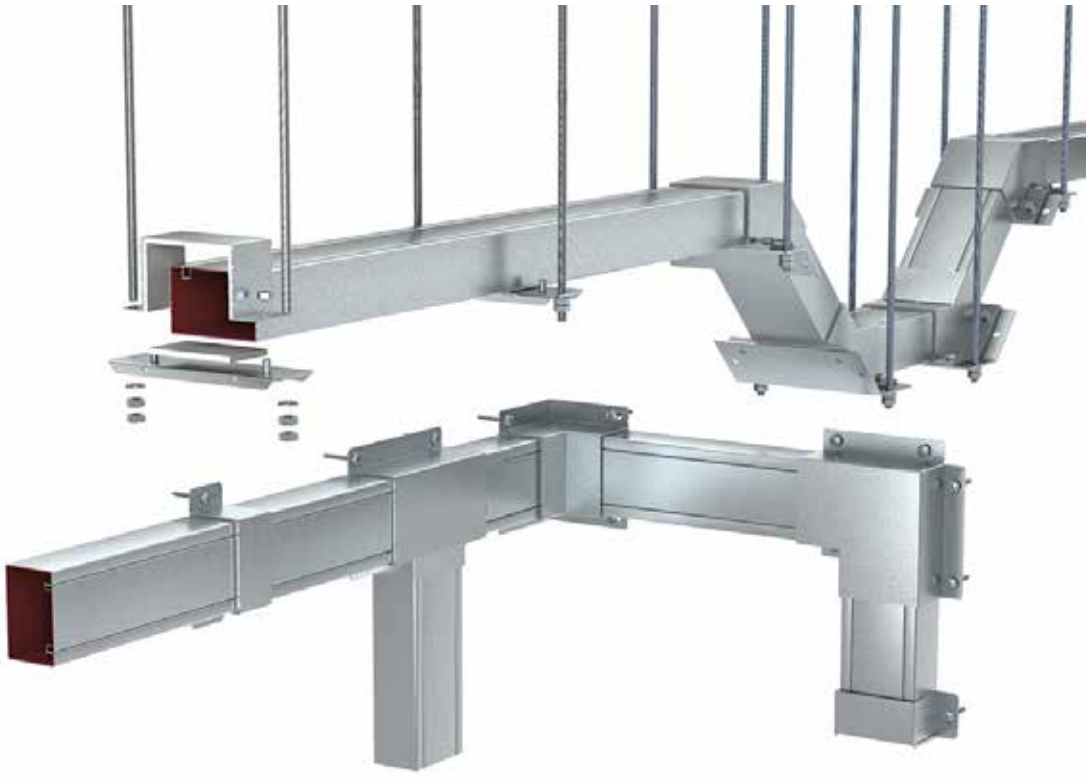
PYROLINE® Rapid fire protection duct

Mounting instructions



Building Connections

11/2020 EN

PYROLINE® Rapid fire protection duct

Mounting instructions

Table of contents

1 About these instructions

1.1 Target group

These instructions are aimed at trained installation engineers as well as those people trained in fire protection.

1.2 Using these instructions

- Before commencing work, read these instructions through once completely. In particular, please observe the safety instructions.
- The manufacturer will not accept liability for damage caused through non-observance of these mounting instructions.
- Any images are merely intended as examples. Mounting results may look different.
- In these instructions, cables and lines are referred to simply as cables.

1.3 Types of safety information

Type of risk!
Shows a possibly risky situation. If the situation is not avoided, then death or serious injury may result.

Type of risk!
Shows a possibly risky situation. If the situation is not avoided, then light or minor injury or damage to property may result.

Type of risk!
Shows a possibly damaging situation. If the situation is not avoided, then damage to the product or the surroundings may occur.

Note! *Indicates important information or assistance!*

1.4 Correct use

The OBO fire protection duct system PYROLINE® Rapid is an installation system for electrical cables, which is used in the interiors of buildings to protect the environment (e.g. corridors, stairwells, ceiling cavities and raised floors) against the effects of a cable fire.

The system is not intended for any other purpose than that of an installation duct.

1.5 Applicable documents

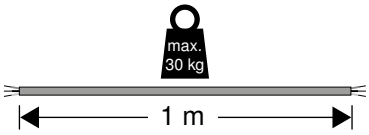
– General type approval of Deutsches Institut für Bautechnik (DIBt) in Berlin, Germany, Approval number Z-19.30-2229
– DIN VDE 0298 Part 4 (June 2013): "Application of cables and cords in power installations"
– Safety data sheet "Ablation coating ASX"

1.6 Recommended documents

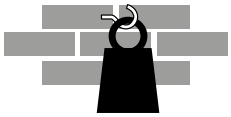
– Fire protection guide for electrical installations (published by: OBO Bettermann).
– LFS system instructions (published by: OBO Bettermann).

2 General safety information

When handling the product, please observe the following safety information, in order to avoid damage to people and property:

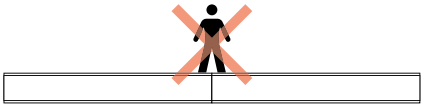


The maximum approved total load is 30 kg per running duct metre. It may not be exceeded, as otherwise the support and function capability is no longer guaranteed.



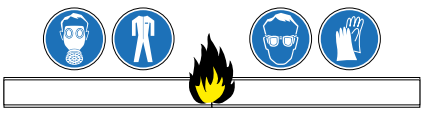
The fastening substrate must have a sufficient carrying capacity and be suitable for the appropriate, fire protection-tested fastening material. For this reason, dry/lightweight construction walls are only partially suitable, and suspended ceilings unsuitable.

The fire protection duct is not designed to support walls in wall penetrations. Ensure that the wall penetrations can support themselves.



Cable routing systems can fail when they are used as support areas. Injury will result from such a fall. Do not subject cable routing systems to your body weight.

If components of the fire protection duct system are touched with bare hands, then serious cuts could result due to sharp edges. Always wear suitable protective gloves when handling the system.



If there is a fire in the interior of the duct, the burned cable insulation will create corrosive gases, which have an irritant and corrosive effect. Before opening and disposing of duct sections which have been subjected to a fire, wear breathing protection and protective clothing.

3 Product description

3.1 Properties/functional method

The OBO fire protection duct system PYROLINE® Rapid is a closed installation duct system, which, if there is a fire, contributes to the protection of the environment through the intumescence of the internal fire protection coating. When a cable fire develops in the interior of the duct, the internal coating foams up, encapsulating the fire. This prevents the cable fire spreading from inside to outside the duct for a period of up to 120 minutes.

PYROLINE® Rapid is intended for use in dry, internal areas, e.g. in emergency and escape routes, corridors, stairwells, ceiling cavities or raised floors.

The system is made of cuttable duct sections of two metres in length and is available in three different dimensions: BSKM 1025 in 100 mm height/250 mm width, BSKM 0711 in 70 mm height/110 mm width, and BSKM 0407 in 40 mm height/70 mm width. In addition, the system contains fittings (corners, sloping sections, etc.), which allow deviations from straight routing in order to adapt to the circumstances in the building. The fire protection duct and corresponding fittings and connection parts are available as standard with strip galvanisation or a pure white surface.

3.2 Testing and classification

The fire protection duct system PYROLINE® Rapid was tested and classified according to DIN 4102 Part 11. It fulfils the fire resistance classes I30, I60, I90 and I120, depending on the substrate.

This is documented in the general type approval of Deutsches Institut für Bautechnik, Berlin (see “1.5 Applicable documents” on page 6).

According to the standard DIN VDE 0298-4 (06-2013) "Application of cables and cords in power installations", the fire protection duct system PYROLINE® Rapid is categorised in the reference routing type B2.

3.3 Overview of mounting types

A distinction is made between direct mounting on the ceiling, wall or floor and mounting on a support system.

With direct mounting, ducts and fittings are screwed directly to the fastening substrate. See also “5 Direct mounting on the ceiling, wall or floor” on page 22.

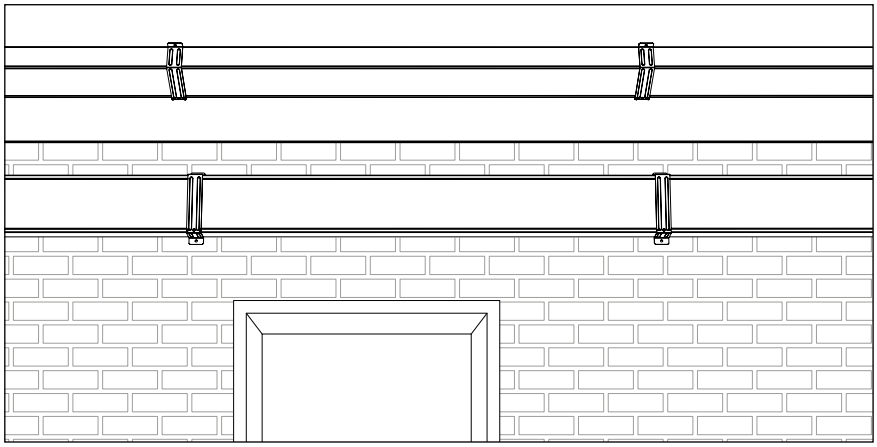


Fig. 1: Direct mounting on the wall and ceiling

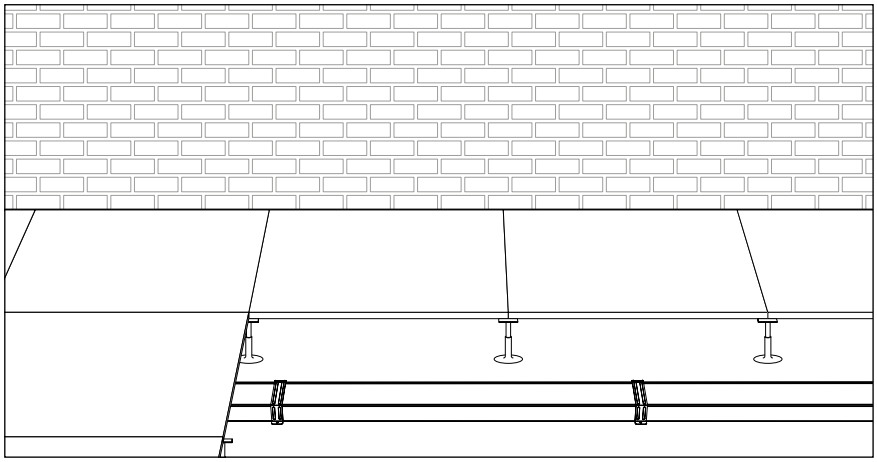


Fig. 2: Direct mounting in the system base

When mounted on a support system, ducts are screwed to support profiles and fittings using the appropriate lock plates. In turn, these are fastened to the ceiling using threaded rods. See also “6 Mounting on a support system” on page 38.

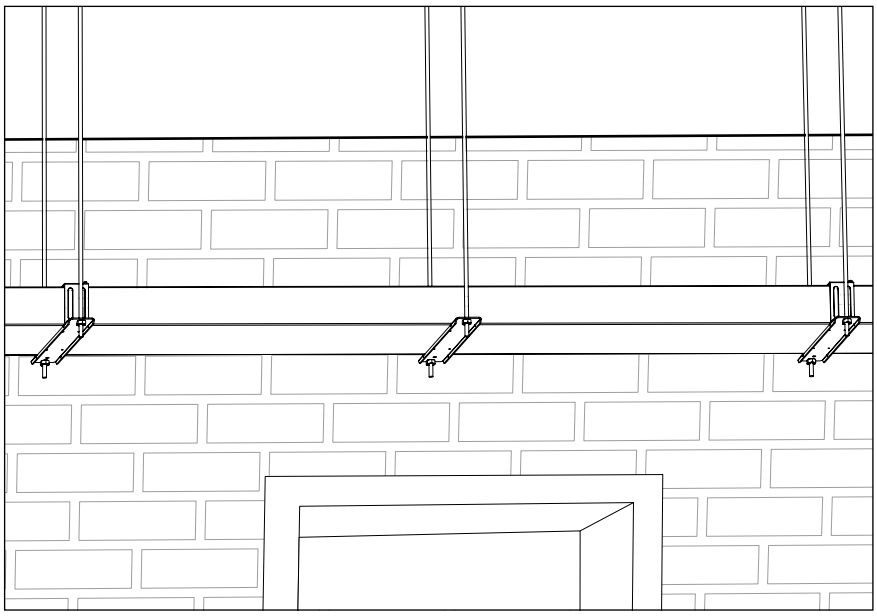


Fig. 3: Suspended mounting on a support system

3.4 Fastening base

The fastening substrate of PYROLINE® Rapid must possess a sufficient load capacity and fulfil the fire resistance class required by the construction. The fastening material used must have been tested for fire protection and be suitable for the substrate (see “4.1 Fastening material” on page 17).

For this reason, dry/lightweight construction walls are only partially suitable for fastening the fire protection duct system. If they fulfil the required fire resistance class, threaded rods can be used for fastening, e.g. with push-through mounting. However, they can always be crossed using the wall connection fitting (see “6.3.8 Mounting a wall/ceiling penetration” on page 62).

Ceiling mounting may only take place on solid ceilings, or on such ceilings (e.g. wooden beams or false ceilings) which have been classified by a surveyor into a fire resistance class and for which a sufficient carrying capacity has been guaranteed, e.g. through anchor extraction experiments. Suspended ceilings are unsuitable for fastening.

3.5 Cable assignment/maximum load

The maximum approved total load is 30 kg per running duct metre. It may not be exceeded, as otherwise the support and function capability is no longer guaranteed.

3.6 System overview

3.6.1 Duct width 250 mm, direct mounting

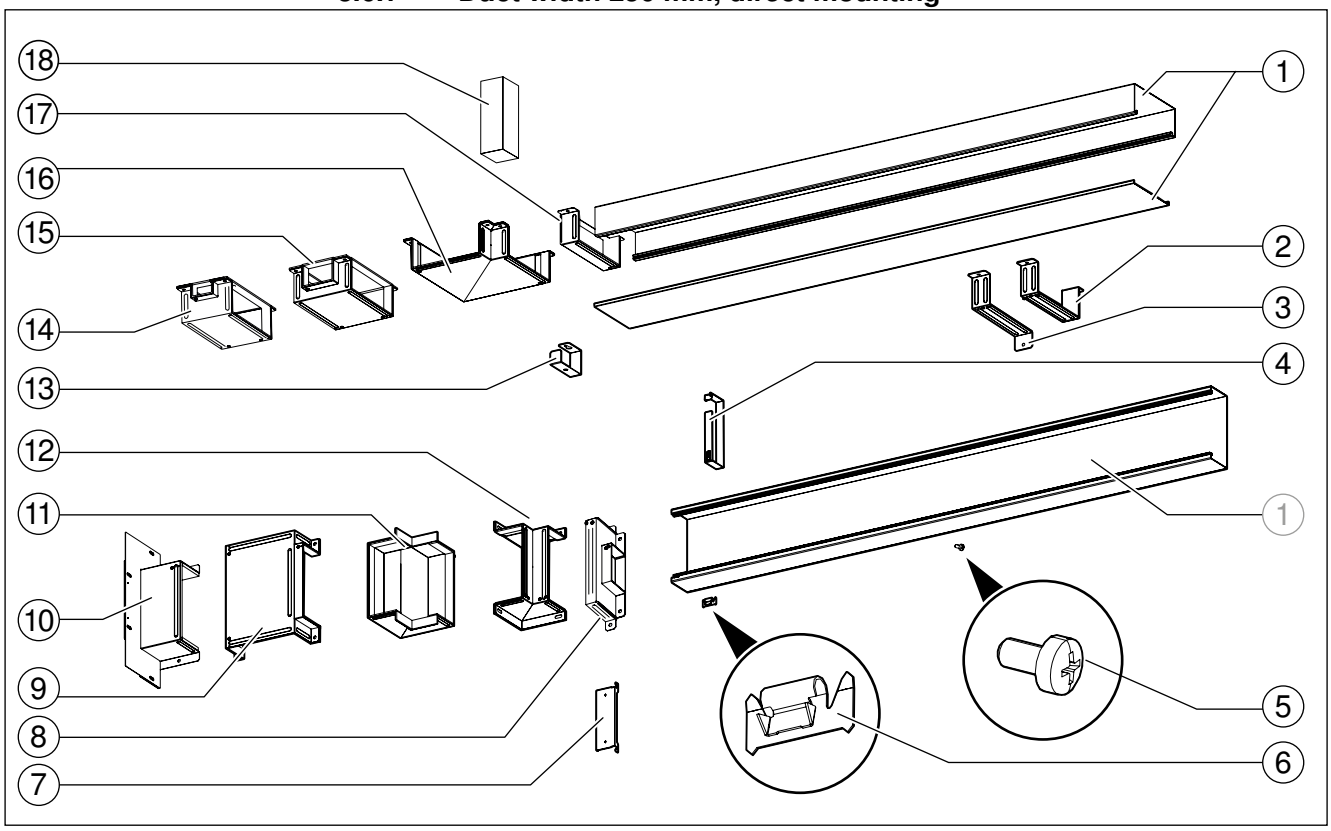


Fig. 4: System overview, 250 mm duct width, direct mounting

1. Fire protection duct BSKM 1025 (*7216400/7216630*), with lid
2. Duct connector BSKM-VD 1025 (*7216410/7216633*)
3. Duct connector for corner mounting BSKM-VE 1025 (*7216412/7216634*)
4. Cable clamp for wall mounting BSKM-BW 1025 (*7216470*)
5. Self-tapping screw BSKM-S 4008 (*3498092*)
6. Locking bracket RKV3V (*6288700*)
7. Lid support BSKM-DS 1025 (*7216474*)
8. Reducer BSKM-RE 1025 (*7216404/7216631*)
9. T branch piece BSKM-TA 1025 (*7216462/7216645*)
10. Wall connection BSKM-WA 1025 (*7216480/7216654*)
11. 90° external corner BSKM-AE 1025 (*7216420/7216636*)
12. 90° internal corner BSKM-IE 1025 (*7216440/7216640*)
13. Cable clamp for ceiling mounting BSKM-BD 1025 (*7216472*)
14. T reducing branch piece BSKM-TRK 1025 (*7216467/7216648*)
15. T reducing branch piece BSKM-TR 1025 (*7216466/7216647*)
16. 90° flat angle BSKM-FW 1025 (*7216430/7216638*)
17. End piece BSKM-VK 1025 (*7216460/7216644*)
18. Foam seal (cable exit) BSKM-KA 1025 (*7216490*)

