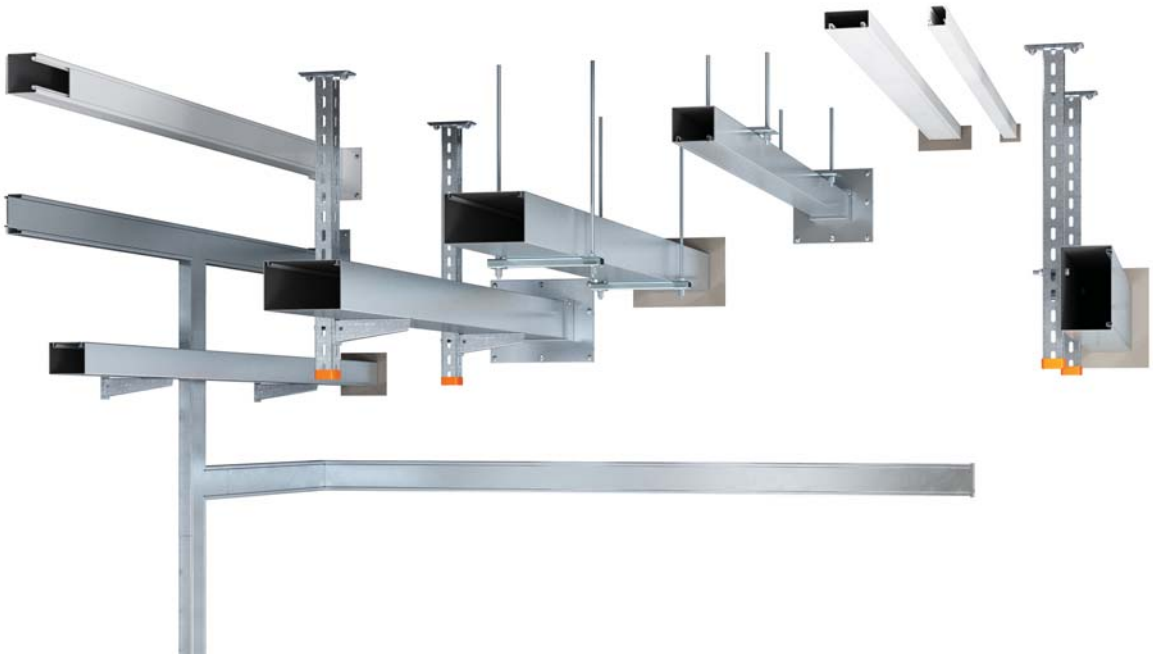


Certificates

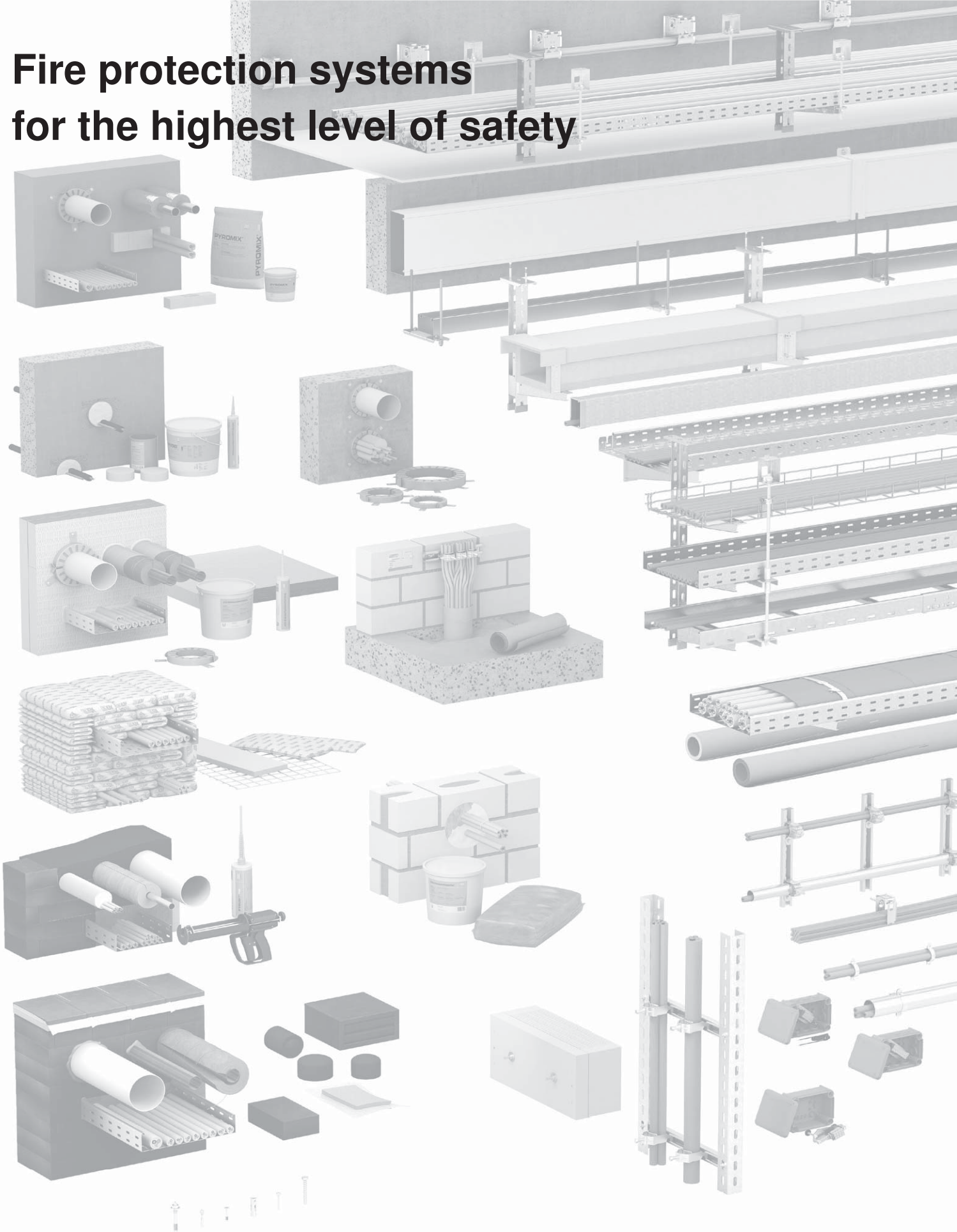
Fire protection ducts

PYROLINE® Rapid PLM

European Technical Assessment No. ETA-22/0096 issued 04-20-2022

OBO BETTERMANN

Fire protection systems for the highest level of safety



Be it in a residential building or an industrial complex – OBO has the appropriate solution for fireproof electrical installations. Our tested and certified fire protection systems cover all the relevant fire protection guidelines and provide you with an electrical installation that really serves its purpose.
We will be happy to provide you with more details – on our website or personally.

ETA-Danmark A/S
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DK-2150 Nordhavn
Tel. +45 72 24 59 00
Internet www.etadanmark.dk

Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-22/0096 of 2022/04/20

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	PYROLINE Rapid PLM
Product family to which the above construction product belongs:	Electrical service ducts
Manufacturer:	OBO Bettermann Produktion Deutschland GmbH & Co. KG Hüingser Ring 52, DE- 58710 Menden Tel. + 49 2373 890 Internet www.obo.de
Manufacturing plant:	OBO Bettermann Produktion Deutschland GmbH & Co. KG Hüingser Ring 52, DE- 58710 Menden
This European Technical Assessment contains:	29 pages including 24 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 350003-01-1109 Kit for fire resistant service ducts consisting of pre-fabricated connection pieces (made of steel sheet with an intumescent coating or lining) and accessories
This version replaces:	-

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

This European Technical Assessment refers to the PYROLINE Rapid PLM electrical service duct.

The PYROLINE Rapid PLM electrical service duct is a closed system, made of sheet steel with a profiled cover locking contour, which helps to protect the surrounding area in case of an electrical cable fire by intumescence of the internal fire protection fabric. When a cable fire develops in the interior (fire exposure from inside) or a fire develops in surrounding environment (fire exposure from outside), the internal fire protection fabric foams up and encapsulates the fire load.

Types, dimensions and illustration of the electrical service duct, see annex 12.

Fittings for cable ducts PLM D 0410, PLM D 0810 and PLM D 1220, see annex 1.

Construction products for sealing remaining openings and gaps (wall penetrations, cable inlets and outlets), see table 2 in annex 4.

Installation examples of PYROLINE Rapid PLM electrical service duct, see annex 17 and 18.

Detailed specifications for identification and performance criteria relevant for fire safety with regard to the construction product are given in annex 2-9.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The PYROLINE Rapid PLM electrical service duct is intended to be used for the installation and routing of cables in the interior of buildings.

