

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-15/0293**  
**of 4 June 2015**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

PYROMENT-IK 90® Typ BD

Product family  
to which the construction product belongs

Service ducts and shafts

Manufacturer

G+H Isolierung GmbH  
Leuschner Straße 2  
97084 Würzburg  
DEUTSCHLAND

Manufacturing plant

1

This European Technical Assessment  
contains

27 pages including 22 annexes 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

European Assessment Document (EAD)  
350003-00-1109 "Kit for fire resistant service ducts  
consisting of pre-fabricated connecting pieces (made of  
mechanically pre-coated steel sheet) and according  
accessories"

**European Technical Assessment**

**ETA-15/0293**

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## Specific part

### 1 Technical description of the product

This European Technical Approval (ETA) covers the "PYROMENT-IK 90® Typ BD" kit.

The kit is used to assemble the fire resistant "PYROMENT-IK 90® Typ BD" service duct.

The kit mainly consists of

- pre-fabricated connecting pieces in different variants
- pre-fabricated accessories such as angles
- accessories such as cable glands, sealing products, etc.

For details on the components and further product properties see Annex A.

Details on the materials used for the special connecting pieces are deposited with Deutsches Institut für Bautechnik.

The kit is individually pre-assembled depending on the requirements for each project and is put on the market as a packing unit.

### 2 Specification of the intended use in accordance with the applicable European assessment Document

The "PYROMENT-IK 90® Typ BD" service duct is intended to be used as a fire resistant service duct for inside use. In case of fire exposure from inside or outside, fire resistant service ducts prevent, when installed, the spread of fire from one fire compartment to another.

The performances given in Section 3 are only valid if the fire resistant service duct is used in compliance with

- the specifications and conditions given in Annexes A and B and
- the manufacturer's instructions as stated in section 5.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fire resistant "PYROMENT-IK 90® Typ BD" service duct of at least 10 years. 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.

The connecting pieces in end use conditions are suitable for use in use category Z<sub>2</sub> specified in TR024 with no essential changes in their fire protective properties to be expected.

Therefore, fire resistant service ducts may be exposed to use category Z<sub>2</sub> (internal use).

Durability is only ensured if the specifications of intended use as given in Annexes A and B and the manufacturer's instructions in section 5 are taken into account.

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

#### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the components	See Annex A
Resistance to fire of the service duct	Four-sided service duct Class EI 30( $v_e h_o \leftrightarrow o$ ) to EI 120( $v_e h_o \leftrightarrow o$ ) in accordance with EN 13501-2 Three-sided or two-sided service duct Class EI 30( $v_e h_o \leftrightarrow o$ ) to EI 90( $v_e h_o \leftrightarrow o$ ) in accordance with EN 13501-2 See Annex B
Resistance of the intumescent material to the effects of higher ambient or use temperatures (of up to 80 °C)	Fulfilled
Resistance of the intumescent material to the effects of direct contact with metals and plastics (PVC and PE)	Fulfilled
Mechanical resistance and stability	The dimensions of the pre-fabricated connecting pieces shall correspond with the specifications given in Annex A. The fastening and spacing of the fastening of the service duct shall correspond with the specifications given in Annex B. The weight and the arrangement of the services shall comply with the details given in Annex B.

#### 3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content and/or release of dangerous substances	The construction kit does not contain dangerous substances according to EOTA TR034 (version April 2014), except: - VVOC, VOC, SVOC: not assessed.
Use category related to BWR3	IA1

#### 3.3 Sustainable use of natural resources (BWR 7)

If required, individual connecting pieces or entire sections of the service duct may be replaced by unfastening the connection to adjacent connecting pieces or building components and by replacing the connecting pieces with new ones.

If parts of the service duct are replaced, see Annex B.

If connecting pieces are dismantled and disposed, the steel used for the production of the connecting pieces can be recycled after the coating with the intumescent material of the sheet metal components has been burnt and the sheet metal components have been subjected to a melting process (at least 1450 °C).

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

According to Decision of the Commission of 22 June 1999 (1999/454/EC) (OJ L 178/52 of 14.7.1999, p. 3), as amended by Decision of the Commission of 8 January 2001 (2001/596/EC) (OJ L 209/33 of 2.8.2001, p. 2), the system of assessment and verification of constancy of performance (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use	Level or class (resistance to fire)	System of assessment and verification of constancy of performance
"PYROMENT-IK 90® Typ BD"	Fire resistant service duct	any	1

**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 Deutsches Institut für Bautechnik.

The manufacturer shall provide installation instructions on every construction product as laid down in this ETA containing at least the following information:

- type, properties (minimum thickness, density, design of partitions) and fire resistance of the building components with a fire separating function in which the "PYROMENT-IK 90® Typ BD" service duct may be installed
- description or graphic presentation of the proper installation of the service duct in accordance with Annexes A and B
- instructions on how to change the services of the service duct (retrofitting) and on how to replace the connecting pieces

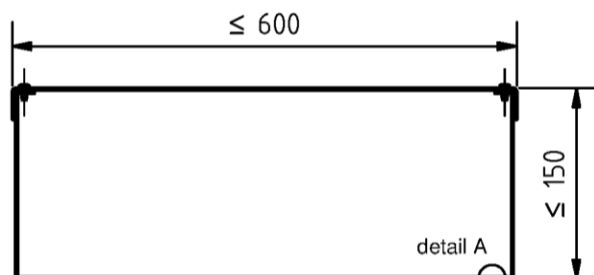
The manufacturer shall provide instructions on processing, packaging, transport, storage and use, maintenance and repair of the construction product.

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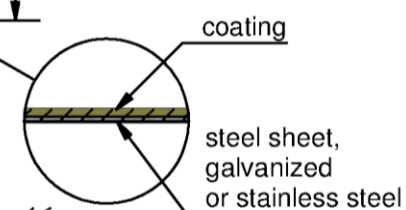
Prof. Gunter Hoppe  
Head of Department

*beglaubigt:*  
von Hoerschelmann

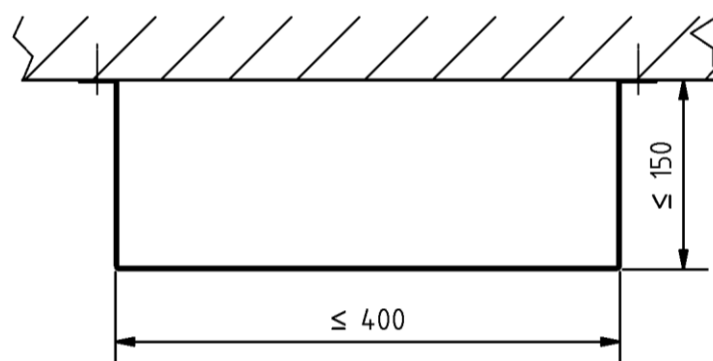
four-sided  
service duct



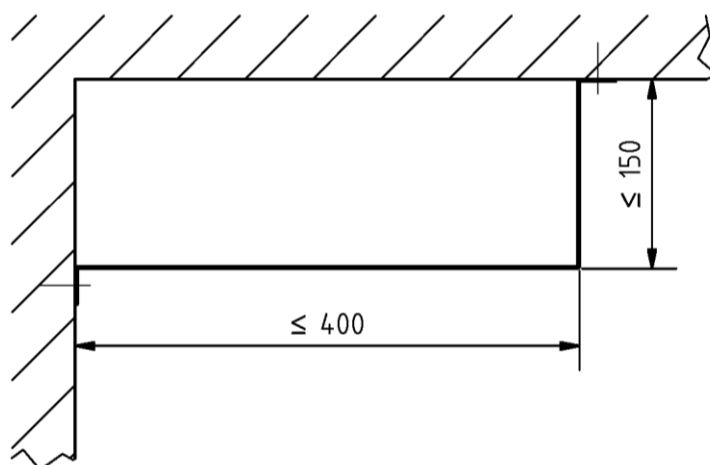
detail A ( 1 : 1 )



three-sided  
service duct



two-sided  
service duct

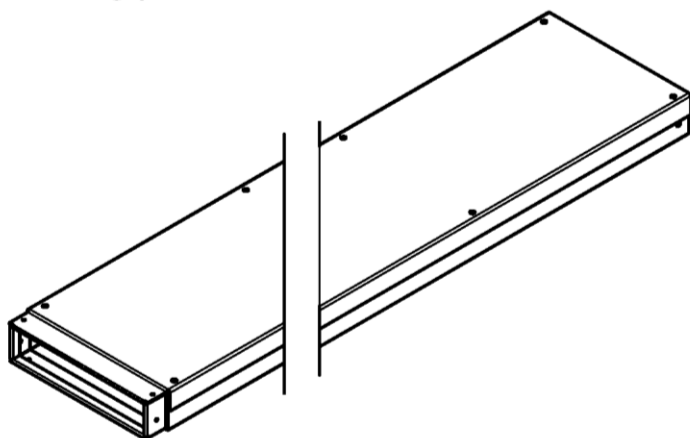


PYROMENT-IK 90® Typ BD

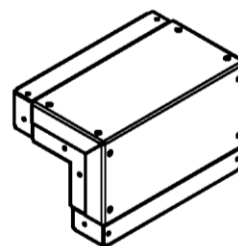
**Properties and performance of the components of the kit**  
- Overview of the types of the service duct -

Annex A 1

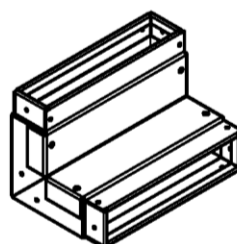
## Connecting pieces standard, four-sided



