Deutsches Institut für Bautechnik

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Bautechnisches Prüfamt

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European Technical Assessment ETA-17/0959 of 27 June 2018

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Kerafix® Flexpress 100
Product family to which the construction product belongs	Intumescent products for fire sealing and fire stopping purposes
Manufacturer	Rolf Kuhn GmbH Jägersgrund 10 57339 Erndtebrück DEUTSCHLAND
Manufacturing plant	1[1]
This European Technical Assessment contains	6 pages including 1 annex which forms 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 350005-00-1104, May 2015

[1] Address known at DIBt

Deutsches Institut für Bautechnik
Kolonnenstraße 30 B | 10829 Berlin | GERMANY | Phone: +49 30 78730-0 | Fax: +49 30 78730-320 | Email: dibt@dibt.de | www.dibt.de

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Specific Part

1 Technical description of the product

Object of this European Technical Assessment (ETA) is the intumescent construction product "Kerafix® Flexpress 100" and the described modifications.

In case of fire, exposed to high temperatures, the intumescent product expands and generates foam. This foam seals joints and gaps, closes voids and openings. Thus, the foam restricts the passage and the spread of heat, smoke, flames or any combination of these.

The flexible intumescent construction product "Kerafix® Flexpress 100" is produced in form of mats, strips and cuts and consists essentially of intumescent substances and a binder. It is produced of nominal thicknesses between 0,5 mm and 1,2 mm with a tolerance in thickness of ± 0,1 mm and between a thickness greater 1,2 mm and 3,2 mm with a tolerance in thickness of ± 0,3 mm and in any width between 5 mm and 340 mm. The product may be laminated, processed to blanked-out pieces, cuts or strips at the factory.

The construction product "Kerafix® Flexpress 100" and cuts of it may be laminated additionally on one side or completely wrapped with plastic foil.

This ETA also covers the following modifications besides the non-laminated basic variant named "Kerafix® Flexpress 100":

- laminated with PVC-foil[2] of different colours on one side; named "Kerafix® Flexpress 100 DF",
- laminated with PE-sellotape[2] on one side, named "Kerafix® Flexpress 100 ZPE",
- laminated with textile tape[2] on one side, named "Kerafix® Flexpress 100 GW",
- laminated with glass fibre scrim[2] on one side, named "Kerafix® Flexpress 100 GG",
- laminated with glass non-woven[2] on one side, named "Kerafix® Flexpress 100 GV",
- laminated with aluminum-folie[2] on one side, named "Kerafix® Flexpress 100 AF" or
- completely wrapped with PVC- or acrylic foil[2], named "Kerafix® Flexpress 100 E".

The product and all its modifications may be additionally finished with a self-adhesive tape[2] on one side.

The construction product is delivered in rolls or factory made strips and cuts.

The technical characteristics relevant for fire sealing and fire stopping effects of the construction product "Kerafix® Flexpress 100" are given in Annex 1.

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

The construction product "Kerafix® Flexpress 100" is assessed on the basis of EAD 350005-00-1104[3] as an intumescent product for fire sealing and fire stopping purposes without defined final intended use (IU 1).

The construction product is intended to be used as an essential component in construction products, construction elements, assemblies, kits and special constructions which need to meet requirements concerning the safety in case of fire.

In case of fire, the product delays the heat transfer through fire resistant construction products and construction elements by expanding under the impact of high temperatures and thus restricting the spread of fire.

[2] Type, manufacturer and characteristics deposited at DIBt.
[3] Official Journal of the EU N° C 378/02 of 13/11/2015

The performance given in section 3 is only valid, if the construction product "Kerafix® Flexpress 100" in use considers the instructions and the conditions stated in section 3.3.

The test and assessment methods on which this European Technical Assessment is based, lead to the assumption of working life of the intumescent construction product "Kerafix® Flexpress 100" of at least 10 years[4] in final use.

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 this assessment

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

Reaction to fire of product:	Performance
"Kerafix® Flexpress 100" without any lamination	Class E in accordance with EN 13501-1[5].
"Kerafix® Flexpress 100 DF", "Kerafix® Flexpress 100 ZPE", "Kerafix® Flexpress 100 GW", "Kerafix® Flexpress 100 GG", "Kerafix® Flexpress 100 GV", "Kerafix® Flexpress 100 AF", "Kerafix® Flexpress 100 E"	

3.1.2 Resistance to fire

The performance "resistance to fire" shall be determined separately for every final use and shall be classified, if required for the construction element concerned.

