

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-16/0016**  
**of 8 February 2022**

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

"CT Cable Tube" and "CT ML Cable Tube"

Product family  
to which the construction product belongs

Construction product for use in penetration seals

Manufacturer

FLAMRO Brandschutz-Systeme GmbH  
Am Sportplatz 2  
56291 Leiningen  
DEUTSCHLAND

Manufacturing plant

Herstellwerk I

This European Technical Assessment  
contains

12 pages including 8 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

EAD 350454-00-1104

This version replaces

ETA-16/0016 issued on 29 July 2020

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## Specific part

### 1 Technical description of the product

The construction products consist of PVC-U half-pipes and an inlay made of an intumescent material which expands under heat exposure.

- In the case of the construction product "CT Cable Tube", design variant 1, two half-pipes are joined by means of a click fastener to form a pipe sleeve. The inlay is bonded into the half-pipes (see Annex 2).
- In the case of the construction product "CT Cable Tube", design variant 2, two half-pipes are joined by means of a fastener taking the shape of an H profile to form a pipe sleeve. The half-pipes are coated with the inlay (see Annex 2).
- The construction product "CT ML Cable Tube" consists of a half-pipe. The inlay is bonded into the half-pipe. The inlay overlaps the half-pipe by about the half-pipe's diameter. This overlap is used to form the bottom (see Annex 3).

Detailed specifications (e.g. dimensions) and fire safety related performance criteria for the construction products are given in Annexes 1 to 3. Detailed information on the construction products' components are deposited with Deutsches Institut für Bautechnik.

#### NOTE:

The characteristics listed are suitable both for identifying the construction products as well as for performing the manufacturer's factory production control.

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

The construction products "CT Cable Tube" and "CT ML Cable Tube" shall be used as part of cable penetration seals.

Cable penetration seals are used to seal openings in fire-resistant walls or floors, which are penetrated by cables. Their aim is to preserve the walls' or floors' fire resistance in the area of the penetrations.

Within the framework of this ETA, the fire resistance was demonstrated for cable penetration seals consisting of two half-pipes of the type "CT Cable Tube" (for floor and wall installations) and for cable penetration seals consisting of one half-pipe of the type "CT ML Cable Tube" (for wall installations). The cable penetration seals had a closure made of a flexible foam on both sides for "CT Cable tube" pipe sleeves or one side for "CT ML Cable Tube" half-pipes which was - after it was inserted into the remaining openings - sealed from the outside with an ablative coating. In addition, the joints between the pipe sleeve or the half-pipe and the surrounding building element were sealed (see table 1).

More detailed information and data on the verified penetration seals are given in Annexes 4 to 8. The performances given in Section 3 relate exclusively to these penetration seals (e.g. with respect to the design and arrangement of the penetration seal components and the type and position of the services).

Table 1 – Components of the verified penetration seals

Product type	Trade name
Half-pipes with inlay	"CT Cable Tube", "CT ML Cable Tube"
Flexible foam sealing plug	"Basotect", "Basotect G"
Ablative coating	"FLAMMOTECT-A"
Mineral wool boards of a thickness of 50 mm	"Rockwool Hardrock 040"
Insulation wool made of mineral fibre	"Rockwool Lose Wolle RL"
System ground plate of a thickness of 32 mm	"GIFAfloor FHB"

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

**3.1 Intended use: use in penetration seals**

**3.2 Safety in case of fire (BWR 2)**

Essential characteristic	Performance
Fire resistance of a penetration seal (see Annexes 4 to 8 for details) containing the product <sup>1</sup> .	maximum class EI 90 or EI 120 in accordance with EN 13501-2 (see Annexes 4 to 8)

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

In accordance with the European Assessment Document (EAD) no. 350454-00-1104, the following legal base shall apply: 1999/454/EC.

The system to be applied is: 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.

Issued in Berlin on 8 February 2022 by Deutsches Institut für Bautechnik

Christina Pritzkow  
Head of Department

*beglaubigt:*  
Meske-Dallal

<sup>1</sup> The fire resistance depends on how the penetration seal is designed and installed and on the penetrating services. Annexes 2 to 8 include details on the penetration seals for which the fire resistance indicated was demonstrated.

The factory manufactured construction products of the type "CT Cable Tube" and of the type "CT ML Cable Tube" consist of PVC-U half-pipes and an inlay made of an intumescent material. They are used to seal cable penetrations in fire-resistant building elements.

