

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-13/0543  
of 10 January 2022

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

Joint filling system "Flammoplast Fugenabdichtung"

Product family  
to which the construction product belongs

Kit for use in linear joint and gap seals

Manufacturer

Flamro Brandschutz-Systeme GmbH  
Am Sportplatz 2  
56291 Leiningen  
DEUTSCHLAND

Manufacturing plant

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This European Technical Assessment  
contains

12 pages including 7 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 350141-00-1106

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## Specific Part

### 1 Technical description of the kit

The joint filling system "Flammoplast Fugenabdichtung" is a kit, consisting of the following components:

- mineral fibre boards "ProRox SL 970<sup>D</sup>",
- the coating "FLAMMOPLAST KS 1",
- the filler (putty) "FLAMMOPLAST KS 3" and
- loose mineral wool "ProRox LF 970".

"FLAMMOPLAST KS 1" is a coating, consisting essentially of intumescent ingredients and binder. Applied on a substrate, the dried layer of "FLAMMOPLAST KS 1" generates foam in case of fire without developing significant expansion pressure.

"FLAMMOPLAST KS 3" is a putty, consisting essentially of intumescent ingredients and binder. Applied on a substrate, the dried layer of "FLAMMOPLAST KS 1" generates foam in case of fire without developing significant expansion pressure.

The maximum lateral stretching capability of the joint filling system "Flammoplast Fugenabdichtung" is 7.4 %.

Detailed technical descriptions of the components of the joint filling system are given in Annex A.

Details of the product composition is deposited with Deutsches Institut für Bautechnik.

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

The joint filling system "Flammoplast Fugenabdichtung" is intended to be used in horizontal and vertical linear non-movement joints (structural joints as linear butt joints) between fire resistant rigid walls and floors with a fire-separating function.

The joint filling system is intended to maintain or reinstate the fire resistance performance of building components with a fire-separating function where they are interrupted or separated by joints.

Resistance to fire of the joint filling system "Flammoplast Fugenabdichtung" is given in Annex B.

The performances given in section 3 are only valid if the joint filling system is used in compliance with

- the specifications and conditions given in the Annexes A and B and
- the manufacturer's instructions.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the joint filling system "Flammoplast Fugenabdichtung" of at least 10 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

#### 3.2 Safety in case of fire (BWR 2)

| Essential characteristic                       | Performance  |
|--|--|
| Reaction to fire of the components             | Classes in accordance with EN 13501-1<br>See Annex A |
| Resistance to fire of the joint filling system | Classes in accordance with EN 13501-2<br>See Annex B |

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

| Essential characteristic  | Performance  |
|---|--|
| Air permeability  | No performance assessed  |
| Water permeability  | No performance assessed  |
| <b>Content, emission and/or release of dangerous substances</b>   |  |
| Substance/s classified as EU-cat. Carc. 1A and/or 1B in accordance with Regulation (EC) No 1272/2008.   | The product does not contain these dangerous substances actively used. <sup>a)</sup>                                       |
| Substance/s classified as EU-cat. Muta. 1A and/or 1B in accordance with Regulation (EC) No 1272/2008.   |  |
| Substance/s classified as EU-cat. Acute Tox. 1, 2 and/or 3; Repr. 1A and/or 1B; STOT SE 1 and/or STOT RE 1 in accordance with Regulation (EC) No 1272/2008. | Components of the product contain a mixture classified as EU-cat. Acute Tox. 3, labelled with H301 and H311. <sup>a)</sup> |
| SVOC and VOC  | No performance assessed (NPA)  |
| Use scenarios regarding BWR 3 in accordance with EOTA TR 034: IA 1, IA 2  |  |
| a) Assessment based on a detailed manufacturer's product declaration for "FLAMMOPLAST KS 1" and "FLAMMOPLAST KS 3".   |  |

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

No performance assessed

#### 3.5 Protection against noise (BWR 5)

No performance assessed

#### 3.6 Energy economy and heat retention (BWR 6)

No performance assessed

#### 3.7 General aspects of durability and serviceability

The verification of durability and serviceability are part of testing the essential characteristics.

