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## European technical approval

**ETA-12/0119**

(English language translation, the original version is in German language)

Handelsbezeichnung  
*Trade name*

**„System ZZ-Brandschutzfugenband NE“**

*„System ZZ-Fire protection joint seal NE“*

Zulassungsinhaber  
*Holder of approval*

**Karl Zimmermann  
Miltzstraße 29  
51061 Köln  
GERMANY**

Zulassungsgegenstand  
und Verwendungszweck

**Linienförmige Fugenabdichtungen und Brandsperren**

*Generic type and use of  
construction product*

*Linear Joint and Gap Seals*

Geltungsdauer vom  
*Validity*            *from*  
                                 *bis*  
                                 *to*

**09.07.2012**

**08.07.2017**

Herstellwerk  
*Manufacturing plant*

**Karl Zimmermann GmbH  
Marconistraße 7-9  
50769 Köln  
GERMANY**

Diese Europäische  
technische Zulassung umfasst  
*This European technical approval  
contains*

**13 Seiten inklusive 3 Anhänge**

*13 pages including 3 Annexes*



European Organisation for Technical Approvals  
Europäische Organisation für Technische Zulassungen  
Organisation Européenne pour l'Agrément Technique

## I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by the Österreichisches Institut für Bautechnik in accordance with:
  - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products<sup>1</sup>, modified by the Council Directive 93/68/EEC<sup>2</sup> and Regulation (EC) no. 1882/2003 of the European Parliament and of the Council<sup>3</sup>;
  - Wiener Bauprodukte- und Akkreditierungsgesetz – WBAG. LGBl. Nr. 30/1996, zuletzt geändert durch das Gesetz LGBl. für Wien Nr. 24/2008;
  - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC<sup>4</sup>;
  - Guideline for European technical approval for “Fire Stopping and Fire Sealing Products” ETAG no. 026, edition January 2008;
  - EOTA Technical Report “Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products” TR no. 024, edition November 2006, amended July 2009.
- 2 The Österreichisches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of manufacturer other than those indicated on page 1; or manufacturing plants other than those laid down in the context of this European technical approval.
- 4 This European technical approval may be withdrawn by the Österreichisches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of the Österreichisches Institut für Bautechnik. In this case, partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.
- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

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<sup>1</sup> Official Journal of the European Communities no. L 40, 11.2.1989, p. 12

<sup>2</sup> Official Journal of the European Communities no. L 220, 30.8.1993, p. 1

<sup>3</sup> Official Journal of the European Union no. L 284, 31.10.2003, p. 1

<sup>4</sup> Official Journal of the European Communities no. L 17, 20.1.1994, p. 34

## II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

### 1 Definition of product(s) and intended use

#### 1.1 Definition of the construction product

„ZZ-Fugenband NE” („ZZ-Joint seal NE”) is a compressible strip used to form a linear joint or gap seal. Joints sealed with „System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”) are classified as fire resistant movement joints (up to  $\pm 25$  % lateral movement and  $\pm 7,5$  % shear movement, see Annex A to C).

In wall and floor constructions „ZZ-Fugenband NE” („ZZ-Joint seal NE”) is used on both sides. It is possible to use a sealant like silicone or acrylate with „System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”).

For details of the joint seal design depending on orientation, building elements forming the joint/gap and the related classifications see Annex A to C.

For a description of the installation procedure see clause 4.2 of the ETA.

#### 1.2 Intended use, use category and working life

##### 1.2.1 Intended use

The intended use of „System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”) is to reinstate the fire resistance performance of rigid wall constructions and rigid floor constructions at linear gaps/joints within those constructions or where they are abutting another wall or floor/ceiling/roof construction.

The specific elements of construction between which „System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”) may be used to provide a linear joint seal, are as follows:

Element of construction	Construction
Rigid wall	<ul style="list-style-type: none"> <li>➤ Aerated concrete, concrete, reinforced concrete, masonry</li> <li>➤ Minimum density 600 kg/m<sup>3</sup></li> <li>➤ Minimum thickness 100 mm</li> <li>➤ The element of construction must be classified in accordance with EN 13501-2:2007+A1:2009 for the required fire resistance classification</li> </ul>
Rigid floor	<ul style="list-style-type: none"> <li>➤ Aerated concrete, concrete, reinforced concrete</li> <li>➤ Minimum density 600 kg/m<sup>3</sup></li> <li>➤ Minimum thickness 150 mm</li> <li>➤ The element of construction must be classified in accordance with EN 13501-2: 2007+A1:2009 for the required fire resistance classification</li> </ul>

##### 1.2.2 Use category

„System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”) is intended for internal use with high humidity, excluding temperatures below 0 °C, and can therefore – according to ETAG 026-3 clause 2.4.13.1.3.3 – be categorized as Type Z<sub>1</sub>. Since the requirements for Type Z<sub>1</sub> are met, also the requirements for Type Z<sub>2</sub> are fulfilled.

