



## European Technical Approval ETA-13/0921

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung <i>Trade name</i>	"LD...-S120"
Zulassungsinhaber <i>Holder of approval</i>	Siemens AG Frohnhofstraße 103-107 50827 Köln DEUTSCHLAND
Zulassungsgegenstand und Verwendungszweck <i>Generic type and use of construction product</i>	Stromschienenelement mit Brandschutzvorkehrung für die Abschottung des Stromschienensystems "LDA-..." bzw. "LDC-..." <i>bus bar trunking element with fire protection device for the penetration seal of the bus bar trunking system "LDA-..." and "LDC-..."</i>
Geltungsdauer: <i>Validity:</i>	vom <i>from</i> bis <i>to</i> 28 June 2013 28 June 2018
Herstellwerk <i>Manufacturing plant</i>	Siemens AG Frohnhofstr. 103-107 50827 Köln / Germany

Diese Zulassung umfasst  
*This Approval contains*

23 Seiten einschließlich 15 Anhänge  
*23 pages including 15 annexes*

## I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches 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 Council Directive 93/68/EEC<sup>2</sup> and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council<sup>3</sup>;
  - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998<sup>4</sup>, as amended by Article 2 of the law of 8 November 2011<sup>5</sup>;*
  - 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>6</sup>;
  - Guideline for European technical approval of "Fire Stopping and Fire Sealing Products - Part 2: Penetration Seals", ETAG 026-02.
- 2 Deutsches Institut für Bautechnik is authorized 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 manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.
- 4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
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- 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.

<sup>1</sup> Official Journal of the European Communities L 40, 11 February 1989, p. 12  
<sup>2</sup> Official Journal of the European Communities L 220, 30 August 1993, p. 1  
<sup>3</sup> Official Journal of the European Union L 284, 31 October 2003, p. 25  
<sup>4</sup> *Bundesgesetzblatt Teil I 1998*, p. 812  
<sup>5</sup> *Bundesgesetzblatt Teil I 2011*, p. 2178  
<sup>6</sup> Official Journal of the European Communities L 17, 20 January 1994, p. 34

## II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

### 1 Definition of the product and intended use

#### 1.1 Definition of the construction product

This European Technical Approval refers to the bus bar trunking element with fire protection device with designation "LD...-S120" for installation in fire resistance walls or floors.

The penetration seal consists of a bus bar trunking unit and a factory made matting intumescent internal penetration seal, fire protective boards and a joint sealing material- so called internal fire penetration seal- and a external covering with fire protective boards and a joint sealing material – so called external fire penetration seal- as well.

The bus bar trunking unit "LD-...", the factory tailored fire protected boards and the joint sealing material has to be in accordance with Appendix 1.

Ancillary products referred to in this European Technical Approval within the framework of evaluating resistance to fire (see Annexes 1 and 2) are not covered by this ETA and cannot be CE-marked on the basis of it.

#### 1.2 Intended use

The factory produced bus bar trunking element with fire protection device is intended to form part of a penetration seal, which is used to maintain the fire resistance of a wall or floor when and where bus bar trunking units of the type "LDA-..." or "LDC-..." respectively pass through the wall or floor.

Annex 2 gives details of penetration seals for which fire resistance tests were carried out. This ETA covers assemblies installed in accordance with the provisions given in Annex 2.

Although a penetration seal is intended for indoor applications only, the construction process may result in it being subjected to more exposed conditions for a period before the building envelope is closed. For this case provisions shall be made to protect temporarily exposed penetration seals according to the instructions of the manufacturer.

The provisions made in this European Technical Approval are based on an assumed working life of the penetration seal of 10 years provided the conditions laid down in sections 4 and 5 relating to manufacturing, installation, use and repair are met<sup>7</sup>. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

<sup>7</sup> The effectively life of installation may be longer- without major degradation affecting the essential requirements.

## 2. Characteristics of product(s) and methods of verification

### 2.1 Reaction to fire

The components of the bus bar trunking element with fire protection device "LD...-S120" fulfil the requirements for reaction to fire classes according to EN 13501-1 as specified in Annex 1.

### 2.2 Resistance to fire

The resistance to fire performance according to EN 13501-2 of penetration seals incorporating the bus bar trunking element with fire protection device "LD...-S120" are given in the Annex 4 to 6.

In the annexes the maximum verified fire resistance class – under the respective installation conditions – is specified. If installed in walls or floors of the same thickness and density and with the same structure as specified there, but with a lower fire resistance class, the fire resistance class of the penetration seal is reduced to the fire resistance class of the wall or floor.

Information on ancillary products which were tested within the framework of this European Technical Approval for evaluating resistance to fire of the penetration seal is given in Annex 1. Any changes in the material, the composition, the dimensions or the properties of the ancillary products shall be notified to Deutsches Institut für Bautechnik without delay, which will decide whether a new assessment will be necessary.

### 2.3 Emission of dangerous substances or radiation

The components of the fire protection device for the penetration seal of the bus bar trunking unit "LD..." do not contain any substances registered as dangerous substances in the list of the European Commission

For the bus bar trunking unit "LD..." and the joint sealing material manufacturer's declarations, that these products do not contain dangerous substances specified in Directive 67/548/EEC or Regulation (EC) N° 1272/2008 or the Indicative List on Dangerous Substances were made available to the Deutsches Institut für Bautechnik.

For the fire protective boards "PROMATECT-H" see ETA-06/0206.

NOTE: In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, 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.

### 2.4 Durability and serviceability

The components of the fire protection device for penetration seals of bus bar trunking unit fulfil the requirements of use category Z<sub>2</sub> in accordance with ETAG 026-2, Section 1.2. That means that the materials can be exposed to the conditions in interiors with out high humidity without expecting significant changes in the fire protective characteristic values.

### 3 Evaluation and attestation of conformity and CE marking

#### 3.1 System of attestation of conformity

According to the decision 1999/454/EG, amended by Decision 2001/596/EC of the European Commission<sup>8</sup> the system 1 of attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 1: Certification of the conformity of the product by a notified product certification body on the basis of:

- (a) Tasks for the manufacturer:
  - (1) factory production control;
  - (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;
- (b) Tasks for 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.

#### 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 ensure that the product is in conformity with this European Technical Approval.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this European Technical Approval.

The factory production control shall be in accordance with the "Control Plan of 28. June 2013 relating to the European Technical Approval ETA-13/0921 issued on 28. June 2013" 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 Deutsches Institut für Bautechnik<sup>9</sup>.

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 manufacturer

The manufacturer shall provide a technical datasheet and an installation guide containing at least the following information:

<sup>8</sup> Official Journal of the European Communities L 178/52 of 14.07.1999

<sup>9</sup> The Control Plan is a confidential part of documentation of this European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2

**Technical data sheet:**

**1. Field of application:**

Building elements in which the bus bar trunking element with fire protection device may be installed, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions - the construction requirements.

Services which may penetrate the opening to be sealed off, type and properties of the services like material, diameter, thickness etc, necessary/allowed supports/fixings, separations etc.

Design of the penetration seal(s) including limits in size, minimum thickness, separations etc. of the penetration seal(s).

Definitions of ancillary products with clear indication whether they are generic or specific.

Environmental conditions covered by the ETA: Indoor Application without humidity exposure (Z<sub>2</sub>)

**2. Installation instruction:**

- Steps to be followed
- Stipulations on maintenance, repair and replacement

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of ETAG 026-2 in order to allow the manufacturer to undertake the actions laid down in section 3.2.2. 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 involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of the European Technical Approval ETA-13/0921 issued on 28. June 2013.

**3.2.2 Tasks of notified body**

The approved body shall perform the following tasks in accordance with the provisions laid down in the control plan:

- Initial type-testing of the product
- Initial inspection of factory and factory production control
- Continuous surveillance, assessment and approval of factory production control

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in (a) written report (reports).

The notified product certification 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 Deutsches Institut für Bautechnik without delay.

### 3.3 CE marking

The CE marking shall be affixed on the on the bus bar trunking element with fire protection device. The marking „CE“ shall be followed by the identification number of the notified product certification body and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacturer),
- 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 guideline for European Technical Approval,
- the name and intended use of the product,
- “see ETA-.../... for relevant characteristics”.

For an example of the CE marking see Appendix 5.

