SEALING & BONDING
SIKA PASSIVE FIRE PROTECTION
FIRE RESISTANT LINEAR SEALS

BUILDING TRUST

SIKA SOLUTIONS TAME THE ELEMENT

Fire has been a fascinating element for thousands of years and many achievements in the history of mankind were only possible with its help. As much as controlled fire has been driving success and wealth as badly it can hurt us – when out of control – and destroy achievements of decades within minutes. Therefore it is in everybody's interest not to lose control over this powerful and elementary force.

Sika provides comprehensive solutions where fire resistant construction is required such as commercial, public and residential buildings and others. Fire resistant sealants, fillers and backing materials for linear seals as well as solutions for penetration seals enable safer buildings and infrastructure to be built.

Our products comply with the latest relevant standards and can be used for a wide range of fire protection uses in linear seals and penetration seals.

CONTENTS

PROFESSIONAL
FIRE PROTECTION

SIKA PASSIVE FIRE PROTECTION

Solutions that may save lives and protect property

Urbanisation – a much-debated megatrend – can be considered one of the key drivers of why passive fire protection is an increasingly important part of today's building industry: The more concentrated conditions and environments that we live in, the higher the risk of a life-threatening fire. Consistent use of integrated and effective passive fire protection is the most effective way to minimize this risk and protect people's life, their property, and the environment.

Modern building frameworks are interspersed with joints and services including cables, pipes, and ventilation ducts in both horizontal and vertical direction. Each of these penetrations and every joint between different building structures, is potentially a passage for the spread of flames, heat and toxic smoke into adjoining rooms and areas, which – in the worst case – may result in uncontrolled fire propagation throughout the entire building. This is where fire protection comes into play: Whilst active fire protection systems such as sprinklers, can extinguish fires, passive fire protection is designed to prevent the spread of fire and contain it in defined compartments to minimize damage and – even more importantly – to allow people in other compartments time to evacuate safely.

Sika's passive fire protection solutions are designed to seal all different types of building joints and penetrations and comply with the most relevant national and international standards (including EN, UL, EAD, AS and more), to confirm that they meet the highest fire resistance requirements and consequently can help save people's lives!

This document gives you an overview to Sika's fire stopping linear seal systems and test results. For information regarding penetration seals please get in contact with Sika representative.


4
4
Dräger

FIRE RESISTANT LINEAR JOINT SEALING

Passive fire protection applications for compartmentations can be divided into the following two main groups:
- Linear joint seals
- Penetration seals

Linear joint seals are passive fire protection systems designed to maintain the required building fire resistance across a separating element plus, if and where relevant, to accommodate a defined degree of movement. Linear joint seals can be found in walls, floors and in so called head of wall applications – joints between wall and ceiling or between wall and floor.

A fire resistant linear joint seal can be achieved by different approaches:
- The most common way is to use a fire-resistant joint sealant in combination with a standard PE backer rod. In this case only the sealant is usually required to provide fire resistance while the backer rod is considered as sacrificial.
- An alternative approach is to use a fire-resistant backer rod – typically based on an inorganic fire resistant material like mineral wool – and combine it with a standard joint sealant. In this case the fire resistance of the linear seal is provided by the backer rod and the joint sealant is used to accommodate limited movement, ensure water tightness and provide mechanical protection.
- The 3rd option is to seal the joint with a fire-resistant expanding foam. This system is only recommended where the joints have very limited movement and are not exposed to water, UV radiation or mechanical impact.

PE backer rod and fire resistant sealant

Fire resistant backer rod and standard joint sealant

Fire resistant expansion foam

The following parameters have an influence on the fire resistance of a building element and hence of its classification. Therefore it is crucial to know all relevant details to select the right product.

1
Types of involved building material e.g. concrete/steel

2
Element orientation horizontal (floor) or verticall (wall)

3
Element thickness

4
Joint dimension (width, depth)

5
Joint configuration: Single seal exposed/ unexposed, double seal

6
Expected joint movement

REACTION TO FIRE AND RESISTANCE TO FIRE

"Fire resistance testing" can be a very complex topic – the differences between 'reaction to fire' and 'resistance to fire' frequently causes confusion, but can be clarified as follows: **Reaction to fire** describes how a material contributes to the development and spread of a fire. Typically reaction to fire is determined for a single material or product such as a wall covering or joint sealant, and not for a system or section such as a wall including the linear joints or penetrations. In Europe reaction to fire is classified according to European Standard EN 13501-1.

REACTION TO FIRE

Euro class	Requirement	Examples of materials
A1	No contribution to fire	Stone, concrete, glass, most metals
A2	Insignificant contribution to fire	Similar to A1 including small amounts of organic compounds
B	No spread of fire and very limited contribution to fire	Gypsum boards with very thin surface covering, fire rated sealants
C	Very limited spread of fire	Gypsum boards with thicker surface coverings
D	Limited spread of fire	Wood & wooden products (depending on size)
E	Acceptable reaction to fire in case of a very small flame	Many plastic products and materials
F	Not passing requirements for classes A1-E	Other materials than classes A1-E

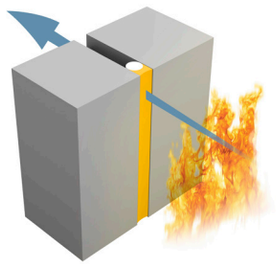
REACTION TO FIRE AND RESISTANCE TO FIRE

Resistance to fire describes the ability of a building element to prevent the passage of heat and flames from one side to the other. Typically such building elements are walls or floors including joints and penetrations, windows and doors etc. This means that not only a specific material or product, but an entire system or building section has to be tested.

