformity with the provisions laid down in this General Building Supervisory Test Certificate must be confirmed for every manufacturing factory by means of a declaration of conformity made by the manufacturer based on initial testing and the factory production control according to 3.2 and 3.3. The manufacturer must make the declaration of conformity by marking the building product with the conformity symbol (Ü-symbol) according to 2.2.3.1.

4 Provisions for implementation

- (1) Use is conditional upon observance of the work instructions of the applicant and all applicable technical regulations for the respective application. The joint sheet metal must be arranged in the structure as an internal seal. In addition to extending the flow

path, the coating of the joint sheet improves the adhesive bond between the sheet and the surrounding concrete, which makes sealing of structural joints possible.

The function of the joint sheet is verified for a minimum embedment depth in the invert concrete of 30 mm. The embedment depth must not fall below this value at any position. The maximum embedment depth in the invert concrete must not exceed half the sheet thickness. In all other structural joints, the joint sheet must be installed with half the sheet width on both sides.

Joint sheet sections are joined with approx. 8 cm wide overlapping joints. For this purpose, the protective paper strips of both sheets are shortened at the joint and both sheets are pressed firmly together. For applications with a water column of >8 m, the butt joint grout *HILTI HIT-HY 170* is applied to a sheet metal end in thin tracks in such a way that a closed rectangle is created, which is filled in the middle with another strand. The two sheets are then pressed firmly together. To increase the contact pressure, all impacts must also be secured with a butt clamp. The part of the clamp which lies against the sheet metal must be arranged on the side facing away from the water. The lower protective film must be removed before concreting the bottom panel.

The position of the joint sheet is secured using the mounting brackets supplied by the manufacturer (with a minimum of 1 mounting bracket per running metre). The fastening must ensure that the joint sheet, which is normally arranged in the centre of the joint, cannot change its installation position during concreting.

- (2) The manufacturer's work instructions apply for implementation of the joint seal. The instructions as well as the General Building Inspection Test Certificate must be available at the installation site. Further information must also be observed:
- Sheets with missing or damaged protective paper must not be used. The same applies for sheets with surface soiling or damaged coating.
 - The joint seal must be protected against mechanical damage and prolonged exposure to direct sunlight.
 - The protective film must be removed from the respective embedding section before concreting.
 - At ambient temperatures less than 10 °C, all non-bonded connections between sheet metal sections must be slightly heated with a blowlamp.
 - When using *HILTI HIT-HY 170* butt joint grout, the manufacturer's specifications, in particular the processing temperatures, must be observed.
- (3) The manufacturer must include the implementation regulations of this section in its processing instructions without any contradictions.



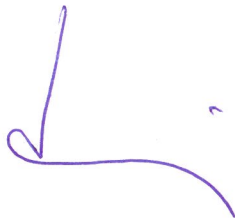
5 Legal basis

This General Building Inspection Test Certificate is issued based on § 19 of the Baden-Württemberg State Building Code (LBO) of 5 March 2010 (GBI. P. 357, corrected P. 416), last amended on 21/11/2017 (GBI. P. 612, 613), and on the basis of the administrative regulation on Technical Building Regulations (VwV TB) of 20 December 2017 – File: 45-2601.1/51 (UM) and File: 5-2601.3 (WM) - series no. C 3.30.

6 Information on legal remedies

Objections or complaints against this General Building Supervisory Test Certificate are permissible according to the legal regulations of the state in which the client is headquartered. If a right of objection is exercised, the objection must be submitted to Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen Leipzig mbH, Hans-Weigel-Strasse 2 b, 04319 Leipzig, Germany, in writing or declared for recording within one month of receipt of this General Building Supervisory Test Certificate. The time of receipt at MFPA Leipzig is decisive for the timeliness of the objection.

Leipzig, 17 May 2019



Dr.-Ing. Ute Hornig
Head of the Testing Centre