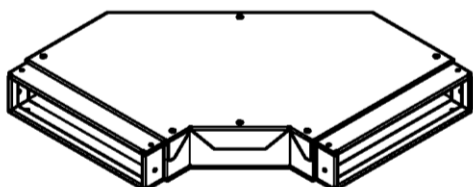
duct, straight 1000 - 2000 mm



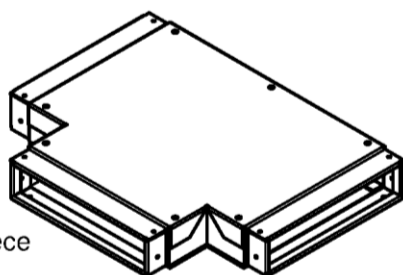
external corner 30° - 90°



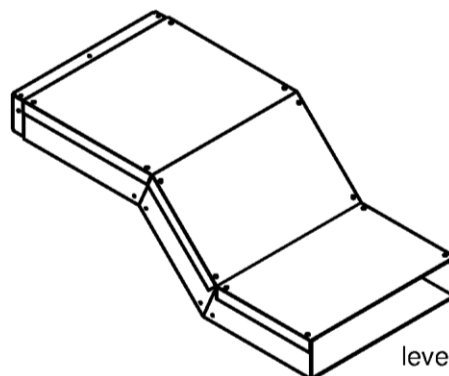
internal corner 30° - 90°



low angle 30° - 90°

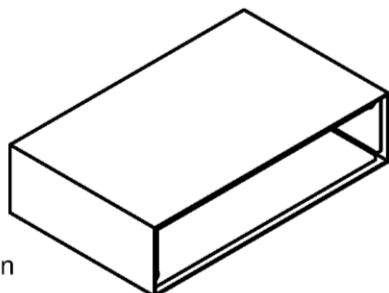


T-piece

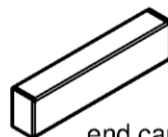


level 2x45°

## special connecting pieces



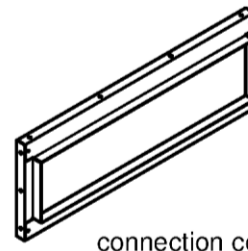
wall penetration



end cap



connecting pieces  
for inlet or outlet  
of services



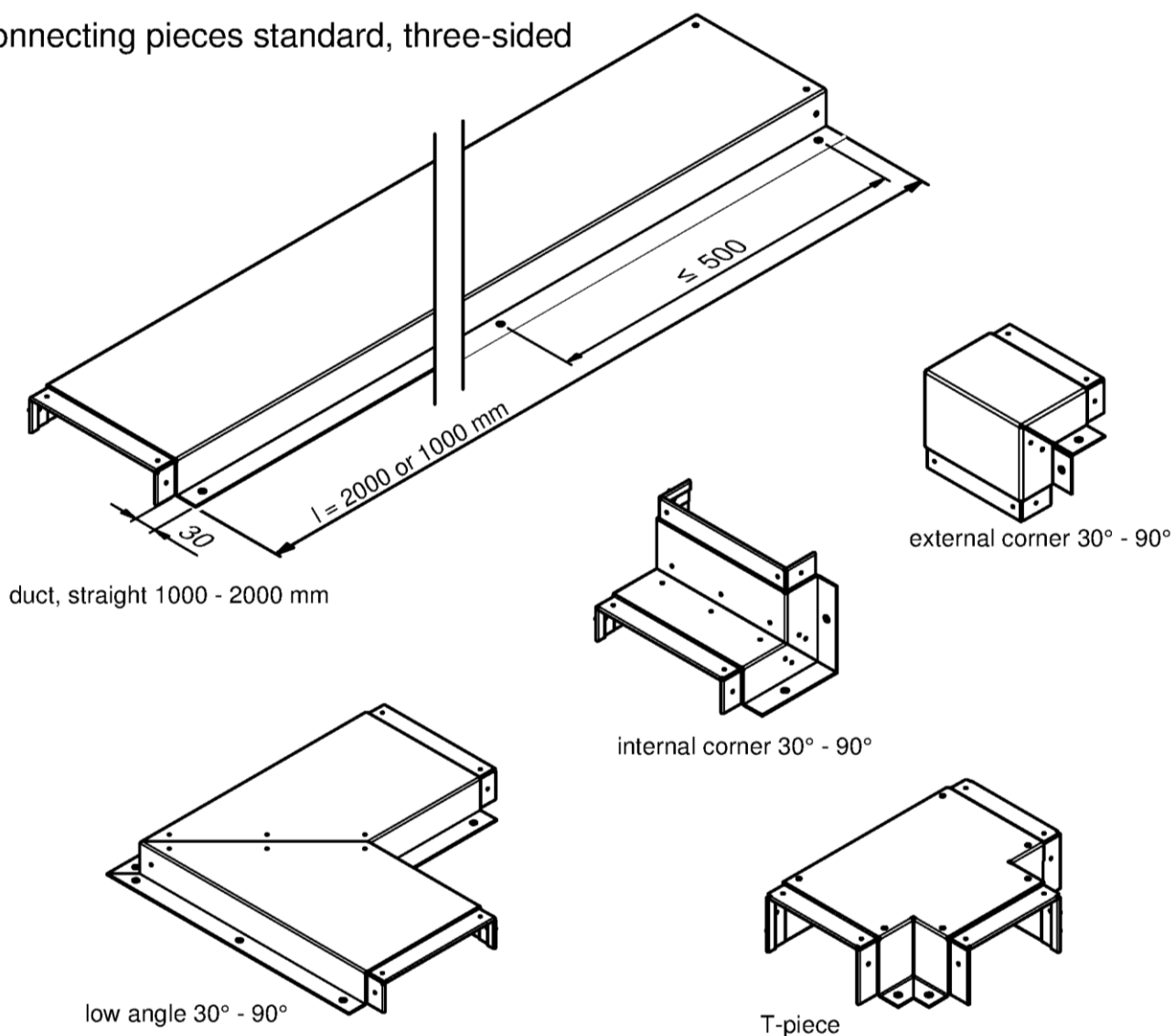
connection collar

PYROMENT-IK 90® Typ BD

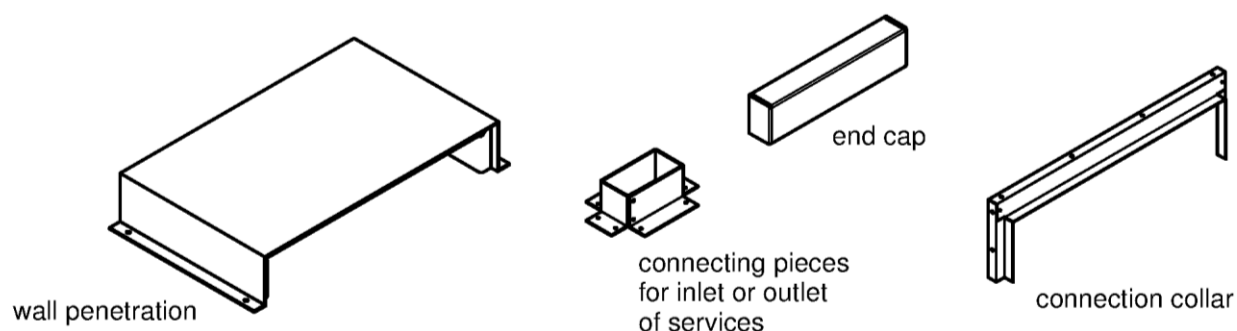
**Properties and performance of the components of the kit**  
- Overview of the connecting pieces of the four-sided duct -

Annex A 2

## Connecting pieces standard, three-sided



## special connecting pieces



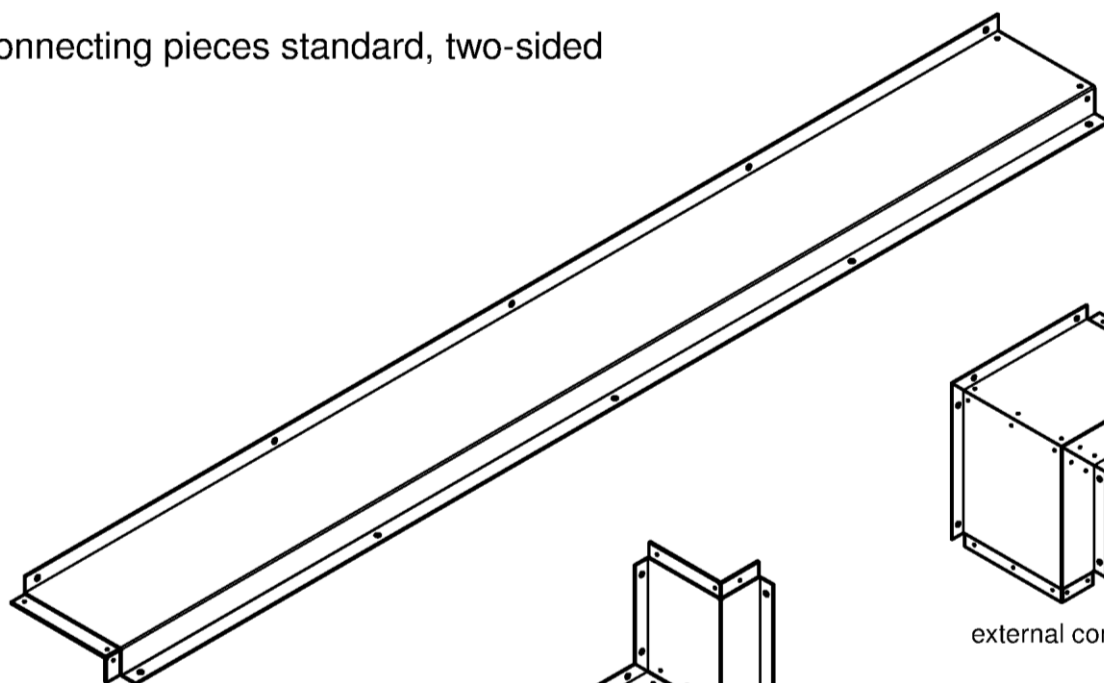
PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**  
- Overview of the connecting pieces of the three-sided duct -

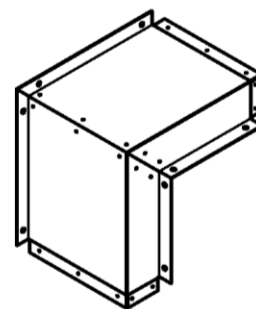
Annex A 3



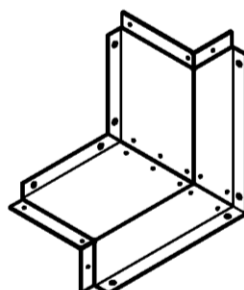
## Connecting pieces standard, two-sided