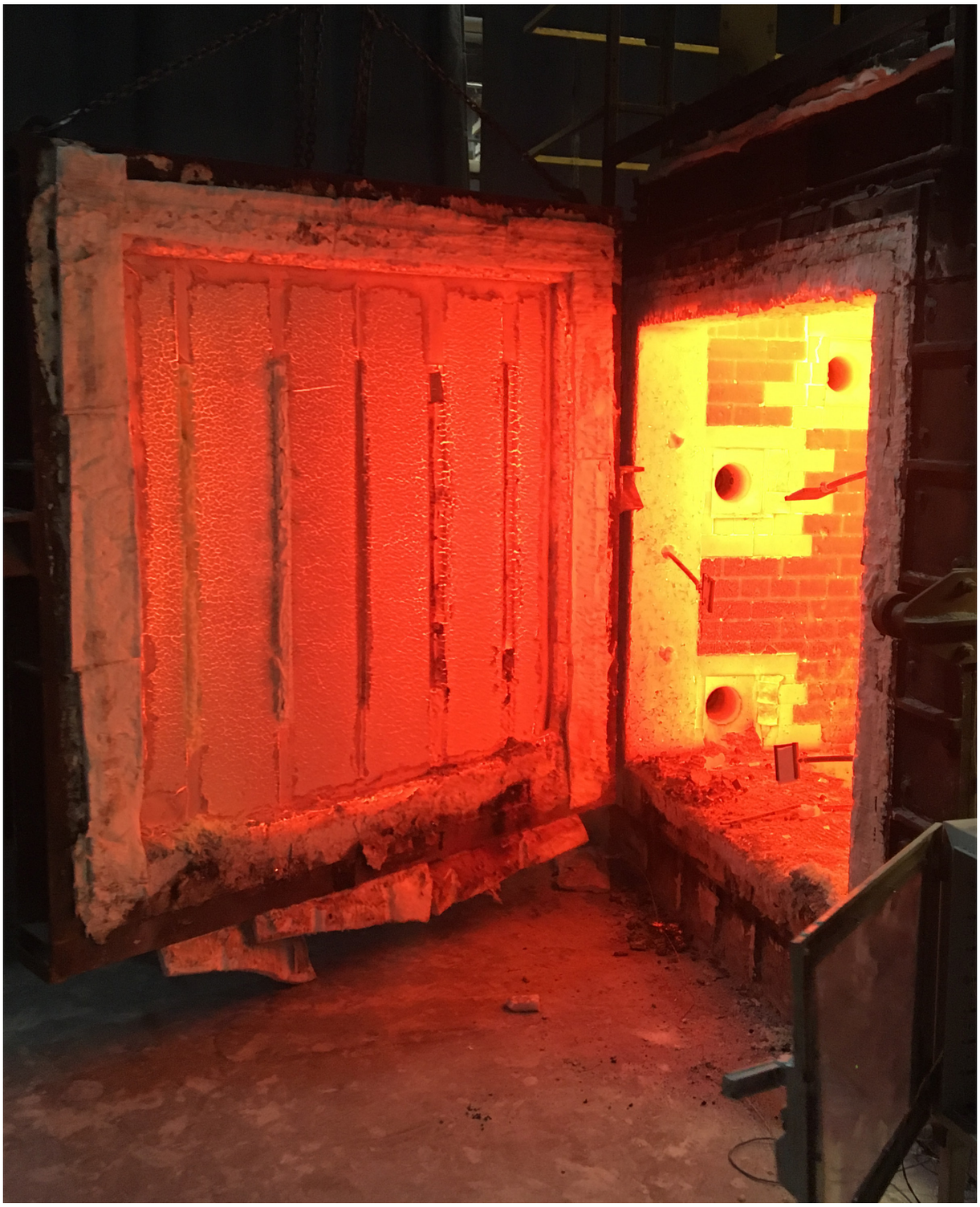
There are many different national and international test standards and classification schemes for fire resistance, however most of them follow the same principle: The building element or component for testing, including all of the service penetrations, joints, doors, windows and the joint sealant in and around them, is fixed into a test frame which is then attached to a test furnace. The side facing towards the furnace is known as the exposed or fire side, whilst the outer side is the unexposed or non-fire side. The furnace temperature is raised according to a defined curve reaching 945°C after 60 minutes and 1,153°C after 240 minutes. Two parameters are relevant for most fire resistance tests: Integrity and Insulation.

E – Integrity
Integrity (E) is a building element's capability – when exposed to fire on one side – to prevent the passage of flames and hot gases to the unexposed side.

I – Insulation
Insulation (I) is a building element's capability to maintain its thermal insulation function when exposed to fire on one side. Most standards allow a maximum of 180°C temperature rise on the unexposed side.



Standard	Description, Scope	Remark
EN 1366-3	Test standard for penetration seals	Most relevant standards for resistance to fire testing (Fire stopping) Also referred to in EAD and partly AS 1530.4
EN 1366-4	Test standard for linear joint seals	
EN 13501-2	Classification standard for linear joint seals and service penetration seals	Leading to EI classes. Relevant for EN 1366 and EAD
BS 476-20	Test standard for linear joint seals and service penetration seals	British standard; superseded by EN 1366/EN 13501 but still used in some regions
EAD 350454-00-1104	Fire stopping and fire sealing products – penetration seals	Leading to CE marking and DoP. Replaced ETAG 026 Fire resistance tested acc. EN 1366
EAD 350141-00-1106	Fire stopping and fire sealing products – linear joints and gap seals	
UL EU UL US/ULC	Certification scheme for product safety based in the US	Different test methods and requirements for different regions (e.g. UL EU and UL US/UL C)
AS 1530.4	Test and classification for linear joint seals and service penetrations	Australian standard, technically very similar to EN 1366
Certifire	Certification scheme for fire protection products	Relevant in the Middle East



Furnace with vertical linear seals after resistance to fire test acc. EN 1366-4

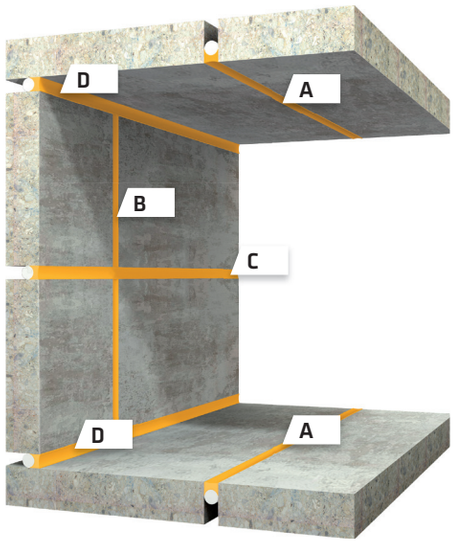

FEUERWEHR
FEUERWEHR
FEUERWEHR

LINEAR SEALS, FIELD OF APPLICATION

EN 1366-4 defines in which situation a tested linear seal orientation can be applied to other orientations in practical use. The tables below show a simplified version of these definitions.

