

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-14/0307
of 13 April 2016

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

kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Product family
to which the construction product belongs

Kit for use in cable penetration seals

Manufacturer

FLAMRO
Brandschutz Systeme GmbH
Am Sportplatz 2
56291 Leiningen
DEUTSCHLAND

Manufacturing plant

Werk I, PU-Halle
Am Sportplatz 2
56291 Leiningen

This European Technical Assessment
contains

15 pages including 10 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

Guideline for European technical approval of "Fire
Stopping and Fire Sealing Products", ETAG 026 Part 2:
"Penetration Seals",
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

This version replaces

ETA-14/0307 issued on 29 September 2014

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Specific Part

1 Technical description of the product

The object of this ETA is a kit consisting of the ashlar-formed moulded elements "FLAMRO BSB-K" and the pasty material "FLAMRO-KL".

The preformed moulded elements "FLAMRO BSB-K" consist of an intumescent material of light grey, dark grey, blue or turquoise colour, which expands and creates foam when exposed to high temperatures in case of fire and which essentially consists of intumescent substances and a binder. The dimensions of the moulded elements are 160 mm x 130 mm x 60 mm. Cuts on site are allowed.

The pasty material "FLAMRO-KL" is a mineral material with or without pigments added, in the colours "off-white" (FLAMRO-KL without any pigment) or "grey" (FLAMRO-KL with pigments), which is placed on the market in pails or in cartridges.

Detailed specifications for identification and performance criteria relevant for fire safety with regard to the construction products are given in Annex 1.

NOTE:

The characteristics listed may be used for performing the manufacturer's factory production control.

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

The kit is intended to be used in cable penetration seals. Cable penetration seals close apertures in fire resistant walls and floors, which are penetrated by cables and cable carriers if applicable, and serve to preserve the walls' or floors' fire resistance in the area of the penetrations.

The cable penetration seals which are assembled using the kit consist of a closure made from the moulded parts or pieces of the moulded parts, a closure of small gaps - between the moulded parts and the cables or cable carriers and between the cables - and a coating made from the pasty material on the cables and cable carriers.

Detailed information and data on the penetration seals verified for resistance to fire are given in Annexes 2 to 10. The performances given in Section 3 exclusively relate to this penetration seals (e.g. with respect to the type, thickness and design of the building element, the design and arrangement of the penetration seal components and the type and position of the services).

The verifications and assessment methods on which this European Technical Assessment is based lead the assumption of working life of the moulded parts "FLAMRO BSB-K" of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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.

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

3.1 Intended use: use in penetration seals type "block seal"

Product component: "FLAMRO BSB-K"		
BWR	Essential characteristic	Performance
2	reaction to fire	class E in accordance with EN 13501-1
	resistance to fire of a penetration seal incorporating the kit ^{1,2}	class EI 90 or EI 120 in accordance with EN 13501-2
3	release of dangerous substances	no dangerous substances ³

Product component: "FLAMRO-KL"		
BWR	Essential characteristic	Performance
2	reaction to fire	class A1 in accordance with EN 13501-1
	resistance to fire of a penetration seal incorporating the kit ^{1,2}	class EI 90 or EI 120 in accordance with EN 13501-2
3	release of dangerous substances	no dangerous substances ³

3.2 General aspects

The verification of durability is part of testing the essential characteristics.

The construction product "FLAMRO BSB-K" may be used in end-use applications according to the provisions for use category X, and the construction product "FLAMRO-KL" may be used in end-use applications according to the provisions for use category Y₂ without expecting significant changes of the characteristics relevant for fire protection.

Thus the kit used in penetration seals as described in this ETA may be exposed to conditions of use category Y₂ (temperatures lower 0°C, without UV-impact and rain).

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 of 14 July 1999, p. 42), as amended by Decision of the Commission of 8 January 2001 (2001/596/EC) (OJ L 209 of 2 August 2001, p. 33), 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.

¹ The resistance to fire depends on the building element and the opening in which the penetration seal was installed, the penetrating services and the construction/installation of the penetration seal. Details for penetration seals for which the mentioned fire resistance was verified are given in the Annexes.

² Technical provisions of the Member States relating to the execution of electrical cable systems and the admissibility of cable penetrations remain unaffected.

³ According to the information provided by the manufacturer and the chemical composition deposited with DIBt.

Product	Intended use(s)	Level or class	System
Fire stopping and fire sealing products	for fire compartmentation (use in penetration seals)	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 (confidential part of this ETA) deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 13 April 2016 by Deutsches Institut für Bautechnik.