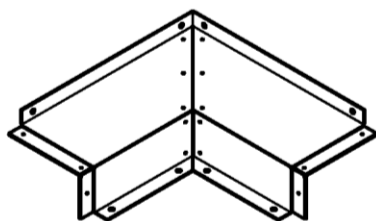
duct, straight 1000 - 2000 mm



external corner 30° - 90°

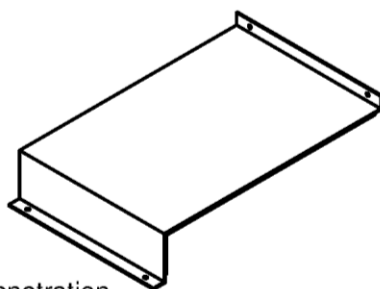


internal corner 30° - 90°



low angle 30° - 90°

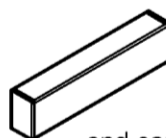
## special connecting pieces



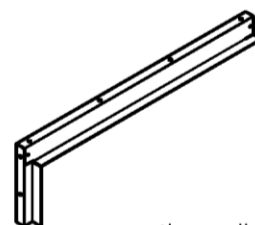
wall penetration



connecting pieces  
for inlet or outlet  
of services



end cap



connection collar

PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**  
- Overview of the connecting pieces of the two-sided duct -

Annex A 4

**Table 1 Description and reaction to fire of the components of the connecting pieces/accessories**

No.	Connecting piece	Description
1	<u>Standard</u> In different designs, e. g. T-piece, corner piece (see Annexes A 2 to A 4)  Dimensions: Width: ≤ 600 mm (four-sided) or ≤ 400 mm (two/three-sided) Height: ≤ 150 mm Length: 1000 or 2000 mm  Optional enlargement of the connecting sheet up to a width ≤ 100 mm (expansion compensation)  see Annexes A 2 to A 4 and A 8 to A 10	Galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226, or stainless steel sheet in accordance with EN 10088-2, material number 1.4301, Thickness ≥ 0.6 mm Reaction to fire class A1 in accordance with EN 13501-1
		Intumescent building material and primer in accordance with ETA, deposited with DIBt Thickness ≥ 1.0 mm Optional: corresponding top coat Reaction to fire class B-s2,d0 in accordance with EN 13501-1
		Tapping screw in accordance with EN ISO 7049 Ø 4.2 mm, Length 9.5 mm Reaction to fire class A1 in accordance with EN 13501-1
		Blind rivet in accordance with EN ISO 15977 Ø 3.2 mm, Length 6.0 mm Reaction to fire class A1 in accordance with EN 13501-1
	Optional: Separating bar	Galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226, Thickness ≥ 0.6 mm Reaction to fire class A1 in accordance with EN 13501-1
2	<u>Wall penetration</u> Dimensions compatible to the inside dimensions of the connecting piece "Standard" Length 270 mm	Wichmann-Kabelbox in accordance with ETA-13/0902 without foam stoppers or plastic caps Reaction to fire classification of the components, see ETA
3	<u>End cap</u> Dimensions compatible to the connecting piece "Standard"	Galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226 or stainless steel sheet in accordance with EN 10088-2, material number 1.4301, Thickness ≥ 0.6 mm Reaction to fire class A1 in accordance with EN 13501-1
4	<u>Connection collar</u> and <u>connection rail</u> Dimensions compatible to the connecting pieces "Standard" / "Wall penetration"	Galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226, or stainless steel sheet in accordance with EN 10088-2, material number 1.4301, Thickness ≥ 0.6 mm Reaction to fire class A1 in accordance with EN 13501-1

PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**

- Description and reaction to fire of the components of the connecting pieces -

Annex A 5

No.	Connecting piece	Description
5	<u>Inlet or outlet of services</u> Dimensions (height x length) 50 x 50 50 x 100 Width 50 mm  see Annexes A 11 and A 12	Galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226, or stainless steel sheet in accordance with EN 10088-2, material number 1.4301, Thickness $\geq 0.6$ mm Reaction to fire class A1 in accordance with EN 13501-1
	Filling variant 1	Filling with mineral fibre boards in accordance with EN 13162 - "Dachdämmplatte Hardrock 040" or - "Rockwool RPB-15" or - "Protect BSP 150-3 Brandschutzplatte" or - "Heralan-DDP" Density $\geq 150$ kg/m <sup>3</sup> , melting point $> 1000^{\circ}\text{C}$ , Thickness $\geq 50$ mm Reaction to fire class A1 in accordance with EN 13501-1
		Coating of the mineral fibre boards, thickness $\geq 1.0$ mm, and sealing of the remaining gaps between the cables with a) "Hilti Brandschutzbeschichtung CFS-CT" in accordance with ETA-11/0428 or ETA-11/0429 Reaction to fire class D-s2,d0 in accordance with EN 13501-1 b) "HENSOMASTIK 5 KS", "HENSOMASTIK 5 KS viskos" oder "HENSOMASTIK 5 KS SP" in accordance with ETA-11/0209 Reaction to fire class E in accordance with EN 13501-1 (background is the mineral fibre board mentioned above)
	Filling variant 2	Filling with a) "Hilti CFS-BL" in accordance with ETA-13/0099, thickness 50 mm, sealing of the remaining gaps between the cables with "CFS-FIL" in accordance with ETA-13/0099 b) "ZZ-Stein 200 NE", thickness 50 mm, and sealing of the remaining gaps between the cables with "ZZ-Masse NE" in accordance with ETA-10/0431 Reaction to fire class E in accordance with EN 13501-1 each

PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**  
- Description and reaction to fire of the components of the connecting pieces -

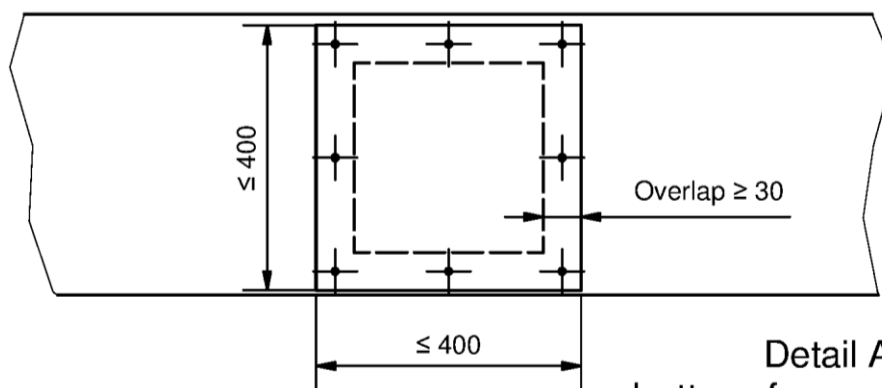
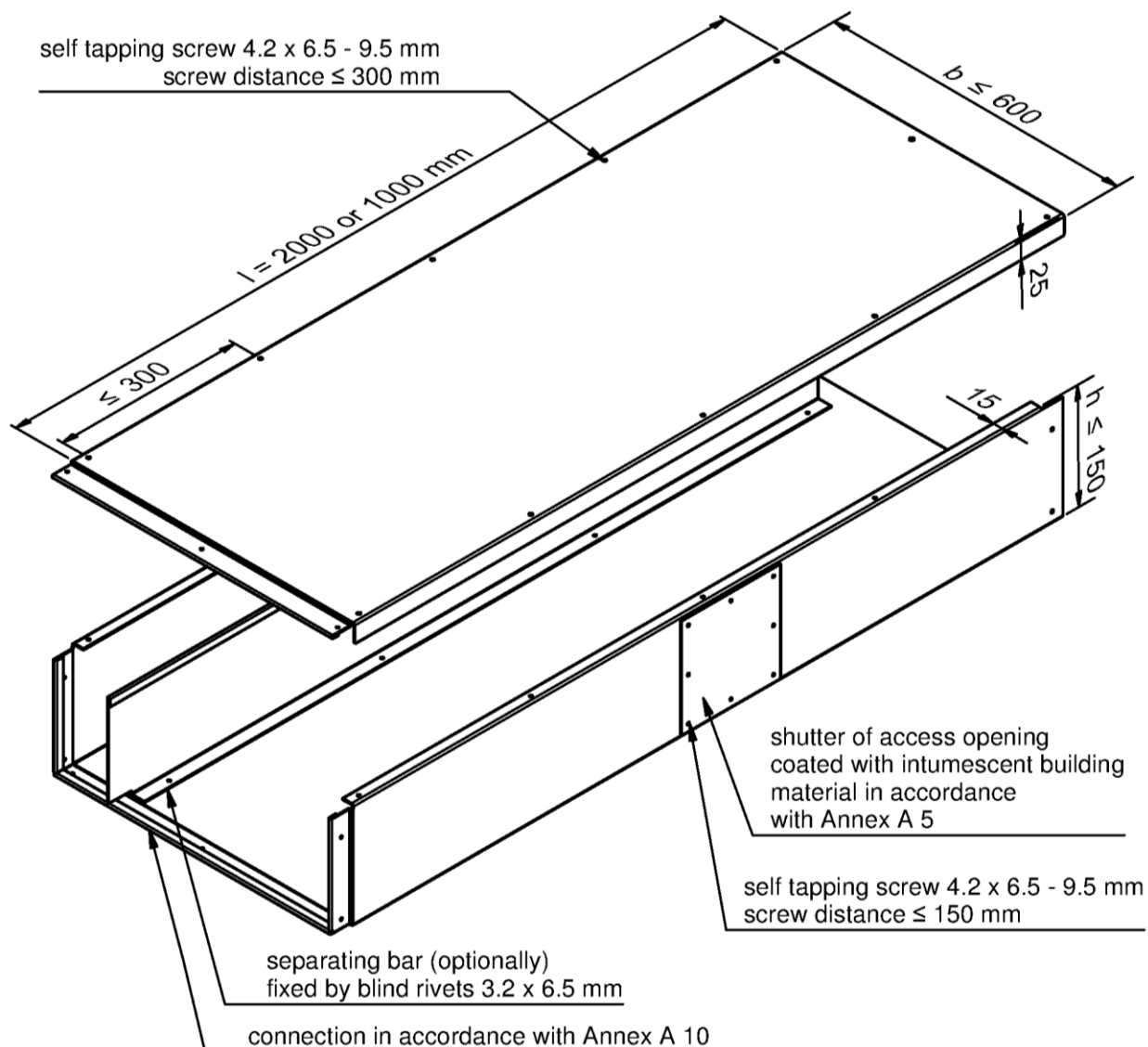
Annex A 6