A	Linear joint in a horizontal test arrangement (floor)
B	Vertical linear joint in a vertical test arrangement (wall)
C	Horizontal linear joint in a vertical test arrangement (wall)
D	Horizontal wall joint abutting a floor, ceiling or roof (head of wall)

Tested orientation	Covered application(s)
A	A, C
B	B
C	C
D	C, D

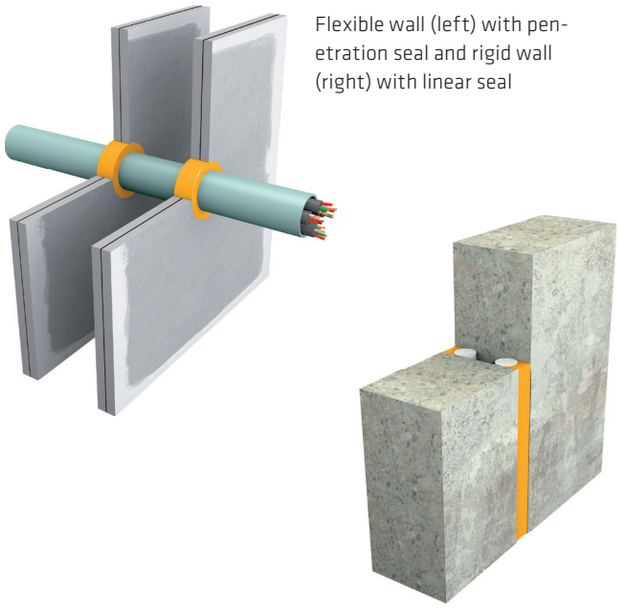


FLEXIBLE WALLS AND RIGID WALLS

In principle each type of structural element (walls or floors) will lead to a different fire resistance classification and consequently these have to be tested separately. For simplification EN 1363-1 defines two generic classes of walls; testing using one of them will cover a wider range of substrates than just the one tested. Thanks to this rule resources can be saved without compromising on safety.

- Flexible wall substrates are lightweight gypsumboard faced steel or timber stud wall partitions made from defined materials and dimensions.
- Rigid wall substrates consist of aerated concrete blocks produced with a consistent density of approx. 650 kg/m³.

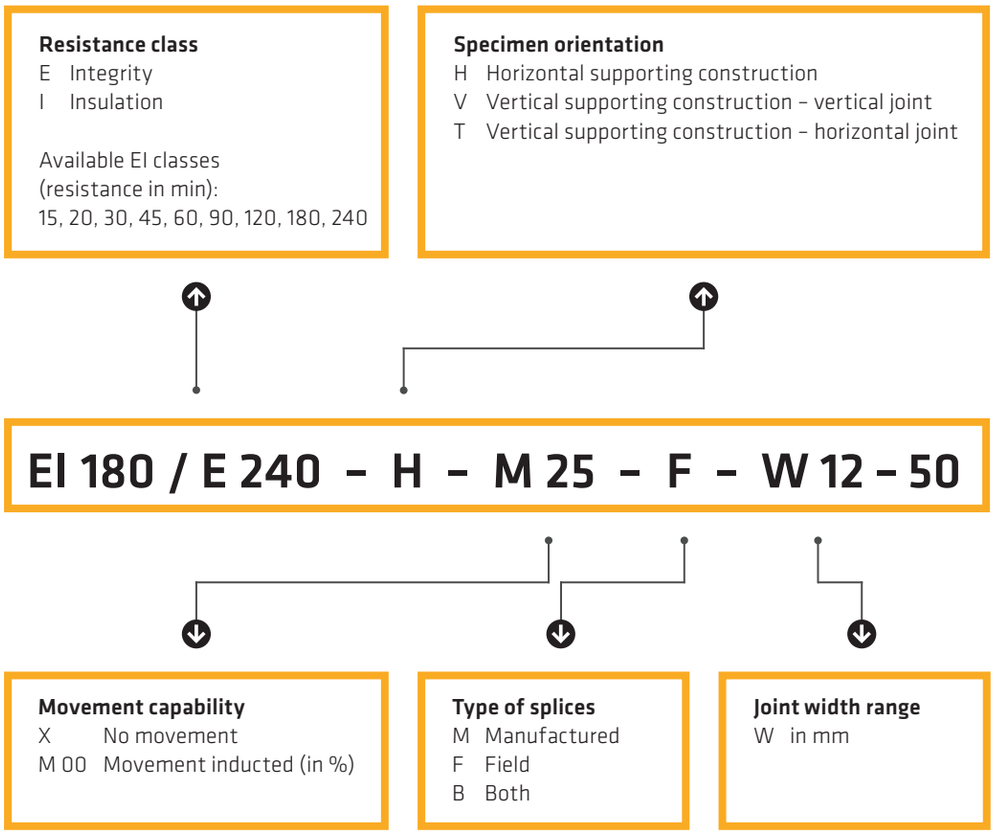
Tests performed with these flexible wall substrates are suitable to cover all flexible walls of the same composition and the same or higher thickness, as well as rigid walls of the same or higher thickness. Tests performed on the rigid wall substrates are suitable to cover all rigid walls of the tested or higher thicknesses and of the tested or higher material densities (e.g. precast concrete instead of aerated concrete).



Flexible wall (left) with penetration seal and rigid wall (right) with linear seal

CLASSIFICATION OF LINEAR SEALS

EN 13501-2 is the European classification standard for fire resistance of many building elements including linear seals and penetrations. The classification for linear seals provides information on 5 variable parameters, some of which are well known, whilst others are used less frequently. The following chart gives an overview of this linear seal classification system including all of the available options.



You may be asked the question: "Is your fire resistant joint seal able to accommodate movement?" Be careful! – It is not enough to use an elastic joint sealant with the required movement capability (e.g. according to ISO 11600 or ASTM C 920); because also specific fire resistance tests (e.g. according to EN 1366-4) must be performed under forced movement.

To do so the joint is mechanically stretched by the required amount (e.g. 25%) and direction before the fire resistance test, then kept at this position for the duration of the test. From the respective product's EN 13501-2 classification you can see what degree of movement a product was tested with:

EI 120 – V – X – F – W 0-30
Joint classification without movement (X)
EI 120 – V – M 25 – F – W 0-30
Joint classification with 25% movement (M 25)

According to EAD 350141-00-1106 linear joint seals tested without movement can accommodate a maximum of 7.5% movement. Internal non-structural wall and floor jointing applications (e.g. construction, connection, daywork and isolation joints) typically do not call for more than of 7.5% movement capability.