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

### 4.1 General

4.1.1 For evaluating resistance to fire of the penetration seal incorporating the bus bar trunking element with fire protection device it is assumed that

- the installation of the penetration seal does not affect the stability of the adjacent building elements – even in case of fire,
- the installations are fixed to the adjacent building elements (not to the penetration seal) in accordance with the relevant regulations in such a way that, in case of fire, no additional mechanical load is imposed on the seal,
- the support of the installations is maintained for the classification period required,
- the penetration seal complies with the specifications in this ETA and the installation was carried out in accordance with this ETA and also in accordance with the technical data sheet and the installation instructions by the manufacturer,
- damages to the penetration seal are repaired accordingly,
- the seal is installed only in the building elements specified in this ETA,
- only installations in accordance with the specifications in this ETA pass through the openings (Parts or service support constructions other than those in accordance with section 1.2 shall not pass through the penetration seal.),
- the lintel or floor above the penetration seal is designed structurally and in terms of fire protection such that no additional mechanical load (other than its own weight) is imposed on the seal,

4.1.2 This European Technical Approval does not verify the prevention of destruction of adjacent building elements with fire separating function or of the bus bar unit themselves due to distortion forces caused by extreme temperatures. These risks shall be accounted for by taking appropriate measures when designing or installing the bus bar unit.

The mounting or hanging or the execution of the bus bar trunking unit shall be implemented in such a way that the bus bar trunking unit and the fire-resistant building elements shall remain functional within a period of time which corresponds to the fire resistance period required.

#### 4.2 Manufacturing

The bus bar trunking element with fire protection device shall be produced in accordance with the manufacturing process deposited with Deutsches Institut für Bautechnik.

The European Technical Approval is issued for the product on the basis of agreed data and information, deposited with the Deutsches 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 and information being incorrect, shall be notified to the Deutsches Institut für Bautechnik) before the changes are introduced. The Deutsches 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.

#### 4.3 Installation

The arrangement and installation of the bus bar trunking element with fire protection device shall be done in accordance with the details given in the Annexes 3 to 5 for the penetration seal(s) or the bus bar system.

### 5 Indications to the manufacturer

#### 5.1 Packaging, transport and storage

5.1.1 The manufacturer's specifications for packaging, transport and storage shall be observed.

5.1.2 The packaging of the joint sealing material shall contain the following information:

- Trade name or trademark or other symbol identifying the product
- The date of manufacture (day, month, year or coded information)

5.1.3 The joint sealing material shall be packed for delivery in such a way that usual delivery conditions are being complied with and that sufficient protection against the effects of normal handling is given.

#### 5.2 Use, maintenance, repair

5.2.1 The fire resistance of penetration seals incorporating the kit shall not be negatively affected by future changes to buildings or building elements.

5.2.2 The assessment of the fitness for use is based on the assumption that damaged seals are replaced or repaired. It is also assumed that replacement of components during maintenance/repair will be undertaken using materials specified by this European Technical Approval.

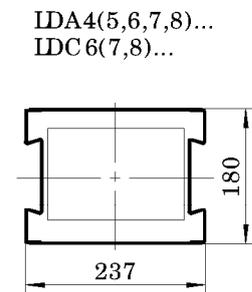
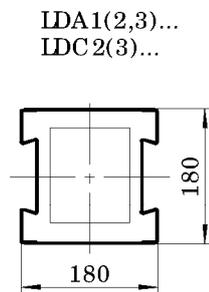
5.3.3 In general, no maintenance work is necessary. Repair can be made by restoring damaged boards according to Appendix 1 and by using the joint sealing material according to Appendix 1.

Prof. Gunter Hoppe  
Head of Department

*beglaubigt:*  
Racinowski

Type / Manufacturer	Description
"LD...-S120" Siemens AG Frohnhofstraße 103-107 50827 Köln DEUTSCHLAND	<b>Bus bar trunking element for fire protection device for penetration seals of the busbar system "LD ..."</b> for a fire resistance period of <u>120 minutes</u>  The bus bar trunking unit element with fire protection device consists of - a bus bar trunking unit "LD..." according to Annex 2, - according the bus bar trunking element cutted fire protected boards "PROMATECT-H" in accordance with ETA-06/0206 (see below) with dimensions according to Appendices 4 to 12, - a sealant called "PROMASEAL Mastic" (see below)
"PROMASEAL Mastic" Promat International NV Bormstraat 24 B-2830 Tiselt BELGIEN	<b>sealant</b> filled in cartridges  Reaction to fire performance in accordance with EN 13501-1: Class E Further material data is deposited with the DIBt.
"Promaseal PL" Promat International NV Bormstraat 24 B-2830 Tiselt BELGIEN	<b>Intumescent Material</b> Reaction to fire performance in accordance with EN 13501-1: Class B-s1 Further material data is deposited with the DIBt.
"Promaseal ST-N" Promat International NV Bormstraat 24 B-2830 Tiselt BELGIEN	<b>Intumescent Material</b> Reaction to fire performance in accordance with EN 13501-1: Class B-s1 Further material data is deposited with the DIBt.
Promatect-H Type B Promat International NV Bormstraat 24 B-2830 Tiselt BELGIEN	<b>Fire protective boards</b> "PROMATECT-H" according to ETA-06/0206 Reaction to fire performance in accordance with EN 13501-1: Class A-1 Thickness: 20 mm
gap filling material, manufacturer-independent	Dimensionally stable, non-combustible (Class A1 or A2-s1,d0 in accordance with EN 13501-1) materials, such as concrete, cement mortar or gypsum mortar or – when installing in walls – also mineral wool (fire performance Class A1 or A2 in accordance with EN 13501-1) with a melting point > 1000 °C in accordance with DIN 4102-17.
"LD...-S120"	Annex 1
<b>Appendix 1 – Description of the product and ancillary properties</b>	

### Busbar trunking system (cross-section)



Busbar trunking system	Busbar		LDC... (Material: copper)			LDA... (Material: aluminium)		
	Qty.	Cross-section [mm <sup>2</sup> ]	Typ	Current [A]	Weight [kg]	Typ	Current [A]	Weight [kg]
	4(5)	68x8	-	-	-	IDA1...	1100	16,7 - 17,9
	4(5)	90x8	LDC 2...	2000	38,8 - 45,5	IDA2...	1250	20,0 - 22,0
						IDA3...	1600	20,0 - 22,0
	4(5)	130x8	LDC 3...	2600	51,2 - 61,0	-	-	-
	7(8,9)	68x8	-	-	-	IDA4...	2000	21,7 - 24,1
	7(8,9)	90x8	LDC 6...	3400	60,3 - 73,7	IDA5...	2500	27,4 - 31,4
						IDA6...	3000	27,4 - 31,4
	7(8,9)	130x8	LDC 7...	4400	82,0 - 101,6	IDA7...	3700	33,7 - 39,5
	7(8,9)	154x8	LDC 8...	5000	100,2 - 125,0	IDA8...	4000	37,2 - 44,0

Dimension in mm

"LD...-S120"

**Appendix 1 – Description of the product and ancillary properties**  
Description of the bus bar trunking units "LDA-..." or "LDC-..."

Annex 2

**The bus bar trunking system "LD...-S120" may be installed in**

**Rigid walls**

- of masonry, concrete, reinforced concrete, or aerated concrete
- density  $\geq 400 \text{ kg/m}^3$
- thickness  $\geq 100 \text{ mm}$
- The walls shall be classified according to EN 13501-2 (maximum EI 120) corresponding to the required fire resistance period.

**Flexible walls**

- flexible walls with a steel stud substructure and a lining on both sides made from min. 2 layers of 12,5 mm thick cementitious or gypsum based slabs with a fire reaction class A1 or A2 according to EN 13501-1

The framework shall be supplemented with additional transoms and mullions so that they form the reveal of the wall opening for the planned mixed penetration seal. The wall lining shall be attached to these steel profiles appropriately. The opening reveal shall be cladded as described below.

- flexible walls with a wood stud substructure and a lining on both sides made from min. 2 layers of 12,5 mm thick cementitious or gypsum based slabs with a fire reaction class A1 or A2 according to EN 13501-1

The distance between the wood substructure and the seal shall be  $\geq 100 \text{ mm}$  and the cavity between the linings of the wall, the wood substructure and the seal shall be tightly clogged with mineral wool of fire reaction class A1 or A2 according to EN 13501-1 in a depth of minimum 100 mm. The opening reveal shall be cladded as described below.

