



MFPA Leipzig GmbH

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

Business Division V – Geotechnics

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Working Group 5.1 – Structural Sealing

General Building Supervisory Test Certificate

Test certificate number:

P-SAC 02 / 5.1 / 16 - 336

Subject:

***Soba FlamLINE 40 – Elastomer expansion joint sealing
tape***

Sealing of expansion joints against pressurised water in the ground, which cannot be manufactured with products according to Building Rules List B, Part 1, serial no. 1.10, according to Building Rules List A, Part 2, serial no. 1.13, version 2015/2, in conjunction with versions 2016/1 and 2016/2

Client:

Soba Inter AG
Im Grund 15
CH-5405 Baden-Dättwil

Issue date:

11/01/2018

Valid until:

10/01/2023

- This translation of the original German version was not reviewed by MFPA Leipzig -

This General Building Supervisory Test Certificate consists of 9 pages.

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

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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.
- (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 Building Supervisory Test Certificate applies to the manufacture and use of *Soba FlamLINE – Elastomer expansion joint sealing tape* manufactured by *Soba Inter AG* as expansion joint seals for non-waterproof structures or components in contact with the ground, in combination with a surface seal in accordance with Building Rules List A, Part 2, serial no. 1.13, version 2015/2: "Sealing of expansion joints against pressurised water in the ground and against non-pressurised water on trafficable floor surfaces, which cannot be manufactured with products according to Building Rules List B, Part 1, serial no. 1.10."

Soba FlamLINE expansion joint seals are non-profiled, butyl elastomer-based joint tapes of various widths with different expansion areas and yellow adhesive surfaces on both sides. The sealing principle is based on the sandwich-like embedding of the adhesive flange and the full-surface adhesive bond; the embedding areas on the sealing substrate of the structure or components; and also the adjacent surface seal.

The expansion joint seal may be used in combination with the following surface seals:

- Polymer bitumen sheets (PYE and PYP) according to DIN SPEC 20000:202
- Liquid plastic seal with a polyurethane *KEMPEROL 2K-PUR* base
- Liquid plastic seal with a PMMA *Triflex ProDetail* base

and in combination with the following adhesives with an epoxy resin base:

- *MAPEI Adesilex PG4* epoxy resin adhesive
- *Sikadur-31 CF Normal* epoxy resin glue

1.2 Area of use

(1) When used in conjunction with a surface seal, *Soba FlamLINE* may be used to seal expansion joints structures or components in contact with soil under the following conditions (2) against:

- o rising damp and non-pressurised water as well as against
- o pressurised water up to a maximum water pressure of 0.5 bar (5 m water column).

(2) The movement joints to be sealed with *Soba FlamLINE 40¹⁾* shall be subject to a maximum of the following deformations:

maximum shear stress: 125% relative to the initial joint width of 20 mm
Maximum resulting deformation: $v_r = 56$ mm

v_r – vectorial addition of the maximum deformation components to be expected in the x, y and z directions; describing:

$$v_r = \sqrt{v_x^2 + v_y^2 + v_z^2}$$

v_x Deformation in the x direction: Pressure or force (vertical displacement)
 v_y Deformation in the y direction: Shearing (horizontal displacement)
 v_z Deformation in the z direction: Shearing (horizontal displacement)

¹⁾ Bridging larger initial joint widths (joint width > 20 mm) may require the use of wider joint sealing tapes (*Soba FlamLINE 100* or *240G*) within the permitted areas of use. The same applies to smaller joint widths (joint width < 20 mm - use of *Soba FlamLINE 20*).

(3) Use is linked to compliance with the laying instructions and the provisions for implementation laid down in Section 4.

2 Provisions for the building product

2.1 Properties and composition

- (1) *Soba FlamLINE* expansion joint tapes are butyl rubber-based tapes of various widths, textured on both sides of the adhesive flange area. While the expansion area has no reinforcement insert, the double-sided adhesive flange areas are reinforced with an internal glass fabric.

The essential geometrical properties of the joint sealing tapes that can be used are summarised in the table below.

