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European Technical Assessment

ETA-12/0119 of 19.07.2017

General part

Technical Assessment Body issuing the European Technical Assessment	Österreichisches Institut für Bautechnik (OIB) Austrian Institute of Construction Engineering
Trade name of the construction product	ZZ G50
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products: Linear Joint and Gap Seals
Manufacturer	Karl Zimmermann GmbH Marconistraße 7-9 50769 Köln GERMANY
Manufacturing plant	Karl Zimmermann GmbH Marconistraße 7-9 50769 Köln GERMANY
This European Technical Assessment contains	20 pages including Annexes A-1 to F-2 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	Guideline for European technical approval for “Fire Stopping and Fire Sealing Products”, ETAG 026 Part 3: “Linear Joint and Gap Seals”, edition August 2011, used as European Assessment Document (EAD)
This European Technical Assessment replaces	European Technical Assessment ETA-12/0119 of 10.04.2017

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Specific parts

1 Technical description of the product

"ZZ G50" is a kit to be used as a linear joint and gap seal based on the following component.

Component of "ZZ G50"	Characteristics
ZZ 530	Compressible intumescent strip on the basis of polyurethane with intumescent fire protection additives (fire protection joint seal)

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

2.1 Intended use

"ZZ G50" is intended to be used as a linear joint and gap seal 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 maximum gap/joint width of the linear joint and gap seal has to comply with the dimensions as specified in the following table.

"ZZ G50" can be installed only in construction elements as specified in the following table.

Construction-element	Construction
Rigid walls	> Aerated concrete, concrete, reinforced concrete, masonry > Minimum density 600 kg/m³ > Minimum thickness 125 mm > The rigid wall shall be classified in accordance with EN 13501-2 for the required fire resistance period > Maximum joint width 75 mm
Rigid floors	> Aerated concrete, concrete, reinforced concrete > Minimum density 600 kg/m³ > Minimum thickness 150 mm > The rigid floor shall be classified in accordance with EN 13501-2 for the required fire resistance period > Maximum joint width 75 mm

2.2 Use category

"ZZ G50" is intended for internal use with high humidity, excluding temperatures below 0 °C, and can therefore – according to ETAG 026-Part 3 clause 2.4.13.1.3.3 – be categorized as Type Z_1. Since the requirements for Type Z_1 are met, also the requirements for Type Z_2 are fulfilled.

2.3 Working life

The provisions made in this European Technical Assessment are based on an assumed working life of "ZZ G50" of 10 years, provided the conditions laid down in the technical

literature of the manufacturer relating to packaging, transport, storage, installation, use and repair are met.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, but are to be regarded only 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 Basic requirements for construction works.

2.4 General assumptions

It is assumed that damages to the linear joint and gap seal are repaired accordingly.

2.5 Manufacturing

The European Technical Assessment 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 European Technical Assessment and consequently the validity of the CE marking on the basis of the European Technical Assessment and if so whether further assessment or alterations to the European Technical Assessment, shall be necessary.

2.6 Installation

The product shall be installed and used as described in this European Technical Assessment.

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

Basic requirements for construction works	Essential characteristic	Method of verification	Performance
BWR 2	Reaction to fire	EN 13501-1:2007	Clause 3.1.1 of the ETA
	Resistance to fire	EN 13501-2: 2007+A1:2009	Annex B-1 to E-2 of the ETA
BWR 3	Air permeability (material property)	No performance assessed	
	Water permeability (material property)	No performance assessed	
	Content and/or release of dangerous substances	European Council Directive 67/548/EEC and Regulation (EC) No 1272/2008 as well as EOTA TR 034, edition October 2015	Declaration of conformity by the manufacturer
BWR 4	Mechanical resistance and stability	No performance assessed	
	Resistance to impact / movement	No performance assessed	
	Adhesion	No performance assessed	
BWR 5	Airborne sound insulation	No performance assessed	
BWR 6	Thermal properties	EN 12667:2001	Clause 3.5.1 of the ETA
	Water vapour permeability	No performance assessed	

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The components of “ZZ G50” were assessed according to ETAG 026-Part 3 clause 2.4.1 and classified according to EN 13501-1:2007.

Component	Class according to EN 13501-1:2007
ZZ 530	**E**

3.1.2 Resistance to fire

“ZZ G50” was tested according to ETAG 026-Part 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 application specified within EN 1366-4:2006+A1:2010 “ZZ G50” has been classified according to EN 13501-2:2007+A1:2009.

The resistance to fire classification listed in Annex B-1 to E-2 of the ETA is only valid if “ZZ G50” is installed according to Annex A-1 to A-2 and B-1 to E-2 of the ETA.

3.2 Hygiene, health and environment (BWR 3)

3.2.1 Air permeability

No performance assessed.

3.2.2 Water permeability

No performance assessed.

3.2.3 Release of dangerous substances

According to the manufacturer's declaration the components of "ZZ G50" do not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 as well as EOTA TR 034 (General BWR 3 Checklist for EADs/ETAs – Dangerous substances), edition October 2015 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 European Technical Assessment, 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 Regulation, these requirements need also to be complied with, when and where they apply.

3.3 Safety in use (BWR 4)

3.3.1 Mechanical resistance and stability

No performance assessed.

3.3.2 Resistance to impact / movement

No performance assessed.