- thickness  $\geq 100 \text{ mm}$
- The walls shall be classified according to EN 13501-2 (maximum EI 120) corresponding to the required fire resistance period.
- Cladding of the opening reveal: A surrounding reveal (frame flush with the wall surface) shall be fitted in the opening in accordance with the layout of the respective wall lining (for walls without internal insulation) or made of at least 12.5 mm thick cementitious or gypsum bound sheets with fire reaction class A1 per EN 13501-1 (e.g. gypsum fibre or calcium silicate plates) (for walls with internal insulation).

**Rigid floors**

- of masonry, concrete, reinforced concrete or aerated concrete
- density  $\geq 550 \text{ kg/m}^3$
- thickness  $\geq 150 \text{ mm}$
- The floors shall be classified according to EN 13501-2 (maximum EI 120) corresponding to the required fire resistance period.

**Note:** This ETA does not cover the installation of the seal in special walls, i. e. in sandwich panel constructions.

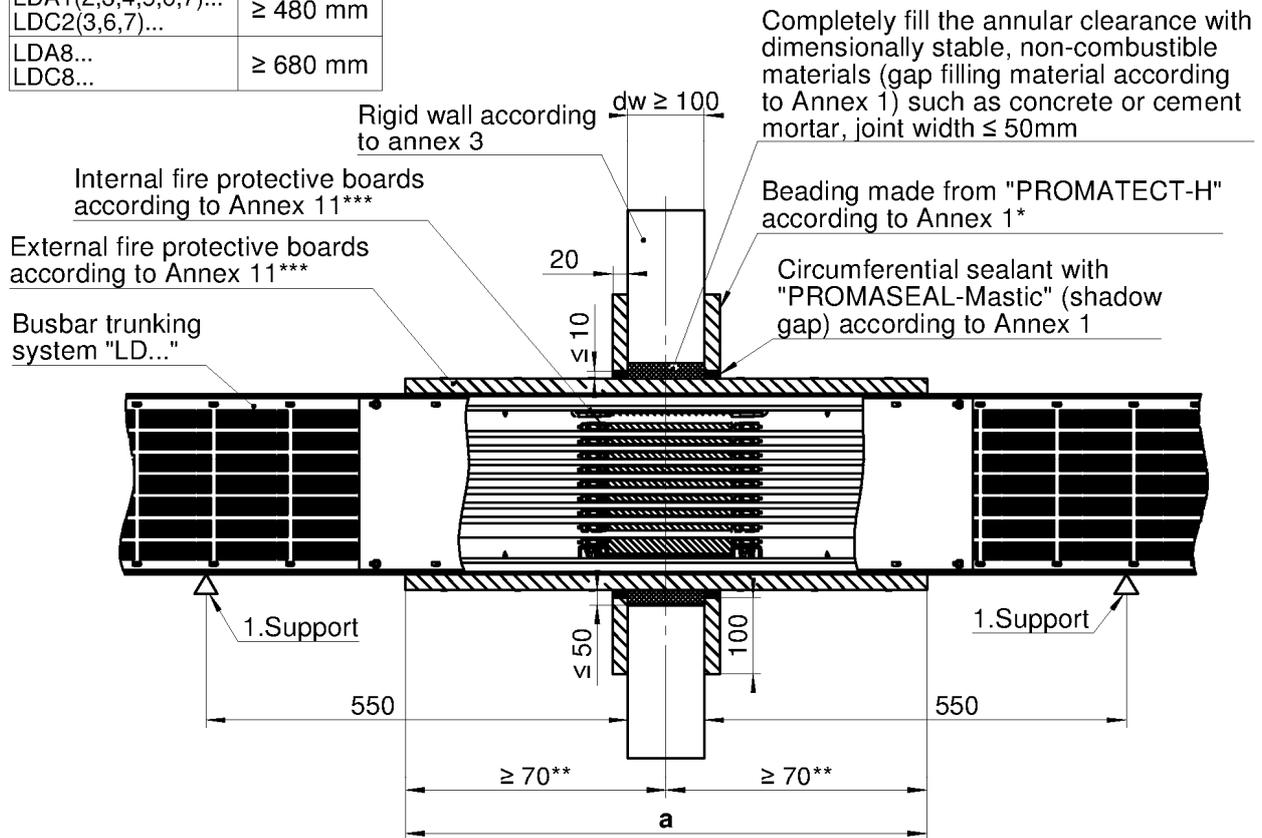
"LD...-S120"

**Appendix 2 – Intended use**  
Walls and floors

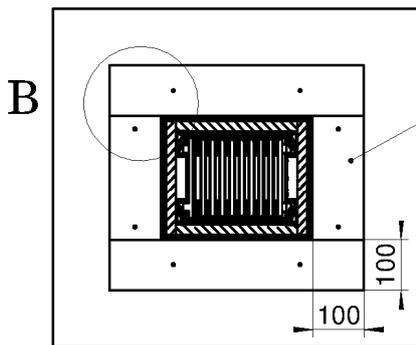
Annex 3

### Penetration seal of busbar trunking system "LD...-S120" with fire resistance class EI 90 according to EN 13501-2 in a Rigid wall $d_w \geq 100$ mm

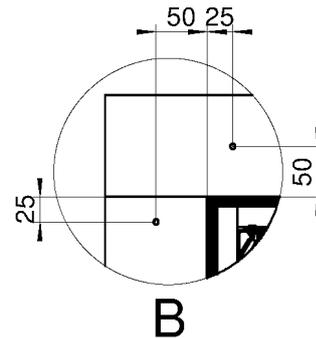
Typ	a
LDA1(2,3,4,5,6,7)...	$\geq 480$ mm
LDC2(3,6,7)...	$\geq 480$ mm
LDA8...	$\geq 680$ mm
LDC8...	$\geq 680$ mm



For details on the lining of busbar trunking system, see Annex 11 and 12



Beading made from "PROMATECT-H" acc. Annex 1\*  $t = 20$  mm



- \* When installing in rigid walls with thicknesses  $>140$  mm, it is permissible to omit the beadings on both sides
- \*\* The outer edge of the fire protection block must be at least 70 mm from the wall middle at installation off-centre to rigid wall.
- \*\*\* The internal fire protective system must symmetrically be placed to the external fire protection block.

Dimension in mm

"LD...-S120"

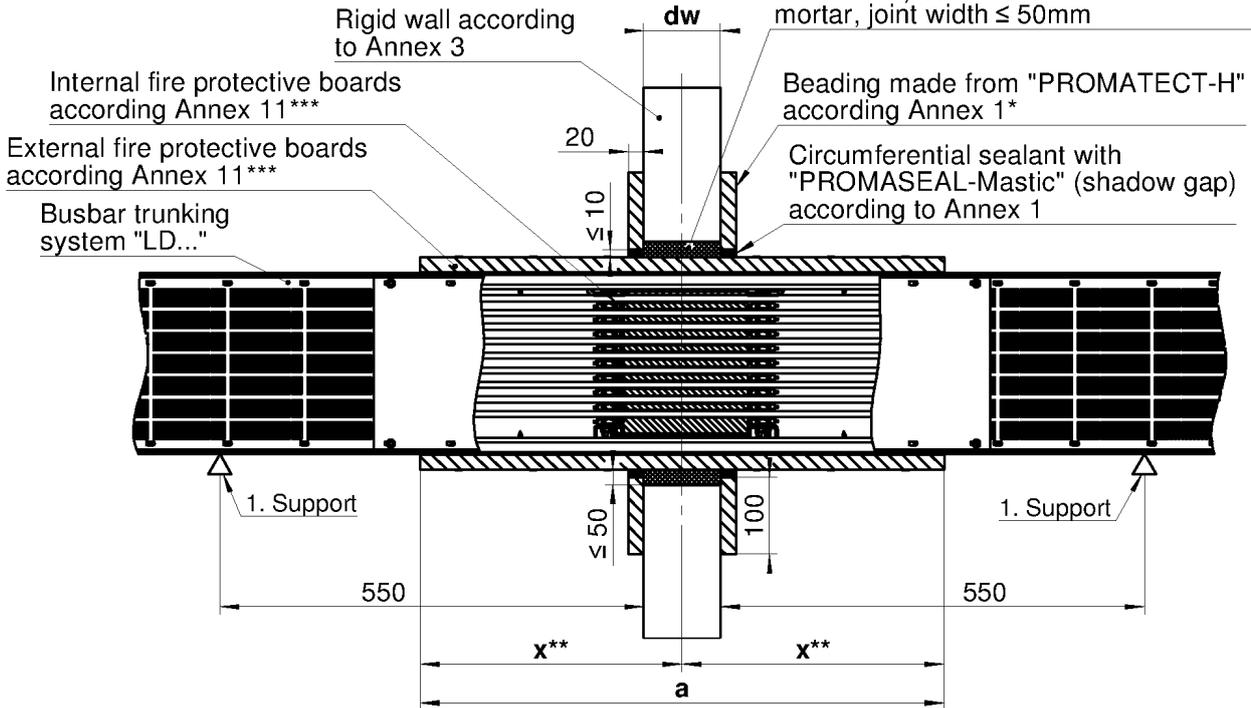
Appendix 3 – Description of the fire penetration seal by using of the system "LD...-S120"  
Installation in rigid walls acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 4

