

Mounting instructions

PYROLINE® Con BSK fire protection duct
I30-I120 classification according to DIN 4102-11
E30-E90 classification according to DIN 4102-12



PYROLINE® Con BSK fire protection duct
Mounting instructions

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1 About these instructions

1.1 Target group

These instructions are intended for specialists and/or instructed technical personnel (e.g. engineers, architects, heads of construction, and mounting and installation engineers) who have had fire protection training and are charged with the installation of the fire protection duct.

1.2 Relevance of these instructions

- These instructions are based on the standards valid at the time of compilation (October 2021).
- Follow these instructions to ensure correct and safe use.
- Any images are intended merely as examples. Mounting results may look different.
- We will not accept any warranty claims for damage caused through non-observance of these instructions.
- In these instructions, cables and lines are referred to simply as cables.
- These instructions describe standard solutions for mounting the PYROLINE® Con BSK fire protection duct. Special solutions for specific structural conditions are possible, but must be planned on-site with the authorities.
- To find out more about planning and mounting the product, we recommend a comprehensive training course.



1.3 Types of warning information



WARNING

Type of risk!

Shows a risky situation. If the warning information is not observed, then serious or fatal injuries may occur.



CAUTION

Type of risk!

Shows a risky situation. If the warning information is not observed, then medium or minor injuries may occur.

ATTENTION

Type of risk!

Shows a hazardous situation. If the safety instruction is not observed, then damage to the product or the surroundings may occur.

Note!

Indicates important information or assistance.

1.4 Intended use

The PYROLINE® Con BSK fire protection duct is used for the installation and guidance of cables up to a maximum diameter of $d = 52$ mm in escape and rescue routes in interior areas of buildings. It protects emer-

gency and escape routes in building interiors against the effects of a cable fire or, if there is a fire, secures the maintenance of electrical function of safety-relevant electrical systems. The PYROLINE® Con PLC fire protection duct can be mounted on solid walls and ceilings, either directly or with a support system.

Mounting must take place with fastening material with fire protection testing. Ceilings and walls at the mounting location must be made of masonry, concrete, reinforced concrete or porous concrete, and have a minimum thickness of 10 cm (walls) or 12.5 cm (ceilings). Only then can the correct function of the fire protection duct be guaranteed.

The PYROLINE® Con BSK fire protection duct is not suitable for any purpose other than that stated here.

The fire protection duct is not designed to support walls in wall penetrations. Ensure that the wall penetrations can support themselves. Mounting of the fire protection duct on dry or lightweight construction walls or suspended ceilings shall not be considered proper.

1.5 Applicable documents

- General construction test certificate P-3109/0998-MPA BS
- General construction test certificate P-3320/381/14-MPA BS
- Surveyor reports GA-2020/029-Mey, GA-2020/030-Mey, GA-2021/051-Mey, GA-2021/052-Mey
- Safety data sheets of the products (www.obo-bettermann.com)

1.6 Basic standards and regulations

- DIN 4102-1: 1998-05
Fire behaviour of building materials and building components; building materials, concepts, requirements and tests
- DIN 4102-2: 1977-09
Fire behaviour of building materials and building components; building components, definitions, requirements and tests
- DIN 4102-4: 2016-05
Fire behaviour of building materials and building components; Synopsis and application of classified building materials, components and special components
- DIN 4102-11:1985-12
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
- DIN 4102-12:1998-11
Fire behaviour of building materials and building components: Circuit integrity maintenance of electric cable systems; requirements and testing
- Sample Administrative Provision, Technical Construction Regulations: 2020/1

2 Safety

2.1 General safety information

Observe the following basic safety information on handling the PYRO-LINE® Con BSK fire protection duct:

- All the appropriate regulations and technical regulations of other units, in particular those for electrical engineering, must be complied with.
- The fire protection duct may not be subjected to weights or used as a support.
- The maximum permitted cable load should be selected according to the total weight of the fire protection duct. The approved cable load may not be exceeded, as otherwise the support and function capability is no longer guaranteed.

2.2 Personal protective equipment

List of personal protective equipment to be used:



Wear safety shoes!

The weight of the fire protection duct can lead to contusions. Wear suitable safety shoes during transport and mounting, in order to avoid contusions or crushing injuries.



Wear head protection!

The weight of the fire protection duct can lead to head injuries when working overhead. Wear a safety helmet when performing overhead work.



Wear breathing protection!

If there is a fire, burning cable insulation can create corrosive gases. When disposing of fire protection ducts which have been subjected to a fire, wear breathing protection.

3 Necessary tools

List of required tools:

- Mounting lift, if the spatial conditions permit it
- Standard hand or coping saw with coarse saw blade, also suitable for metal, to process the fire protection duct
- Manual machines with the option of connecting a vacuum cleaner for automatic suction
- Drill
- Screwdriver
- Battery-operated screwdriver

4 Product description, PYROLINE® Con BSK fire protection duct

4.1 Product features

The PYROLINE® Con BSK is installed on interior walls and ceilings, to route cables within. The fire-resistant material of the PYROLINE® Con BSK fire protection duct fulfils the existing fire protection requirements and, if there is a fire, prevents

- a fire from jumping to the cables and, as a consequence, electrical systems failing, causing the creation of toxic smoke gases or
- toxic smoke gases spreading in rooms and escape routes.

The PYROLINE® Con BSK fire protection duct stands out through the following properties:

- PYROLINE® Con D BSK version for direct wall or ceiling mounting
- PYROLINE® Con S BSK version, for wall and ceiling mounting with support system of wall brackets or suspended supports and brackets or threaded rods and support rails
- Maintenance of electrical function for up to 90 minutes (maintenance of electrical function class E30–E90)
- Fire load encapsulation up to 120 minutes (I90–I120 classification)
- Material made of non-combustible fibre glass lightweight concrete, water and frost-resistant, non-electrically conductive
- Hard, smooth and anti-friction compacted surface
- PYROLINE® Con D BSK version, primed at the factory, surface refinement possible through plastering, wallpapering, painting
- Processing with standard tools such as hand saw or coping saw
- Fittings for corner connection, T connection, vertical jumps for the PYROLINE® Con S BSK version
- Simple creation of standard and special fittings according to individual requirements with the PYROLINE® Con D BSK version
- Mounting on OBO support systems
- Simple inspection and retrofitting
- I duct: Routing of standard cable types up to a maximum diameter of $d = 52 \text{ mm}$
- E duct: Routing of cable types with a rated voltage of max. 1 kV up to a maximum diameter of $d = 52 \text{ mm}$, no special cables with integrated maintenance of electrical function required

4.2 Product overview

4.2.1 PYROLINE® Con D BSK for direct wall or ceiling mounting

The PYROLINE® Con BSK product version is mounted directly on the wall or ceiling and consists of the following product elements:

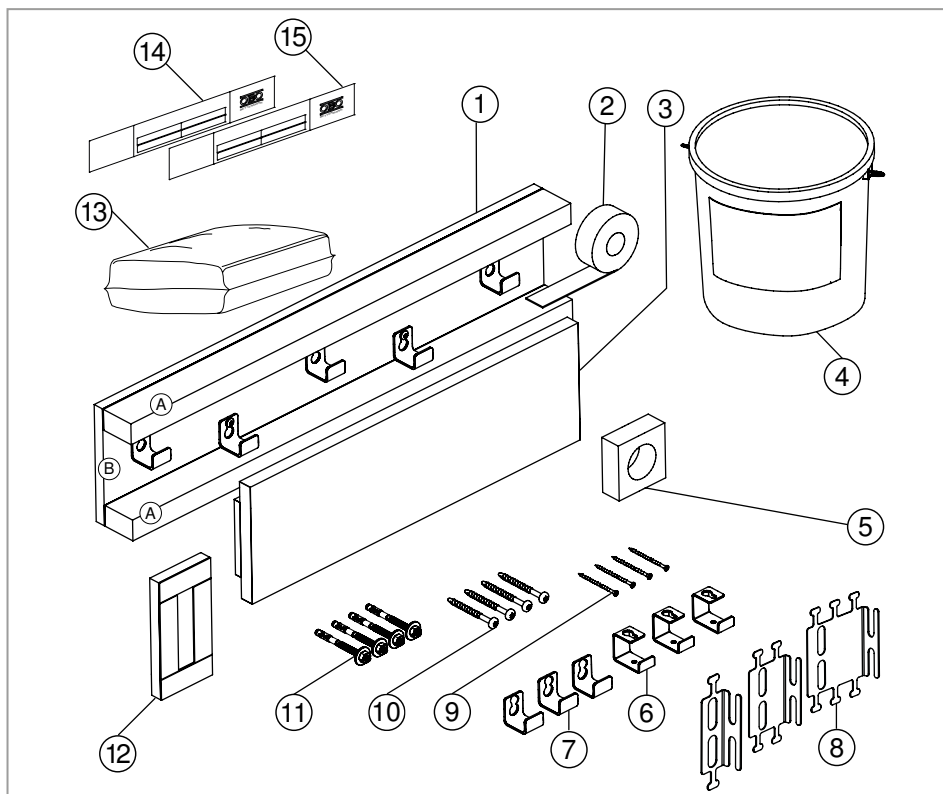


Abb. 1: Product overview, PYROLINE® Con D BSK

No.	Product element	Function
①	Duct trough made up of duct walls A and duct base B	Cable seat, connection with wall or ceiling
②	Sealing strip	Sealing of joints and duct cover
③	Duct cover	(Straight) connection of the fire protection duct
④	KTM mortar	Sealing of connection joints and cracks
⑤	Doubler	Necessary for exits of individual cables and cable bundles
⑥	Separating clamp	To accept cables for the mounting of the fire protection duct under ceilings
⑦	Separating bracket	To accept cables for the mounting of the fire protection duct on walls
⑧	Cable bracket, vertical	To accept cables for vertical mounting of the fire protection duct
⑨	Countersunk head screw	Fastening of doubler and cover on duct trough
⑩	MMS bolt tie for masonry	Screwing of the fire protection duct to wall or ceiling
⑪	Bolt tie for concrete	
⑫	End piece	End closure of the fire protection duct
⑬	MIW-S mineral wool	Sealing of wall penetrations

No.	Product element	Function
⑭	KS-E identification plate	Approved labelling of a cable system for maintenance of electrical function according to DIN 4102-12
⑮	KS-K identification plate	Optional identification as installation duct according to DIN 4102-11

Tab. 1: Product elements, PYROLINE® Con D BSK

4.2.2 PYROLINE® Con S BSK for mounting with a support system

The PYROLINE® Con S BSK product version is mounted directly on the wall or ceiling and consists of the following product elements:

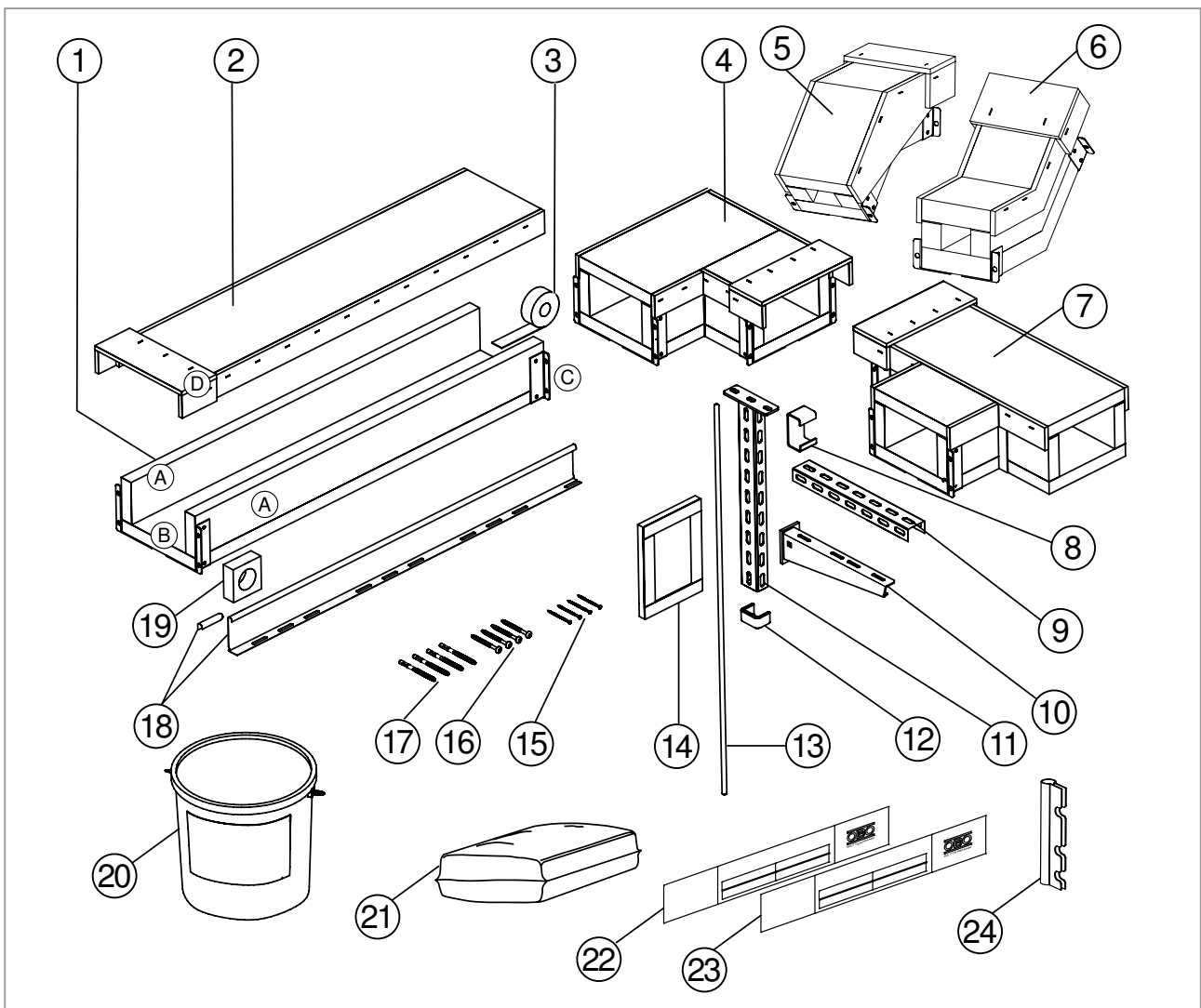


Abb. 2: Product overview, PYROLINE® Con S BSK

No.	Product element	Function
①	Duct trough made up of duct walls [Ⓐ] and duct base [Ⓑ]	Cable seat, support on support system
	With connector [Ⓒ]	Connection of the joints of two fire protection duct troughs
②	Duct cover with side and joint overlap [Ⓓ]	(Straight) connection of the fire protection duct
③	Sealing strip	Sealing of joints and duct cover
④	90° bend	Creation of corner connections
⑤	Vertical bend, falling	Creation of vertical jumps in falling version
⑥	Vertical bend, rising	Creation of vertical jumps in rising version
⑦	T-piece	Creation of cable branches
⑧	Spacer	Stiffening of suspended support
⑨	Support rail	Support for fire protection duct, mounting with threaded rods
⑩	Wall bracket and support bracket	Mounting on wall or on suspended support, support for fire protection duct
⑪	Support	Mounting on ceiling, support of the bracket
⑫	Protective cap for support	Edge protection
⑬	Threaded rod	Suspension for profile rail
⑭	End piece	End closure of the fire protection duct
⑮	Countersunk head screw	Fastening of doubler Optional fastening of duct covers
⑯	MMS bolt tie for masonry	Fastening of wall brackets
⑰	Bolt tie for concrete	Fastening of wall brackets, suspended supports or threaded rods
⑱	Separating retainer with	separation of cables of different voltages or functions
	Separating retainer connector	Connection and stabilisation of the joints of separating retainers
⑲	Doubler	Necessary for exits of individual cables and cable bundles
⑳	KTM mortar	Sealing of connection joints and cracks
㉑	MIW-S mineral wool	Sealing of wall penetrations
㉒	Identification plate KS-E	Approved labelling of a cable system for maintenance of electrical function according to DIN 4102-12
㉓	KS-K identification plate	Optional identification as installation duct according to DIN 4102-11
㉔	KGA threaded rod adapter	Seat of the threaded rod for requirements according to DIN 4102-12.

Tab. 2: Product elements, PYROLINE® Con S BSK

5 Selecting the fire protection duct

Depending on the required classification, fire protection ducts with different wall thicknesses and mounting systems are used.

5.1 Fire protection duct for direct wall/ceiling mounting

Direct wall and ceiling mounting is particularly appropriate when no pipes need to be refitted, buildings refurbished or surface refinement is required, in order to integrate the duct visually into the appearance of the room. The duct covers are screwed to the duct trough.

Fire resistance / maintenance of electrical function class	Duct type PYROLINE® Con D BSK	Internal dimensions h x w in mm	External dimensions h x w in mm	Weight/m in kg without cable assignment
I90/E30	BSKD09-K0506	50 x 60	110 x 140	11.0
I90/E30	BSKD09-K0511	50 x 110	110 x 190	13.3
I90/E30	BSKD09-K0521	50 x 210	110 x 290	18.8
I90/E30	BSKD09-K1021	105 x 210	165 x 290	22.0
I120/E90	BSKD12-K0506	50 x 60	130 x 180	16.7
I120/E90	BSKD12-K0511	50 x 110	130 x 230	20.0
I120/E90	BSKD12-K0521	50 x 210	130 x 330	26.4
I120/E90	BSKD12-K1021	105 x 210	185 x 330	31.0

Tab. 3: Fire protection ducts for direct wall/ceiling mounting for maintenance of electrical function/fire resistance classes E30/I90 and E90/I120

5.2 Fire protection duct for mounting with a support system

Mounting with a support system is particularly useful if obstacles such as heating, ventilation or water pipes or joists must be refitted. The support system can consist of

- wall supports,
- suspended supports with support brackets and threaded rods,
- or threaded rods and support rails.

With wall supports, it is possible to compensate for greater differences in uneven walls or avoid vertical cables or pipelines. Support systems with a suspended support and support bracket are easier to fill with cables. If suspended with threaded rods, a smaller mounting area under the ceiling is required. The selection of the support system is aligned to the local conditions.

The duct covers are not screwed to the duct trough, thus allowing rapid inspection and refilling.