No.	Accessories	Description	Manufacturer
6	Angle bracket, precoated	Angle, galvanised, 50 x 30 galvanised steel sheet, steel grade DX51D in accordance with EN 10346, material number 1.0226, Thickness $\geq 0.6$ mm Reaction to fire class A1 in accordance with EN 13501-1	G+H Isolierung GmbH Leuschner Straße 2 97084 Würzburg DEUTSCHLAND
		Intumescent building material in accordance with ETA, deposited with DIBt Thickness 1.0 mm Reaction to fire class E in accordance with EN 13501-1	
7	Cable gland in accordance with EN 60423 $\varnothing \leq 55$ mm	Brass or polyamide Reaction to fire classification of at least class E in accordance with EN 13501-1	Adolf Würth GmbH & Co. KG Reinhold-Würth-Straße 12–17 74653 Künzelsau-Gaisbach DEUTSCHLAND o.glw.
8	Sealing tape VITOLEN 111-G TWB B1	Reaction to fire classification of at least class E in accordance with EN 13501-1	Vito Irmen GmbH & Co. KG Mittelstraße 74-80 53424 Remagen DEUTSCHLAND
9	Sealing tape NORSEAL V540	Reaction to fire classification of at least class E in accordance with EN 13501-1	SAINT-GOBAIN Performance Plastics S.A. Avenue du Parc 18 4650 Chaineux BELGIEN
10	Litaflex SM 30 + AF	Reaction to fire classification of at least class E in accordance with EN 13501-1	Rex Industrie-Produkte Graf von Rex GmbH Großaltdorfer Straße 59 74541 Vellberg DEUTSCHLAND
11	Silicone	In accordance with an ETA Reaction to fire classification of at least class E in accordance with EN 13501-1	any

PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**  
- Description and reaction to fire of the components of the accessories -

Annex A 7

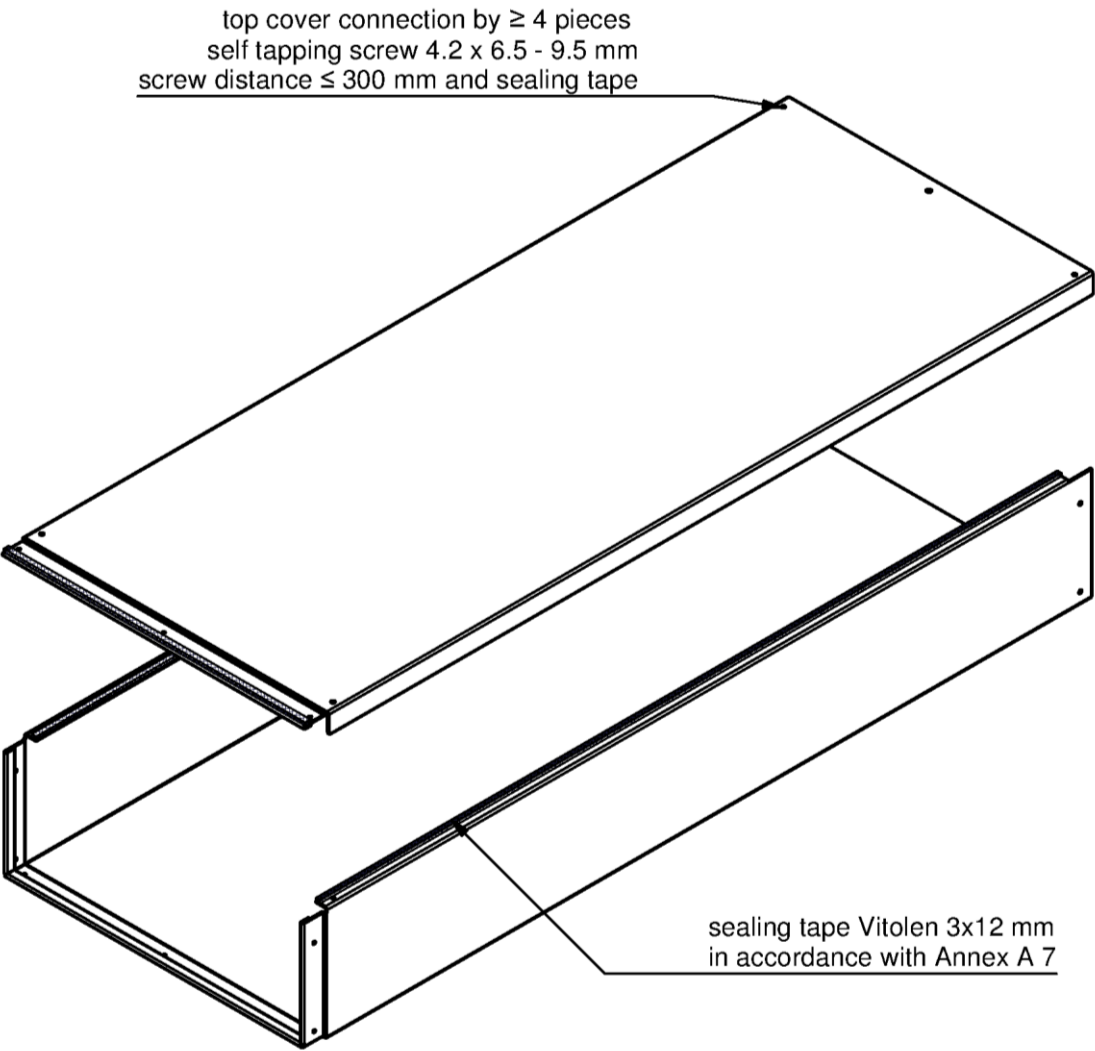


Detail A  
shutter of access opening

PYROMENT-IK 90® Typ BD

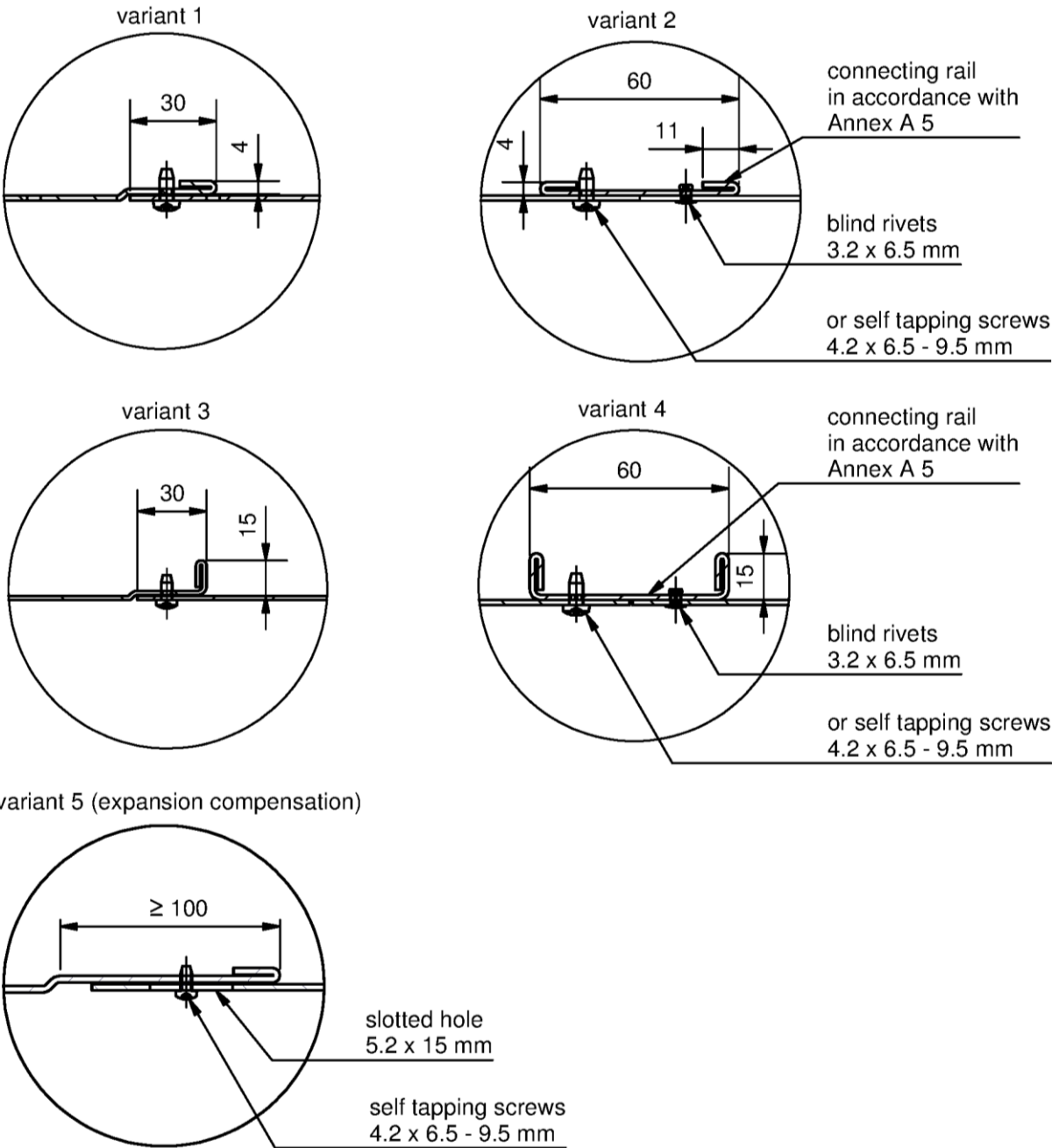
**Properties and performance of the components of the kit**  
- Design connecting piece Standard –  
(Description connecting piece see Annex A 5)

Annex A 8



PYROMENT-IK 90® Typ BD	
<b>Properties and performance of the components of the kit</b> - Design connecting piece Standard variant – (Description connecting piece see Annex A 5)	Annex A 9