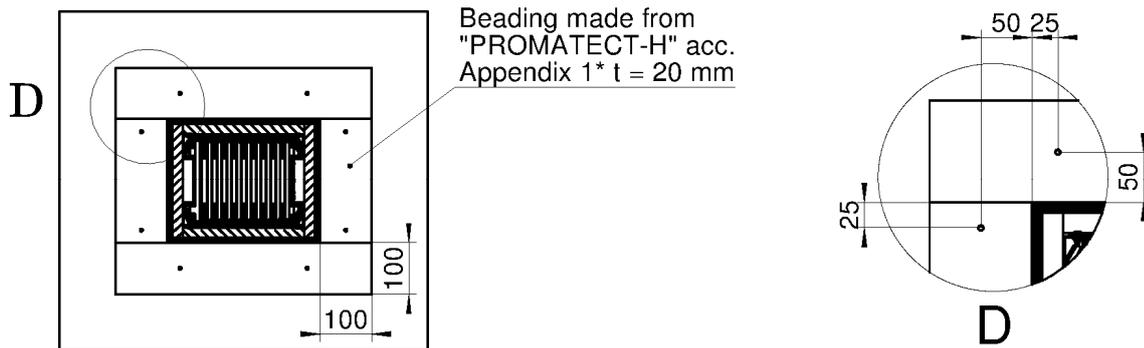
### Penetration seal of busbar trunking system "LD...-S120" with fire resistance class EI 120 according to EN 13501-2 in a Rigid wall $d_w \geq 100$ mm or $\geq 150$ mm

Typ	a	$d_w$	$x^{**}$
LDA1(2,3,4,5,6,7)...	$\geq 480$ mm	$\geq 100$ mm	$\geq 70$ mm
LDA8...	$\geq 680$ mm	$\geq 100$ mm	$\geq 70$ mm
LDC2(3,6,7)...	$\geq 480$ mm	$\geq 150$ mm	$\geq 190$ mm
LDC8...	$\geq 680$ mm	$\geq 150$ mm	$\geq 290$ mm

Completely fill the annular clearance with dimensionally stable, non-combustible materials (gap filling material according to Annex 1) such as concrete or cement mortar, joint width  $\leq 50$  mm



For details on the lining of busbar trunking system, see Annex 11 and 12



- \* When installing in rigid walls with thicknesses  $>150$  mm, it is permissible to omit the beadings on both sides
- \*\* The outer edge of the fire protection block must be at according table (dimension x) from the wall middle.
- \*\*\* The internal fire protective system must symmetrically be placed to the external fire protection block.

Dimension in mm

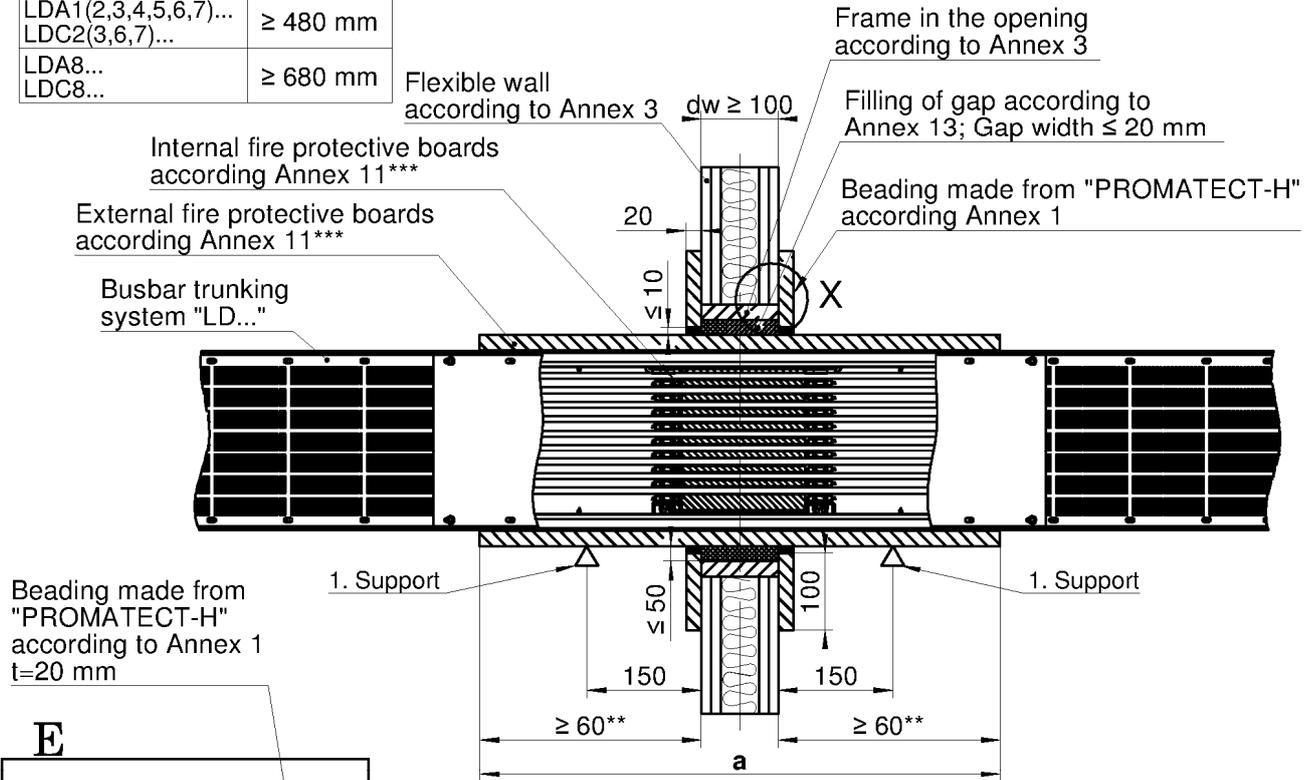
"LD...-S120"

Appendix 3 – Description of the fire penetration seal by using of the system "LD...-S120"  
Installation in rigid walls acc. to Annex 3 – symmetrical and asymmetrical installation

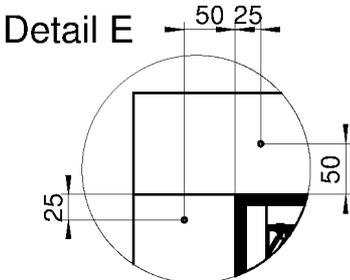
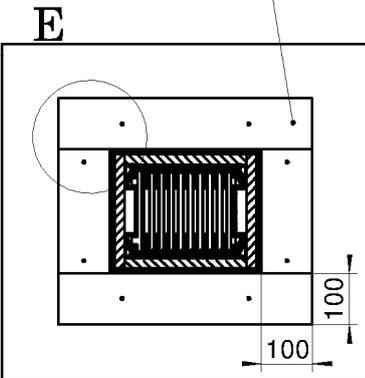
Annex 5

### Penetration seal of busbar trunking system "LD...-S120" with fire resistance class EI 90 according to EN 13501-2 in a Flexible wall $d_w \geq 100$ mm

Typ	a
LDA1(2,3,4,5,6,7)...	$\geq 480$ mm
LDC2(3,6,7)...	
LDA8...	$\geq 680$ mm
LDC8...	