3.6.2 Duct width 110 mm, direct mounting

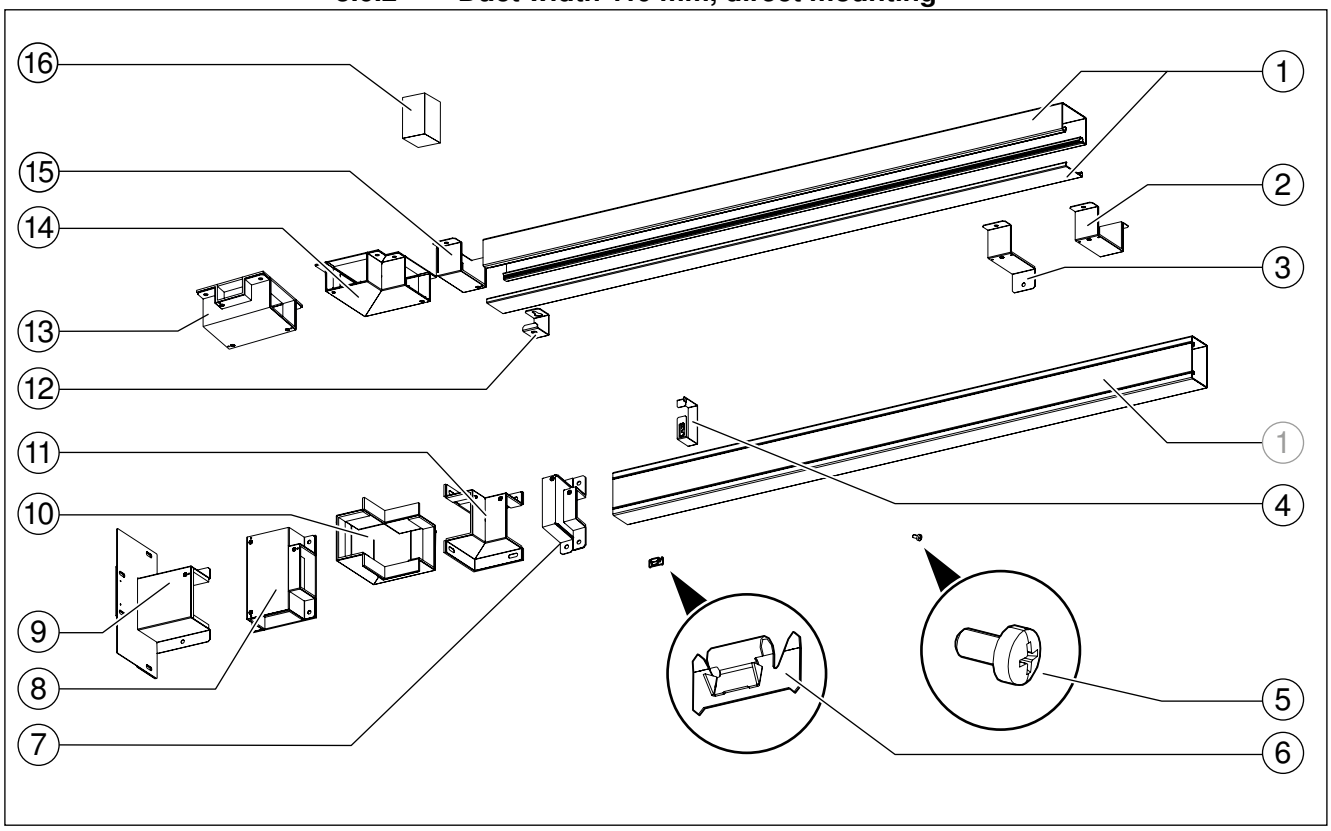


Fig. 5: System overview, 110 mm duct width, direct mounting

① Fire protection duct BSKM 0711 (*7216300/7216600*), with lid
② Duct connector BSKM-VD 0711 (*7216310/7216601*)
③ Duct connector for corner mounting BSKM-VE 0711 (*7216312/7216312*)
④ Cable clamp for wall mounting BSKM-BW 0711 (*7216370*)
⑤ Self-tapping screw BSKM-S 4008 (*3498092*)
⑥ Locking bracket RKV3V (*6288700*)
⑦ Reducer BSKM-RE 0711 (*7216393/7216624*)
⑧ T branch piece BSKM-TA 0711 (*7216362/7216613*)
⑨ Wall connection BSKM-WA 0711 (*7216380/7216620*)
⑩ 90° external corner BSKM-AE 0711 (*7216320/7216604*)
⑪ 90° internal corner BSKM-IE 0711 (*7216340/7216608*)
⑫ Cable clamp for ceiling mounting BSKM-BD 0711 (*7216372*)
⑬ T branch piece BSKM-TR 0711 (*7216366/7216616*)
⑭ 90° flat angle BSKM-FW 0711 (*7216330/7216606*)
⑮ End piece BSKM-VK 0711 (*7216360/7216612*)
⑯ Foam seal (cable exit) BSKM-KA 0711 (*7216390*)

3.6.3 Duct width 70 mm, direct mounting

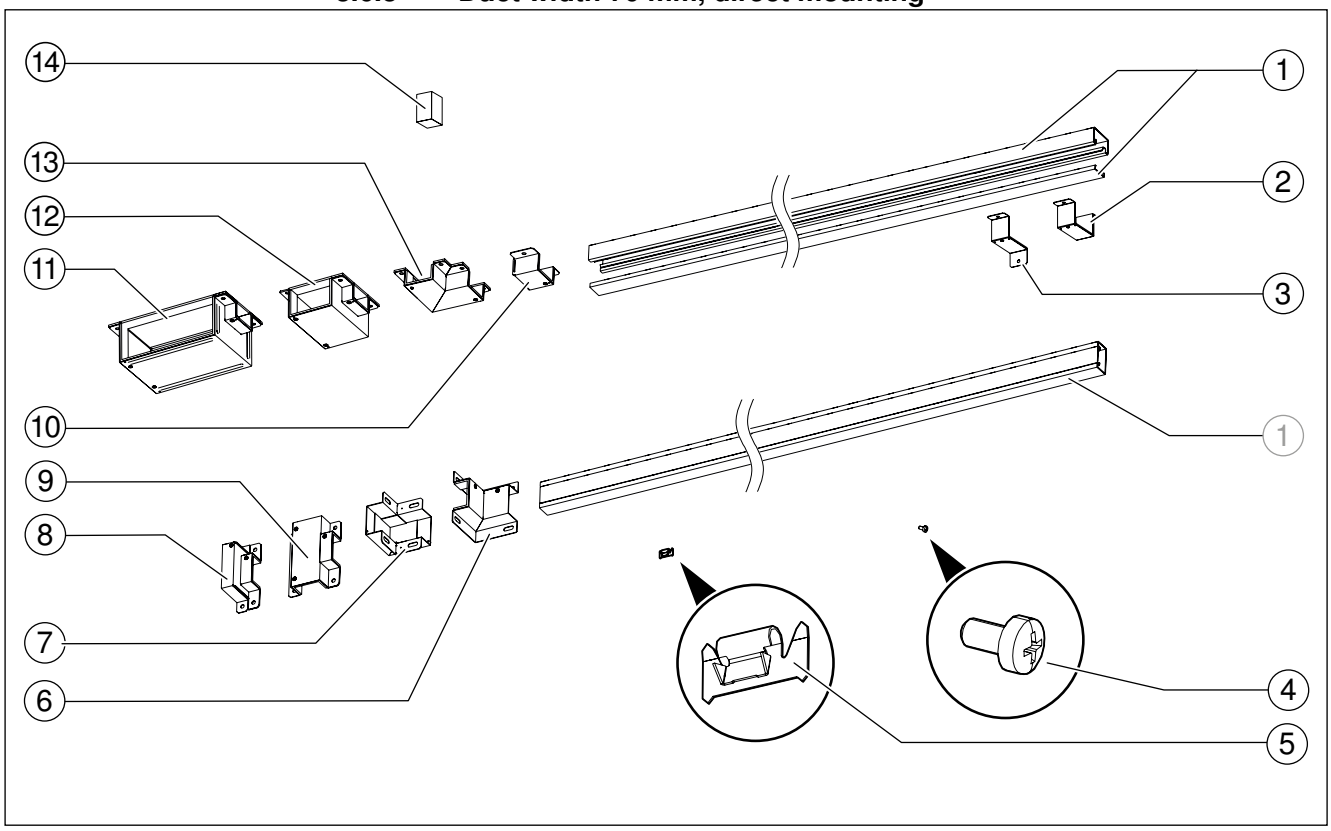


Fig. 6: System overview, 70 mm duct width, direct mounting

① Fire protection duct BSKM 0407 (*7216500/7216501*), with lid
② Duct connector BSKM-VD 0407 (*7216510/7216511*)
③ Duct connector for corner mounting BSKM-VE 0407 (*7216512/7216513*)
④ Self-tapping screw BSKM-S 4008 (*3498092*)
⑤ Locking bracket RKV3V (*6288700*)
⑥ 90° internal corner BSKM-IE 0407 (*7216528/7216508*)
⑦ 90° external corner BSKM-AE 0407 (*7216520/7216504*)
⑧ Reducer BSKM-RE 0711 (*7216393/7216624*)
⑨ T branch piece BSKM-TA 0407 (*7216532/7216563*)
⑩ End piece BSKM-VK 0407 (*7216560/7216561*)
⑪ T reducing branch piece BSKM-TRK 1025 (*7216467/7216648*)
⑫ T reducing branch piece BSKM-TR 0711 (*7216366/7216616*)
⑬ 90° flat angle BSKM-FW 0407 (*7216524/7216506*)
⑭ Foam seal (cable exit) BSKM-KA 0407 (*7216590*)

3.6.4 Duct width 250 mm, mounting on support system

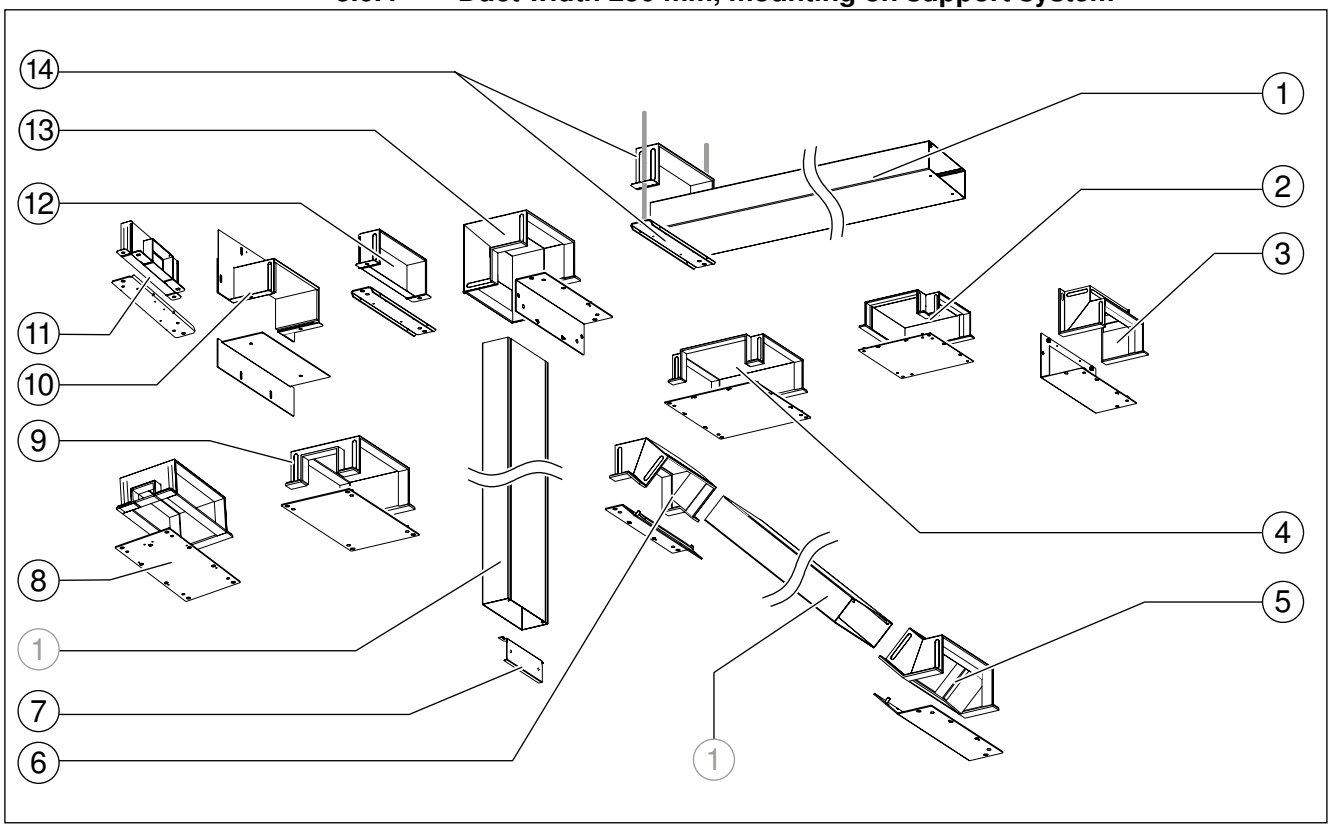


Fig. 7: System overview, duct width 250 mm, mounting on support system

(1) Fire protection duct BSKM 1025 *(7216400/7216630)*

(2) 90° flat angle BSKM-FW 1025 (*7216430/7216638*) with lock plate BSKM-GF 1025 (*7216435/7216639*)

(3) 90° internal corner BSKM-IE 1025 (*7216440/7216640*) with lock plate BSKM-GI 1025 (*7216445/7216641*)

(4) T branch piece BSKM-TA 1025 (*7216462/7216645*) with lock plate BSKM-GT 1025 (*7216464/7216646*)

(5) 45° rising vertical bend BSKM-ES 1025 (*7216450/7216642*) with lock plate (contained in scope of delivery)

(6) 45° falling vertical bend BSKM-EF 1025 (*7216455/7216643*) with lock plate (contained in scope of delivery)

(7) Lid support BSKM-DS 1025 (*7216474*)

(8) T reducing branch piece BSKM-TRK 1025 (*7216467/7216648*) with lock plate BSKM-GRK 1025 (7216469/7216650)

(9) T reducing branch piece BSKM-TR 1025 (*7216466/7216647*) with lock plate BSKM-GR 1025 (*7216468/7216649*)

(10) Wall connection BSKM-WA 1025 (*7216480/7216654*) with lock plate BSKM-GW 1025 (*7216485/7216655*)

(11) Reducer BSKM-RE 1025 (*7216404/7216631*) with lock plate BSKM-GR 1025 (7216406/7216632)

(12) End piece BSKM-VK 1025 (*7216460/7216644*) with support profile (see (14))

(13) 90° external corner BSKM-AE 1025 (*7216420/7216636*) with lock plate BSKM-GA 1025 (*7216425/7216637*)

⑭ Support plate BSKM-AD 1025 (*7216415/7216635*) with duct connector BSKM-VD 1025 (*7216410/7216633*)

Not shown: Locking bracket RKV3V, self-tapping screw BSKM-S 4008 and foam seal BSKM-KA 1025 (see Fig. 4 on page 10).

3.6.5 Duct width 110 mm, mounting on support system

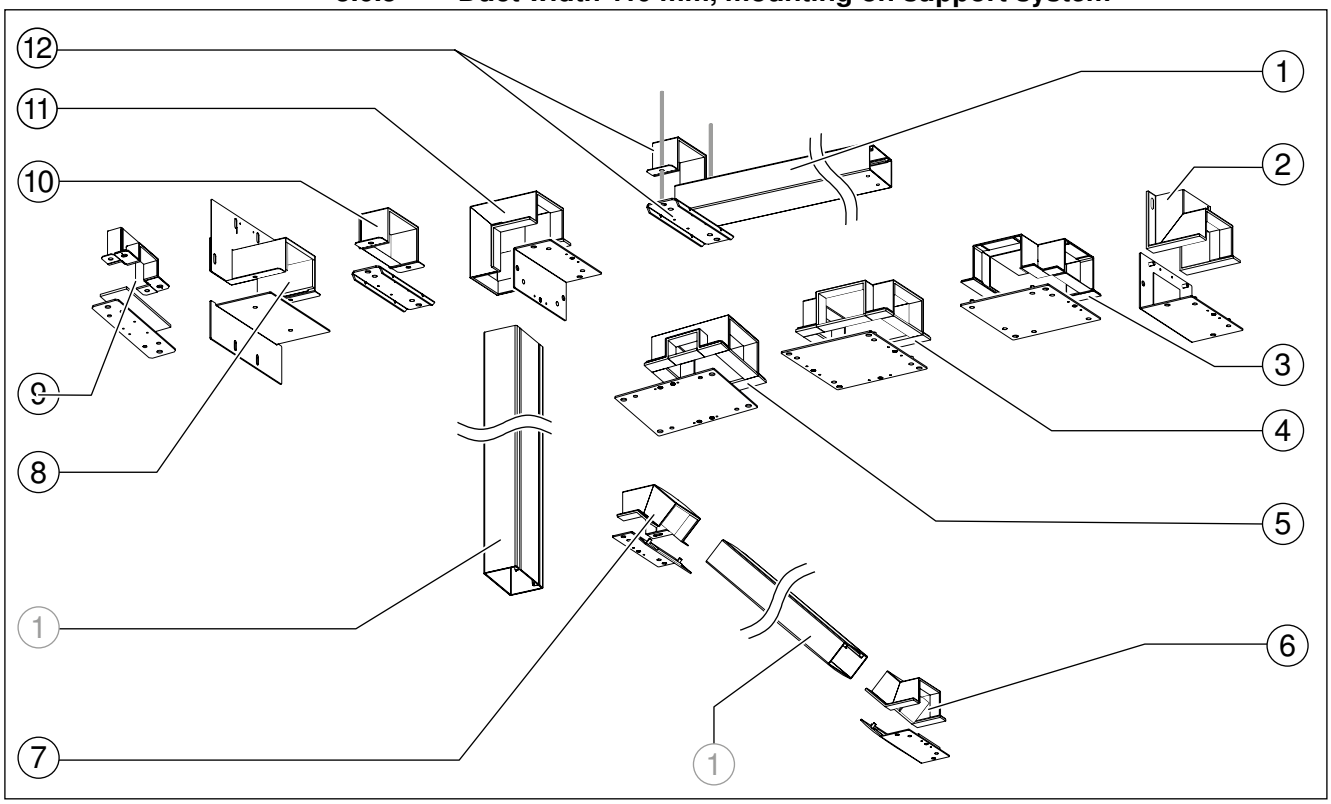


Fig. 8: System overview, duct width 110 mm, mounting on support system

(1) Fire protection duct BSKM 0711 (*7216300/7216600*)

(2) 90° internal corner BSKM-IE 0711 (*7216340/7216608*) with lock plate BSKM-GI 0711 (*7216345/7216609*)

(3) 90° flat angle BSKM-FW 0711 (*7216330/7216606*) with lock plate BSKM-GF 0711 (*7216335/7216607*)

(4) T branch piece BSKM-TA 0711 (*7216362/7216613*) with lock plate BSKM-GT 0711 (*7216364/7216614*)

(5) T reducing branch piece BSKM-TR 0711 (*7216366/7216616*)with lock plate BSKM-GR 0711 (*7216368/7216617*)

(6) 45° rising vertical bend BSKM-ES 0711 (*7216350/7216610*) with lock plate (contained in scope of delivery)

(7) 45° falling vertical bend BSKM-EF 0711 (*7216355/7216611*) with lock plate (contained in scope of delivery)

(8) Wall connection BSKM-WA 0711 (*7216380/7216620*) with lock plate BSKM-GW 0711 (*7216385/7216621*)

(9) Reducer hood BSKM-RE 0711 (*7216393/7216624*) with lock plate (7216395/7216626)

(10) End piece BSKM-VK 0711 (*7216360/7216612*) with support profile (see (12))

(11) 90° external corner BSKM-AE 0711 (*7216320/7216604*) with lock plate BSKM-GA 0711 (*7216325/7216605*)

(12) Support plate BSKM-AD 0711 (*7216315/7216603*) with duct connector BSKM-VD 0711 (*7216310/7216601*)

Not shown: Locking bracket RKV3V, self-tapping screw BSKM-S 4008 and foam seal BSKM-KA 0711 (see Fig. 5 on page 11).

3.6.6 Duct width 70 mm, mounting on support system

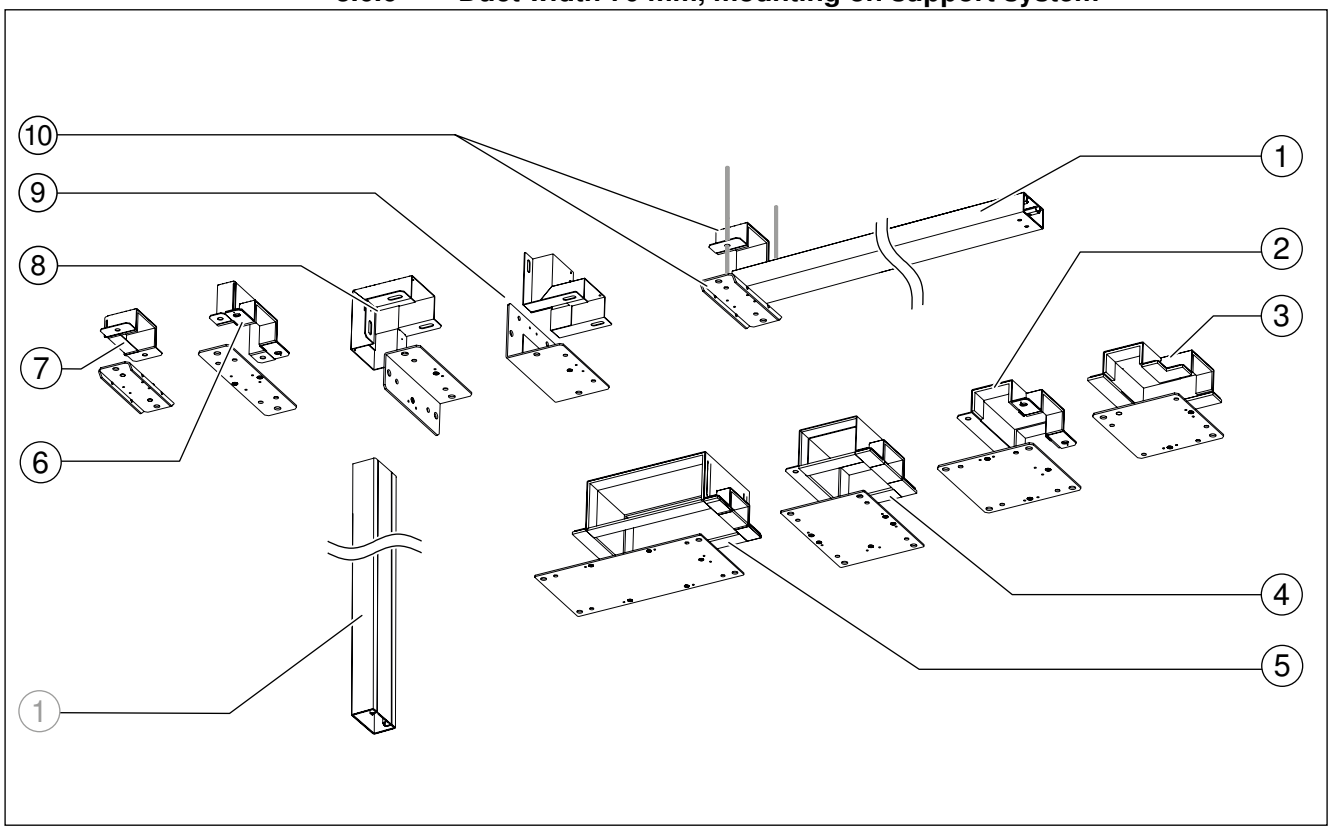


Fig. 9: System overview, duct width 70 mm, mounting on support system

(1) Fire protection duct BSKM 0407 (*7216500/7216501*)

(2) T branch piece BSKM-TA 0407 (*7216532/7216563*) with lock plate BSKM-GT 0407 (*7216534/7216565*)

(3) 90° flat angle BSKM-FW 0407 (*7216524/7216506*) with lock plate BSKM-GF 0407 (*7216526/7216507*)

(4) T reducing branch piece BSKM-TR 0711 (*7216366/7216616*)

(5) T reducing branch piece BSKM-TRK 1025 (*7216467/7216648*)

(6) Reducer BSKM-RE 0711 (*7216393/7216624*)

(7) End piece BSKM-VK 0407 (*7216560/7216561*) with support profile (see (10))

(8) 90° external corner BSKM-AE 0407 (*7216520/7216504*) with lock plate BSKM-GA 0407 (*7216522/7216505*)

(9) 90° internal corner BSKM-IE 0407 (*7216528/7216508*) with lock plate BSKM-GI 0407 (*721630/7216509*)

(10) Support plate BSKM-AD 0407 (*7216515/7216516*) with duct connector BSKM-VD 0407 (*7216510/7216511*)

Not shown: Locking bracket RKV3V, self-tapping screw BSKM-S 4008 and foam seal BSKM-KA 0407 (see Fig. 6 on page 12).

