Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

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European Technical Assessment ETA-23/0673 of 19 December 2024

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Rexpandit 10/30; Rexpandit 20/40; Rexpandit 30/50
Product family to which the construction product belongs	Linear joint and gap seals
Manufacturer	Rex Industrie-Produkte Graf von Rex GmbH Großaltdorf Straße 59 74541 Vellberg DEUTSCHLAND
Manufacturing plant	Rex Industrie-Produkte Graf von Rex GmbH Großaltdorf Straße 59 74541 Vellberg DEUTSCHLAND
This European Technical Assessment contains	13 pages including 8 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	350141-00-1106

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Specific Part

1 Technical description of the product

Object of this European technical assessment (ETA) are the construction products "Rexpandit 10/30", "Rexpandit 20/40" and "Rexpandit 30/50" (from here on collectively referred to as "Rexpandit"), which are intumescent, compressible strips for forming linear joint and gap seals.

The building product "Rexpandit" consists of a middle layer of compressible melamine resin foam[1] with one or two layers (depending on the variant) of an intumescent material[2] on both sides. The layers are connected with double-sided, polyacrylate-based adhesive tape[1] (thickness ca. 0.1 or 0.16 mm). The kit for the linear joint and gap seal includes at least the construction product and the installation guide.

The chemical composition of the construction products, the dimensions of the variants "Rexpandit 10/30", "Rexpandit 20/40" and "Rexpandit 30/50" and the characteristics of the components are listed in annex A.

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

The compressible strip "Rexpandit" will be assessed in accordance with the European Assessment Document (EAD) 350141-00-1106[3].

The compressible strip "Rexpandit" is intended to seal vertical and horizontal linear joints (linear butt joints) with a width from 10 mm to 50 mm (see annex A) between massive, fire-resistant walls and floors with a fire-separating function in case of fire.

The wall and floor must consist of aerated concrete, normal concrete, hollow concrete blocks, or masonry (raw density ≥ 650 kg/m^3) and/or cross-laminated timber (for walls: raw density ≥ 402.5 kg/m^3, for ceilings: raw density ≥ 446.4 kg/m^3)

Wall joints formed using "Rexpandit" must not exceed a lateral expansion of 20 mm. Ceiling joints formed using "Rexpandit" must not exceed a lateral expansion of 20 mm and/or shearing of up to 25 mm.

A detailed list of wall and ceiling materials and use cases is given in annex B.

The compressible strip "Rexpandit" 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. The incorporated product "Rexpandit" is not intended for load transmission.

The fire resistance of the compressible strip "Rexpandit" for different types of incorporation between construction elements is given in Annex C.

The performances given in section 3 are only valid if the compressible strip "Rexpandit" is used in compliance with

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

1 Type, manufacturer and characteristics are deposited with DIBt.
2 Chemical composition, type and characteristics are deposited with DIBt.
3 Official Journal of the EU N° C 417/07 of 16. November 2018; p. 24, EAD N° 350141-00-1106 „Linear joint and gap seals“

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of "Rexpandit" 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 kit and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class C-s1, d0 in accordance with EN 13501-1
Resistance to fire	Classes EI in accordance with EN 13501-2 see Annex C

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content of dangerous substances	no dangerous substances[4]

The chemical composition of the components of the compressible strip "Rexpandit" was assessed by DIBt and is deposited with the DIBt. The composition of the product has to conform to the deposition.

3.3 Safety and accessibility in use (BWR 4)

No performance determined

3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
weighted sound reduction index of joints, according to EN ISO 717-1	
"Rexpandit 10/30", joint width 30 mm, joint depth 60 mm	$R_{S,w}$ = 23 dB
"Rexpandit 10/30", joint width 10 mm, joint depth 60 mm	$R_{S,w}$ = 45 dB
"Rexpandit 20/40", joint width 40 mm, joint depth 60 mm	$R_{S,w}$ = 20 dB
"Rexpandit 20/40", joint width 20 mm, joint depth 60 mm	$R_{S,w}$ = 37 dB

3.5 Energy economy and heat retention (BWR 6)

No performance determined

3.6 Sustainable use of natural resources (BWR 7)

No performance determined

3.7 General aspects

The verification of durability is part of testing the essential characteristics.