### 1.2.3 Working life

The provisions made in this ETA are based on an assumed intended working life of the product for the intended use of 10 years, provided that it is subject to appropriate use and maintenance.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the approval body, but are to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

The real working life might be, in normal use conditions, considerably longer without major degradation affecting the Essential Requirements.

## 2 Characteristics of the product and methods of verification

The identification tests and the assessment of the fitness for use according to the Essential Requirements were carried out in compliance with the “ETA Guidance no. 026-3” concerning “Linear Joint and Gap Seals” –edition February 2008 (called ETAG 026-3 in this ETA) and with the “EOTA Technical Report no. 024” concerning “Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products” –edition November 2006, amended July 2009 (called EOTA TR 024 in this ETA).

Clause No.	ETA Clause No.	Characteristic	Test procedure / Evaluation
<b>Mechanical resistance and stability</b>			
		None	Not relevant
<b>Safety in case of fire</b>			
ETAG 2.4.1	2.1	Reaction to fire	Class E according to EN 13501-1: 2007+A1:2009
ETAG 2.4.2	2.2	Resistance to fire	Classification according to EN 13501-2:2010
<b>Hygiene, health and environment</b>			
ETAG 2.4.3	2.3	Air permeability (material property)	No Performance Determined
ETAG 2.4.4	2.4	Water permeability (material property)	No Performance Determined
ETAG 2.4.5	2.5	Release of dangerous substances	Declaration of manufacturer
<b>Safety in use</b>			
ETAG 2.4.6	2.6	Mechanical resistance and stability	No Performance Determined
ETAG 2.4.7	2.7	Resistance to impact/movement	No Performance Determined
ETAG 2.4.8	2.8	Adhesion	No Performance Determined
<b>Protection against noise</b>			
ETAG 2.4.9	2.9	Airborne sound insulation	No Performance Determined
ETAG 2.4.10	2.10	Impact sound insulation	No Performance Determined

Clause No.	ETA Clause No.	Characteristic	Test procedure / Evaluation
<b>Energy economy and heat retention</b>			
ETAG 2.4.11	2.11	Thermal properties	DIN EN 12667:2001 $\lambda = 0,103 \text{ W}/(\text{m}\cdot\text{K})$
ETAG 2.4.12	2.12	Water vapour permeability	No Performance Determined
<b>General aspects relating to fitness for use</b>			
ETAG 2.4.13	2.13	Durability and serviceability	Z <sub>1</sub>

## 2.1 Reaction to fire

„System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) was tested according to ETAG 026-3 clause 2.4.1, EN ISO 11925-2:2002 and in turn application of FSG recommendation 107:2004 and classified according to EN 13501-1: 2007+A1:2009.

Component of Linear Joint and Gap Seal	Class according to EN 13501-1: 2007+A1:2009
„ZZ-Fugenband NE („ZZ-Joint seal NE“)	<b>E</b>

## 2.2 Resistance to fire

„System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) has been tested in accordance with ETAG 026-3 clause 2.4.2 EN 1366-4:2006+A1:2010, installed within linear joints in rigid walls and rigid floors.

Based upon the gained test results and the field of direct application specified within EN 1366-4:2006+A1:2010 „System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) has been classified according to EN 13501-2:2010. The fire resistance classes are listed in Annex A and B of the ETA.

For details of suitable wall and floor constructions for linear joint seals see clause 1.2.1 of the ETA.

## 2.3 Air permeability

No performance determined.

## 2.4 Water permeability

No performance determined.

## 2.5 Release of dangerous substances

According to the manufacturer's declaration, the product specification has been compared with the list of dangerous substances of the European Commission to verify that it does not contain such substances above the acceptable limits.