3.3.3 Adhesion

No performance assessed.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal properties

The thermal properties of fire protection joint seal "ZZ 530" were tested according to EN 12667:2001.

Component	$\lambda_{10,23/50}$ in W/(m*K)
ZZ 530	0,103

3.5.2 Water vapour permeability

No performance assessed.

3.6 General aspects relating to fitness for use

All components of "ZZ G50" fulfil the requirements for the intended use category.

"ZZ G50" is therefore appropriate for internal use with high humidity, excluding temperatures below 0 °C, and can – according to ETAG 026-Part 3 clause 2.4.13.1.1.3 – be categorized as Type Z_1. Since the requirements for Type Z_1 are met, also the requirements for Type Z_2 are fulfilled.

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

According to the Decision 1999/454/EC[1], amended by Decision 2001/596/EC[2] of the European Commission the system(s) of assessment and verification of constancy of performance (see Annex V of Regulation (EU) No 305/2011) is given in the following table.

Product(s)	**Intended use(s)**	**Level(s) or class(es)** (resistance to fire)	**System** of assessment and verification of constancy of performance
Fire Stopping and Fire Sealing Products	for fire compartmentation and/or fire protection or fire performance	any	1

In addition, according to the Decision 1999/454/EC, amended by Decision 2001/596/EC of the European Commission the system(s) of assessment and verification of constancy of performance, with regard to reaction to fire, is 3.

[1] Official Journal of the European Communities no. L 178, 14.7.1999, p. 52
[2] Official Journal of the European Communities no. L 209, 2.8.2001, p. 33

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	System of assessment and verification of constancy of performance
Fire Stopping and Fire Sealing Products	For uses subject to regulations on reaction to fire	A1*, A2*, B*, C*	1
		A1**, A2**, B**, C**, D, E	3
		(A1 to E)***, F	4

* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

** Products/materials not covered by footnote (*)

*** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of class A1 according to Commission Decision 96/603/EC, as amended)

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 the Technical Assessment Body Österreichisches Institut für Bautechnik.

The notified product certification body shall visit the factory at least once a year for surveillance of the manufacturer.

Issued in Vienna on 19.07.2017
by Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director

1 General

> "ZZ G50" can be used in joints and gaps in wall constructions (vertical separating element) and floor constructions (horizontal separating element) according to clause 2.1 of the ETA.

> It must be ensured that the installation of the linear joint and gap seal does not affect the stability of the adjacent building element – even in case of fire.

> The use of a silicone sealant including primer for the application according to Annex C-1 to D-2 of the ETA is required.

> The use of additional sealant (e.g. silicone, acrylic, MS hybrid polymer, polyurethane, polyurethane hybrid, polysulfide, butyl) for the application according to Annex B-1 to B-2 and E-1 to E-2 of the ETA is allowed.

2 Details for installation of "ZZ G50" (see Annex B-1 to E-2 of the ETA)

> "ZZ G50" has to be installed according to the ETA-holder's installation instructions.

> The surfaces to which "ZZ G50" will be applied must be cleaned of loose debris and dirt.

> Material that is located in the joint can remain, provided that the fire protection joint seal "ZZ 530" can be inserted completely from both sides according to the ETA-holder's installation instructions.

> "ZZ G50" will be formed by compressing and inserting the fire protection joint seal "ZZ 530" into the component joint. In this process, the linear joint and gap seal must not be twisted or overstretched.

> Fire protection joint seal "ZZ 530" has to be butt-jointed together. According to the ETA-holder's installation instructions the use of adhesive is not necessary.

> For the application according to Annex B-1 and B-2 of the ETA, one fire protection joint seal "ZZ 530" must be mounted flush to the component surface on each side.

> For the application according to Annex C-1 and C-2 of the ETA, one fire protection joint seal "ZZ 530" must be mounted on one side of the component and has to be sealed with a silicone sealant. The depth of the sealant has to be minimum 6 mm resp. 10 mm. On the other side the joint has to be sealed with a backfilling material (PE round cord or mineral wool) and a silicone sealant (seal depth minimum 6 mm resp. 10 mm).

> For the application according to Annex D-1 and D-2 of the ETA, one fire protection joint seal "ZZ 530" must be mounted flush to the component surface on one side. On the other side the joint has to be sealed with a backfilling material (PE round cord or mineral wool) and a silicone sealant (seal depth minimum 6 mm resp. 10 mm).

> For a joint width ≥ 55 mm, it is possible to push the linear joint and gap seal into the interior of the component joint according to Annex E-1 and E-2 of the ETA.

ZZ G50 - Details for installation -	**ANNEX A-1**

3 Transport and storage

> The indications of the manufacturer regarding transport and storage (minimum and maximum storing temperature, maximum duration of storage) have to be followed.