Connection variants

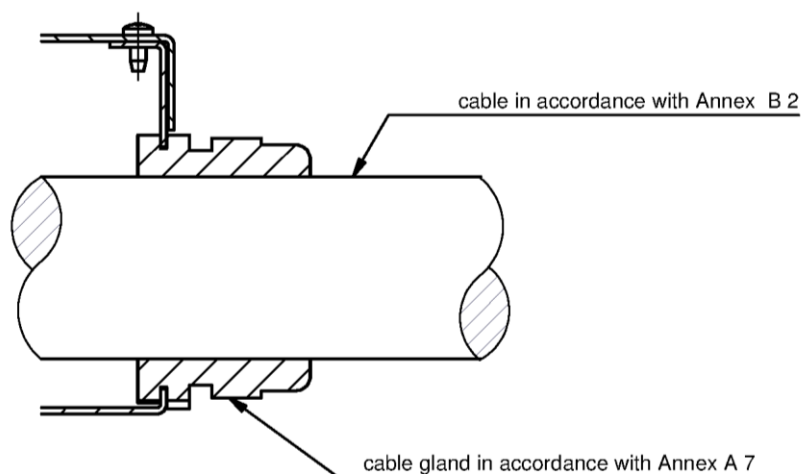
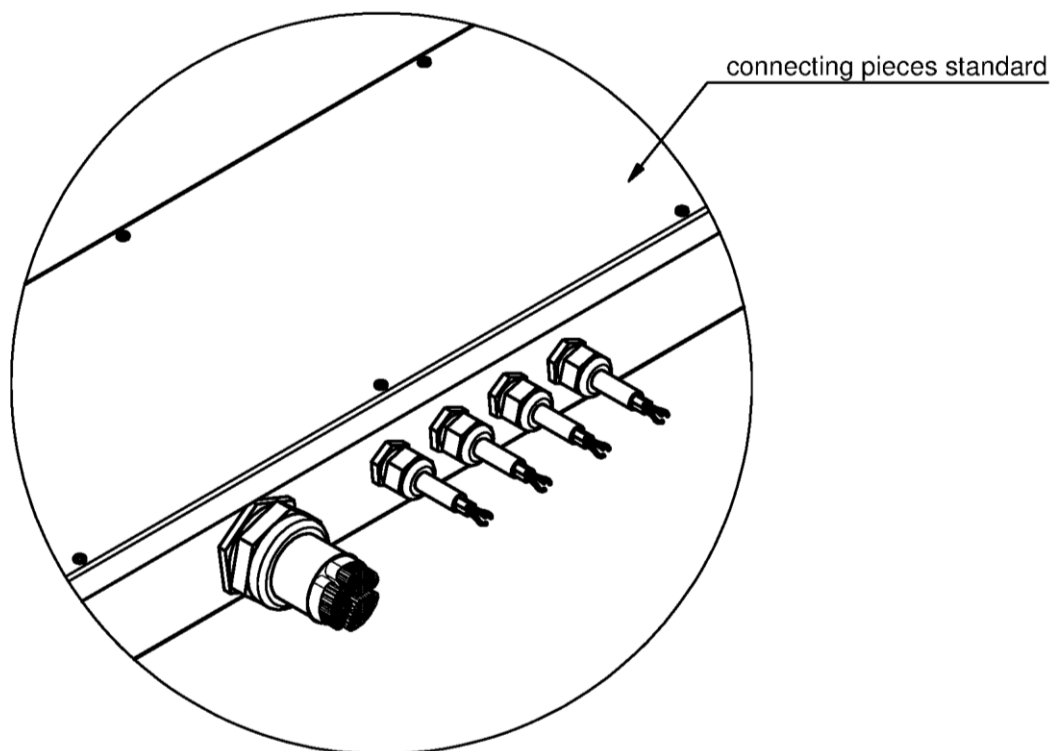


PYROMENT-IK 90® Typ BD	Annex A 10
<b>Properties and performance of the components of the kit</b> - Connection of the connecting pieces Standard – (Description connecting piece and connection rail see Annex A 5)	



	<p>Annex A 11</p>
<p>PYROMENT-IK 90® Typ BD</p> <p><b>Properties and performance of the components of the kit</b> - Design connecting piece inlet or outlet of services – (Description connecting piece see Annex A 6)</p>	





PYROMENT-IK 90® Typ BD

**Properties and performance of the components of the kit**  
- Cable gland single cable -  
(Description see Annex A 7)

Annex A 12

## 2 Fire resistance

### 2.1 Classification in accordance with EN 13501-2

The designs in the Annexes A 8 to A 12 and B 3 to B 9 fulfil the requirements of class

- EI 30 to EI 120 for four-sided service ducts
- EI 30 to EI 90 for three-sided or two-sided service ducts

if the requirements set out in the following sections are met.

Within the framework of this ETA, the installation of the service duct in walls has been verified concerning resistance to fire. When services pass through ceilings, the service duct shall be split and shall be fastened at the bottom and/or the top of the ceiling. The ceiling opening shall be closed with a suitable European classified penetration system in accordance with EN 13501-2 for the respectively required fire resistance period EI 30, EI 60, EI 90 or EI 120.

### 2.2 Building components with a fire separating function

2.2.1 The fire resistant service duct may be suspended from

#### a) Rigid floors/ceilings

- made of concrete, reinforced concrete or aerated concrete, density  $\geq 350 \text{ kg/m}^3$
- thickness in accordance with the structural requirements and depending on the resistance to fire required

2.2.2 The fire resistant service duct may be installed in

#### b) Rigid walls

- made of masonry, concrete, reinforced concrete or aerated concrete, density  $\geq 350 \text{ kg/m}^3$
- thickness  $\geq 100 \text{ mm}$

#### c) Partitions

- thickness  $\geq 100 \text{ mm}$
- design type 1), 2) or 3)
  - 1) Partitions with a steel stud substructure and
    - a lining on both sides made from at least two layers of  $\geq 12.5 \text{ mm}$  thick cement or gypsum bounded building slabs, reaction to fire class A1 or A2 in accordance with EN 13501-1
    - an internal insulation made of mineral fibre boards in accordance with EN 13501-2, thickness  $40 \text{ mm}$ , density  $100 \text{ kg/m}^3$ , reaction to fire class A1 in accordance with EN 13501-1, melting point  $> 1000 \text{ }^\circ\text{C}$
  - 2) Partitions like 1), but without insulation or with an insulation deviating from 1)
  - 3) Partitions with a wood stud substructure and
    - a lining on both sides like 1)
    - with or without insulation
    - The distance between the opening the service duct is passing through and the wood stud substructure shall be  $\geq 100 \text{ mm}$ . The cavities between the lining of the wall, the wood substructure and the opening reveal shall be tightly filled in a depth of at least  $100 \text{ mm}$  with mineral wool, reaction to fire class A1 or A2 in accordance with EN 13501-1.

For partitions type 2) or 3) the opening reveal shall be fitted with a surrounding reveal made from  $\geq 12.5 \text{ mm}$  thick cement or gypsum bounded building slabs, reaction to fire class A1 or A2 in accordance with EN 13501-1.

2.2.3 The ceilings and walls shall meet at least the fire resistance of the service duct and shall be classified in accordance with EN 13501-2 (EI 30, EI 60, EI 90 or EI 120).

PYROMENT-IK 90® Typ BD

#### Performance of the service duct

Fire resistance

- Classification and information about the building components -

Annex B 1

### 2.3 Configuration (services)

The installation duct may be loaded with usual building services such as cables or plastic or metal pipes with a nominal diameter  $\leq 100$  mm.

The configuration of the service duct can be modified at any time by opening the top part of the connecting pieces (four-sided service duct) or by unfastening the fastening of the connecting pieces to the building component (three-sided or two-sided service duct) and by adding or removing services.

The services may be

- arranged on service support constructions or directly on the bottom of the service duct or
- fastened directly to the rigid floor or the rigid wall.

For the service support constructions perforated or unperforated cable trays, profiles with bolt clamps and cable ladders each made from steel, reaction to fire class at least A2 in accordance with EN 13501-1 shall be used. The service support constructions shall be sized depending on the services.

If the services and/or service support constructions are arranged directly on the bottom of the service duct, the service duct shall be supported by using suspension devices in accordance with section 2.4 (e. g. mounting rails suspended from the adjacent rigid ceilings or suspension brackets fastened at the adjacent rigid walls). The permitted weight of the configuration (services plus service support constructions) is limited to 32 kg/m.

If the services and/or service support constructions are fastened to the adjacent rigid building components there is no need for a suspension of the service duct. The service duct is fastened directly to the rigid building component. The weight of the configuration (services plus service support constructions) is not limited.

For inlets or outlets of services into or out of the service duct see Annexes A 6 and A 11.

### 2.4 Fastening of the service ducts

The fire resistant service duct may be

- fastened directly at the rigid building components or
- fastened at the rigid building components using suspension devices (e. g. threaded rods  $\geq$  M8 or equivalent and suitable mounting rails or suspension brackets).

The suspension devices shall be made of steel and shall be sized such that the calculated stresses do not exceed the values given in EN 1366-5, Table 5. Suspended service ducts shall have a maximum suspension length of 1.50 m. With regard to the elongation of the suspension devices see EN 1366-5, section 13.4.2.

The service ducts shall be fastened by means of anchors with steel screws suitable for the intended use in accordance with a European Technical Approval or Assessment and the structural requirements.

The spacing shall be in accordance with the stability requirements but shall at least comply with the specifications given in Table 2.