Prof. Gunter Hoppe
Head of Department

beglaubigt:
Bisemeier

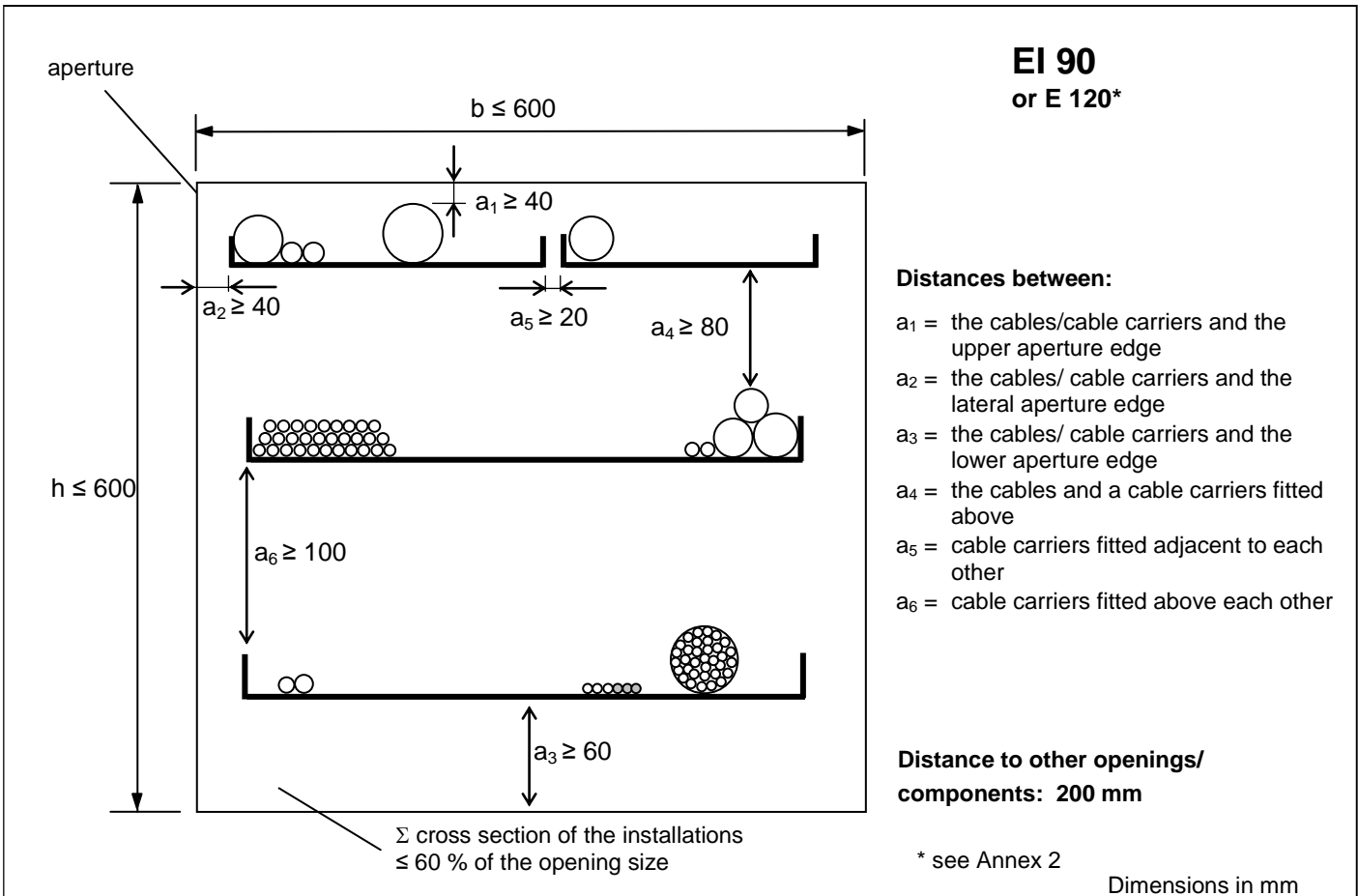
Description of the kit

Component	Description
"FLAMRO BSB-K"	Intumescent pre-formed element
	Reaction to fire according to EN 13501-1: class E,
	Density: $350 \text{ kg/m}^3 \pm 35 \text{ kg/m}^3$
	Loss of mass at 500°C tested for 30 minutes: $62,5 \% \pm 5 \%$
	Expansion ratio: 2,3 to 4,0 (tested at 500 °C for 30 minutes without top load with samples ca. 3 mm thick)
"FLAMRO-KL"	sealant
	Reaction to fire according to EN 13501-1: class A1

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Description of the components of the kit