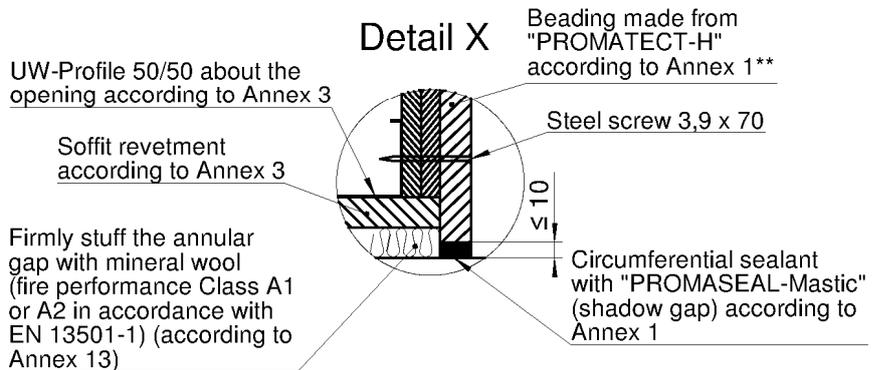


Beading made from "PROMATECT-H" according to Annex 1  $t=20$  mm



- \* The internal fire protective system must symmetrically be placed to the external fire protection block.
- \*\* The outer edge of the fire protection block must be at least 60 mm from the wall middle at installation off-centre to rigid wall.

For details on the lining of busbar trunking system, see Annex 11 and 12



Dimension in mm

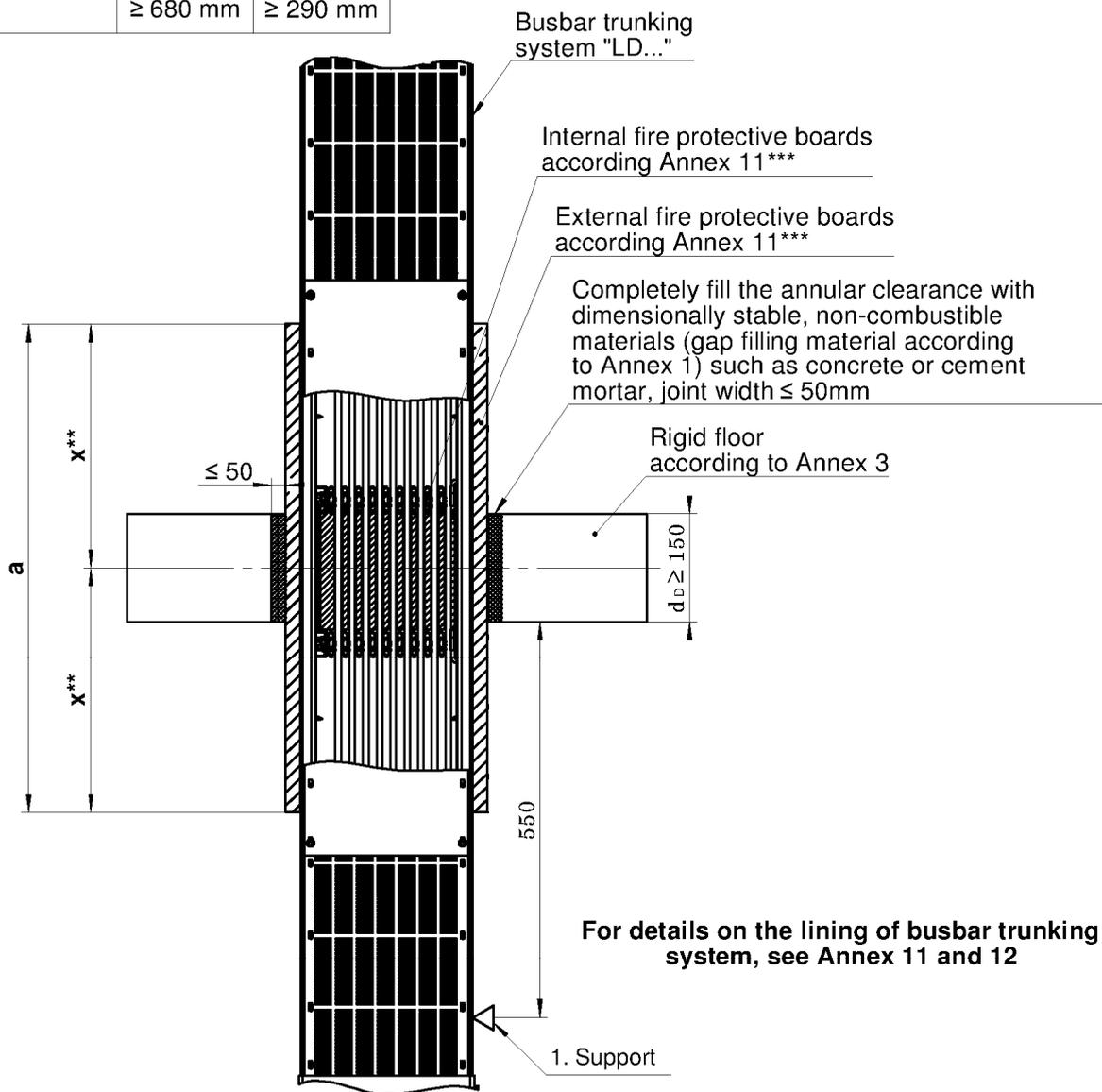
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system "LD...-S120"**  
Installation in flexible walls acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 6

### Penetration seal of busbar trunking system "LD...-S120" with fire resistance class EI 90 or EI 120 according to EN 13501-2 in a Rigid floor $d_b \geq 150$ mm

Typ	a	x**
LDA1(2,3,4,5,6,7)...	$\geq 480$ mm	$\geq 190$ mm
LDC2(3,6,7)...		
LDA8...	$\geq 680$ mm	$\geq 290$ mm
LDC8...		



\* The internal fire protective system must symmetrically be placed to the external fire protection block.

\*\* The outer edge of the fire protection block must be at according table (dimension x) from the floor middle.

Dimension in mm

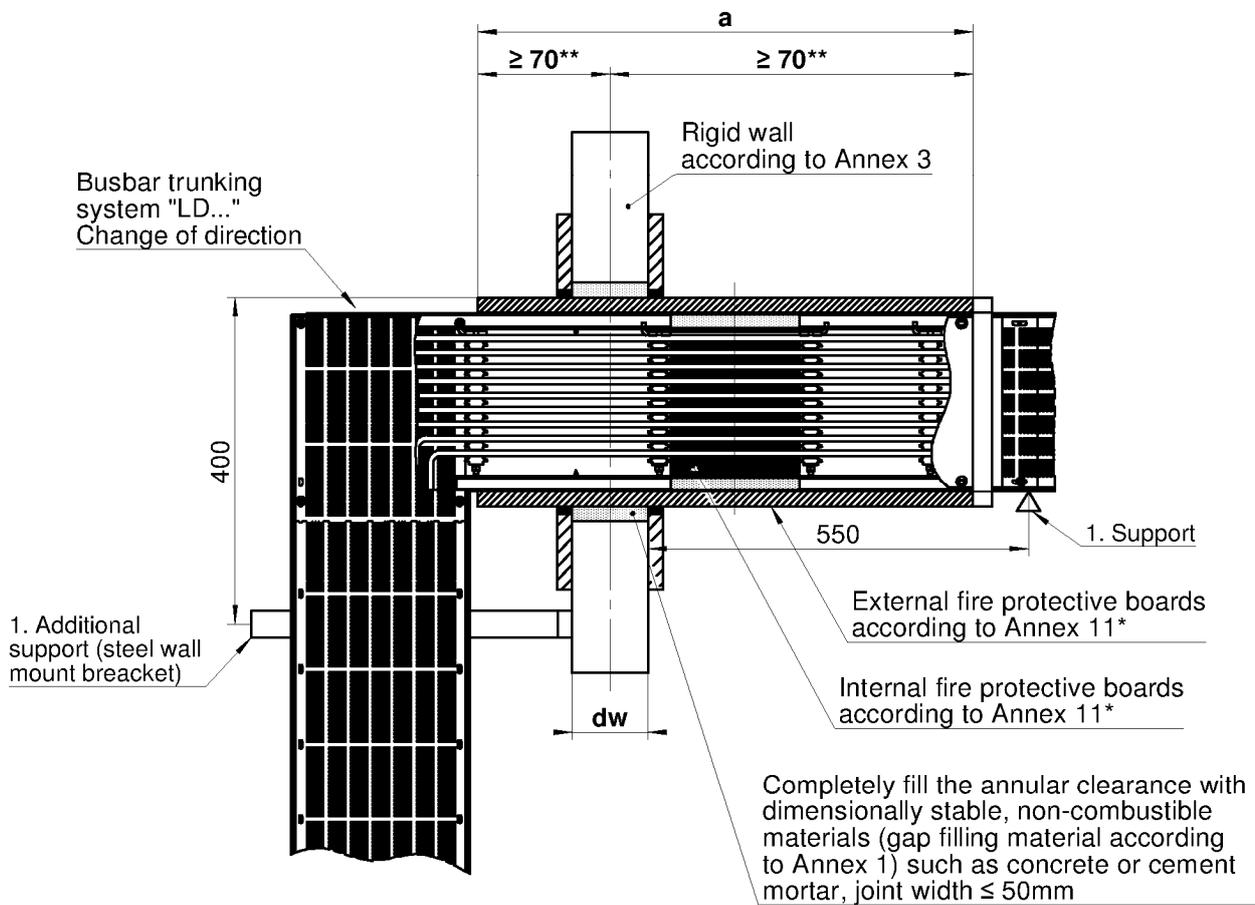
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system "LD...-S120"**  
Installation in rigid floors acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 7