Parameter	Unit	<i>Soba FlamLINE 20</i>	<i>Soba FlamLINE 40</i>	<i>Soba FlamLINE 100</i>	<i>Soba FlamLINE 240G</i>
Line weight	[kg/m]	1.15	1.14	1.40	2.85
Total width	[mm]	342	358	415	557
Width of expansion part	[mm]	40	60	119	262
Thickness of expansion part	[mm]	2.45	2.34	2.50	3.67

- (2) *Soba FlamLINE* has the following properties in its initial state:

- Material base butyl rubber
- Colour of top of expansion area black
- Colour of bottom binding flanges and expansion area yellow
- Shore A hardness 55 [DIN 7865-2]

Soba FlamLINE has at least the following mechanical and technological properties:

Tensile strength at break

(longitudinal / transverse) [DIN 53504] approx. 5 N/mm² / 4 N/mm²

Elongation at break

(longitudinal / transverse) [DIN 53504] approx. 700% / 730%

- (3) With a functional capability verified in the impermeability tests with a resulting deformation of 56 mm and a water pressure of 2.5 bar, the *Soba FlamLINE* expansion joint seal can be used in practice up to a permanently acting water pressure of a 5 m water column, taking into account a safety factor of 5.

The sealing system is normally flammable. The reaction to fire of the *Soba FlamLINE* joint sealing tape is classified as Class E in accordance with DIN EN 13501-1.

The properties described have been verified in comprehensive tests on *Soba FlamLINE 40* joint sealing tape. The mechanical properties were determined, and identifying tests carried out, on the other joint sealing tape types.

- (4) According to the type and scope of the tests, proof of usability is based on the specifications of the working group of the accredited testing centres in accordance with Building Rules List A, Part 2, serial no. 1.13, in due consideration of the test principles for joint seals (PG – FBB, Part 2, May 2012 draft: “Expansion joints”). A description of the tests and the presentation of the results can be found in the test report no. P 5.1 / 16 - 336 of 12/09/2017. *Soba FlamLINE* must be equivalent to the system tested in the usability test. It must possess the technical characteristics stated in Section 2.1 (1). The joint seal may only be used according to the manner described in Section 4 in conjunction with the surface sealing products mentioned in Section 1.1.

2.2 Manufacture, packaging, transport, storage, identification

- (1) *Soba FlamLINE* is manufactured in a factory that has been designated by the testing centre. Changes to the formulation or a change in the supplying factories must be reported to the testing centre without delay.
- (2) Packaging, transport and storage must be carried out in such a way that the *Soba FlamLINE* is not stored in water, is not soiled and is protected against prolonged exposure to UV radiation.
- (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

(1) General

According to Building Rules List A, Part 2, Chapter 1, serial no. 1.13, 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.

(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) 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 includes the tests described below. The results determined may not deviate from the technical characteristics stated in Section 2.1 (1), or must lie within the stated tolerance ranges.

Each batch, or at least

every 500 m length of joint sealing tape:

- Dimensions + 10% / - 5%
- Weight per unit length + 10% / - 5%
- Shore A hardness ± 5
- Regular request and checking of the manufacturer certificates

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.

4 Provisions for implementation

(1) Use is linked to the client's compliance with the processing guidelines, the health and safety regulations for using the associated sealing products, and consideration of all the technical rules applicable to the respective application. The joint sealing system must be arranged as an external seal on the side of the structure exposed to pressurised water on both sides of the expansion joint to be sealed on the structure.

(2) The manufacturer's laying instructions must be observed in the implementation process.

The laying instructions:

- for installation with polymer bitumen sheets (F 6.0.0; as at 30/01/2018)
- for the installed version with epoxy resin adhesive (F 1.4.6; as at 30/01/2008)
- for bonding with KEMPEROL 2K-PUR liquid waterproofing (as of 08/2017) and
- for bonding with TRIFLEX PRO DETAIL liquid waterproofing (as of 08/2017)

The General Building Supervisory Test Certificate must also be available at the installation site. It must be noted that the application process must be carried out depending on the surface sealing system.

Implementation may only be carried out by verified competent personnel.