Annex 1

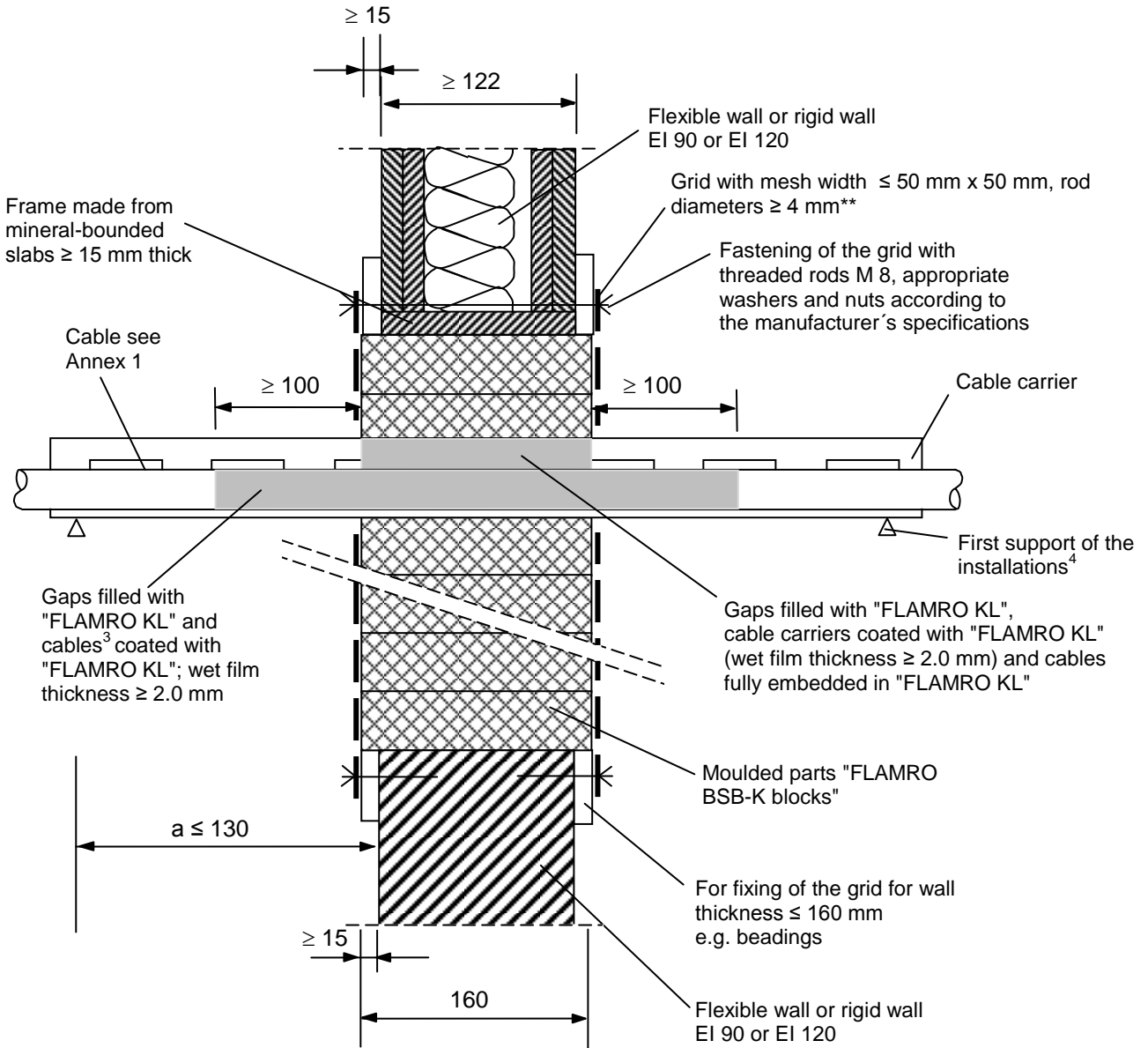


Description of the installations
<ul style="list-style-type: none"> ➤ Cables: All types of sheathed cables¹ currently and commonly used in building practice in Europe (e.g. power cables, data cables, telecommunications cables, fibre-optic cables) with the exception of waveguides, with an outer diameter ≤ 80 mm, optionally arranged on cable support constructions and optionally concentrated in cable layers. ➤ Cable bundles consisting of parallel cables, densely packed and tightly bound, stitched or welded to one another; outer diameter of the individual cable ≤ 21 mm; overall diameter of the cable bundle ≤ 100 mm. ➤ Cable carriers: Perforated or non-perforated cable trays and cable ladders made of steel, with organic coatings if required (provided the overall fire reaction class complies with at least class A2 per EN 13501-1) ➤ Control lines, C-C²: steel or plastic lines for control purposes with an outer diameter ≤ 16 mm ➤ Conduits: flexible conduits made of polyolefin with the classification 23322 per EN 61386-22 with an outer diameter ≤ 20 mm; flame retardant or not flame retardant; blank or with one cable type NYY-J 5x1,5 RE

1 single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly
2 pipe end configuration used in the fire test

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"	Annex 2
Use as a component of a cable penetration seal Example of a cable penetration seal with a fire resistance EI 90 or E 120 Wall installation – front view of option "centered installation"	

EI 90
or E 120*



- 3 coating outside the area sealed with molded parts only for outer cable/bundle diameter ≥ 21 mm
4 first support directly in front of the seal in case of cables not fitted on cable carriers

* In case of use in walls with fire resistance class EI 120

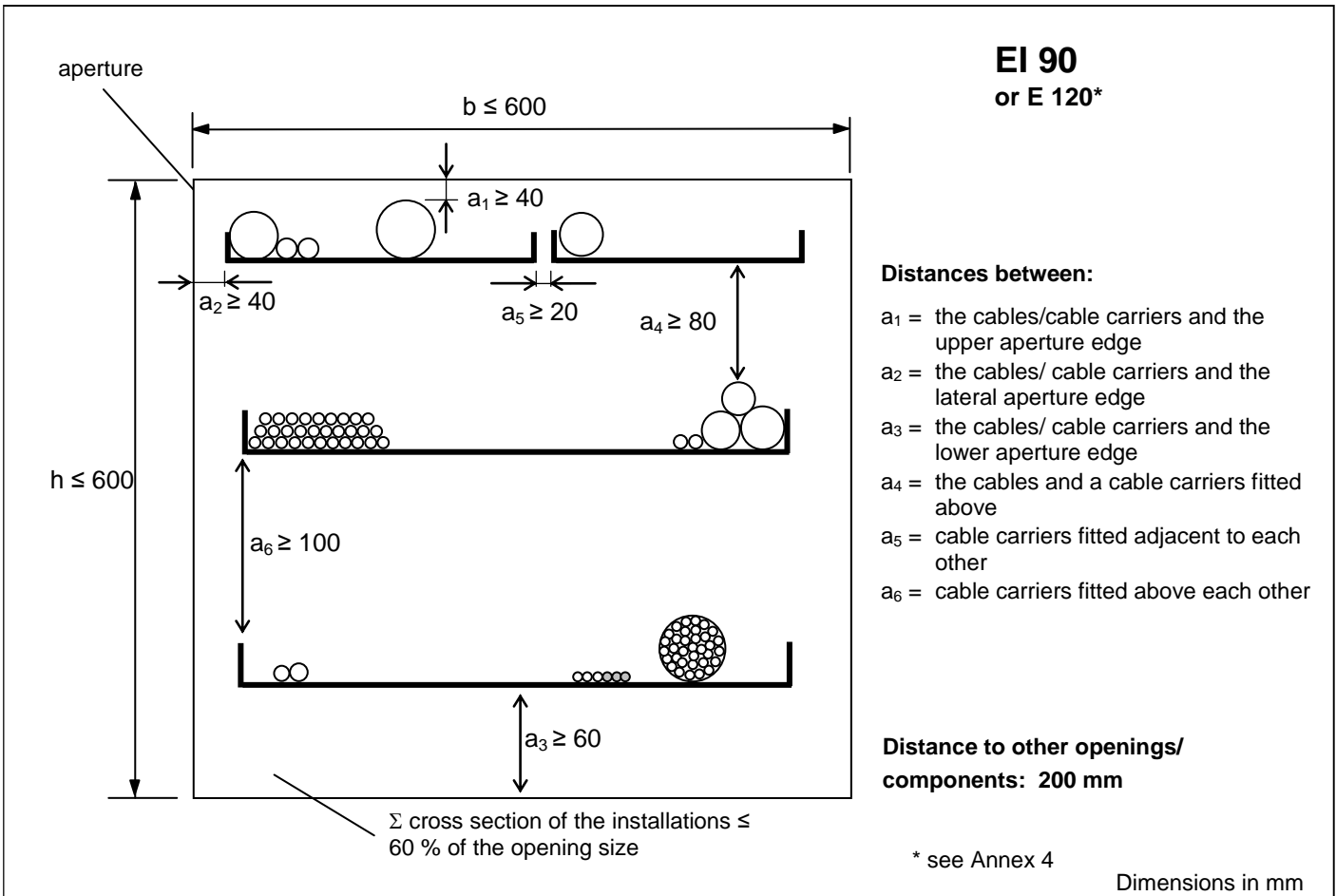
** For cable carriers fitted above each other with a **separation ≤ 150 mm no grid is required** in between; In addition no grid is required between aperture edges and installations with separations between 40 mm and 50 mm.