Properties and performance criteria of the components of the construction products of the type "CT Cable Tube" and of the type "CT ML Cable Tube"

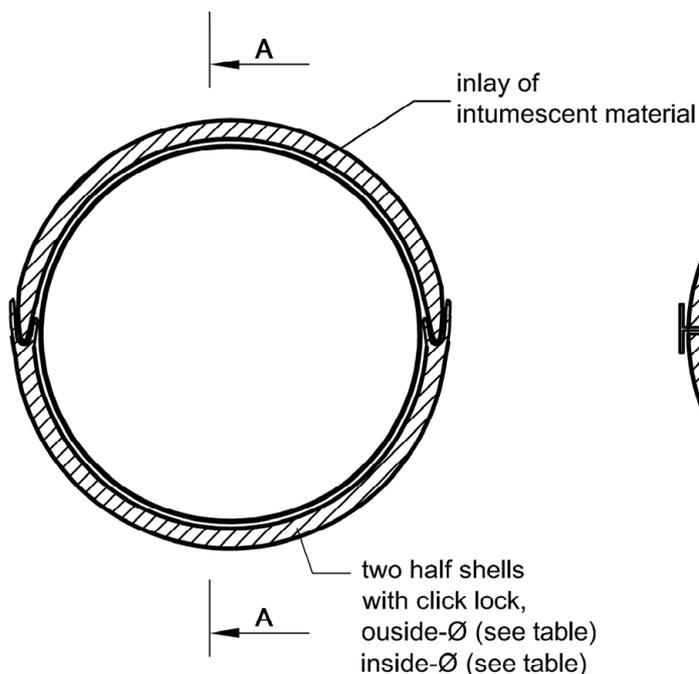
Component	Description
"Half-pipe" (with glued groove bar or click fastener)	Dimensions: Ø 116,4; s = 3,2 mm; l = 150 mm, 200 mm or 300 mm Material: PVC-U according to EN 1452
"Inlay" for "CT Cable Tube", design variant 1 and "CT ML Cable Tube"	"DG-CR SK": Thickness = 1,5 mm (dry layer thickness) Material: intumescent material Reaction to fire class: E according to EN 13501-1
"Inlay" for "CT Cable Tube", design variant 2	"DG": Thickness = 1,5 mm (dry layer thickness) Material: intumescent material Reaction to fire class: B-s1, d0 according to EN 13501-1

Description of the additional ingredients of the tested sealings

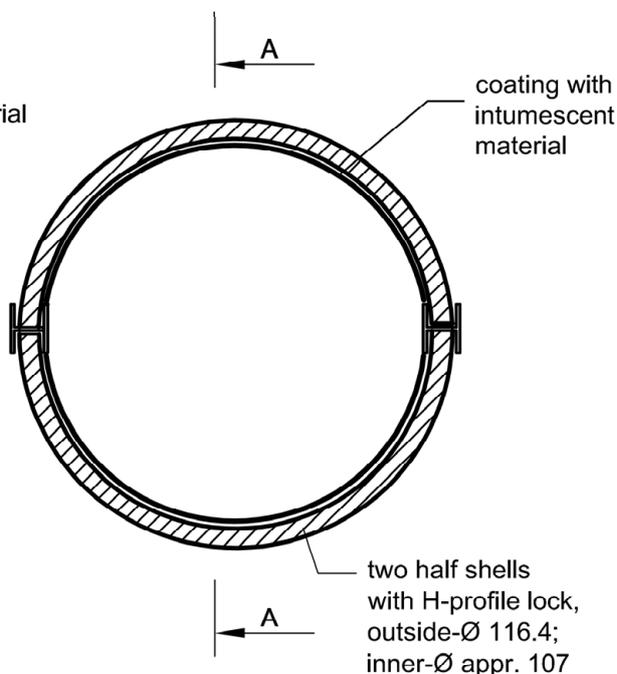
"Closure" (for closing the pipe sleeve; Material: flexible foam of the type "Basotect" der Fa. BASF AG) or "Basotect G" der Fa. BASF AG)	Thickness = 40 mm; diameter corresponding to the inner diameter of the pipe sleeves; Reaction to fire class: C-s1, d0 according to EN 13501-1
"Sealing" (Material: ablative coating "FLAMMOTECT-A" according to ETA-14/0418)	Thickness ≥ 0,5 mm (dry layer thickness) Reaction to fire class: E according to EN 13501-1