In the event of a fire, the PYROLINE Rapid PLM electrical service duct fire protection actively ensures fire load encapsulation and the prevention of fire propagation.

The PYROLINE Rapid PLM electrical service duct is intended to be used for preventing the spread of fire from one building component with a fire separating function to another. The duct can be exposed to fire from outside or inside.

The components are fastened to or passing through shall have the same fire resistance class as the duct. These building components shall be classified in accordance with EN 13501-2 for the fire resistance period required.

The electrical service duct and the adjacent building components with a fire separating function shall remain functional throughout the fire resistance period required. Appropriate measures for compensating the elongation of the duct and the deflection of the building components caused by fire shall be taken.

The electrical service duct assembled from the kit is suitable for fire-resistance service ducts for use condition Z_2 according to EAD 350003-01-1109, annex E1.

Fire resistance electrical service duct PYROLINE Rapid PLM may thus be exposed to the conditions of use condition Z_2 (intended for use at internal conditions with relative humidity lower than 85 % rh (relative humidity) excluding temperatures below 0 °C (frost-free and dry)

The fire resistant duct is not intended to be used for:

- Preventing the spread of fire as a result of thermal conduction along the piping installed in service ducts, or thermal conduction through the media these pipes carry.
- Maintaining the functional endurance of electrical cables
- Air distribution systems

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of at least 10 years for PYROLINE Rapid PLM electrical service duct.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer nor by the Technical Assessment Body issuing the ETA but are to be regarded only as a means for expressing the economically reasonable working life of the product.

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

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The components of the PYROLINE Rapid PLM electrical service duct are classified according to EN 13501-1+A1 and Delegated Regulation 2016/364 and EC Decision 96/603/EC, **for information see annex 2-9.**
Propensity to undergo continuous smoldering of kit components	**No performance assessed**
Fire protective performance	Classification according to EN 13501-2. The PYROLINE Rapid PLM electrical service duct, assembled from the kitWi fulfils the requirements of resistance to fire classes EI 30 (ho i↔o), EI 60 (ho i↔o), EI 90 (ho i↔o) and E 120 (ho i↔o) if the provisions of this ETA are met. The resistance to fire depends on the design / installation of the electrical service duct as well as on the associated components **for information see annex 10-18.**
Resistance to the effects of higher temperatures	**No performance assessed**
Resistance to the effects of direct contact with metals and plastics	**No performance assessed**
Adhesion between the intumescent component and the substrate	**No performance assessed**
Resistance to the effects of constant low temperatures (permanent frost)	**No performance assessed**
Heat insulation efficiency (ablative component)	**No performance assessed**
3.3 Hygiene, health and the environment (BWR 3)	
Content, emission and/or release of dangerous substances*	**No dangerous substances**

*) 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 Product Directive, these requirements need also to be complied with, when and where they apply.
Also see 3.8-3.9

3.8 Methods of verification

The assessment of the performance of PYROLINE Rapid PLM electrical service duct in relation to the applicable BWR's has been made in accordance with the European Assessment Document (EAD) no. EAD 350003-01-1109 Kit for fire resistant service ducts consisting of pre-fabricated connection pieces (made of mechanically pre-coated steel sheet) and accessories.

3.9 General aspects related to the fitness for use of the product.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced.

ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

The PYROLINE Rapid PLM electrical service duct is manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

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

4.1 AVCP system

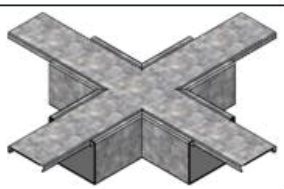
According to the decision 1999/454/EC of the European Commission, as amended by 2001/596/EC, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 1.

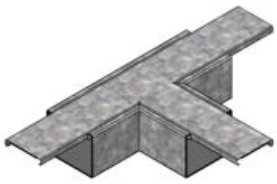
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

Issued in Copenhagen on 2022-04-20 by

Thomas Bruun
Managing Director, ETA-Danmark

Type	Illustration	System dimensions
External corner		40x100 80x100 120x200
Flat angle		40x100 80x100 120x200
Crossing		40x100 80x100 120x200
Reducer		80x100 120x200
Vertical bend rising 45°		40x100 80x100 120x200
Wall connection collar 2-sided		40x100 80x100 120x200

Type	Illustration	System dimensions
Internal corner		40x100 80x100 120x200
T- branch		40x100 80x100 120x200
End piece		40x100 80x100 120x200
Vertical bend falling 45°		40x100 80x100 120x200
Wall connection collar 3 / 4-sided		40x100 80x100 120x200
Internal connector set		40x100 80x100 120x200

PYROLINE Rapid PLM electrical service duct	
Standard fittings for electrical service ducts type: PLM D 0410, PLM D 0810 PLM D 1220	Annex 1

Table 1: Prefabricated fittings

No	Description / Dimension	Design/reaction to fire
1	**Fittings** consisting of bottom part and top (cover) part, in various designs: - straight duct piece - External corner - Internal corner - Flat angle - T-branch - Crossing - Reducing piece - Level 45°, falling - Level 45°, rising External dimensions 40x40 mm 40x100 mm 80x100 mm 120x200 mm Length to 2000 mm	**Top part** (cover) in sheet thickness 0,8 mm **Bottom part** in sheet thickness 1,0 mm Galvanised sheet steel of steel grade S250GD+Z140-MB-C or DX51D material number 1.0242 or 1.0226 acc. to EN 10143 or: Stainless sheet steel in sheet thickness 0,8 mm of steel grade Sheet X5CrNi18-10 material number 1.4301, 1.4307 Sheet X5CrNiMo17-12-2 material number 1.4401, 1.4404 Sheet X6CrNiMoTi17-12-2 material number 1.4571 acc. to EN 10088 Reaction to fire class A1 in accordance with decision 96/603/EC
		Optionally sheet steel with external polyester powder coating, thickness 50 – 90 µm Reaction to fire class A2-s1, d0 in accordance with EN 13501-1
		Fire protection fabric, Thickness 1.8 mm, acc. to ETA-18/0430 "PYROWRAP FSB-WS" Reaction to fire class E in accordance with EN 13501-1
2	**Connecting piece** consisting of side rails, bottom sheet and lid support Dimensions 40x100 mm 80x100 mm 120x200 mm suitable for dimensions of fittings in accordance with no. 1	Side rail in material thickness 1,0 mm Bottom sheet in material thickness 1,0 mm Lid support in material thickness 0,8 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1
		Sealing strip with an adhesive side on one side, material thickness 4 mm, material width 30 mm Reaction to fire class E in accordance with EN 13501-1
3	**End piece** Dimensions width to length 105x41 mm 105x81 mm 205x121 mm	Material thickness 0,8 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
		Optionally sheet steel with external polyester powder coating, thickness 50 – 90 µm Reaction to fire class A2-s1, d0 in accordance with EN 13501-1
		Fire protection fabric, Thickness 1.8 mm, acc. to ETA-18/0430 "PYROWRAP FSB-WS" Reaction to fire class E in accordance with EN 13501-1

PYROLINE Rapid PLM electrical service duct	
Characteristics and performance criteria of the system Prefabricated fittings Table 1	Annex 2

Continuation Table 1: Prefabricated Fittings

No	Description / Dimension	Design/reaction to fire
4	**Wall connection piece** Consisting of bottom part and top part, for direct wall mounting and suspended mounting. Suitable for dimensions of fittings in accordance with no. 1 Dimensions width to length 253x193 mm 253x233 mm 353x273 mm	Top part and bottom part in material thickness 0,8 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
		Optionally sheet steel with external polyester powder coating, thickness 50 – 90 µm Reaction to fire class A2-s1, d0 in accordance with EN 13501-1
		Sealing strip with an adhesive side on one side, material thickness 10 mm, material width 75 mm acc. to classification report Reaction to fire class B-s1, d0 in accordance with EN 13501-1
5	**Wall connection-Set** For corner mounting, consisting of two parts, one for right side, one for left side. Suitable for dimensions of fittings in accordance with no. 1 Dimensions width to length 175 x 117 mm 175 x 157 mm 275 x 197 mm	Material thickness 0,8 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
		Optionally sheet steel with external polyester powder coating, thickness 50 – 90 µm Reaction to fire class A2-s1, d0 in accordance with EN 13501-1
		Sealing strip with an adhesive side on one side, material thickness 10 mm, material width 75 mm acc. to classification report Reaction to fire class B-s1, d0 in accordance with EN 13501-1

Table 2: Construction products for sealing remaining openings and gaps
(wall penetrations, cable inlets and outlets)