4 Mounting basics

4.1 Fastening material

To mount PYROLINE® Rapid fire protection ducts, connectors and fittings on concrete or full brick substrates, we recommend using fire protection bolt ties of type MMS-plus 7.5x50. Appropriate, fire protection-tested fastening elements must be used for other fastening substrates. Please refer to the OBO BSS catalogue, section "Anchoring".

To ensure easy retroinstallation, we recommend that you do not use nail ties with an impact head, as these are very difficult to remove from the fastening substrate.

WARNING

Risk of falling down in the event of fire!
When heated strongly, plastic anchors lose their support capacity. Do not use standard plastic anchors, only fire protection-tested fastening ma-ter-ial.

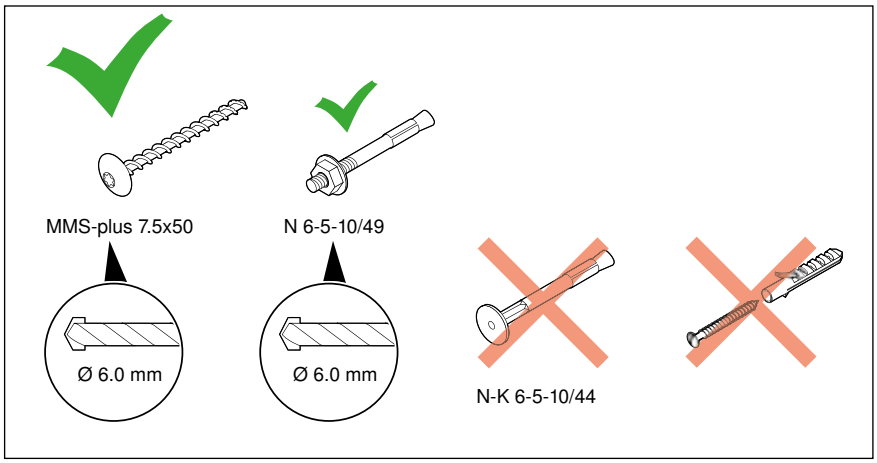


Fig. 10: Recommended and unsuitable fastening material

When using the fire protection bolt tie MMS-plus 7.5x50, ensure that a drilling depth of at least 65 mm is achieved. The cavity in front of the screw is necessary in order to take up any material removal created during screwing in. Drill holes must be thoroughly cleaned, e.g. through suction or blowing-out.

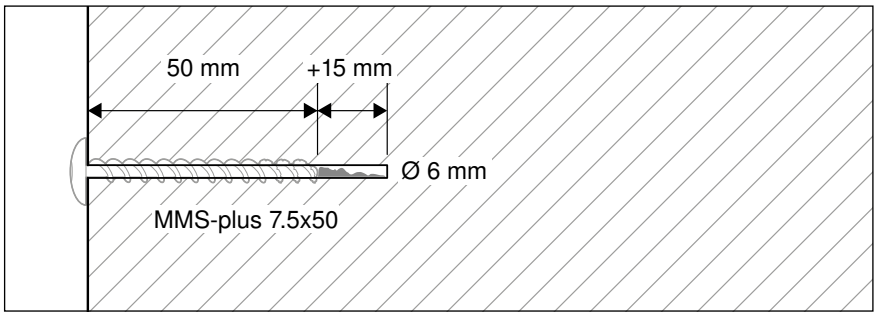


Fig. 11: Drill depth for fire protection bolt tie

4.2 Necessary tools

- Angle grinder with metal separating disc
- Knife
- Metal file
- Metal drill bit
- Drill with masonry/concrete bit
- Battery-operated screwdriver
- Screwdrivers, flat, Philips and Torx
- Wrench set
- Tape measure
- Spirit level

4.3 Shortening ducts

We recommend shortening the BSKM fire protection ducts with an angle grinder. Band saws or coping saws are also suitable.

CAUTION

Risk of injury from sharp metal edges!
When cutting or sawing the fire protection ducts, sharp edges may occur, which can cause cuts. Deburr all the cut edges carefully with a metal file.

The noticeable smell, caused during cutting, is not hazardous. If necessary, carry out the cutting operation in a well-ventilated location.

When cutting with an angle grinder, it may occur that the fire protection material swells up slightly at the cut edge. This does not impair the fire protection properties of the duct. Cut the swelled-up material as thinly as possible with a knife.

On uncut fire protection ducts, there are two holes in the bottom sides of both ends of the ducts. During mounting on the support systems, these are used to screw the duct to a support profile or a lock plate (see “6 Mounting on a support system” on page 38). If the shortened duct is to be mounted on a lock plate, then these holes must be re-drilled at the end of the duct after shortening (see FigFig. 12).

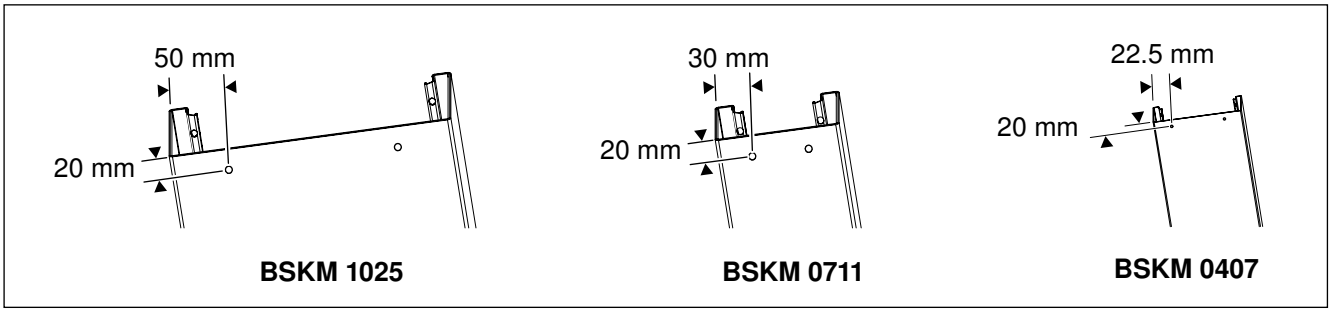


Fig. 12: Spacing of the duct fastening holes (Ø 6 mm)

4.4 Inserting locking brackets

The duct lid must lock firmly into the duct to ensure tightness. For this reason, ensure that there are at least four pairs of locking brackets (type RKV3V) on the 2-metre-long duct sections, with the following spacing (see Fig. 13).

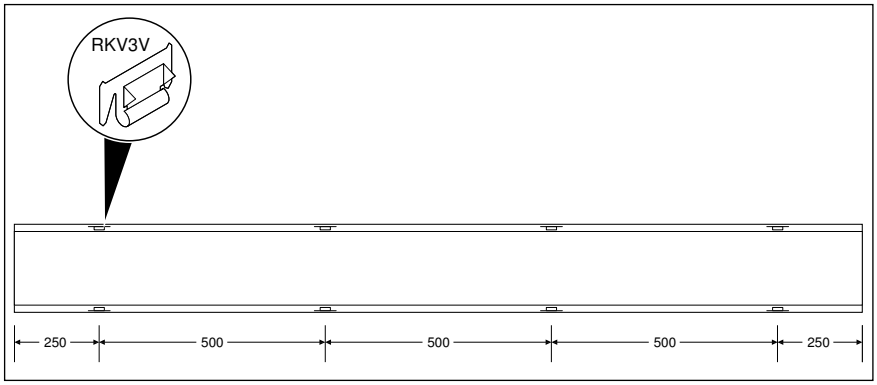


Fig. 13: Number and spacing of the locking brackets in the duct lid

With shortened duct sections, ensure that there are locking brackets in the duct lid on both sides, at a distance of 100–250 mm to the joints.

- To be inserted as shown in Fig. 14: Attach the locking brackets at the top and push them back with a flat screwdriver.

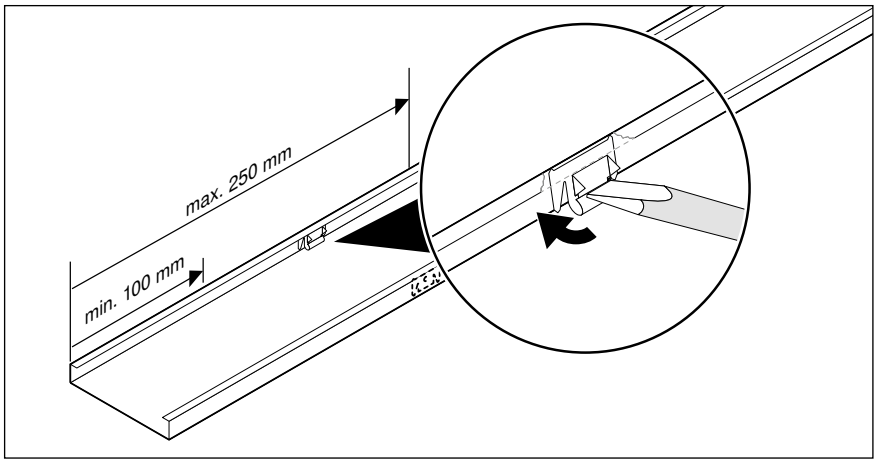


Fig. 14: Inserting locking brackets in the duct lid

4.5 Using lid support

For fire protection ducts of type BSKM 1025, it is necessary to insert a lid support BSKM-DS 1025 (*7216474*) at every connection point. Due to the 250 mm width of the duct, the lid support is required in order to guarantee tightness at the connection with the duct connector or the fitting if there is a fire.

Note! *Mounting the lid support is only necessary if the lid is mounted on the duct base from above. In the case of direct ceiling mounting, the lid support does not need to be mounted.*

See Fig. 15:

- Insert the lid support into the duct (**1.**) and turn it (**2.**).
- Fold the lid support down (**3.**).
- If necessary, push it so that it is located in the middle of the connection point.
- Together with the end piece BSKM-VK 1025 (*7216460*): push the lid support so that it is flush with the end of the duct.

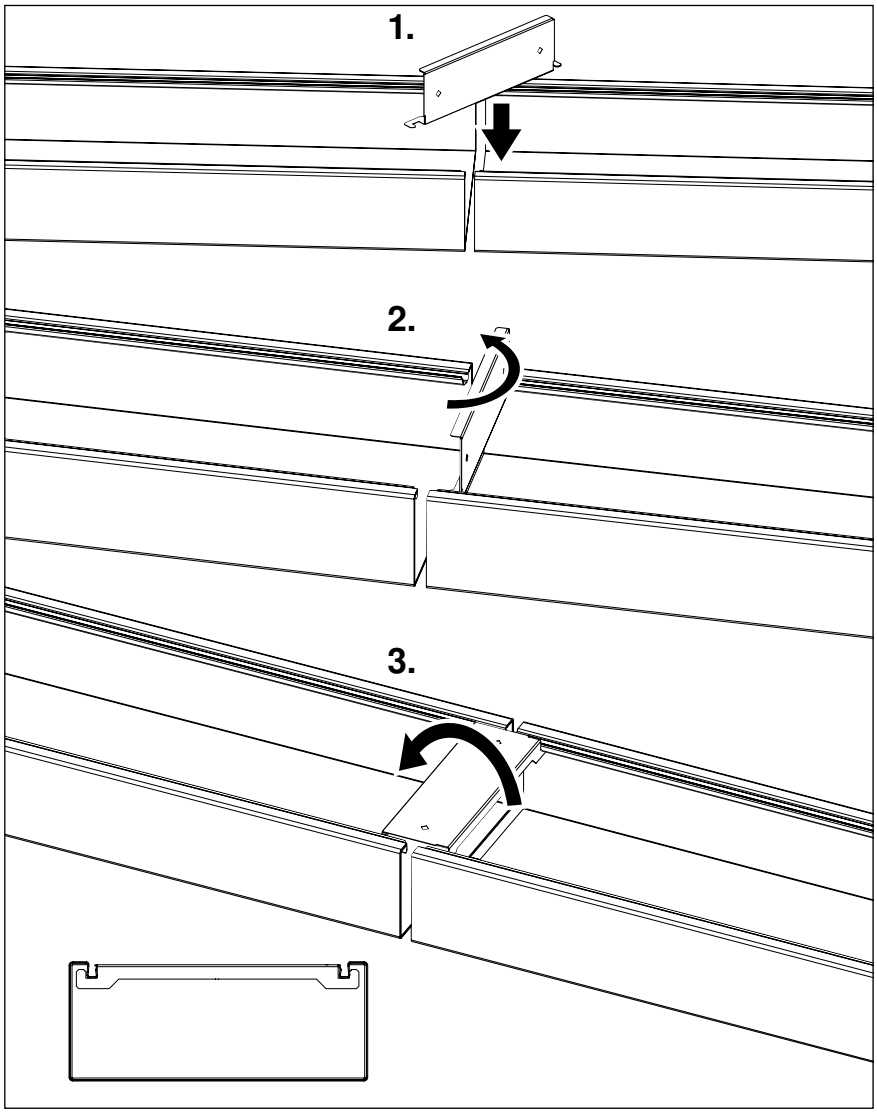


Fig. 15: Inserting lid support

4.6 Routing cables

Loss of support and function capability!
The maximum approved total load is 30 kg per running duct metre. It may not be exceeded, as otherwise the support and function capability is no longer guaranteed.

When filling the fire protection duct system with cables, we recommend laying them and not pulling them in.

If it is not possible to lay the cables, then you should observe the following information when pulling in the cables:

- Use suitable pulling apparatus to pull the cables into the duct system in a straight direction. Use an appropriate aid at the start of the cable (e.g. cable hose, drawbar eye).
- Use suitable steering rollers to pull the cables round bends and T branch pieces, in order to avoid damage to the duct system and cable insulation.
- Never pull cables over sharp edges to exclude the risk of insulation errors.
- Comply with the tensile forces and minimum bend radii specified by the cable manufacturer.

5 Direct mounting on the ceiling, wall or floor

Note! *When planning a duct route, note that the fittings must be at a certain distance to the wall, on account of their fastening straps. It is therefore not possible to mount a duct route with fittings right in the corner of a wall or ceiling or in the corner of a room. However, corner mounting is possible for a straight route without fittings (see “5.4 Connecting joints” on page 28).*

The drill holes for ceiling, wall or floor mounting are pre-drilled in the duct trough. The drill holes are covered by the internal fire protection coating.

Note: *The coating must be pierced with a sharp object at the holes that are necessary for mounting. Ensure that the fastening points are arranged diagonally, as shown in Fig. 18 and Fig. 19 (does not apply to BSKM 0407).*

5.1 Basic mounting procedure

- Shorten ducts as necessary.
- Open the duct lid.
- Screw the duct to the ceiling, wall or floor, using cable clamps as necessary.
- Insert the cables and fix as necessary with cable ties.
- For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
- Engage duct lid.
- Mount fittings or connectors to seal joints.
- Create the equipotential bonding using connecting screws (see “8.1 Create equipotential bonding” on page 72).

5.2 Mounting the fire protection duct on the ceiling

For ceiling mounting, we recommend attaching a cable clamp (BSKM-BD 0711 or BSKM-BD 1025) to each fastening point on fire protection duct BSKM 0711 and BSKM 1025. The offset attachment means that the duct can be fitted with cables from both sides in an optimum manner.

The fire protection duct BSKM 0407 is mounted without cable clamps due to its small dimensions.

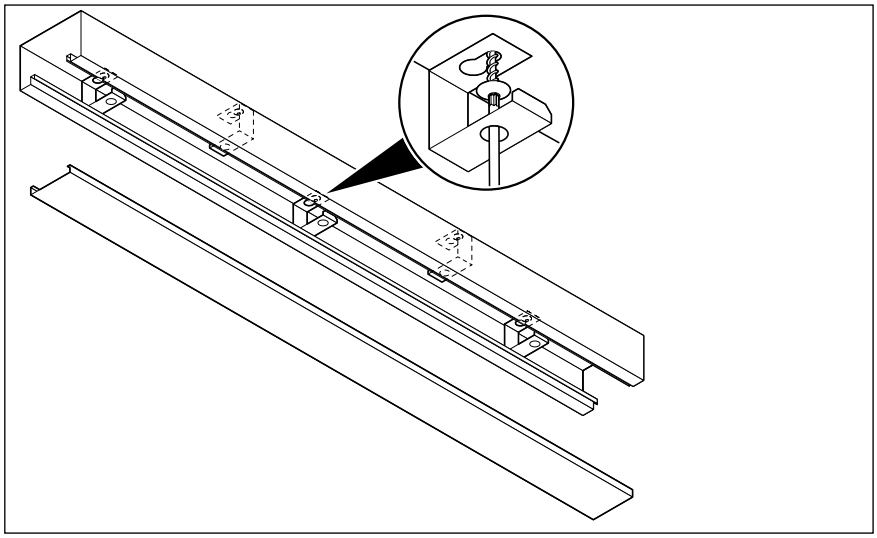


Fig. 16: Using cable clamps for ceiling mounting

- Pierce the fire protection coating with a sharp object at the necessary perforations. Note the hole pattern as shown in Fig. 18, 19 or 20. Note that the holes must be positioned in an offset manner.