Fire resistance / maintenance of electrical function class	Duct type PYROLINE® Con S BSK	Internal dimensions h x w in mm	External dimensions h x w in mm	Weight/m in kg without cable assignment
I90/E30	BSKH09-K0506	50 x 60	130 x 140	14.6
I90/E30	BSKH09-K0511	50 x 110	130 x 190	17.7
I90/E30	BSKH09-K0521	50 x 210	130 x 290	24.6
I90/E30	BSKH09-K1021	105 x 210	185 x 290	28.3

Tab. 4: Fire protection ducts with support system for maintenance of electrical function/ fire resistance classes E30/I90

6 Planning an installation

To ensure the functionality of the fire protection duct, installations and installation locations must fulfil technical and structural requirements.

6.1 Structural conditions

If there are uncertainties about the load capacity of walls and ceilings, then a structural engineer must be consulted.

- Walls must be made of concrete, reinforced concrete or masonry (e.g. calcareous sandstone, porous calcareous sandstone, full brick) with a minimum thickness of 10 cm.
- Ceilings must be made of concrete, reinforced concrete or porous concrete with a minimum thickness of 12.5 cm.
- Lightweight walls/partitions and wooden ceilings, as well as steel structures and trapezoidal roofs, are not suitable for the mounting of fire protection ducts.
- Walls and ceilings serving as a mounting surface must have at least the same fire resistance length as the mounted fire protection duct.
- Mounting surfaces must be flat to avoid crack formation in the fire protection ducts during mounting.
- The maximum approved tension in the suspended supports or threaded rods is 9 N/mm² for the E30 maintenance of electrical function class.
- If various electrical voltage levels are to be separated in a fire protection duct, the spacing of the various electrical voltage levels must be at least 10 mm. Choose a fire protection duct with the appropriate width/height and use separating clamps or brackets.

6.2 Approved fastening materials

Installed fastening materials must be fire protection-tested and certified for the appropriate fastening substrate:

- For direct wall/ceiling mounting, e.g. OBO bolt ties, type MMS-plus P 7.5x80, or similar with a rounded head, to avoid damage to the cables.
- For mounting on support systems, select the fastening material according to the substrate and the requirements of the fire protection duct to be fulfilled.

6.3 Approved cables

PYROLINE® Con BSK fire protection duct for fire encapsulation (I90/I120)

All cable types up to a rated voltage of 1 kV can be routed.

Note! *Cables with integrated maintenance of electrical function may not be routed in the same duct with cables for general power supply.*

PYROLINE® Con fire protection duct for maintenance of electrical function (E30/E90)

All cable types up to a rated voltage of 1 kV can be routed. There are no special requirements for the fire behaviour of the cables.

Note! *When dimensioning the cables, note that the electrical resistance of the conductors in the cable is increased through heating. A larger conductor cross-section may be required.*

Comply with the maximum approved cable load (see Table 5). The approved cable load is dependent on the classification and the mounting version of the fire protection ducts:

Classification	Wall/ceiling mounting		Mounting with support system	Cable load
	Cable directly on top	Cable mounting with separating bracket/separating clamp		
Maintenance of electrical function E	–	X	–	≤ 18.0 kg/m
Maintenance of electrical function E	X	–	–	≤ 11.0 kg/m
Maintenance of electrical function E	–	–	X	≤ 35.0 kg/m
Fire resistance class I	–	X	–	≤ 35.0 kg/m
Fire resistance class I	X	–	–	≤ 11.0 kg/m
Fire resistance class I	–	–	X	≤ 35.0 kg/m

Tab. 5: Maximum approved cable load

7 Mounting PYROLINE® Con D BSK on a wall/ceiling

The PYROLINE® Con D BSK fire protection duct is mounted directly on the wall in conjunction with separating brackets or under the ceiling with separating clamps. The cables are later routed on the separating brackets and separating clamps.



WARNING

Danger of heavy components!

Fire protection ducts are very heavy and can cause serious injuries if they fall on your head or other parts of the body.

Always work with a partner or work with mounting aids, such as scaffolding or a mounting lift. Wear safety shoes. If mounting on the ceiling, wear protective helmets.



CAUTION

Danger of cracking!

If the walls/ceilings are uneven, this can cause crack formations in the duct trough if the means of fastening is too tight and the duct trough becomes warped. Eliminate or compensate for uneven areas of the mounting substrate before mounting.

Note!

When shortening or notching out duct sections, take the width of a max. 3 mm joint with sealing strip into account.

7.1 Mounting the duct trough

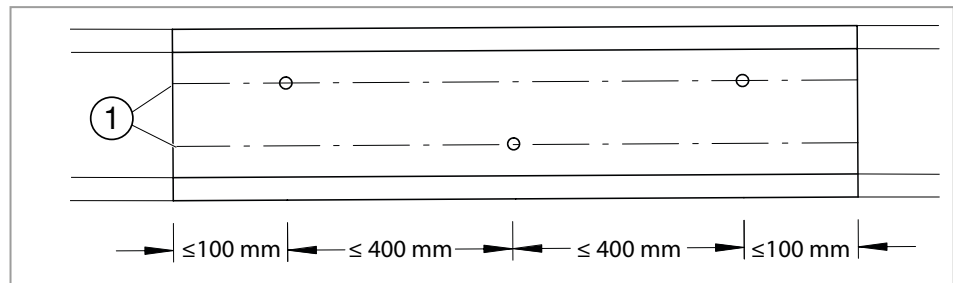


Abb. 3: Drill hole spacings for wall/ceiling mounting

1. Drill three holes in the duct trough base along the marking lines ①. The diameter of the drill hole is dependent on the selected means of fastening, e.g. Ø 6 mm for the MMS-plus P 7.5x80 bolt tie. Drill the holes alternately on the top and bottom marking line. Drill a hole half-way along and the two other holes at a maximum of 100 mm to the end of the duct section.

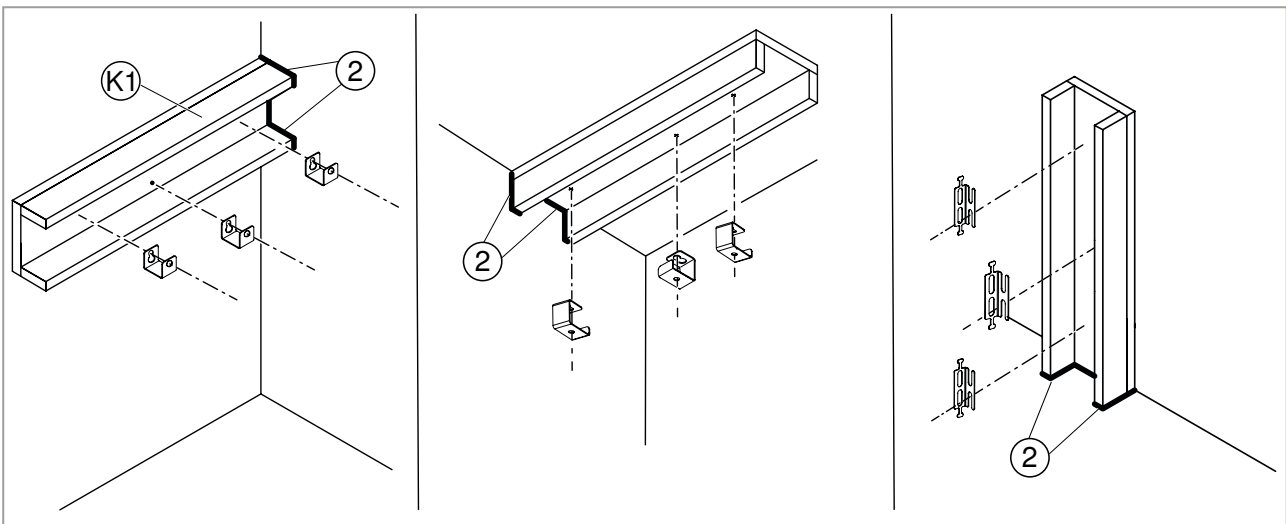


Abb. 4: Duct trough mounting

2. Place the first duct trough ^{Ⓚ1} directly on the wall at the end of the room.
3. Draw the drill holes.
4. Drill drill holes in the wall/ceiling according to the selected means of fastening (dimensions at least M6), e.g. for the MMS-plus P 7.5x80 bolt tie with Ø 6 mm.
5. Apply sealing strips ^{Ⓚ2} to the front side of the duct trough ^{Ⓚ1}.

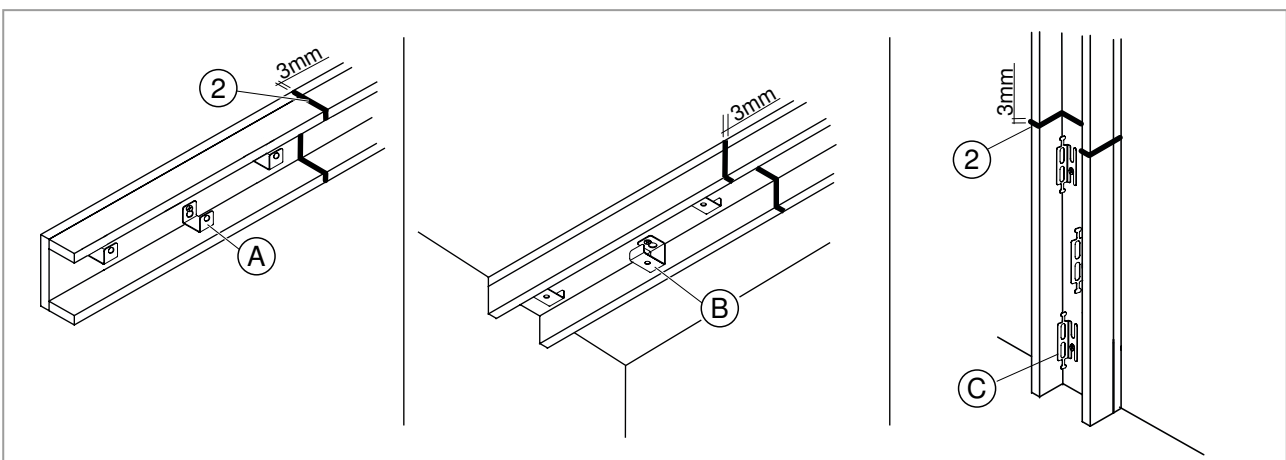


Abb. 5: Wall mounting with separating brackets [Ⓐ], Ceiling mounting with separating clamps [Ⓑ] Vertical wall mounting with cable brackets [Ⓒ]

6. Mount the duct trough in conjunction with the separating bracket [Ⓐ] / separating clamp [Ⓑ]/cable bracket [Ⓒ] and MMS bolt tie. During mounting, compress sealing strips ^{Ⓚ2} to a maximum of 3 mm.
7. Attach the duct trough ^{Ⓚ2} to the end of the duct trough ^{Ⓚ1} and mount in the manner described in points 3–6.
8. Shorten the last duct trough to the wall with a hand or coping saw, removing 3 mm from the residual length for the necessary joints.
9. Apply sealing strips to both front ends of the last duct trough.
10. Mount the last duct trough and ensure a joint of 3 mm to the previous

duct trough.

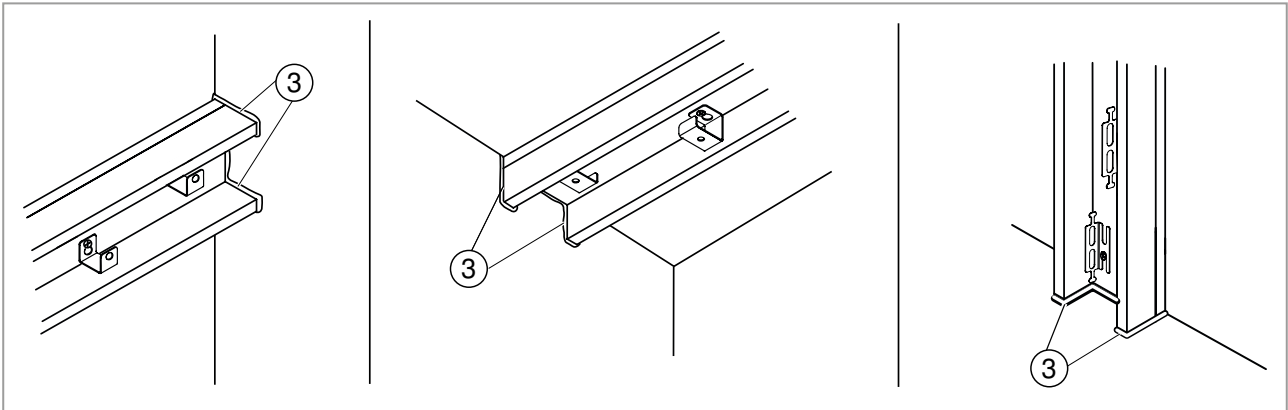


Abb. 6: Wall connection

11. Fully close the joint to the wall with KTM mortar ③.
12. Close off joints between two duct troughs which are insufficiently compressed or tight with KTM mortar.
13. Close off joints between the duct base and the wall with KTM mortar.

The cables can be routed when the duct troughs are fully mounted.

Note! *With the vertical cable brackets ③, the cables can be fastened using cable ties on the lugs or in the slots of the holder.*

7.2 Mounting the duct cover

Before the duct cover is mounted, all the necessary fittings must be created and mounted and the cables routed. Mounting of the duct cover can deviate when fittings are used, see also chapter 7.3 - 7.7.

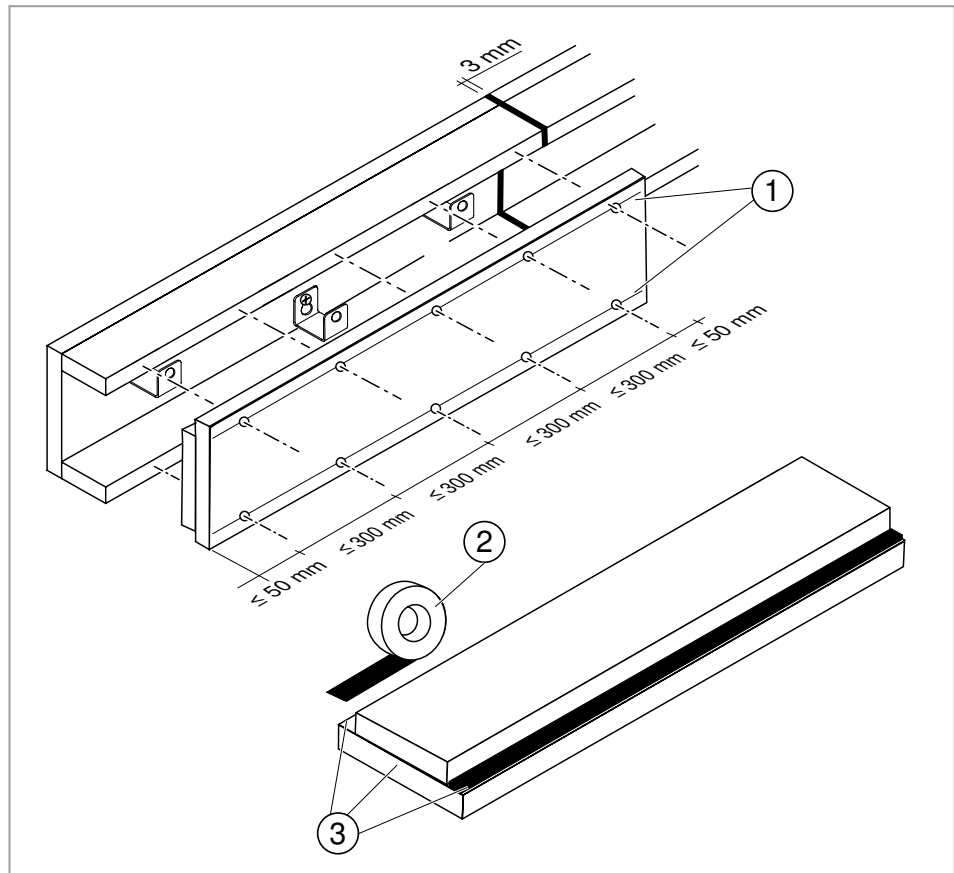


Abb. 7: Duct cover mounting

1. Stick the sealing strip ② all along the support surface and one front side ③ of the duct cover.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

2. Mount the duct cover along the marking lines ① with countersunk head screws on the duct trough. Mount the countersunk head screws at a spacing of max. 300 mm and the spacing of the joints may be a maximum of 50 mm.
3. Fully close joints to the wall ③ with KTM mortar.
4. Close off joints between two duct covers which are insufficiently compressed or tight with KTM mortar.

The fire protection duct is fully mounted. If the fire protection duct is run through the wall, or meets the wall, the wall connection must be designed according to the mounting situation and classification, see chapter „7.10 Creating a wall connection” on page 33.

7.3 Creating a corner connection

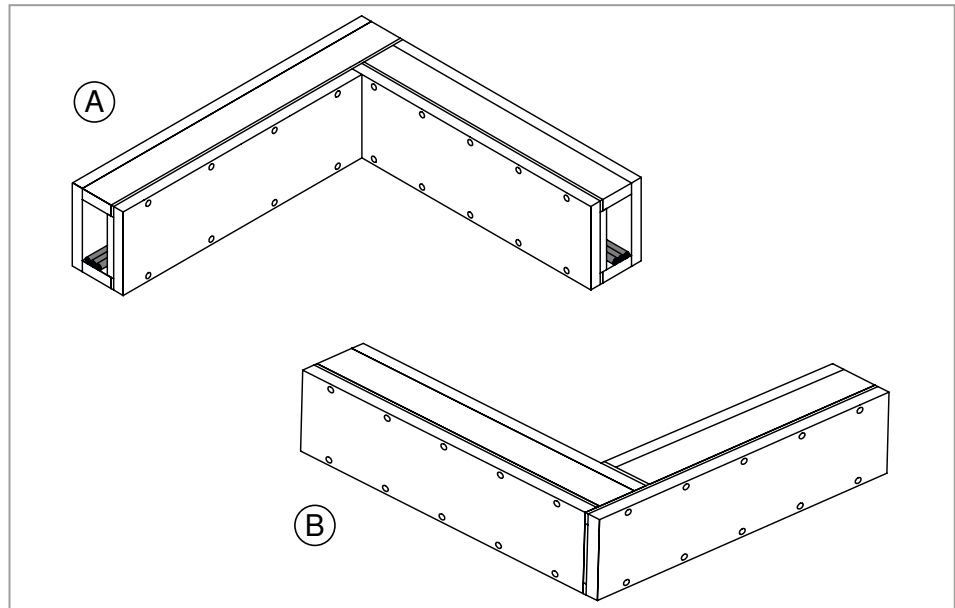


Abb. 8: ① 90° internal corner, ② 90° external corner

To run cables around room corners, it is possible to create 90° internal and external corners with the PYROLINE® Con D BSK product version. During mounting, proceed as described in „7.1 Mounting the duct trough” on page 16. The cables must be routed before the duct cover is mounted.