In accordance with EAD 350141-00-1106[3], section 2.1, the compressible strip "Rexpandit" can be used under the following final use conditions, without any essential change in the properties relevant for the fire protective effect and the resulting performance:

Type Z_2: indoor use at a relative humidity lower than 85 % RH, but no temperatures below 0 °C (dry, frost-protected).

[4] In accordance with the Regulation (EC) N° 1272/2008 of the European Parliament and the Council of 16 December 2008 (published in the Official Journal of the EU N° L353 of 31 December 2008, p 1)

The durability under indoor conditions for circa 10 years is only ensured if the specifications of intended use are considered according to annex B and the manufacturer's instructions given in section 5.

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

In accordance with EAD N° 350141-00-1106[3] the applicable European legal act is: 1999/454/EC[5].

The system of assessment and verification of constancy of performance (AVCP) (see annex V and article 65 Paragraph 2 to Regulation (EU) N° 305/2011) is: **System 1** as given in the following table:

Product	intended use	Level(s) or class(es)	AVCP-System
"Rexpandit"	sealing of joints between fire-resistant separating building elements in case of fire	all	1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD (EAD 350141-00-1106)

The technical details necessary for the implementation of the system for assessment and verification of constancy of performance (AVCP) are laid down in the control plan (confidential part of this ETA) deposited with DIBt.

In accordance with this ETA the manufacturer shall provide the declaration of performance and installation instructions containing at least information on type, properties (minimum thickness, minimum density) and fire resistance of the building elements with a fire-separating function in which the compressible strip "Rexpandit" may be installed and a description or graphic presentation of the proper installation.

Issued in Berlin on 19 December 2024 by Deutsches Institut für Bautechnik

Johanna Held
Head of Section

beglaubigt:
Haberstroh

[5] Decision of the Commission N° 1999/454/EC of 22 June 1999 (OJ L 178/52 of 14/07/99, p. 3), as amended by Decision of the Commission N° 2001/596/EC of 8 January 2001 (OJ L 209/33 of 2/8/2001, p. 2)

Description of the construction product

1. Properties of the variants

Table A 1: Dimensions of the variants

	"Rexpandit 10/30"	**"Rexpandit 20/40"**	**"Rexpandit 30/50"**
Dimensions	1000 mm x 32 mm x 60 mm	1000 mm x 48 mm x 60 mm	1000 mm x 58 mm x 60 mm
Thickness of the intumescent layer	2.4 mm	4.8 mm	4.8 mm
joint width	10 mm – 30 mm	20 mm – 40 mm	30 mm – 50 mm

The dimensions are given as follows: length x width x depth.

2. Properties relevant for the fire protective effects of the intumescent component "Flaton-flex EN[1]"

Table A 2: Properties of "Flaton-flex EN"

characteristic	**value and tolerance**	**test methods and test conditions**
nominal thickness	2 mm-2.5 mm	see control plan
mass per unit area	1.70 kg/m² – 2.4 kg/m²	
loss of weight at a higher temperature[2]	59 % ± 5 %	
expansion ratio[2]	14.0 – 18.5	
expansion pressure[2]	1.6 N/mm²- 2.6 N/mm²	
reaction to fire	class E	

3. Double-sided self-adhesive tape

Polyacrylate-dispersion based adhesive on a layer of paper mat; thickness: 0.16 - 0.18 mm or polyacrylate-dispersion based adhesive on a PES/PVA mesh, thickness: ca. 0.1 mm.

4. Foam strip "Noiseflex MH grey"

Flexible, open-cell foam of melamine resin, colour: grey

Table A 3: Characteristics von "Noiseflex MH grau"

characteristic	**value and tolerance**	**test methods and test conditions**
raw density	9 ± 1.5 kg/m³	EN ISO 845
tensile strength	> 120 kPa	EN ISO 1798

[1] Approval documents are deposited with DIBt.
[2] Details of test methods and conditions are deposited with DIBt.

Fire-separating elements – construction with wood and hybrid construction

The construction product "Rexpandit" is intended to seal linear joints between massive walls and/or ceilings made of cross-laminated timber and aerated concrete.