Table 2 Spacing of suspension/fastening

Type of the fastening	
Mounting rails or suspension brackets of suspended service ducts	$\leq 1500$ mm
First suspension on both sides of the wall penetration	$\leq 425$ mm
Fastening of service ducts fastened directly at the building components	$\leq 500$ mm
First suspension of services before/after inlets or outlets of services	$\leq 100$ mm

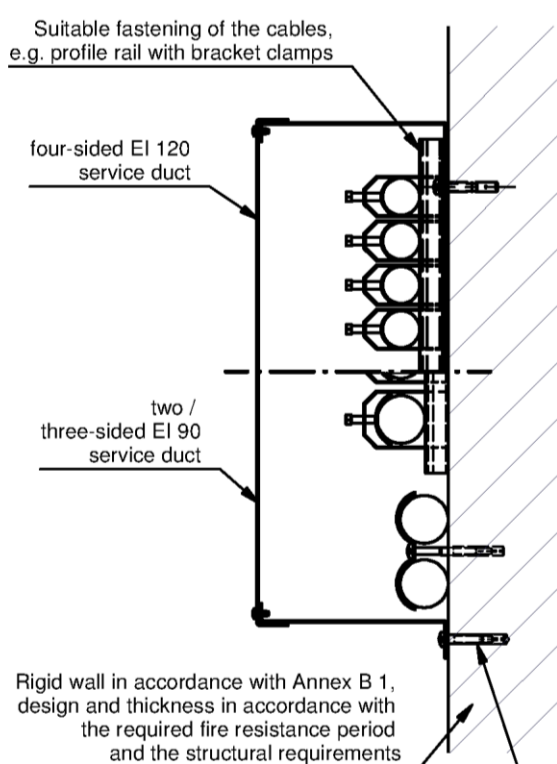
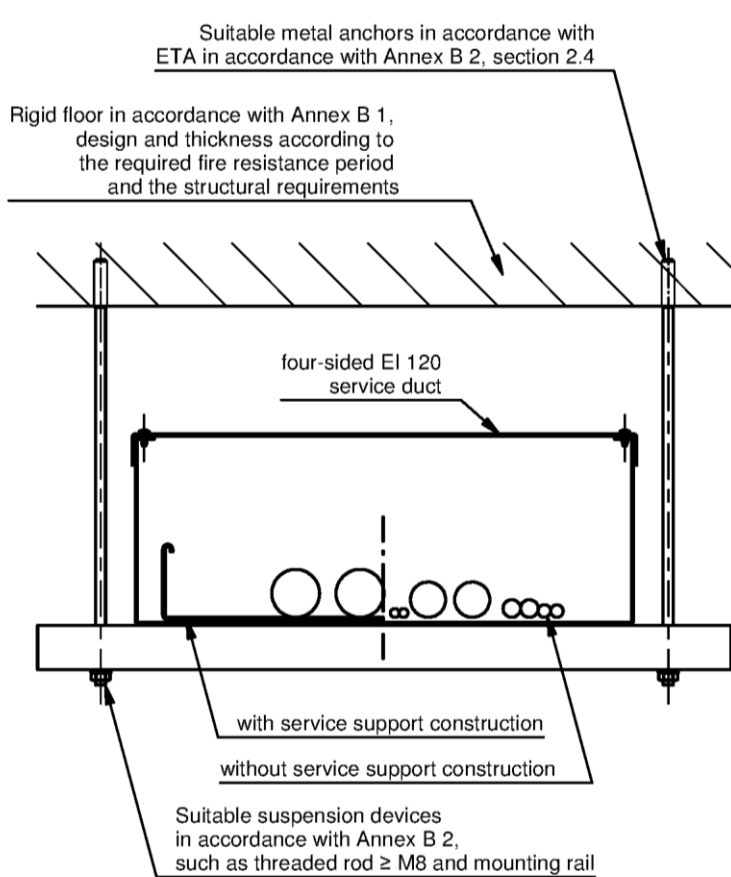
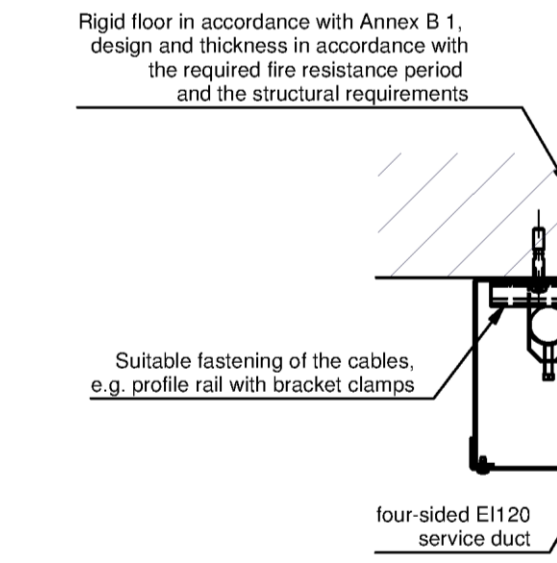
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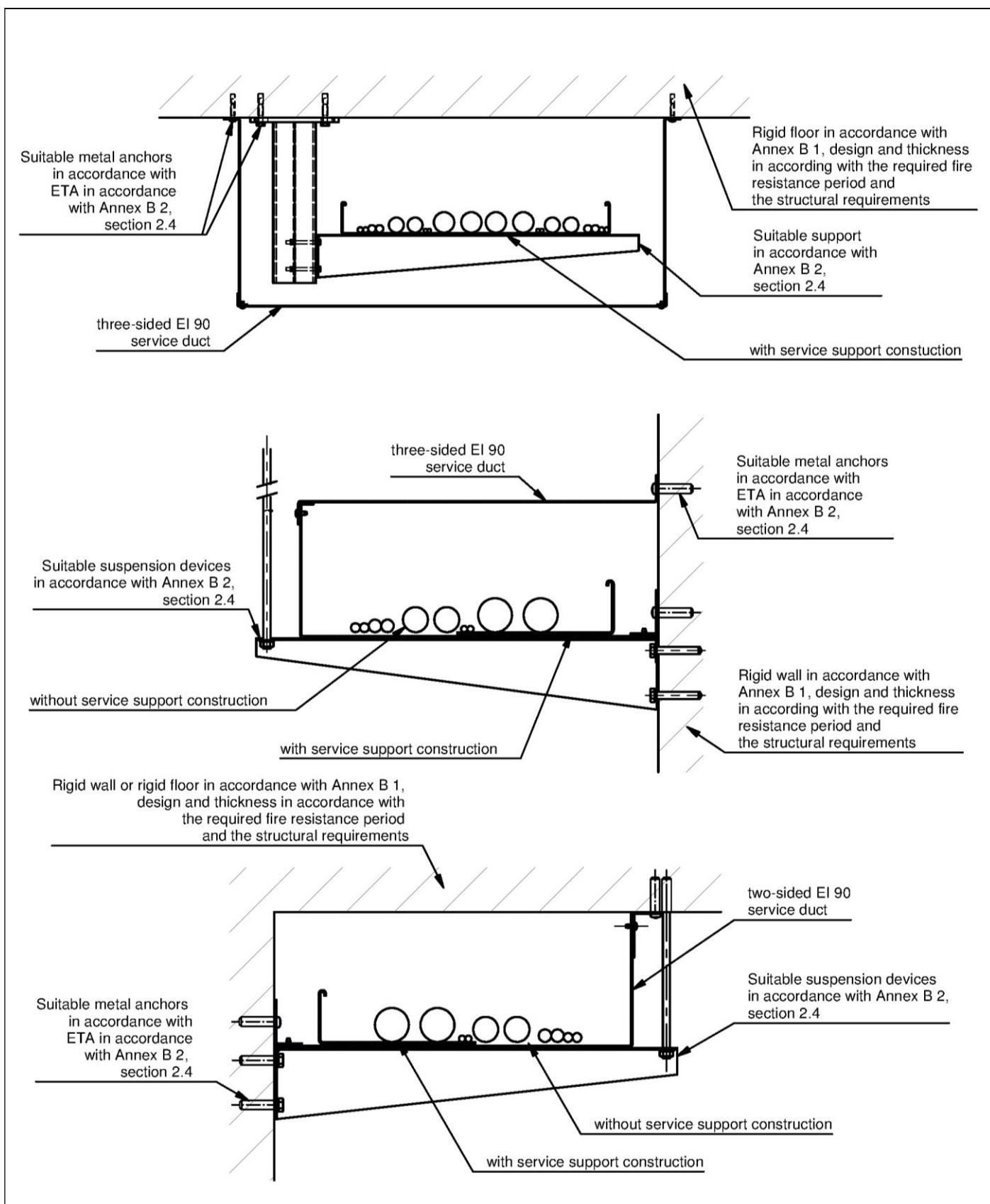
#### Performance of the service duct

Fire resistance

- Configuration and fastening -

Annex B 2

 <p>Suitable fastening of the cables, e.g. profile rail with bracket clamps</p> <p>four-sided EI 120 service duct</p> <p>two / three-sided EI 90 service duct</p> <p>Rigid wall in accordance with Annex B 1, design and thickness in accordance with the required fire resistance period and the structural requirements</p>	 <p>Suitable metal anchors in accordance with ETA in accordance with Annex B 2, section 2.4</p> <p>Rigid floor in accordance with Annex B 1, design and thickness according to the required fire resistance period and the structural requirements</p> <p>four-sided EI 120 service duct</p> <p>with service support construction</p> <p>without service support construction</p> <p>Suitable suspension devices in accordance with Annex B 2, such as threaded rod <math>\geq</math> M8 and mounting rail</p> <p>Suitable metal anchors in accordance with ETA in accordance with Annex B 2, section 2.4</p>
 <p>Rigid floor in accordance with Annex B 1, design and thickness in accordance with the required fire resistance period and the structural requirements</p> <p>Suitable fastening of the cables, e.g. profile rail with bracket clamps</p> <p>four-sided EI120 service duct</p> <p>two / three-sided EI 90 service duct</p> <p>Suitable metal anchors in accordance with ETA in accordance with Annex B 2, section 2.4</p>	<p>Annex B 3</p>



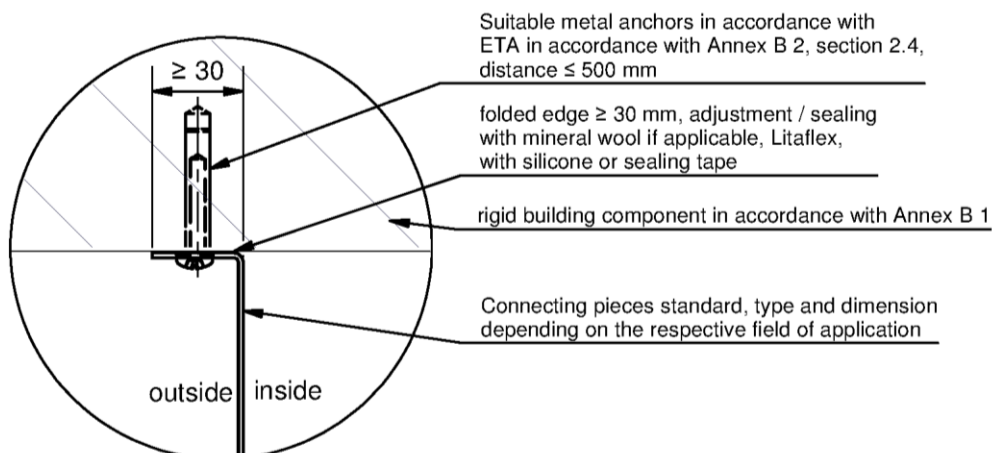
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**Performance of the service duct**  
Resistance to fire  
- Examples fastening 2 -