4 Use, maintenance and repair

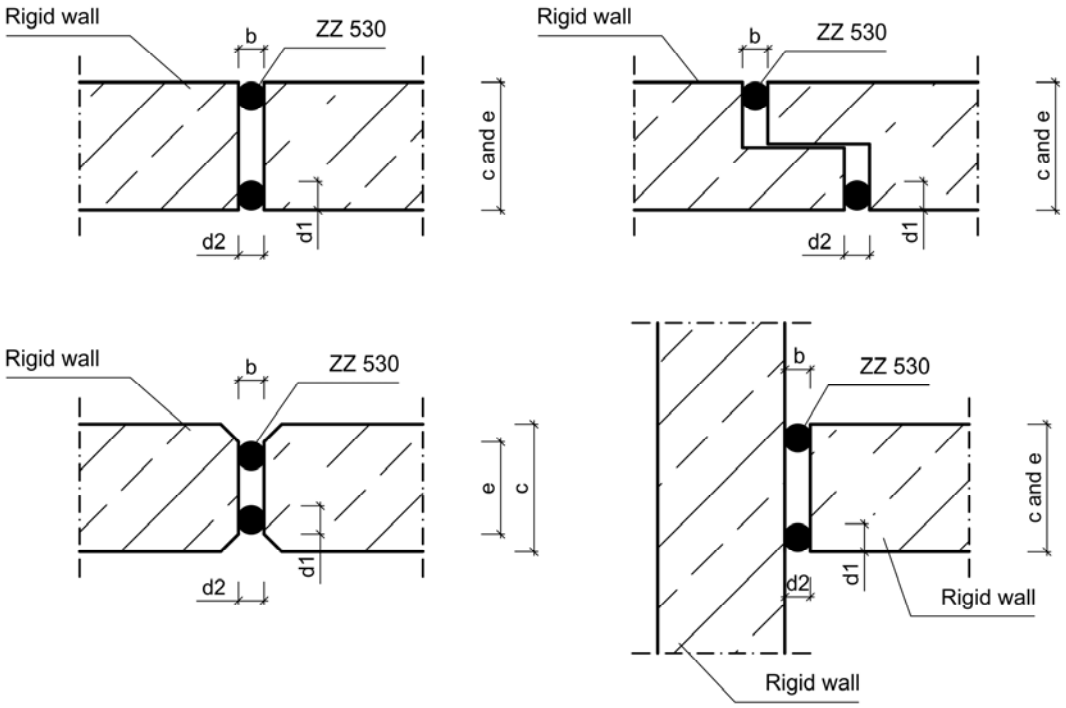
> The fire resistance of the linear joint and gap seal shall not be negatively affected by future changes to buildings or building elements.

> 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 ETA-holder's installation instruction during the assumed intended working life.

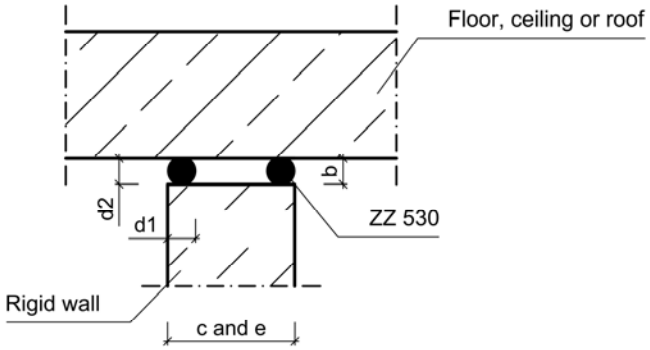
ZZ G50 - Transport and storage - - Use, maintenance and repair -	**ANNEX A-2**

Lateral movement capability 25 %, shear movement capability 7,5 %
Option 1: Installation of two Fire Protection Joint Seals ZZ 530

Vertical joints in/ between rigid walls



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



Considering the minimum overall seal depth (150 mm) Fire Protection Joint Seal ZZ 530 need not to be installed flush 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 c/ Overall seal depth e [mm]	Height of ZZ 530 d1 [mm]	Width of ZZ 530 d2 [mm]	Fire resistance classification
Rigid wall	10 to 60	≥ 150	see ANNEX F-1 of the ETA	see ANNEX F-1 of the ETA	EI15- to EI120-V-M025-F-W 10 to 60 EI15- to EI120-T-M025-F-W 10 to 60

ZZ G50

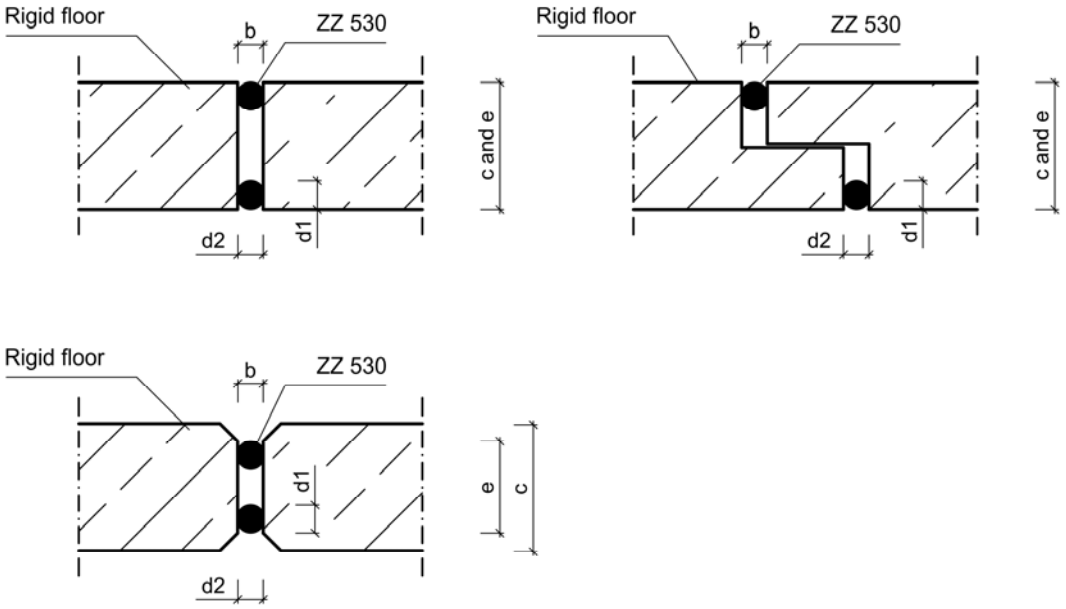
Lateral movement capability 25%, shear movement capability 7,5%