The sealing substrate must also satisfy the following requirements:

- Concrete substrate
- Surface is solid, clean, level, free from burrs and fault sites, without any loose structural elements or cement slurry, and free from formwork oil and other disconnecting structural elements or structural elements that interfere with the adhesive bonds – these specifications must be strictly adhered to and checked before carrying out the sealing process.
- Minimum concrete age of 28 days
- When using liquid plastics as a surface seal, the substrate moisture level must be a maximum of 6% by weight. It must be noted that it is impossible for moisture to spread over the rear of the covering due to structural circumstances. Additionally, the instructions relating to the substrate specified by the liquid plastic manufacturer must be observed.

(3) The application of the sealing system in combination with an elastomer bitumen or polymer bitumen-based surface waterproofing requires the following key work steps:

- Preparation of the sealing substrate with mechanical processes and cleaning of the surface to remove loose structural elements;
- Application of the system-specific primer for the surface sealing on both sides of the expansion joint, taking into account the manufacturer's specifications regarding air drying, curing and revision times;
- A sliding plate must be arranged over the joint to ensure that the joint sealing tape does not move in the joint space as a result of water pressure. It must be designed in such a way that damage to the expansion joint sealing tape is prevented during joint movement.

- The client or staff trained by the same must ensure that implementation is carried out properly prior to application of the joint sealing tape.
 - Full-surface installation (welding or rolling into bitumen) of the lower layer of the surface sealing system taking into consideration the system-specific conditions; separation of the surface sealing in the joint area.
 - Cut the joint sealing tape to size and lay it out over the joint so that the expansion part is positioned centrally above the joint gap.
 - Flame-seal the joint sealing tape onto the undersides of the adhesive flanges, then press the adhesive flanges on.
 - Full-surface welding or gluing of the second layer of the surface sealing to the edge of the expansion zone
- (4) The following additional provisions must be observed when using liquid plastics:
- The manufacturer's instructions relating to the temperature-dependent mixing ratio for primer, filler and sealing resin must be observed.
 - Preparation of the substrate (removal of cement slurry, etc.) must always be carried out using mechanical processes. Suitable processes as well as the minimum adhesion strength of the concrete surface to be observed can be found in the liquid plastic manufacturer's system description.
 - When carrying out the work, the surface temperature must be at least 3°C above the dew point temperature.
 - Sufficient ventilation must be ensured.
- (5) Construction site joints with *Soba FlamLINE* – joint sealing tapes must generally be vulcanized. For this purpose, please refer to the information provided by the client. If the direction of the joint sealing tape changes as a result of component angles, the use of pre-fabricated moulded parts is usually necessary. Inner edges or inner corners of subsequent polymer bitumen sheets need to be broken by using bitumen wedges.
- (6) Repair of fault sites in the *Soba FlamLINE* joint sealing tape (dimensions approx. 1 cm²):
- Roughening of the tape surface and the repair section taken from a new expansion area of the *Soba FlamLINE* using a belt grinder; the repair section must overlap the fault site by at least 20 mm on all sides.
 - Application of the Sicomet 8300 cyanoacrylate adhesive one section at a time, with interim pressing of the section to be bonded for 10–15 seconds;
 - subsequent sealing of the repair section's edges using Teroson 3958.
- (7) The client is obliged to consistently record in their processing instructions the implementation provisions laid down in this section. The installation instructions submitted by the manufacturer and dated 01/2008 and 08/2017 have been checked to ensure that they are plausible. Updated editions of the installation instructions may not contradict the provisions of the AbP (General Building Supervisory Test Certificate).

5 Legal basis

This General Building Inspection Test Certificate is granted on the basis of Article 19 of the Saxon Building Regulations (SeachsBO) in the version as published on 11 Mai 2016 (SaechsGVBl. S. 186) which has been changed by Article 3 of the Act of 10 February 2017 (SächsGVBl. p. 50) in conjunction with Construction Regulation List A, Part 2, Item 1.13, Issue 2015/2 in conjunction with issues 2016/1 and 2016/2.

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, 11/01/2018



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Head of the Testing Centre