7.3.1 90° internal corner

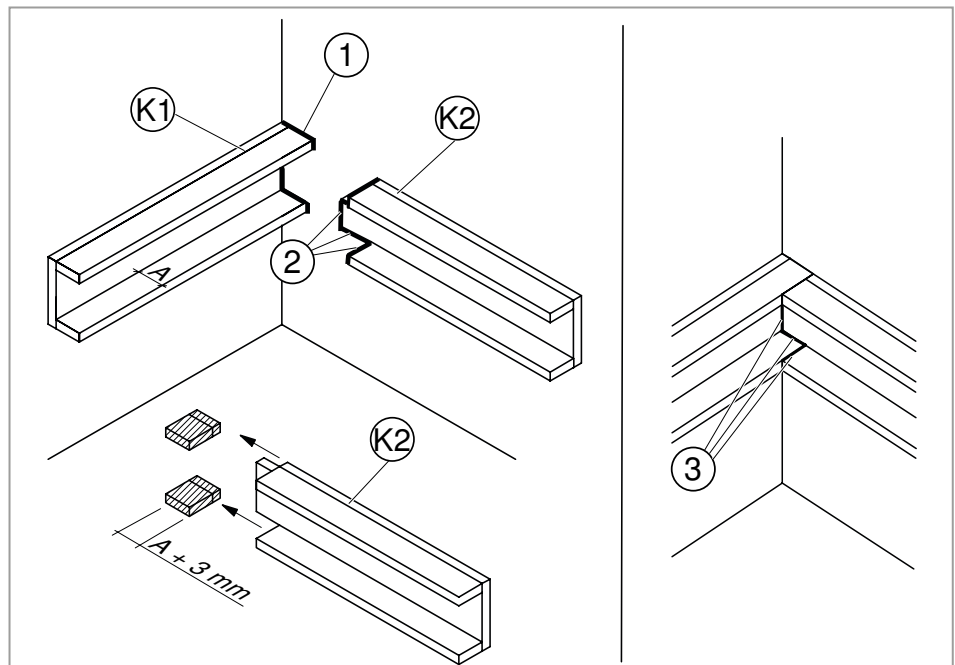


Abb. 9: 90° internal corner duct trough mounting

1. Mount the duct trough ① with sealing strips ① bluntly against the wall.
2. Shorten the duct walls of the duct trough ②, which is supposed to continue at a 90° angle, by dimension A plus 3 mm (inner height of duct walls plus sealing strip).

3. Stick sealing strips to the cut areas ② and front side ② of the duct base.
4. Mount the duct trough ① on the wall/ceiling, compressing the joint to the duct trough ① to a maximum of 3 mm.
5. Fully close the interior of the created joint with OBO KTM mortar ③.

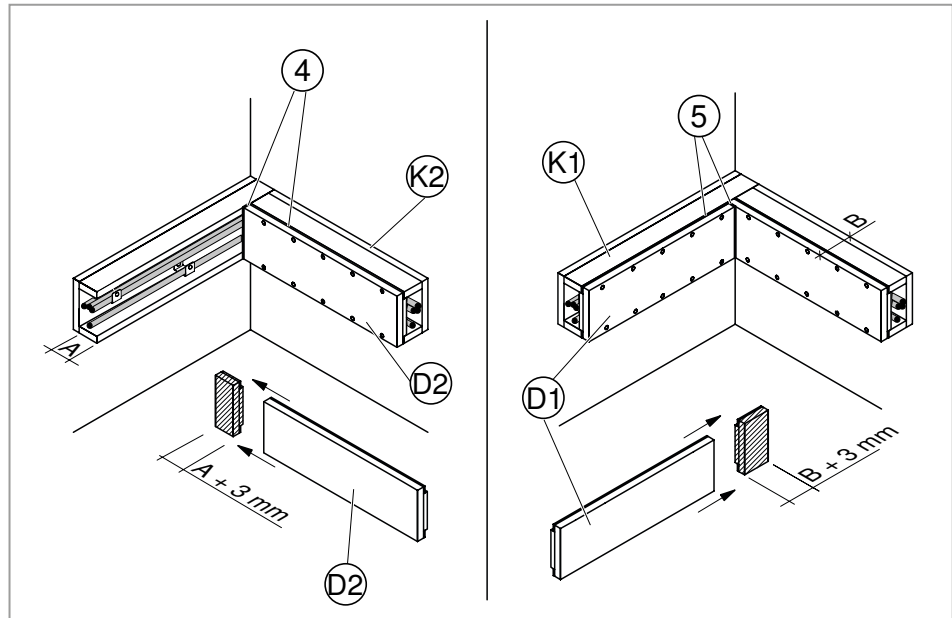


Abb. 10: 90° internal corner duct cover mounting

6. Shorten the duct cover ② for the duct trough ① by dimension A plus 3 mm (inner height of duct walls plus sealing strip).
7. Stick the sealing strip all along the support surface and shortened front side ④ of the duct cover ②.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

8. Mount the duct cover ② along the marking lines with countersunk head screws on the duct trough ①.
9. Shorten the duct cover ① by dimension B plus 3 mm (width of the duct plus sealing strip).
10. Stick the sealing strip all along the support surface and the shortened front side ⑤ of the duct cover ①.
11. Mount the duct cover ① along the marking lines with countersunk head screws on the duct trough ①.

7.3.2 90° external corner

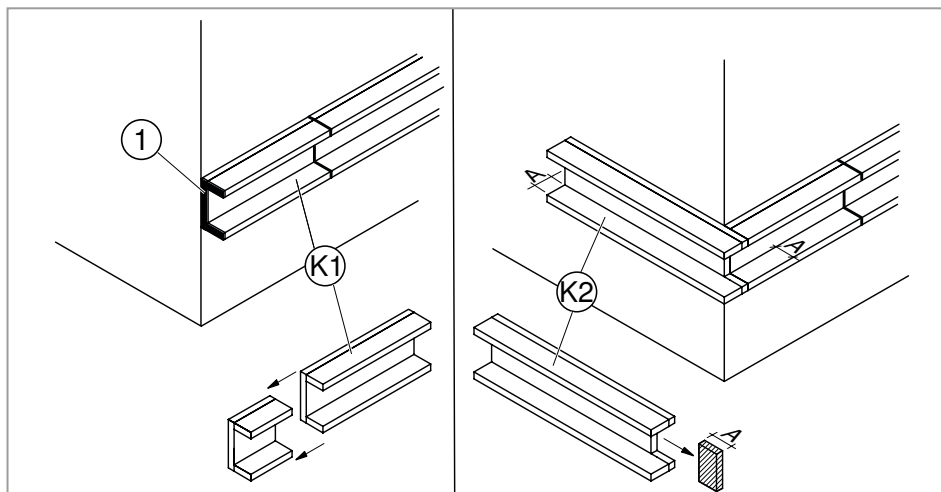


Abb. 11: 90° external corner duct trough mounting

1. Shorten to the duct trough $\textcircled{K1}$ to the necessary dimension, so that it ends flush to the wall corner. Take the maximum 3 mm joint with the sealing strip into account.
2. Stick the sealing strip $\textcircled{2}$ on the shortened front side.
3. Mount the duct trough $\textcircled{K1}$ flush with the wall corner.
4. Notch out the duct base of the duct trough $\textcircled{K2}$, which is supposed to continue at a 90° angle, by dimension A (inner height of duct walls).
5. Mount the duct trough $\textcircled{K2}$ in such a way that it ends flush with the other duct trough $\textcircled{K1}$.

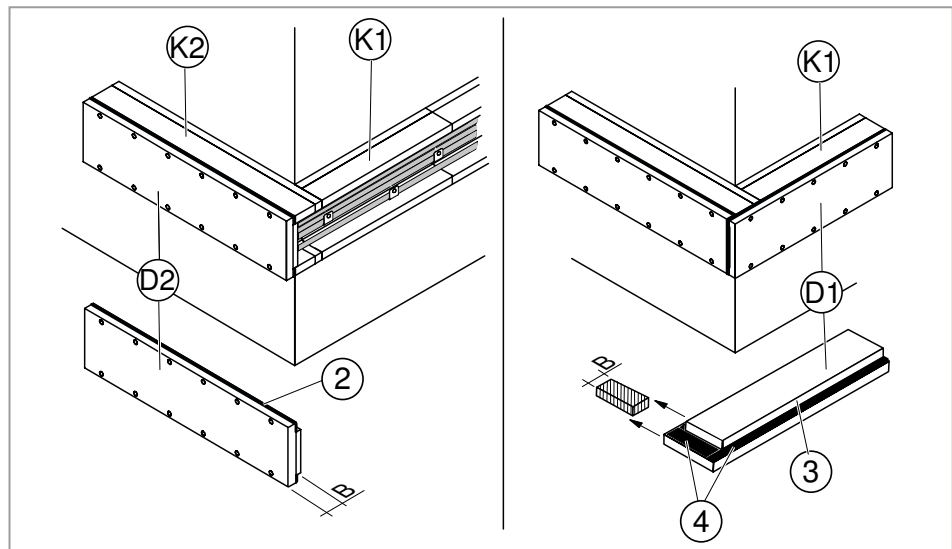


Abb. 12: 90° external corner duct cover mounting

6. Stick the sealing strip all along the support surface ② of the duct cover ②.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

7. Mount the duct cover ② along the marking lines with countersunk head screws on the duct trough.
8. Notch out the doubler ③ of the duct cover ① on the front side by the dimension E (duct cover thickness).
9. Stick the sealing strip all along the support surface and at the notched out point ④ of the duct cover ①.
10. Mount the duct cover ① along the marking lines with countersunk head screws on the duct trough ①.

7.4 Creating a 90° flat angle

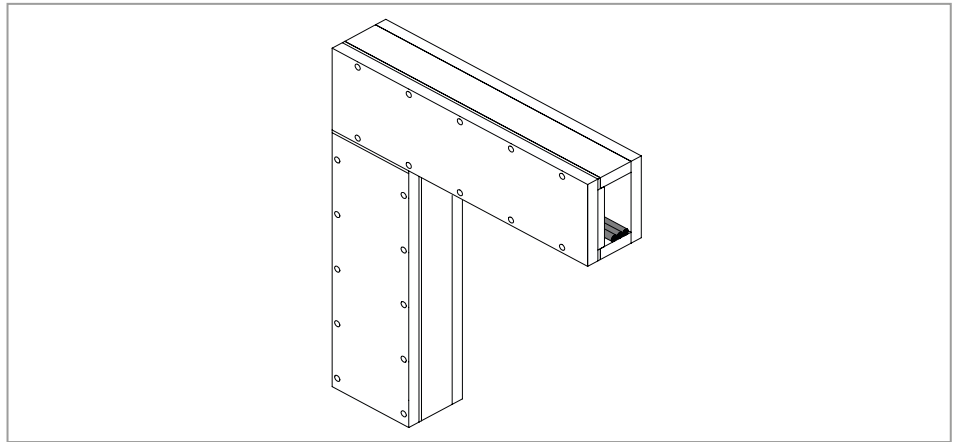


Abb. 13: 90° flat angle

To run cables on at a 90° angle, it is possible to create 90° flat angles with the PYROLINE® Con D BSK product version. During mounting, proceed as described in chapter „7.1 Mounting the duct trough” on page 16. The cables must be routed before the duct cover is mounted.

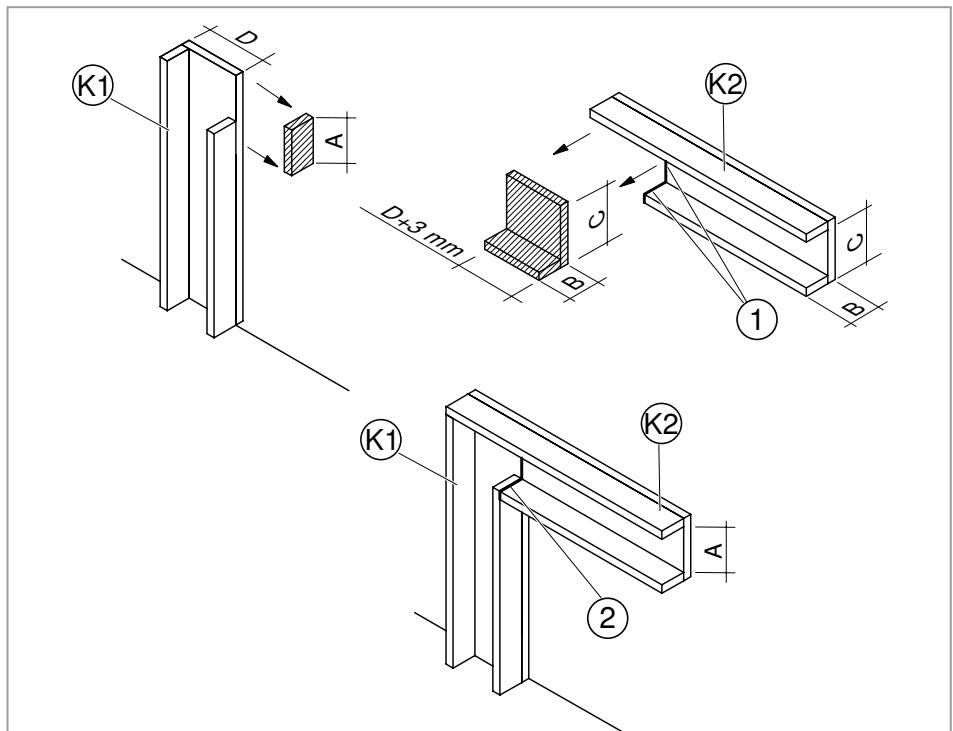


Abb. 14: 90° flat angle duct trough mounting

1. Notch out the inner side section of the duct trough (K1) by dimension A (duct interior width).
2. Stick sealing strips to the remaining front surface ①.
3. Mount the duct trough (K1).
4. On the duct trough (K2), which is supposed to connect at a 90° angle, notch out the lower duct wall and duct base by dimensions B (inner duct width plus a duct wall thickness), C (duct base width minus duct wall thickness) and D (duct base width) plus 3 mm sealing strip.

5. Stick sealing strips to the cut edges of the duct trough $\textcircled{K2}$.
6. Mount the duct trough $\textcircled{K2}$ on the wall/ceiling, compressing the joint $\textcircled{2}$ to the duct trough $\textcircled{K1}$ to a maximum of 3 mm.

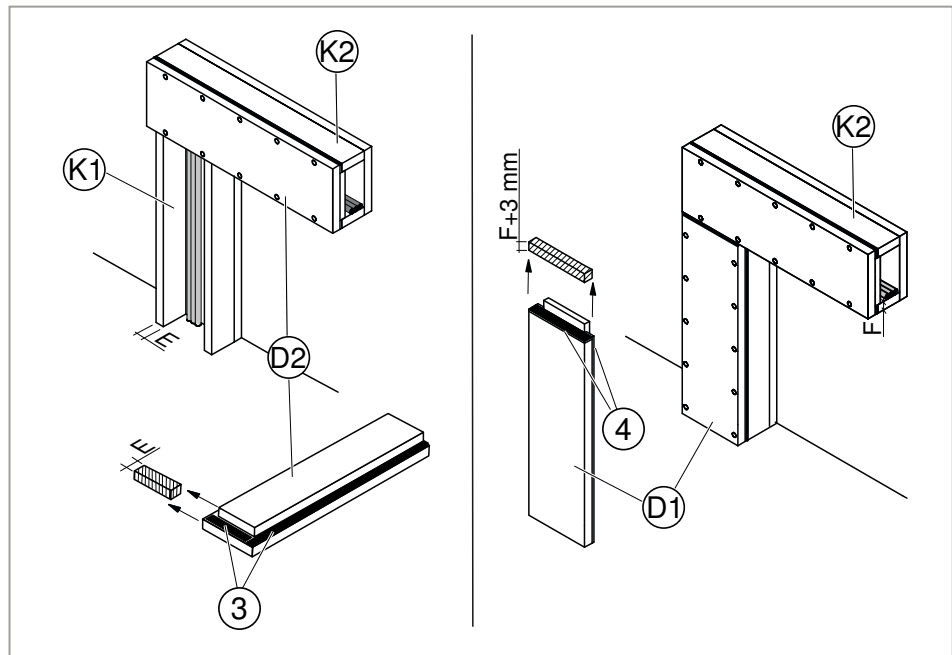


Abb. 15: 90° flat angle duct cover mounting

7. Notch out the doubler of the duct cover $\textcircled{D2}$ on the front side by the dimension E (duct wall thickness).
8. Stick the sealing strip all along the support surface and notched points $\textcircled{3}$ of the duct cover $\textcircled{D2}$.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

9. Mount the duct cover $\textcircled{D2}$ along the marking lines with countersunk head screws on the duct trough $\textcircled{K2}$.
10. Notch out the top plate of the duct cover $\textcircled{D1}$ on the front side by the dimension F (duct wall thickness) plus 3 mm for the sealing strip.
11. Stick the sealing strip all along the support surface and on the shortened front side $\textcircled{4}$ of the duct cover $\textcircled{D1}$.
12. Mount the duct cover $\textcircled{D1}$ along the marking lines with countersunk head screws on the duct trough $\textcircled{K1}$.

7.5 Creating a T connection

To branch off cables, it is possible to create T connections with the PYROLINE® Con D BSK product version. During mounting, proceed as described in chapter „7.1 Mounting the duct trough” on page 16. The cables must be routed before the duct cover is mounted.