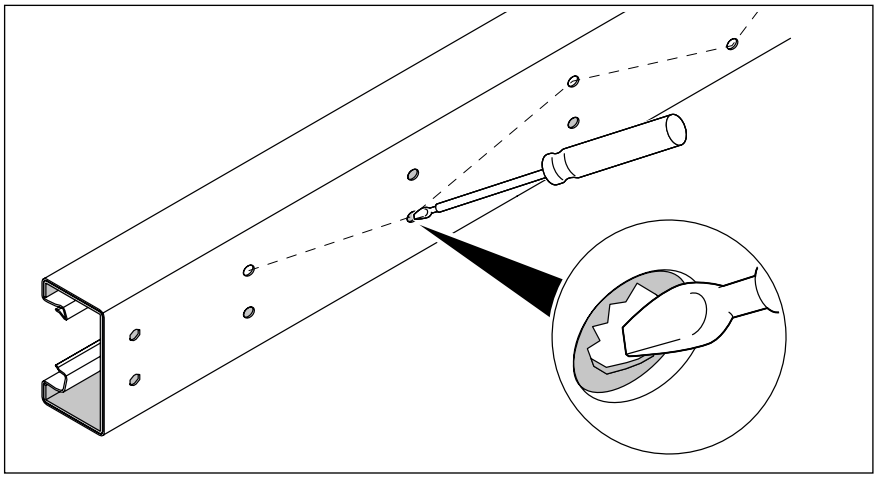


Fig. 17: Pierce the fire protection coating at the drill holes (example BSKM 0407)

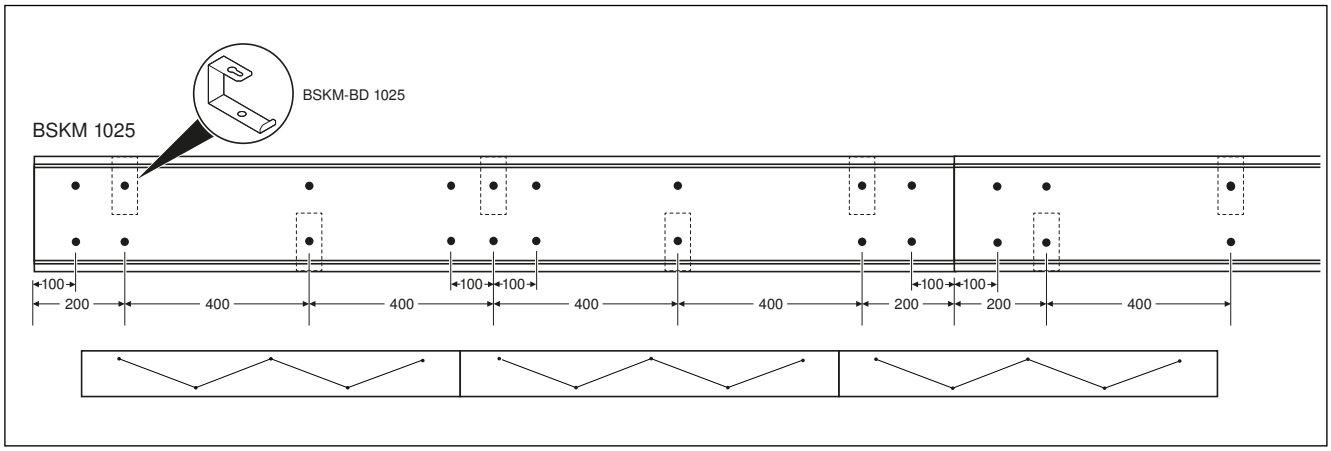


Fig. 18: Hole pattern for ceiling mounting, BSKM 1025

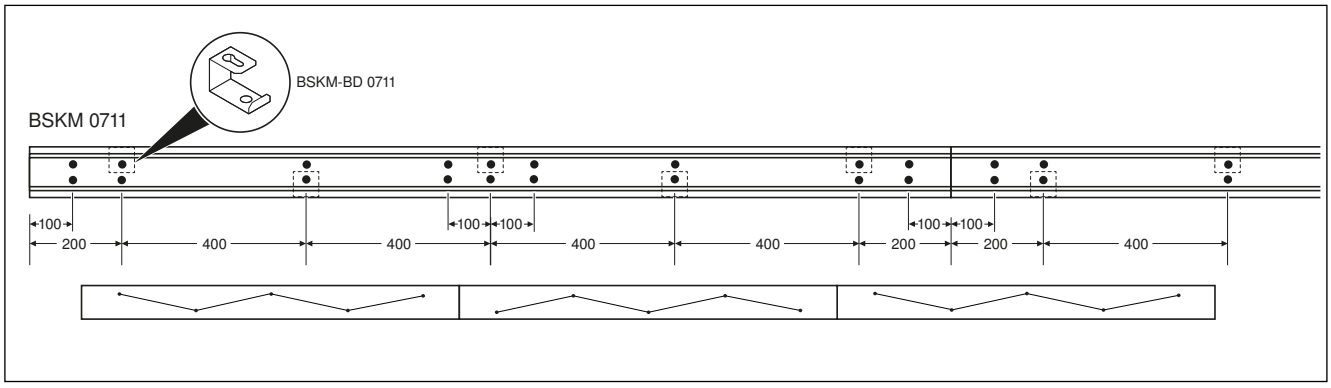


Fig. 19: Hole pattern for ceiling mounting, BSKM 0711

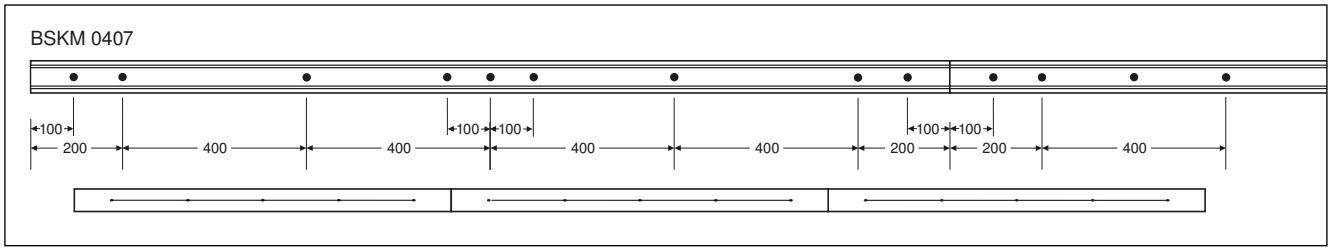


Fig. 20: Hole pattern for ceiling mounting, BSKM 0407

- Apply the drill holes to the ceiling.
- Drill the ceiling holes. For the fire protection bolt ties MMS-plus 7.5x50, ensure a drilling depth of at least 65 mm, Ø 6 mm (see Fig. 11 on page 17).
- Clean the drill holes carefully, e.g. through suction or blowing-out.
- Fasten the duct to the two outermost holes and, at first, hand-tighten the screws.
- Fix the duct to the inner holes together with cable clamps for ceiling mounting (BSKM-BD 0711 or BSKM-BD 1025) (see Fig. 16 on page 22).
- Slacken the external fastenings, push in the cable clamps and screw them tight, together with the duct.
- Insert the cables in the cable clamps.
- Push the duct lid on firmly.
- Attach the connector (see “5.4 Connecting joints” on page 28) or fitting (see “5.6 Mounting fittings” on page 31) and mark the drill holes.
- Remove the connector or fitting and drill the holes.
- Attach the connector or fitting again and screw it on so that the joints of the ducts are sealed evenly and securely.
- Create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

5.3 Mounting the fire protection duct on the wall or floor

Information for floor mounting! *For floor mounting, fastening the duct in such a way that a secure grip on the floor is guaranteed.*

Information for wall mounting! *During wall mounting, ensure that there are three fastening points in the top row and two in the bottom row (does not apply to BSKM 0407).*

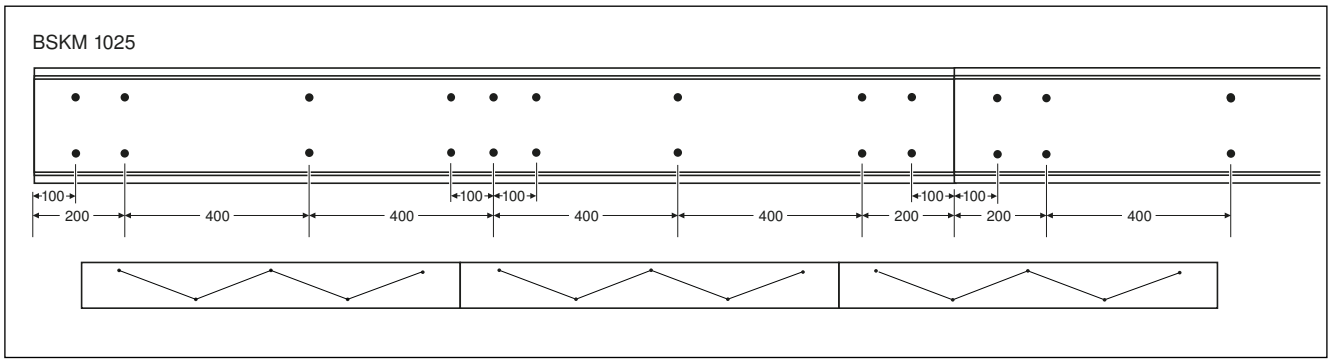


Fig. 21: Hole pattern for wall mounting, BSKM 1025

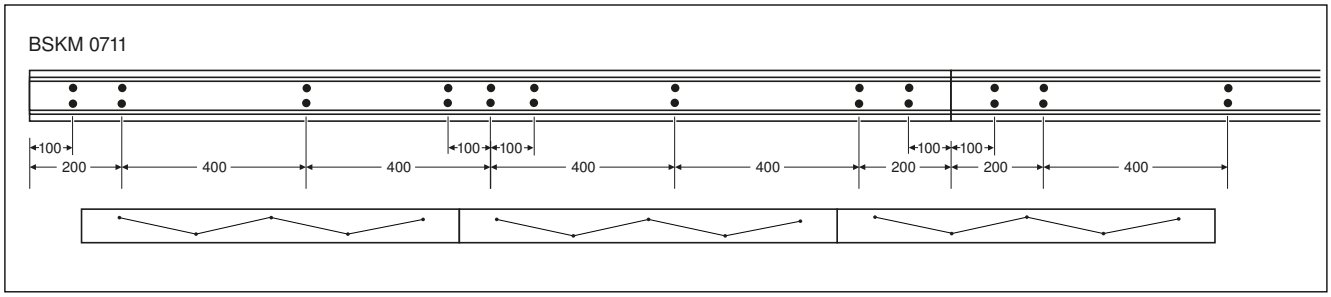


Fig. 22: Hole pattern for wall mounting, BSKM 0711

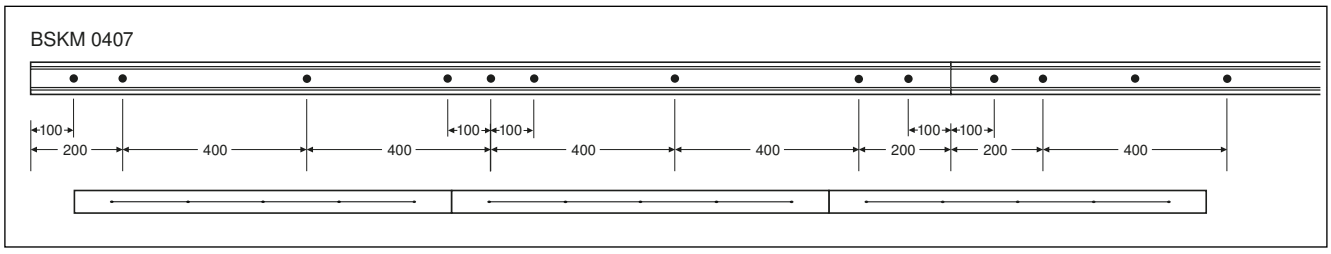


Fig. 23: Hole pattern for wall mounting, BSKM 0407

- Pierce the fire protection coating with a sharp object at the necessary perforations. Note the hole pattern as shown in Fig. 21, 22 or 23. Note that the holes must be positioned in an offset manner.

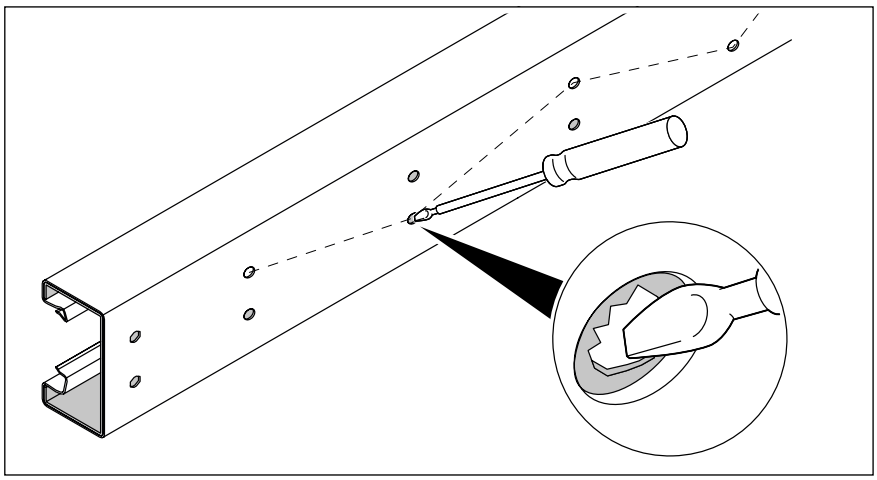


Fig. 24: Pierce the fire protection coating at the drill holes (example BSKM 0407)

5.3.1 Mounting the fire protection duct on the floor

- Apply the drill holes to the substrate.
- Drill the holes. For the fire protection bolt ties MMS-plus 7.5x50, ensure a drilling depth of at least 65 mm, Ø 6 mm (see Fig. 11 on page 17).
- Clean the drill holes carefully, e.g. through suction or blowing-out.
- Fasten the duct to the substrate.
- Insert cables.
- Push the duct lid on firmly.
- Attach the connector (see “5.4 Connecting joints” on page 28) or fitting (see “5.6 Mounting fittings” on page 31) and mark the drill holes.
- Remove the connector or fitting and drill the holes.
- Attach the connector or fitting again and screw it on so that the joints of the ducts are sealed evenly and securely.
- Create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

5.3.2 Mounting the fire protection duct on the wall

For wall mounting, we recommend using cable clamps of type BSKM-BW 0711 or BSKM-BW 1025, in order to prevent the loading of the duct lid by cables, as well as the cables falling out (does not apply to BSKM 0407). Use at least two cable clamps for each 2-metre duct section.

- Insert the cable clamps as shown in Fig. 25 (1.) and turn them upwards.
- Turn the cable clamps through 90° in a clockwise direction (2.).
- To finally fix the cable clamps in the duct, bend the punched locking bar approx. 45° to the left (3.) using a flat screwdriver.

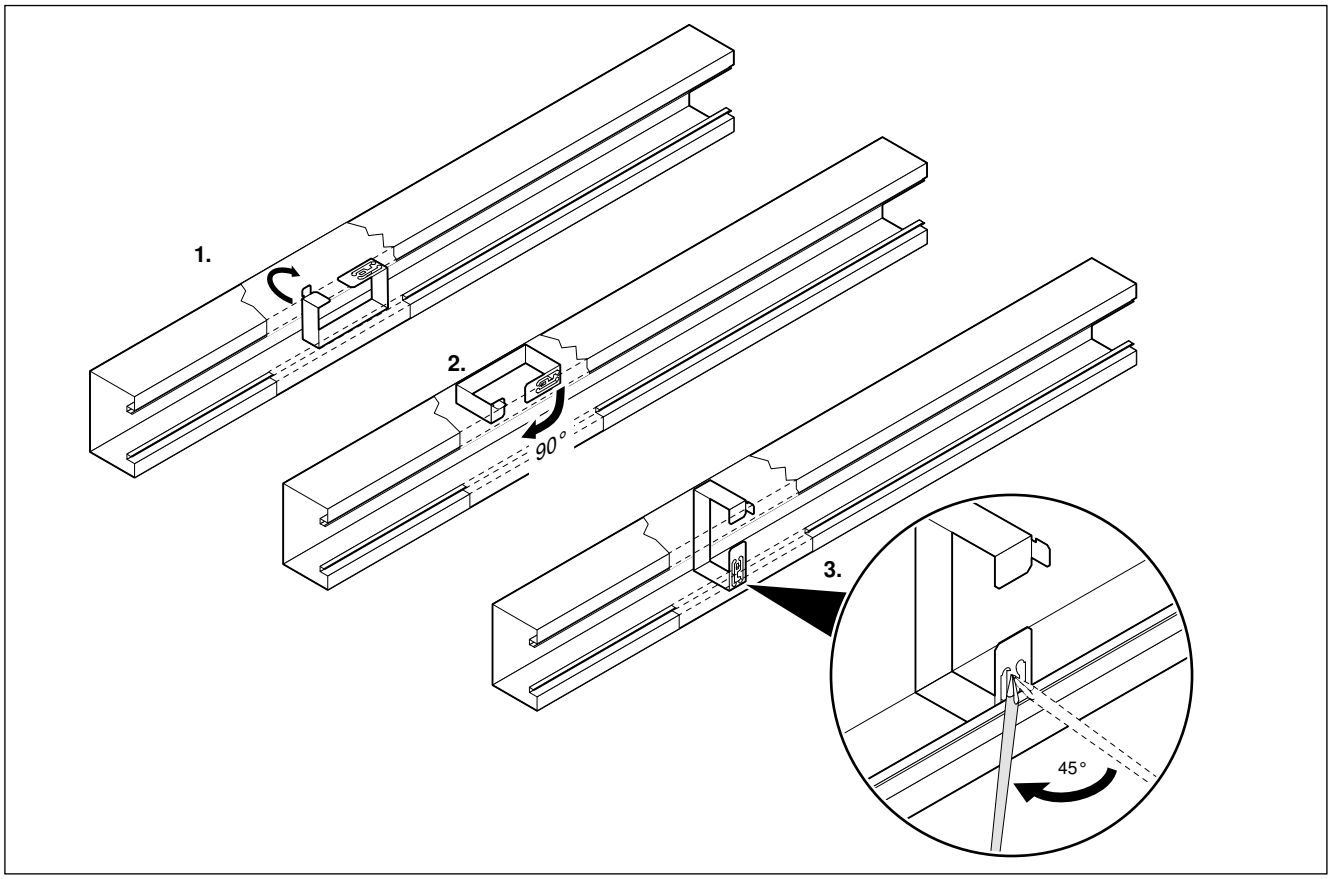


Fig. 25: Turning in and fixing cable clamps for wall mounting

- Insert the cables in the cable clamps.
- Push the duct lid on firmly.
- Attach the connector (see “5.4 Connecting joints” on page 28) or fitting (see “5.6 Mounting fittings” on page 31) and mark the drill holes.
- Remove the connector or fitting and drill the holes.
- Attach the connector or fitting again and screw it on so that the joints of the ducts are sealed evenly and securely.
- Create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

5.4 Connecting joints

Joints between two ducts must be covered with connectors. The interior of the connectors is fitted with sealing material. This means that possible joints (max. 10 mm) can be covered, so that they are smoke-proof.

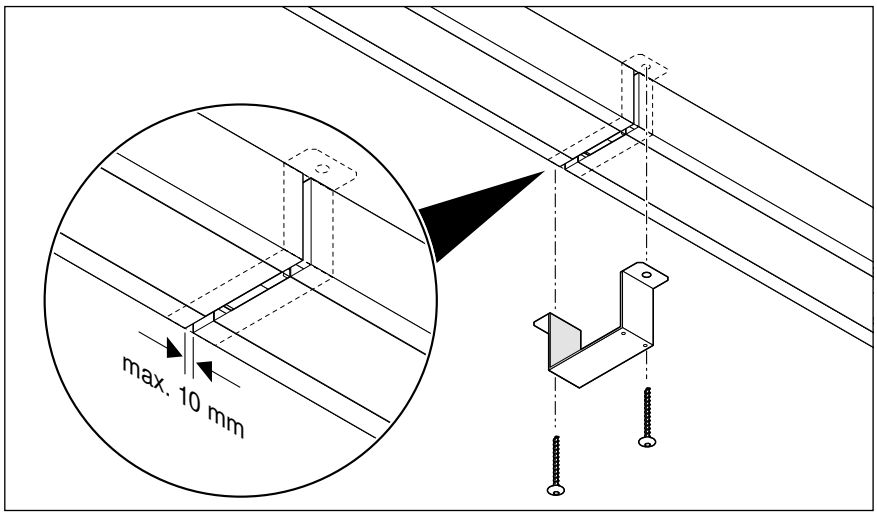


Fig. 26: Fixing duct sections with connectors

For corner connections, use the connectors for corner mounting BSKM-VE.., or otherwise the connectors BSKM-VD (see Fig. 27). Ensure that the joints are closed with a sufficient overlap. Only this will guarantee the functional safety of the fire protection duct system.

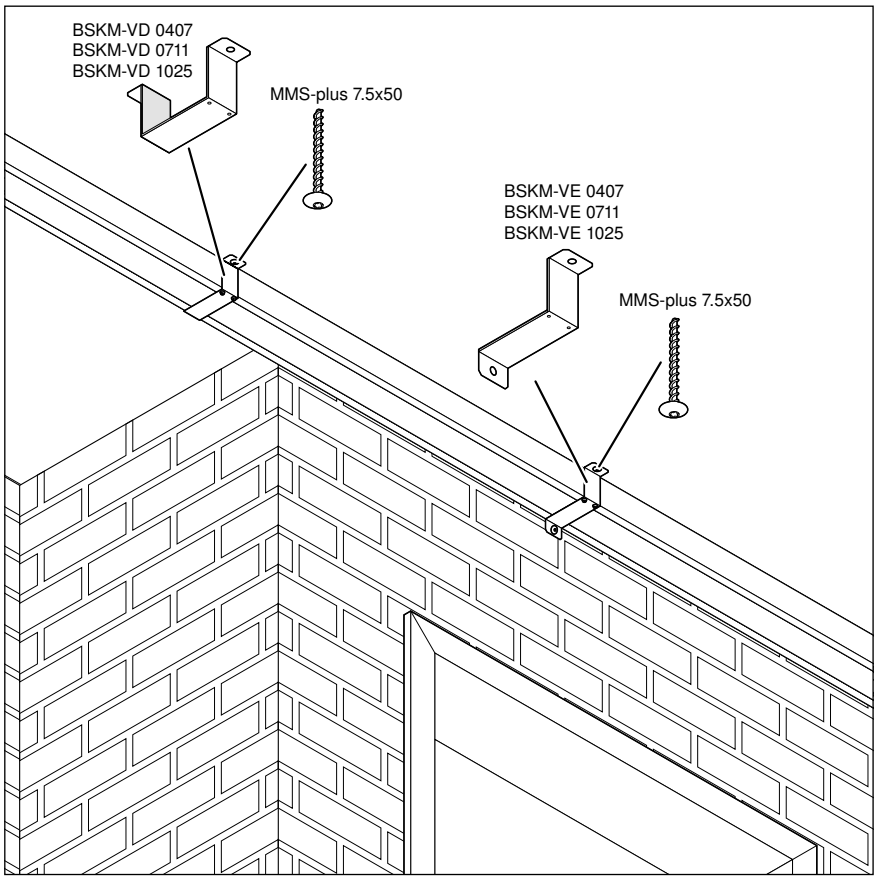


Fig. 27: Mounting connectors and corner connectors

5.5 Creating a wall/ceiling penetration

With wall or ceiling penetrations, for the achievement of the fire resistance class I30–I90, it is sufficient to plug the cavities around the duct with mineral wool and seal them with filler (see Fig. 28 and Fig. 29).