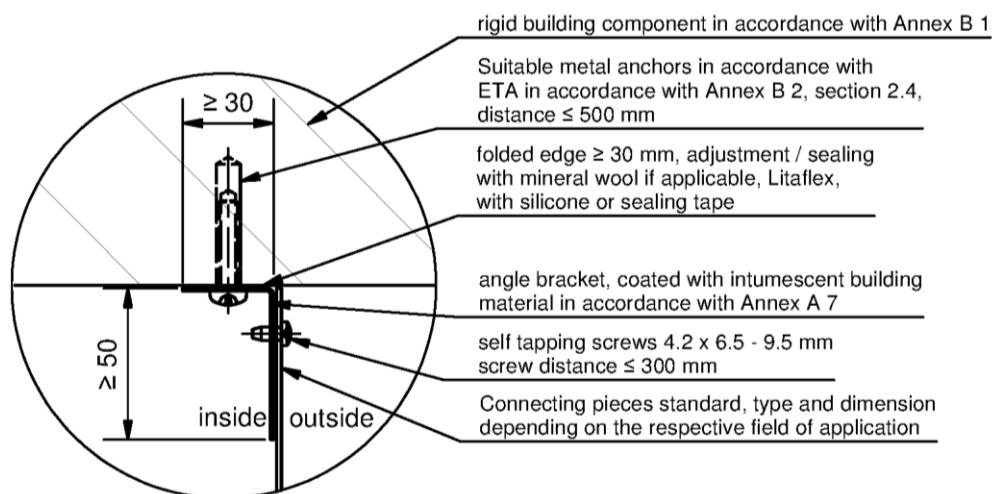
Annex B 4

## Connecting pieces, two-sided or three-sided

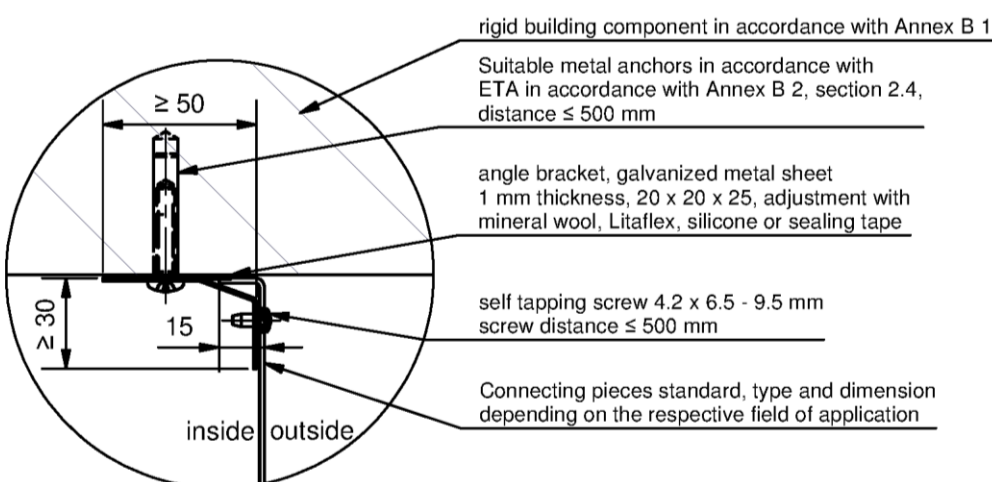
variant 1



variant 2



variant 3



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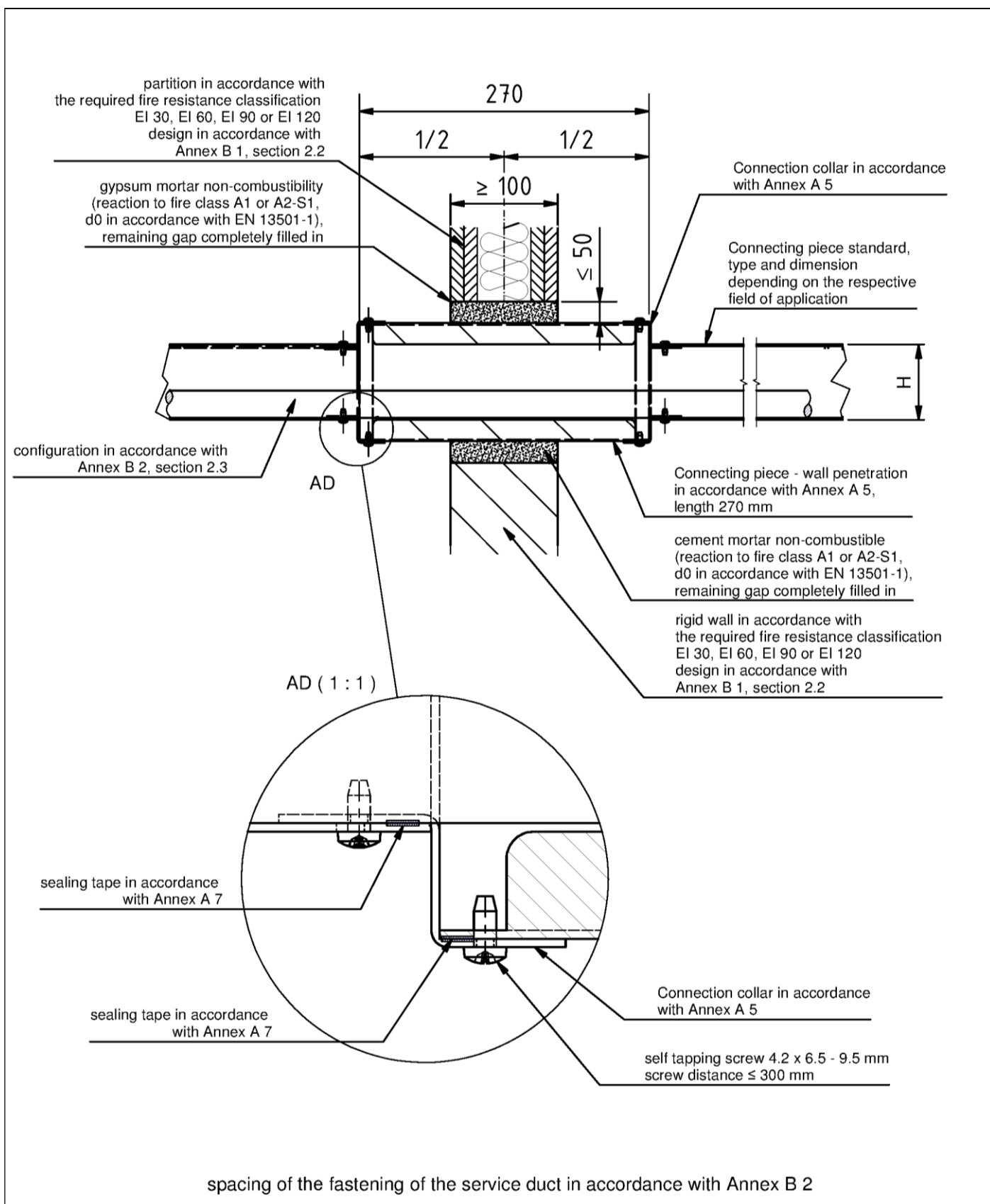
### Performance of the service duct

Resistance to fire

- Example fastening directly to the building component -

Annex B 5





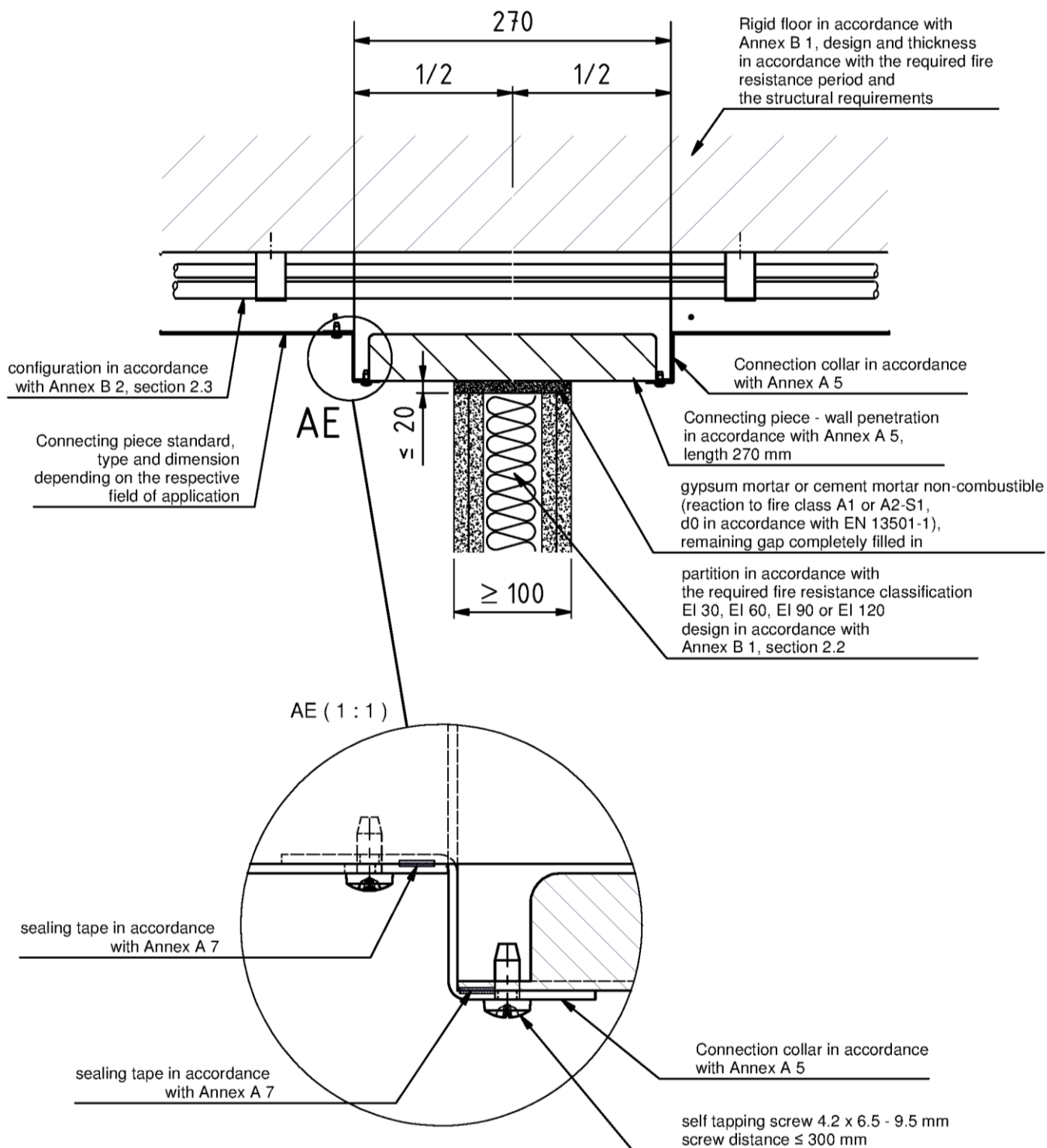
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# Performance of the service duct