The configurations of cross-laminated timber/cross-laminated timber and cross-laminated timber/aerated concrete have been tested.

In this context, fire-separating components made of cross-laminated timber must consist of the "KLH-CLT" type and, in accordance with ETA-06/0128, must have a raw density of ≥ 402.5 kg/m³ and a thickness ≥ 120 mm for solid vertical load-bearing structures, and a raw density ≥ 446.4 kg/m³ and a thickness of ≥ 160 mm for solid horizontal load-bearing structures.
Additionally, normal concrete, hollow concrete blocks, or masonry may be used in place of aerated concrete. Fire-separating components made of aerated concrete, normal concrete, hollow concrete blocks, or masonry must have a thickness ≥ 150 mm and a raw density ≥ 650 kg/m³.
The fire-separating components themselves must fulfil the required fire resistance class according to EN 13501-2.

The compressible strip "Rexpandit" may be used in the following use cases:

- in horizontal joints between fire-resistant ceilings with a fire-separating function (**Figure B 1**)
- in horizontal and vertical joints between fire-resistant walls with a fire-separating function (**Figure B 2**)
- in horizontal joints between fire-resistant walls and ceilings with a fire-separating function (**Figure B 3**)

The variant "Rexpandit 10/30" can be used to seal linear joints with a joint width (b) of 10 mm up to a maximum of 30 mm. The variant "Rexpandit 20/40" can be used to seal linear joints with a joint width (b) of 20 mm up to a maximum of 40 mm.

The gap fill depth must be 60 mm. The specifications for resistance to fire in wood and hybrid construction are only valid for the central placement of the compressible strip in the joint (see **Figures B 1** to **B 3**).

For wall joints, the lateral expansion must not exceed 20 mm (see **Figure B 2**). For ceiling joints and joints between ceilings and walls, the lateral expansion along with an additional shear displacement must not exceed 20 mm (lateral expansion) and/or 25 mm (shearing), respectively (see **Figures B 1** and **B 3**).

Rexpandit 10/30; Rexpandit 20/40; Rexpandit 30/50	**Annex B 1**
Intended use Information for implementation with regard for the determined resistance to fire – construction elements	

Fire-separating elements – solid construction

The construction product "Rexpandit" is intended to seal linear joints between massive walls and/or ceilings made of aerated concrete, normal concrete, hollow concrete blocks, or masonry.

Fire-separating components made of aerated concrete, normal concrete, hollow concrete blocks, or masonry must have a thickness ≥ 150 mm and a raw density ≥ 650 kg/m³. The fire-separating components themselves must fulfil the required fire resistance class according to EN 13501-2.

The compressible strip "Rexpandit" may be used in the following use cases:

- in horizontal joints between fire-resistant ceilings with a fire-separating function (**Figure B 1**)
- in horizontal and vertical joints between fire-resistant walls with a fire-separating function (**Figure B 2**)
- in horizontal joints between fire-resistant walls and ceilings with a fire-separating function (**Figure B 3**)

The variant "Rexpandit 20/40" can be used to seal linear joints with a joint width (b) of 20 mm up to a maximum of 40 mm. The variant "Rexpandit 30/50" can be used to seal linear joints with a joint width (b) of 30 mm up to a maximum of 50 mm.

The gap fill depth must be 60 mm. The specifications for resistance to fire in solid construction are only valid for the placement of the compressible strip set back at least 5 mm from the edge of the gap into the joint[3] (see **Figures B1** - **B3**).

For wall joints, the lateral expansion must not exceed 20 mm (see **Figure B 2**). For ceiling joints and joints between ceilings and walls, the lateral expansion along with an additional shear displacement must not exceed 20 mm (lateral expansion) and/or 25 mm (shearing), respectively (see **Figures B 1** and **B 3**).

[3] The central placement of the compressible strip in the joint is permitted.