A written declaration in this respect was submitted by the ETA-holder.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the products falling within its scope (e.g. transposed

European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

## **2.6 Mechanical resistance and stability**

No Performance Determined.

## **2.7 Resistance to impact/movement**

No Performance Determined.

## **2.8 Adhesion**

No Performance Determined.

## **2.9 Airborne sound insulation**

No Performance Determined.

## **2.10 Impact sound insulation**

No Performance Determined.

## **2.11 Thermal properties**

The thermal properties of „ZZ-Fugenband NE“ („ZZ-Joint seal NE“) were tested according to EN 12667:2001.

The thermal conductivity value measured was  $\lambda = 0,103 \text{ W/(m}\cdot\text{K)}$ .

## **2.12 Water vapour permeability**

No Performance Determined.

## **2.13 Durability and serviceability**

### **2.13.1 Durability**

„System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) was tested according to ETAG 026-3 clause 2.4.13.1.1.3. „System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) fulfill the requirements for the intended use category.

„System ZZ-Brandschutzfugenband NE“ („System ZZ-Fire protection joint seal NE“) is therefore appropriate for internal use with high humidity, excluding temperatures below 0 °C, and can – according to ETAG 026-3 clause 2.4.13.1.1.3 – be categorized as Type Z<sub>1</sub>. Since the requirements for Type Z<sub>1</sub> are met, also the requirements for Type Z<sub>2</sub> are fulfilled.

## **3 Evaluation of Conformity and CE Marking**

### **3.1 Attestation of Conformity system**

According to the Decision 1999/454/EC of the European Commission<sup>5</sup> system 1 of the attestation of conformity applies for fire-resistance-performance. This system of attestation of conformity is to be described in the following:

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<sup>5</sup> Official Journal of the European Communities no. L 178, 14.7.1999, p. 52

System 1: Certification of the conformity of the product by a Notified Certification Body on the basis of:

- a) Tasks of the manufacturer
  - 1) Factory Production Control
  - 2) Further testing of samples taken at the factory in accordance with a prescribed control plan
- b) Tasks of the Notified Body
  - 3) Initial type-testing of the product
  - 4) Initial inspection of factory and of factory production control
  - 5) Continuous surveillance, assessment and approval of factory production control

Additionally according to the Decision 2001/596/EC of the European Commission<sup>6</sup> system 3 of the attestation of conformity is to be used in relation to the reaction-to-fire performance. This system of attestation of conformity is to be described in the following:

System 3: Declaration of conformity of the product by the manufacturer:

- a) Tasks of the manufacturer
  - 1) Factory Production Control
- b) Tasks of the Notified Body
  - 2) Initial type-testing of the product

## 3.2 Responsibilities

### 3.2.1 Tasks of the manufacturer

#### 3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control that applies. The documentation to be carried out by the manufacturer and the applicable procedures shall be appropriate to the product and manufacturing process. The factory production control shall ensure the conformity of the product to an appropriate level. This involves:

- a) the preparation of documented procedures and instructions relating to factory production control operations;
- b) the effective implementation of these procedures and instructions;
- c) the recording of these procedures and their results.
- d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the factory production control to rectify the cause of non-conformity;
- e) a procedure to ensure that both the Approval Body and the Notified (Certification) Bodies are advised before any significant change to the product, its components or manufacturing process, is made;
- f) a procedure to ensure that personnel involved in the production processes and the quality control procedures are qualified and adequately trained to carry out their required tasks;

<sup>6</sup> Official Journal of the European Communities no. L 209, 2.8.2001, p. 33

- g) that all testing and measuring equipment is maintained and up to date calibration records are documented;
- h) maintenance of records to ensure every batch produced is clearly labelled with the batch number, which allows traceability to its production to be identified.

The manufacturer may only use components stated in the technical documentation of this European technical approval.

For the components which the ETA-holder does not manufacture by himself, he shall make sure that factory production control carried out by the other manufacturers gives the guaranty of the components compliance with the European technical approval.

The factory production control and the provisions taken by the ETA-holder for components not produced by himself shall be in accordance with the control plan<sup>7</sup> relating to this European technical approval which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited at the Österreichisches Institut für Bautechnik.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

### 3.2.1.2 Other tasks of the manufacturer

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

- Technical data sheet:
  - a) Field of application:
    - 1) Building elements for which the linear joint seal is suitable, type and properties of the building elements like minimum thickness, density, and – in case of lightweight constructions – the construction requirements.
    - 2) Limits in size, minimum thickness etc. of the linear joint seal.
  - b) Construction of the linear joint seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.
- Installation instruction:
  - a) Steps to be followed.
  - b) Procedure in case of retrofitting.