Dimensions in mm

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Annex 3

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 90 or E 120**
Wall installation – section view of option "centered installation"



Description of the installations
<ul style="list-style-type: none"> ➤ Cables: All types of sheathed cables¹ currently and commonly used in building practice in Europe (e.g. power cables, data cables, telecommunications cables, fibre-optic cables) with the exception of waveguides, with an outer diameter ≤ 80 mm, optionally arranged on cable support constructions and optionally concentrated in cable layers. ➤ Cable bundles consisting of parallel cables, densely packed and tightly bound, stitched or welded to one another; outer diameter of the individual cable ≤ 21 mm; overall diameter of the cable bundle ≤ 100 mm. ➤ Cable carriers: Perforated or non-perforated cable trays and cable ladders made of steel, with organic coatings if required (provided the overall fire reaction class complies with at least class A2 per EN 13501-1) ➤ Control lines, C-C²: steel or plastic lines for control purposes with an outer diameter ≤ 16 mm ➤ Conduits: flexible conduits made of polyolefin with the classification 23322 per EN 61386-22 with an outer diameter ≤ 20 mm; flame retardant or not flame retardant; blank or with one cable type NYY-J 5x1,5 RE

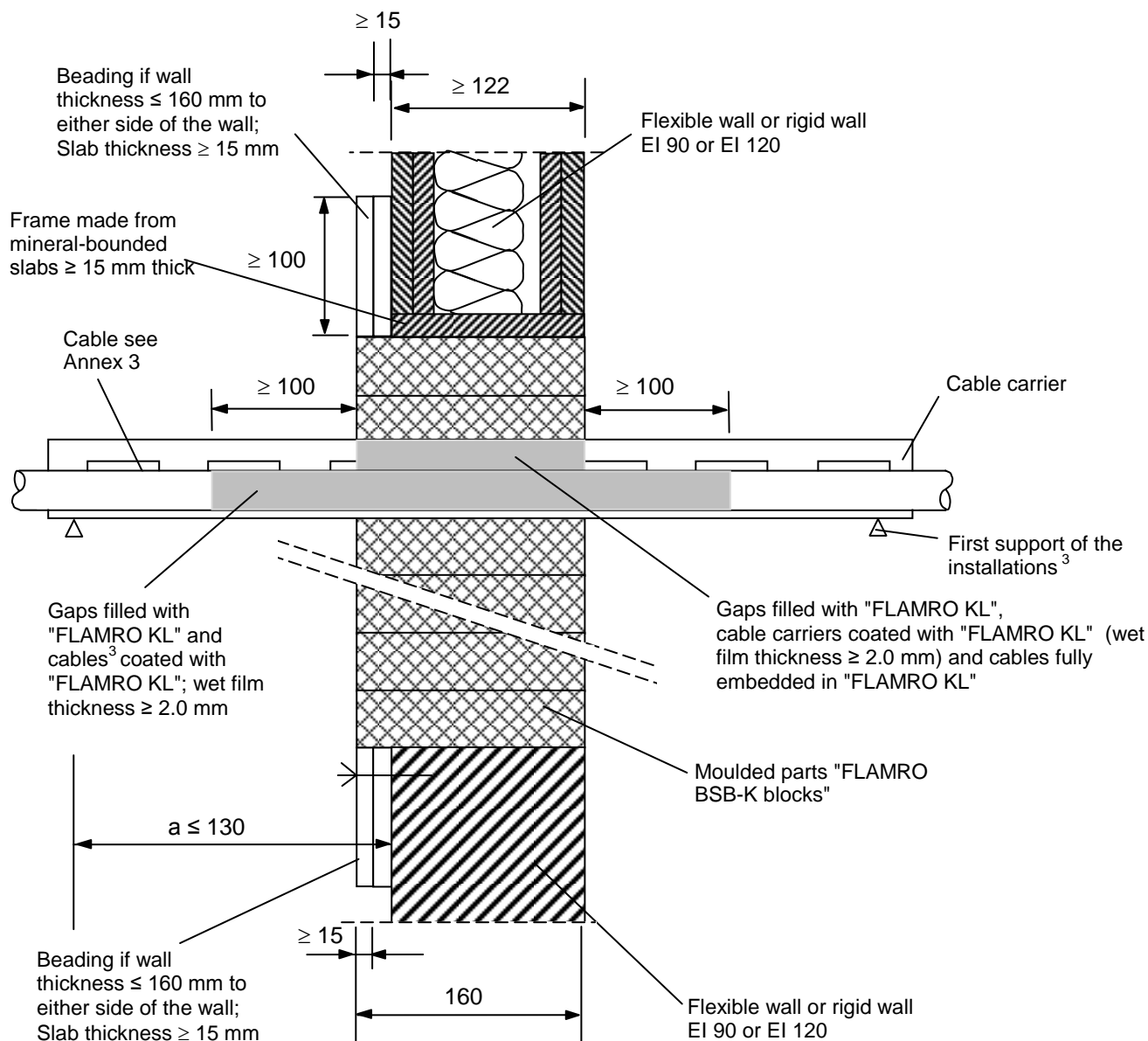
1 single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly
2 pipe end configuration used in the fire test