"CT Cable Tube" und "CT ML Cable Tube"	Annex 1
Description of the construction products, properties and performances	

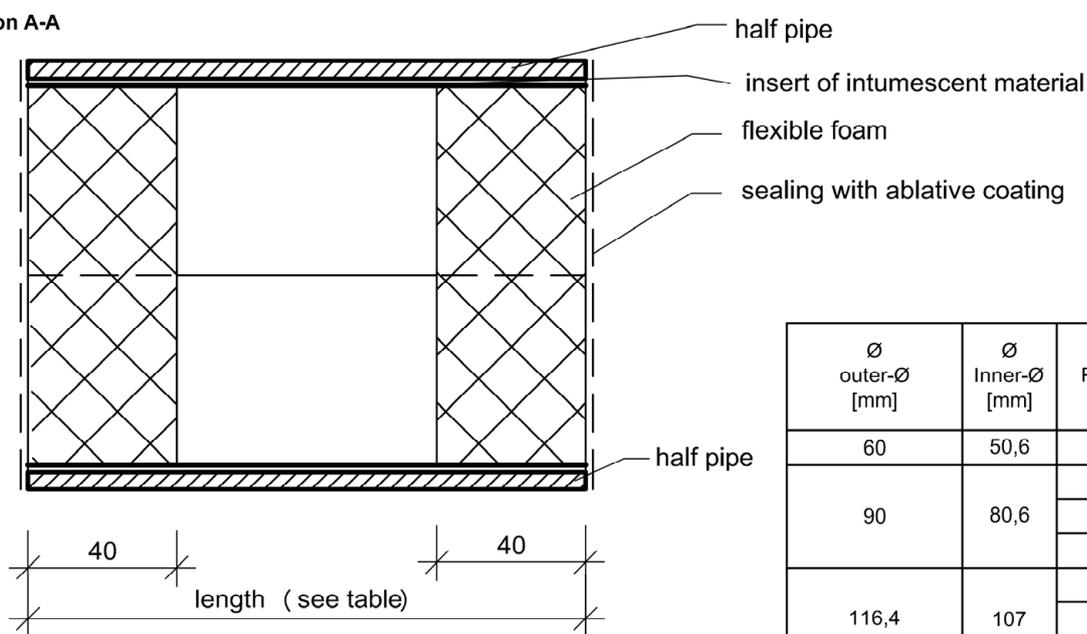
"CT Cable Tube"  
version 1



"CT Cable Tube"  
version 2