The manufacturer shall, on the basis of a contract, involve a body (bodies) which is (are) notified for the tasks referred to in section 3.1 in the field of approval product in order to undertake the actions laid down in section 3.3. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the Notified Body or Bodies involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval

### 3.2.2 Tasks of the Notified Bodies

The Notified Body (Bodies) shall perform the:

- initial type-testing of the product  
The results of the tests performed as part of the assessment for the European technical approval can be used unless there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed between the Österreichisches Institut für Bautechnik and the Notified Bodies involved.

<sup>7</sup> The control plan is a confidential part of the European technical approval and only handed over to the Notified Body or Bodies involved in the procedure of conformity.



- initial inspection of factory and of factory production control  
The Notified Body (Bodies) shall ascertain that, in accordance with the control plan, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in clause 2 of this ETA.
- continuous surveillance, assessment and approval of factory production control  
The Notified Body (Bodies) shall visit the factory at least once a year for surveillance of this manufacturer having a FPC system complying with a quality management system covering the manufacturing of the approval product components. It has to be verified that the system of factory production control and the specified automated manufacturing process are maintained taking into account the control plan

These tasks shall be performed in accordance with the provisions laid down in the control plan of this European technical approval.

The Notified Body (Bodies) shall retain the essential points of its (their) actions referred to above and state the results obtained and conclusions drawn in written report.

- In the case of Attestation of Conformity system 1:  
The Notified Body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled, the Certification Body shall withdraw the certificate of conformity and inform the Österreichisches Institut für Bautechnik without delay.

### 3.3 CE marking

The CE marking shall be affixed either on the product itself, on a label attached to it, on its packaging or on the commercial documents accompanying the components of the product. The letters « CE » shall be followed by the identification number of the Notified Body involved and be accompanied by the following additional information:

- the name or identifying mark and address of the ETA-holder
- the last two digits of the year in which the CE marking was affixed
- the number of the EC certificate of conformity for the product
- the number of the European technical approval
- the number of the ETAG (ETAG N° 026 part 3)
- the designation of the product (trade name)
- the use category in accordance with the ETA section 1 and 2
- for other relevant characteristics (e.g. resistance to fire) see ETA-12/0119

## 4 Assumptions under which the fitness of the product for the intended use was favourably assessed

### 4.1 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with the Österreichisches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to the Österreichisches Institut für Bautechnik before the changes are introduced. The Österreichisches Institut für Bautechnik will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

## 4.2 Installation

Installation of „System ZZ-Brandschutzfugenband NE” („System ZZ-Fire protection joint seal NE”) should be conducted as follows:

- Clean joint faces. Surfaces to which „ZZ-Fugenband NE” („ZZ-Joint seal NE”) will be applied should be cleaned of loose debris or dirt.
- Material which is inside the joint can remain provided that the minimum seal depth on both sides can be maintained.
- Insert „ZZ-Fugenband NE” („ZZ-Joint seal NE”) on both sides of the wall or floor construction considering the minimum dimensions (see Annex C).
- It is not necessary to use adhesive for the installation. To protect the joint seal it is possible to use silicone or acrylate or cover strips made of timber, aluminium, steel or plastic over “System ZZ-Brandschutzfugenband NE” (“System ZZ-Fire protection joint seal NE”).

The ETA is issued under the assumption that the installation of the approval product shall be in accordance with the manufacturer’s technical literature.

## 5 Indications to the manufacturers

### 5.1 Packaging, transport and storage

In the accompanying document and/or on the packaging the manufacturer shall give information as to transport and storage.

At least the following shall be indicated: storing temperature, maximum duration of storage and required data related to minimum temperature for transport and storage.