PRODUCT OVERVIEW LINEAR SEALS

Product	Description	Typical uses	Main advantages
	**Sikasil®-670 Fire** Neutral cure, fire resistant silicone sealant	■ Static and elastic floor- and wall joints ■ Indoor and outdoor use	■ Compensates ± 25% movement also in case of fire ■ Tested acc. EN 1366-4 ■ For wall joints – horizontal and vertical ■ For floor joints ■ Can be used on various substrates
	**Sikacryl®-621 Fire+** Phthalate-free, fire resistant intumescent acrylic sealant	■ Static floor- and wall joints ■ Indoor use ■ Flexible and rigid wall systems	■ Water based: easy to use, easy to clean ■ System component used in combination with many products for penetration seals ■ Can be used on various substrates
	**Sikacryl®-620 Fire** Fire resistant acrylic sealant	■ Static floor and wall joints ■ Indoor use	■ Water based: easy to use, easy to clean
	**Sikaflex®-400 Fire** Fire resistant PU sealant	■ Static floor- and wall joints ■ Indoor and outdoor use	■ For floor and wall joints ■ Designed for hot / humid climate conditions ■ High mechanical resistance

Product	Description	Typical uses	Main advantages
	**Sika® Backer Rod Fire** Mineral wool-based, fire resistant backing rod used in combination with Sika joint sealants	■ Static wall and floor joints ■ Indoor and outdoor use ■ Combined with Sika joint sealants to achieve durable seals	■ For wall joints – horizontal and vertical ■ For floor joints ■ Outstanding fire resistance, even in single seal configurations
	**Sika Boom®-400 Fire** Fire resistant PU expansion foam	■ Static floor- and wall joints ■ Indoor use	■ Tested for joints up to 45 mm width ■ High volume expansion ■ Easy to apply ■ Combi version, can be applied by gun or nozzle
	**Sika Boom®-420 Fire** Fire resistant PU expansion foam	■ Static floor- and wall joints ■ Indoor use	■ Tested for joints up to 20 mm width ■ High volume expansion ■ Easy to apply ■ Combi version, can be applied by gun or nozzle
	**Sikacryl®-625 Fire+** Self-levelling, fire resistant acrylic sealant	■ Static floor- joints ■ Indoor use	■ Tested for joints up to 120 mm width ■ Excellent fire resistance performance thanks to combination with stone wool

Sikasil®-670 Fire

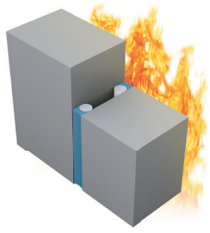
Fire resistant silicone sealant for linear seals in walls and floors

Resistance to fire of **vertical** linear seals in **rigid walls** (wall thickness ≥ 150 mm) sealed with Sikasil®-670 Fire. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

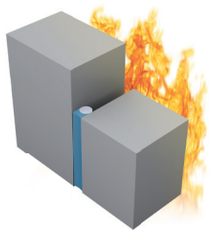
Substrates	Movement	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	± 25%	1	12 – 50	0.5 x width	**EI 240**
	± 25%	2	10 – 30	15	**EI 45**, E 180
	± 25%	2	12 – 50	0.5 x width	**EI 30**, E 240
	± 25%	3	10 – 30	15	**EI 45**, E 60
	± 25%	3	30 – 50	0.5 x width	**EI 45**, E 60
	± 7.5%	1	12 – 50	0.5 x width	**EI 240**
	± 7.5%	2	12 – 50	0.5 x width	**EI 60**, E 240
	± 7.5%	3	10 – 30	15	**EI 60**, E 240
	± 7.5%	3	30 – 50	0.5 x width	**EI 45**, E 180
Concrete* / Steel	± 7.5%	1	12 – 30	0.5 x width	**EI 60**, E 240
	± 7.5%	1	12 – 30	15	**EI 90**, E 240
	± 7.5%	1	30 – 50	0.5 x width	**EI 90**, E 240
	± 7.5%	2	12 – 50	0.5 x width	**EI 20,** E 180
Concrete* / Softwood	± 7.5%	1	12 – 50	0.5 x width	**EI 120**
	± 7.5%	2	12 – 50	0.5 x width	**EI 90**
Concrete* / Hardwood	± 7.5%	1	12 – 30	0.5 x width	**EI 180**
	± 7.5%	1	30 – 50	0.5 x width	**EI 240**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

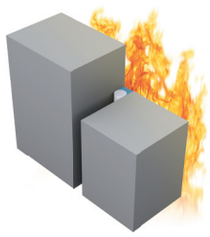
CONFIGURATIONS



1. Double seal



2. Single seal, unexposed side



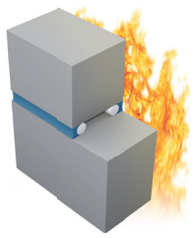
3. Single seal, exposed side

Resistance to fire of **horizontal** linear seals in **rigid walls** (wall thickness ≥ 150 mm) sealed with Sikasil®-670 Fire. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Movement	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	± 25%	4	12 – 50	0.5 x width	**EI 180,** E 240
	± 25%	5	12 – 50	0.5 x width	**EI 60,** E 120
	± 25%	6	10 – 30	15	**EI 45,** E 60
	± 25%	6	30 – 50	0.5 x width	**EI 45,** E 60
	± 7.5%	4	12 – 50	0.5 x width	**EI 240**
	± 7.5%	5	12 – 50	0.5 x width	**EI 60,** E 240
	± 7.5%	6	10 – 30	15	**EI 60,** E 180
	± 7.5%	6	30 – 50	0.5 x width	**EI 60,** E 90
Concrete* / Softwood	± 7.5%	4	12 – 50	0.5 x width	**EI 90**
	± 7.5%	4	12 – 50	25	**EI 120**
Concrete* / Steel	± 7.5%	4	12 – 50	0.5 x width	**EI 90,** E 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS



4. Double seal

5. Single seal, unexposed side

6. Single seal, exposed side

Resistance to fire of linear seals in **rigid floors** as well as **head of walls** (floor thickness ≥ 150 mm) sealed with Sikasil®-670 Fire. Tested acc. EN 1366-4 and classified acc. EN 13501-2/ EAD 350141-00-1106.

Substrates	Movement	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	± 25%	7/10	12 – 50	0.8 x width	**EI 180,** E 240
	± 25%	8/11	12 – 50	0.8 x width	**EI 60,** E 240
	± 25%	9/12	12 – 50	0.8 x width	**EI 60,** E 90
	± 7.5%	7/10	12 – 50	0.8 x width	**EI 240**
	± 7.5%	8/11	12 – 30	0.8 x width	**EI 120,** E 240
	± 7.5%	8/11	30 – 50	0.8 x width	**EI 60,** E 240
	± 7.5%**	9/12	10 – 30	24	**EI 60,** E 240
	± 7.5%	9/12	12 – 50	0.8 x width	**EI60,** E 90
Concrete* / Steel	± 7.5%	7/10	12 – 50	0.8 x width	**EI 60,** E 240
	± 7.5%	8/11	12 – 50	0.8 x width	**EI 60,** E 90
	± 7.5%	9/12	12 – 50	0.8 x width	**EI 60,** E 90

* Concrete or aerated concrete with a density ≥ 670 kg/m³

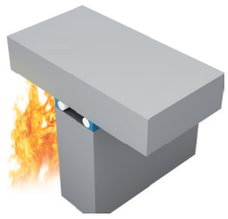
** Only in ≥ 200 mm thick floors

CONFIGURATIONS

7. Double seal

8. Single seal, unexposed side

9. Single seal, exposed side



10. Double seal

11. Single seal, unexposed side

12. Single seal, exposed side

Sikacryl®-621 Fire+

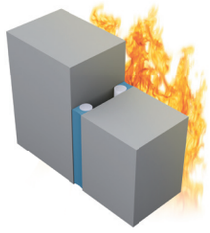
Fire resistant acrylic sealant for linear seals and penetrations

Resistance to fire of **vertical** linear joints in **walls** sealed with Sikacryl®-621 Fire+. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106. For results in flexible walls please consult your Sika representative.