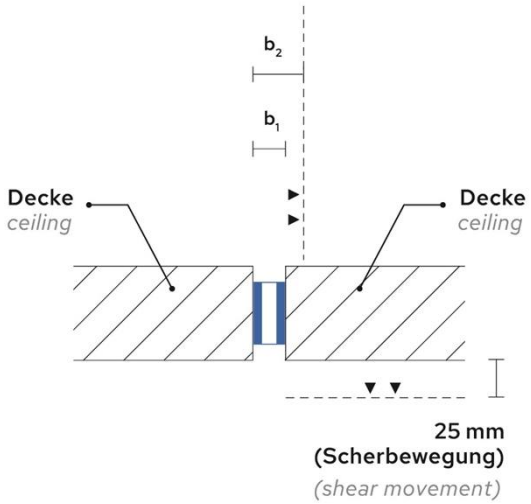

Figure B 1: Horizontal ceiling joint construction. The maximum lateral expansion (b1 to b2) is 20 mm. The maximum skew of the parts (shearing distance) is 25 mm.

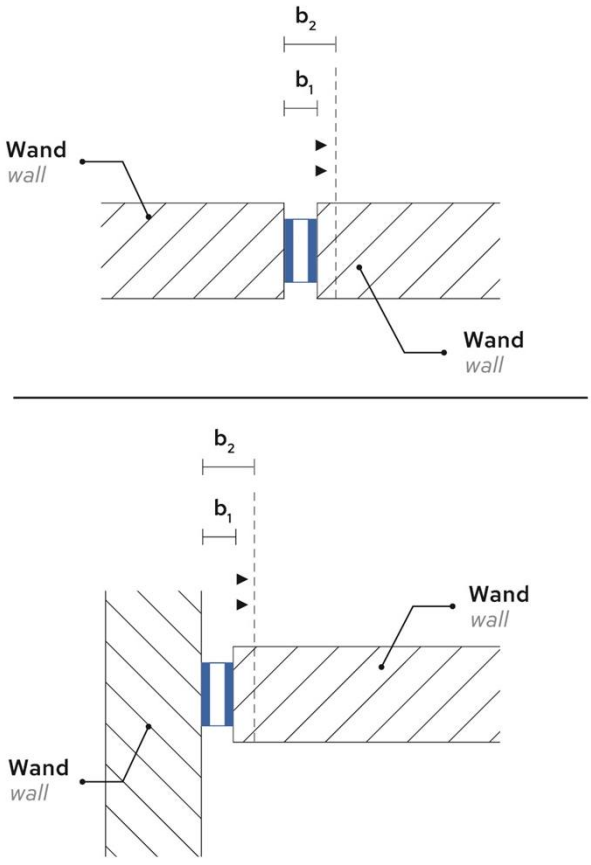

Figure B 2: Vertical wall joint construction. The maximum lateral expansion. (b1 to b2) is 20 mm.

Rexpandit 10/30; Rexpandit 20/40; Rexpandit 30/50	**Annex B 3**
Intended use Information for implementation with regard for the determined resistance to fire – construction elements	