Section A-A



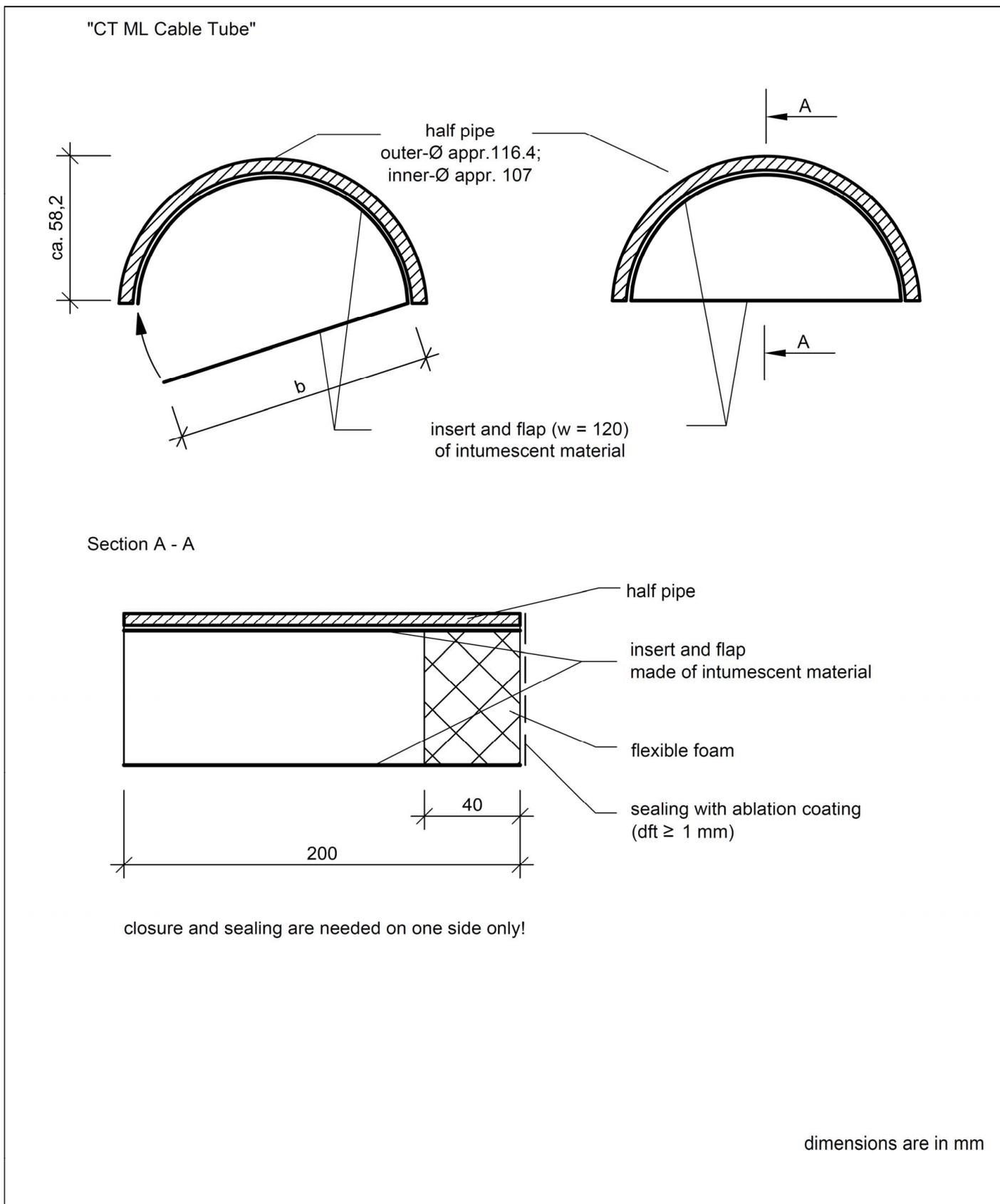
Ø outer-Ø [mm]	Ø Inner-Ø [mm]	L Pipe sleeve [mm]
60	50,6	150
		200
		300
116,4	107	150
		200
		300

dimensions are in mm

"CT Cable Tube" und "CT ML Cable Tube"

