

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

**ETA-13/0904
of 1 July 2020**

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

"PYROCOMB Intube, Typ CTS" and "PYROCOMB
Intube, Typ CTS-HP"

Product family
to which the construction product belongs

Construction product for use in penetration seals

Manufacturer

OBO Bettermann Produktion
Deutschland GmbH & Co. KG
Hüingser Ring 52
58710 Menden
DEUTSCHLAND

Manufacturing plant

Herstellerwerk S

This European Technical Assessment
contains

13 pages including 9 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-13/0904 issued on 31 May 2018

European Technical Assessment

ETA-13/0904

English translation prepared by DIBt

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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 "PYROCOB Intube, Typ CTS", 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 3).
- In the case of the construction product "PYROCOB Intube, Typ CTS", 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 3).
- The construction product "PYROCOB Intube, Typ CTS-HP" 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 4).

A detailed technical description (e.g. dimensions) and fire safety related performance criteria for the construction products are given in Annexes 1 to 4. 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 "PYROCOB Intube, Typ CTS" and "PYROCOB Intube, Typ CTS-HP" 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 "PYROCOB Intube, Typ CTS" (for floor and wall installations) and for cable penetration seals consisting of one half-pipe of the type "PYROCOB Intube, Typ CTS-HP" (for wall installations).

The cable penetration seals had a closure made of a flexible foam on both sides for "PYROCOB Intube, Typ CTS" pipe sleeves or one side for "PYROCOB Intube, Typ CTS-HP" half-pipes.

After inserting the foam into the remaining openings, this closure was sealed from the outside with an ablative fire stopping product.

In addition, the joints between the pipe sleeve or the half-pipe and the surrounding component were sealed.

More detailed information and data on the verified cable penetration seals are given in annexes 5 to 9.

The construction product "PYROCOB Intube, Typ CTS" and "PYROCOB Intube, Typ CTS-HP" may be used for cable penetration seals of use category X (outdoor use – rain, UV light, frost) provided that the other components of the cable penetration seal, which are not the subject of this ETA, meet the durability requirements. The resistance to fire of the cable penetration seals shall be verified on a case-by case basis.

The performances given in Section 3 apply exclusively to the cable penetration seals assessed as part of the ETA procedure (e. g. with respect to the design and arrangement of the cable penetration seals' components as well as the type and position of the services).

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
Reaction to fire "Half-pipe"	Class E according to EN 13501-1
Reaction to fire "Inlay" for "PYROCOB Intube, Typ CTS", design variant 1 and " PYROCOB Intube, Typ CTS-HP"	Class E according to EN 13501-1
Reaction to fire "Inlay" for "PYROCOB Intube, Typ CTS", design variant 2	Class B-s1, d0 according EN 13501-1
Resistance to fire of a penetration seal containing the product	The resistance to fire depends on the design and installation of the cable penetration seal and on the other compo- nents that make up the penetration seal. More details on the tested cable penetration seals and the related fire resistance classes are given in Annexes 1 to 9.

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

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

The system to be applied is: system 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 1 July 2020 by Deutsches Institut für Bautechnik

Maja Tiemann
Head of Department

beglaubigt:
Bisemeier

The factory manufactured construction products "PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP" consist of PVC-U half-pipes and an inlay made of an intumescent material. They are used for cable penetration seals.

Properties and performance criteria of the components of the construction products "PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Component	Description
"Half-pipe" (with glued groove bar or click fastener)	Dimensions: Ø = 60 mm, 90 mm, 116,4 mm; s = 3,2 mm (depending on the version); l = 150 mm, 200 mm or 300 mm Material: PVC-U according to EN 1452
"Inlay" for "PYROCOMB Intube, Typ CTS", design variant 1 and "PYROCOMB Intube, Typ CTS-HP"	"PYROWRAP Wet, FSB-WS" Thickness = 1,5 mm (dry layer thickness) Material: intumescent material* Classification of fire behavior according to EN 13501-1: E
"Inlay" for "PYROCOMB Intube, Typ CTS", design variant 2	"PYROWRAP Wet, FSB-WA" Thickness = 1,5 mm (dry layer thickness) Material: intumescent material* Classification of fire behavior according to EN 13501-1: B-s1, d0

The properties listed can be used both for the identification of the construction product and for the implementation of the factory production control of the manufacturer.

Implementation details for the factory production control are included in the inspection plan.

* The composition of the materials is deposited at DIBt.