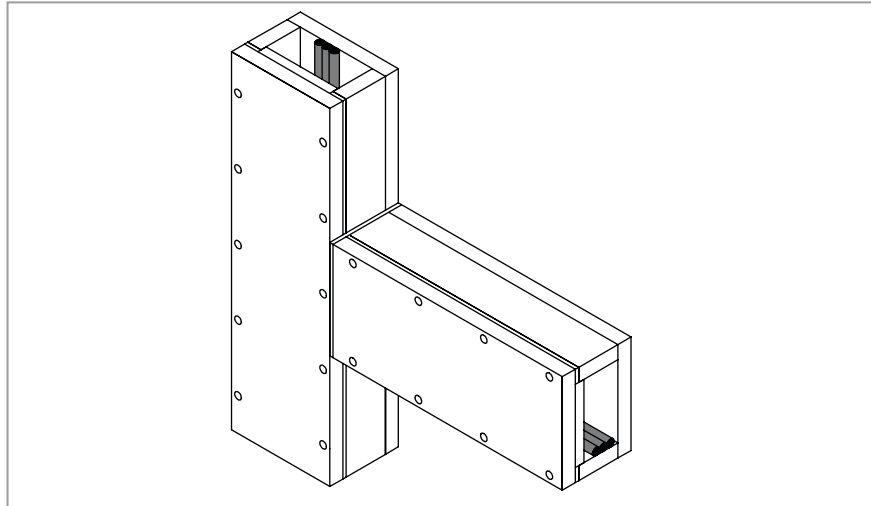


Abb. 16: T connection

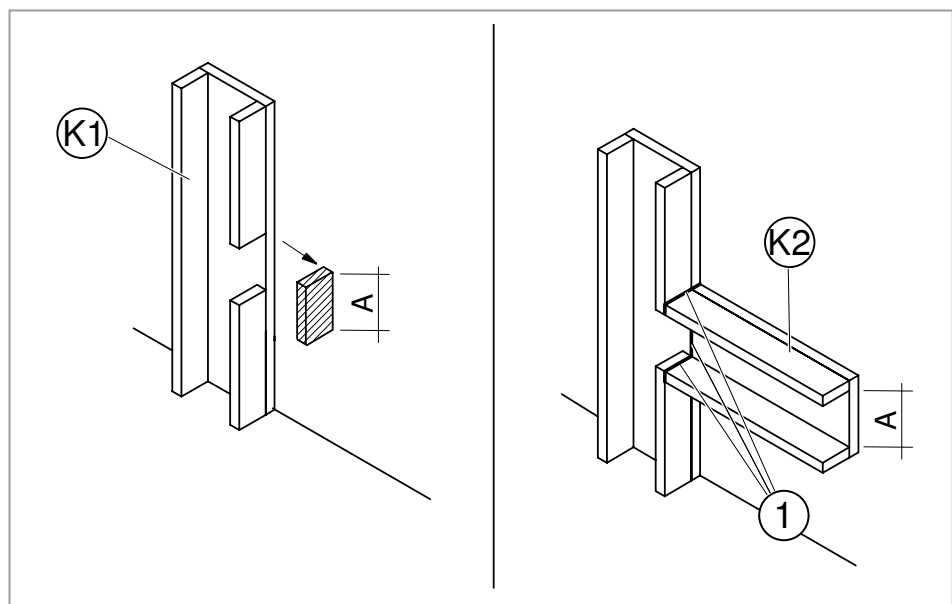


Abb. 17: T connection, duct trough mounting

1. Notch out the internal duct wall of the duct trough (K1) by dimension A (internal duct width).
2. Mount the duct trough (K1).
3. On the front side (1) of the duct trough (K2), stick on the sealing strip.
4. Mount the duct trough (K2) on the wall/ceiling at a 90° angle to the duct trough (K1), compressing the joint (1) to a maximum of 3 mm.

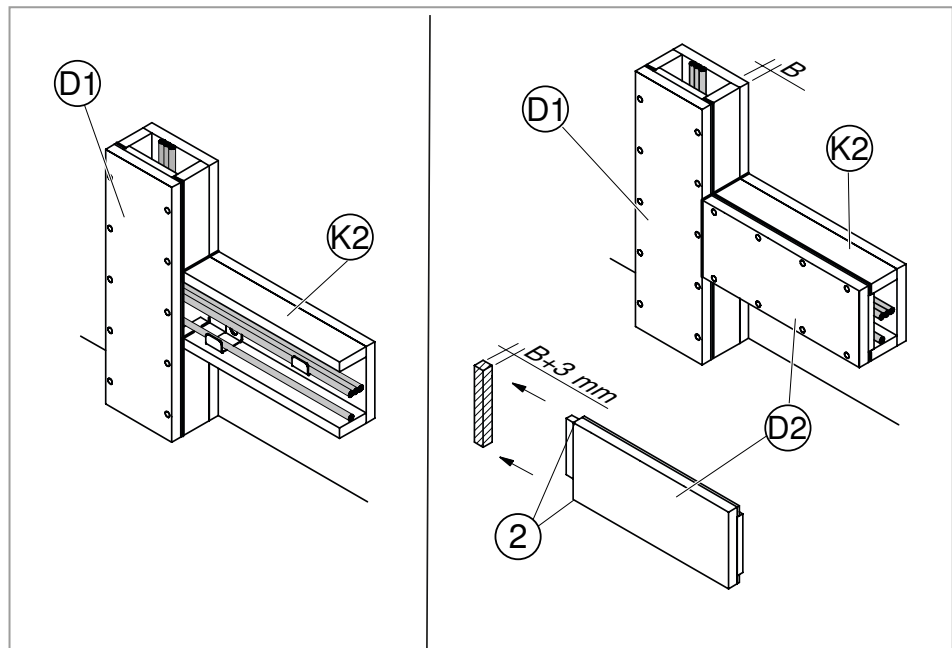


Abb. 18: T connection duct cover mounting

5. Notch out the top doubler of the duct cover ① on the front side by the dimension B (duct wall thickness plus 3 mm sealing strip).
6. Stick the sealing strip all along the support surface and notched front side ② of the duct cover ①.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

7. Mount the duct cover ① along the marking lines with countersunk head screws on the duct trough ②.

7.6 Creating a cross-connection

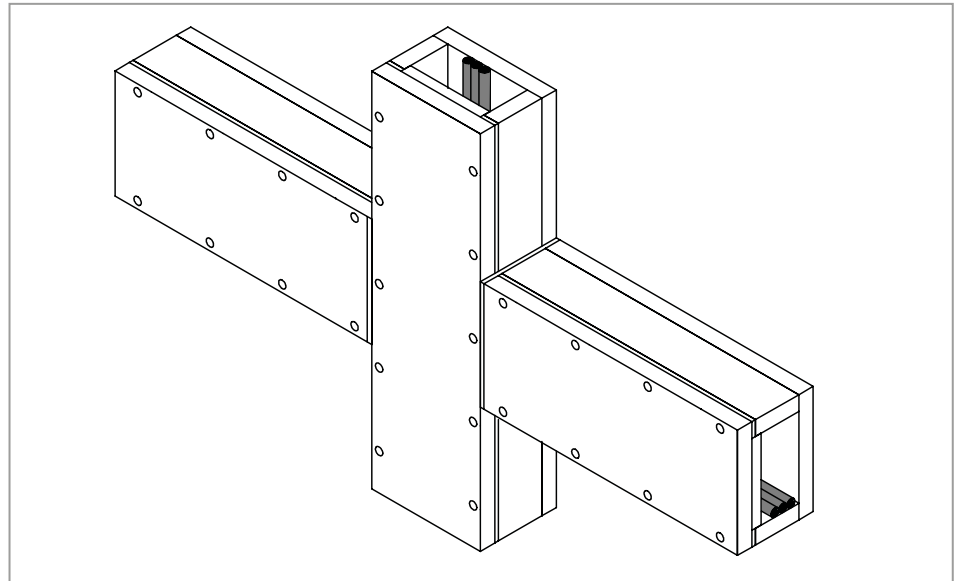


Abb. 19: Cross-connection

To branch off cables in multiple directions, it is possible to create cross-connections with the PYROLINE® Con D BSK product version. During mounting, proceed as described in chapter „7.1 Mounting the duct trough” on page 16. The cables must be routed before the duct cover is mounted.

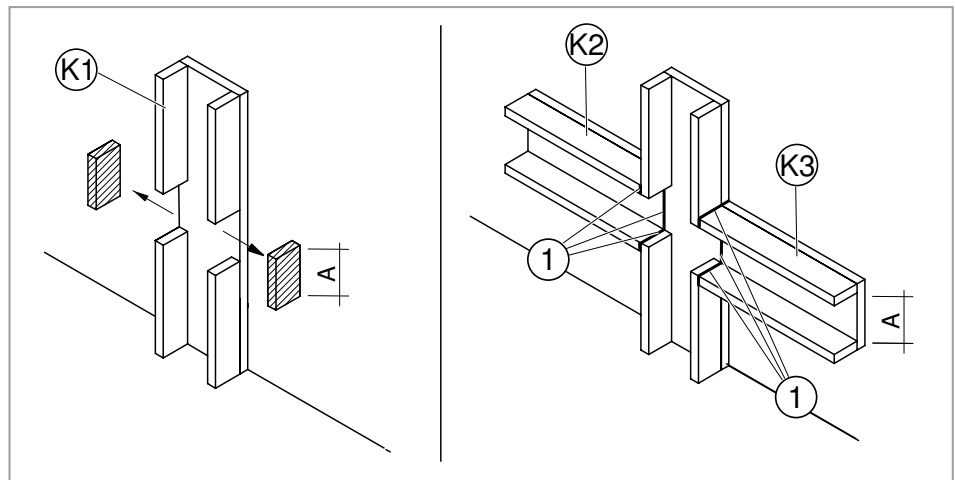


Abb. 20: Cross-connection, duct trough mounting

1. Notch the duct walls of the duct trough $\textcircled{K1}$ by dimension A (internal duct width).
2. Mount the duct trough $\textcircled{K1}$.
3. On the front sides $\textcircled{1}$ of the duct trough $\textcircled{K2}$ and $\textcircled{K3}$, stick on the sealing strip.
4. Mount the duct trough $\textcircled{K2}$ and $\textcircled{K3}$ in alignment on the wall/ceiling at a 90° angle to the duct trough $\textcircled{K1}$, compressing the joint $\textcircled{1}$ to a maximum of 3 mm.

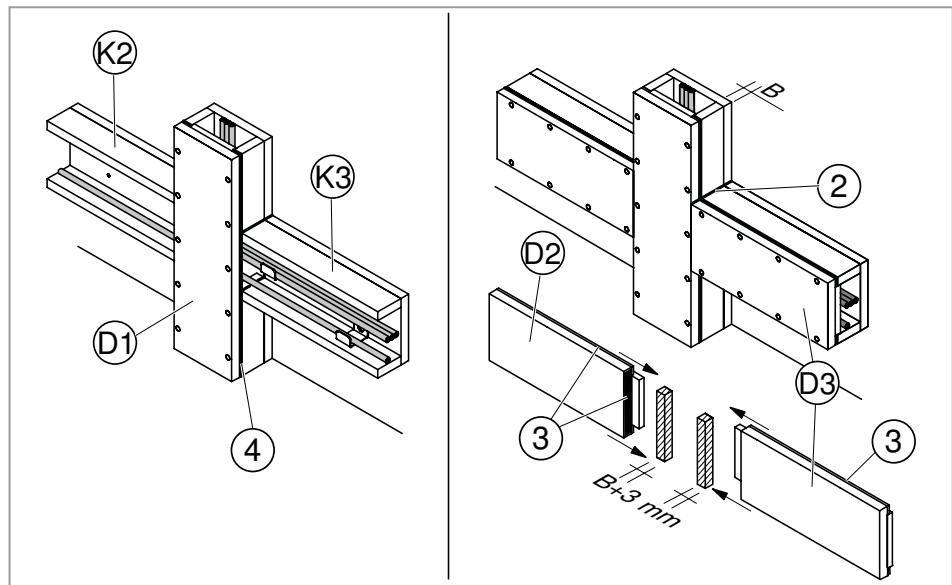


Abb. 21: Cross-connection, duct cover mounting

5. Stick the sealing strip all along the support surface (4) of the duct cover (D1).

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

6. Mount the duct cover (D1) along the marking lines with countersunk head screws on the duct trough (K1).
7. Notch out the top doubler of the duct covers (D2) and (D3) on a front side by the dimension B (duct wall thickness plus 3 mm sealing strip).
8. Stick the sealing strip all along the support surface and front ends (3) of the duct covers (D2) and (D3).
9. Mount the duct covers (D2) and (D3) along the marking lines with countersunk head screws to the duct trough (K2) and (K3), compress the joints (2) to a maximum of 3 mm.

7.7 Creating other fittings

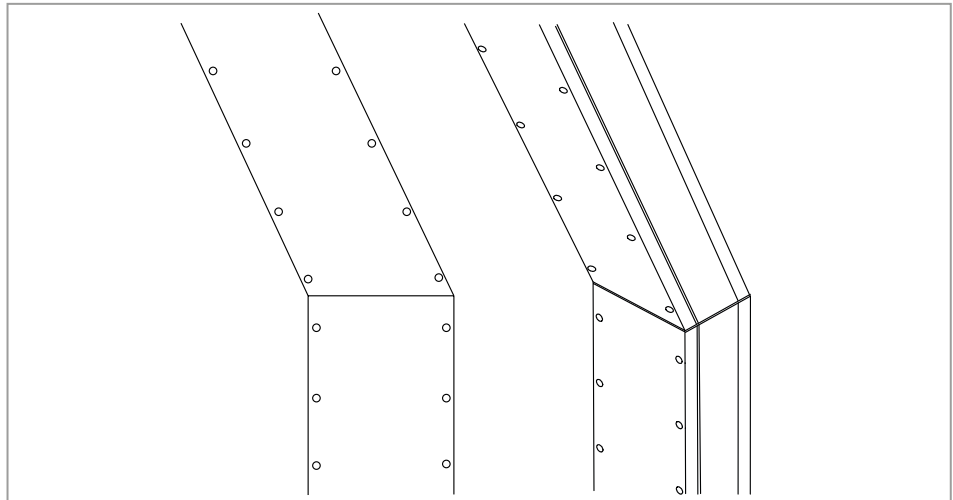


Abb. 22: Fitting with angle $> 90^\circ$

To branch off cables or run the duct past obstacles, with the PYROLINE® Con D BSK product version, fittings with mitre angles of greater than 90° can be created. During mounting, proceed as described in chapter „7.1 Mounting the duct trough“ on page 16 and chapter „7.2 Mounting the duct cover“ on page 19. The cables must be routed before the duct cover is mounted.

1. Cut mitres on duct troughs and duct covers which abut each other. The mitres meet each other bluntly and without overlaps.
2. Stick sealing strips on the mitre on one of the two duct troughs.
3. Mount the duct troughs, compressing joints to a maximum of 3 mm.
4. Stick the sealing strip all along the support surface of the duct covers.
5. Stick the sealing strip to the front end of a duct cover.

ATTENTION

Risk of damage!

When the duct cover is screwed on, the edges can chip, making the cover unusable. Pre-drill the duct cover before mounting.

6. Mount the duct cover along the marking lines with countersunk head screws, compressing the joint to a maximum of 3 mm.
7. Seal the mitre joint with KTM mortar.

7.8 Mounting an end piece

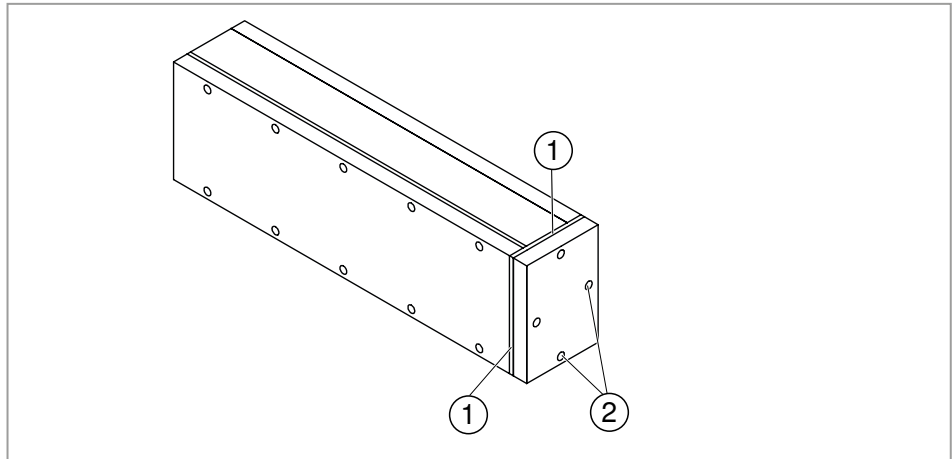


Abb. 23: End piece mounting

The fire protection duct must be tightly closed to prevent fire from spreading to the cables or smoke gases from escaping during a cable fire. Open cable ends are closed off with an end piece suitable for the fire protection duct.

Note! *Sealing strips are already pre-mounted on the end pieces at the factory.*

ATTENTION

Risk of damage!

When the end piece is screwed on, the edges can chip, making the end piece unusable. Pre-drill the end piece before mounting.

Note! *Mount the end piece (with the sealing strip ①) in front of the duct.*

1. Mount the end piece in front of the end of the duct with at least 4 countersunk head screws ②.

7.9 Running a cable out of the fire protection duct

Individual cables or cable bundles can be run out of the fire protection duct. In the area of the cable exit, doublers are always required, irrespective of the classification of the fire protection duct.

Individual cable

- KAD-8040: Cable bundle diameter ≤ 32 mm, ring gap ≥ 4 mm
- KAD-10040: Cable bundle diameter ≤ 52 mm, ring gap ≥ 4 mm

Cable bundle

- KAD-8040: Cable bundle diameter ≤ 28 mm, ring gap ≥ 6 mm
- KAD-10040: Cable bundle diameter ≤ 48 mm, ring gap ≥ 6 mm

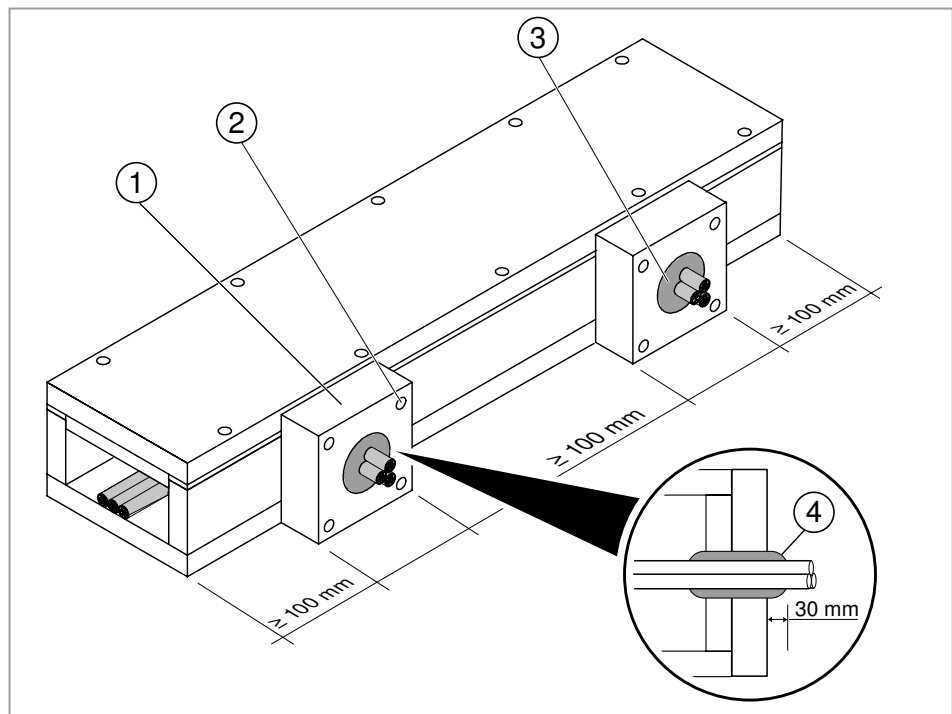


Abb. 24: Cable outlets with doubler

1. Drill a hole for the cable gland in the wall of the fire protection duct.
Note! Diameter of the drill hole according to the cable diameter and data on the ring gap.
2. Place the doubler ① accordingly over the drill hole and screw it on with 4 screws ②.
Note! The doublers are already pre-drilled.
3. Pass the cables through.
4. Seal the ring gap with KTM fire protection duct mortar ③.
5. Coat the exited single cable/cable bundle to a length of 30 mm in front of and behind the penetration with KTM fire protection duct mortar ④.
6. With further doublers and the duct end, ensure a minimum distance of 100 mm between the cable exit and the end of the duct (maximum of three cable exits per running metre).

