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and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
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## European Technical Assessment

ETA-13/0270  
of 11 August 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 "Litaflex-Vario" and "Litaflex-Vario XL"

Product family  
to which the construction product belongs

Kit for use in linear joint and gap seals

Manufacturer

Rex Industrie-Produkte  
Graf von Rex GmbH  
Großaltdorfer Straße 59  
74541 Vellberg  
DEUTSCHLAND

Manufacturing plant

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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 350141-00-1106

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## Specific Part

### 1 Technical description of the kit

The kits "Litaflex-Vario" and "Litaflex-Vario XL" are linear joint filling systems for fire protective sealing purposes. The kit consists of the sealing element "Litaflex-Vario" and the adhesive "Litaflex-Kleber 800" or the adhesive "RexFix 1000" and a complete outer wrap of aluminium foil. The both adhesives could be used alternatively. For the installation of the sealing element into the joint the adhesive: "RexFix 1000" is easier to handle and non-drippy.

The sealing element effective in case of fire, consists of mineral foam boards "Litaflex SM 30" which are glued together and at least two layers of the intumescent material "Brandschutzpappe Flaton VPG 12" and the outer wrap of aluminium foil.

The maximum lateral stretching capability of the joint filling system "Litaflex-Vario" is 20 mm in joints between 20 mm and 100 mm; for the joint filling system "Litaflex-Vario XL" the maximum lateral stretching capability is 100 % for joint of 20 mm to 50 mm and 50 % for joints between 60 mm and 150 mm.

Detailed technical descriptions of the sealing elements "Litaflex-Vario" and "Litaflex-Vario XL" are given in Annex A.

Details of the product composition inclusively the chemical composition of "Brandschutzpappe Flaton VPG 12" is deposited at Deutsches Institut für Bautechnik.

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

The joint filling system "Litaflex-Vario" 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 "Litaflex-Vario XL" is intended to be used in horizontal and vertical linear joints with shear or/and lateral strength between fire resistant rigid walls and floors with a fire-separating function.

The described joint filling system are 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 Litaflex-Vario 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 Annex 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 Litaflex-Vario of at least 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.

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

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

Essential characteristic	Performance
Reaction to fire	Classes in accordance with EN 13501-1 See Annex A
Resistance to fire	Classes in accordance with EN 13501-2 See Annex B

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

Essential characteristic	Performance
Air permeability	NPD
Water permeability	NPD
Content of dangerous substance <sup>1)</sup>	No dangerous substances <sup>1</sup>

<sup>1)</sup> The assessment is based on a detailed manufacturer's product declaration.

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

No performance assessed

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

No performance assessed

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

No performance assessed

#### 3.6 General aspects of durability and serviceability

The verification of durability and serviceability are part of testing the essential characteristics. Result: The joint filling systems "Litaflex-Vario" and "Litaflex-Vario XL" may be used in end-use application with climatic conditions of the following use categories; no essential changes in the fire protective properties are expected:

Type Y<sub>2</sub>: intended for use at temperatures below 0°C, but no exposure to rain nor UV.

Type Z<sub>1</sub>: intended for use in internal conditions with humidity equal to or higher than 85 % RH, e.g. re-drying condensation, excluding temperatures below 0 °C.

Type Z<sub>2</sub>: intended for use in internal conditions with humidity lower than 85 % RH 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 in section 5 are taken in account.

<sup>1</sup> In accordance with the Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 (published in the Official Journal of the EU N° L 353 of 31/12/2008, p 1)

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

In accordance with EAD No. 351000-01-1105, 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 11 August 2022 by Deutsches Institut für Bautechnik

Otto Fechner  
Head of Section

*beglaubigt:*  
Dr.-Ing. Dierke

## 1 Components and characteristics

Table 1

product	Component and description
"Litaflex-Vario" and "Litaflex-Vario XL" Rex Industrie-Produkte Graf von Rex GmbH 74541 Vellberg Deutschland	<p><b>"Litaflex SM 30"</b></p> <p>The joint sealing element "Litaflex-Vario" consists of one or more, the joint sealing element "Litaflex-Vario XL" consists of two or more non-combustible, mineral foam board strips type "Litaflex SM 30", which are glued together. The thickness of the board strips depends on the intended final thickness of the glued element.</p> <p>The chemical composition of "Litaflex SM 30" and the available thicknesses are deposited at Deutsches Institut für Bautechnik.</p> <p><b>Brandschutzpappe "Flaton VPG 12"</b> (fire protective mat)</p> <p>Strips of the intumescent material Brandschutzpappe "Flaton VPG 12" (without lamination) and of a nominal thickness of 2,5 mm have to be glued left and right of every foam element.</p> <p>The chemical composition of the material Brandschutzpappe "Flaton VPG 12" and specific characteristics (e.g. expansions ratio, expansion pressure and loss of mass due to heating) are deposited at the Deutschen Institut für Bautechnik.</p> <p>The assembled joint sealing elements "Litaflex-Vario" and "Litaflex-Vario XL" shall be wrapped completely with an aluminium foil (manufacturer deposited) 0,05 mm thick if needed incl. stretch folds.</p> <p><u>Reaction to fire class in accordance with EN 13501-1</u> classe C-s1,d0</p>
"Litaflex-Kleber 800" Rex Industrie-Produkte Graf von Rex GmbH 74541 Vellberg Deutschland	<p>"Litaflex-Kleber 800" is the adhesive to glue the Brandschutzpappe and the mineral foam board strips.</p> <p>The chemical composition is deposited at the Deutschen Institut für Bautechnik.</p> <p><u>Reaction to fire class in accordance with EN 13501-1</u> at least class E when installed (end use conditions)</p>
"RexFix 1000" Rex Industrie-Produkte Graf von Rex GmbH 74541 Vellberg Deutschland	<p>The adhesive "RexFix 1000" shall be used to fix the aluminum foil, to glue butt joints and fix the element in the construction joint.</p> <p>The chemical composition is deposited at the Deutschen Institut für Bautechnik.</p> <p><u>Reaction to fire class in accordance with EN 13501-1</u> at least class E</p>