Description of the additional ingredients of the tested cable penetration seals

Produkttyp	Handelsname
"Closure" (for closing the pipe sleeve)	Thickness = 40 mm; Diameter corresponding to the pipe diameter; Material: flexible foam of the type "Basotect" or "Basotect G"; BASF AG Classification of fire behavior acc. to EN 13501-1: C-s1, d0
"Sealing"	Thickness ≥ 0,5 mm (dry layer thickness) Material: ablative coating material of the type "PYROCOAT ASX" acc. to ETA-17/0364 Classification of fire behavior according to EN 13501-1: E
50 mm thick mineral wool boards	"Rockwool Hardrock 040" Deutsche Rockwool Mineralwoll GmbH, 45866 Gladbeck, Germany; acc. to EN 13162 Classification of fire behavior acc. to EN 13501-1: A1
Mineral wool	"Rockwool Lose Wolle RL"; Deutsche Rockwool Mineralwoll GmbH, 45866 Gladbeck, Germany; acc. to EN 14303 Classification of fire behavior acc. to EN 13501-1: Klasse A1
32 mm thick system floor plates	"GIFAfloor FHB" Knauf Classification of fire behavior acc. to EN 13501-1: A1
Gap filling material	Fire protection mortar "GFM" Acc. to EN 998-2
Gap filling material	"PYROMIX" acc. to ETA-17/0472 Classification of fire behavior acc. to EN 13501-1: A1
Kabelwickel	Thickness = 1,5 mm; width = 125 mm Material: intumescent material "PYROWRAP Wet, FSB-WB" acc. to ETA-13/0158 Classification of fire behavior acc. to EN 13501-1: Klasse B-s1,d0

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Description of the construction products, properties and performances

Annex 1

Performances of cable penetration seals, testing with the construction product "PYROCOMB Intube, Typ CTS" or "PYROCOMB Intube, Typ CTS-HP"

	Essential requirement	Test method	Construction of the sample	Performance acc. to EN 13501-2
1	Resistance to fire	EN 1366-3	Cable penetration seal containing the product "PYROCOMB Intube, Typ CTS" used in a 100 mm thick flexible wall; design and layout of the penetration seal acc. to annex 6*	EI 90
2	Resistance to fire	EN 1366-3	Cable penetration seal containing the product "PYROCOMB Intube, Typ CTS" used in a 150 mm thick rigid floor; design and layout of the penetration seal acc. to annex 6*	EI 120
3	Resistance to fire	EN 1366-3	Cable penetration seal containing the product "PYROCOMB Intube, Typ CTS" used in a 100 mm thick flexible wall; design and layout of the penetration seal acc. to annex 7*	EI 90
4	Resistance to fire	EN 1366-3	Cable penetration seal containing the product "PYROCOMB Intube, Typ CTS" used in a 150 mm thick rigid floor; design and layout of the penetration seal acc. to annex 7*	EI 90
5	Resistance to fire	EN 1366-3	Cable penetration seal containing the product "PYROCOMB Intube, Typ CTS-HP"; design and layout of the penetration seal acc. to annex 9*	EI 90 resp. EI 120

* Illustrations without guarantee for completeness

The tested/ illustrated cable penetration seals are only examples for the use.

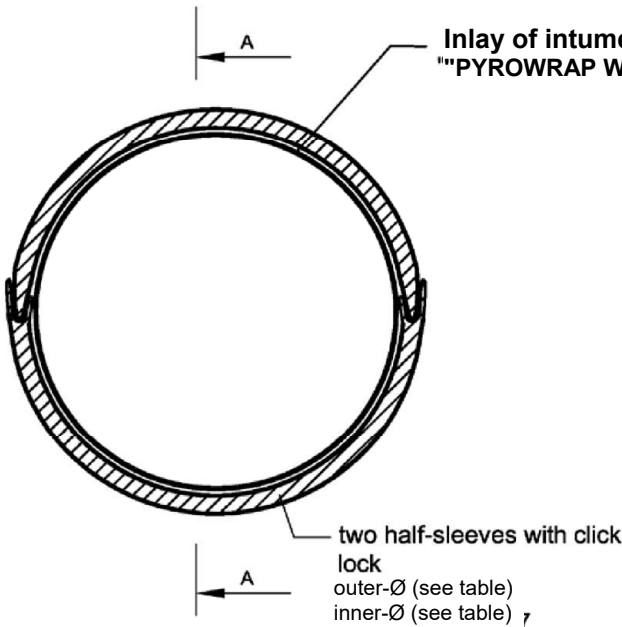
The use of the construction products "PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP" in cable penetration seals shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer.