However, if I120 is to be achieved, then seal both sides of the penetration with a wall connection fitting BSKM-WA 0711 or BSKM-WA 1025 (see “5.6.6 Mounting a reducer” on page 36). The wall connection fitting is only available for BSKM 0711 and BSKM 1025.

The wall penetration can be created in a solid wall or a dry construction wall (lightweight construction wall). When the wall connection fitting is used, the ducts must run to the wall or ceiling at a 90° angle.

If there is a fire, to prevent heat transfer within the wall inside a duct to the connection duct, the wall may not be penetrated with a single duct piece. Instead, the ducts must be mounted separately within the wall with a gap width of 5–10 mm.

The two following examples show the mounting of wall penetrations. The ceiling penetration is mounted in essentially the same way.

5.5.1 Wall penetration in solid wall

The mounting process described below allows achievement of a fire resistance class I90, depending on the fire resistance length of the wall. For I 120, see “5.6.6 Mounting a reducer” on page 36.

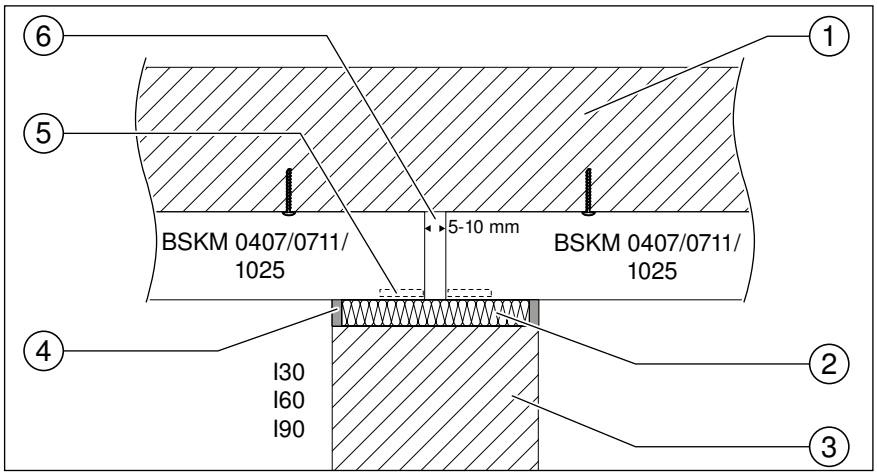


Fig. 28: Wall penetration through solid wall

① Ceiling

② Mineral wool insulation, material class A 1, melting point > 1,000 °C, e.g. OBO MIW

③ Solid wall

④ Sealing with filler

⑤ For BSKM 1025: insert lid supports BSKM-DS 1025

⑥ Gap between ducts: 5–10 mm

- When plugging the mineral wool (2), it is advisable to use an implement such as a stick and push as much as possible into the gap, in order to achieve as high a density as possible.
- Moisten the surface of the mineral wool slightly with water and coat both sides with filler (4) with a thickness of min. 2 mm.

5.5.2 Wall penetration in dry/lightweight construction wall

The mounting process described below allows achievement of a fire resistance class I90, depending on the fire resistance length of the wall. For I120, see “5.6.6 Mounting a reducer” on page 36.

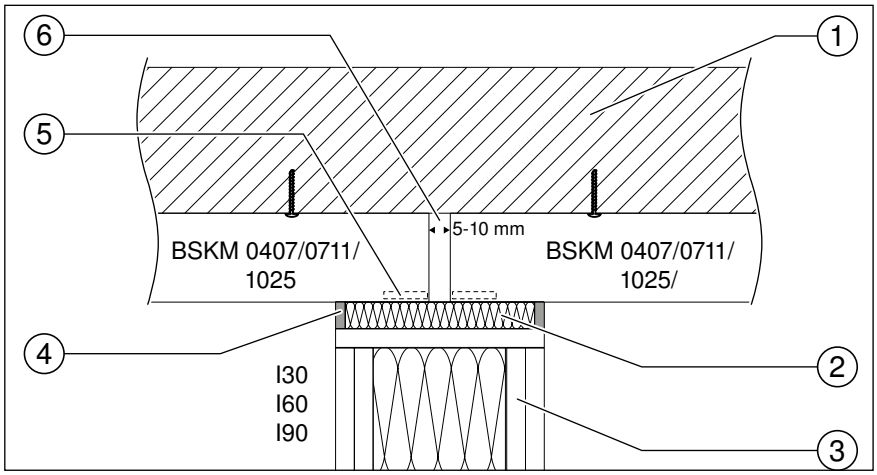


Fig. 29: Wall penetration through dry/lightweight construction wall

(1) Ceiling

(2) Mineral wool insulation, material class A1, melting point > 1,000 °C, e.g. OBO MIW

(3) Doubly covered, insulated lightweight construction wall (the opening soffit can be just one layer)

(4) Sealing with filler

(5) For BSKM 1025: insert lid supports BSKM-DS 1025

(6) Gap between ducts: 5–10 mm

- When plugging the mineral wool (2), it is advisable to use an implement such as a stick and push as much as possible into the gap, in order to achieve as high a density as possible.
- Moisten the surface of the mineral wool slightly with water and coat it with filler (4) with a thickness of min. 2 mm.

5.6 Mounting fittings

5.6.1 Mounting flat angles

Do not mount ducts at a 90° angle, as shown in Fig. 30 and Fig. 31, so that they overlap. The overlapping of the flat angle (BSKM-FW 0407, BSKM-FW 0711 and BSKM-FW 1025) ensures the necessary tightness.

- Attach the flat angle and fix it, e.g. with six fire protection bolt ties (see “4.1 Fastening material” on page 17).

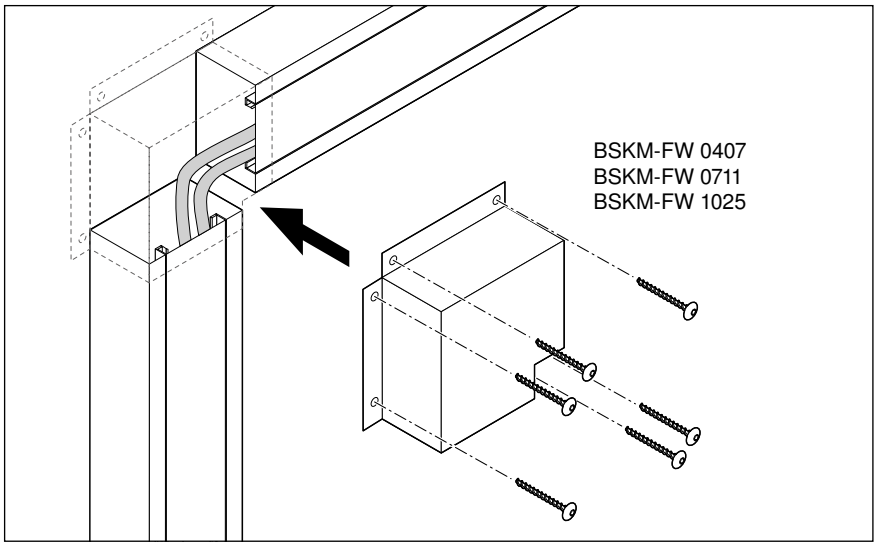


Fig. 30: Mounting flat angles

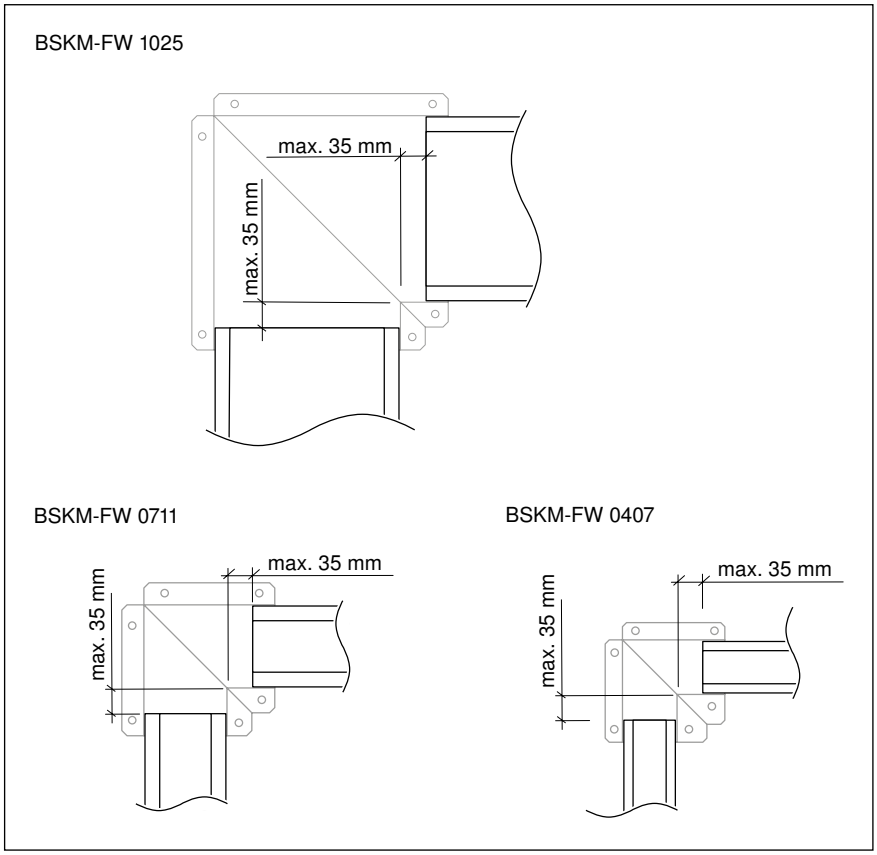


Fig. 31: Mounting spacing, flat angles

5.6.2 Mounting an external corner

Do not mount ducts at a 90° angle, as shown in Fig. 32, so that they overlap. The overlapping of the external corner (BSKM-AE 0407, BSKM-AW 0711 or BSKM-AE 1025) ensures the necessary tightness.

- Attach the external corner and fix it, e.g. with four fire protection bolt ties (see “4.1 Fastening material” on page 17).

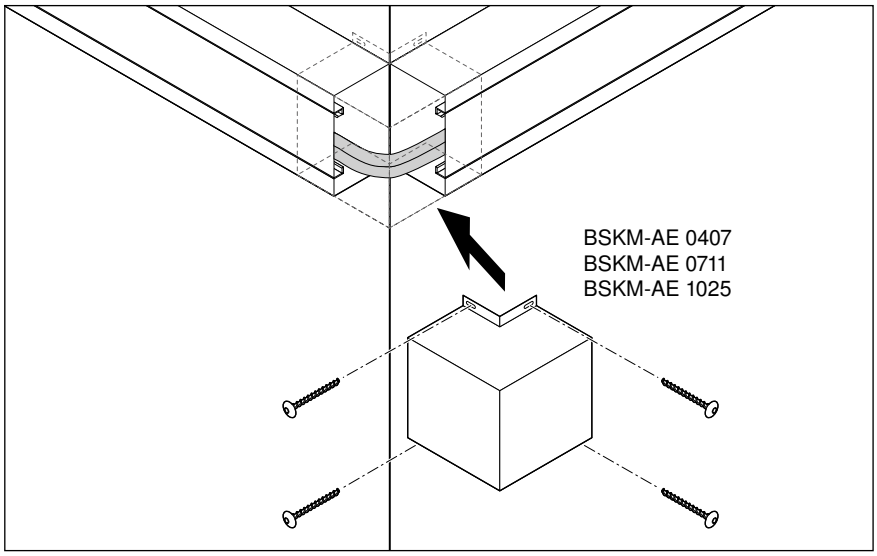


Fig. 32: Mounting an external corner

5.6.3 Mounting an internal corner

Do not mount ducts at a 90° angle, as shown in Fig. 33, so that they overlap. The overlapping of the internal corner (BSKM-IE 0407, BSKM-IE 0711 or BSKM-IE 1025) ensures the necessary tightness.

- Attach the internal corner and fix it, e.g. with four fire protection bolt ties (see “4.1 Fastening material” on page 17).

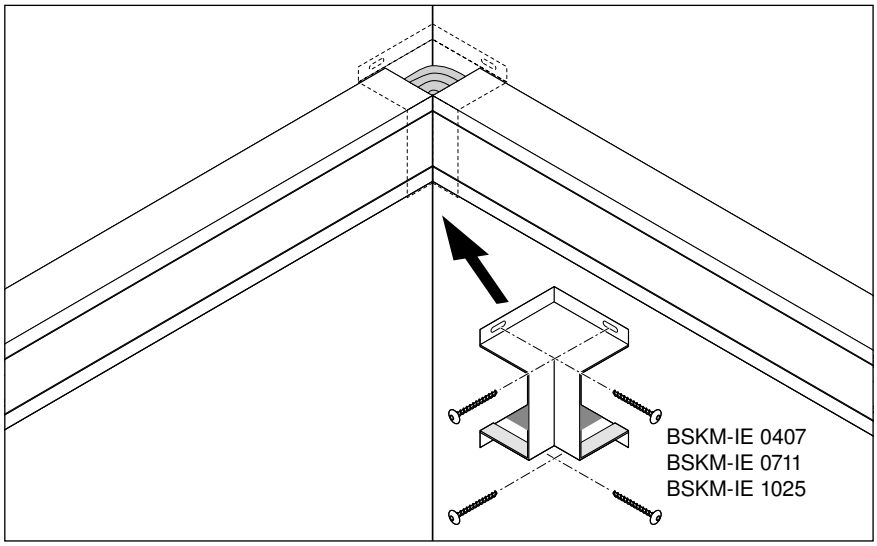


Fig. 33: Mounting an internal corner

5.6.4 Mounting a T branch piece

Do not mount ducts at a 90° angle, as shown in Fig. 34 and Fig. 35, so that they overlap. The overlapping of the T branch piece (BSKM-TA 0407, BSKM-TA 0711 or BSKM-TA 1025) ensures the necessary tightness.

- Attach the T branch piece and fix it, e.g. with four fire protection bolt ties (see “4.1 Fastening material” on page 17).

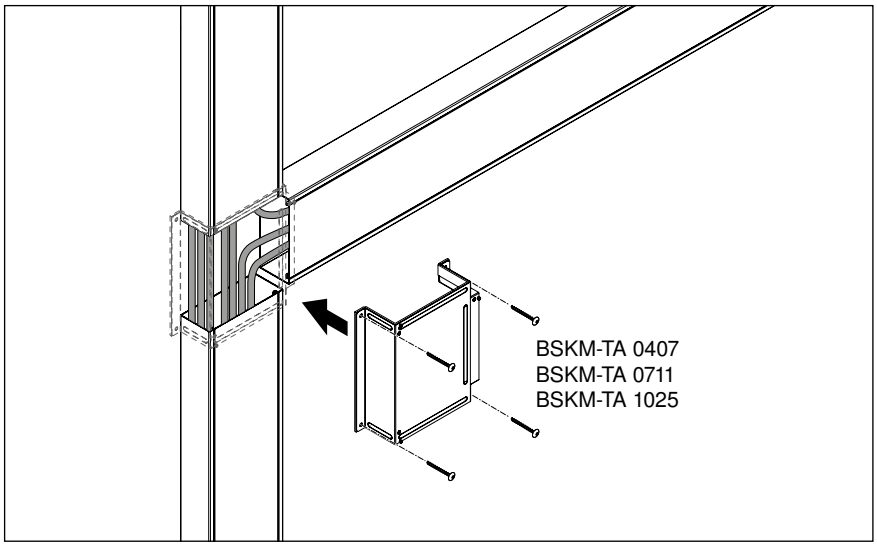


Fig. 34: Mounting a T branch piece

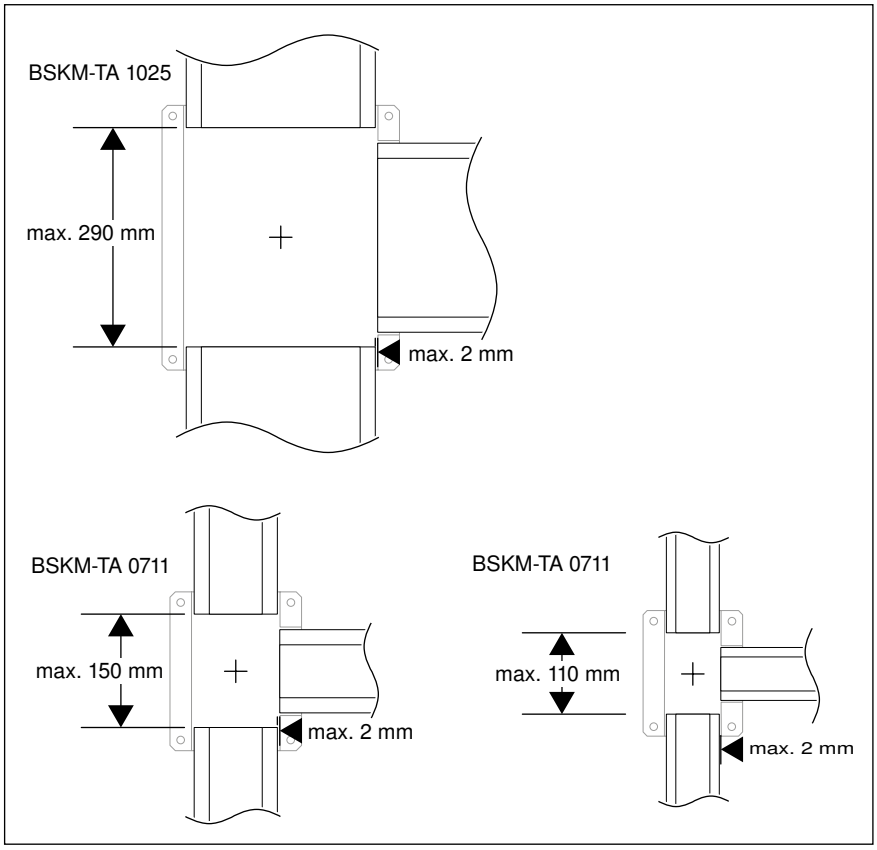


Fig. 35: Mounting spacing, T branch piece

5.6.5 Mounting a T reducing branch piece

The T reducing branch piece can be used to create a right-angled branch from the main duct with a narrower duct. The following reductions are possible:

– 250 mm-wide duct routing (BSKM 1025) to a right-angled duct branch section of width 110 mm (BSKM 0711)
– 250 mm-wide duct routing (BSKM 1025) to a right-angled duct branch section of width 70 mm (BSKM 0407)
– 110 mm-wide duct routing (BSKM 0711) to a right-angled duct branch section of width 70 mm (BSKM 0407)

Do not mount ducts at a 90° angle, as shown in Fig. 36 and Fig. 37, so that they overlap. The overlapping of the T reducing branch piece (BSKM-TR 1025, BSKM-TRK 1025 or BSKM-TR 0711) ensures the necessary tightness.

• Attach the T reducing branch piece and fix it, e.g. with four fire protection bolt ties (see “4.1 Fastening material” on page 17).