- Option 1: Installation of two Fire Protection Joint Seals ZZ 530 -

ANNEX B-1

Lateral movement capability 25 %, shear movement capability 7,5 %
Option 1: Installation of two Fire Protection Joint Seals ZZ 530

Horizontal joints in/ between rigid floors



Considering the minimum overall seal depth (150 mm) Fire Protection Joint Seal ZZ 530 need not to be installed flush 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/ Overall seal depth e [mm]	Height of ZZ 530 d1 [mm]	Width of ZZ 530 d2 [mm]	Fire resistance classification
Rigid floor	10 to 60	≥ 150	see ANNEX F-1 of the ETA	see ANNEX F-1 of the ETA	EI15- to EI120-H-M025-F-W 10 to 60

ZZ G50

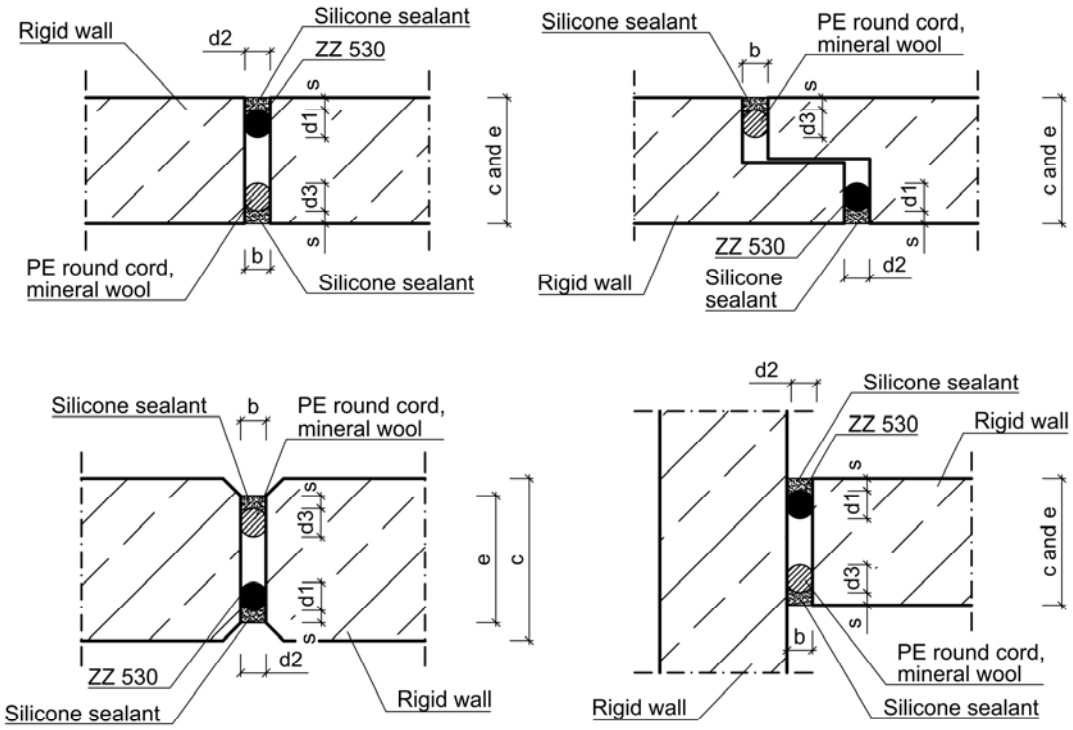
Lateral movement capability 25%, shear movement capability 7,5%

- Option 1: Installation of two Fire Protection Joint Seals ZZ 530 -

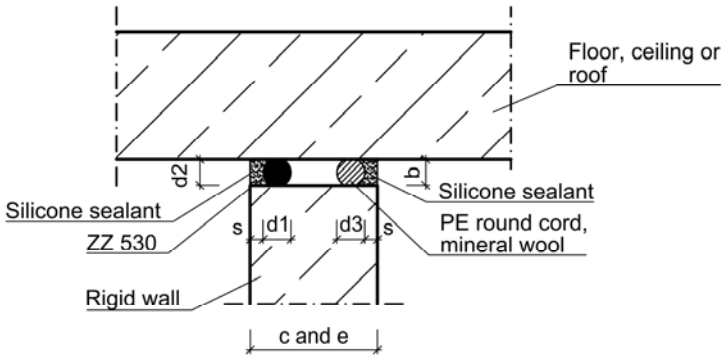
ANNEX B-2

Lateral movement capability 25 %, shear movement capability 7,5 %
Option 2: Combination of Fire Protection Joint Seal ZZ 530 and silicone sealant