### 5.2 Use, maintenance and repair

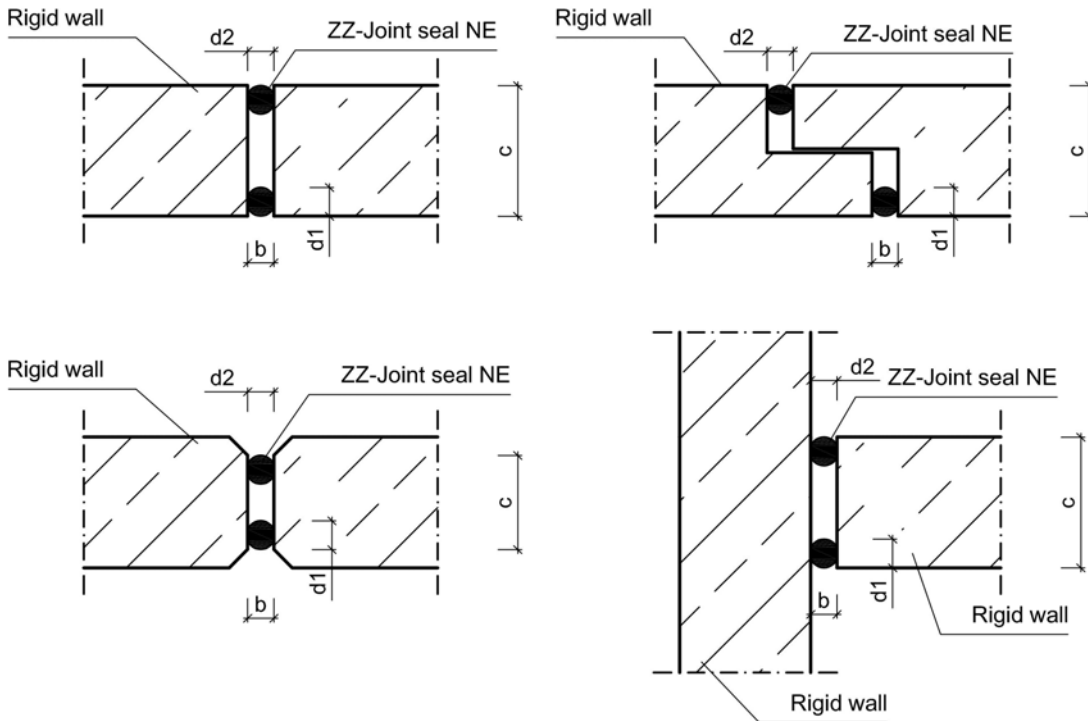
The product shall be installed and used as described in this ETA.

The assessment of the fitness for use is based on the assumption that necessary maintenance and repair if required is carried out in accordance with the manufacturer’s instructions during the assumed intended working life.

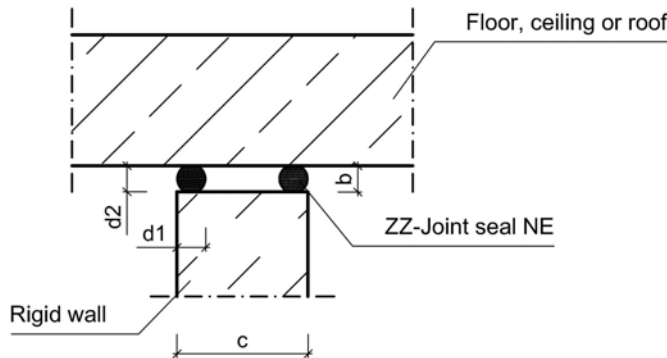
On behalf of Österreichisches Institut für Bautechnik

Rainer Mikulits  
Managing Director

### 1) Vertical joints in / between rigid walls:



### 2) Horizontal joints in rigid walls abutting a floor, ceiling or roof :



Considering the minimum overall seal depth ( $\geq 150$  mm) ZZ-Joint seals NE need not to be installed flushly with the surface in case of rigid walls thicker than 150 mm.