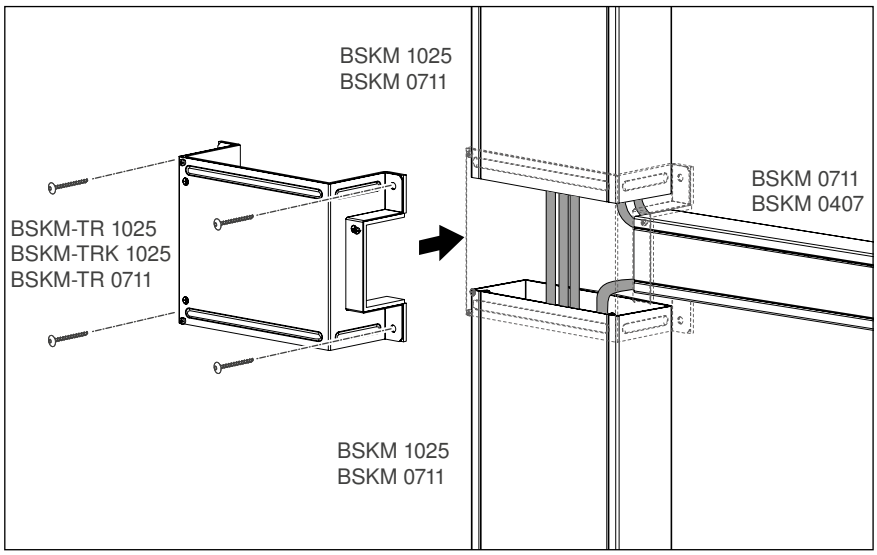


Fig. 36: Mounting a T reducing branch piece

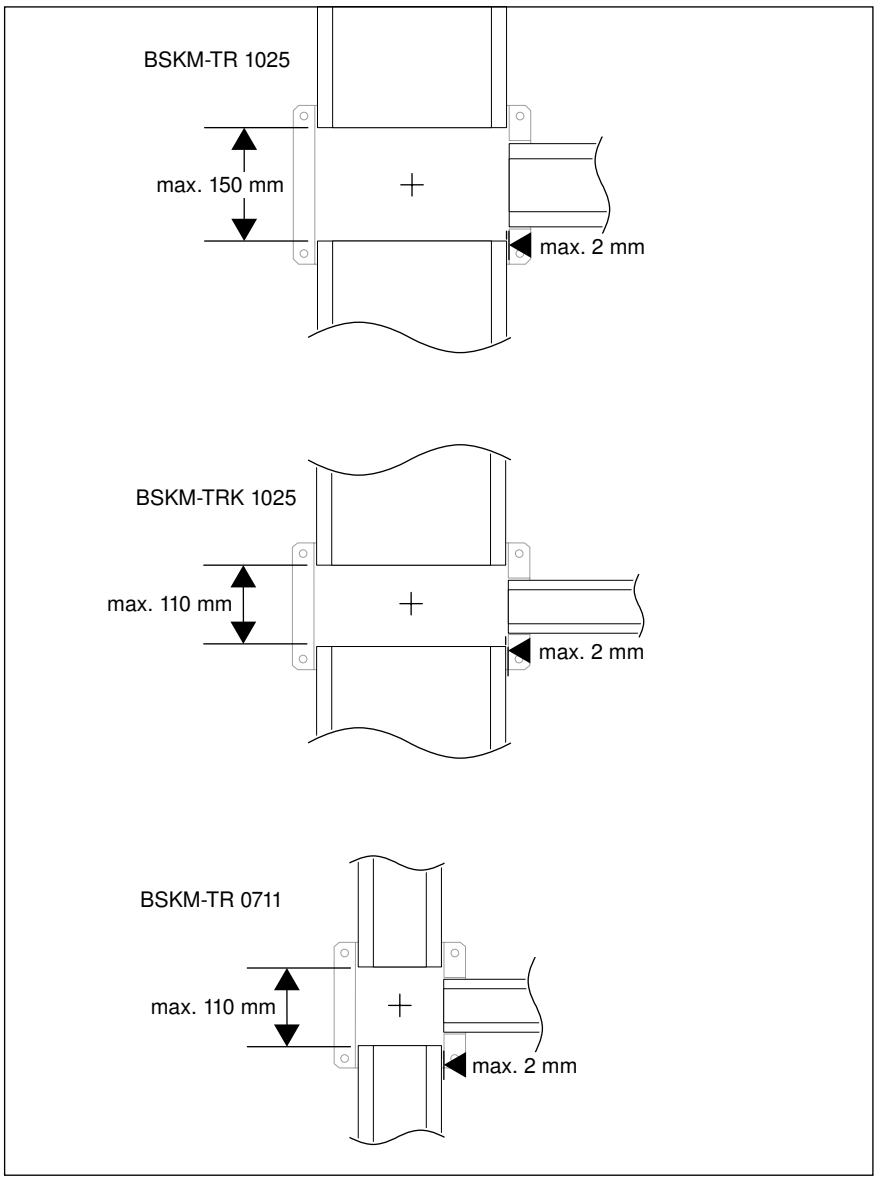


Fig. 37: Mounting spacing, T reducing branch piece

5.6.6 Mounting a reducer

The reducer can be used to create a reduction from the main duct to a narrower duct. The following reductions are possible:

– 250 mm-wide duct routing (BSKM 1025) to a duct section of width 110 mm (BSKM 0711)

– 110 mm-wide duct routing (BSKM 0711) to a duct section of width 70 mm (BSKM 0407)

Mount the reducer as shown in Fig. 38.

• Attach the reducer and fix it, e.g. with four fire protection bolt ties (see “4.1 Fastening material” on page 17).

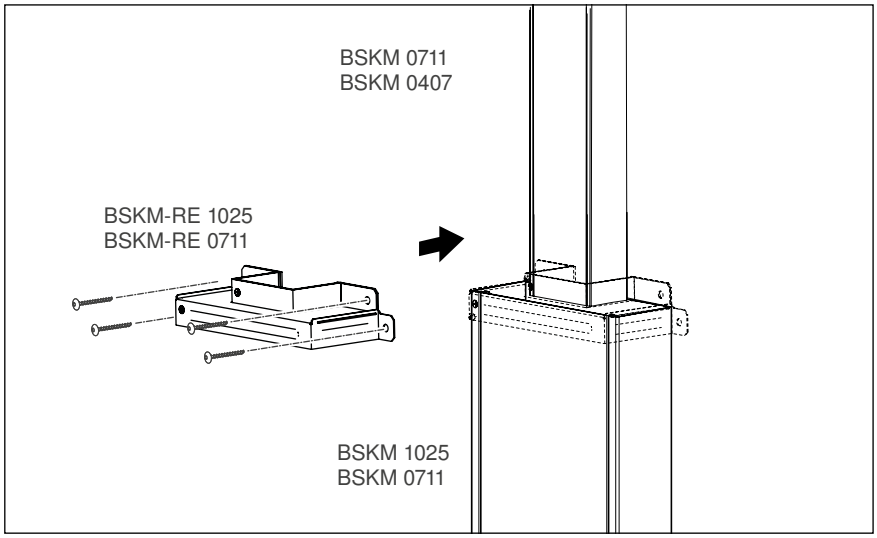


Fig. 38: Mounting a reducer

5.6.7 Mounting a wall/ceiling penetration

With wall or ceiling penetrations, for the achievement of the fire resistance class I30–I90, it is sufficient to plug the cavities around the duct with mineral wool and seal them with filler (see “5.5 Creating a wall/ceiling penetration” on page 29).

However, if I120 is to be achieved, then seal both sides of the penetration with a wall connection fitting BSKM-WA 0711 or BSKM-WA 1025 (see Fig. 39). The overlapping ensures the necessary tightness. The wall connection fitting is only available for BSKM 0711 and BSKM 1025.

The mounting example shows a wall penetration. The ceiling penetration is mounted in essentially the same way.

- Prepare the wall penetration as described in Section “5.5 Creating a wall/ceiling penetration” on page 29.
- Attach the wall penetration fitting and fix it, e.g. with six fire protection bolt ties (see “4.1 Fastening material” on page 17).

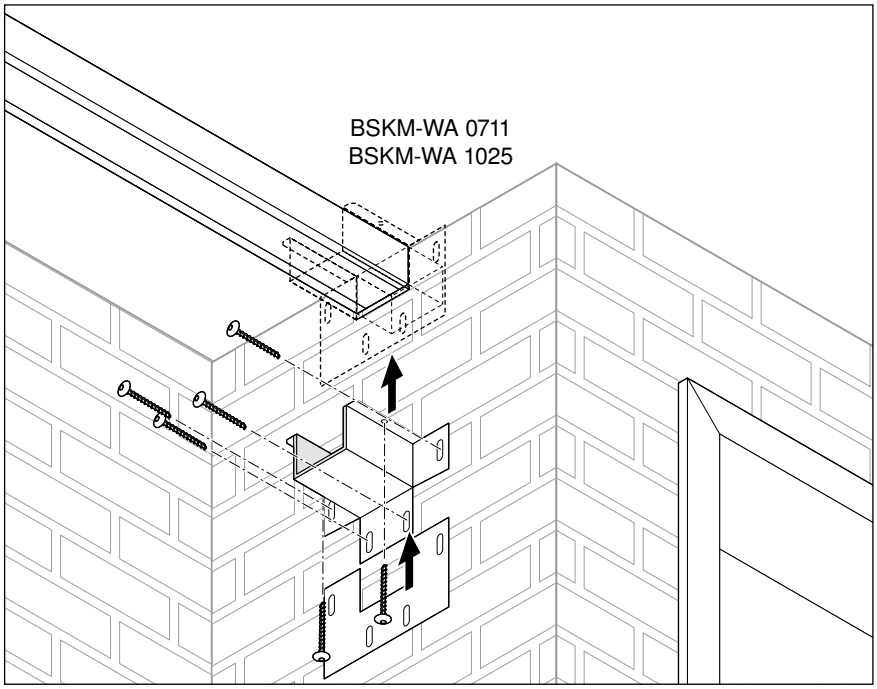


Fig. 39: Mounting a wall penetration for fire resistance class I120

5.6.8 Mounting an end piece

The end piece closes off the end of a duct.

- Attach the end piece BSKM-VK 0407, BSKM-VK 0711 or BSKM-VK 1025 and fix it, e.g. with two fire protection bolt ties (see “4.1 Fastening material” on page 17).

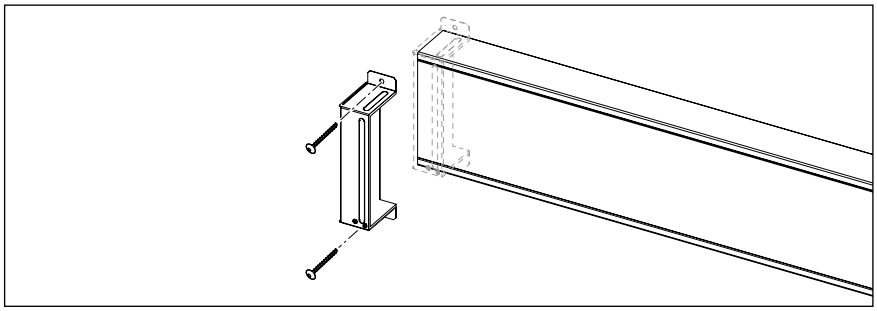


Fig. 40: Mounting an end piece

For information on closing off a duct with onward cabling, see “10.2 Creating wall end covers” on page 75.

6 Mounting on a support system

When mounting on a support system, the ducts are located on the support profiles and lock plates of the appropriate fittings, to which they are screwed. The lid side of the ducts is at the top, meaning that the duct route can be filled from the top. In turn, the lock plates of the fittings are fastened to the ceiling using M10 threaded rods. Anchors with construction approval, which are suitable for the dead weight of the duct route including cables, must be used to fasten the threaded rods to the ceiling.

Calculate the length of the threaded rods so that the support profiles and/or lock plates are supported by a washer and two nuts (support nut and lock nut).

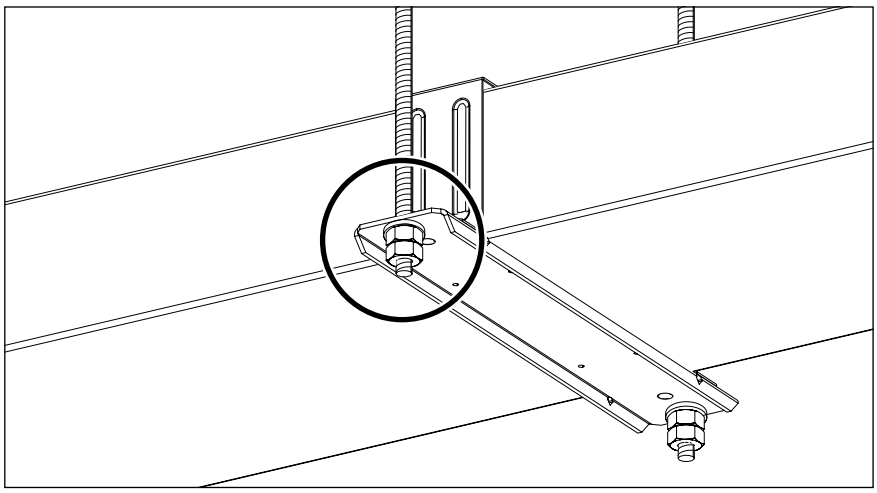


Fig. 41: Securing support profiles using nuts and lock nuts

6.1 Mounting a fire protection duct

Fire protection ducts can be mounted on different support systems. We recommend screwing them to support profiles and sealing them with duct connectors (see “6.1.1 Mounting on a support profile” on page 40).

Alternatively, fire protection ducts can be mounted on

– Profile rails on threaded rods (see page 42)
– Support/bracket combinations (see page 43)
– Wall brackets (see page 44)

With all the alternatives, the duct route must be supported by horizontally mounted support elements and sealed at the joints with a combination of support profile and duct connector.

The maximum support spacing is always 1 m. This means that duct elments with a length of more than 1 m require additional support.

ATTENTION

Risk of lack of tightness of the duct routing with sloping mounting!
Ensure that the duct is always routed horizontally (except with a height change with the appropriate fittings such as external/internal corner or vertical bends). Only this will guarantee secure screwing to support profiles/lock plates as well as the smoke-tight ending with duct connectors or fittings.

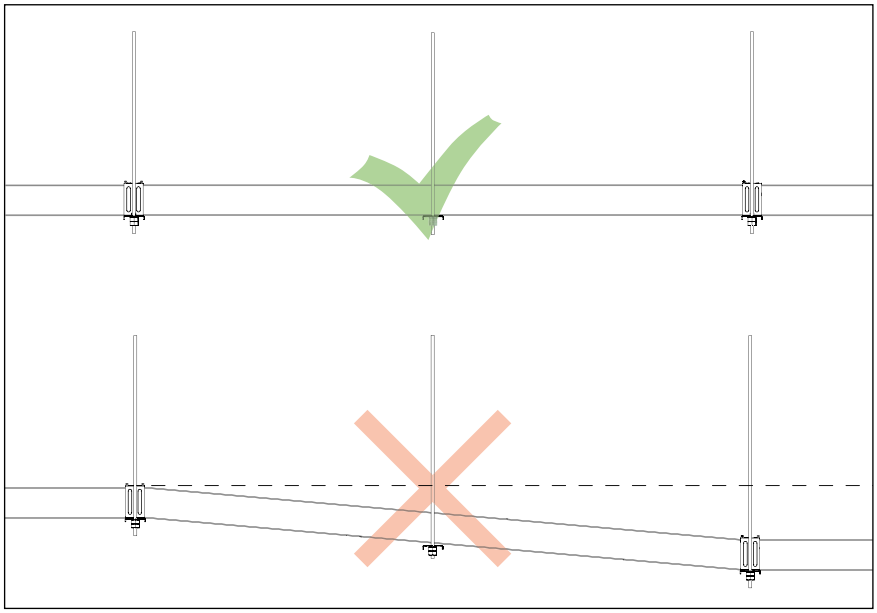


Fig. 42: Ensure horizontal routing

To compensate for height differences in routes, use vertical bends, external or internal corners (see section „6.3 Mounting fittings“).

6.1.1 Mounting on a support profile

The external round holes of the support plate serve as a measure for the ceiling fastening of the threaded rods.

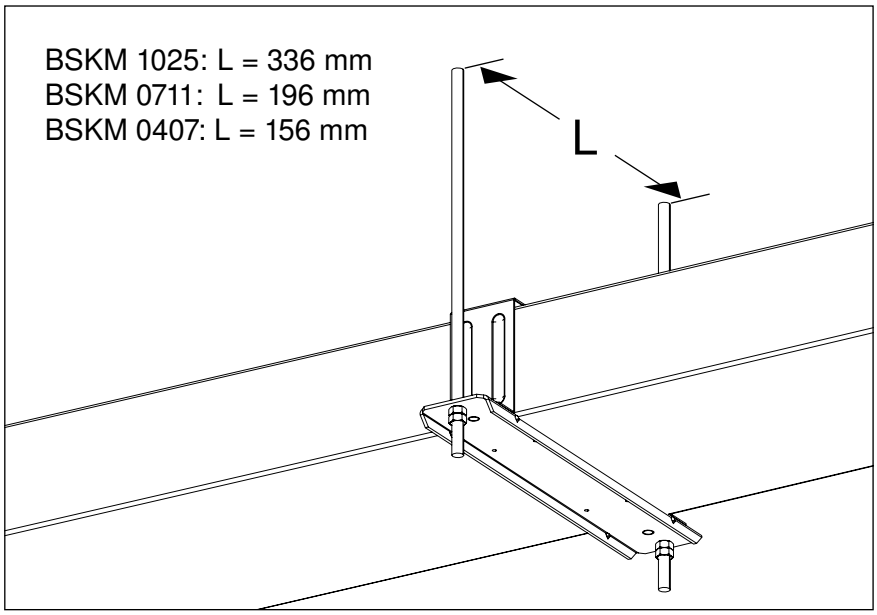


Fig. 43: Spacing of the threaded rods

Screw the ducts to the support profiles to stabilise the duct route. This offers the opportunity of filling the entire, still open duct route with cables. The duct route is only closed at the end and fixed by attaching duct connectors.

- Fasten the threaded rods to the ceiling.

See Fig. 44:

1. Stick the self-adhesive sealing strip to the support profile.

   Fasten the support profile to the threaded rods with washers and nuts (support nut and lock nut) at the desired height.

   Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid.
2. Fix the duct with two self-tapping screws each (contained in the scope of delivery of the support profile) on the support.
3. Insert cables.
4. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
5. Attach the duct lid firmly.

   Attach the duct connector and screw it on.
6. Using connecting screws (contained in the scope of delivery of the duct connectors), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

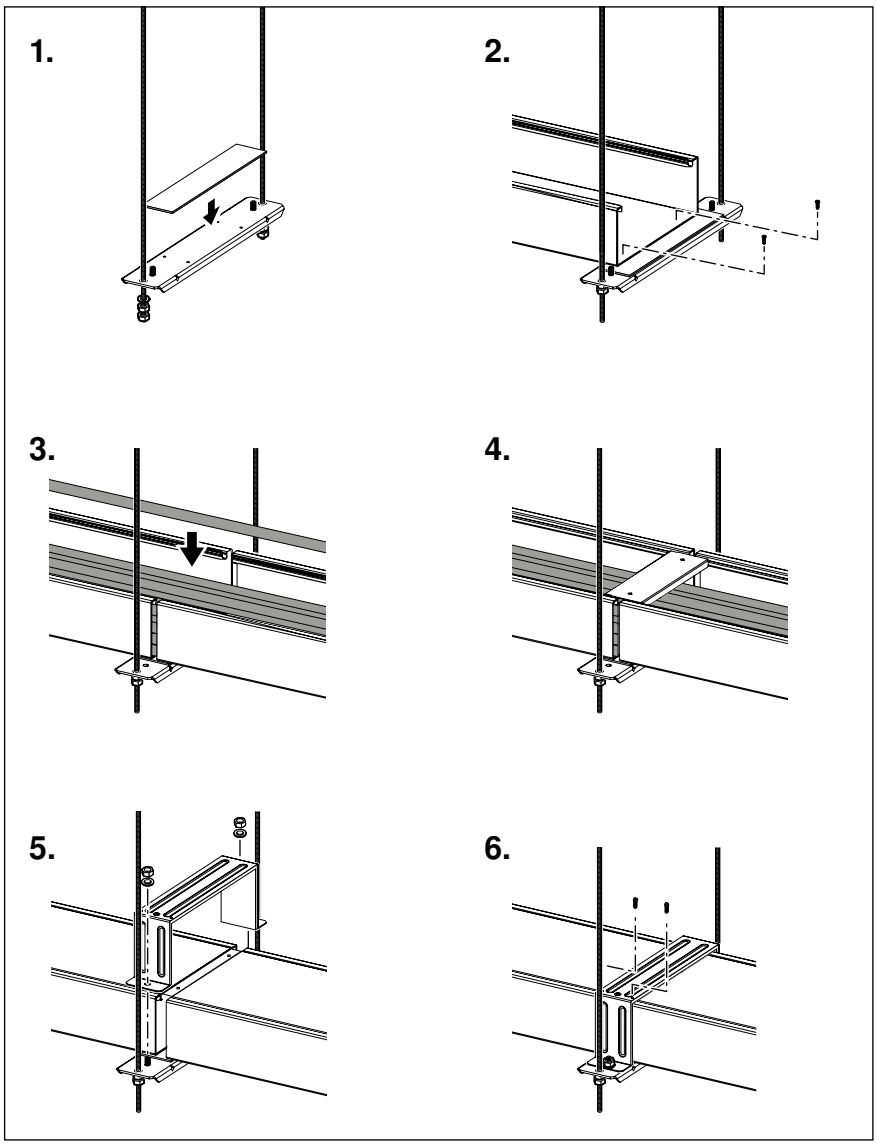


Fig. 44: Mounting a fire protection duct on a support profile

The maximum support spacing is 1 metre. Duct sections with a larger spacing must be additionally supported with a support profile. Duct connectors are only required at joints.