Construction dimensions of pipe sleeve "CT Cable Tube", versions 1 and 2

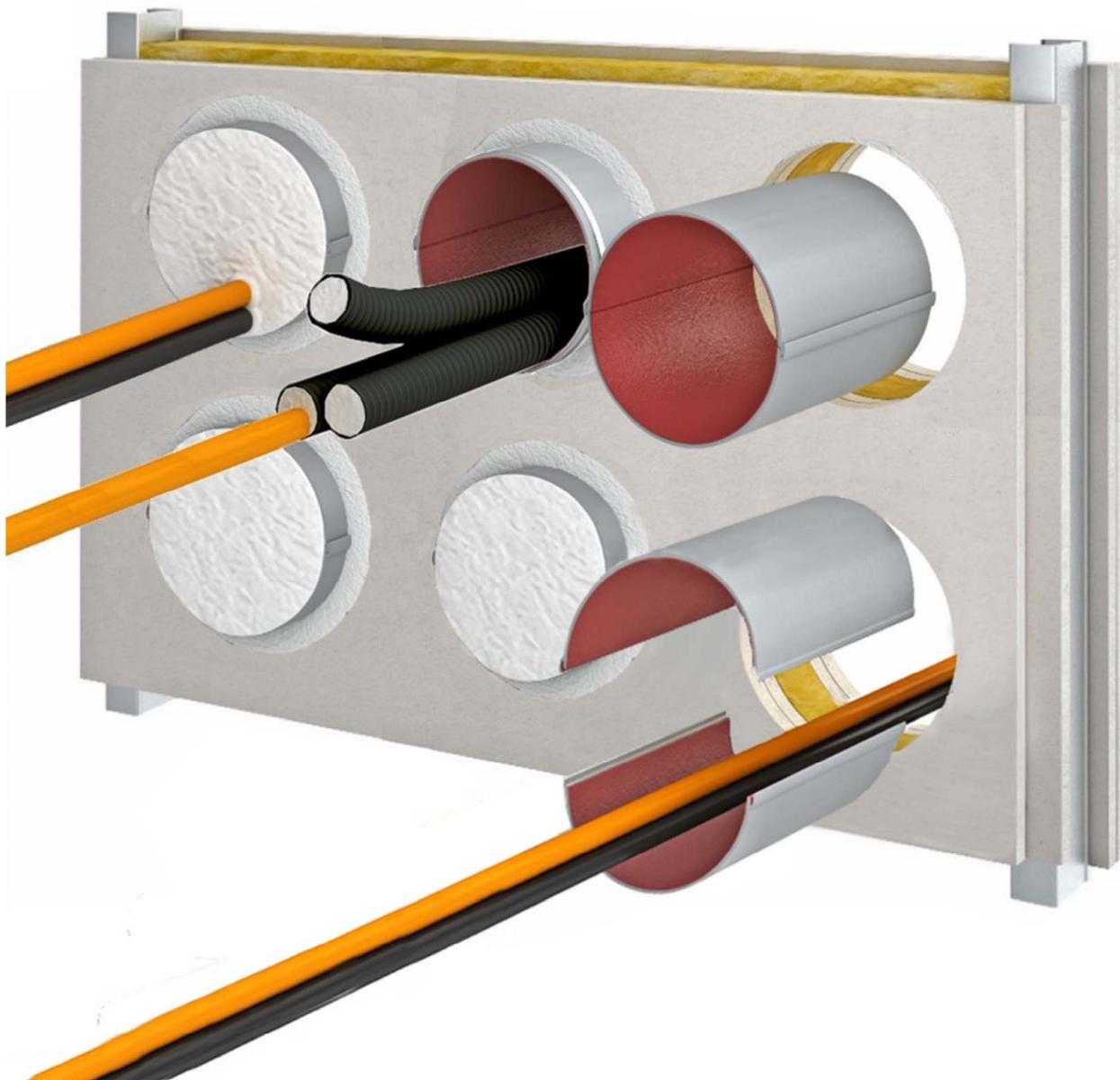
Annex 2



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"CT Cable Tube" und "CT ML Cable Tube"	Annex 3
Construction and dimensions of pipe sleeve "CT ML Cable Tube"	

"CT Cable Tube"



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"CT Cable Tube" und "CT ML Cable Tube"

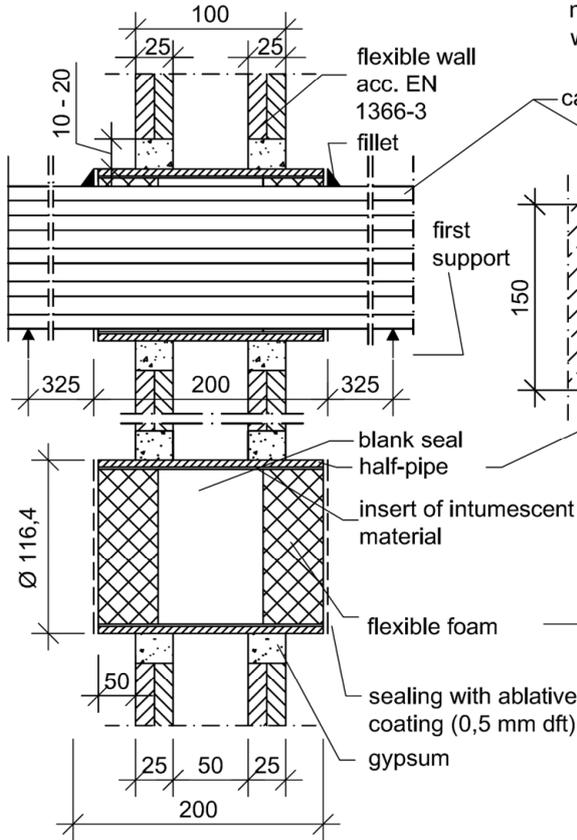
Schematic representation of the installed pipe sleeves type "CT Cable Tube"