**Further examples of variants:  
Penetration seal of busbar trunking system "LD...-S120"  
(change of direction) with fire resistance class EI 90  
according to EN 13501-2 in a Rigid wall  $d_w \geq 100$  mm**

Systemtyp	a
LDA1(2,3,4,5,6,7)... LDC2(3,6,7)...	$\geq 480$ mm
LDA8... LDC8...	$\geq 680$ mm



**For details on the lining of busbar trunking system, see Annex 11 and 12**

\* The internal fire protective system must symmetrically be placed to the external fire protection block.

\*\* The outer edge of the fire protection block must be at least 70 mm from the wall middle at installation off-centre to rigid wall.

Dimension in mm

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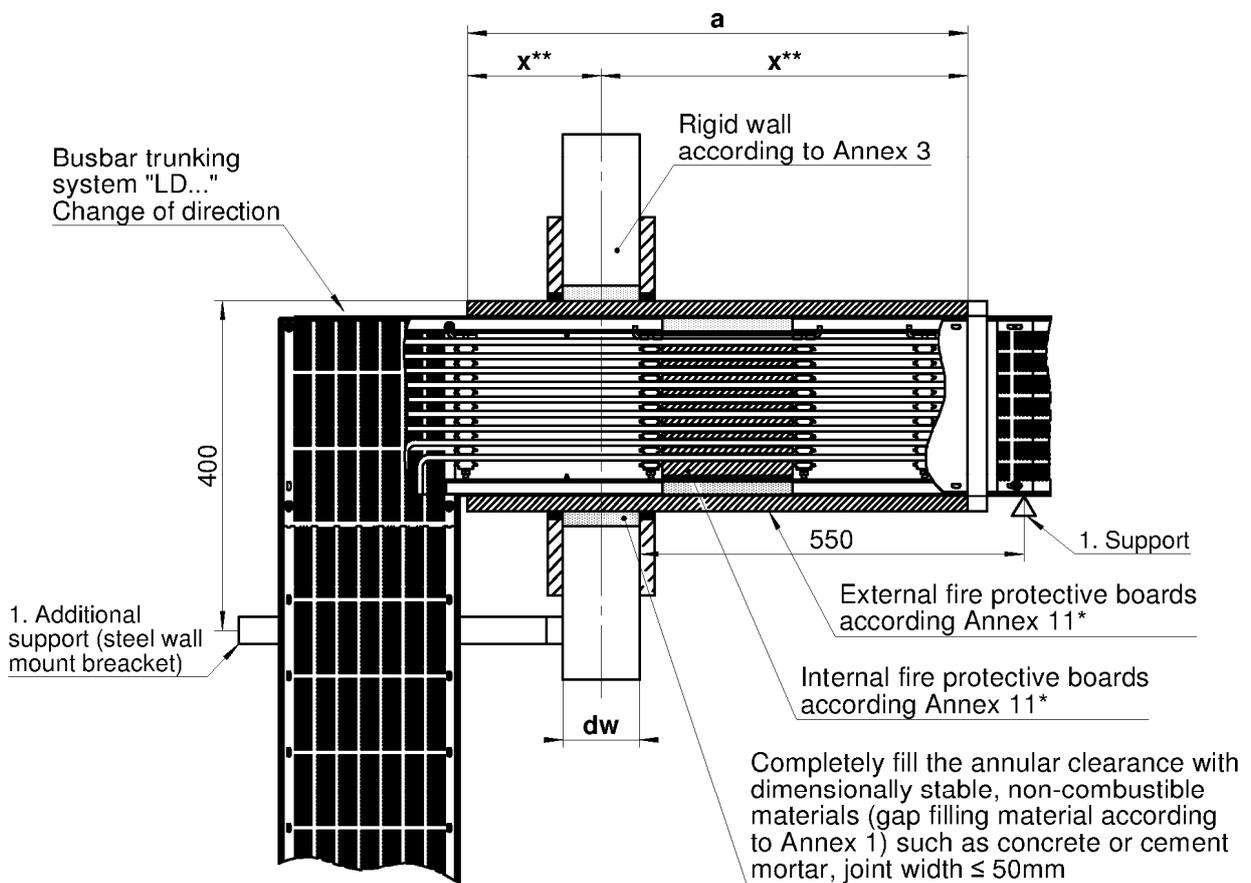
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system  
"LD...-S120"**  
Installation in rigid walls acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 8

**Further examples of variants:  
Penetration seal of busbar trunking system "LD...-S120"  
(change of direction) with fire resistance class EI 120  
according to EN 13501-2 in a Rigid wall  $d_w \geq 100$  mm**

Typ	a	$d_w$	$x^{**}$
LDA1(2,3,4,5,6,7)...	$\geq 480$ mm	$\geq 100$ mm	$\geq 70$ mm
LDA8...	$\geq 680$ mm	$\geq 100$ mm	$\geq 70$ mm
LDC2(3,6,7)...	$\geq 480$ mm	$\geq 150$ mm	$\geq 175$ mm
LDC8...	$\geq 680$ mm	$\geq 150$ mm	$\geq 175$ mm



**For details on the lining of busbar trunking system, see Annex 11 and 12**

\* The internal fire protective system must symmetrically be placed to the external fire protection block.

\*\* The outer edge of the fire protection block must be at according table (dimension x) from the wall middle.