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

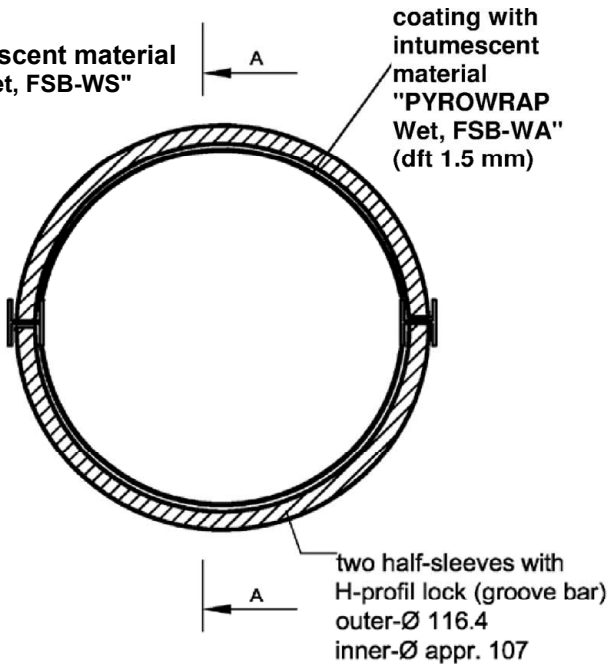
Description of the performances

Annex 2

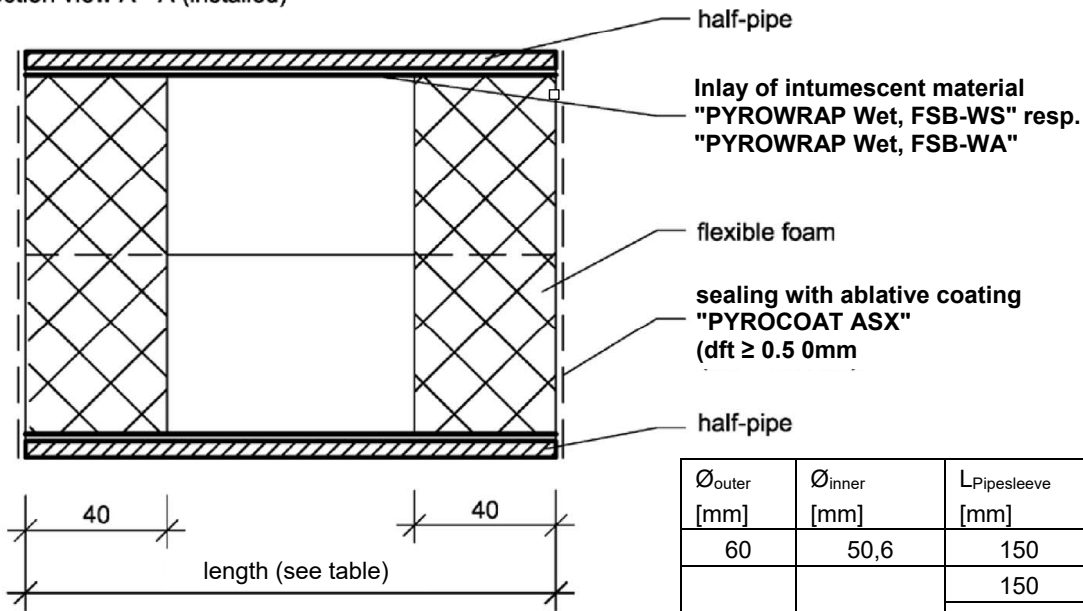
"PYROCOMB Intube, Typ CTS"
version 1



"PYROCOMB Intube, Typ CTS"
version 2



section view A - A (installed)