7.10 Creating a wall connection

If the fire protection duct is run through the wall, or meets the wall and only the cables are run through, the wall connection must be designed according to the mounting situation and classification.

Mounting situation		Mounting version (p. 34–35)			
Duct	Classification period of the wall/ceiling in comparison with the duct	I90	I120	E30	E90
Ends in front of solid wall	Equal or higher	Ⓐ	Ⓐ	Ⓐ	Ⓐ
	Less	Not permitted	Not permitted	–*	Not permitted
	None	Not permitted	Not permitted	Not permitted	Not permitted
Pass through solid wall	Equal or higher	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	Less	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	None	Ⓑ	Ⓑ	Ⓑ	Ⓑ
Ends in front of light-duty partition	Equal, higher, less or none	Not permitted	Not permitted	Not permitted	Not permitted
Pass through light-duty partition wall	Equal or higher	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	Less	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	None	Ⓑ	Ⓑ	Ⓑ	Ⓑ
Ends under the ceiling	Equal or higher	Ⓐ	Ⓐ	Ⓐ	Ⓐ
	Less	Not permitted	Not permitted	–*	Not permitted
	None	Not permitted	Not permitted	Not permitted	Not permitted
Pass through ceiling	Equal or higher	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	Less	Ⓑ	Ⓑ	Ⓑ	Ⓑ
	None	Ⓑ	Ⓑ	Ⓑ	Ⓑ

*Combinations not possible as the wall classification cannot be less than 30 minutes.

Tab. 6: Mounting situations, wall connections

Mounting version (A)

- Cable gland, duct ends before the wall/ceiling

Note! *The mounting version shown applies in the same way for ceiling penetrations.*

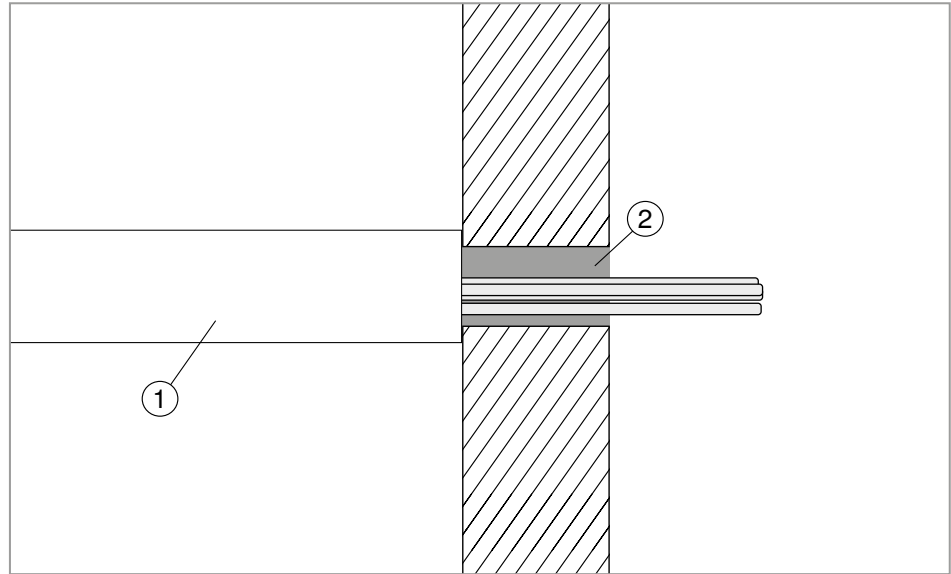


Abb. 25: Wall connection mounting version (A)

1. Create a wall opening for the cable gland.
Note! *Wall opening \leq internal duct dimensions.*
2. Mount the fire protection duct bluntly in front of the wall (1), see also „7.1 Mounting the duct trough” on page 16.
3. Close the wall opening with a classified insulation (recommended system PYROSIT® NG fire protection foam) (2).

Mounting version ②

- Uncut duct penetration

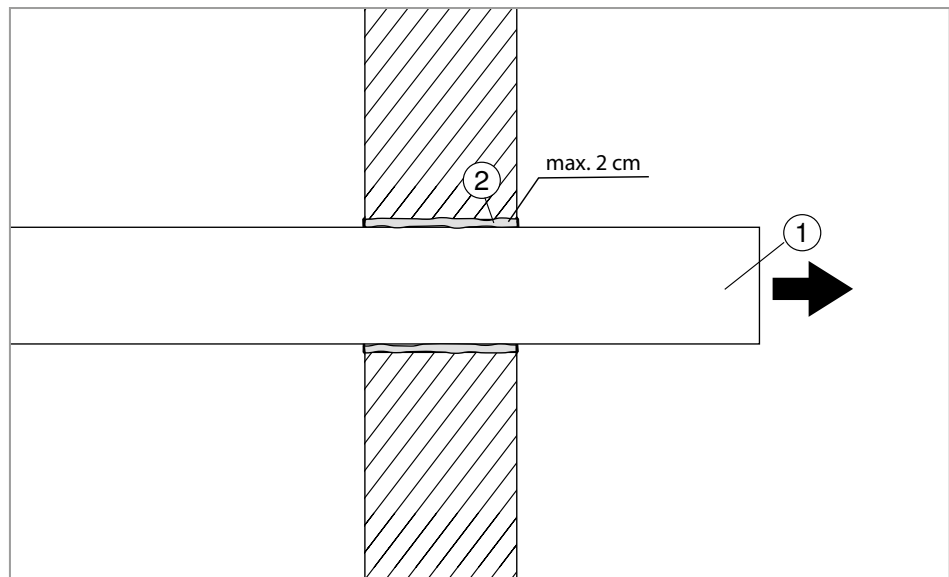


Abb. 26: Wall connection mounting version ②

1. Create a wall opening for the duct penetration.
Note! *Wall opening max. 2 cm > external duct dimensions.*
2. Run the fire protection duct through the wall opening and mount it on the wall ①, see also „7.1 Mounting the duct trough” on page 16.
3. Close the ring gap around the the duct with MIW-S mineral wool ②.
4. Seal the mineral wool with non-combustible material, e.g. plaster.

8 Mounting the PYROLINE® Con S BSK with a support system

The PYROLINE® Con S BSK fire protection duct is mounted with support systems, which are mounted on the wall or the ceiling, depending on the ambient conditions and wall structure. Wall brackets are mounted on the wall, suspended supports with brackets are mounted on the ceiling or threaded rods with support rails.



WARNING

Danger of heavy components!

Fire protection ducts are very heavy and can cause serious injuries if they fall on your head or other parts of the body.

Always work with a partner or work with mounting aids, such as scaffolding or a mounting lift. Wear protective work clothing, such as safety shoes. If mounting on the ceiling, wear protective helmets.

Note!

To achieve the maintenance of electrical function class E30, wall brackets and brackets on suspended supports must have two suspension points. They must therefore be additionally secured on connectors and the ceiling with threaded rods. Alternatively, ceiling suspension can take place with two threaded rods and a support rail.

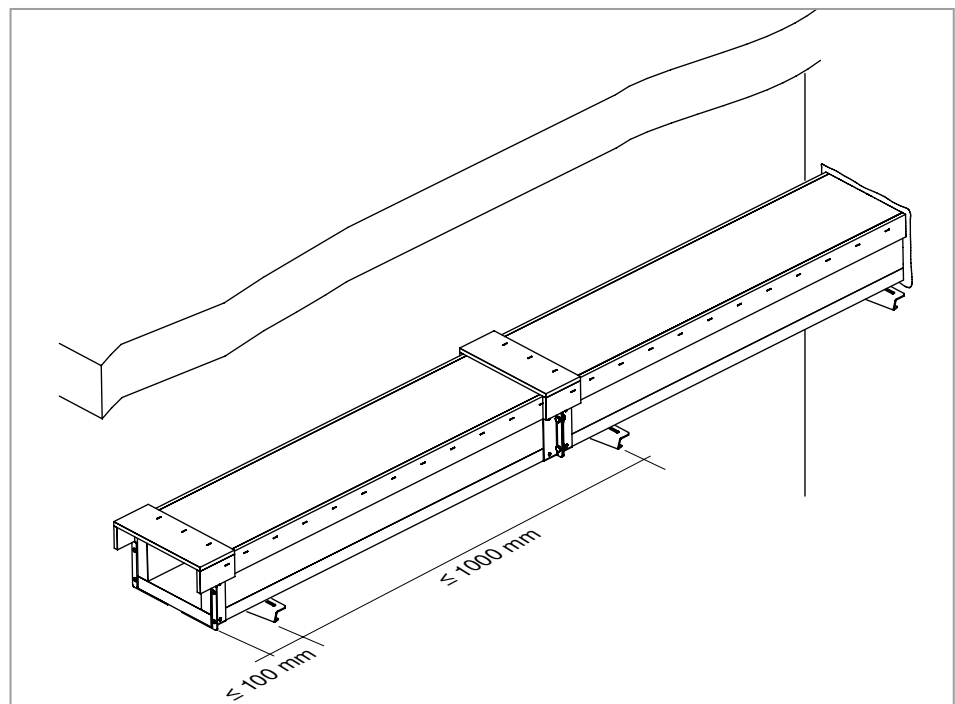


Abb. 27: Support points, fire protection duct

The maximum distance between two brackets may be 1,000 mm. The distance from the front end of a fire protection duct to the next bracket may be a maximum of 100 mm.

8.1 Mounting the wall bracket

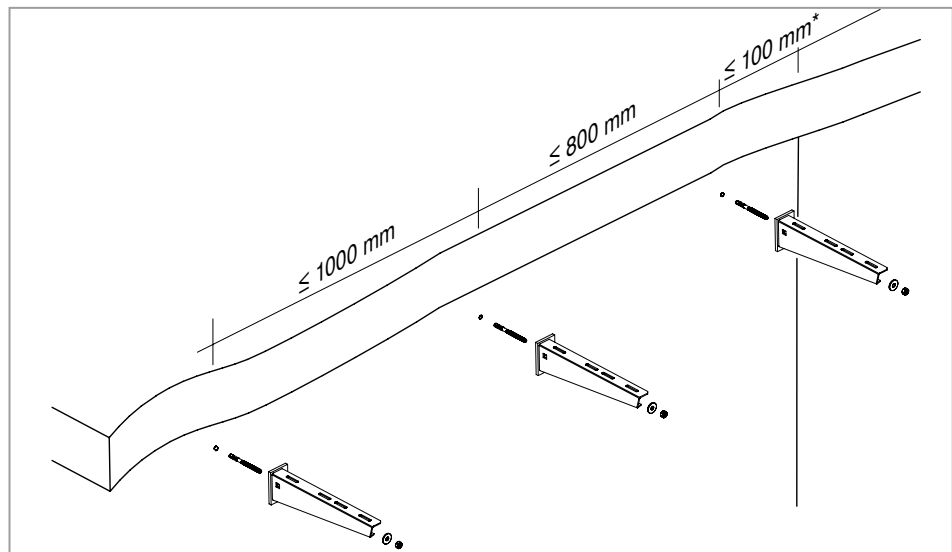


Abb. 28: Wall bracket mounting

1. Have the right wall bracket to hand. The wall bracket must be sufficiently long for the fire protection duct to be supported over its full area.
2. Draw the drill holes for the wall brackets:
 - Max. 100 mm away from the wall for the first wall bracket.
 - Max. 900 mm away from the wall for the second wall bracket.
 - 1,000 mm spacing between all further wall brackets.

Note! *The data relates to a complete duct length. If the fire protection duct is shortened, adjust the spacing of the second wall bracket accordingly.*

3. Drill the drill holes.
4. Mount the wall bracket with suitable fastening agents, such as screw ties for masonry and bolt ties for concrete.

8.2 Mounting the suspended support and bracket

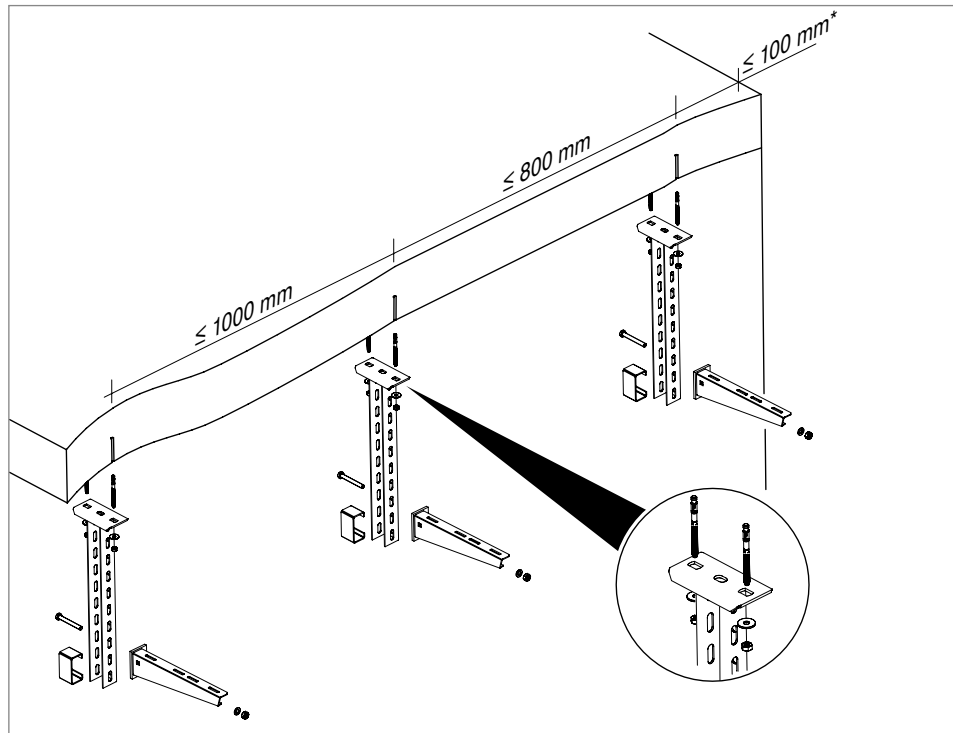


Abb. 29: Suspended support and bracket mounting under the ceiling

1. Have the right suspended support and bracket to hand. The bracket must be sufficiently long for the fire protection duct to be supported over its full area.
2. Draw the drill holes for suspended supports:
 - Max. 100 mm away from the wall for the first suspended support.
 - Max. 900 mm away from the wall for the second suspended support.
 - 1,000 mm spacing between all further wall brackets.

Note!

The data relates to a complete duct length. If the fire protection duct is shortened, adjust the spacing of the second suspended support accordingly.

3. Drill the drill holes.
4. Mount the suspended supports with suitable fastening agents, such as bolt ties for concrete.
5. Mount the bracket on suspended supports with spacers and hexagonal bolts.

8.3 Mounting the threaded rod and support rail

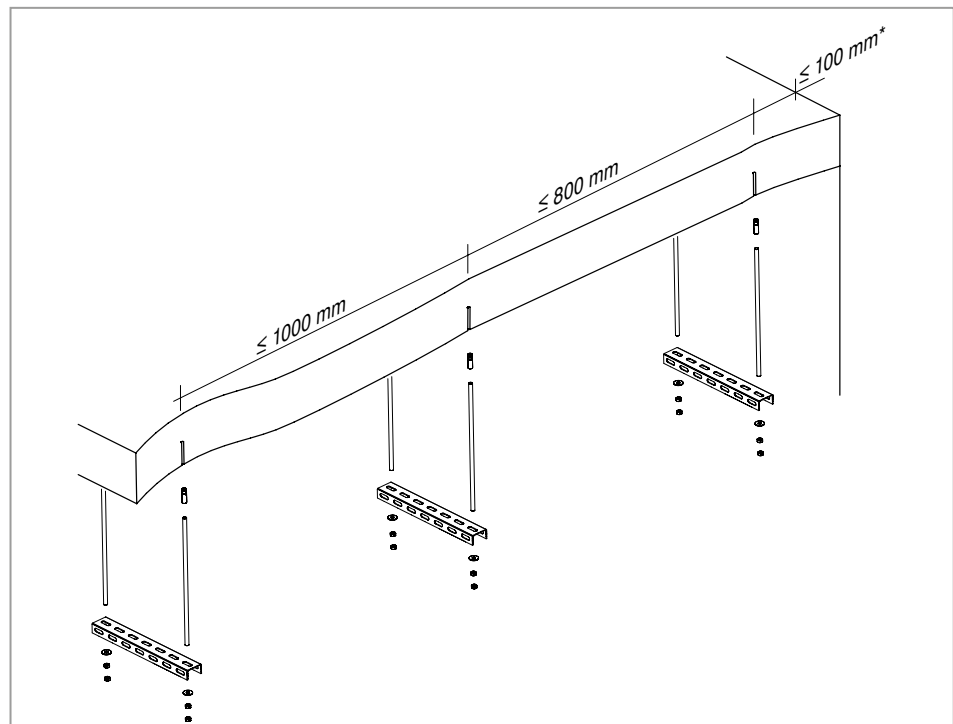


Abb. 30: Threaded rods and support rails under the ceiling

1. Draw the drill holes for the threaded rods:

- Max. 100 mm away from the wall for the first pair of threaded rods.
- Max. 900 mm away from the wall for the second pair of threaded rods.
- 1000 mm spacing between all further wall brackets

Note!