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 90 or E 120**
Wall installation – front view of option "eccentric installation with beading"

Annex 4

**EI 90
or E 120***



3 coating outside the area sealed with molded parts only for outer cable/bundle diameter ≥ 21 mm

4 first support directly in front of the seal in case of cables not fitted on cable carriers

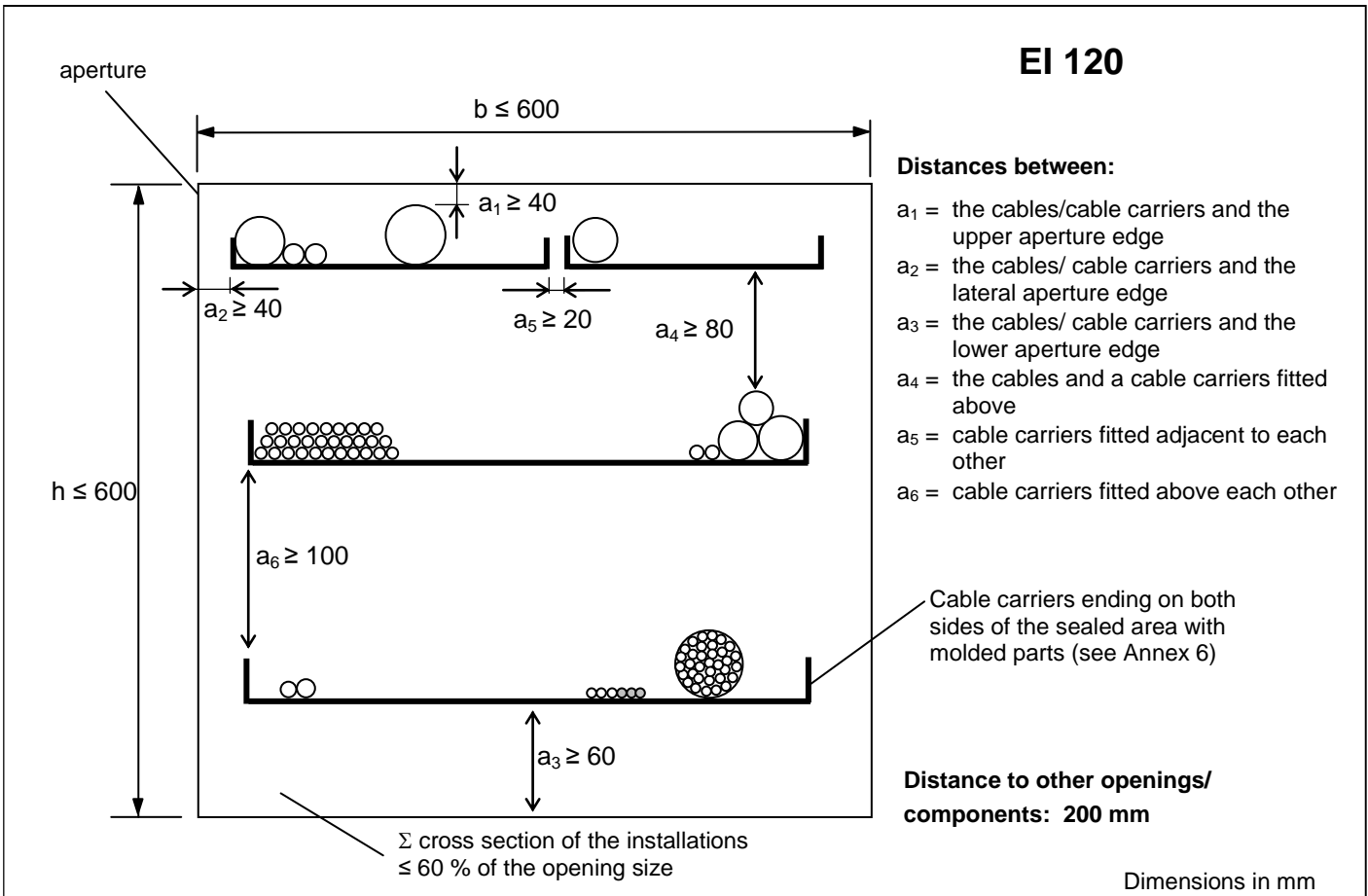
* In case of use in walls with fire resistance class EI 120; grid according to Annex 2 required

Dimensions in mm

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 90 or E 120**
Wall installation – section view of option "eccentric installation with beading"