No	Description / Dimension	Design/reaction to fire
6a	**Mineral wool**	Mineral wool, without binder, non-combustible Reaction to fire class A1 in accordance with EN 13501-1 Melting point > 1000°C
6b	**Mineral wool boards**	Mineral insulation strips or boards, non-combustible Reaction to fire class A1 in accordance with EN 13501-1 Melting point > 1000°C Raw density ≥ 90 kg/m³
6c	**Gypsum filler / joint filler**	Reaction to fire class A1 in accordance with EN 13501-1
6d	**Foam cable outlet** Type: PLM CO 0410 PLM CO 0810 PLM CO 1220 Dimensions: 40x40x100 40x80x100 40x120x200	Melamine foam block, material thickness 40 mm, acc. to classification report Reaction to fire class C-s2,d0 in accordance with EN 13501-1
6e	**Ablation coating** „PYROCOAT" ASX-K or ASX-E	Acc. to ETA-17/0364 and with declaration of performance No. 2018/05-CPR/014-DE from 18.05.2018 Reaction to fire class E accordance with EN 13501-1

PYROLINE Rapid PLM electrical service duct	Annex 4
Construction products for sealing remaining openings and gabs (wall penetrations, cable inlets and outlets)	

Table 3: Accessories for the electrical service duct

No	Description / Dimension	Design/reaction to fire
7	**Cable bracket** for direct ceiling mounting Dimensions width to length 40x22 mm 45x62 mm 45x102 mm	Material thickness 2,0 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
8	**Cable bracket** for direct wall mounting Dimensions width to length 22x43 mm 62x43 mm 102x93 mm	Material thickness 1,0 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
9	**Cable fixing device vertical** Dimensions width to length 90x21 90x41 90x61	Material thickness 1,0 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Reaction to fire class A1 in accordance with decision 96/603/EC
10	**Support** Dimensions width to length 200x67 300x67	Material thickness 2,5 mm Galvanised sheet steel or Stainless sheet steel acc. with No 1 Optionally sheet steel with external polyester powder coating, thickness 50 – 90 µm Reaction to fire class A2-s1, d0 in accordance with EN 13501-1
11	**Barrier strip** Dimensions width to length 30x3000 mm 60x3000 mm 110x3000 mm	Galvanised sheet steel of steel grade DX51D+Z275-M-A-C acc. to EN10143, material number 1.0917, material thickness 0,8 mm or, Stainless sheet steel in sheet X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 material number 1.4301 or 1.4571 material thickness 0,8 mm Reaction to fire class A1 in accordance with decision 96/603/EC

PYROLINE Rapid PLM electrical service duct	Annex 5
Accessories for the electrical service duct (characteristics and performance criteria acc. to Table 3)	

Continuation Table 3: Accessories for the electrical service duct

12	**Cable gland, brass, with lock nut** Dimensions M12 - M50	Material: brass acc. to EN 60423/EN 62444 Reaction to fire class A1 in accordance with decision 96/603/EC
13	**Cable gland, plastic with lock nut** Dimensions M12 - M50	Material: PA6 Polyamide acc. to EN 60423/EN 62444

Table 4: Accessories for fixing

No	Description / Dimension	Design/reaction to fire
14	**Locking bracket** for subsequent fastening of the bottom and top parts in no.1 Dimensions 20x6x10	Galvanised sheet steel of steel grade C60 H + A HRC 45 ±2 acc. to EN 10132-4, material number 1.1211 Material thickness 0,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC
15	**Profile rail** Dimensions width to high 41x21 length 200 to 3000 mm	Galvanised sheet steel of steel grade DX51D+Z275-M-A-C acc. to EN10143, material number 1.0917 or Steel S235 JR acc. to DIN EN 10025, Hot-dip galvanised acc. to ISO 1461, material number 1.0038 Material thickness 2,0 mm Reaction to fire class A1 in accordance with decision 96/603/EC
16	**Bolts and nuts** Dimensions M8 und M10	Steel acc. to EN ISO 898-1/EN ISO 898-2, min.8.8 Reaction to fire class A1 in accordance with decision 96/603/EC
17	**Threaded rod M10 / M8** For suspended mounting	Material: Galvanised steel, min. 8.8 acc. to EN ISO 225 Reaction to fire class A1 in accordance with decision 96/603/EC

PYROLINE Rapid PLM electrical service duct	Annex 7
Accessories for fixing the electrical service duct (characteristics and performance criteria acc. to Table 4)	

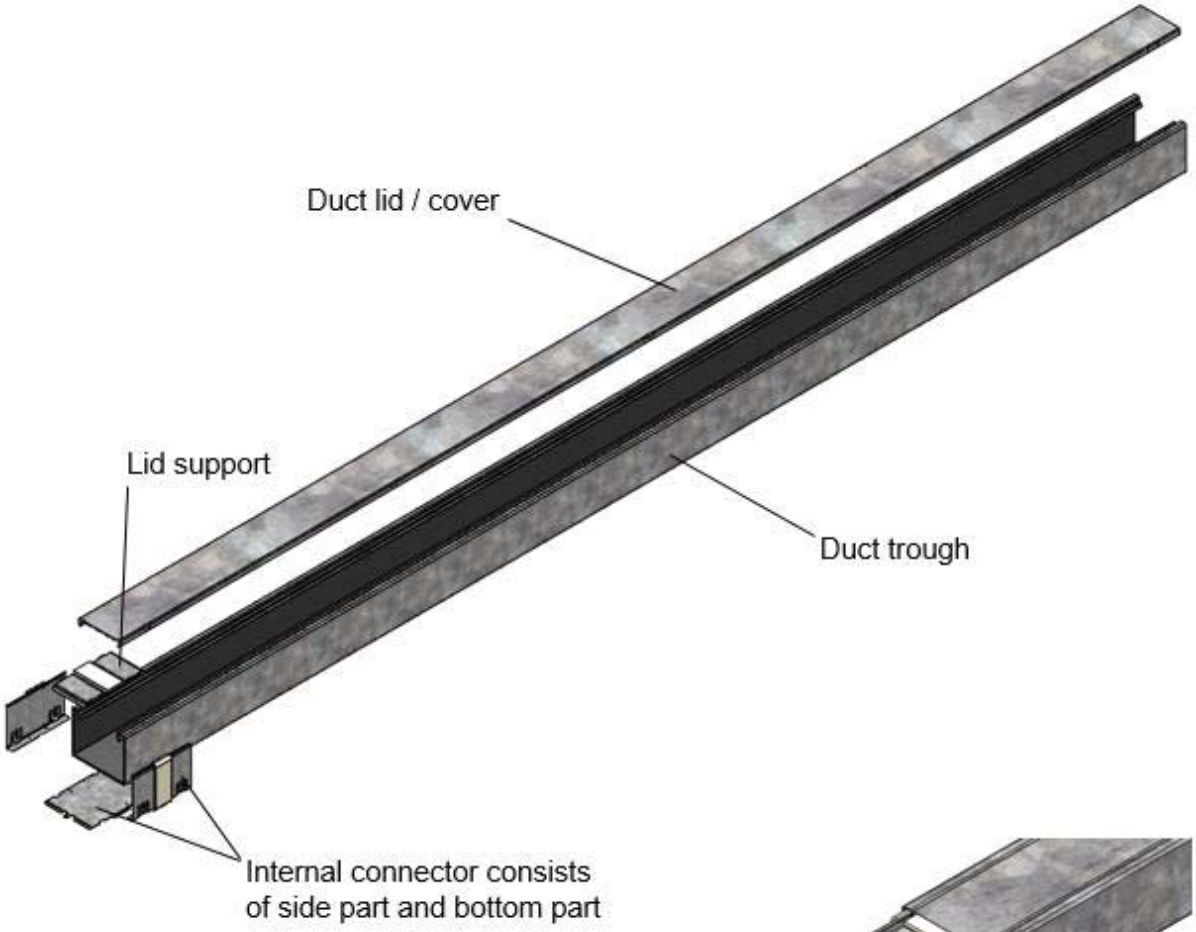
Continuation Table 4: Accessories for fixing

18	**Washer** (in connection with No. 10, 15) Dimensions M8 (D=16 x d=9 x h=1,6)[1] M10 (D=20 x d=11 x h=2)[11]	Material: Steel, min. 8.8 acc. to EN ISO 7093-1 or stainless Steel acc. to EN 10088 Reaction to fire class A1 in accordance with decision 96/603/EC
19	**Washer** (in connection with No. 10, 15) Dimensions M8 (D=25 x d=8,4 x h=1,2)[1] M10 (D=30 x d=10,5 x h=1,5)	Material: Steel, min. 8.8 acc. to EN ISO 7093-1 or stainless Steel acc. to EN 10088 Reaction to fire class A1 in accordance with decision 96/603/EC
20	**Connection piece** (in connection with No.15) Dimensions 35x48, d=9 (for M8) 35x48, d=11 (for M10)	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 3 mm Reaction to fire class A1 in accordance with decision 96/603/EC
21	**U-Support with welded head plate** For suspended mounting Dimensions 50x50 or 30x50 length 200 to 1500 mm	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC
22	**U-Support** For suspended mounting Dimensions 50x50 or 30x50 length 200 to 1500 mm	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC