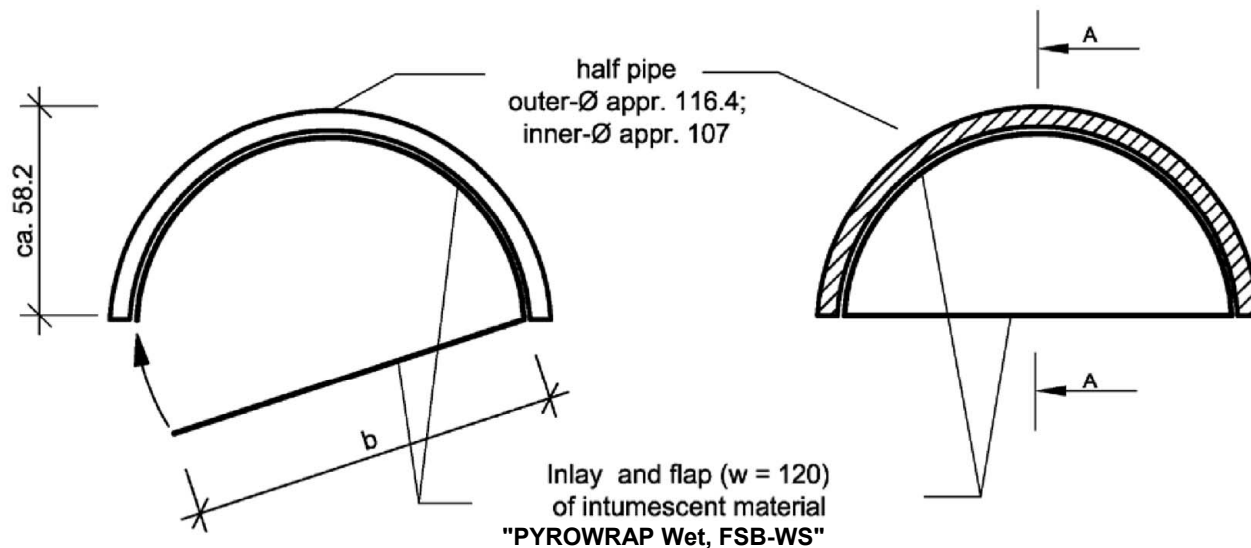


Ø _{outer} [mm]	Ø _{inner} [mm]	L Pipesleeve [mm]
60	50,6	150
		200
90	80,6	150
		200
116,4	107	150
		200

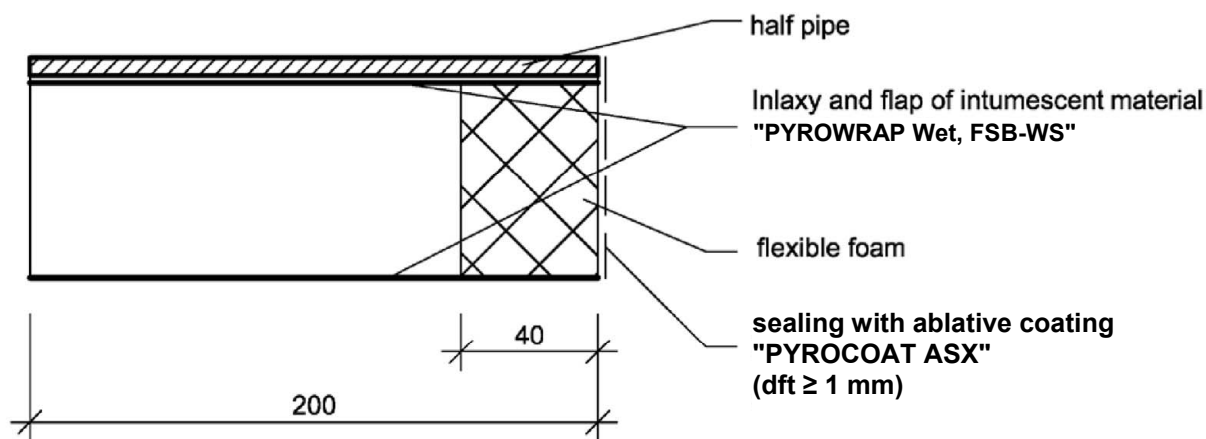
dimensions in mm

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"	Annex 3
Construction of pipe sleeve "PYROCOMB Intube, Typ CTS", variants 1 and 2	

"PYROCOMB Intube, Typ CTS-HP"



section view A - A (installed)



closing and sealing are needed on one side only!