Vertical joints in/ between rigid walls



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



All dimensions in mm

Element of construction	Joint width b [mm]	Wall thickness c/ Overall seal depth e [mm]	Min. depth of sealant s [mm]	Min. depth of backfill d3 [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
Rigid wall	10 to 36	≥ 125	≥ 6 mm, if b ≤ 27mm ≥ 10 mm, if b > 27 mm	≥ 10	see ANNEX F-1 of the ETA	EI15- to EI120-V-M025-F-W 10 to 36 EI15- to EI120-T-M025-F-W 10 to 36

ZZ G50

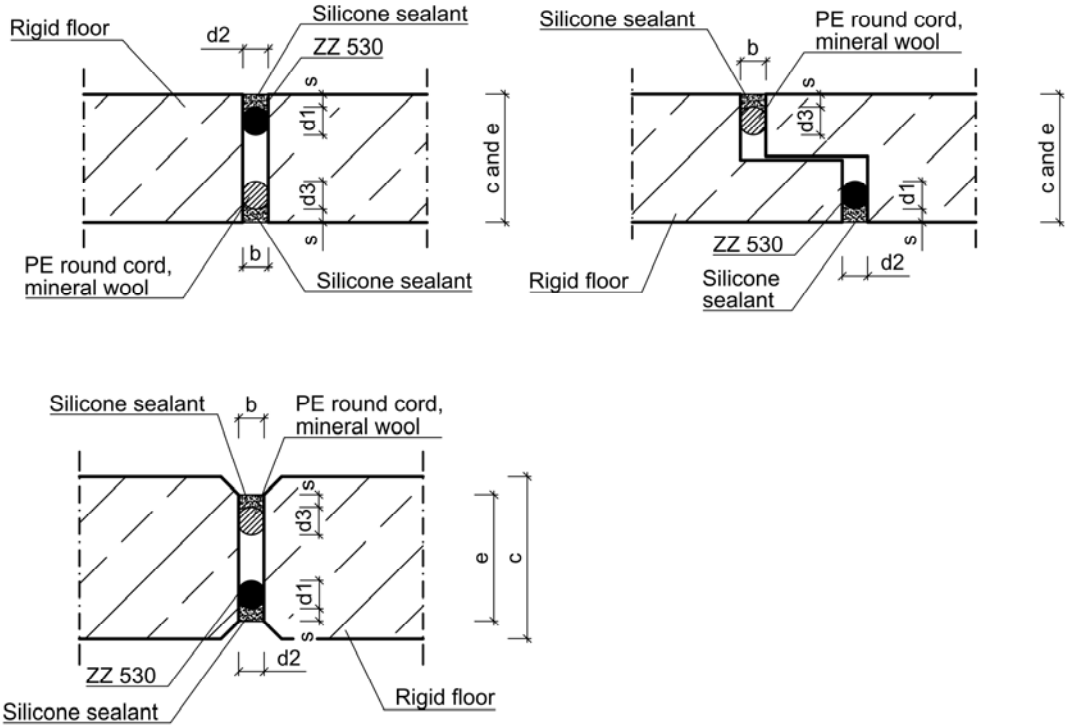
Lateral movement capability 25%, shear movement capability 7,5%

- Option 2: Combination of Fire Protection Joint Seals ZZ 530 and silicone sealant -

ANNEX C-1

Lateral movement capability 25 %, shear movement capability 7,5 %
Option 2: Combination of Fire Protection Joint Seal ZZ 530 and silicone sealant

Horizontal joints in/ between rigid floors



All dimensions in mm

Element of construction	Joint width b [mm]	Floor thickness c/ Overall seal depth e [mm]	Min. depth of sealant s [mm]	Min. depth of backfill d3 [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
Rigid floor	10 to 36	≥ 150	≥ 6 mm, if b ≤ 27mm ≥ 10 mm, if b > 27 mm	≥ 10	see ANNEX F-1 of the ETA	EI15- to EI120-H-M025-F-W 10 to 36