Annex 4

English translation prepared by DIBt

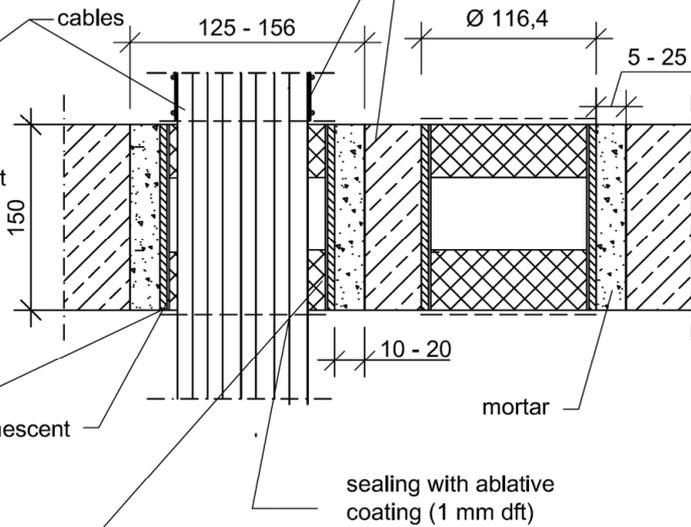
"CT Cable Tube" version 1

Section, wall installation

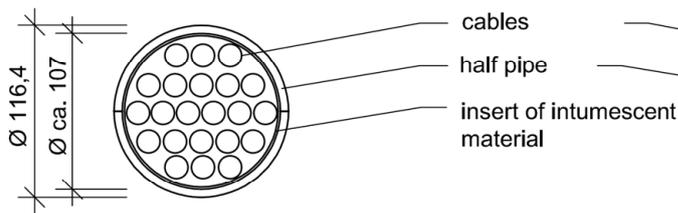


Section, floor installation

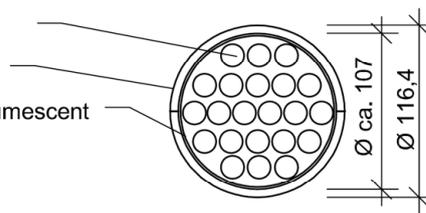
Cable wrap of intumescent material, aerated concrete floor slabs nominal thickness 1,5 mm, width 125 mm, fixed with wire ( $450 \leq \rho \leq 500 \text{ kg/m}^3$ )



View, wall installation



View, floor installation



Configuration wall construction:  
F-telecommunication cables, cablebundle  $\varnothing$  100 mm  
100% configuration of telecommunication cables with PVC-insulation and copperwire  
Type J-Y (St)Y 80 x 2 x 0,6 LG grey;  $\varnothing$  appr. 21 mm

Configuration floor construction:  
F-telecommunication cables, cablebundle  $\varnothing$  107 mm  
100% configuration of telecommunication cables 20 x 2 x 0,6 mm  
Type A2-Y (L) 2Y St III BD, insulation PE / PE

dimensions are in mm

"CT Cable Tube" und "CT ML Cable Tube"