Dimension in mm

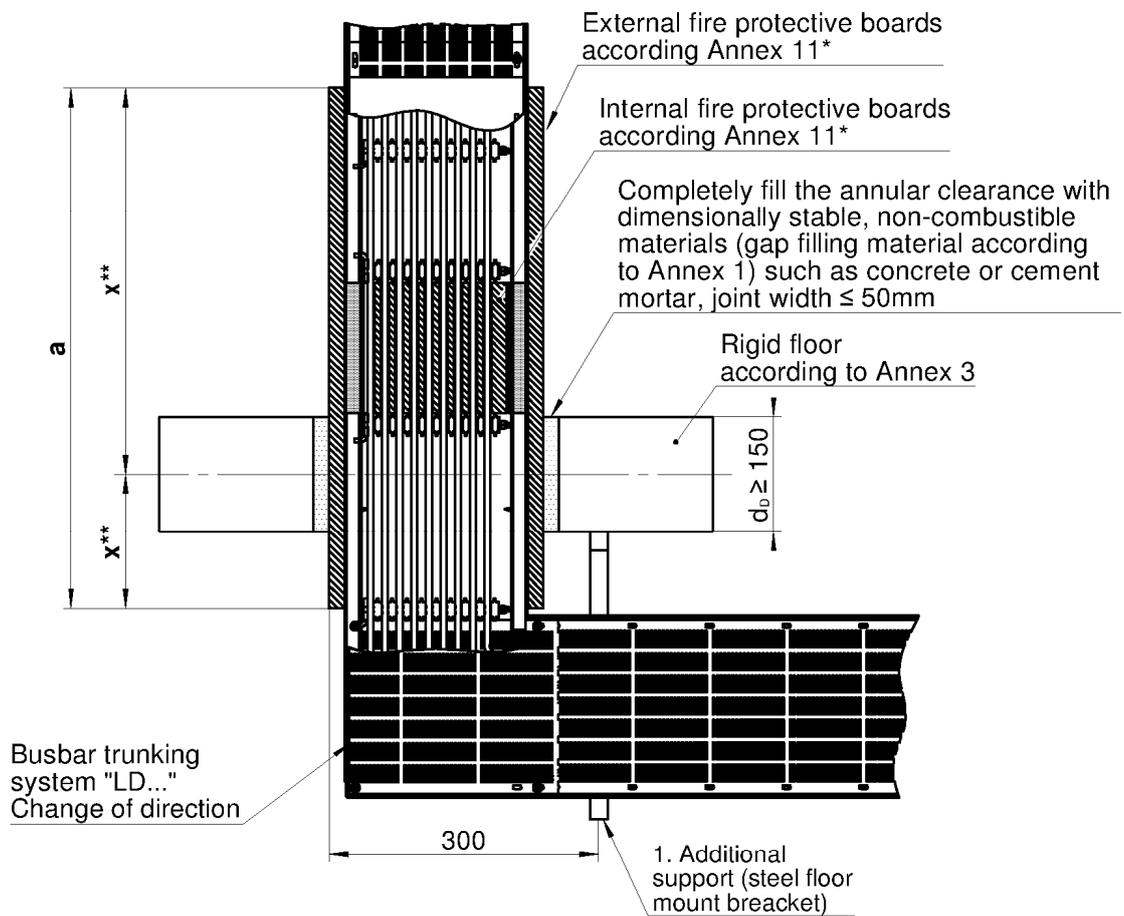
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system  
"LD...-S120"**  
Installation in rigid walls acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 9

**Further examples of variants:  
Penetration seal of busbar trunking system "LD...-S120"  
(change of direction) with fire resistance class EI 90 or EI 120  
according to EN 13501-2 in a Rigid floor  $d_b \geq 150$  mm**

Typ	a	x**
LDA1(2,3,4,5,6,7).. LDC2(3,6,7)...	$\geq 480$ mm	$\geq 190$ mm
LDA8.. LDC8...	$\geq 680$ mm	$\geq 290$ mm



**For details on the lining of busbar trunking system, see Annex 11 and 12**

\* The internal fire protective system must symmetrically be placed to the external fire protection block.

\*\* The outer edge of the fire protection block must be at according table (dimension x) from the wall middle.

Dimension in mm

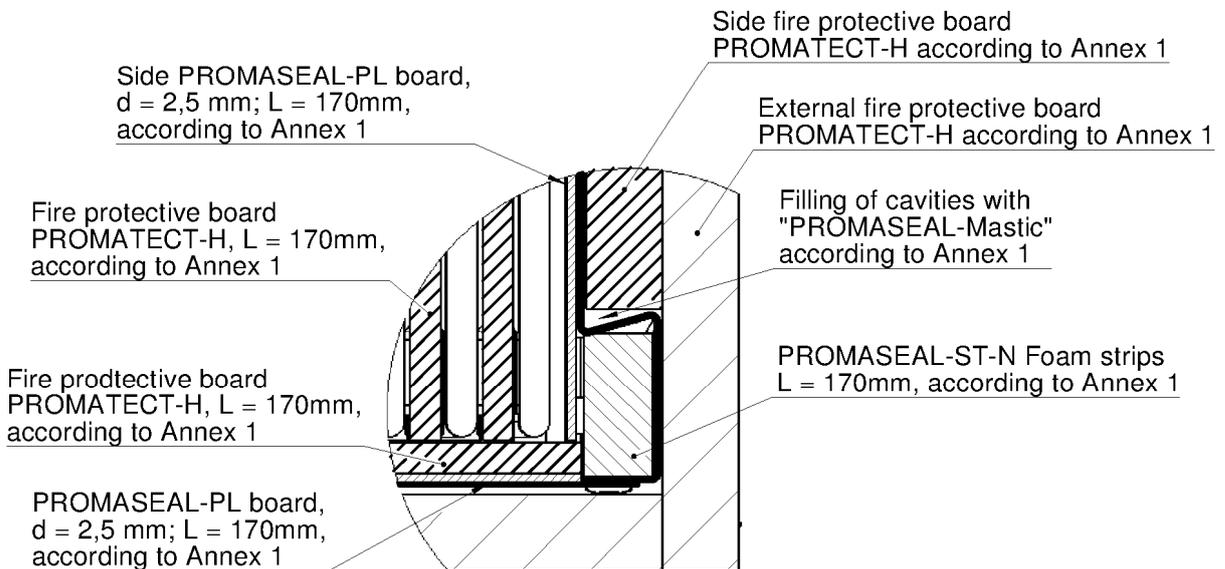
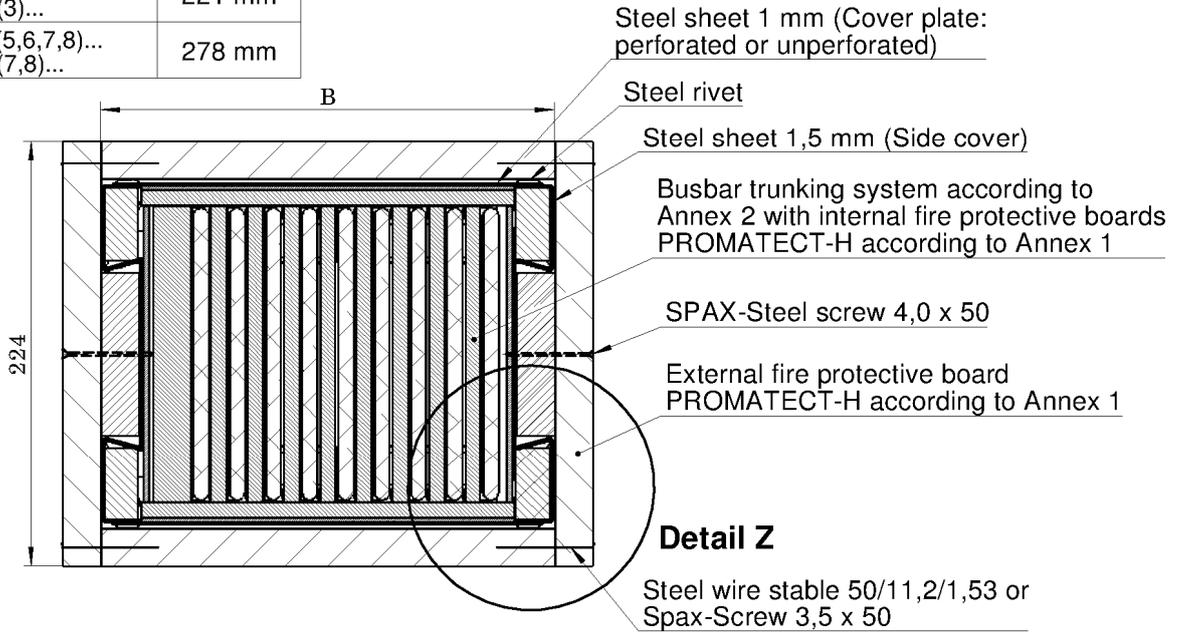
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system "LD...-S120"**  
Installation in rigid floors acc. to Annex 3 – symmetrical and asymmetrical installation

Annex 10

### Lined busbar trunking system (cross-section)

Systemtype	B
LDA1(2,3)...	221 mm
LDC2(3)...	221 mm
LDA4(5,6,7,8)...	278 mm
LDC6(7,8)...	278 mm