Continuation Table 4: Accessories for fixing

23	**Spacer** Dimensions 80x45x40	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC
24	**Head plate** (in connection with No. 22) Dimensions: 140x104x75	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 Reaction to fire class A1 in accordance with decision 96/603/EC
25	**Head plate flexible** (in connection with No. 22) Dimensions: 180x109x51	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC
26	**Wall and support bracket** with welded head plate Dimensions: 118 x 40 x 50 218 x 40 x 60 318 x 40 x 65 418 x 40 x 70 118 x 50 x 60 218 x 50 x 70 318 x 50 x 80 418 x 50 x 80	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC
27	**Connection sleeve** (in connection with No. 17) Dimensions: M8, M10	Steel acc. to EN ISO 898-1/EN ISO 898-2, min.8.8 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Reaction to fire class A1 in accordance with decision 96/603/EC
28	**Fire protection clamp** Dimensions: 105 x 50 x 54	Material: Steel S235 JR acc. to DIN EN 10025, hot-dip galvanised acc. to ISO 1461, material number 1.0038 or Stainless Steel X5CrNi18-10 or X6CrNiMoTi17-12-2 acc. to EN 10088 Material number 1.4301 or 1.4571 Material thickness 2,5 mm Reaction to fire class A1 in accordance with decision 96/603/EC

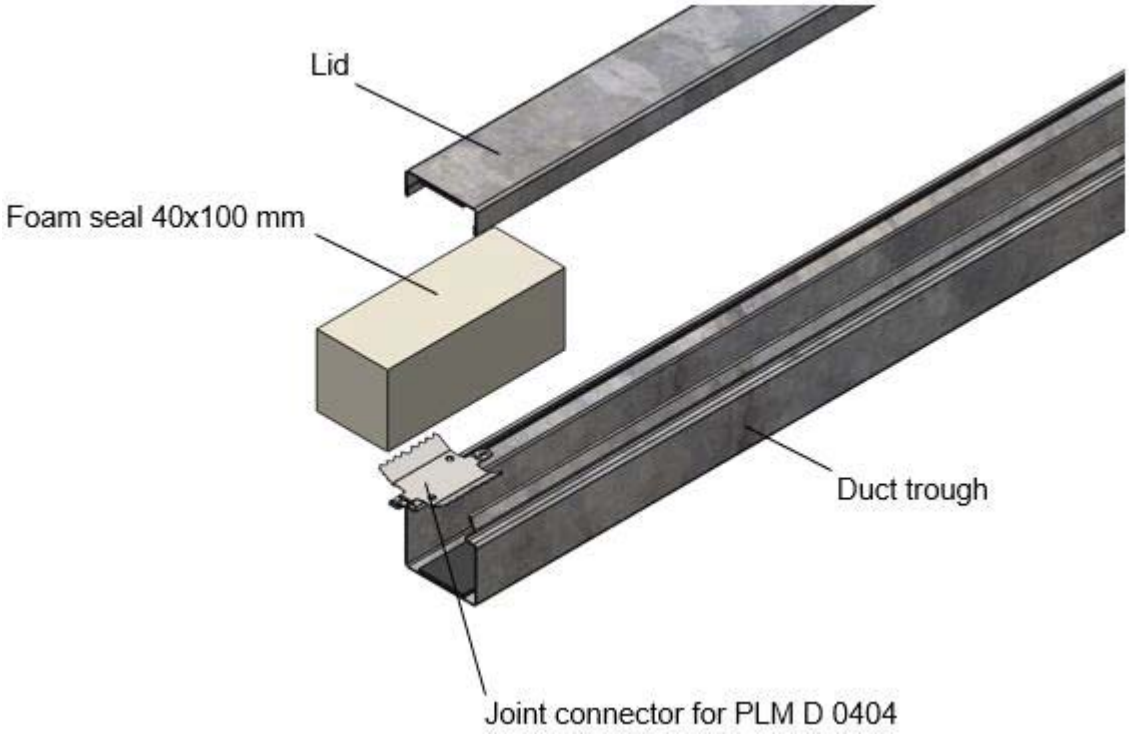
PYROLINE Rapid PLM electrical service duct	Annex 9
Accessories for fixing the electrical service duct (characteristics and performance criteria acc. to Table 4)	



Internal connector in assembled state

Part length of straight duct piece: standard = 2000 mm

PYROLINE Rapid PLM electrical service duct	Annex 10
Composition of internal connector set and straight duct piece for duct dimension 40x100 mm, 80x100 mm and 120x200	



Part length of straight duct piece: standard = 2000 mm

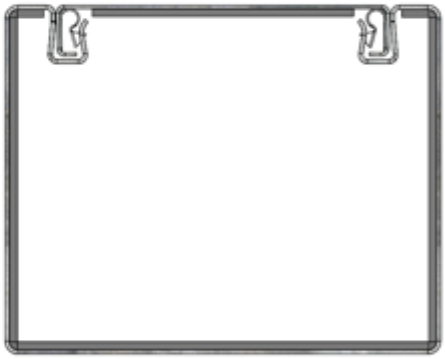
PYROLINE Rapid PLM electrical service duct	Annex 11
Composition of internal connector set and straight duct piece for duct dimension 40x44 mm.	

Standard dimensions:
(height x width)