Fugenfüll-System "Litaflex-Vario" und "Litaflex-Vario XL"

**Components and characteristics**

**Annex A**

**2 Fire-resistance of the joint filling systems "Litaflex-Vario" and "Litaflex-Vario XL"**

**2.1 Building elements with a fire separating function**

The joint filling systems "Litaflex-Vario" and "Litaflex-Vario XL" are intended to be used between the following separating elements:

Rigid walls (massive)

- made of masonry, concrete or reinforced concrete with a density of  $2400 \text{ kg/m}^3 \pm 20 \%$
- thickness  $c_w \geq 150 \text{ mm}$  (see annex B 2)

Rigid floors (massive)

- made of concrete or reinforced concrete with a density of  $2400 \text{ kg/m}^3 \pm 20 \%$
- thickness  $c_D \geq 150 \text{ mm}$  (see annex B 2)

The separating building elements shall be classified in accordance with EN 123501-2 to meet the corresponding fire resistance period.

**2.2 Application**

According to the schematic representation of table 2, the joint filling systems "Litaflex-Vario" and "Litaflex-Vario XL" are intended to be used:

- in horizontal joints between fire-resistant separating floors or between walls abutting a floor (A)
- in vertical joints between fire-resisting separating walls (B)

Table 2

Application (A)	Application (B)

c thickness of the building element (rigid floor  $c_D$  or rigid wall  $c_w$ )

b width of the joint in accordance with annex B 2

Details of the joint filling systems "Litaflex-Vario" or "Litaflex-Vario XL" and information of the construction product are given in annex B".

Joint filling system "Litaflex-Vario" and "Litaflex-Vario XL"	<b>Annex B 1</b>
<b>Resistance to fire of the joint filling systems "Litaflex Vario" and "Litaflex Vario XL"</b> - Information on the building elements and overview on application -	

### 2.3 Classification of the joint filling system "Litaflex-Vario"

Table 3 provides an overview of the joint filling systems installed in massive fire-resistant rigid walls and rigid floors (application A and B according to Annex B 1, table 2).

Table 3

Thickness of the massive building element c	Joint width b [mm]	Sealing element			Classification of the resistance to fire
		Thickness* [mm]	Height [mm]	Length [mm]	
150	20	30	125	1000	EI 120-V-M100-F-W 20 EI 120-H-M100-F-W 20
	30	40			EI 120-V-M066-F-W 30 EI 120-H-M066-F-W 30
	40	50			EI 120-V-M050-F-W 40 EI 120-H-M050-F-W 40
	50	60			EI 120-V-M040-F-W 50 EI 120-H-M040-F-W 50
	60	70			EI 120-V-M033-F-W 60 EI 120-H-M033-F-W 60
	70	80			EI 120-V-M029-F-W 70 EI 120-H-M029-F-W 70
	80	95			EI 120-V-M025-F-W 80 EI 120-H-M025-F-W 80
	90	110			EI 120-V-M022-F-W 90 EI 120-H-M022-F-W 90
	100	120			EI 120-V-M020-F-W 100 EI 120-H-M020-F-W 100

\* uncompressed

Joint filling system "Litaflex-Vario" and "Litaflex-Vario XL

**Resistance to fire of the joint filling systems "Litaflex Vario" and "Litaflex Vario XL**  
- Classification -

Annex B 2



## 2.4 Classification of the joint filling system "Litaflex-Vario XL" for large movement-joints

Table 4 provides an overview of the joint filling systems installed in massive fire-resistant rigid walls and rigid floors (application A and B according to Annex B 1, table 2), tested for mechanically induced movements in buildings.