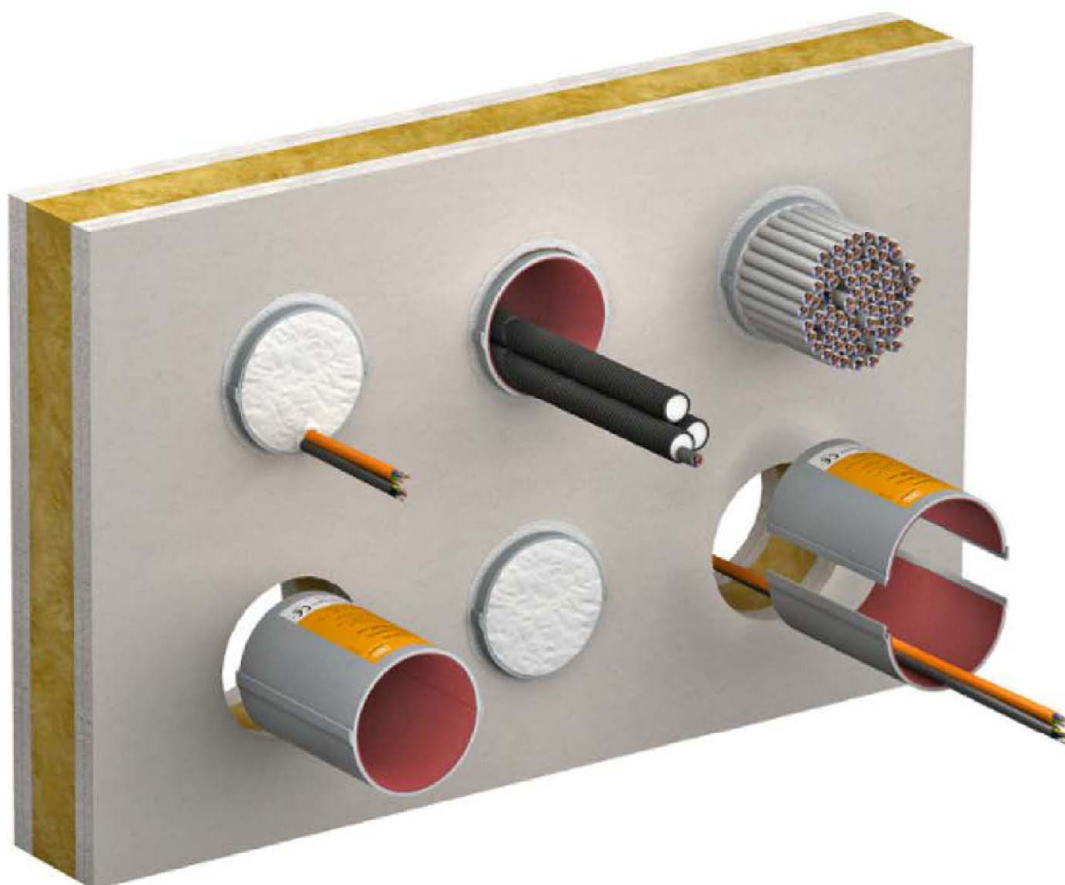
dimensions in mm

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Construction of pipe sleeve "PYROCOMB Intube, Typ CTS-HP"

Annex 4

"PYROCOMB Intube, Typ CTS"



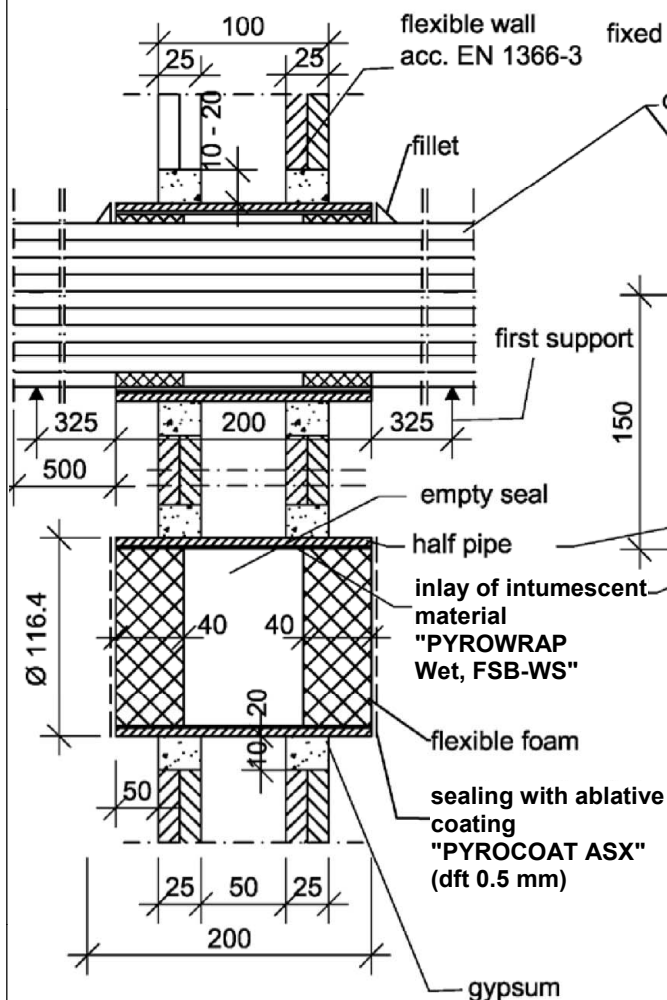
"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Schematic representation of the built-in pipe sleeve type "PYROCOMB Intube, Typ CTS"