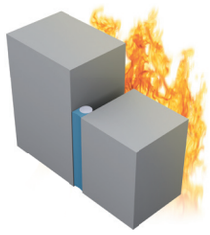
Substrates	Wall thickness (mm)	Configu-ration	Backing Depth (mm)	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete*	≥ 150	1	20**	≤ 30	≥ 15	**EI 240**
	≥ 100	1	20***	≤ 30	≥ 12.5	**EI 120**
	≥ 150	2/3	60***	≤ 50	≥ 10	**EI 120**
Concrete*/ Steel	≥ 100	1	12.5***	≤ 30	≥ 12.5	**EI 30**, E 120
Steel/Steel	≥ 100	2/3	12.5***	≤ 30	≥ 12.5	**EI 30,** E 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³
** Stone wool, density ≥ 40 kg/m³
*** Stone wool, density ≥ 35 kg/m³

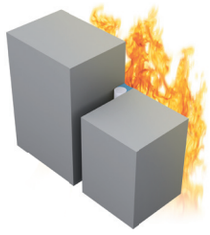
CONFIGURATIONS



1. Double seal



2. Single seal, unexposed side



3. Single seal, exposed side

Resistance to fire of **horizontal** linear joints in **rigid walls*** sealed with Sikacryl®-621 Fire+. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106. For results in flexible walls please consult your Sika representative.

Substrates	Wall thickness (mm)	Configu-ration	Backing Depth (mm)	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete*	≥ 150	4	20**	≤ 30	≥ 15	**EI 240**
	≥ 150	5/6	20**	≤ 30	≥ 25	**EI 60,** E 240
	≥ 150	5/6	60***	≤ 50	≥ 10	**EI 60,** E 240
	≥ 150	5/6	48****	≤ 30	≥ 25	**EI 120,** E 240
Concrete*/ Steel	≥ 100	4	12.5***	≤ 30	≥ 12.5	**EI 45,** E 120
Steel/Steel	≥ 100	5/6	12.5***	≤ 30	≥ 12.5	**EI 30,** E 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³
** Stone wool, density ≥ 40 kg/m³
*** Stone wool, density ≥ 35 kg/m³
**** AES fiber (alkaline earth silicate fiber), density ≥ 128 kg/m³

CONFIGURATIONS

4. Double seal

5. Single seal, unexposed side

6. Single seal, exposed side

Resistance to fire of **horizontal** linear joints in **rigid floors*** as well as **head of walls** sealed with Sikacryl®-621 Fire+. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Floor thickness (mm)	Configu-ration	Backing Depth (mm)	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete* / Concrete*	≥ 150	7/10	25*****	≤ 100	≥ 15	**EI 180**
	≥ 150	7/10	25**	≤ 100	≥ 15	**EI 120**
	≥ 150	7/10	25**	≤ 30	≥ 15	**EI 240**
	≥ 150	8/11	90***	≤ 100	≥ 10	**EI 240**
	≥ 150	8/11	25****	≤ 100	≥ 25	**EI 180**
	≥ 150	9/12	25****	≤ 100	≥ 25	**EI 60,** E 120
Concrete* / Steel	≥ 150	7/10	25***	≤ 30	≥ 15	**EI 45,** E 240
	≥ 150	8/11	50***	≤ 30	≥ 25	**EI 30,** E 240

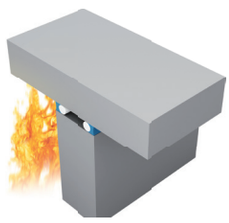
* Concrete or aerated concrete with a density ≥ 650 kg/m³
** Stone wool, density ≥ 40 kg/m³
*** Stone wool, density ≥ 35 kg/m³
**** AES fiber (alkaline earth silicate fiber), density ≥ 128 kg/m³
***** Stone wool, density ≥ 140 kg/m³

CONFIGURATIONS

7. Double seal

8. Single seal, unexposed side

9. Single seal, exposed side



10. Double seal

11. Single seal, unexposed side

12. Single seal, exposed side

Sikacryl®-621 Fire

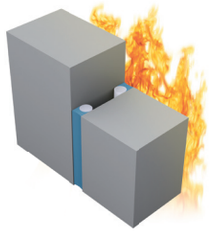
Fire resistant acrylic sealant for linear seals

Resistance to fire of **vertical** linear joints in **rigid and flexible walls** sealed with Sikacryl®-621 Fire. Movement ≤ ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

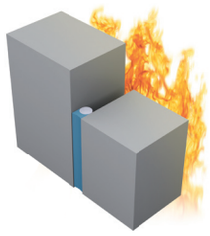
Substrates	Wall thickness (mm)	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	≥ 100	3	8 – 20	10	**EI 45,** E 120
	≥ 100	3	8 – 50	25	**EI 60,** E 120
	≥ 150	1	8 – 60	20	**EI 120,** E 240
	≥ 150***	2	8 – 60	5	**EI 120,** E 240
	≥ 150	1	8 – 50	25	**EI 240**
Concrete* / Steel	≥ 100	3	8 – 20	10	**EI 20,** E 120
	≥ 100	3	8 – 50	25	**EI 30,** E 45
	≥ 150****	1	8 – 50	30	**EI 60,** E 240
Concrete* / Softwood	≥ 100	3	8 – 20	10	**EI 20,** E 30
	≥ 100	3	8 – 50	25	**EI 45**
	≥ 150****	1	8 – 50	30	**EI 60**
Gypsum walls**/ Concrete*	≥ 120	10	8 – 20	12.5	**EI 120**
	≥ 120	1	8 – 20	12.5	**EI 120**

* Brickwork, concrete or aerated concrete with a density ≥ 670 kg/m³
** 2 Layers of gypsum board (2 x 15 mm on each side)
*** Backed with ≥ 60 kg/m³ mineral wool, ≥ 75 mm deep
**** Backed with ≥ 45 kg/m³ mineral wool, ≥ 40 mm deep