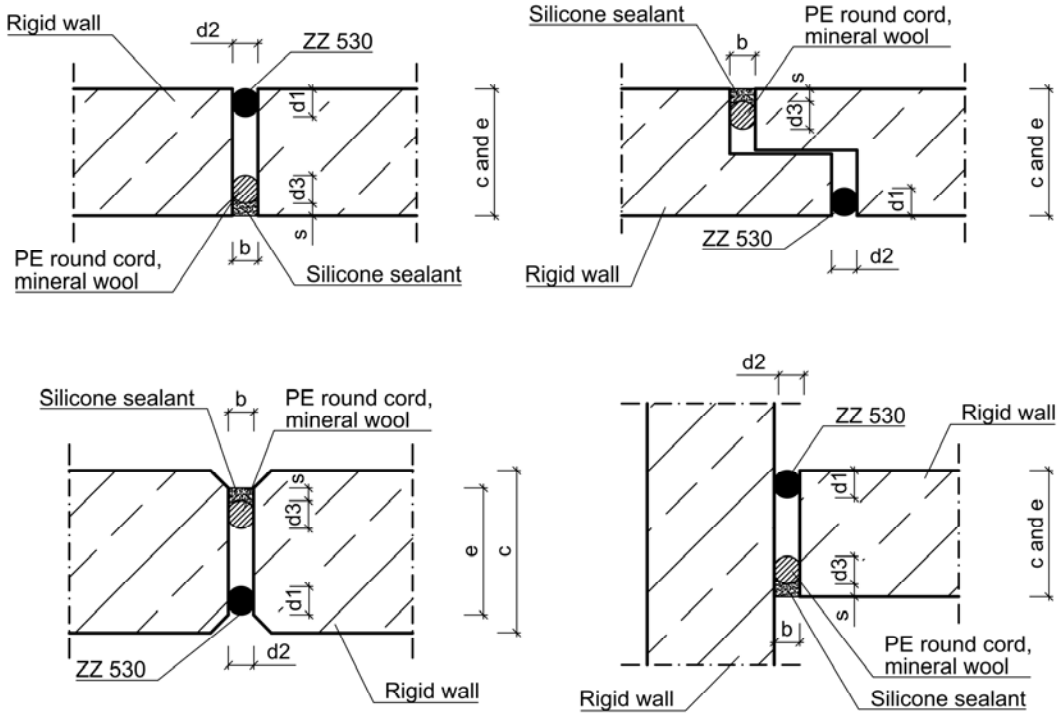
ZZ G50

Lateral movement capability 25%, shear movement capability 7,5%

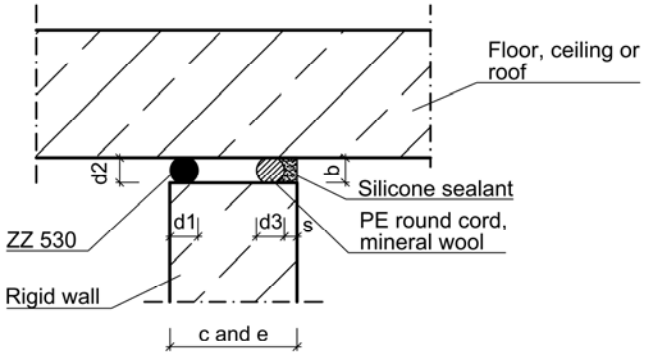
- Option 2: Combination of Fire Protection Joint Seals ZZ 530 and silicone sealant -

ANNEX C-2

Lateral and shear movement capability 7,5 %
Option 3: Combination of Fire Protection Joint Seal ZZ 530 and silicone sealant
Vertical joints in/ between rigid walls



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



Considering the minimum overall seal depth e (125 mm or 150 mm) Fire Protection Joint Seal ZZ 530 need not to be installed flush with the surface in case of rigid walls thicker than 125 mm or 150 mm.

Element of construction	Joint width b [mm]	Wall thickness c/ Overall seal depth e [mm]	Min. depth of sealant s [mm]	Min. depth of backfill d3 [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
Rigid wall	10 to 75	≥ 125	≥ 6 mm, if b ≤ 27mm ≥ 10 mm, if b > 27 mm	≥ 10	see ANNEX F-2 of the ETA	EI15- to EI90-V-X-F-W 10 to 75 EI15- to EI90-T-X-F-W 10 to 75
		≥ 150				EI15- to EI120-V-X-F-W 10 to 75 EI15- to EI120-T-X-F-W 10 to 75

ZZ G50

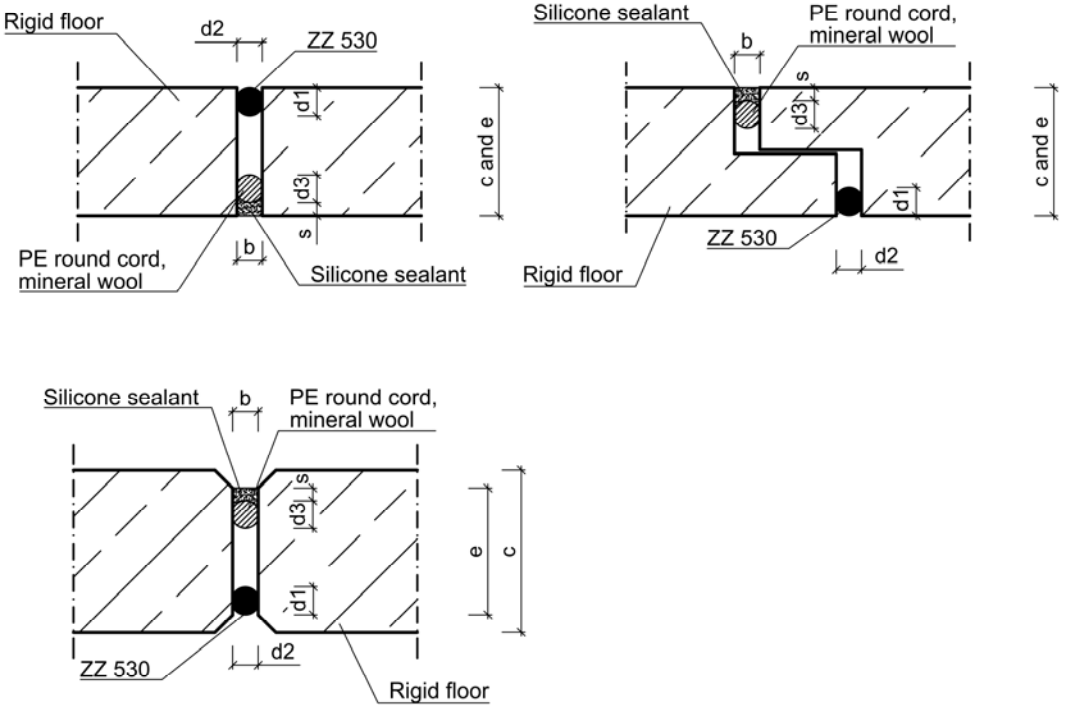
Lateral and shear movement capability 7,5%