The data relates to a complete duct length. If the fire protection duct is shortened, adjust the spacing of the second pair of threaded rods accordingly.

2. Drill the drill holes.
3. Mount suitable fastening agents under the ceiling, e.g. bolt ties for concrete.
4. Screw the M10 threaded rods into the fastening agent.
5. Mount the support rail on the threaded rod with washers and hexagonal nuts.
6. Lock the hexagonal nuts with a second hexagonal nut.

8.4 Mounting the duct trough

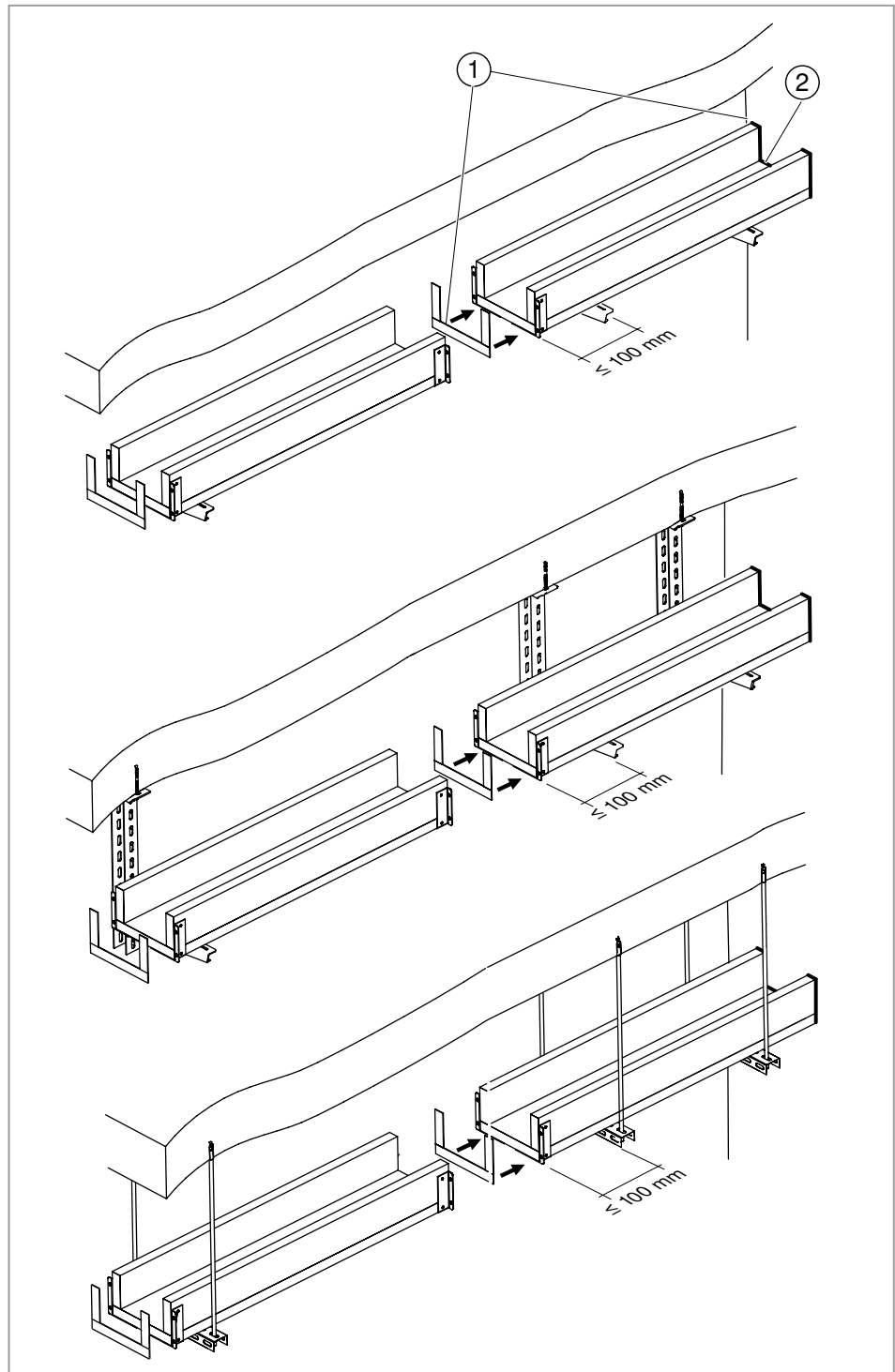


Abb. 31: Spacings of suspension points and joints

1. Apply sealing strips ① to both ends of the duct trough.
2. Locate the duct trough from the wall or wall penetration in such a way that the front side has a maximum distance of 100 mm to the support surface of the bracket or the support rail. With a wall connection, ensure a joint of maximum 3 mm ②.

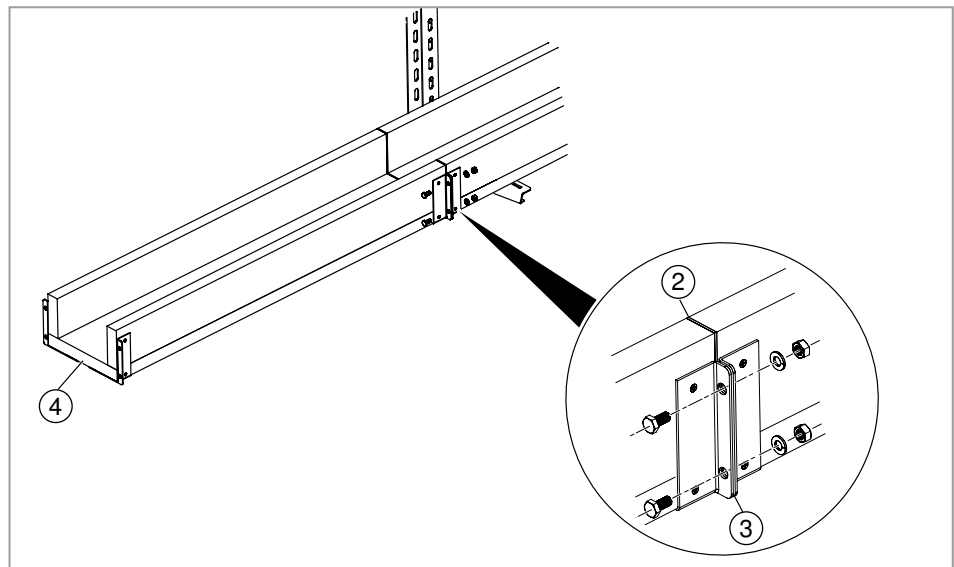


Abb. 32: Duct trough mounting

3. Directly connect the next duct trough and ensure a joint ② of max. 3 mm.
4. Screw the pre-mounted connectors ③ to the ends of the duct trough.
5. Apply sealing strips ④ to the front side of the duct trough.
6. Fix the position of the duct trough using a KRS 6x30 screw through the bracket.
7. Repeat steps 3–6 until the duct troughs are completely mounted. If necessary, mount fittings (90° bend, T piece and vertical bends (rising/falling)) as described in chapter „8.6 Mounting fittings” on page 43.
8. If necessary, shorten the fire protection duct at the end without a joint overlap using a hand or coping saw.
9. Dismantle the connector from the waste piece and remount on the newly created end.

The cables can be routed when the duct troughs and any necessary fittings are fully mounted.

8.5 Mounting the duct cover

Before the duct cover is mounted, all the necessary fittings and separating retainers must be mounted and the cables routed. Mounting of the duct cover can deviate when fittings are used, refer to the appropriate chapters.

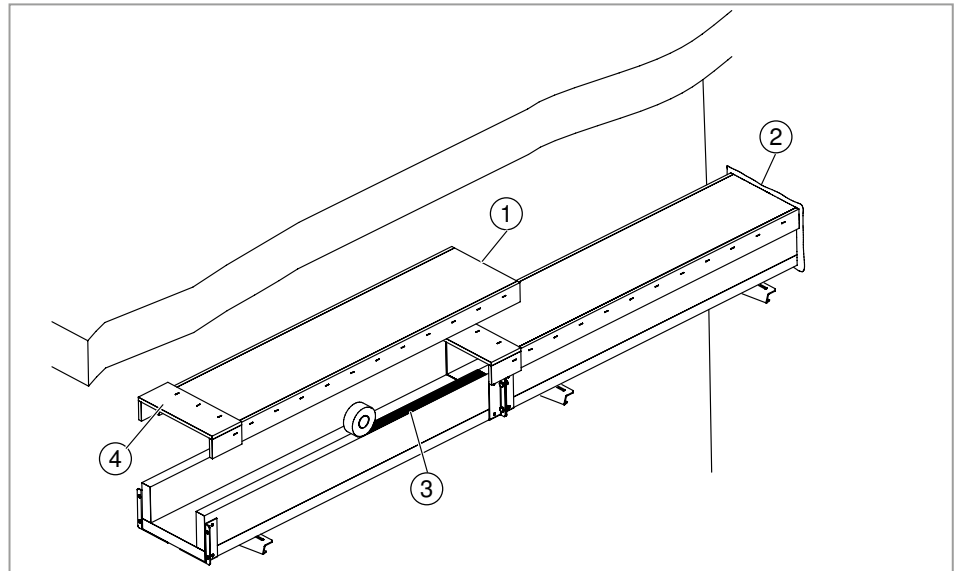


Abb. 33: Duct cover mounting

1. Stick the sealing strip ③ all along the support surface of the duct trough and one end of the duct cover ①.

Note!

Alternatively, the sealing strip can also be stuck to the support surface of the duct cover.

2. Place the duct cover on the duct trough so that the joint overlap ④ is located on the following duct trough. It is not necessary to screw it to the duct trough.
3. Fully close joints to the wall ② with KTM mortar.

The fire protection duct is fully mounted. The wall connection must be made according to the mounting situation. See also chapter „8.11 Creating a wall connection” on page 49.

8.6 Mounting fittings

The PYROLINE® Con S BSKH product version offers prefabricated fittings for various cable routing requirements:

- 90° bend to run cables around a corner
- T piece to branch a cable off
- Vertical bend, rising/falling, in order to route the cable upwards/downwards in a slanting manner

Fittings must be supported by additional brackets. The cables must be routed before the duct cover is mounted.

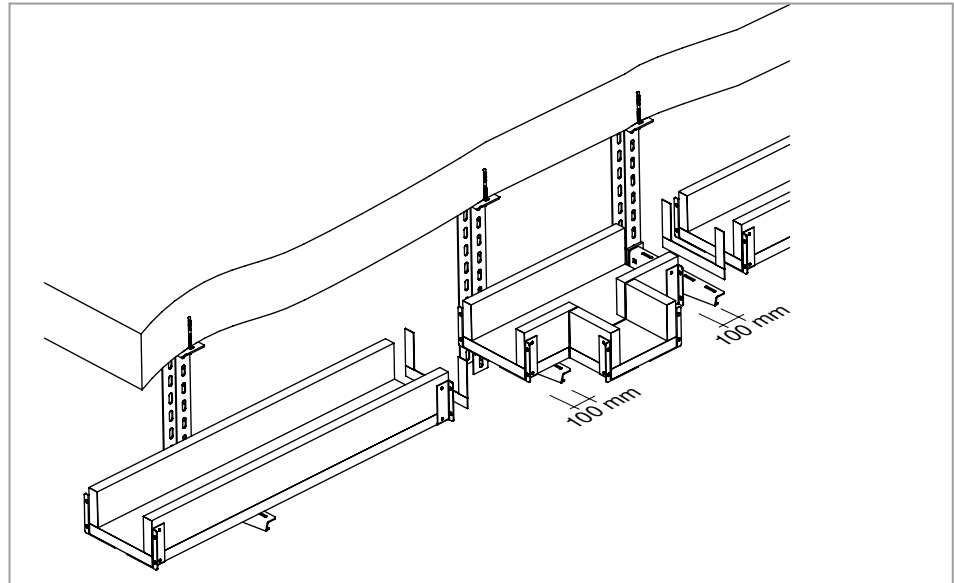


Abb. 34: Support on fittings

1. Draw the drill holes for wall brackets, suspended support or threaded rods, so that the brackets have a maximum spacing of 100 mm to the joints of the fitting.
2. Draw on the drill holes and mount the brackets, suspended support or threaded rods (see chapter „8.1 Mounting the wall bracket” on page 37, “8.2 Mounting the suspended support and bracket” on page 38, “8.3 Mounting the threaded rod and support rail” on page 39).
3. Apply sealing strips to the joints of the fitting if there is no sealing strip on the joining cable troughs yet.

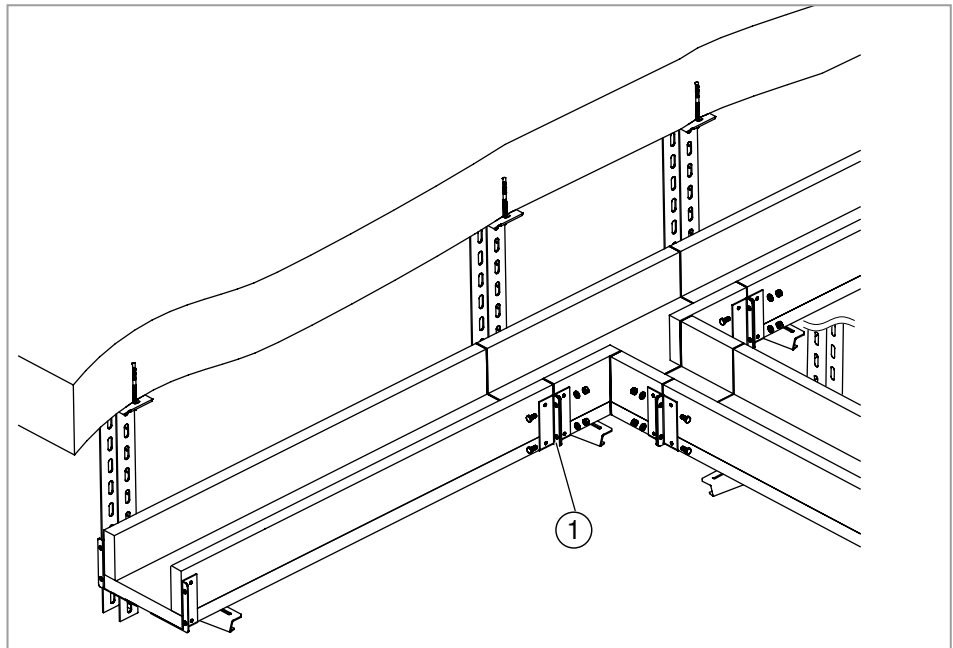


Abb. 35: Connection of fittings

4. Place the fitting on the bracket or support rail.

Note! When using a vertical bend and a vertical rising/falling cable guide, the fire protection duct must be mounted in this area with the GMS connection bracket on the support rail or the bracket. See also „8.6.1 Mounting a vertical bend on a bracket or support rail“ on page 45.

5. Screw the pre-mounted connectors ① to the end of the duct trough and the fitting.

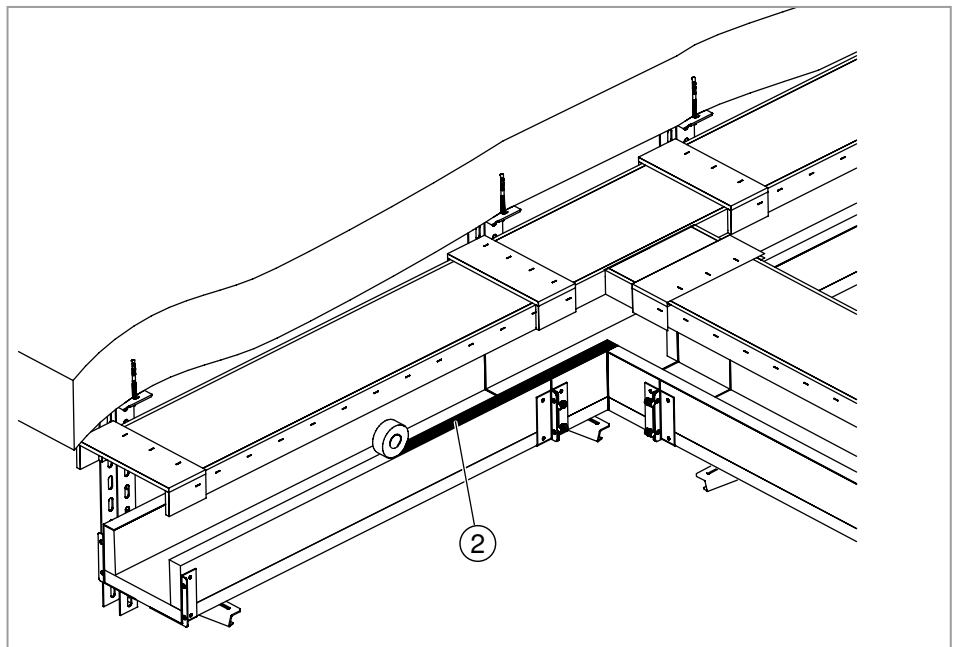


Abb. 36: Fittings, duct cover mounting

6. Stick the sealing strip ② all along the support surface of the duct trough and one front side of the duct cover.

Note! Alternatively, the sealing strip can also be stuck to the support surface of the duct cover.

- Place the duct cover on the duct trough so that the joint overlap is located on the following duct trough.

8.6.1 Mounting a vertical bend on a bracket or support rail

With a vertical duct route, the fire protection duct must additionally be mounted on the brackets or support rails with the GMS connection bracket.