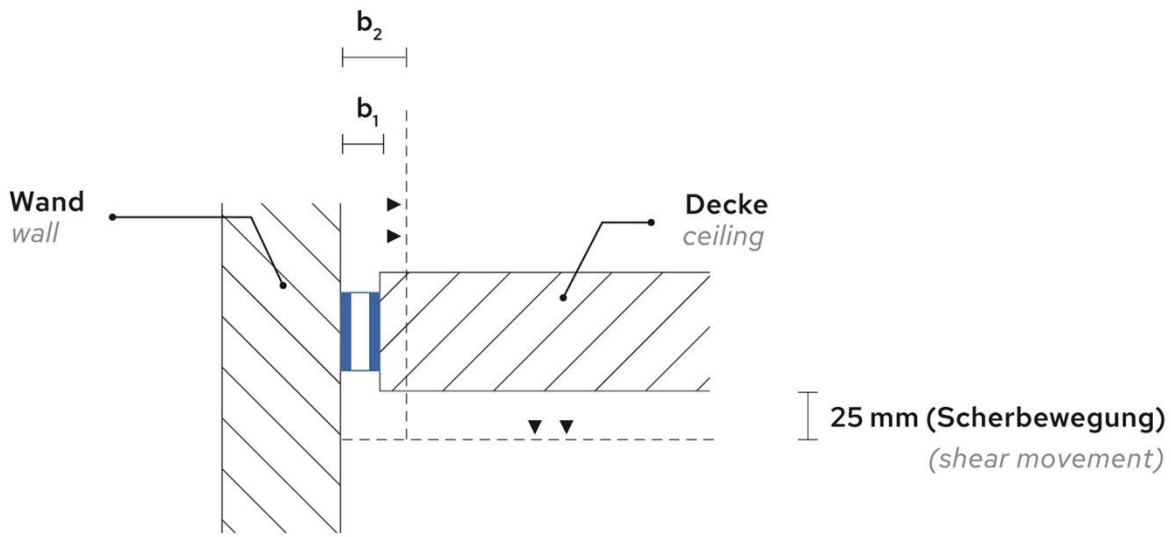

Figure B 3: Horizontal ceiling-to-wall joint construction. The maximum lateral expansion (b1 to b2) is 20 mm. The maximum skew of the parts (shearing distance) is 25 mm.

Rexpandit 10/30; Rexpandit 20/40; Rexpandit 30/50	**Annex B 4**
Intended use Information for implementation with regard for the determined resistance to fire – construction elements	

Classification of the resistance to fire – construction with wood and hybrid construction

Table C 1: tested versions of ceiling and wall joints using the compressible strip "Rexpandit"

Implementation		Classification according to EN 13501-2[4]
horizontal ceiling joints		
"Rexpandit 10/30"	cross-laminated timber to aerated concrete max. 20 mm lateral expansion, 25 mm shearing	EI 90-H-M291-F-W 10
"Rexpandit 10/30"	cross-laminated timber to cross-laminated timber max. 20 mm lateral expansion, 25 mm shearing	EI 90-H-M291-F-W 10
"Rexpandit 20/40"	cross-laminated timber to aerated concrete max. 20 mm lateral expansion, 25 mm shearing	EI 90-H-M136-F-W 20
"Rexpandit 20/40"	cross-laminated timber to cross-laminated timber max. 20 mm lateral expansion, 25 mm shearing	EI 90-H-M136-F-W 20
vertical wall joints		
"Rexpandit 10/30"	cross-laminated timber to aerated concrete max. 20 mm lateral expansion	EI 90-V-M200-F-W 10
"Rexpandit 10/30"	cross-laminated timber to cross-laminated timber max. 20 mm lateral expansion	EI 90-V-M200-F-W 10
"Rexpandit 20/40"	cross-laminated timber to aerated concrete max. 20 mm lateral expansion	EI 90-V-M100-F-W 20
"Rexpandit 20/40"	cross-laminated timber to cross-laminated timber max. 20 mm lateral expansion	EI 90-V-M100-F-W 20

[4] The shear strain is given in accordance with DIN EN 1366-4, section B.2.3; e.g. M136 equates to 136% with the share of lateral expansion being 100% and the share of the shearing being 36%

Classification of the resistance to fire – solid construction

Table C 2: tested versions of ceiling and wall joints using the compressible strip "Rexpandit"

Implementation		Classification according to EN 13501-2[4]
horizontal ceiling joints		
"Rexpandit 20/40"	aerated concrete to aerated concrete max. 20 mm lateral expansion, 25 mm shearing	EI 120-H-M136-F-W 20
"Rexpandit 30/50"	aerated concrete to aerated concrete max. 20 mm lateral expansion, 25 mm shearing	EI 120-H-M86-F-W 30
vertical wall joints		
"Rexpandit 20/40"	aerated concrete to aerated concrete max. 20 mm lateral expansion	EI 120-V-M100-F-W 20
Rexpandit 30/50"	aerated concrete to aerated concrete max. 20 mm lateral expansion	EI 120-V-M66-F-W 30

Deutsches Institut für Bautechnik DIBt

List of References

EN 13501-1:2019-05	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13501-2:2023-05	Fire classification of construction products and building elements – Part 2: Classification using data from resistance tests, excluding ventilation services
EN ISO 845:2009-6	Cellular plastics and rubbers – Determination of apparent density
EN ISO 1798:2008-2	Flexible cellular polymeric materials – Determination of tensile strength and elongation at break
EN ISO 717-1:2020-12	Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation
EN 1366-4:2021-05	Fire resistance tests for service installations – Part 4: Linear joint seals;