- Option 3: Combination of Fire Protection Joint Seals ZZ 530 and silicone sealant -

ANNEX D-1

Lateral and shear movement capability 7,5 %
Option 3: Combination of Fire Protection Joint Seal ZZ 530 and silicone sealant

Horizontal joints in/ between rigid floors



Considering the minimum overall seal depth e (150 mm) Fire Protection Joint Seal ZZ 530 need not to be installed flush 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/ Overall seal depth e [mm]	Min. depth of sealant s [mm]	Min. depth of backfill d3 [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
Rigid floor	10 to 75	≥ 150	≥ 6 mm, if b ≤ 27mm ≥ 10 mm, if b > 27 mm	≥ 10	see ANNEX F-2 of the ETA	EI15- to EI120-H-X-F-W 10 to 75

ZZ G50

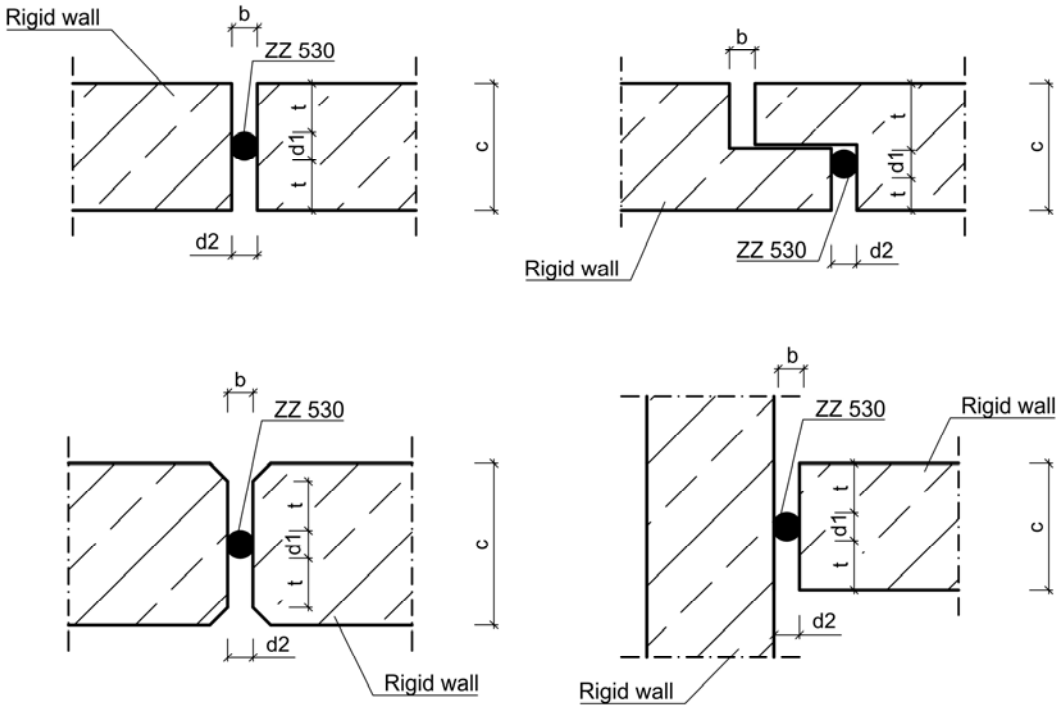
Lateral and shear movement capability 7,5%

- Option 3: Combination of Fire Protection Joint Seals ZZ 530 and silicone sealant -

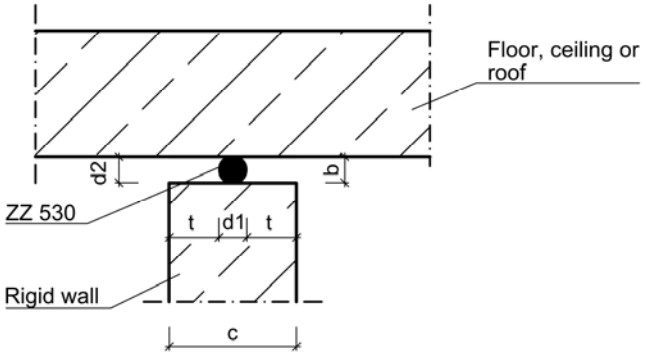
ANNEX D-2

Lateral and shear movement capability 7,5 %
Option 4: Installation of one Fire Protection Joint Seal ZZ 530

Vertical joints in/ between rigid walls



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



All dimensions in mm

Element of construction	Joint width b [mm]	Insertion depth t [mm]	Wall thickness c [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
	(Values in-between may be interpolated)				
Rigid wall	55 65 75	≥ 45 ≥ 22,5 ≥ 0	≥ 150	see ANNEX F-2 of the ETA	EI15- to EI90-V-X-F-W 55 to 75 EI15- to EI90-T-X-F-W 55 to 75