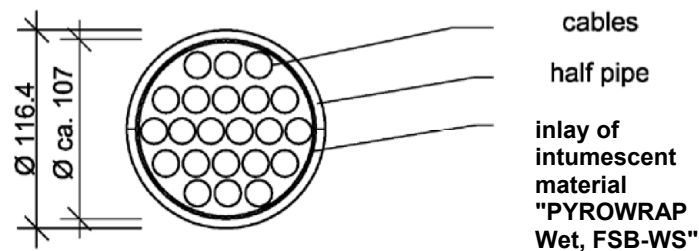
Annex 5

"PYROCOMB Intube, Typ CTS", version 1

Intersection, wall construction

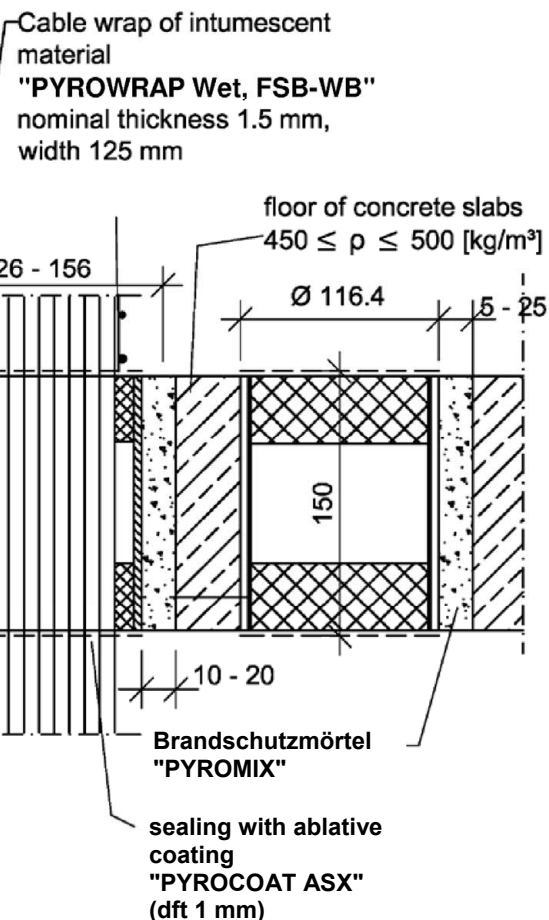


View, wall construction

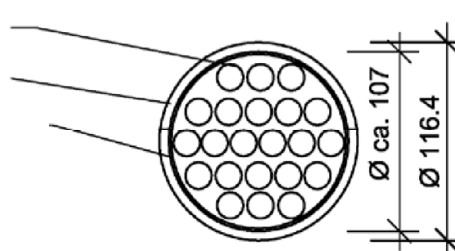


Configuration wall construction
F-telecommunication-cables, cablebundle Ø = 100 mm
100% configuration of telecommunicationcables with
PVC-insulation and copperwire
Type J-Y (St)Y 80 x 2 x 0,6 LG grey; Ø appr. 21 mm