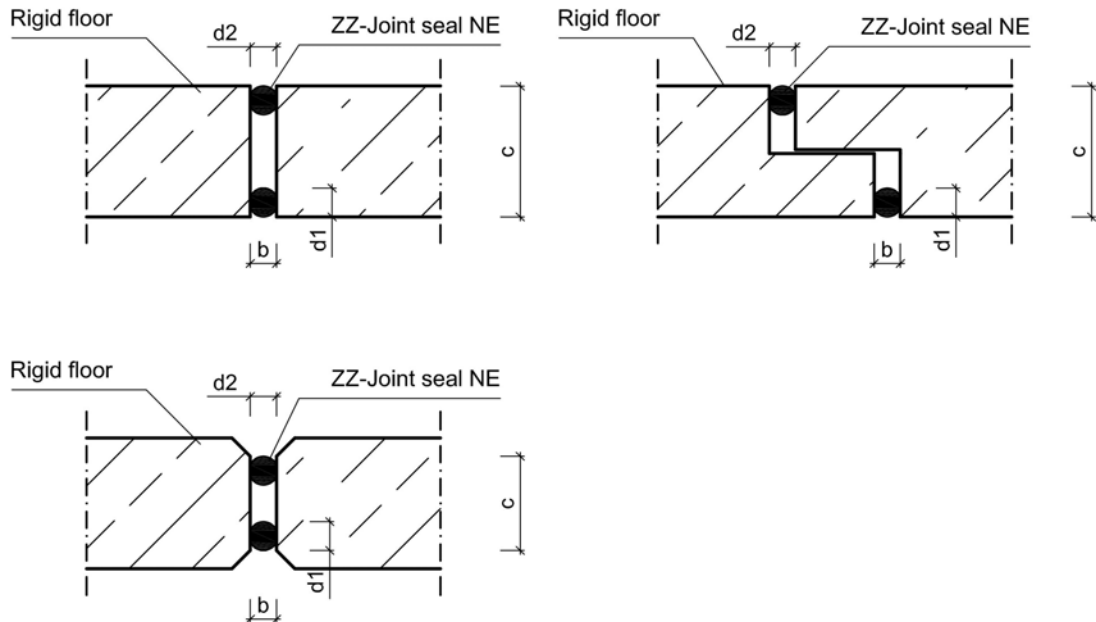
All dimensions in mm

Element of construction	Joint width b [mm]	Wall thickness/ Overall seal depth c [mm]	Seal depth d1 [mm]	Seal width d2 [mm]	Fire resistance classification
Rigid wall	10 to 60	$\geq 150$	see ANNEX C	see ANNEX C	1) EI15- to EI120-V-M025-F-W 10 to 60 2) EI15- to EI120-H-M025-F-W 10 to 60

Linear joint seal "System ZZ-Fire protection joint seal NE"  
Maximum  $\pm 25\%$  lateral movement and  $\pm 7,5\%$  shear movement  
- Installation in rigid wall  $c \geq 150$  mm -

ANNEX A

### 1) Horizontal joints in / between rigid floors:



Considering the minimum overall seal depth ( $\geq 150$  mm) ZZ-Joint seals NE need not to be installed flushly with the surface in case of rigid floors thicker than 150 mm.

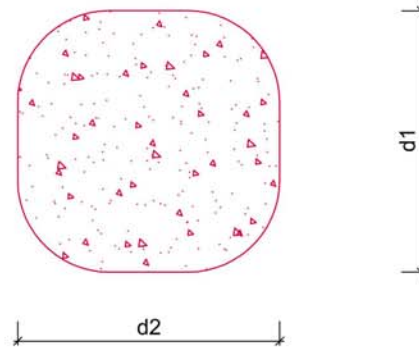
All dimensions in mm

Element of construction	Joint width b [mm]	Floor thickness c [mm]	Seal depth d1 [mm]	Seal width d2 [mm]	Fire resistance classification
Rigid floor	10 to 60	$\geq 150$	see ANNEX C	see ANNEX C	1) EI15- to EI120-H-M025-F-W 10 to 60

Linear joint seal "System ZZ-Fire protection joint seal NE"  
Maximum  $\pm 25\%$  lateral movement and  $\pm 7,5\%$  shear movement  
- Installation in rigid floor  $c \geq 150$  mm -

ANNEX B

### 1) Minimum dimensions "ZZ-Joint seal NE":



Joint width b [mm]	Minimum wideness ZZ-Joint seal NE d2 [mm]	Minimum height ZZ-Joint Seal NE d1 [mm]
10 to 60	$\frac{5}{42} * (11 * b + 12)$	$\frac{10}{9} * (b + 3)$
10	15	15
≤ 17	24	23
≤ 21	30	27
≤ 28	39	35
≤ 36	49	44
≤ 48	65	57
≤ 60	80	70

Linear joint seal "System ZZ-Fire protection joint seal NE"  
Maximum ± 25% lateral movement and ± 7,5%  
shear movement  
- Minimum dimensions "ZZ-Joint seal NE" -

ANNEX C

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