ZZ G50

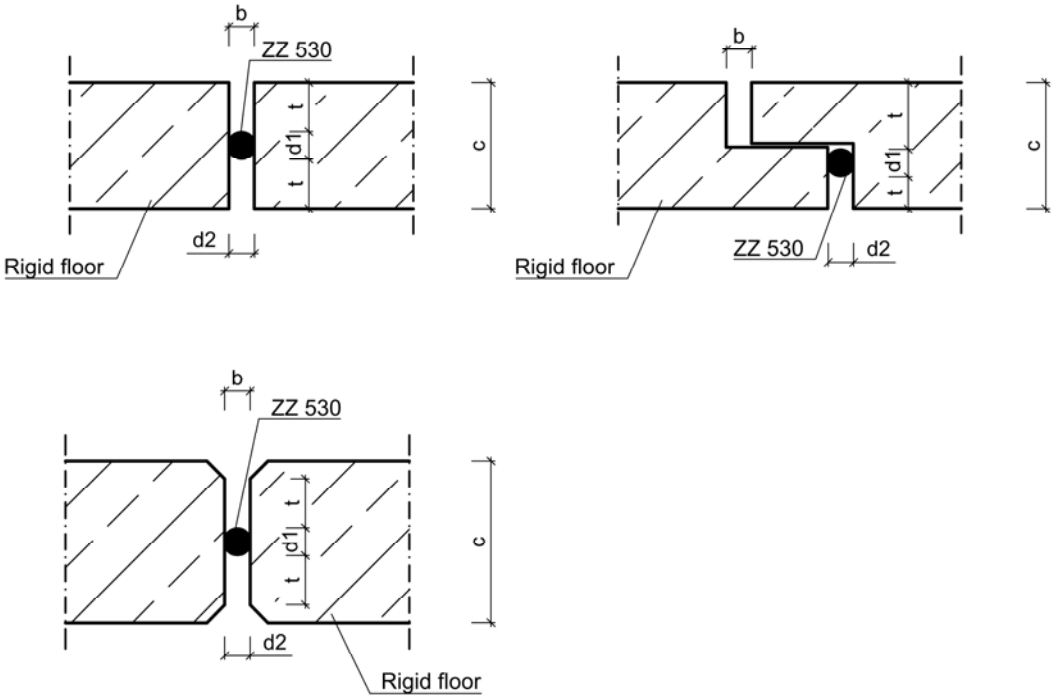
Lateral and shear movement capability 7,5%

- Option 4: Installation of one Fire Protection Joint Seal ZZ 530 -

ANNEX E-1

Lateral and shear movement capability 7,5 %
Option 4: Installation of one Fire Protection Joint Seal ZZ 530

Horizontal joints in/ between rigid floors



All dimensions in mm

Element of construction	Joint width b [mm]	Insertion depth t [mm]	Floor thickness c [mm]	Height and width of ZZ 530 d1 and d2 [mm]	Fire resistance classification
	(Values in-between may be interpolated)				
Rigid floor	55 65 75	≥ 45 ≥ 22,5 ≥ 0	≥ 150	see ANNEX F-2 of the ETA	EI15- to EI60-H-X-F-W 55 to 75 EI90-H-X-F-W 75

ZZ G50

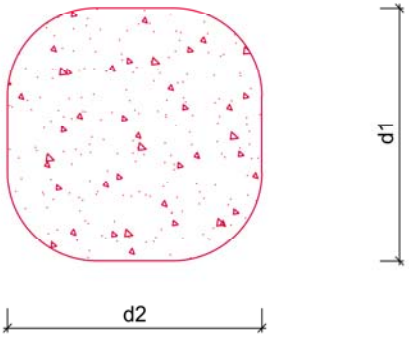
Lateral and shear movement capability 7,5%

- Option 4: Installation of one Fire Protection Joint Seal ZZ 530 -

ANNEX E-2

Lateral movement capability 25 %, shear movement capability 7,5 %
See Option 1 (ANNEX B-1 and B-2 of the ETA) and Option 2 (ANNEX C-1 and C-2 of the ETA)

Minimum dimensions of Fire Protection Joint Seal ZZ 530



Joint width b [mm]	Minimum width ZZ 530 d2 [mm]	Minimum height ZZ 530 d1 [mm]
10	16	16
≤ 16	24	24
≤ 21	30	30
≤ 28	39	39
≤ 36	49	49

Only Option 1:

≤ 48	65	57
≤ 60	80	70

ZZ G50

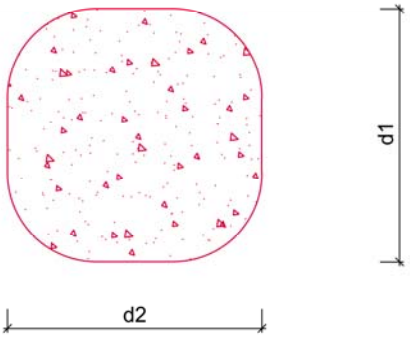
- Option 1 and 2:

Minimum dimensions of Fire Protection Joint Seal ZZ 530 -

ANNEX F-1

Lateral and shear movement capability 7,5 %
See Option 3 (ANNEX D-1 and D-2 of the ETA) and Option 4 (ANNEX E-1 and E-2 of the ETA)

Minimum dimensions of Fire Protection Joint Seal ZZ 530



Joint width b [mm]	Minimum width ZZ 530 d2 [mm]	Minimum height ZZ 530 d1 [mm]
10	13	13
≤ 13	16	16
≤ 20	24	24
≤ 26	30	30
≤ 35	39	39
≤ 45	49	49
≤ 55	60	60
≤ 65	70	70
≤ 75	80	80

ZZ G50

- Option 3 and 4:

Minimum dimensions of Fire Protection Joint Seal ZZ 530 -

ANNEX F-2