Annex 5

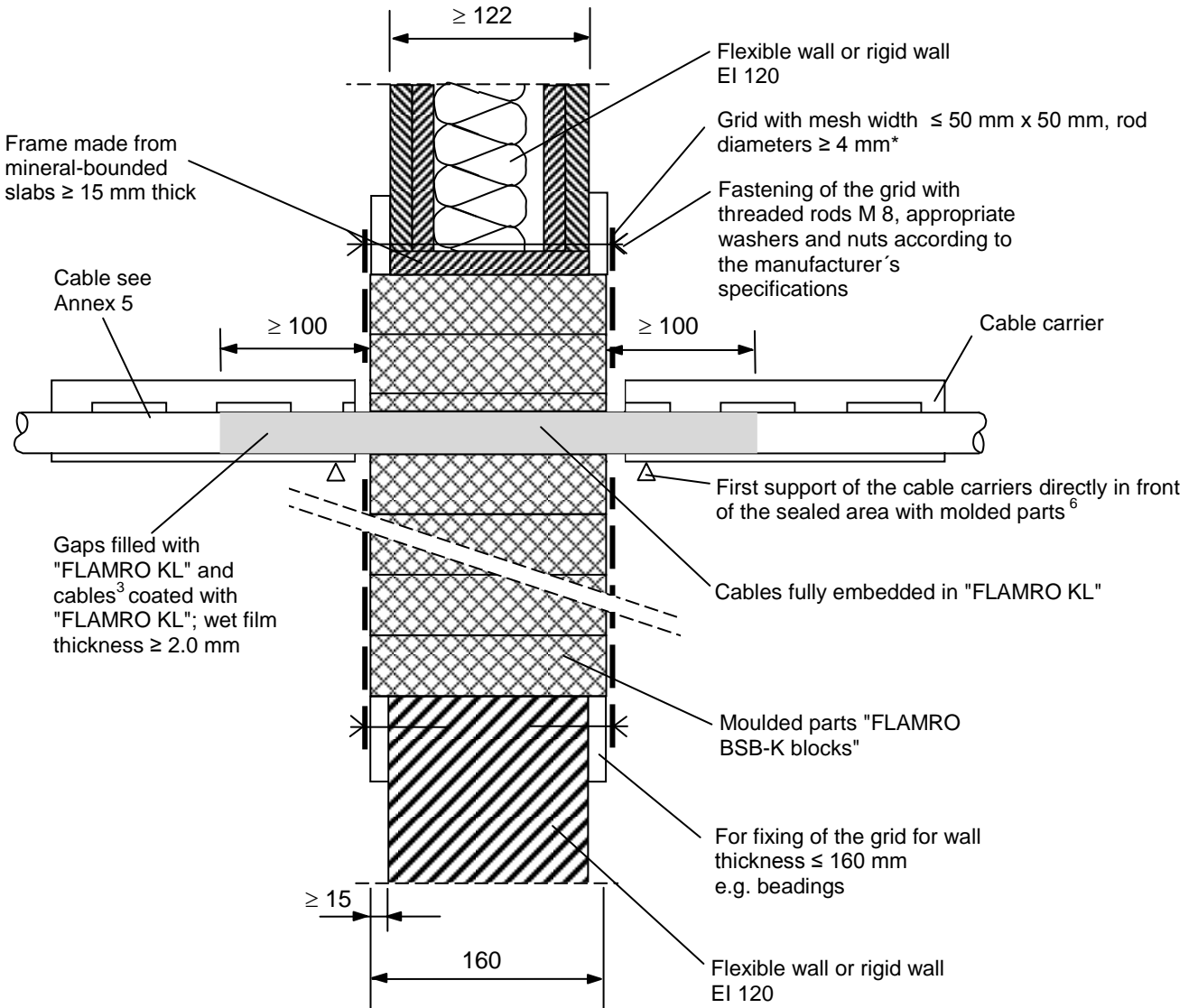


Description of the installations
<ul style="list-style-type: none"> ➤ Cables: All types of sheathed cables¹ currently and commonly used in building practice in Europe (e.g. power cables, data cables, telecommunications cables, fibre-optic cables) with the exception of waveguides, with an outer diameter ≤ 80 mm; optionally arranged on cable carriers and concentrated in cable layers outside the sealed area with molded parts ➤ Cable bundles consisting of parallel cables, densely packed and tightly bound, stitched or welded to one another; outer diameter of the individual cable ≤ 21 mm; overall diameter of the cable bundle ≤ 100 mm. ➤ Control lines, C-C²: steel or plastic lines for control purposes with an outer diameter ≤ 16 mm ➤ Conduits: flexible conduits made of polyolefin with the classification 23322 per EN 61386-22 with an outer diameter ≤ 20 mm; flame retardant or not flame retardant; blank or with one cable type NYY-J 5x1,5 RE

1 single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly
2 pipe end configuration used in the fire test

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"	Annex 6
Use as a component of a cable penetration seal Example of a cable penetration seal with a fire resistance EI 120 Wall installation – front view of option "centered installation"	

EI 120



- 5 coating outside the area sealed with molded parts only for outer cable/bundle diameter ≥ 21 mm
- 6 also required for cables not fitted on cable carriers