The joint filling system "Flammoplast Fugenabdichtung" may be used in end-use application with the conditions of the following use categories, with no essential changes in its fire protective property to be expected:

Typ Z<sub>1</sub>: intended for use at internal conditions with high relative humidity inclusive temporary condensation, excluding temperatures below 0 °C.

Durability is only ensured if the specifications of the intended use according to Annex B and the manufacturer's instructions are taken into account.

English translation prepared by DIBt

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

In accordance with EAD No. 351000-01-1106, edition 2017 the applicable European legal act is: 1999/454/EC.

The system to be applied is: 1.

**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 10 January 2020 by Deutsches Institut für Bautechnik

Otto Fechner  
Head of Section

*beglaubigt:*  
Dr.-Ing. Dierke

## 1 Components and properties

### 1.1 List of all components

Table 1

| No | Component   | Description / properties  |
|----|---|---|
| 1  | ProRox SL 970 <sup>D</sup><br>Deutsche Rockwool Mineralwoll GmbH<br>45966 Gladbeck<br>Germany | <u>Type</u><br>Mineral fibre board according to EN 14303<br><br><u>Dimensions</u><br>Thickness $\geq 50$ mm<br>Nominal gross density $\geq 120$ kg/m <sup>3</sup><br><br><u>Class according to EN 13501-1</u><br>Class A1 |
| 2  | FLAMMOPLAST KS 1  | <u>Class according to EN 13501-1</u><br>Class E<br><br>The chemical composition is deposited with Deutsches Institut für Bautechnik.<br>For further properties, see Annex A2  |
| 3  | FLAMMOPLAST KS 3  | <u>Class according to EN 13501-1</u><br>Class E<br><br>The chemical composition is deposited with Deutsches Institut für Bautechnik.<br>For further properties, see Annex A2  |
| 4  | ProRox LF 970<br>Deutsche Rockwool Mineralwoll GmbH<br>45966 Gladbeck<br>Germany              | <u>Type</u><br>Loose mineral wool<br><br>The composition is deposited with Deutsches Institut für Bautechnik.<br><br><u>Class according to EN 13501-1</u><br>Class A1   |

Joint filling system "Flammoplast Fugenabdichtung"

Description of the components of the joint filling system "Flammoplast Fugenabdichtung"

Annex **A1**

## 1.2 Properties of the components FLAMMOPLAST KS 1 and FLAMMOPLAST KS 3

### FLAMMOPLAST KS 1

|   | Characteristic/performance            | Criteria and tolerance                           | Test method  |
|---|---------------------------------------|--|--|
| 1 | Density                               | 1200 kg/m <sup>3</sup> to 1370 kg/m <sup>3</sup> | EN ISO 2811-1  |
| 2 | Non-volatile components               | 67.0 % ± 5 %                                     | EOTA TR 24 (2009) cl. 3.1.7<br>EN ISO 3251, tested at 105 °C for 3 hours   |
| 3 | Loss of mass at a certain temperature | 65.0 % ± 5 %                                     | EOTA TR 24 (2009) cl. 3.1.8<br>EN ISO 3451-1 at 400°C for 30 minutes   |
| 4 | Expansion ratio                       | 105 to 130                                       | EOTA TR 24 (2009) cl. 3.1.11 tested at 400 °C for 30 minutes without a top-load with on dry specimen of ca. 1 mm thickness |
| 5 | Reaction to fire                      | Class E  | EN ISO 11925-2/EN 13501-1  |