Table 4a: **Wall**

Thickness of the building element c	Joint width b [mm] + extension %	Sealing element			Classification of the resistance to fire
		Width [mm]	Joint depth [mm]	Length [mm]	
150	20 mm + 100 %	20	140	1000	EI 180-H-V-M 100-F-W20 E 180-H-V-M 100-F-W20
150	30 mm + 100 %	30	140	1000	EI 120-H-V-M 100-F-W30 E 180-H-V-M 100F-W30
150	40 mm + 100 %	40	140	1000	EI 120-V-M 100-F-W40 E 180-H-V-M 100-F-W40
150	50 mm + 100 %	50	140	1000	EI 180-V-M 100-F-W50 E 180-H-V-M 100-F-W50
150	60 mm + 50 %	60	140	1000	EI 180-V-M 50-F-W60 E 180-H-V M 50-F-W60
150	90 mm + 50 %	90	140	1000	EI 120-H-V-M 50-F-W90 E 180-H-V-M 50-F-W 90
200	100 mm + 50 %	100	190	1000	EI 240-V-M 50-F-W100 E 240-V-M 50-F-W 100
200	150 mm + 50 %	150	190	1000	EI 120-V-M 50-F-W150 E 120-V-M 50-F-W 150

Table 4b: **Floor**

Thickness of the building element c	Joint width b [mm] + extension %	Sealing element			Classification of the resistance to fire
		Width [mm]	Joint depth [mm]	Length [mm]	
150	20 mm + 100 %	20	140	1000	EI 180-H-V-M 100-F-W20 E 180-H-V-M 100-F-W20
150	30 mm + 100 %	30	140	1000	EI 120-H-V-M 100-F-W30 E 180-H-V-M 100-F-W30
150	40 mm + 100 %	40	140	1000	EI 180-H-V-M 100-F-W40 E 180-H-V-M 100-F-W40
150	50 mm + 100 %	50	140	1000	EI 120-H-M 100-F-W 50 E 180-H-V-M 100-F-W50
150	60 mm + 50 %	60	140	1000	EI 120-H-M 50-F-W60 E 180-H-V-M 50-F-W60
150	90 mm + 50 %	90	140	1000	EI 120-V-M029-F-W90 E 180-H-V-M 50-F-W90
200	100 mm + 50 %	100	190	1000	EI 120-H-M 50-F-W 100 E 120-H-M 50-F-W 100
200	150 mm + 50 %	150	190	1000	EI 120-H-M 50-F-W 150 E 120-H-M 50-F-W 150

Joint filling system "Litaflex-Vario" and "Litaflex-Vario XL

**Resistance to fire of the joint filling systems "Litaflex Vario" and "Litaflex Vario XL**  
- Classification -

Annex **B3**

## 2.5 Assignment

On the basis of the present test results it can be assumed that the following classification is valid for the listed joint filling elements "Litaflex-Vario XL":

Table 4c:

Thickness of the building element c	Joint width b [mm] + extension %	Sealing element			possible Classification of the resistance to fire
		width [mm]	joint depth [mm]	Length [mm]	
<b>Wall</b>					
150	70 mm + 50 %	70	140	1000	EI 120-V-M 50-F-W70 E 180-V-M 50-F-W70
150	80 mm + 50 %	80	140	1000	EI 120-V-M 50-F-W80 E 180-V-M 50-F-W80
200	110 mm + 50 %	110	190	1000	EI 120-V-M 50-F-W110 E 180-V-M 50-F-W110
200	120 mm + 50 %	120	190	1000	EI 120-V-M 50-F-W120 E 180-V-M 50-F-W120
200	130 mm + 50 %	130	190	1000	EI 120-V-M 50-F-W130 E 180-V-M 50-F-W130
200	140 mm + 50 %	140	190	1000	EI 120-V-M 50-F-W140 E 180-V-M 50-F-W140
<b>Floor</b>					
150	70 mm + 50 %	70	140	1000	EI 120-H-M 50-F-W70 E 180-H-M 50-F-W70
150	80 mm + 50 %	80	140	1000	EI 120-H-M 100-F-W 80 E 180-H-M 50-F-W80
200	110 mm + 50 %	110	190	1000	EI 120-H-M 50-F-W110 E 120-H-M 50-F-W110
200	120 mm + 50 %	120	190	1000	EI 120-H-M 50-F-W120 E 120-H-M 50-F-W120
200	130 mm + 50 %	130	190	1000	EI 120-H-M 50-F-W130 E 120-H-M 50-F-W130
200	140 mm + 50 %	140	190	1000	EI 120-H-M 50-F-W140 E 120-H-M 50-F-W140

## 2.6 Description of the tested application

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

When cutting the sealing elements must not be damaged.

The inside surfaces of the building element are coated with the adhesive "Litaflex-Kleber 800" or "RexFix 1000". Using two installation plates, the sealing elements are pre-compressed to a thickness of 10 mm smaller than the joint width and are inserted into the joint.

The butt joined sealing elements are completely glued together on their front sides by using "Litaflex-Kleber 800" or "RexFix 1000".

The joint shall be installed completely as described above and in the installation instructions.

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 "Litaflex-Vario" and "Litaflex-Vario XL

**Resistance to fire of the joint filling systems "Litaflex Vario" and "Litaflex Vario XL**  
- Description of the application -

**Annex B 4**

### 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 fire 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 ISO 11925-2	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2:2010)

### Other documents

EAD 350141-00-1106 Fire Stopping and fire sealing products - Linear joint and gap seals

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 (published in the Official Journal of the EU N° L 353 of 31/12/2008, p 1)

Joint filling system "Litaflex-Vario" and "Litaflex-Vario XL

### List of References

Annex C