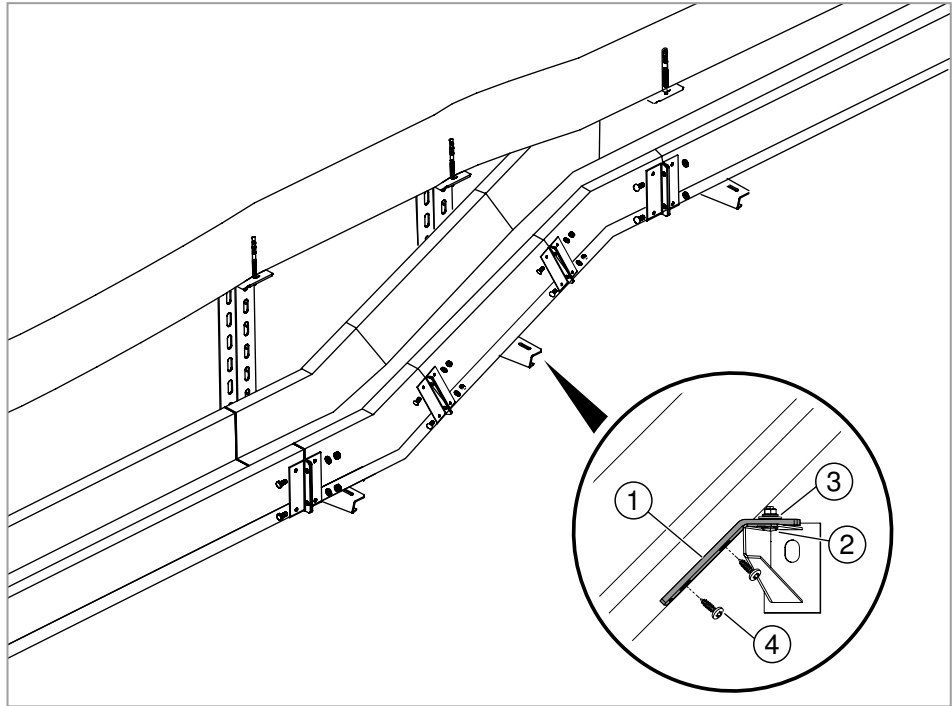


Abb. 37: Mounting on brackets or profile rail with vertical bend

- Mount the GMS connection bracket ① with an M6 truss-head bolt ② and corresponding large washer ③ on the bracket or profile rail.
Note! *In the case of mounting on support rails, the bracket must be fastened with an M10 hexagonal bolt and a corresponding large washer.*
- Lay the fire protection duct on the GMS connection bracket and fix with two screws of type KRS 6x30 ④.

8.7 Mounting separating retainers

If cables with different functions or voltages are routed in the PYROLINE® Con S BSK fire protection duct, they must be separated by separating retainers to avoid malfunctions or interference.

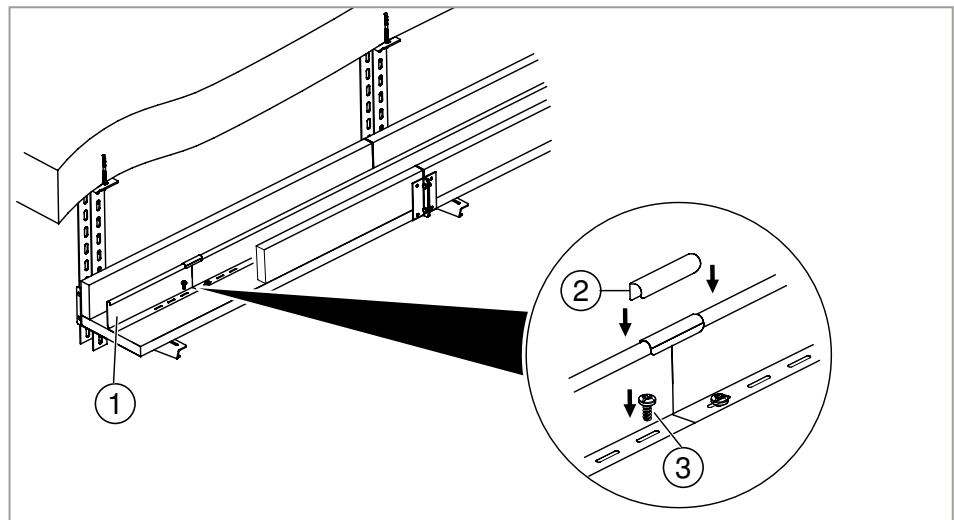


Abb. 38: Separating retainer mounting

1. Mount the separating retainer ① on the duct base with the KRS 6x30 screw ③.
2. Mount additional separating retainers flush with the previous separating retainer.
3. Attach separating retainer connectors ② at the joints of the separating retainers.

8.8 Mounting threaded rods for maintenance of electrical function class E30

To achieve the maintenance of electrical function class E30, wall brackets and brackets on suspended supports must have two suspension points. They are therefore additionally secured on the ceiling with threaded rods.

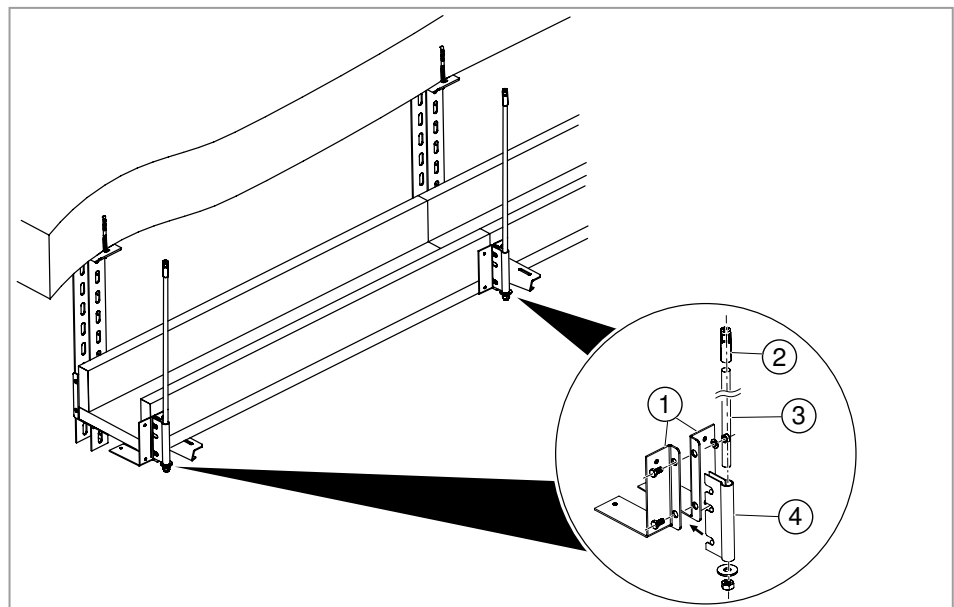


Abb. 39: Threaded rod mounting

1. Mount the threaded rod adapter ④ on connectors ① of the duct trough, although you should not fully tighten the bolts.

2. Push the threaded rod ③ through the threaded rod adapter and draw the drill hole on the ceiling.
3. Drill the drill hole.
4. Screw the bolt tie ② under the ceiling.
5. Screw the threaded rod into the bolt tie.
6. Secure the threaded rod on the threaded rod adapter with hexagonal nuts and a washer.
7. Firmly connect the threaded rod adapter with connectors of the duct trough.

Note!

To insert the cables easily into the ducts later, the nuts on the threaded rod can be slightly loosened, along with those on the threaded rod adapter. Then unscrew the threaded rod from the bolt tie and temporarily secure it against slipping with the loosened nuts on the threaded rod adapter.

8.9 Mounting an end piece

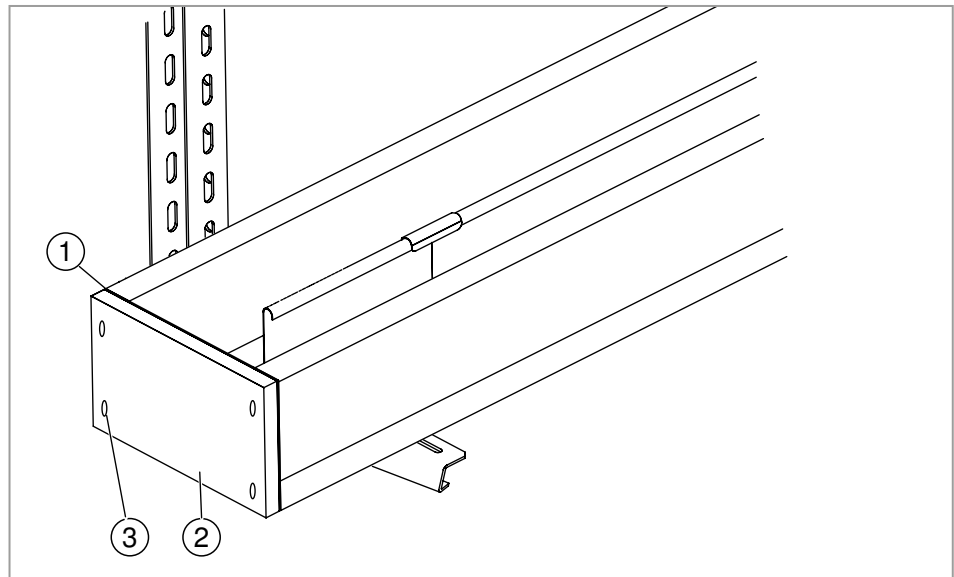


Abb. 40: End piece mounting

The fire protection duct must be tightly closed to prevent smoke gases from escaping during a cable fire. Open cable ends are closed off with an end piece suitable for the fire protection duct.

Note!

Sealing strips are already pre-mounted on the end pieces in the factory.

ATTENTION

Risk of damage!

When the end piece is screwed on, the edges can chip, making the end piece unusable. Pre-drill the end piece before mounting.

Note!

Mount the end piece (with the sealing strip ①) in front of the duct.

1. Mount the end piece ② in front of the front side with at least 4 countersunk head screws ③.

8.10 Running a cable out of the fire protection duct

Individual cables or cable bundles can be run out of the fire protection duct. In the area of the cable exit, doublers are always required, irrespective of the classification of the fire protection duct.

Individual cable

- KAD-8040: Cable diameter ≤ 32 mm, ring gap ≥ 4 mm
- KAD-10040: Cable diameter ≤ 52 mm, ring gap ≥ 4 mm

Cable bundle

- KAD-8040: Cable diameter ≤ 28 mm, ring gap ≥ 6 mm
- KAD-10040: Cable diameter ≤ 48 mm, ring gap ≥ 6 mm

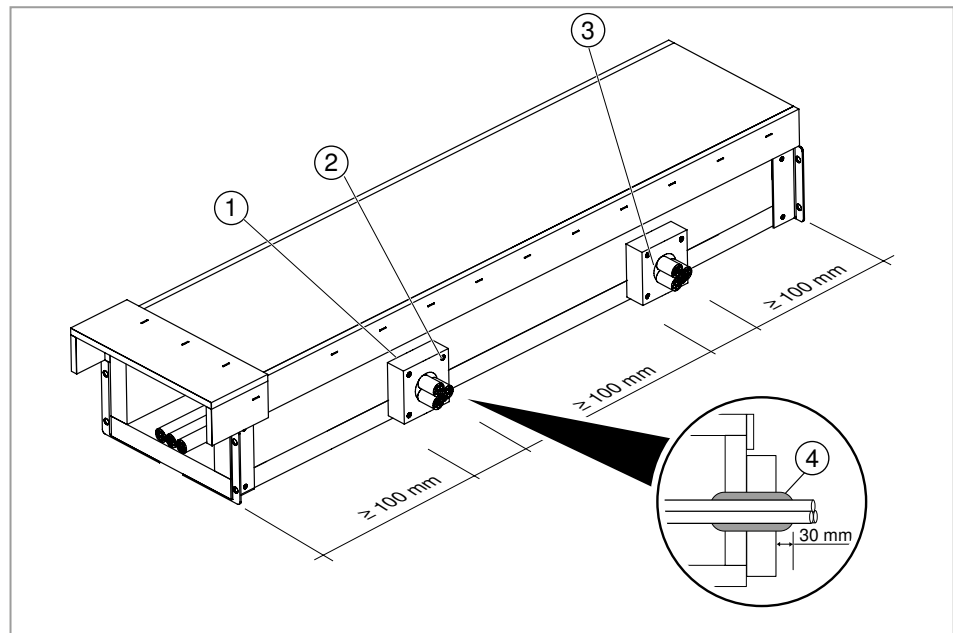


Abb. 41: Cable outlet with doubler

1. Drill a hole for the cable gland in the wall of the fire protection duct.
Note! Diameter of the drill hole according to the cable diameter and data on the ring gap.
2. Place the doubler ① accordingly over the drill hole and screw it on with 4 screws ②.
Note! The doublers are already pre-drilled.
3. Pass the cables through.
4. Seal the ring gap with KTM fire protection duct mortar ③.
5. Coat the exited single cable/cable bundle to a length of 30 mm in front of and behind the penetration with KTM fire protection duct mortar ④.
6. With further doublers, ensure a minimum distance of 100 mm between cable exits and at least 100 mm between the cable exit and the end of the duct (maximum of three cable exits per running metre).

8.11 Creating a wall connection

If the fire protection duct is run through the wall, or meets the wall and only the cables are run through, the wall connection must be designed according to the mounting situation and classification.

Mounting situation		Mounting version (p. 50–54)	
Duct	Classification period of the wall/ ceiling in comparison with the duct	I90	E30
Ends in front of solid wall	Equal or higher	Ⓓ	Ⓓ
	Less	Not permitted	–*
	None	Not permitted	Not permitted
Pass through solid wall	Equal or higher	Ⓔ	Ⓒ
	Less	Ⓒ	–*
	None	Ⓒ	Ⓒ
Ends in front of light-duty partition	Equal, higher, less or none	Not permitted	Not permitted
Pass through light-duty partition wall	Equal or higher	Ⓕ	Ⓖ
	Less	Ⓖ	–*
	None	Ⓖ	Ⓖ

*Combinations not possible as the wall classification cannot be less than 30 minutes.

Tab. 7: Mounting situations, wall connections

Mounting version ③

- Uncut duct penetration

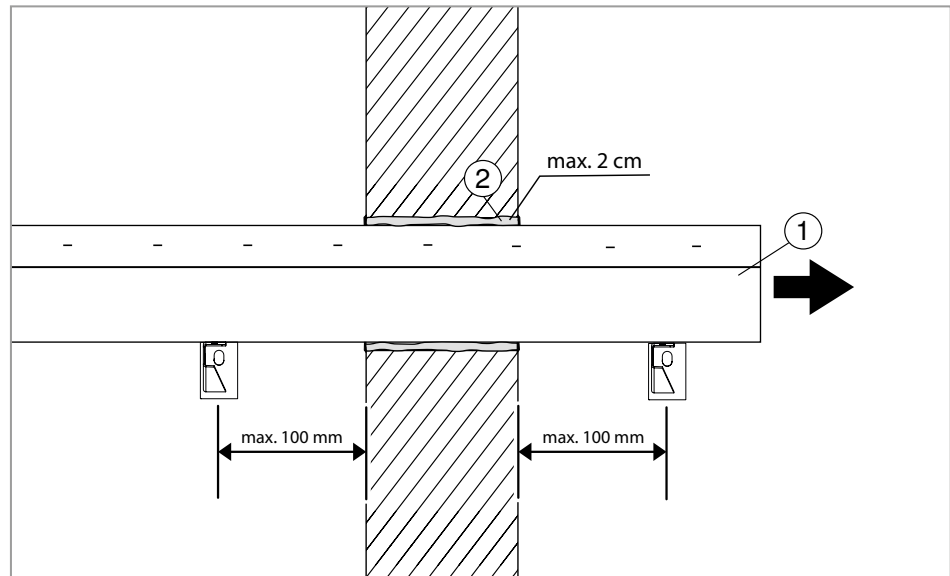


Abb. 42: Wall connection mounting version ③

1. Create a wall opening for the duct penetration.
Note! *Wall opening max. 2 cm > external duct dimensions.*
2. Run the fire protection duct through the wall opening and mount it ①, see also 8.1 on page 37 - 8.4 on page 40.
Note! *The last suspension may be a maximum of 100 mm from the wall.*
3. Close the ring gap around the the duct with MIW-S mineral wool ②.
4. Seal the mineral wool with non-combustible material, e.g. plaster.

Mounting version ④

- Cable gland with frame, cable ends before the wall

Note! *If the fire protection duct is mounted with wall brackets, then the rear plate of the frame, which is pointed at the wall, must be mounted before the duct is run through as otherwise mounting is no longer possible. For this reason, an appropriate distance between the duct and the wall is required.*

Note! *Non-combustible plates of fibreglass lightweight concrete for the frame must be obtained separately from a builders merchant.*

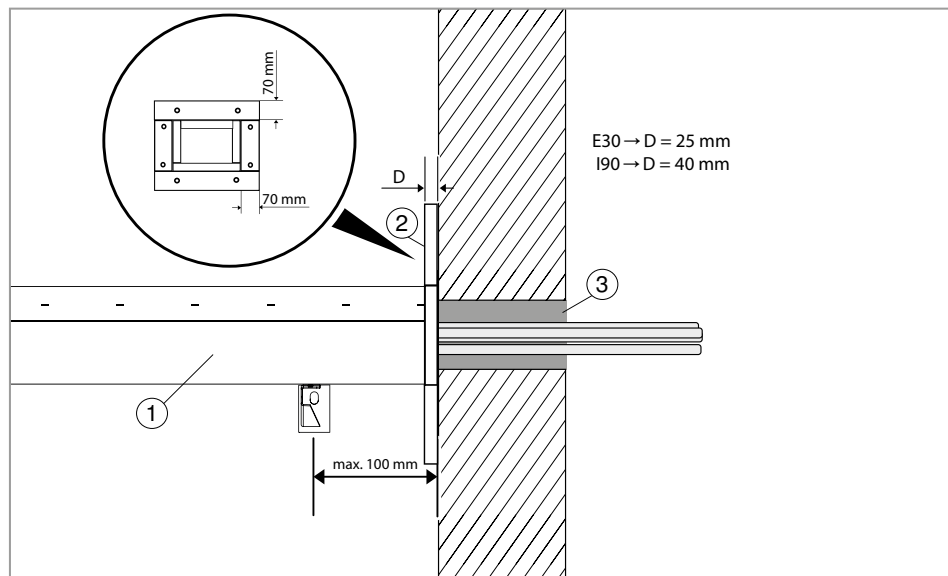


Abb. 43: Wall connection mounting version ④

1. Create a wall opening for the cable gland.
Note! *Wall opening \leq internal duct dimensions.*
2. Mount the fire protection duct bluntly in front of the wall, see also 8.1 on page 37 - 8.4 on page 40 .
Note! *The last suspension may be a maximum of 100 mm from the wall.*
3. Mount the plates of the frame flat on the wall around the outside, in order to achieve mechanical support in the area of the wall connection. Notch out the duct cover in the area of the side frame plate.
4. Close the wall opening with a classified insulation (recommended system PYROSIT® NG fire protection foam) ④.