Duct 40 x 40 mm

Duct 40 x 100 mm

Duct 80 x 100 mm

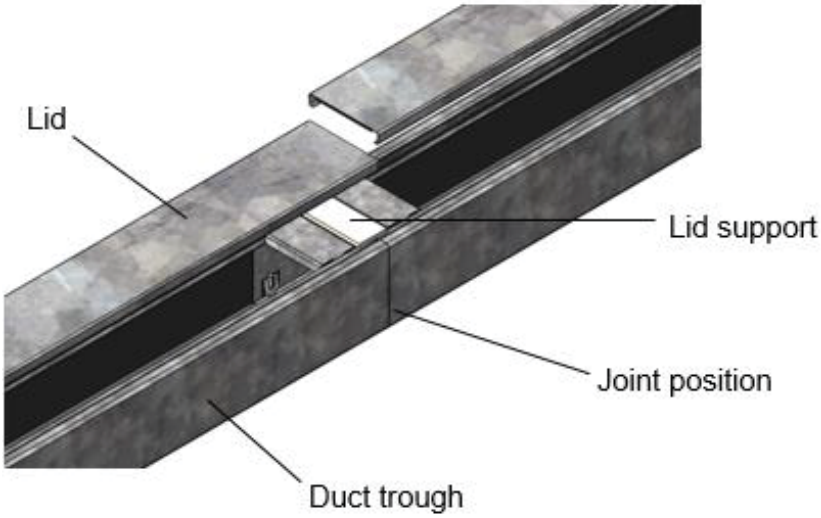


Duct 120 x 200 mm

PYROLINE Rapid PLM electrical service duct	Annex 12
Standard duct dimensions	

Connection with internal connector set

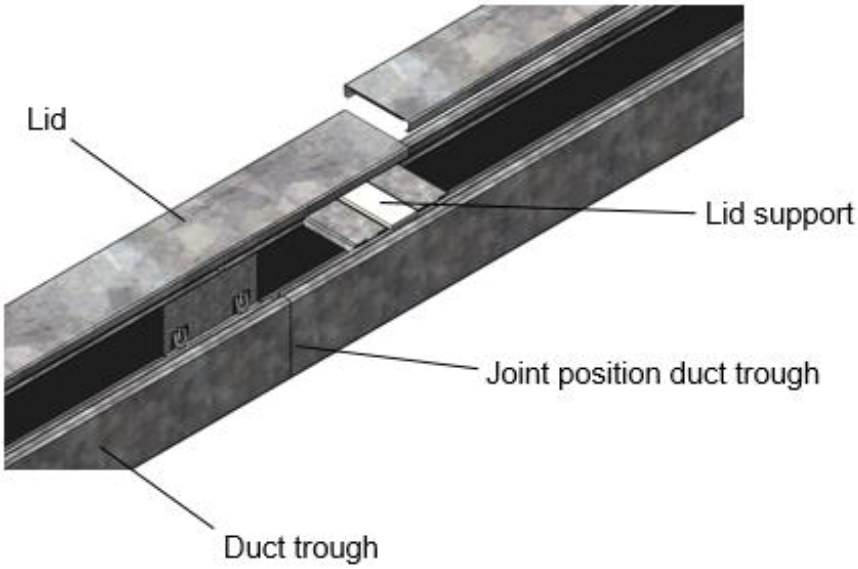
Blunt connection without lid-offset

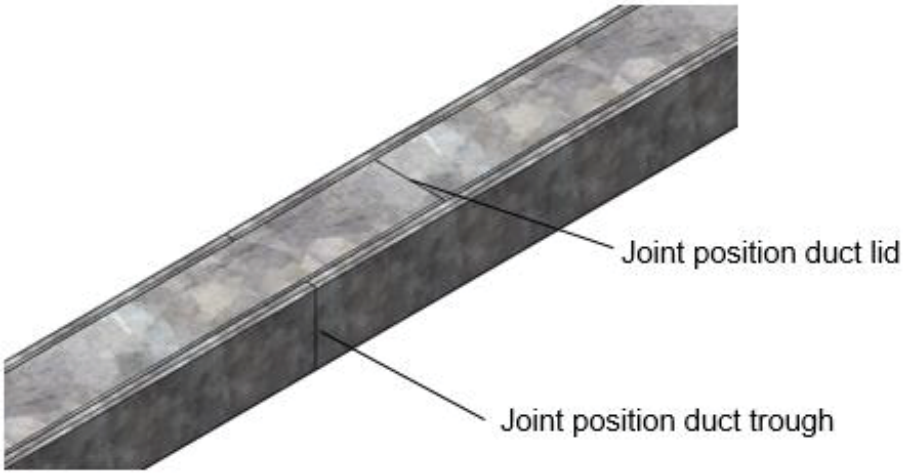


PYROLINE Rapid PLM electrical service duct	Annex 13
Construction of the joint connection with and without offset for duct dimension 40x100 mm, 80x100 mm and 120x200	

Connection with internal connector set

Connection with lid-offset ≥ 100 mm

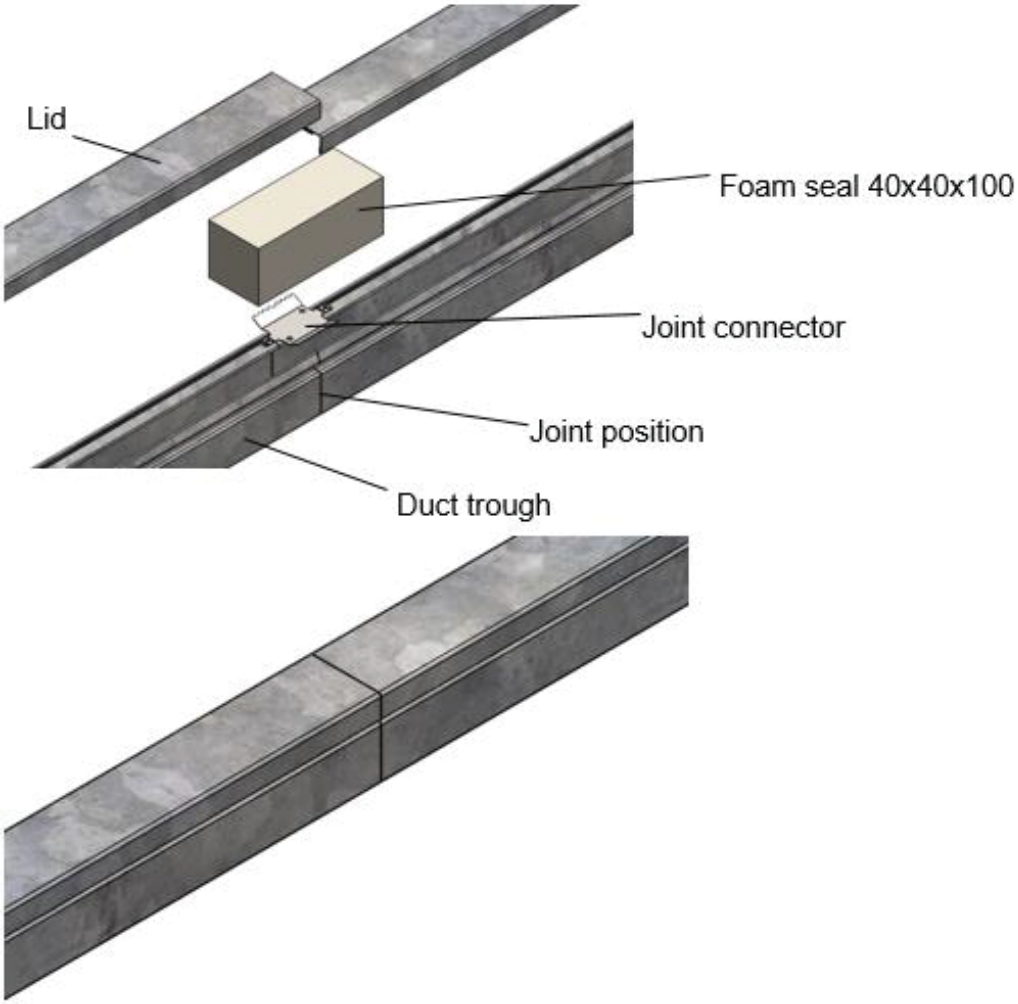




PYROLINE Rapid PLM electrical service duct	Annex 14
Construction of the joint connection with and without offset for duct dimension 40x100 mm, 80x100 mm and 120x200	

Connection with internal connector for duct dimension 40x44 mm

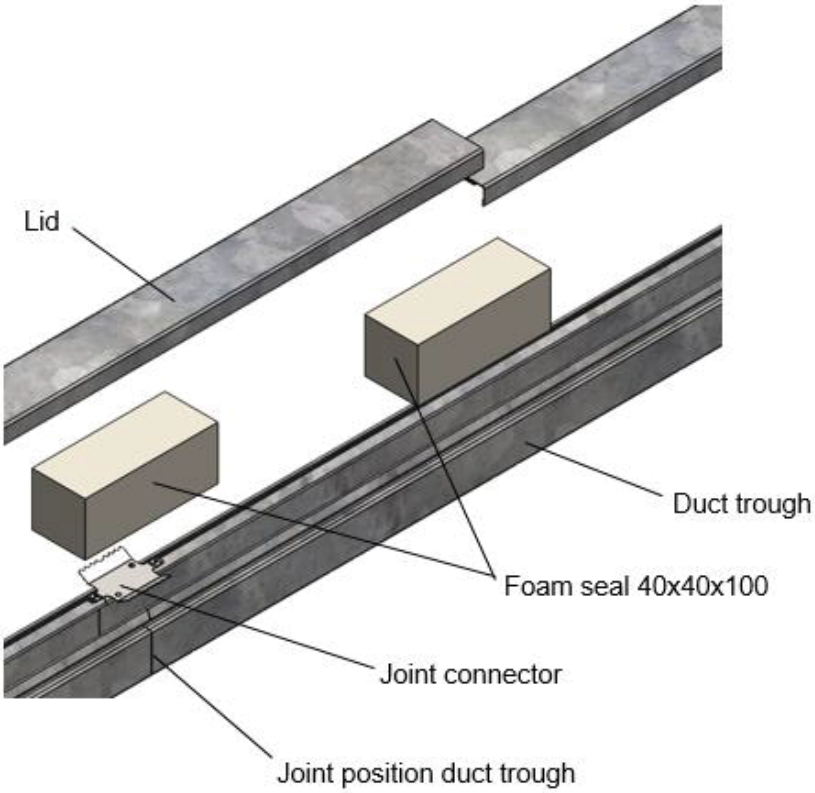
Blunt connection without lid-offset

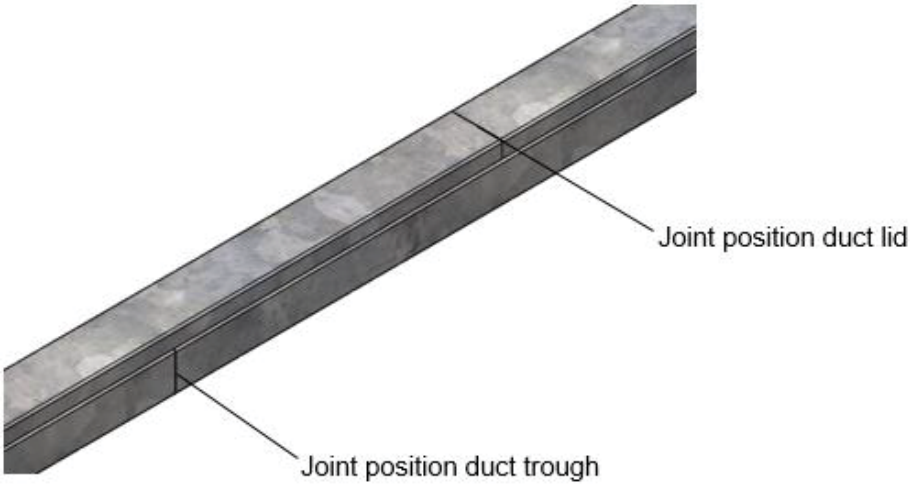


PYROLINE Rapid PLM electrical service duct	Annex 15
Construction of the joint connection with and without offset for duct dimension 40x44	