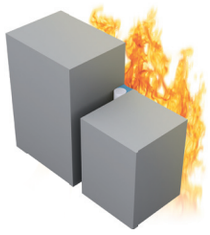
CONFIGURATIONS



1. Double seal



2. Single seal, unexposed side



3. Single seal, exposed side

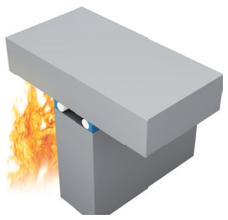
Resistance to fire of linear joints in **floors** as well as **head of walls** (floor thickness ≥ 150 mm) sealed with Sikacryl®-621 Fire. Movement ≤ ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete	9/12	8 – 20	10	**EI 45,** E 240
	9/12	8 – 50	25	**EI 90,** E 240
	7/10	8 – 50	20	**EI 120,** E 240
	8/11	8 – 50	5***	**EI 120,** E 240
Concrete* / Steel	9/12	8 – 20	10	**EI 30,** E 120
	9/12	8 – 50	25	**EI 90,** E 240
Concrete* / Softwood	9/12	8 – 20	10	**EI 30**
	9/12	8 – 50	25	**EI 45**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³
*** Backed with ≥ 60 kg/m³ mineral wool, ≥ 75 mm deep

CONFIGURATIONS

7. Double seal



10. Double seal

8. Single seal, unexposed side

11. Single seal, unexposed side

9. Single seal, exposed side

12. Single seal, exposed side

Sikacryl®-620 Fire

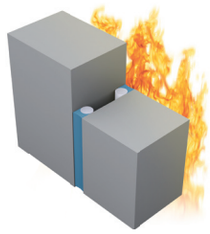
Fire resistant acrylic sealant for linear seals

Resistance to fire of **vertical** linear seals in **rigid walls** (wall thickness ≥ 150 mm) sealed with Sikacryl®-620 Fire. Movement ≤ ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/ EAD 350141-00-1106.

Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	1	12 – 50	0.5 x width	**EI 240**
Concrete* / Softwood	1	12	0.5 x width	**EI 60,** E 120
	1	13 – 49	0.5 x width	**EI 120**
	1	50	0.5 x width	**EI 180**
Concrete* / Hardwood	1	12 – 49	0.5 x width	**EI 120**
	1	50	0.5 x width	**EI 180**
Concrete* / Steel	1	12 – 49	0.5 x width	**EI 90,** E 240
	1	50	0.5 x width	**EI 120,** E240

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS



1. Double seal

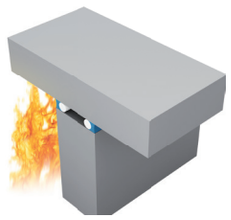
Resistance to fire of linear seals in **rigid floors** (floor thickness ≥ 150 mm) sealed with Sikacryl®-620 Fire. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
Concrete* / Concrete*	7/10	12 – 50	0.5 x width	**EI 120,** E240
Concrete* / Steel	7/10	12 – 50	0.5 x width	**EI 30,** E240

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

7. Double seal



10. Double seal

Sikaflex®-400 Fire

Fire resistant PU sealant for linear seals and penetrations

Resistance to fire of **vertical** linear seals in **rigid walls** (wall thickness ≥ 150 mm) sealed with Sikaflex®-400 Fire. Tested acc. AS 1530.4 / EN 1366-4 and classified acc. EN 13501-2.

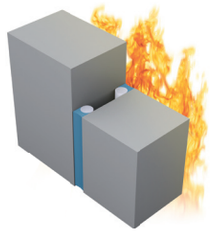
Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class***
Concrete**/ Concrete**	1	25	10	EI 180, E 240
	2	10 – 40	0.5 x width	EI 120, E 240
Concrete*/ Concrete*	2	10 – 40	0.5 x width	EI 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

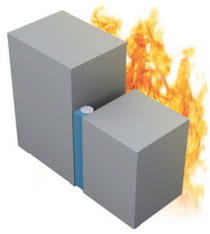
** Precast concrete

*** EI 180, E 240 acc. EN 13501-2 is the equivalent of "-/240/180" acc. AS 1530.4

CONFIGURATIONS



1. Double seal



2. Single seal, unexposed side

Resistance to fire of linear seals in **rigid floors** (floor thickness ≥ 200 mm) sealed with Sikaflex®-400 Fire. Tested acc. Tested acc. AS 1530.4 / EN 1366-4 and classified acc. EN 13501-2.

Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class***
Concrete*/ Concrete*	7	12 – 40	0.8 x width	EI 240
	8	12 – 40	0.8 x width	EI 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