Resistance to fire

- Installation four-sided duct in walls, fire resistance class EI 30 to EI 120 -

Annex B 6



spacing of the fastening of the service duct in accordance with Annex B 2

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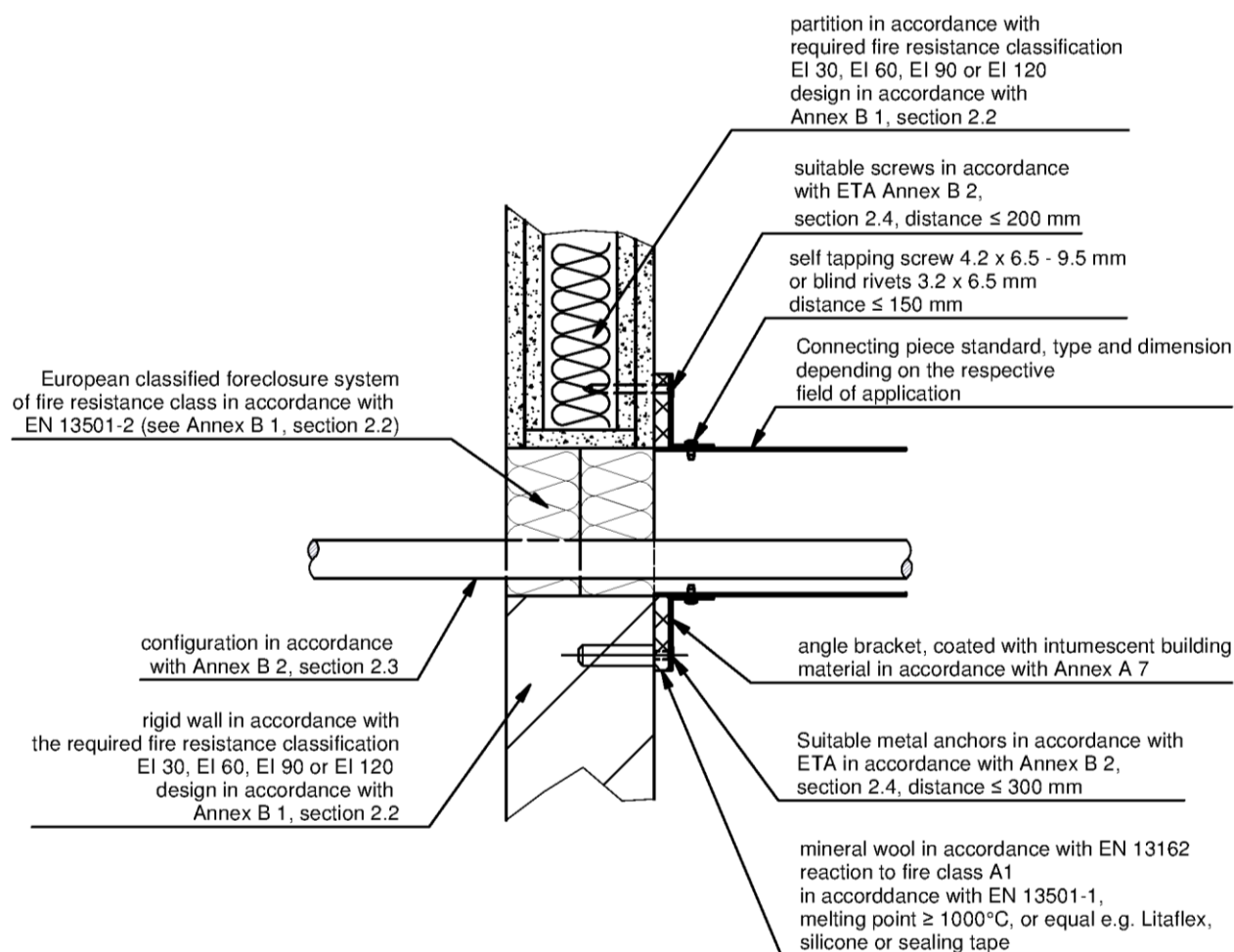
#### Performance of the service duct

Resistance to fire

- Installation two-/three-sided duct in walls, fire resistance class EI 30 to EI 90 -

Annex B 7





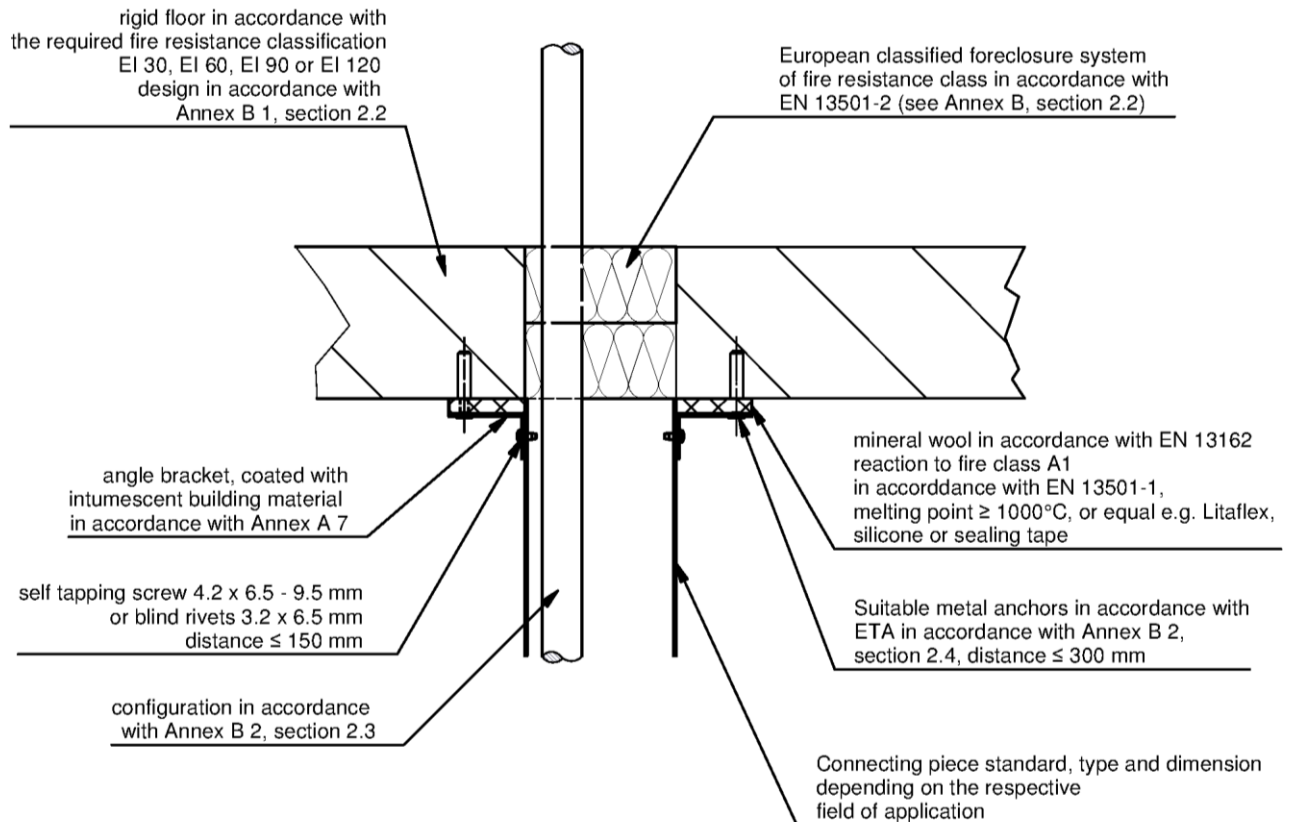
spacing of the fastening of the service duct in accordance with Annex B 2

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**Performance of the service duct**

Resistance to fire  
- Connection to walls -

Annex B 8



spacing of the fastening of the service duct in accordance with Annex B 2

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**Performance of the service duct**  
Resistance to fire  
- Connection to floors/ceilings -

Annex B 9

## Standards

EN 13501-1	Fire classification of construction products and building elements, part 1: Classification using data from reaction to fire tests
EN 13501-2	Fire classification of construction products and building elements, part 2: Classification using data from fire resistance tests, excluding ventilation services
EN 1363-1	Fire resistance tests – Part 1: General requirements
EN 1366-5	Fire resistance tests for service installations – Part 5: Service ducts and shafts
EN 10088-2	Stainless steels – Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes
EN 10346	Continuously hot-dip coated steel flat products - Technical delivery conditions
EN 13162	Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification
EN 14309	Thermal insulation products for building equipment and industrial installations - Factory made products of expanded polystyrene (EPS) - Specification
EN ISO 7049	Cross-recessed pan head tapping screws
EN ISO 15977	Open end blind rivets with break pull mandrel and protruding head - AIA/St
DIN 4102-2	Fire behaviour of Building Materials and Building Components; Building Components; Definitions, Requirements and Tests
DIN 4102-11	Fire behaviour of building materials and building components; pipe encasements, pipe bushings, service shafts and ducts, and barriers across inspection openings; terminology, requirements and testing

## Other documents

EAD 350003-00-1109	Kit for fire resistant service ducts consisting of pre-fabricated connecting pieces (made of mechanically pre-coated steel sheet) and according accessories)
ETAG 026-2	Fire Stopping and Fire Sealing Products - Part 2: Penetration Seals
EOTA TR 024	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
EOTA TR 034	General ER 3 Checklist for ETAGs/CUAPs/ETAs- Content and/or release of dangerous substances in products/kits

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## List of documents referred to

Annex C