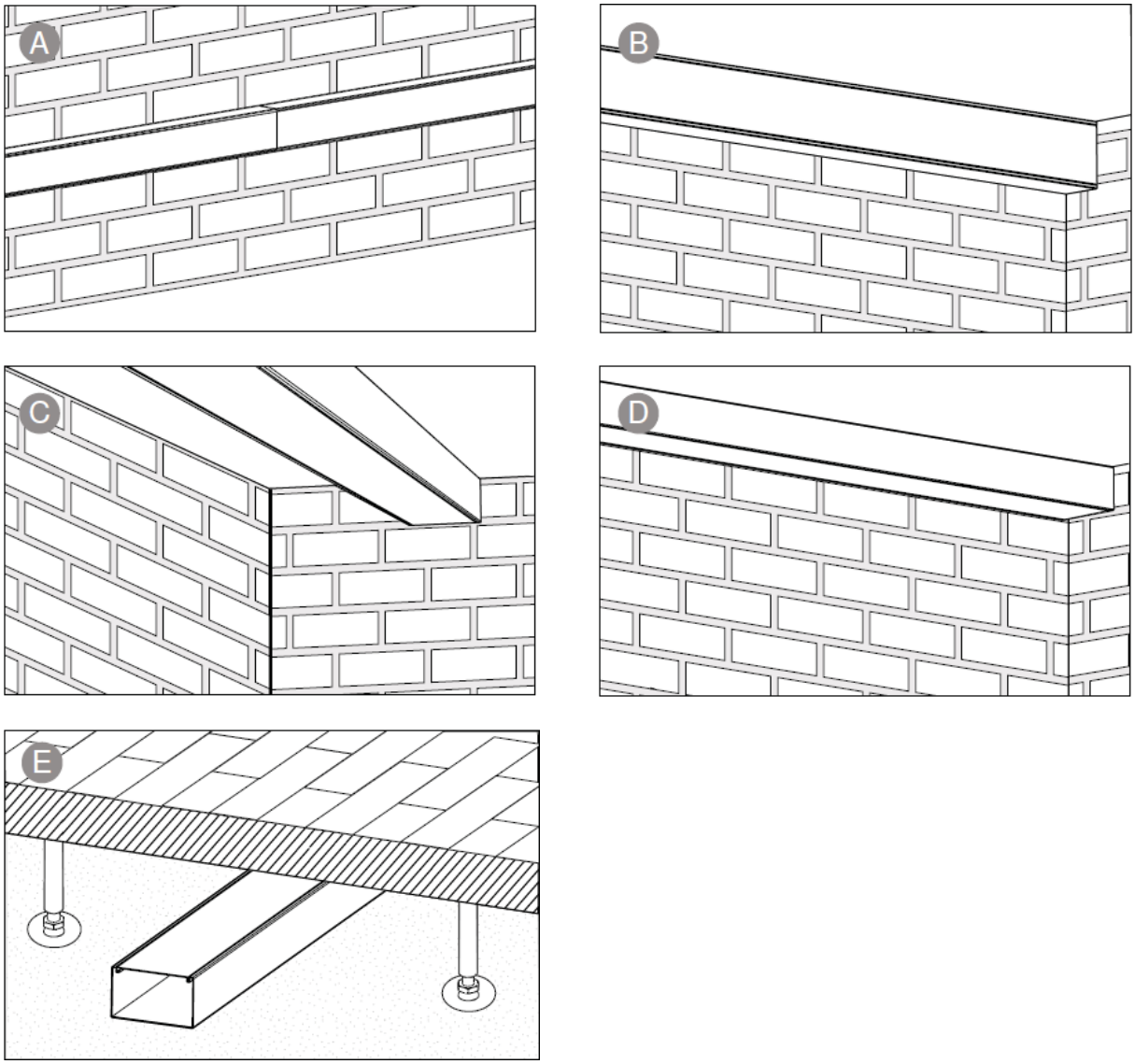
Connection with internal connector for duct dimension 40x44 mm

Blunt connection with lid-offset



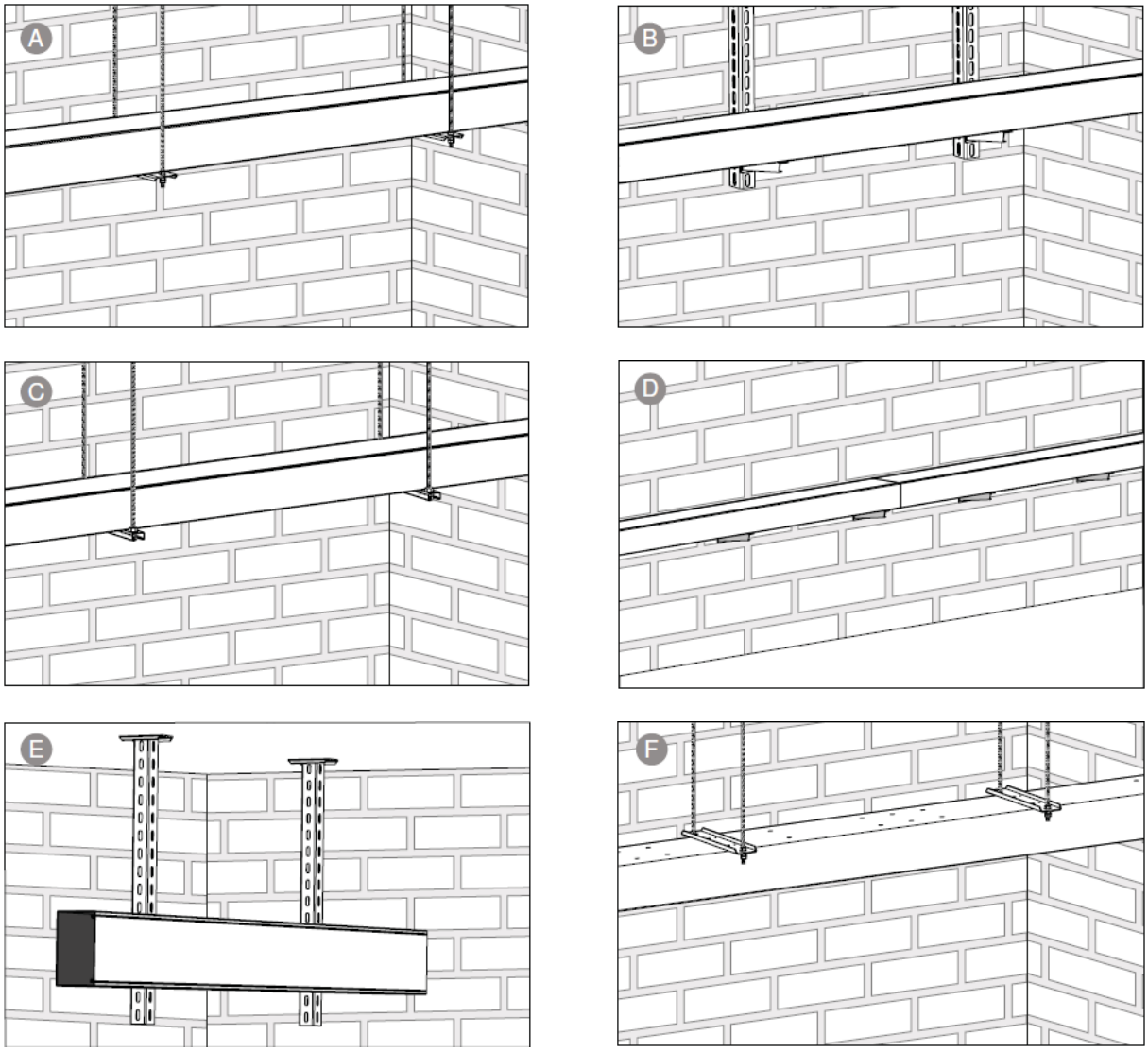


PYROLINE Rapid PLM electrical service duct	Annex 16
Construction of the joint connection with and without offset for duct dimension 40x44	