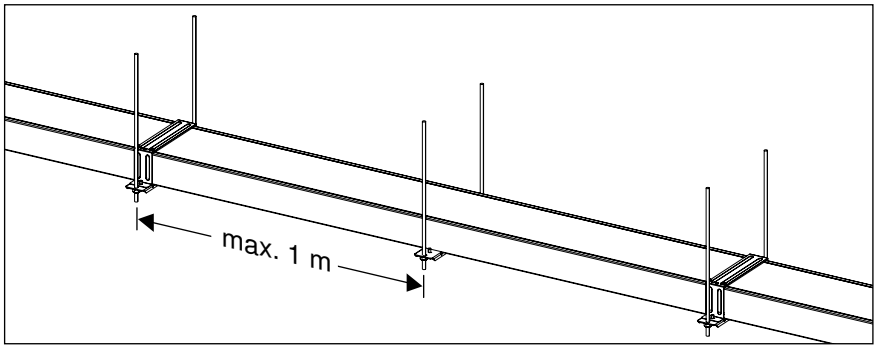


Fig. 45: Support the centre of the duct with a support profile

6.1.2 Mounting on a profile rail

With this type of mounting, profile rails fastened to threaded rods serve as support elements for the duct route (e.g. type MS21..).

We recommend a maximum distance of 100 mm between the support element and the joint.

- Screw the ducts to the profile rails with self-tapping screws of type BSKM-S 4008 (available as an accessory).

Alternatively, you can drill through the ducts at their support point and fasten them to the profile rail with a combination of M6 bolt, nut and washer.

After filling with cables, seal the joint between the two ducts with a combination of a support plate (BSKM-AD 0407, BSKM-AD 0711 or BSKM-AD 1025) and duct connector (BSKM-VD 0407, BSKM-VD 0711 or BSKM-VD 1025).

- Screw the support plate to both ducts using the four self-tapping screws contained in the scope of delivery of the support profile.
- Then screw the duct connector to the support profile.

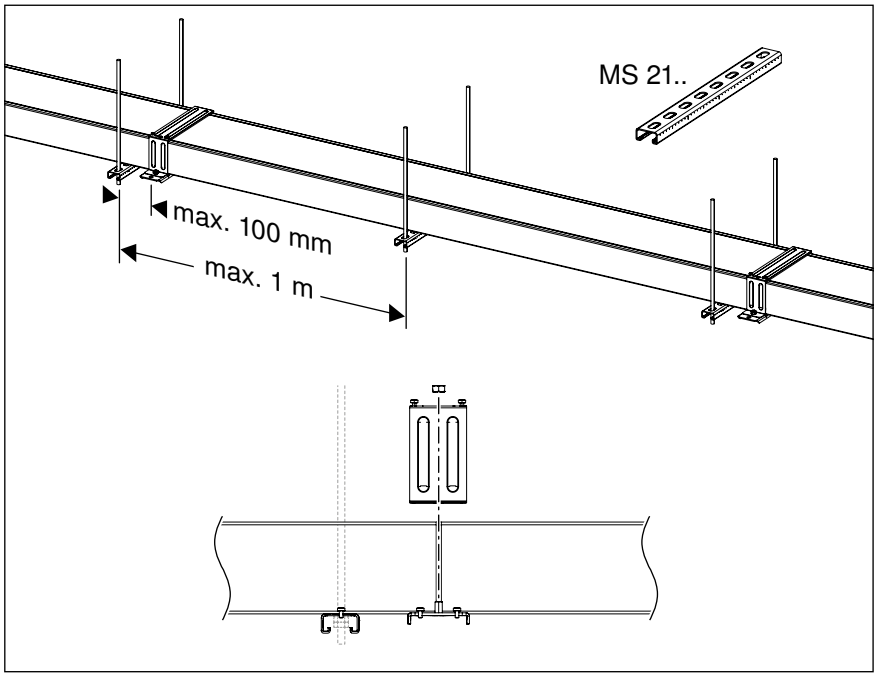


Fig. 46: Routing with profile rail, here, e.g. MS 21..

6.1.3 Mounting on a support/bracket

With this mounting type, the duct route is supported by brackets (recommended: AW 15..), which, in turn, are fastened to ceiling supports (recommended: US5 K..). We recommend using the OBO bolt tie, type BZ 12-15-35/110, for ceiling fastening of the support.

We recommend a maximum distance of 100 mm between the support element and the joint.

- Fasten the duct to the bracket with a combination of M6 bolt, nut and washer.

After filling with cables, seal the joint between the two ducts with a combination of a support plate (BSKM-AD 0407, BSKM-AD 0711 or BSKM-AD 1025) and duct connector (BSKM-VD 0407, BSKM-VD 1025 or BSKM-VD 0711).

- Screw the support plate to both ducts using the four self-tapping screws contained in the scope of delivery of the support profile.
- Then screw the duct connector to the support profile.

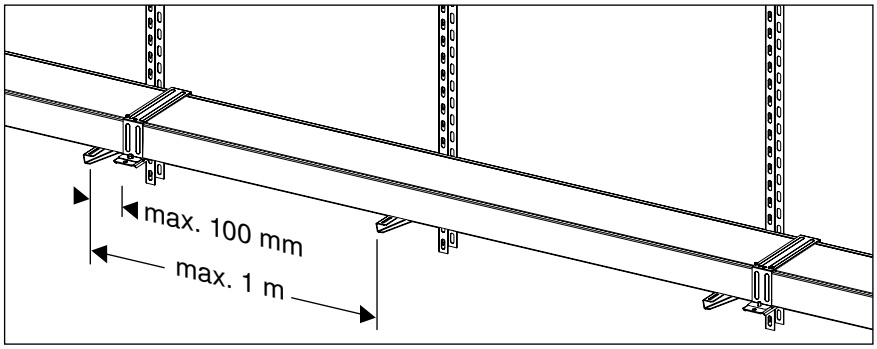


Fig. 47: Example for routing on support/bracket

With support/bracket mounting, we recommend using the system components shown in Fig. 48.

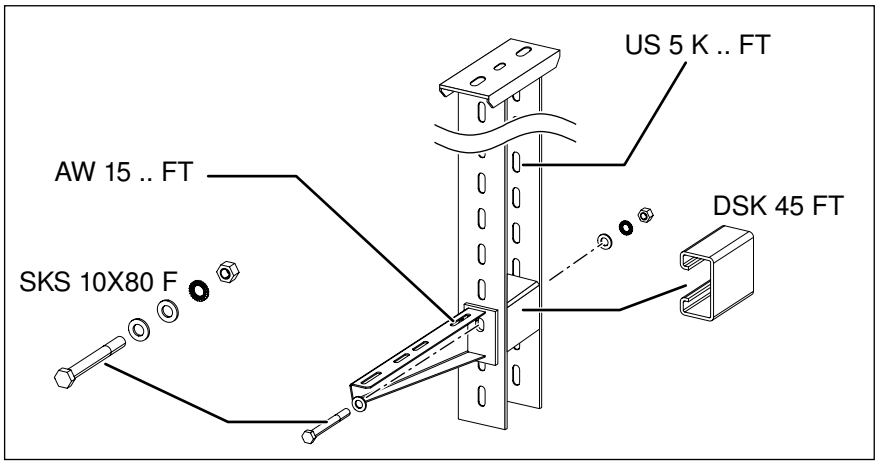


Fig. 48: Example of support/bracket mounting

To fasten the support to the ceiling, we recommend using two OBO bolt ties, type BZ 12-15-35/110.

6.1.4 Mounting on a wall bracket

With this mounting type, the duct route is supported by brackets (recommended: AW 15..), which are screwed to the wall. Use duct connectors, screwed to support profiles, to seal the joints. Ensure that the duct route is not directly on the wall (see Fig. 49), and choose wall brackets of an appropriate length.

We recommend using the following for fastening the wall brackets:

– For concrete walls: bolt tie (BZ U 10-10-30/90)
– For masonry: fire protection bolt tie (MMS-plus 10x80)

We recommend a maximum distance of 100 mm between the support element and the joint.

- Fasten the duct to the bracket with a combination of M6 bolt, nut and washer.

After filling with cables, seal the joint between the two ducts with a combination of a support plate (BSKM-AD 0407, BSKM-AD 0711 or BSKM-AD 1025) and duct connector (BSKM-VD 0407, BSKM-VD 0711 or BSKM-VD 1025).

- Screw the support plate to both ducts using the four self-tapping screws contained in the scope of delivery of the support profile.
- Then screw the duct connector to the support profile.

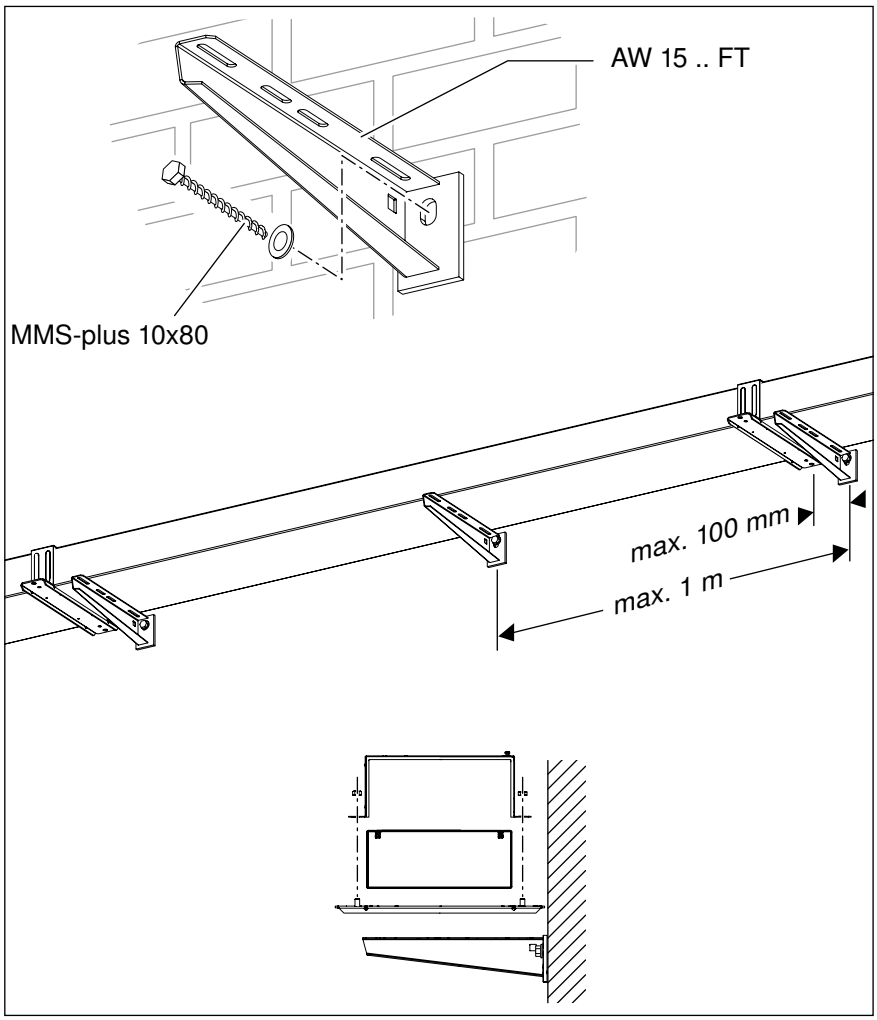


Fig. 49: Example for routing on wall brackets

6.2 Creating a wall/ceiling penetration

With wall or ceiling penetrations, for the achievement of the fire resistance class I30–I90, it is sufficient to plug the cavities around the duct with mineral wool and seal them with filler (see Fig. 50 and Fig. 51).

However, if I120 is to be achieved, then seal both sides of the penetration with a wall connection fitting BSKM-WA 0711 or BSKM-WA 1025 (see “6.3.8 Mounting a wall/ceiling penetration” on page 62). The wall connection fitting is only available for BSKM 0711 and BSKM 1025.

The wall penetration can be created in a solid wall or a dry construction wall (lightweight construction wall). When the wall connection fitting is used, the ducts must run to the wall or ceiling at a 90° angle.

If there is a fire, to prevent heat transfer within the wall inside a duct to the connection duct, the wall may not be penetrated with a single duct piece. Instead, the ducts must be mounted separately within the wall with a gap width of 5–10 mm.

The following two examples show the mounting of a wall penetration. The ceiling penetration is mounted in essentially the same way.

6.2.1 Wall penetration in solid wall

The mounting process described below allows achievement of a fire resistance class I90, depending on the fire resistance length of the wall. For I 120, see “6.3.8 Mounting a wall/ceiling penetration” on page 62.

Note! *The distance from the wall to the next suspension points must not exceed 350 mm.*

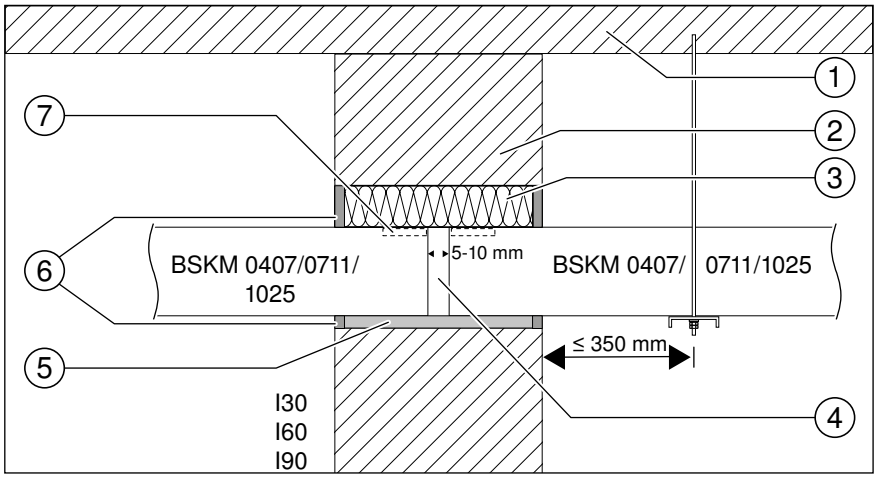


Fig. 50: Wall penetration through solid wall

(1) Ceiling	(2) Solid wall
(3) Mineral wool insulation, material class A 1, melting point > 1,000 °C, e.g. OBO MIW	(4) Gap between ducts: 5–10 mm
(5) Mineral fibre plate as support profile	(6) Sealing with filler
(7) For BSKM 1025: insert lid support BSKM-DS 1025	

- Lay the ends of the duct on a mineral fibre plate (5).
- When plugging the mineral wool (3), it is advisable to use an implement such as a stick and push as much as possible into the gap above the ducts, in order to achieve as high a density as possible.
- Moisten the surface of the mineral wool and the mineral fibre plate slightly with water and coat both sides with filler (6) with a thickness of min. 2 mm.

6.2.2 Wall penetration in dry/lightweight construction wall

The mounting process described below allows achievement of a fire resistance class I90, depending on the fire resistance length of the wall. For I 120, see “6.3.8 Mounting a wall/ceiling penetration” on page 62.

Note! *The distance from the wall to the next suspension points must not exceed 350 mm.*

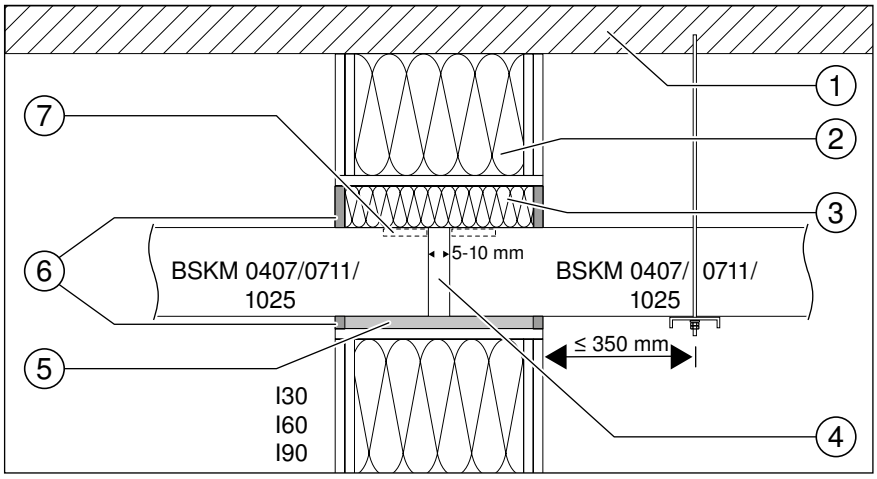


Fig. 51: Wall penetration through dry/lightweight construction wall

(1) Ceiling	(2) Dry construction wall with heat insulation
(3) Mineral wool insulation, material class A 1, melting point > 1,000 °C, e.g. OBO MIW	(4) Gap between ducts: 5–10 mm
(5) Mineral fibre plate as support profile	(6) Sealing with filler
(7) For BSKM 1025: insert lid support BSKM-DS 1025	

- Lay the ends of the duct on a mineral fibre plate (5).
- When plugging the mineral wool (3), it is advisable to use an implement such as a stick and push as much as possible into the gap above the ducts, in order to achieve as high a density as possible.
- Moisten the surface of the mineral wool and the mineral fibre plate slightly with water and coat both sides with filler (6) with a thickness of min. 2 mm.

6.3 Mounting fittings

With all the fittings, the holes of the appropriate lock plate serve as a template for the hole pattern of the threaded rods.

6.3.1 Mounting flat angles

Plan duct routing at a 90° angle and at the same height as the flat angle. The lock plate suspended from threaded rods (BSKM-GF 0407, BSKM-GF 0711 or BSKM-GF 1025) is used as a support element for the duct sections. Together with the screwed-on flat angle (BSKM-FW 0407, BSKM-FW 0711 or BSKM-FW 1025), it ensures the necessary tightness.

See Fig. 52:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the flat angle, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the flat angle and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the flat angle), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

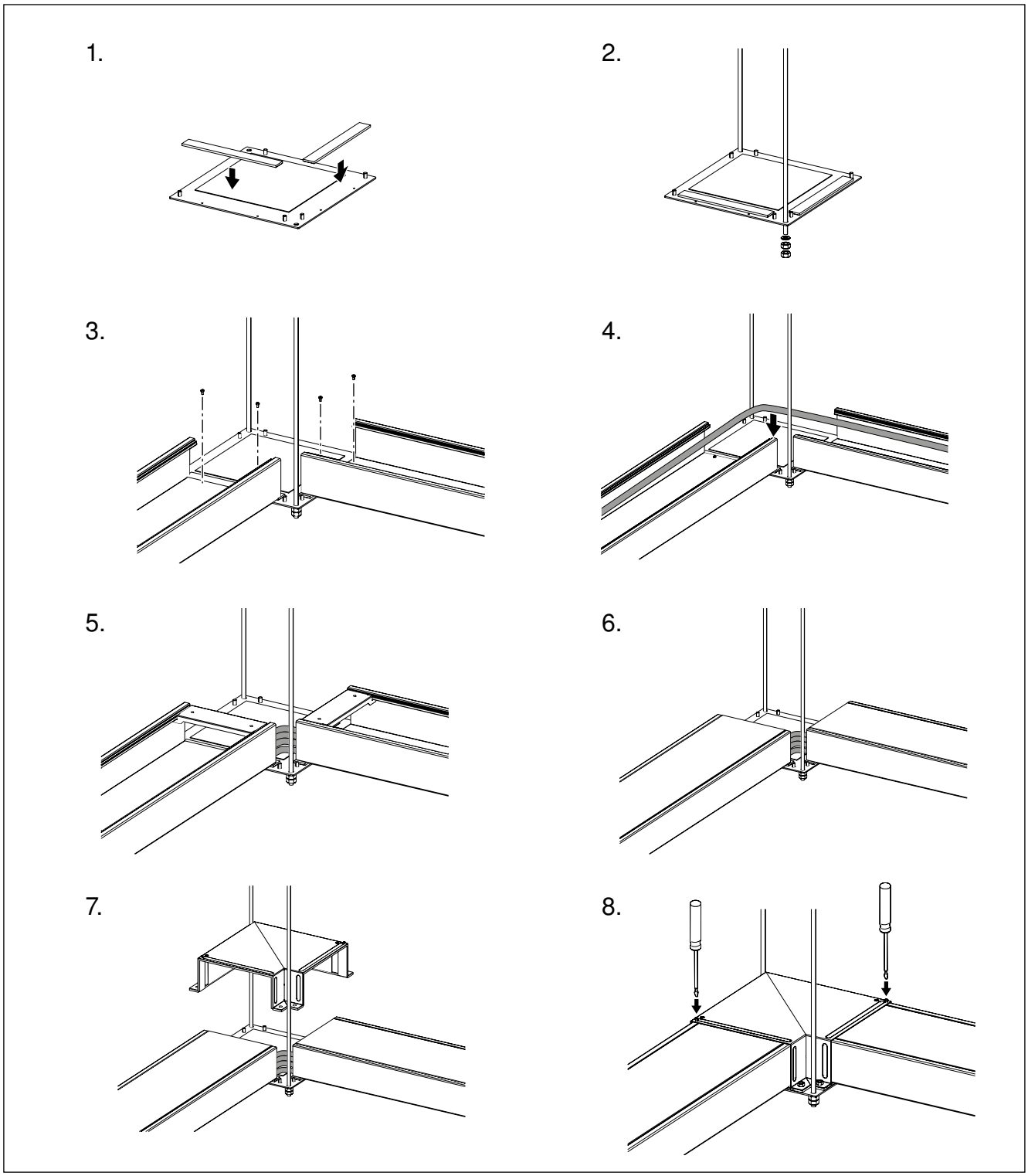


Fig. 52: Mounting flat angles

6.3.2 Mounting an external corner

The external corner is used to change a duct route at a 90° angle from the horizontal to the vertical. The lock plate suspended from threaded rods (BSKM-GA 0407, BSKM-GA 0711 or BSKM-GA 1025) is used as a support element for the duct sections. Together with the screwed-on external corner (BSKM-AE 0407, BSKM-AE 0711 or BSKM-AE 1025), it ensures the necessary tightness.