Intersection, floor construction



View, floor construction



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

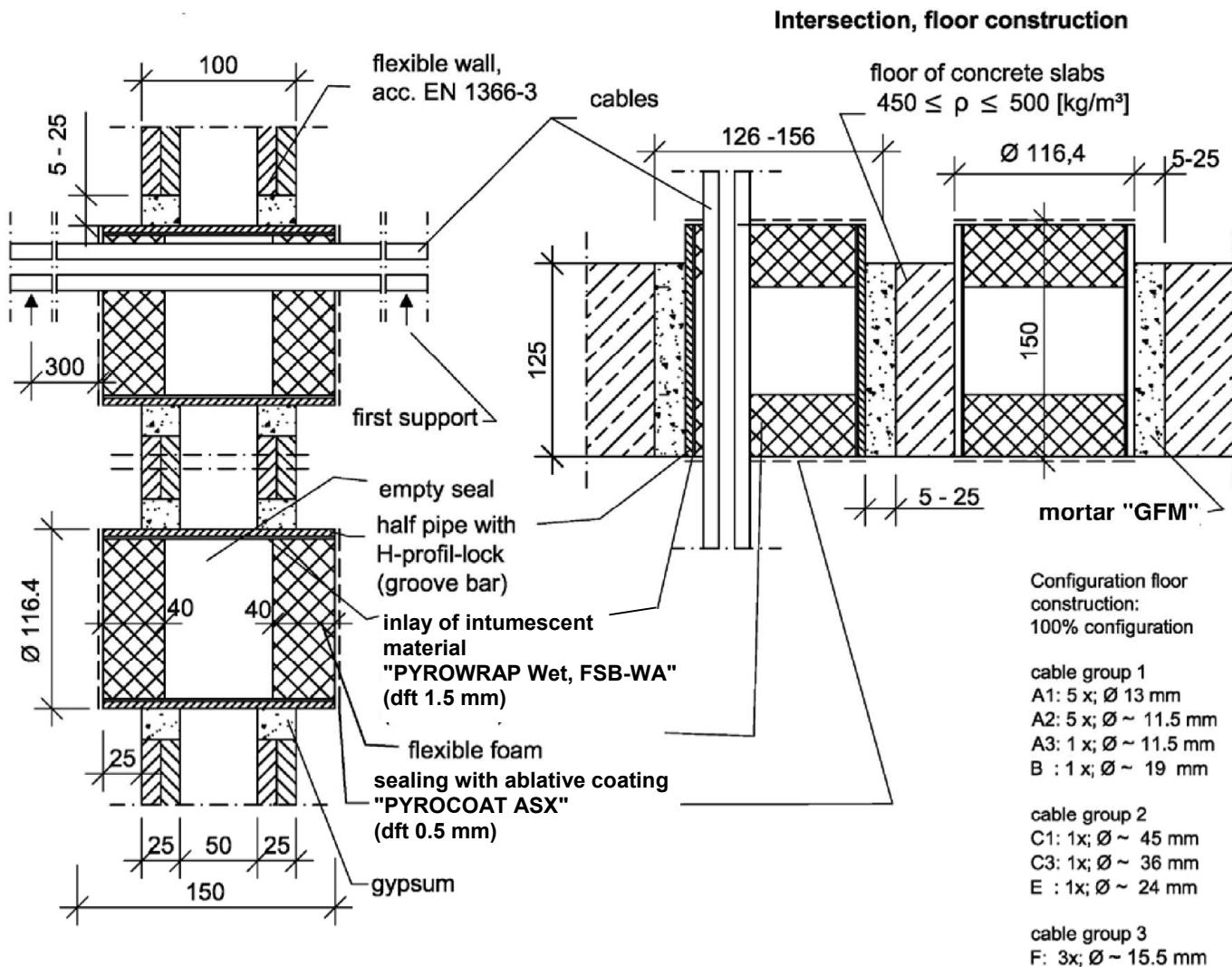
dimensions in mm

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

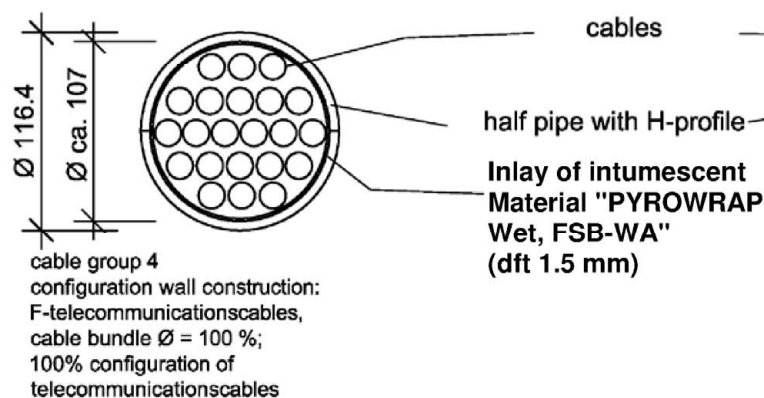
Example of cable penetration seal of fire resistance class EI 90, using pipe sleeves
"PYROCOMB Intube, Typ CTS"