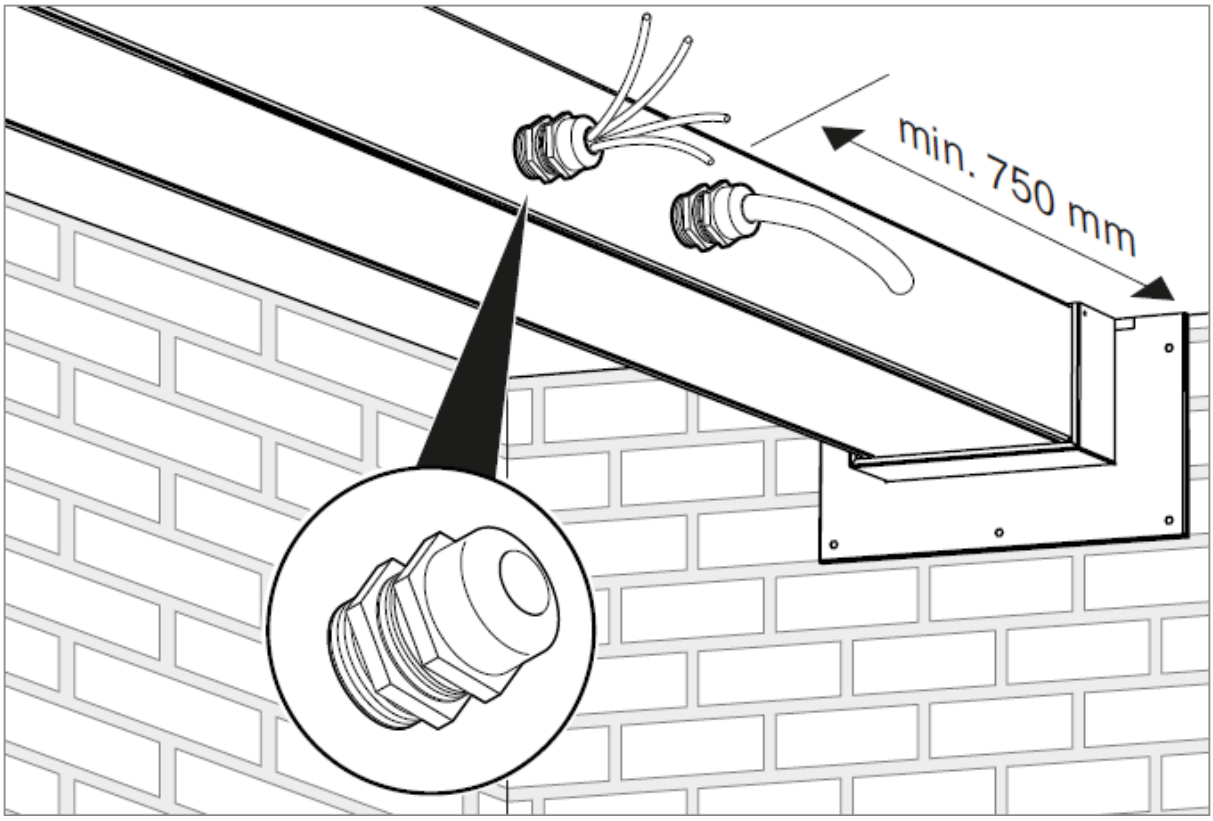
A: Direct wall mounting
B: Direct wall mounting in a room corner
C: Direct ceiling mounting
D: Direct ceiling mounting in a room corner
E: Fixing below system floors

PYROLINE Rapid PLM electrical service duct	
Mounting options for direct mounting	Annex 17



A: Suspended mounting with threaded rod and support profile
B: Suspended mounting with U support and wall and support brackets
C: Suspended mounting with threaded rod and profile rail
D: Mounting on wall brackets
E: Suspended mounting on U support with lid sidewards
F: Suspended mounting below from threaded rod and support profile

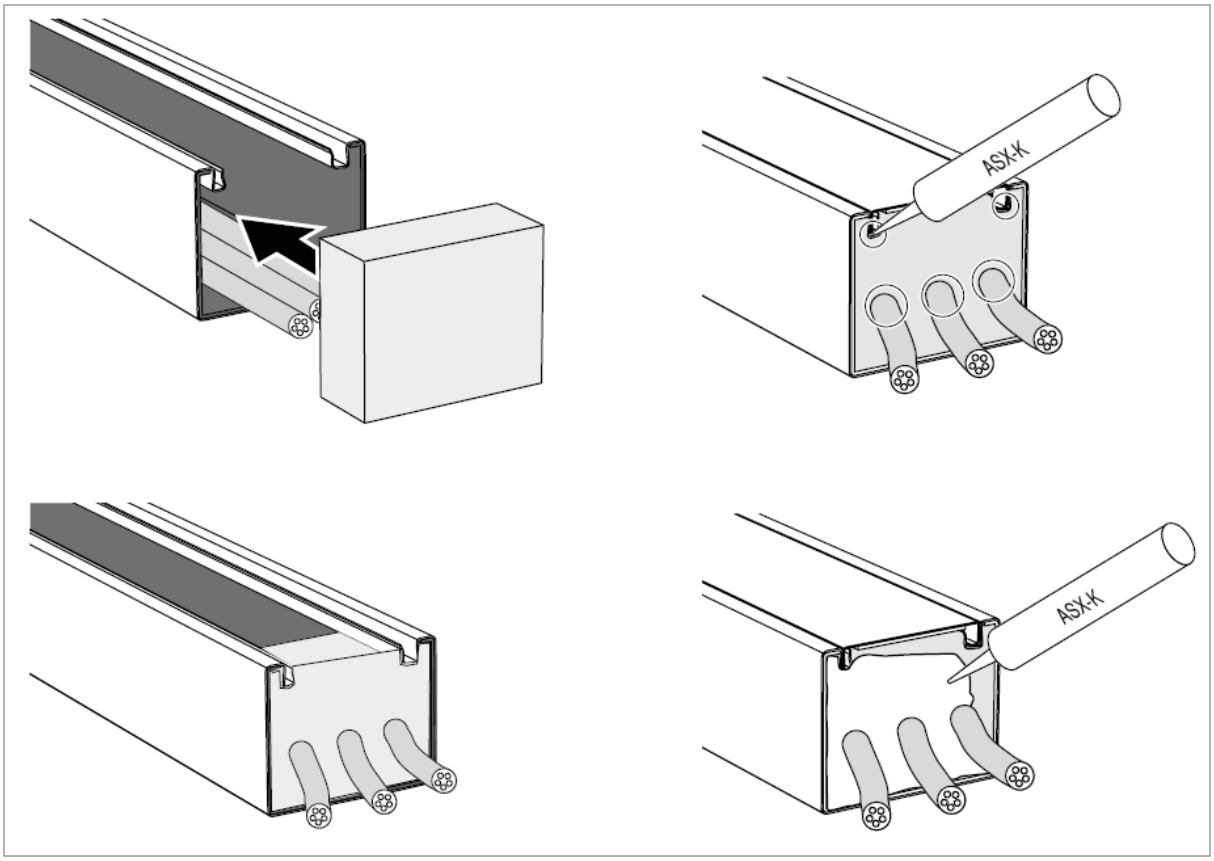
PYROLINE Rapid PLM electrical service duct	
Mounting options on support systems	Annex 18



Example of an individual cable in- and outlet acc. to the annex 6.

Maximum cable diameter for cable gland M50 ≤ 30 mm

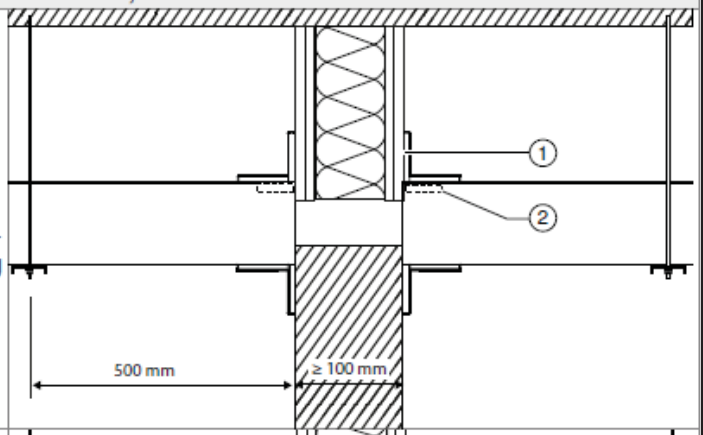
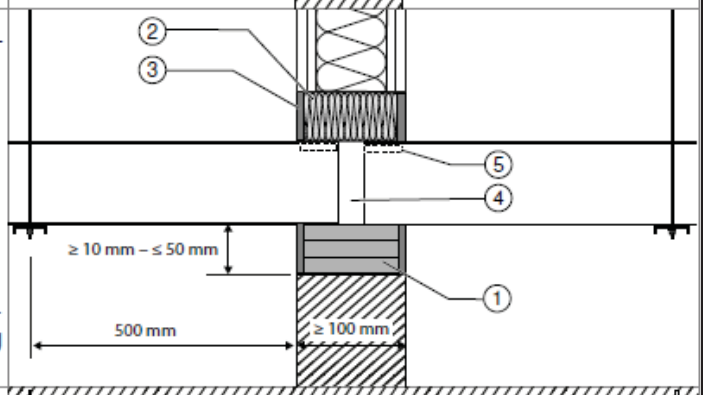
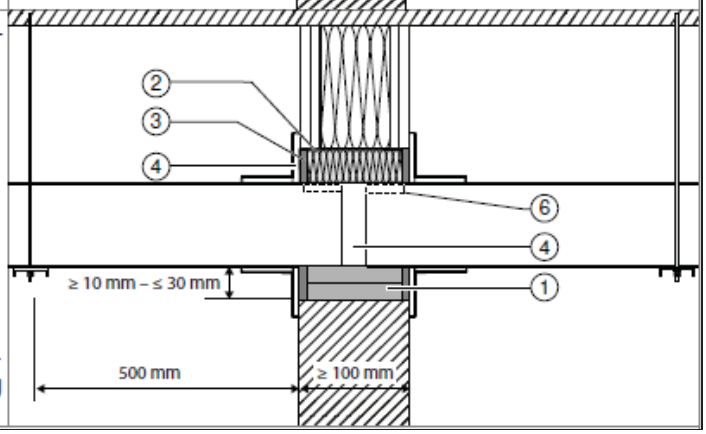
PYROLINE Rapid PLM electrical service duct	
Cable in- and outlet with screwed cable gland	Annex 19