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content and release of dangerous substances	No dangerous substances[6]

The detailed chemical composition of the intumescent construction product "Kerafix® Flexpress 100" was assessed by DIBt and is deposited with DIBt.

3.3 General aspects

Durability testing shall be an integral part of assessing the basic works and performance requirements. The following specific provisions for use shall be complied with to ensure the durability of the performance.

The testing and the assessment of the relevant product performance were carried out for environmental conditions of type X – product intended for outdoor use at conditions exposed to weathering (rain, UV,frost) - in accordance with EOTA Technical Report 024 (EOTA TR 024)[7], section 4.2.3

4 Results (historical data) of long-term aging (10 years exposure to natural weathering) available

5 EN 13501-1 Fire classification of construction products and building elements, Part 1 Classification using test data from reaction to fire tests and A1:2009

6 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)

7 EOTA TR 024 Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and products; edition as amended July 2009

Result:

The intumescent construction product "Kerafix® Flexpress 100" and its modifications and cuts can be used under use conditions of type X (outdoor use) without having to fear essential changes in the relevant fire sealing and fire stopping properties and the resulting performance.

This assessment includes the unrestricted in-door use under climatic use conditions of type Y_1, Y_2, Z_1 and Z_2.

Additionally the product was successfully tested under specific durability conditions according to EOTA TR 024, section 4.3

- Exposure to a constant temperature of 80 °C for 40 days,
- Exposure to solvents (tested with Butylacetat, Butanol, solvent naphtha and fuel)
- Subsequent over-painting (tested with coatings on the basis of acryl dispersion, alkyd resin, polyurethanacryl and epoxy resin),
- Exposure to permanent wetness (water immersion and constant condensation for 4 weeks),
- Exposure to intimate contact to plastics (PVC, PE).

The characteristics "expansion ratio" and "expansion pressure" did not change essentially after these exposures.

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

In accordance with the European Assessment Document EAD No 350005-00-1104 the Decision of the commission N° 1999/454/EC of 22 June 1999 (OJ of the EU L 178 of 14 July 1999, p 42), amended by EC Decision 2001/596/EC of 8 January 2001 (OJ of the EU L 209 of 2 August 2001, p 33) is the legal basis for the determination of the AVCP system.

So system 1 applies for the assessment and verification of constancy of performance (AVCP). (See Annex V in conjunction with Article 65 (2) of the Regulation (EU) N° 305/2011) according to the following table:

Product	Intended use	characteristic	System
"Kerafix® Flexpress 100" and the modifications described in clause 1	Components effective in view of safety in case of fire (BWR 2) used in construction products, construction elements, kits and special assemblies	reaction to fire, properties relevant for the fire sealing and fire stopping effect	**1**

5 Technical details necessary for the implementation of the procedure for assessment and verification of constancy of performance (AVCP) system 1, as provided for in the applicable European Assessment Document

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

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Prof. Gunter Hoppe
Head of Department

beglaubigt:
Dr.-Ing. Dierke

Deutsches Institut für Bautechnik DIBt

ANNEX 1

CHARACTERISTICS RELEVANT FOR THE FIRE SEALING AND FIRE STOPPING EFFECT OF THE CONSTRUCTION PRODUCT "Kerafix® Flexpress 100"

The following values were determined for the basic variant without any lamination.

Characteristic	**Test method**[8]	**Range and tolerance**
Nominal thickness	TR 024, cl. 3.1.2	0,5 mm to < 1,2 mm (tolerance in thickness ± 0,1 mm) ≤ 1,2 mm bis 3,2 mm ± 0,2 mm (tolerance in thickness ± 0,3 mm)
Expansion ratio	EOTA TR 024, cl. 3.1.11 method 1 at 450 °C for 30 minutes without any top-load	thickness 0,6 mm: 22,0 to 35,0 thickness 3,0mm: 12,0 to 20,0
Expansion pressure	EOTA TR 024, cl. 3.1.12 Method 4 at 300 °	0,55 N/mm^2 to 1,2 N/mm^2

The intumescent reaction in case of fire starts at ca. 140 °C.

[8] Einzelheiten zu den Prüfverfahren beim DIBt hinterlegt