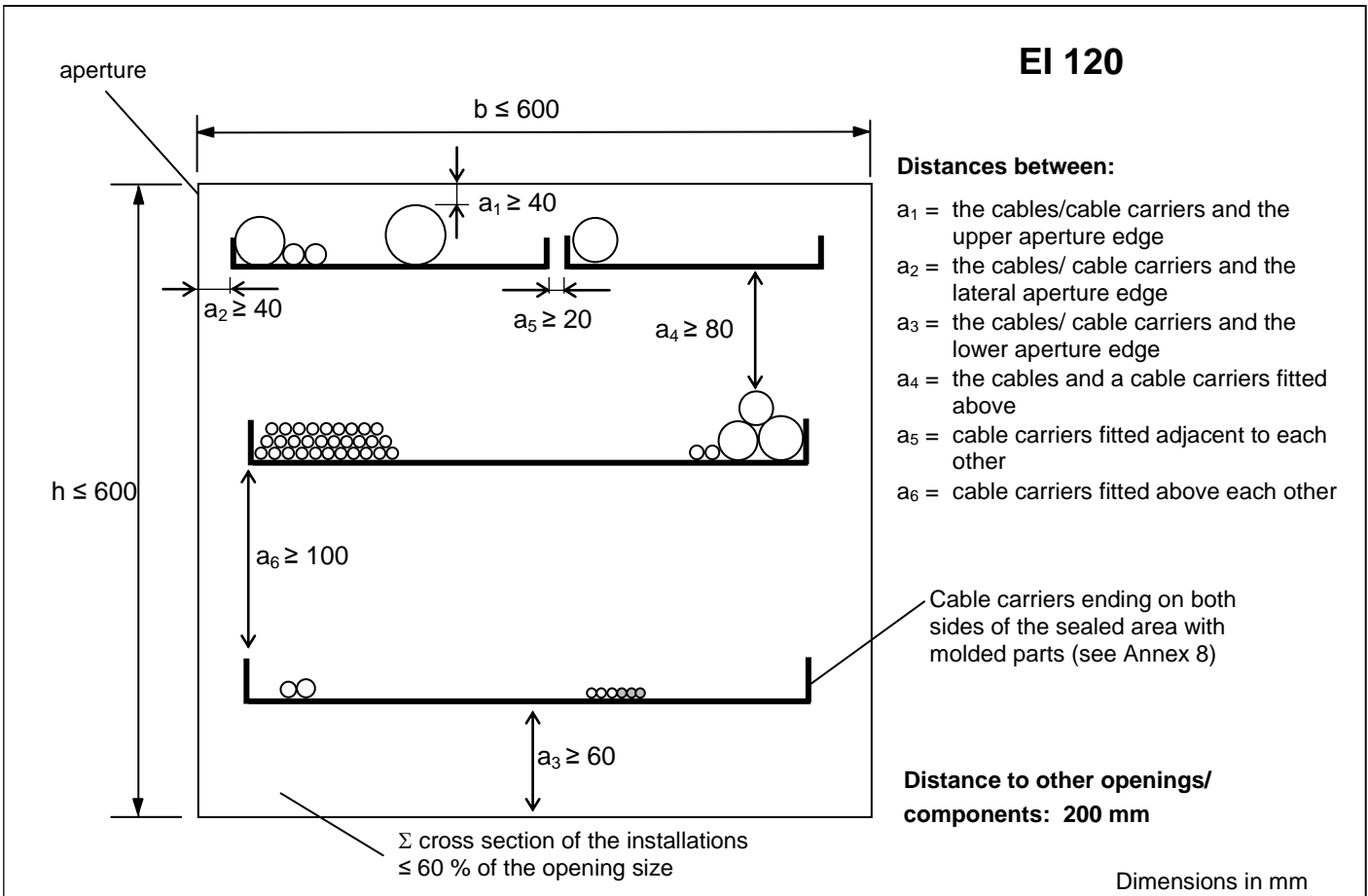
* For cable carriers fitted above each other with a **separation ≤ 150 mm no grid is required** in between; In addition no grid is required between aperture edges and installations with separations between 40 mm and 50 mm.

Dimensions in mm

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Annex 7

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 120**
Wall installation – section view of option "centered installation"



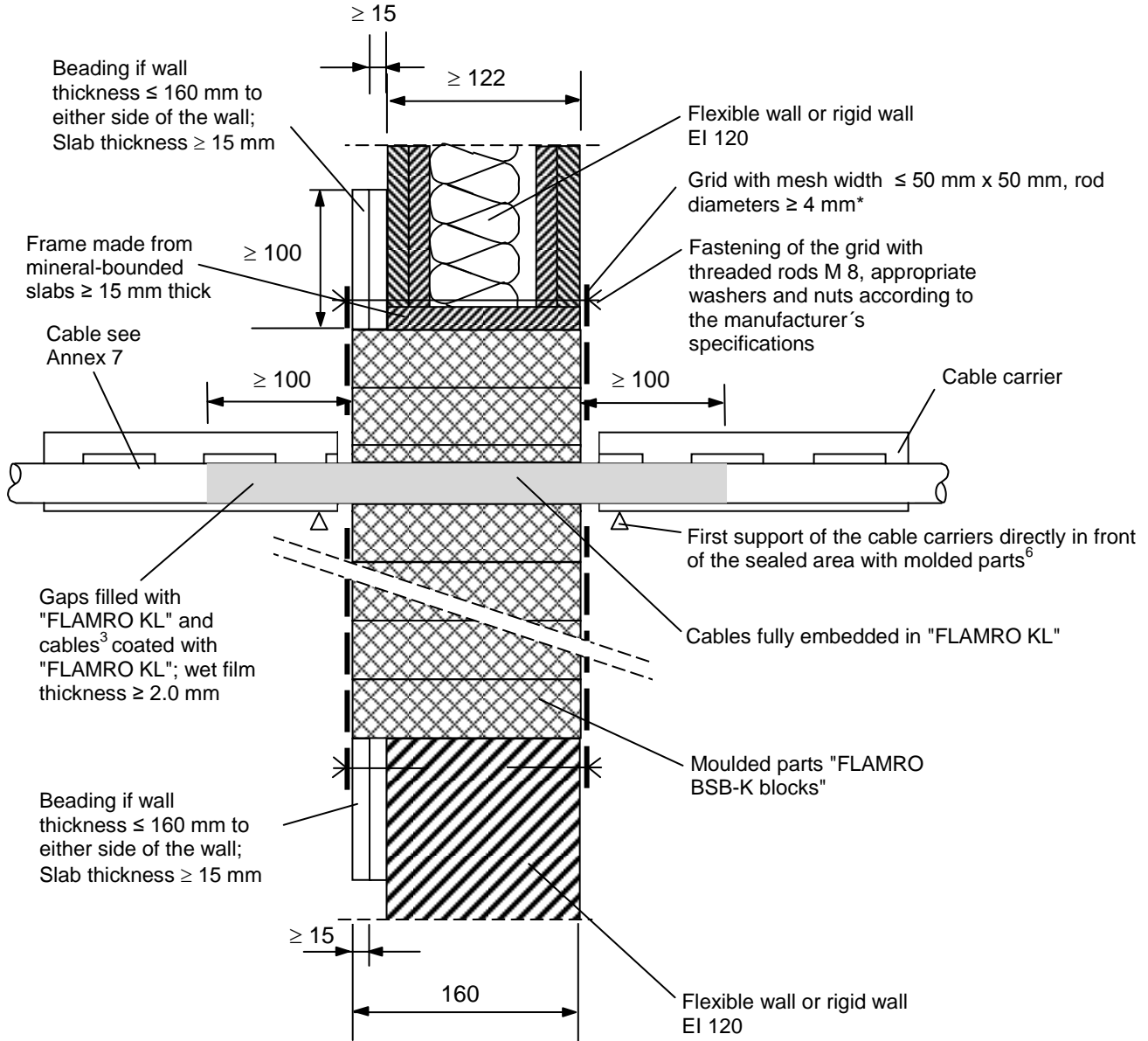
Description of the installations
<ul style="list-style-type: none"> ➤ Cables: All types of sheathed cables¹ currently and commonly used in building practice in Europe (e.g. power cables, data cables, telecommunications cables, fibre-optic cables) with the exception of waveguides, with an outer diameter ≤ 80 mm; optionally arranged on cable carriers and concentrated in cable layers outside the sealed area with molded parts
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1 single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly
2 pipe end configuration used in the fire test