Annex 6

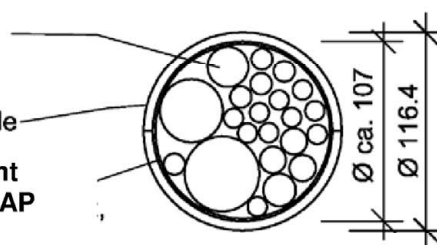
"PYROCOMB Intube, Typ CTS"



View, wall construction



View, floor construction



dimensions in mm

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Example of cable penetration seal of fire resistance class EI 90, using pipe sleeves "PYROCOMB Intube Typ CTS"

Annex 7

"PYROCOMB Intube, Typ CTS-HP"



"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Schematic representation of the built-in pipe sleeves type "PYROCOMB Intube, Typ CTS-HP"

Annex 8

"PYROCOMB Intube, Typ CTS-HP"

Example 1 (EI 90)
configuration:
1 x C2-cable 4 x 95²
1 x E-cable 1 x 185²

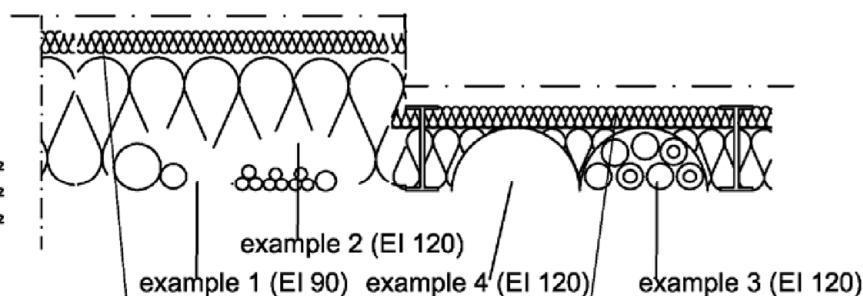
Example 2 (EI 120)
3 x A1-cable 5 x 1.5²
3 x A2-cable 5 x 1.5²
3 x A3-cable 5 x 1.5²
1 x B-cable 1 x 95²

Example 3 (EI 120)
conduit with 1 x A1-cable 5 x 1.5²
conduit with 1 x A2-cable 5 x 1.5²
conduit with 1 x A3-cable 5 x 1.5²
conduit empty
conduit empty
(conduits one sided sealed with
"PYROCOAT@ASX")

Example 4 (EI 120)
blank seal

variant "high opening"

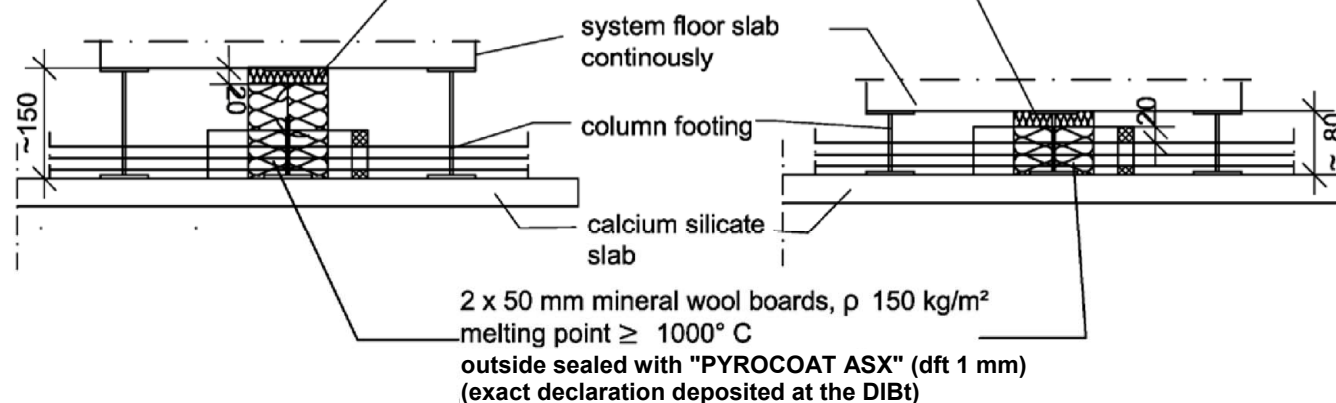
variant "low opening"



Section view

variant "high opening"

variant "low opening"



dimensions in mm

"PYROCOMB Intube, Typ CTS" and "PYROCOMB Intube, Typ CTS-HP"

Cable penetration seals of fire resistance EI 90 respectively EI 120, using the pipe sleeves
"PYROCOMB Intube, Typ CTS-HP"

Annex 9