7. Double seal

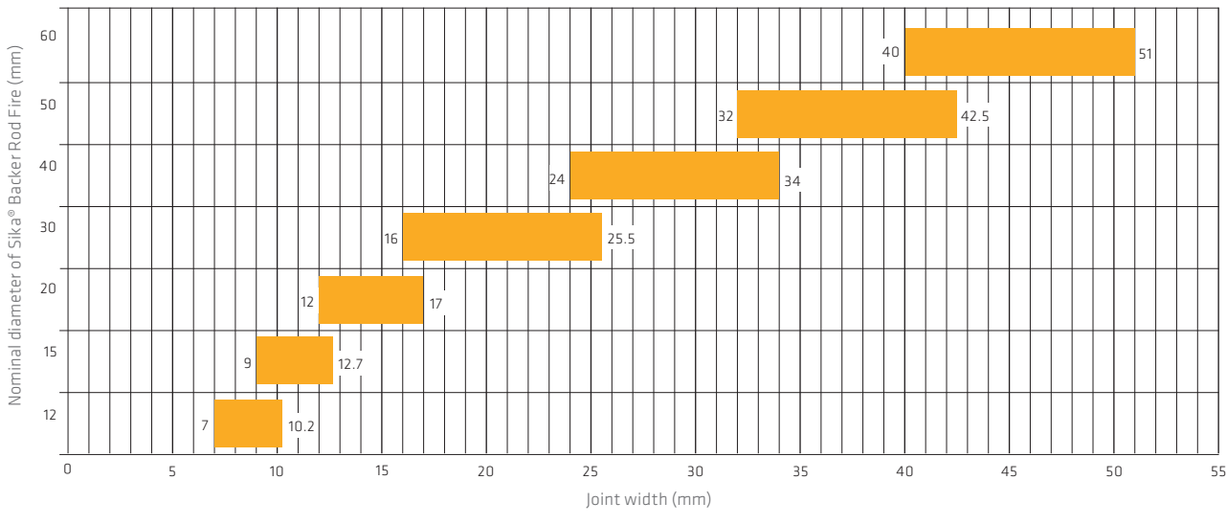
8. Single seal, unexposed side

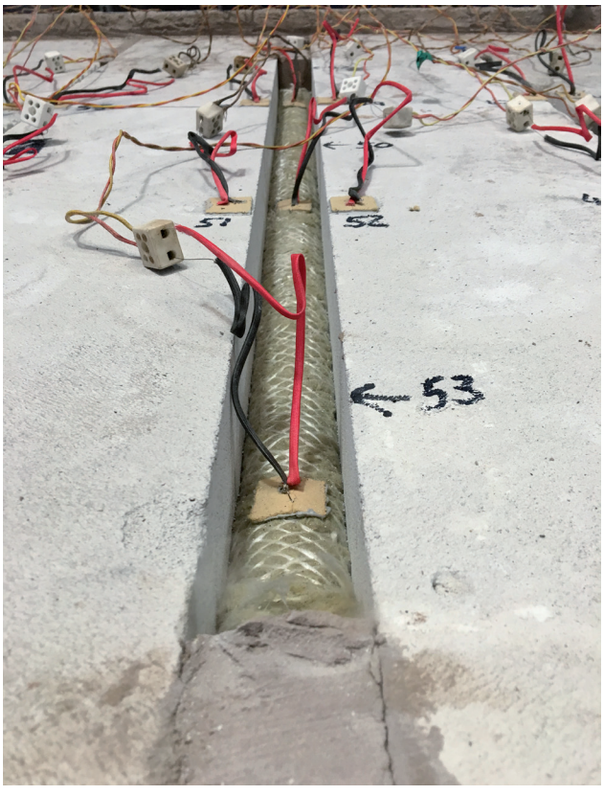
Sika® Backer Rod Fire

Fire resistant mineral wool based backer rod system for linear seals

Sika® Backer Rod Fire is available in seven different nominal diameters (see y-axis of the diagram). Refer to the number at the right edge of the yellow bar in the diagram, as each diameter of Sika® Backer Rod Fire may only be used for nominal joint widths below this value. The number at the left edge of the bar refers to the lower nominal joint width limit, since Sika® Backer Rod Fire can only be compressed to a certain degree. For example, for a nominal 50 mm diameter Sika® Backer Rod Fire, the lower limit threshold joint width is 32 mm, and the maximum joint width is 42.5 mm.

USE OF Sika® Backer Rod Fire DEPENDING ON THE JOINT WIDTH





Sika® Backer Rod Fire

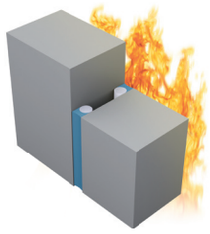
Fire resistant mineral wool based backer rod system for linear seals

Resistance to fire of **vertical** linear seals in **rigid walls*** (wall thickness ≥ 150 mm) sealed with Sika® Backer Rod Fire combined with SikaHyflex®-250 Facade, Sikaflex® AT Connection or Sikaflex® PRO-3 or SikaHyflex®-402 Connection. Movement ≤ ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

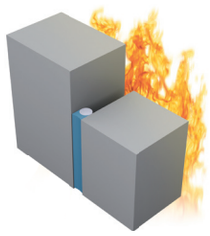
Sealant	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
SikaHyflex®-250 Facade	1	7 – 51	0.5 x width	**EI 240**
	2	7 – 51	0.5 x width	**EI 180,** E 240
	3	7 – 51	0.5 x width	**EI 120,** E 240
Sikaflex® AT Connection	1	7 – 51	0.5 x width	**EI 240**
	2	7 – 51	0.5 x width	**EI 180,** E 240
	3	7 – 51	0.5 x width	**EI 180,** E 240
SikaHyflex®-402 Connection	1	7 – 51	0.5 x width	**EI 120**
	2	7 – 51	25	**EI 120**
Sikaflex® PRO-3	1/2	7 – 51	0.5 x width	**EI 180,** E 240
	3	7 – 51	0.5 x width	**EI 45,** E 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

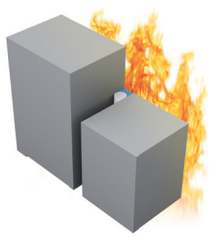
CONFIGURATIONS



1. Double seal



2. Single seal, unexposed side



3. Single seal, exposed side

Resistance to fire of **horizontal** linear seals in **rigid walls*** (wall thickness ≥ 150 mm) sealed with Sika® Backer Rod Fire combined with SikaHyflex®-250 Facade, Sikaflex® AT Connection or SikaHyflex®-402 Connection. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-116.

Sealant	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
SikaHyflex®-250 Facade	5	7 – 51	0.5 x width	**EI 240**
	6	7 – 51	0.5 x width	**EI 90,** E 180
Sikaflex® AT Connection	5	7 – 51	0.5 x width	**EI 240**
	6	7 – 51	0.5 x width	**EI 120,** E 240
SikaHyflex®-402 Connection	4	7 – 51	0.5 x width	**EI 120**
	5	7 – 51	25	**EI 120**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

4. Double seal

5. Single seal, unexposed side

6. Single seal, exposed side

Resistance to fire of linear joints in **rigid floors*** (floor thickness ≥ 200 mm) sealed with Sika® Backer Rod Fire combined with SikaHyflex®-250 Facade**, Sikaflex® AT Connection**, Sikaflex® PRO-3 or SikaHyflex®-402 Connection**. Movement ≤ ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

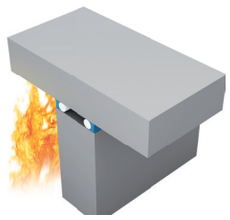
Substrates	Configuration	Joint width (mm)	Joint depth (mm) min.	Resistance Class
SikaHyflex® -250 Facade	7/10**	7 – 51	0.8 x width	**EI 240**
	8/11**	7 – 51	0.8 x width	**EI 240**
	9/12	7 – 51	0.8 x width	**EI 120,** E 180
Sikaflex® AT Connection	7/10**	7 – 51	0.8 x width	**EI 240**
	8/11**	7 – 51	0.8 x width	**EI 240**
	9/12	7 – 51	0.8 x width	**EI 120,** E 180
SikaHyflex®-402 Connection	7/10	7 – 51	0.8 x width	**EI 120**
	8/11	7 – 51	0.8 x width or 25 mm, whichever is greater	**EI 120**
Sikaflex® PRO-3	7/10	7 – 51	0.8 x width	**EI 240**
	8/11	7 – 51	0.8 x width	**EI 240**
	9/12	7 – 51	0.8 x width	**EI 60,** E 240

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

** Not approved for pedestrian walkways acc. EN 15651-4 in the European Union

CONFIGURATIONS

7. Double seal



10. Double seal

8. Single seal, unexposed side

11. Single seal, unexposed side

9. Single seal, exposed side

12. Single seal, exposed side

Sika Boom®-400 Fire

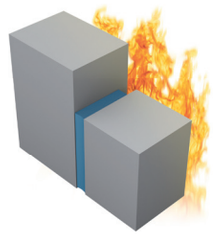
Fire resistant PU expansion foam for linear seals

Resistance to fire of **vertical** linear joints in **rigid walls*** (wall thickness ≥ 200 mm) sealed with Sika Boom®-400 Fire. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2.