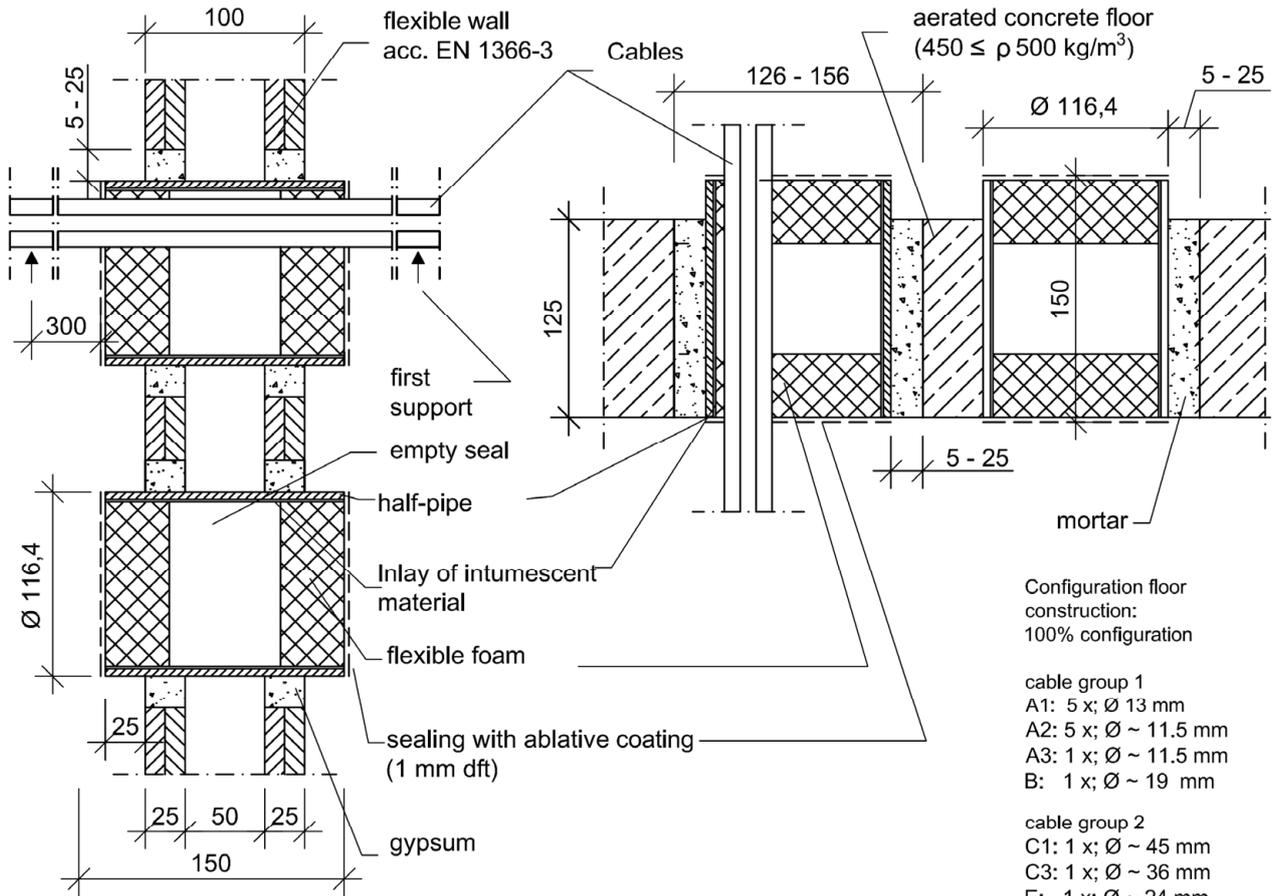
Examples for cable penetration seals of resistance to fire class EI 90 (wall) respectively EI 120 (floor), using the pipe sleeve "CT Cable Tube", version 1

Annex 5

"CT Cable Tube", version 2

**Section, wall installation**

**Section, floor installation**



Configuration floor construction:  
100% configuration

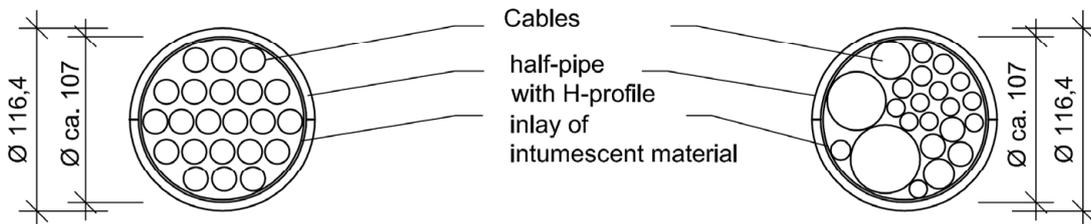
cable group 1  
A1: 5 x; Ø 13 mm  
A2: 5 x; Ø ~ 11.5 mm  
A3: 1 x; Ø ~ 11.5 mm  
B: 1 x; Ø ~ 19 mm

cable group 2  
C1: 1 x; Ø ~ 45 mm  
C3: 1 x; Ø ~ 36 mm  
E: 1 x; Ø ~ 24 mm

cable group 3  
F: 3 x; Ø ~ 15.5 mm

**View, wall installation**

**View, floor installation**



Configuration wall construction:  
F-telecommunication cables,  
cable bundle Ø = 100 %  
100% configuration of telecommunication cables

dimensions are in mm

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"CT Cable Tube" und "CT ML Cable Tube"

Examples for cable penetration seals of resistance to fire class EI 90, using the pipe sleeve "CT Cable Tube", version 2

Annex 6

"CT ML Cable Tube"



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"CT Cable Tube" und "CT ML Cable Tube"

Schematic representation of the installed pipe sleeves type "CT ML Cable Tube"

Annex 7

English translation prepared by DIBt

"CT ML Cable Tube"