**Detail Z**

Dimension in mm

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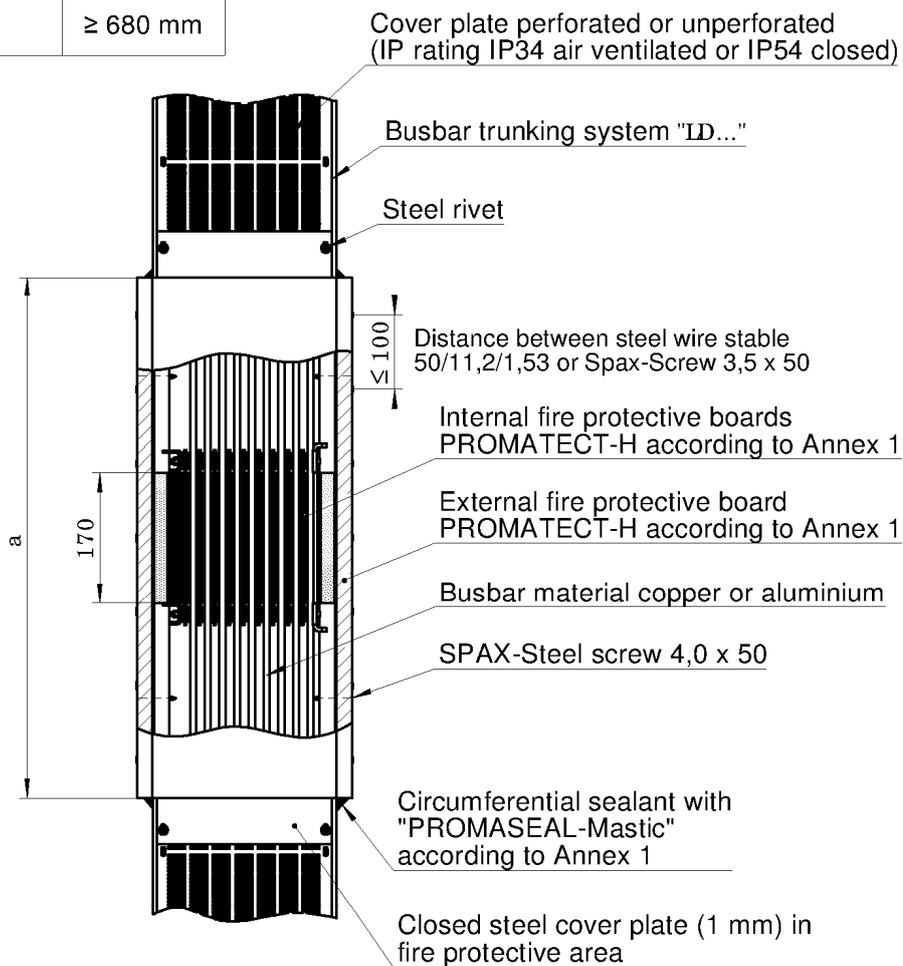
"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system**  
"LD...-S120"  
Cross section

Annex 11

## Lined busbar trunking system (longitudinal section)

Systemtype	a
LDA1(2,3,4,5,6,7).. LDC2(3,6,7)...	≥ 480 mm
LDA8.. LDC8...	≥ 680 mm



Dimension in mm

"LD...-S120"

**Appendix 3 – Description of the fire penetration seal by using of the system**  
"LD...-S120"  
Longitudinal section

Annex 12

## Installation of the penetration seal

### 1. General

- 1.1 Before installing the penetration seal of the busbar system, are to be checked for compliance (e. g. type and thickness of the wall or floor, type and dimensions of the pipes and the ambient conditions) with the provisions of section 1.2 and Annex 1 and 2.
- 1.2 It shall be ensured that the assumptions under which the fitness for use was evaluated are complied with (see section 4).
- 1.3 When starting with the installing, the surfaces of the openings for the components must be cleaned.

### 2. Installation of the lined busbar trunking system in walls

- 2.1 The busbar trunking system provided with the lining must be inserted upright or flat into the opening for the component such that the overhang of the lining on each side of the wall is at least 60 mm by installation in flexible walls (see Annex 6) and at least 70 mm (beginning of the wall centre) in rigid walls (see Annex 4, 5 and 8 to 10).
- 2.2 When installing in rigid walls, the all-round joint (max. 50 mm wide) between the lining of the busbar trunking system and the wall surface must be completely filled in the thickness of the component with dimensionally stable, non-combustible (Class A1 or A2-s1,d0 in accordance with EN 13501-1) construction materials such as concrete, cement mortar or gypsum mortar.  
When installing in light partitions, this joint must be completely filled with non-combustible (fire performance Class A1 or A2 in accordance with EN 13501-1) mineral wool (melting point > 1000 °C in accordance with DIN 4102-17). This type of joint filling may also be used as an option when installing in rigid walls.
- 2.3 At least the 20 mm thick panels "PROMATECT" must subsequently be fitted on both sides of the wall according to Annex 1. For this, four strips of these panels (at least 100 mm width) must be secured to the wall all around the opening for the component using at least 4 steel screws per slat (see Annex 4 and 5). The slats can be omitted in the case of a wall thickness > 140 mm. In addition, the transition between lining and slat or wall must be sealed all-round using the sealing compound the sealant" PROMASEAL Mastic".

### 3. Installation of the lined busbar trunking system in floors

- 3.1 The busbar trunking system provided with the lining must be inserted into the opening for the component such that the overhang of the lining on each side of the floor is at least 190 mm (beginning from floor centre) (see Annex 7).
- 3.2 The all-round joint (max. 50 mm wide) between the busbar trunking system and floor surface must be completely filled in the thickness of the component with dimensionally stable, non-combustible (Class A1 or A2-s1,d0 in accordance with EN 13501-1) construction materials such as concrete, cement mortar or gypsum mortar.

"LD...-S120"

**Appendix 4 – Installation of the product and ancillary properties**

Annex 13

 <p>XXXX</p> <p>Siemens AG Frohnhofstraße 103-107 50827 Köln</p> <p>13</p> <p>1234-CPD-0321</p> <p>ETA-13/0921 ETAG N° 026 part 2</p> <p>"LD...-S120" für die Verwendung in Abschottung des Stromschiensystems "LD" Penetration seal for bus bar systems "LD"</p>	<p>"CE"-Zeichen / "CE" marking</p> <p>Identifizierungsnummer der notifizierten Stelle (für Konformitätsbescheinigungssystem 1) / Identification number of notified certification body</p> <p>Name und Anschrift des Herstellers oder seines autorisierten Vertreters (verantwortliche juristische Person) / Name and address of the producer (legal entity responsible for the manufacturer)</p> <p>Die letzten beiden Ziffern des Jahres, in dem die CE-Kennzeichnung angebracht wurde / Two last digits of year of affixing CE marking</p> <p>Nummer des EG-Konformitätszertifikats / Number of EC certificate of conformity</p> <p>Nummer der ETA / ETA number</p> <p>Nummer der Leitlinie / ETAG number</p> <p>Produktbezeichnung (Handelsname) / Designation of the product (trade name)</p> <p>Produktbezeichnung der Komponente (Handelsname) / Designation of the component (trade name)</p> <p>Nutzungskategorie / use category</p>
<p>"LD...-S120"</p>	<p>Annex 14</p>
<p><b>Appendix 5 – Example for CE-marking</b></p>	

### Abbreviations

- FWKL:** maximum fire resistance class; If installed in building elements of the same type, thickness, density and with the same structure, but with a lower fire resistance class, the fire resistance class of the penetration seal is reduced to the fire resistance class of the building element.
- LTW:** flexible wall according to annex 8
- MW:** rigid wall according to annex 8
- D:** rigid floor according to annex 8
- d<sub>w</sub>:** wall thickness
- d<sub>f</sub>:** floor thickness

### Standards

- EN 13501-2:2010-02** Fire classification of construction products and building elements – Part 2: Classification using test data from resistance to fire tests, excluding ventilation services
- EN 13501-1:2007** Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
- prEN 1366-3:2007-07** Document from CEN TC 127 for formal vote (document N 185); title see EN 1366-3: 2009-07
- EN 1366-3:2009-07** Fire resistance tests for service installations – Part 3: Penetration seals
- EN 13162:2008** Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification

### Other documents

- ETAG 026-2** Guideline for European Technical Approval of Fire Stopping and Fire Sealing Products, Part 2, Penetration Seals (edition January 2008)
- EOTA TR 024** Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products (edition November 2006)

"LD...-S120"

**Appendix 6 – Abbreviations and reference documents**

Annex 15