Configuration	Application type	Joint width (mm)	Joint depth (mm)	Resistance Class
2	gun	≤ 10	≥ 200	**EI 240**
2	gun	≤ 30	≥ 180	**EI 120**
2	gun	≤ 45	≥ 180	**EI 60**
2	gun	≤ 20	≥ 120	**EI 240**
2	gun	≤ 35	≥ 120	**EI 90**
2	nozzle	≤ 10	≥ 200	**EI 240**
2	nozzle	≤ 30	≥ 160	**EI 120**
2	nozzle	≤ 45	≥ 160	**EI 90**
2	nozzle	≤ 20	≥ 100	**EI 180**
2	nozzle	≤ 35	≥ 100	**EI 60**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS



2. Single seal, unexposed side

Resistance to fire of linear joints in **floors*** (floor thickness ≥ 200 mm) sealed with Sika Boom®-400 Fire. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2.

Configuration	Application type	Joint width (mm)	Joint depth (mm)	Resistance Class
8	gun	≤ 10	≥ 200	**EI 240**
8	gun	≤ 30	≥ 180	**EI 120**
8	gun	≤ 45	≥ 180	**EI 60**
8	gun	≤ 20	≥ 120	**EI 180**
8	gun	≤ 35	≥ 120	**EI 60**
8	nozzle	≤ 10	≥ 200	**EI 240**
8	nozzle	≤ 30	≥ 160	**EI 90**
8	nozzle	≤ 45	≥ 160	**EI 60**
8	nozzle	≤ 20	≥ 100	**EI 180**
8	nozzle	≤ 35	≥ 100	**EI 60**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

8. Single seal, unexposed side

Sika Boom®-420 Fire

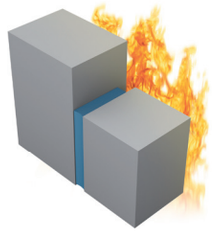
Fire resistant PU expanding foam for gun and nozzle application

Resistance to fire of **vertical** linear joints in **rigid walls*** (wall thickness ≥ 150 mm) sealed with Sika Boom®-420 Fire. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/ EAD 350141-00-1106.

Substrates	Configuration	Application	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete	2/3	Gun & adapter	≤ 20	≥ 150	**EI 60**
			≤ 10	≥ 150	**EI 180**
Concrete*/ Softwood	2/3	Gun & adapter	≤ 20	≥ 150	**EI 120**
Concrete*/ Softwood with 50 x 18 mm wood architrave on both sides	2/3	Gun & adapter	≤ 20	≥ 150	**EI 90**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS



2/3. Single seal, exposed or unexposed side

Resistance to fire of **horizontal** linear joints in **rigid walls*** (wall thickness ≥ 150 mm) sealed with Sika Boom®-420 Fire. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Configuration	Application	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete	5/6	Gun & adapter	≤ 20	≥ 150	EI 60
Concrete*/ Softwood	5/6	Gun & adapter	≤ 20	≥ 150	EI 120
Concrete*/ Softwood with 50 x 18 mm wood architrave on both sides	5/6	Gun & adapter	≤ 20	≥ 150	EI 120

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

5/6. Single seal, exposed or unexposed side

Resistance to fire of linear joints in **floors*** (wall thickness ≥ 200 mm) sealed with Sika Boom®-420 Fire. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Configuration	Application	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete	8/9	Gun & adapter	≤ 20	≥ 200	**EI 90**
			≤ 10	≥ 200	**EI 120**
		Adapter only	≤ 20	≥ 200	**EI 120**
Concrete*/ Softwood	8/9	Gun & adapter	≤ 20	≥ 200	**EI 120**
Concrete*/ Softwood with 50 x 18 mm wood architrave on both sides	8/9	Gun & adapter	≤ 20	≥ 200	**EI 120**

* Brickwork, concrete or aerated concrete with a density ≥ 760 kg/m³

CONFIGURATIONS

8/9. Single seal, exposed or unexposed side

Sikacryl®-625 Fire+

Fire resistant ablative coating for walls and floors

Resistance to fire of **vertical** linear joints in **rigid walls*** (wall thickness ≥ 150 mm) sealed with Sikacryl®-625 Fire+. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

Substrates	Wall thickness (mm)	Configu-ration	Backing Depth (mm)	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete*	≥ 150	5/6/11/12	≥ 100**	≤ 120	**≥ 1*** **	**EI 180,** E 240

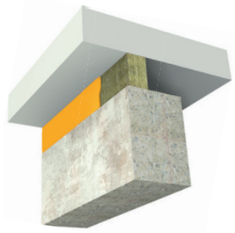
* Brickwork, concrete or aerated concrete with a density ≥ 650 kg/m³

** Stone wool, density ≥ 35 kg/m³, ≥ 40% compressed

*** 2 mm wet film thickness, Sikacryl®-625 Fire+ applied to both sides of the backing

CONFIGURATIONS

5/6. Single seal, exposed or unexposed side



11/12. Single seal, exposed or unexposed side

Resistance to fire of **horizontal** linear joints in **rigid floors*** (wall thickness ≥ 150 mm) sealed with Sikacryl®-625 Fire+. Movement ± 7.5%. Tested acc. EN 1366-4 and classified acc. EN 13501-2/EAD 350141-00-1106.

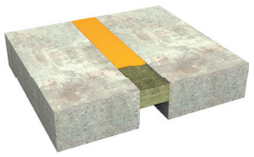
Substrates	Configu-ration	Backing Depth (mm)	Joint width (mm)	Joint depth (mm)	Resistance class
Concrete*/ Concrete*	8	≥ 100**	≤ 120	≥ 1***	**EI 180,** E 240

* Brickwork, concrete or aerated concrete with a density ≥ 650 kg/m³

** Stone wool, density ≥ 33 kg/m³

*** 2 mm wet film thickness

CONFIGURATIONS



8. Single seal unexposed side

ALSO AVAILABLE FROM SIKA

WE ARE SIKA

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, flooring as well as roofing and waterproofing systems.

SIKA SERVICES AG
Tueffenwies 16
CH-8048 Zurich
Switzerland

Contact
Phone +41 58 436 40 40
www.sika.com

BUILDING TRUST