### FLAMMOPLAST KS 3

|   | Characteristic/performance            | Criteria and tolerance                           | Test method  |
|---|---------------------------------------|--|--|
| 1 | Density                               | 1200 kg/m <sup>3</sup> to 1385 kg/m <sup>3</sup> | EN ISO 2811-1  |
| 2 | Non-volatile components               | 65.0 % ± 5 %                                     | EOTA TR 24 (2009) cl. 3.1.7<br>EN ISO 3251, tested at 105 °C for 3 hours   |
| 3 | Loss of mass at a certain temperature | 61.0 % ± 5 %                                     | EOTA TR 24 (2009) cl. 3.1.8<br>EN ISO 3451-1 at 400°C for 30 minutes   |
| 4 | Expansion ratio                       | 35.0 to 55.0                                     | EOTA TR 24 (2009) cl. 3.1.11 tested at 400 °C for 30 minutes without a top-load with on dry specimen of ca. 2 mm thickness |
| 5 | Reaction to fire                      | Class E  | EN ISO 11925-2/EN 13501-1  |

Joint filling system "Flammoplast Fugenabdichtung"

**Components and properties**  
- FLAMMOPLAST KS 1 and FLAMMOPLAST KS 3 -

Annex **A2**

**2 Fire resistance of the joint filling system "Flammoplast Fugenabdichtung"**

**2.1 Building components**

The joint filling system "Flammoplast Fugenabdichtung" is intended to be used between the following building components with a thickness  $\geq 180$  mm:

Rigid walls

- made of concrete, reinforced concrete or masonry with a minimum density  $600 \text{ kg/m}^3 \pm 20 \%$

Rigid floors

- made of concrete or reinforced concrete with a minimum density  $2200 \text{ kg/m}^3 \pm 20 \%$

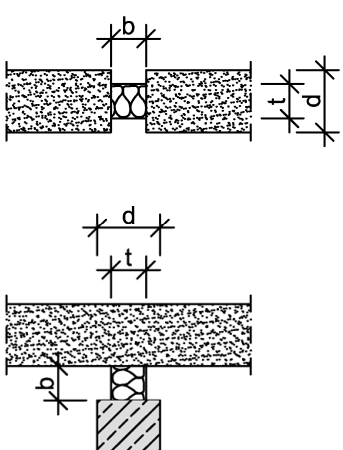
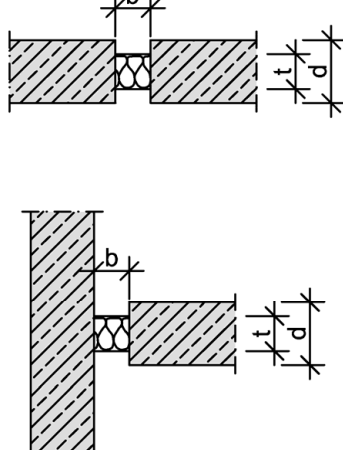
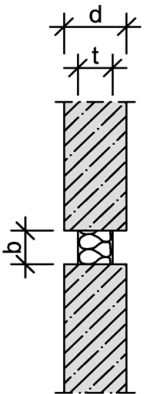
The building components shall be classified in accordance with EN 13501 2 for the corresponding fire resistance period.

**2.2 Application**

According to the schematic representation of table 2, the joint filling system "Flammoplast Fugenabdichtung" is intended to be used




- in horizontal joints between fire-resistant floors or between fire-resistant walls abutting these floors (A)
- in vertical joints between fire-resistant walls (B)
- in horizontal joints in fire-resistant walls (C).

Table 2

| Application (A)   | Application (B)  | Application (C)   |
|---|--|---|
|  |  |  |
| EI 120 - H - X - B - 20 to 100  | EI 120 - V - X - B - 20 to 100   | EI 120 - T - X - B - 20 to 100  |

The joint filling system may be installed on any position within the joint.

Legend:

|   |               |   |               |
|---|---------------|---|---------------|
|  | joint sealing | d | $\geq 180$ mm |
|  | wall          | b | 20 – 100 mm   |
|  | floor         | t | 100 mm        |

Joint filling system "Flammoplast Fugenabdichtung"

**Resistance to fire of the joint filling system**

- Information on the building components, overview of the applications and classification -

Annex **B1**



### 2.3 Description of the tested application

The joints in which the sealing elements are installed are to be cleaned of any contamination (e. g. loose debris, dirt or remains of installation foams).