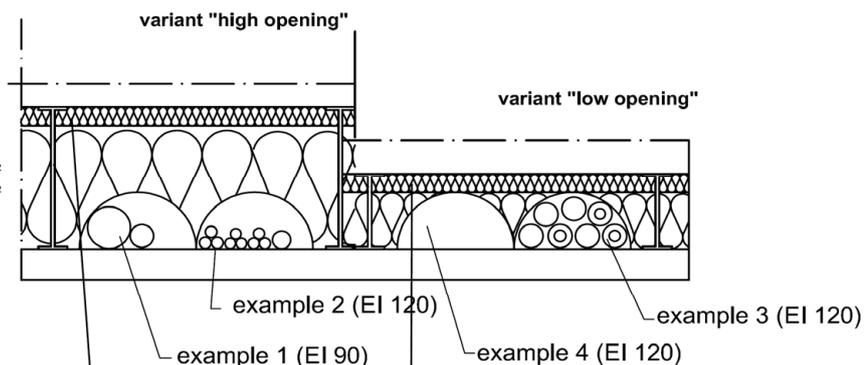
**View**

Example 1 (EI 90)  
configuration:  
1x C2-cable 4 x 95<sup>2</sup>  
1 x E-cable 1 x 185<sup>2</sup>

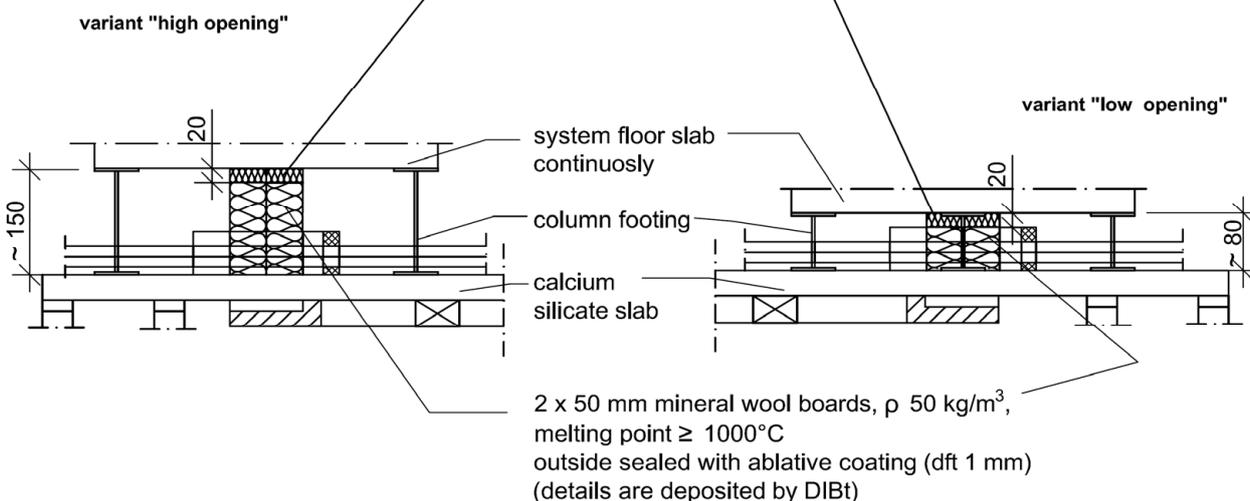
Example 2 (EI 120)  
configuration  
3 x A1-cable 5 x 1,5<sup>2</sup>  
3 x A2-cable 5 x 1,5<sup>2</sup>  
3 x A3-cable 5 x 1,5<sup>2</sup>  
1 x B-cable 1 x 95<sup>2</sup>

Example 3 (EI 120)  
configuration  
conduit with 1 x A1 Kabel 5 x 1,5<sup>2</sup>  
conduit with 1 x A2-Kabel 5 x 1,5<sup>2</sup>  
conduit with 1 x A3-Kabel 5 x 1,5<sup>2</sup>  
conduit empty  
conduit empty  
(conduit sealed on one side)

Example 4 (EI 120)  
blank seal



**Intersection view**



dimensions are in mm

"CT Cable Tube" und "CT ML Cable Tube"

Examples for cable penetration seals of resistance to fire class EI 90 respectively EI 120,  
using the pipe sleeve "CT ML Cable Tube"

Annex 8