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"	Annex 8
Use as a component of a cable penetration seal Example of a cable penetration seal with a fire resistance EI 120 Wall installation – front view of option "eccentric installation with beading"	

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EI 120



- 5 coating outside the area sealed with molded parts only for outer cable/bundle diameter ≥ 21 mm
- 6 also required for cables not fitted on cable carriers

* For cable carriers fitted above each other with a **separation ≤ 150 mm no grid is required** in between; In addition no grid is required between aperture edges and installations with separations between 40 mm and 50 mm.

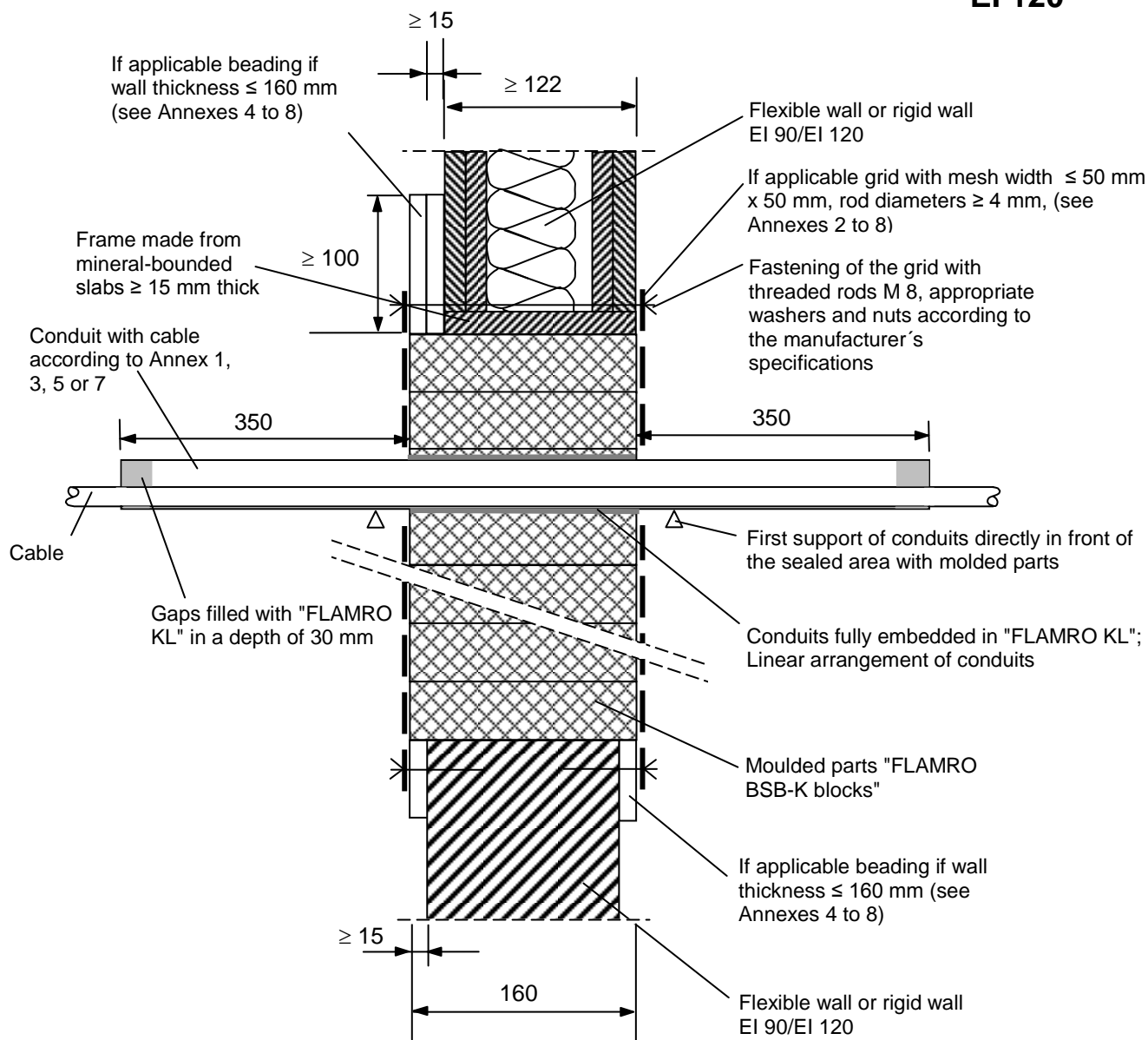
Dimensions in mm

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 120**
Wall installation – section view of option "eccentric installation with beading"

Annex 9

**EI 90/
EI 120***



* In case of use in walls with fire resistance class EI 120

Dimensions in mm

Kit containing "FLAMRO BSB-K" and "FLAMRO-KL"

Use as a component of a cable penetration seal
Example of a cable penetration seal with a fire resistance **EI 90 or EI 120**
Construction detail for seals with conduits: wall installation – section view

Annex 10