The mineral fibre boards ProRox SL 970<sup>D</sup> shall be coated one-side with FLAMMOPLAST KS 1.

The reveals of the joint shall be coated with FLAMMOPLAST KS 1 in the installation area of the mineral fibre boards.

The mineral fibre boards ProRox SL 970<sup>D</sup> shall be cut into strips according to the joint width. The cutting edges of the mineral fibre boards shall be coated with FLAMMOPLAST KS 1. The strips shall be installed in two densely juxtaposed layers into the joint in such a way that the pre-coated sides of the mineral fibre boards are arranged to the reveals and the joint is completely and tightly sealed with a thickness of  $\geq 100$  mm.

All remaining gaps and joints, insofar as they exist, shall be tightly filled and sealed with loose mineral wool ProRox LF 970 and FLAMMOPLAST KS 3 from both sides to a depth of at least 50 mm.

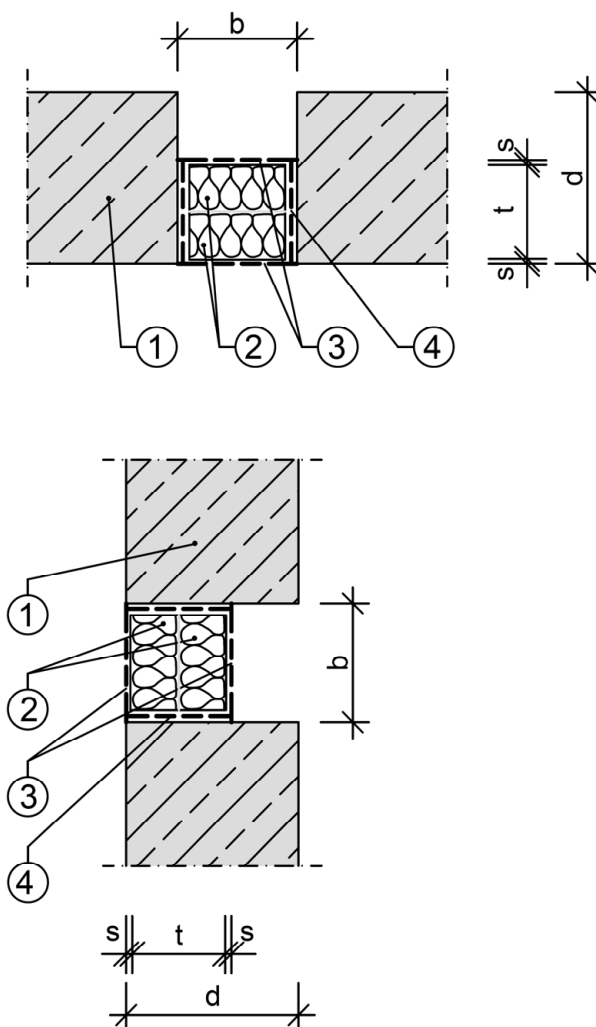
Finally the surfaces of the installed mineral fibre boards ProRox SL 970<sup>D</sup> shall be coated with FLAMMOPLAST KS 1 such that the thickness of the coating (dry layer thickness) is at least 1 mm.

In case of installing the joint filling system in ceilings, the reveals of the joint may be covered by a frame of 10 mm thick steal angles. Strips of non-combustible mineral fibre boards with a thickness of  $\geq 10$  mm and a density of  $\geq 35$  kg/m<sup>3</sup> shall be installed between the reveals and the frame.

The joint shall be installed completely as described above.