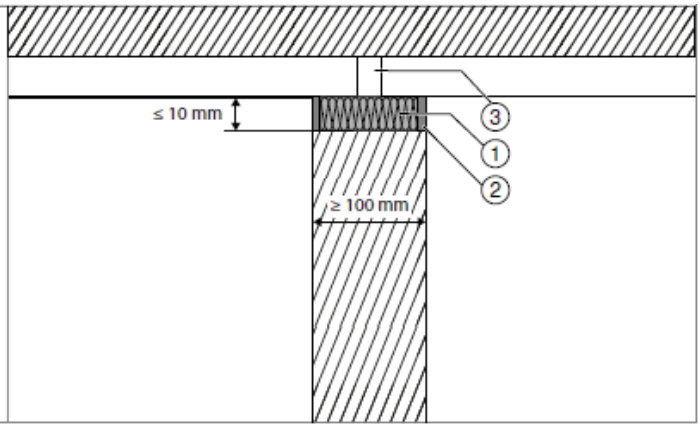
Example of a multiple cable in- and outlet acc. to annex 4 table 2. The creation of a multiple cable in- and outlet can be done in all parts described in Annex 2 Table1 No. 1.

PYROLINE Rapid PLM electrical service duct	
Cable in- and outlet with multiple cable outlet	Annex 20

PLM D 0410, PLM D 0810, PLM D 1220

Component opening < duct	EI30-EI90	① Wall connection collar on both sides ② Cover support (for mounting variants with overlying cover)	
Component opening > duct	EI30-EI60	① Mineral fibre plates, density ≥ 90 kg/m³ ② Stuffing wool (≥ 250 kg/m³) in remaining opening ③ Filler, ≥ 2 mm ④ Gap 5–10 mm ⑤ Cover support (for mounting variants with overlying cover)	
	EI30-EI90	① Mineral fibre plates, density ≥ 90 kg/m³ ② Stuffing wool (≥ 250 kg/m³) in remaining opening ③ Filler, ≥ 2 mm ④ Wall connection collar ⑤ Gap 5–10 mm ⑥ Cover support (for mounting variants with overlying cover)	

PYROLINE Rapid PLM electrical service duct	
Resistance to fire performance acc. to wall penetration for duct dimensions 40x100, 80x100 and 120x200	Annex 21

Component opening > duct	EI30-EI90	① Stuffing wool ≥ 250 kg/m³ in remaining opening ② Filler, ≥ 2 mm ③ Gap 5–10 mm	

PYROLINE Rapid PLM electrical service duct	Annex 22
Resistance to fire performance acc. to wall penetration for duct dimensions 40x44	

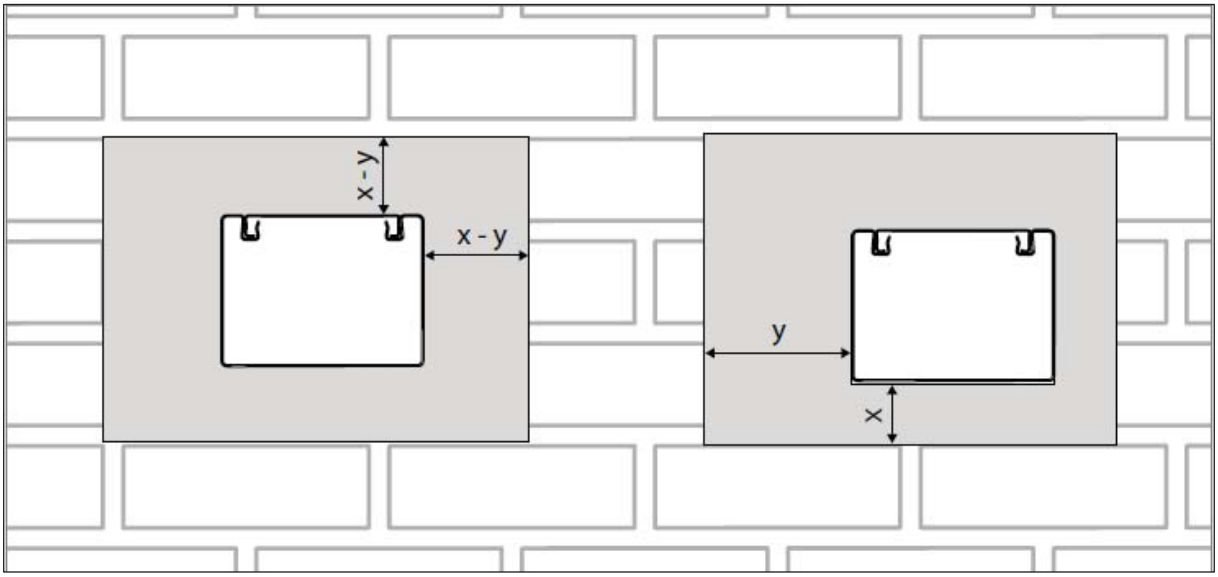


Table 5

Classification	x	y
EI 30 (ho i↔o) to EI 60 (ho i↔o)	≥ 10 mm	≤ 50 mm
EI 30 (ho i↔o) to EI 90 (ho i↔o)		≤ 30 mm

PYROLINE Rapid PLM electrical service duct	Annex 23
Resistance to fire performance acc. to wall penetration Arrangement in the component opening	

Separating elements

The electrical service duct has been verified for suspension from and direct fastening to rigid ceilings made of concrete, reinforced concrete or aerated concrete as well as for direct fastening to rigid walls made of masonry, concrete, reinforced concrete or aerated concrete – in each case with thicknesses in accordance with the structural requirements and depending on the required resistance to fire duration as given in annex 17 and annex 18.

The electrical service duct has been verified for penetration through:

a) rigid walls made of concrete, reinforced concrete or aerated concrete, thickness in accordance with structural requirements and depending on the required resistance to fire duration, but ≥ 100 mm and

b) Partitions

- Thickness in accordance with structural requirements and depending on the required resistance to fire duration, but ≥ 100 mm and
- design types 1), 2) or 3)

1) Partitions with a steel substructure made of UW profiles (ceiling or floor profile) and CW profiles (stud profile) each 50 mm x 0,6 mm and
   - stud spacing ≤ 625 mm and
   - double-sided cladding made of at least two layers of ≥ 12,5 mm-thick cement- or gypsum-bonded boards, apparent density ≥ 800 kg/m³, reaction to fire class A1 or A2 in accordance with EN 13501-1 and
   - an internal insulation made of mineral wool from molten rock in accordance with EN 13162, thickness 40 mm, apparent density 100 kg/m³, reaction to fire class A1 in accordance with EN 13501-1.
2) Partitions as in 1) but without insulation or with an insulation diffing from 1) but with reaction to fire class A1 accordance with EN 13501-1
3) Partitions with wooden substructure and
   - double-sided cladding as in 1)
   - with or without insulation
   - The distance between the opening through which the electrical service duct is fed and the wooden substructure shall be ≥ 100 mm. The cavities between the wall panelling, the wooden substructure and the opening reveal shall be tightly filled with mineral wool made of molten rock in accordance with EN 13162 of reaction to fire class A1 or A2 in accordance with EN 13501-1, over a depth auf ≥ 100 mm. For partitions of types 2) and 3), the opening reveal shall be fitted with a surrounding reveal made of ≥ 12,5 mm thick cement- or gypsum-bonded boards, apparent density ≥ 800 kg/m³, reaction to fire class A1 od A2 in accordance with EN 13501-1

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

PYROLINE Rapid PLM electrical service duct	Annex 24
Classification and information on the building components	

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