Mounting version ①

- Cut duct penetration

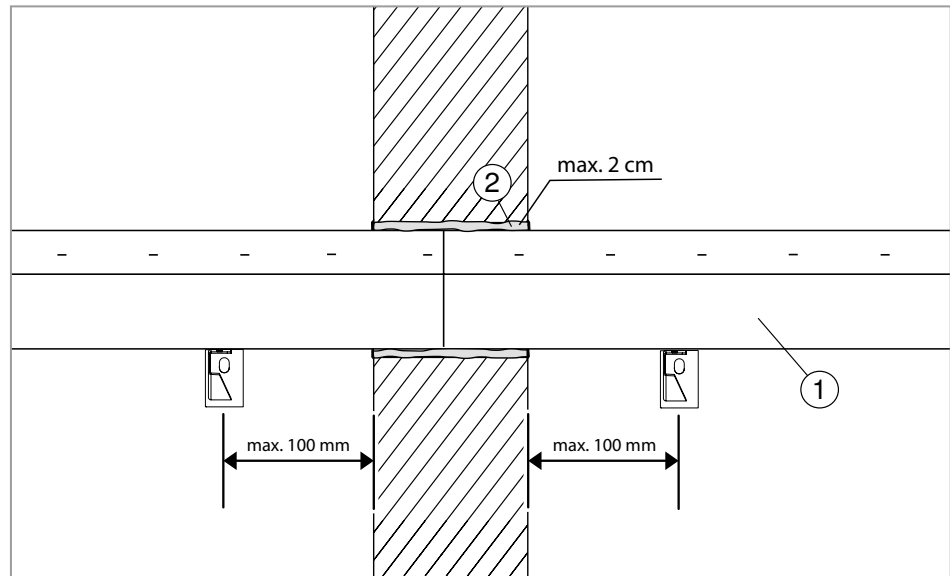


Abb. 44: Wall connection mounting version ①

1. Create a wall opening for the duct penetration.
Note! Wall opening max. 2 cm > external duct dimensions.
2. Let the fire protection ducts abut in the wall opening and mount them ①, see also 8.1 on page 37 - 8.4 on page 40. Joint, maximum 3 mm.
Note! The last suspension may be a maximum of 100 mm from the wall.
3. Close the ring gap around the the duct with MIW-S mineral wool ②.
4. Seal the mineral wool with non-combustible material, e.g. plaster.

Mounting version ⑥

- Cut duct penetration through a dry construction wall with frame on both sides

Note! *If the fire protection duct is mounted with wall brackets, then the rear plate of the wall connection frame, which is pointed at the wall, must be mounted before the duct is run through as otherwise mounting is no longer possible.*

Note! *Non-combustible plates of fibreglass lightweight concrete for the frame must be obtained separately from a builders merchant.*

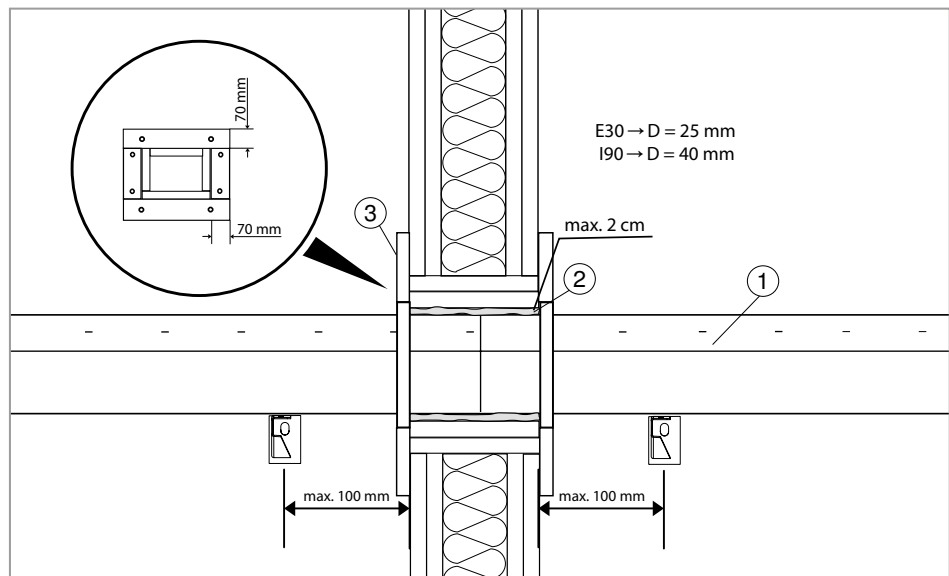


Abb. 45: Wall connection mounting version ⑥

1. Create a wall opening for the duct penetration.
Note! *Wall opening max. 2 cm > external duct dimensions.*
2. Let the fire protection ducts abut in the wall opening and mount them ①, see also 8.1 on page 37 - 8.4 on page 40. Joint, maximum 3 mm.
Note! *The last suspension may be a maximum of 100 mm from the wall.*
3. Close the ring gap around the the duct with MIW-S mineral wool ②.
4. Seal the mineral wool with non-combustible material, e.g. plaster.
5. Mount the plates of the frames flat on the wall around the outside, in order to achieve mechanical support in the area of the wall connection. Notch out the duct cover in the area of the side frame plate.

Mounting version ①

- Duct penetration through a dry construction wall

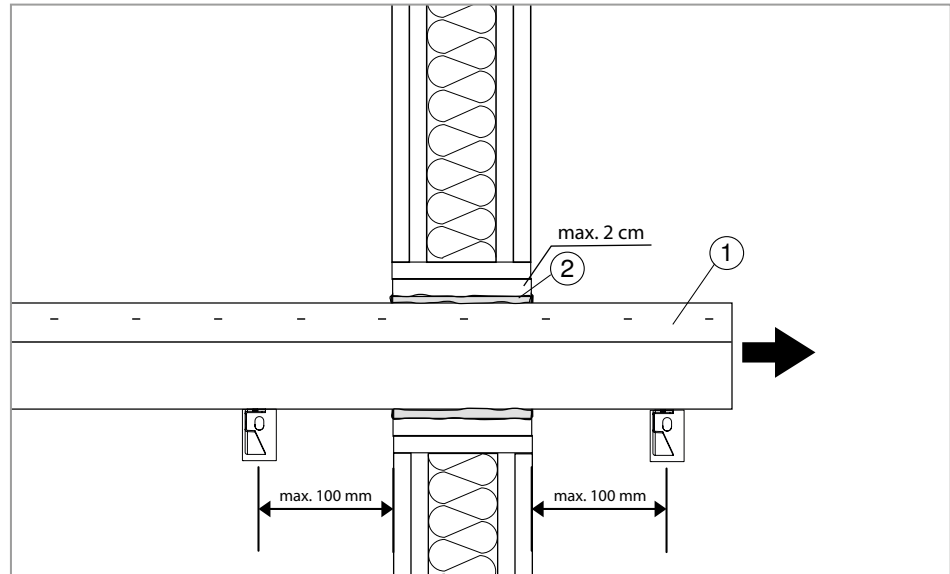


Abb. 46: Wall connection mounting version ①

1. Create a wall opening for the cable gland.
Note! Wall opening max. 2 cm > external duct dimensions.
2. Run the fire protection duct through the wall opening and mount it on the wall ①, see also 8.1 on page 37 - 8.4 on page 40 .
Note! The last suspension may be a maximum of 100 mm from the wall.
3. Close the ring gap around the the duct with MIW-S mineral wool ②.
4. Seal the mineral wool with non-combustible material, e.g. plaster.

8.12 Combining PYROLINE® Con S BSK with PYROLINE® Con D BSK

The PYROLINE® Con S BSK fire protection duct on a support system can be combined with the PYROLINE® Con D BSK fire protection duct mounted on the wall. The fire protection duct on the support system runs bluntly up to the wall and is fastened with brackets.

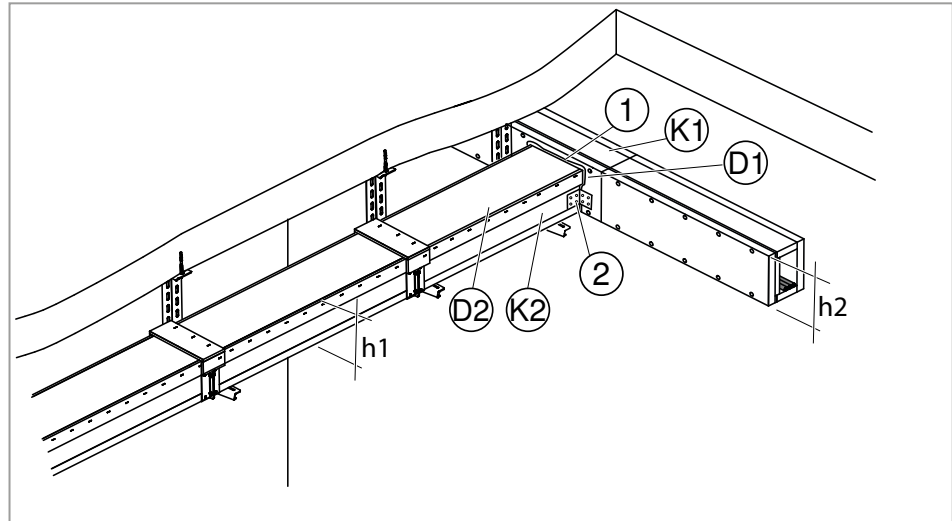


Abb. 47: Combination of suspended fire protection duct and wall duct

Note! *The fire protection duct on the support system may at most be as high as the wall duct ($h1 \leq h2$).*

1. Create an opening in the duct cover $\textcircled{D1}$ of the wall duct.
2. Shorten the duct trough $\textcircled{D2}$ and duct cover $\textcircled{D2}$ appropriately.
3. Stick sealing strips to the joints to the wall duct $\textcircled{K1}$.
4. Place the duct trough on the support bracket and, on both sides, mount it on the wall duct $\textcircled{2}$ using standard steel or metal brackets $\textcircled{K1}$.
5. After cable filling, stick sealing strips to the duct cover and place it on the duct trough.
6. Seal the joints to the wall duct with KTM mortar $\textcircled{1}$.

9 Labelling

If the PYROLINE® Con fire protection duct is used for maintenance of electrical function, KS-E DE identification plates (item no. 7205423) must be attached.

If, in the PYROLINE® Con fire protection duct, DC cables are routed with the transformer to connect photovoltaic systems, then the identification plates KS-BSKP DE (item no. 7214725) must be attached so that the emergency services can identify the fire protection duct as a photovoltaic duct.

The identification plates must be

- clearly visible,
- attached beneath the fire protection duct,
- at least in every storey,
- ideally in each construction segment

or room.

10 Retrofitting

If cables are inserted later in the PYROLINE® Con BSK fire protection duct,

- then the proper construction, as described in these instructions, must be maintained,
- and the approved cable load may not be exceeded (see table).

Classification	Wall/ceiling mounting		Mounting with support system	Cable load
	Cable directly on top	Cable mounting with separating bracket/separating clamp		
Maintenance of electrical function E	–	X	–	≤ 18.0 kg/m
Maintenance of electrical function E	X	–	–	≤ 11.0 kg/m
Maintenance of electrical function E	–	–	X	≤ 35.0 kg/m
Fire resistance class I	–	X	–	≤ 35.0 kg/m
Fire resistance class I	X	–	–	≤ 11.0 kg/m
Fire resistance class I	–	–	X	≤ 35.0 kg/m

Tab. 8: Maximum approved cable load

11 Maintenance

The PYROLINE® Con BSK fire protection duct does not require maintenance. However, it should be inspected regularly for possible damage, which must be repaired with KTM mortar.

12 Dismantling PYROLINE® Con BSK



Danger of heavy components!

Fire protection ducts are very heavy and can cause serious injuries if they fall on your head or other parts of the body.

Do not work alone or only work with mounting aids, such as scaffolding or a mounting lift. Wear protective work clothing, such as safety shoes and helmets.

12.1 Dismantling PYROLINE® Con D BSK

1. Dismantle the wall connection frame.
2. Slacken the duct cover unions and remove the duct cover.
3. Remove the cables.
4. Slacken the union of a duct trough and remove the duct trough.
5. Repeat steps 2–3 until the duct troughs and fittings have been dismantled.

12.2 Dismantling PYROLINE® Con S BSK

1. Dismantle the wall connection frame.
2. Remove the duct cover.
3. Remove the cables.
4. Dismantle the separating retainers.
5. Slacken the union of the connectors.
6. Slacken the securing screws.
7. Remove the duct troughs from the support system.
8. Dismantle the suspended supports and brackets or threaded rods and support rails or wall brackets.

13 Disposal

National laws and regulations must be observed for disposal.

Disposal during mounting

- The residual material of the fire protection duct and the mortar can be disposed of as mixed construction site waste.
- Dispose of the residual material of the support system, as well as separating retainers, separating clamps and brackets, in the same way as scrap metal.

Disposal during building demolition

- The fire protection ducts must be disposed of as mixed construction waste.
- The support systems, as well as separating retainers, separating clamps and brackets, must be disposed of in the same way as scrap metal.

Disposal after a fire



Danger of falling components!

If there is a fire, support systems and fastenings of the fire protection duct can be massively impaired in their function and can fall. Falling components can cause serious injuries. During disposal, proceed with extreme caution and before dismantling, check components for instability. Wear safety shoes and a helmet.



Irritant effect!

If there is a fire, burning cable insulation can create corrosive gases, which have an irritant and corrosive effect. When disposing of fire protection ducts which have been subjected to a fire, wear breathing protection and protective clothing.

If the PYROLINE® Con BSK fire protection duct was subjected to fire damage, then the complete fire protection duct must be replaced. If the fire damage occurred in a duct, then check whether a replacement of the support system is necessary. In all other cases, the support system must be replaced.

We recommend obtaining the advice of a local fire damage restorer during disposal.

14 Technical data

Type	Item no.	Designation	Suitable for
PYROLINE® Con D BSK			
BSKD09-K0506	7215136	Fire protection duct I90/E30	–
BSKD09-K0511	7215139	Fire protection duct I90/E30	–
BSKD09-K0521	7215141	Fire protection duct I90/E30	–
BSKD09-K1021	7215144	Fire protection duct I90/E30	–
BSKD12-K0506	7215210	Fire protection duct I120/E90	–
BSKD12-K0511	7215216	Fire protection duct I120/E90	–
BSKD12-K0521	7215222	Fire protection duct I120/E90	–
BSKD12-K1021	7215231	Fire protection duct I120/E90	–
BSKD09-E0506	7215261	End piece I90/E30	BSKD09-K0506
BSKD09-E0511	7215263	End piece I90/E30	BSKD09-K0511
BSKD09-E0521	7215265	End piece I90/E30	BSKD09-K0521
BSKD09-E1021	7215267	End piece I90/E30	BSKD09-K1021
BSKD12-E0506	7215270	End piece I120/E90	BSKD12-K0506
BSKD12-E0511	7215272	End piece I120/E90	BSKD12-K0511
BSKD12-E0521	7215274	End piece I120/E90	BSKD12-K0521
BSKD12-E1021	7215277	End piece I120/E90	BSKD12-K1021
BSKD-W0511	7215312	Separating bracket	BSKD09-K0511, BSKD12-K0511
BSKD-W0521	7215318	Separating bracket	BSKD09-K0521, BSKD12-K0521
BSKD-W1021	7215327	Separating bracket	BSKD09-K1021, BSKD12-K1021
BSKD-B0511	7215356	Separating clamp	BSKD09-K0511, BSKD12-K0511
BSKD-B0521	7215362	Separating clamp	BSKD09-K0521, BSKD12-K0521
BSKD-B1021	7215371	Separating clamp	BSKD09-K1021, BSKD12-K1021
PYROLINE® Con S BSK			
BSKH09-K0506	7215175	Fire protection duct I90/E30	–
BSKH09-K0511	7215179	Fire protection duct I90/E30	–
BSKH09-K0521	7215183	Fire protection duct I90/E30	–
BSKH09-K1021	7215187	Fire protection duct I90/E30	–
BSKH09-B0506	7215604	90° bend I90/E30	BSKH09-K0506
BSKH09-B0511	7215608	90° bend I90/E30	BSKH09-K0511
BSKH09-B0521	7215612	90° bend I90/E30	BSKH09-K0521
BSKH09-B1021	7215616	90° bend I90/E30	BSKH09-K1021
BSKH09-T0506	7215650	Tee I90/E30	BSKH09-K0506
BSKH09-T0511	7215652	T piece I90/E30	BSKH09-K0511

Technical data

BSKH09-T0521	7215654	T piece I90/E30	BSKH09-K0521
BSKH09-T1021	7215656	T piece I90/E30	BSKH09-K1021
BSKH09-VS0506	7215650	Vertical bend, rising I90/E30	BSKH09-K0506
BSKH09-VS0511	7215652	Vertical bend, rising I90/E30	BSKH09-K0511
BSKH09-VS0521	7215654	Vertical bend, rising I90/E30	BSKH09-K0521
BSKH09-VS1021	7215656	Vertical bend, rising I90/E30	BSKH09-K1021
BSKH09-VF0506	7215660	Vertical bend, falling I90/E30	BSKH09-K0506
BSKH09-VF0511	7215662	Vertical bend, falling I90/E30	BSKH09-K0511
BSKH09-VF0521	7215664	Vertical bend, falling I90/E30	BSKH09-K0521
BSKH09-VF1021	7215666	Vertical bend, falling I90/E30	BSKH09-K1021
BSKH09-E0506	7215591	End piece I90/E30	BSKH09-K0506
BSKH09-E0511	7215593	End piece I90/E30	BSKH09-K0511
BSKH09-E0521	7215595	End piece I90/E30	BSKH09-K0521
BSKH09-E1021	7215597	End piece I90/E30	BSKH09-K1021
KVS-1	7215381	Connection set	BSKH09-K0506, BSKH09-K0511
KVS-3	7215385	Connection set	BSKH09-K0521
KVS-4	7215389	Connection set	BSKH09-K1021
KGA	7215395	Threaded rod adapter	---
Accessories			
LHS 20	7215288	Cable bracket, vertical	---
LHS 40	7215290	Cable bracket, vertical	---
LHS 60	7215292	Cable bracket, vertical	---
KDS-40	7215436	Sealing strip	BSKD09-..., BSKH09-...
KDS-60	7215438	Sealing strip	BSKD12-...
KAD-10040	7215462	Doubler	---
KAD-8040	7215464	Doubler	---
MIW-S	7215306	Mineral wool	---
KTM	7215500	Fire protection duct mortar	---
KS-E DE	7215423	Identification plate	---
KS-K DE	7215734	Identification plate	---
KRS 6x30	3498100	Screw	---
KSS 4.0x55	7215400	Screw	---
KSS 4.5x80	7215412	Screw	---

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Building Connections