The ETA is issued under the assumption that the installation of the construction product is in accordance with the manufacturer's installation instructions.

|  |                 |
|--|-----------------|
| Joint filling system "Flammoplast Fugenabdichtung"   | <b>Annex B2</b> |
| <b>Resistance to fire of the joint filling system</b><br>- Description of the tested application - |                 |

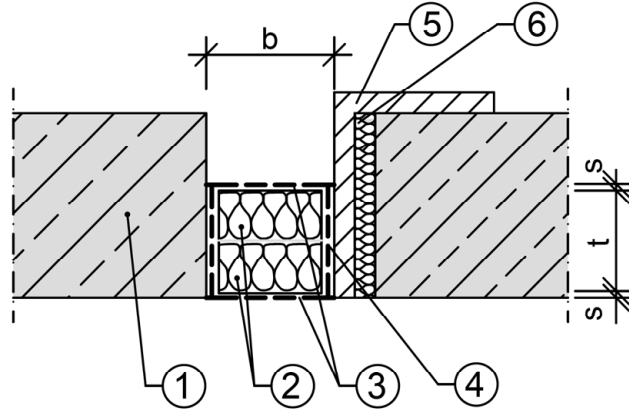


| Construction and dimensions of the joint |   |   |               |
|--|---|---|---------------|
| ①  | Thickness of the wall or floor  | d | [mm] ≥ 180    |
|  | Joint width   | b | [mm] 20 - 100 |
| ②  | Mineral fibre board<br>"ProRox SL 970 D" thickness 50 mm<br>nominal density ≥ 120 kg/m <sup>3</sup>   | t | [mm] 100      |
| ③  | Coating with FLAMMOPLAST KS 1   | s | [mm] ≥ 1,0    |
| ④  | Adhesion with FLAMMOPLAST KS 1<br>and if necessary plugging with loose wool "ProRox LF 970" and<br>filling with the filler FLAMMOPLAST KS 3 |   |               |

Joint filling system "Flammoplast Fugenabdichtung"

**Resistance to fire of the joint filling system**  
- use in floors and walls -

Annex B3



- ① Floor
- ② Strip of mineral fibre board "ProRox SL 970 D" class A1, thickness 50 mm; density  $\geq 120 \text{ kg/m}^3$
- ③ Coating with FLAMMOPLAST KS 1; dry film thickness  $s \geq 1,0 \text{ mm}$
- ④ Adhesion with FLAMMOPLAST KS 1 and if necessary plugging with loose wool "ProRox LF 970" and filling with the filler FLAMMOPLAST KS 3
- ⑤ Steel angular frame
- ⑥ Strip of 100 mm thick mineral fibre board, density  $\geq 35 \text{ kg/m}^3$

Joint filling system "Flammoplast Fugenabdichtung"

**Resistance to fire of the joint filling system**

- in floors with covering of the reveals with a frame of 10 mm thick steel angles -

Annex **B4**

**Standards**

- EN 13501-1 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
- EN 13501-2 Fire classification of construction products and building elements - Part 2: Classification using data from resistance tests, excluding ventilation services
- EN 1363-1 Fire resistance tests – Part 1: General requirements
- EN 1366-4 Fire resistance tests for service installations – Part 4: Linear joint seals
- EN 13823 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item
- EN 14303 Thermal insulation products for building equipment and industrial installations – Factory made mineral wool (MW) products – Specification
- EN ISO 2811-1:2016 Paints and varnishes - Determination of density - Part 1: Pycnometer method
- EN ISO 3251:2008 Paints, varnishes and plastics - Determination of non-volatile-matter content
- EN ISO 3451-1:2008 Plastics - Determination of ash - Part 1: General methods
- EN ISO 11925-2:2010 Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test

**Other documents**

- EAD 350141-00-1106 Fire Stopping and fire sealing products - Linear joint and gap seals, edition September 2017
- TR 024 Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products, edition November 2006 Amended July 2009
- TR 034 General BWR 3 Checklist for EADs/ETAs - Dangerous substances, edition October 2015

Joint filling system "Flammoplast Fugenabdichtung"

**List of documents referred to**

**Annex C**