See Fig. 53:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on or to the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the external corner, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the external corner and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the external corner), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

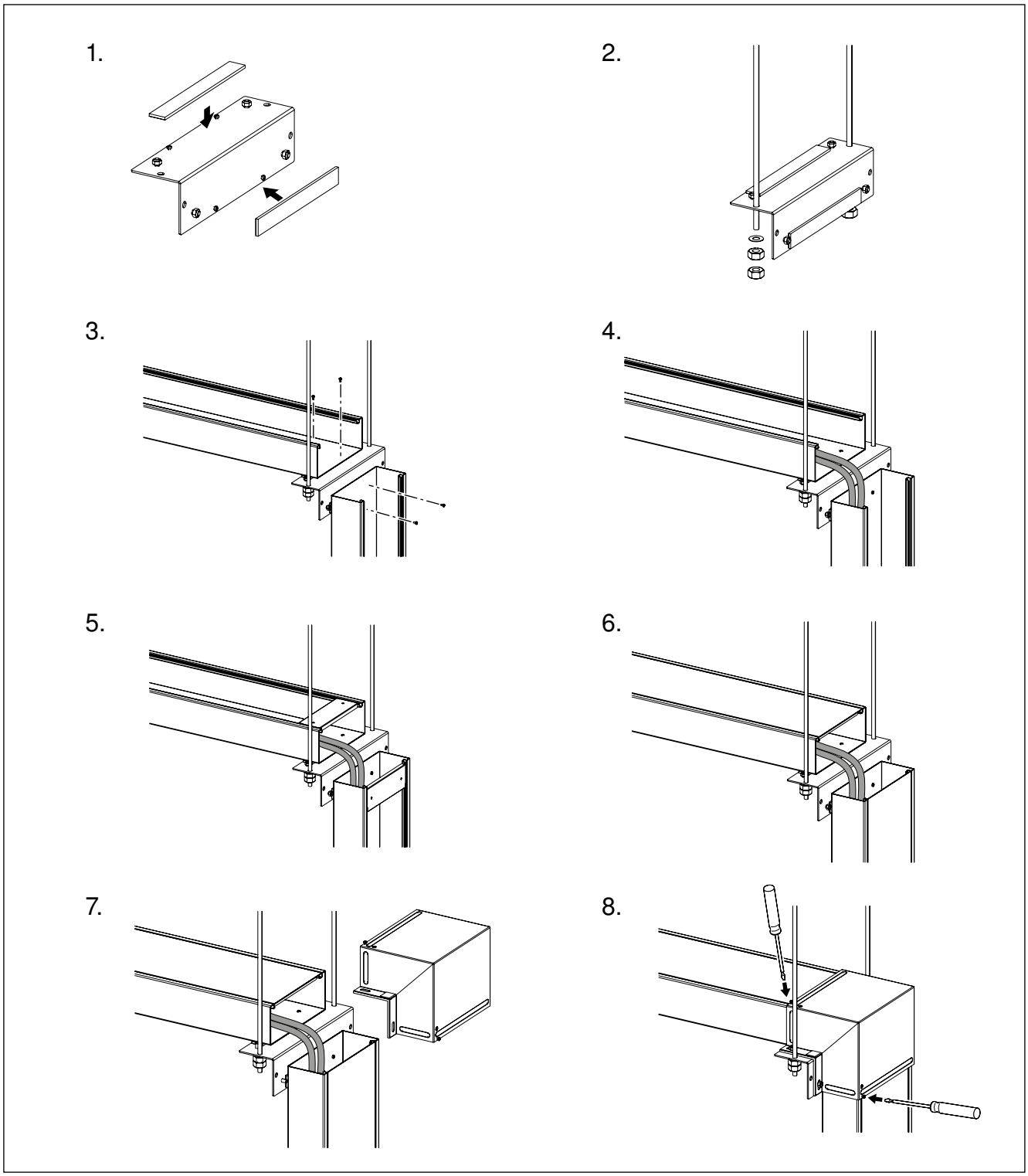


Fig. 53: Mounting an external corner

6.3.3 Mounting an internal corner

The internal corner is used to change a duct route at a 90° angle from the horizontal to the vertical. The lock plate suspended from threaded rods (BSKM-GI 0407, BSKM-GI 0711 or BSKM-GI 1025) is used as a support element for the duct sections. Together with the screwed-on internal corner (BSKM-IE 0407, BSKM-IE 0711 or BSKM-IE 1025), it ensures the necessary tightness.

See Fig. 54:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on or to the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the internal corner, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the internal corner and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the internal corner), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

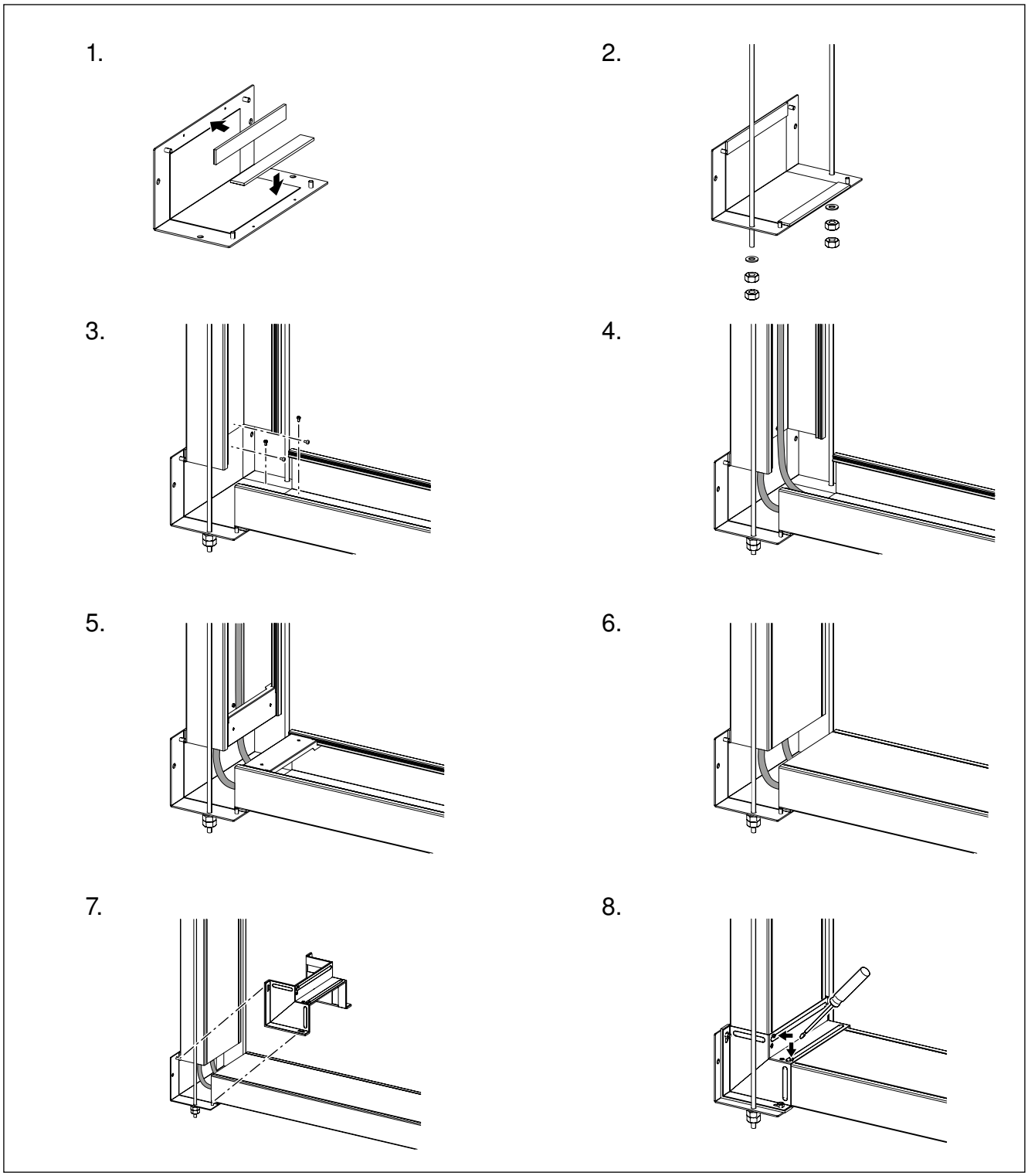


Fig. 54: Mounting an internal corner

6.3.4 Mounting vertical bends

Vertical bends are used to compensate a height difference in a route, e.g. in order to avoid a ceiling joist.

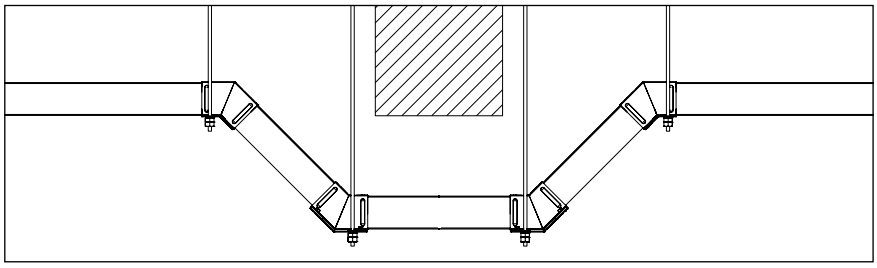


Fig. 55: Vertical bends to compensate a height difference

The rising and falling vertical bends (BSKM-ES 0711/1025 or BSKM-EF 0711/1025) can create angles of 45 °. The appropriate lock plates are already a component part of the article. They are suspended from threaded rods and are used as a support element for the duct sections. Together with the screwed-on fittings, they ensure the necessary tightness.

See Fig. 56:

1. Fasten the threaded rods to the ceiling and fasten the lock plates to the threaded rods with washers and nuts at the desired height.
2. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on or to the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the vertical bend, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

3. Insert cables.
4. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
5. Attach the duct lid firmly.
6. Attach the fittings and screw on with the supplied nuts.
7. Using connecting screws (contained in the scope of delivery of the vertical bend), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

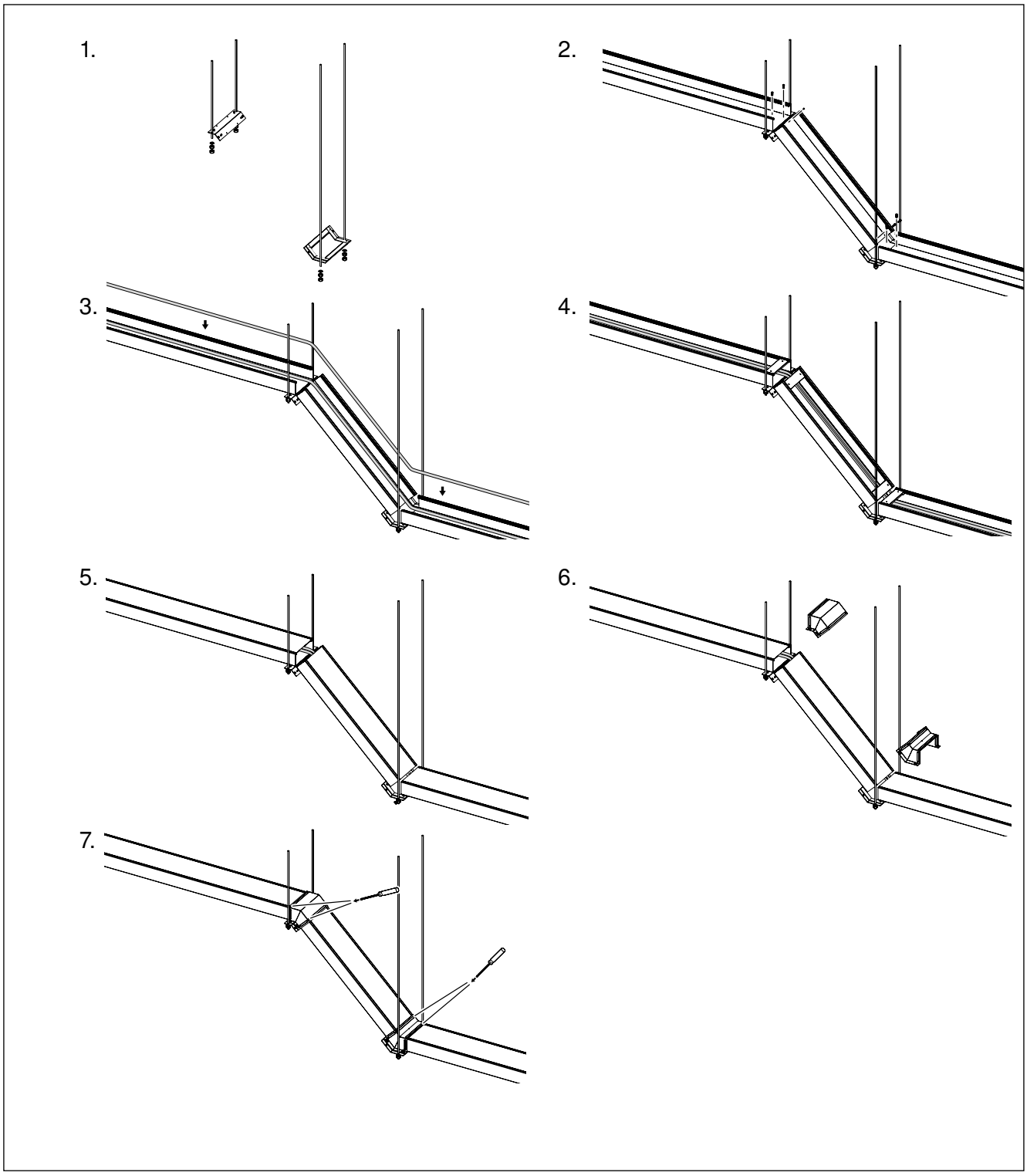


Fig. 56: Mounting vertical bends

6.3.5 Mounting a T branch piece

The T branch piece is used to expand a duct to add a right-angled additional duct branch section. The lock plate suspended from threaded rods (BSKM-GT 0407, BSKM-GT 0711 or BSKM-GT 1025) is used as a support element for the duct sections. Together with the screwed-on T branch piece (BSKM-TA 0407, BSKM-TA 0711 or BSKM-TA 1025), it ensures the necessary tightness.

See Fig. 57:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the T branch piece, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the T branch piece and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the T branch piece), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

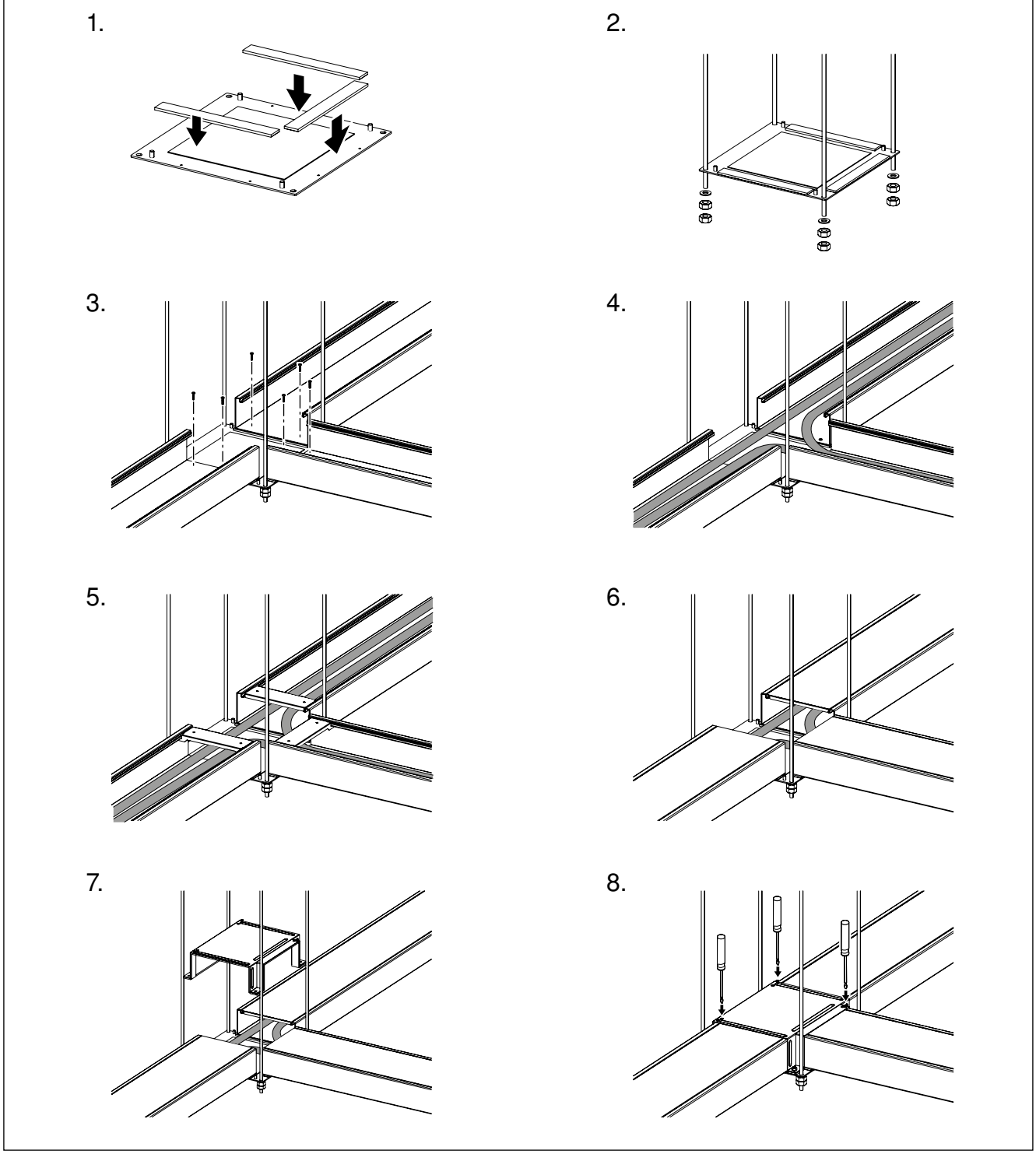


Fig. 57: Mounting a T branch piece

6.3.6 Mounting a T reducing branch piece

The T reducing branch piece can be used to create a right-angled branch from the main duct with a narrower duct. The following reductions are possible:

- 250 mm-wide duct routing (BSKM 1025) to a right-angled duct branch section of width 110 mm (BSKM 0711)
- 250 mm-wide duct routing (BSKM 1025) to a right-angled duct branch section of width 70 mm (BSKM 0407)
- 110 mm-wide duct routing (BSKM 0711) to a right-angled duct branch section of width 70 mm (BSKM 0407)

The lock plate suspended from threaded rods (BSKM-GR 0711 or BSKM-GR 1025) is used as a support element for the duct sections. Together with the screwed-on T reducing branch piece (BSKM-TR 0711, BSKM-TR 1025, BSKM TRK 1025), it ensures the necessary tightness.

See Fig. 58:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on the lock plate.

ATTENTION

Comply with the minimum bending radii of the cables!
Cables can be damaged on bending. When laying the cables in the T reducing branch piece, ensure that the minimum bending radius, prescribed by the cable manufacturer, is observed.

4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the T reducing branch piece and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the T branch piece), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

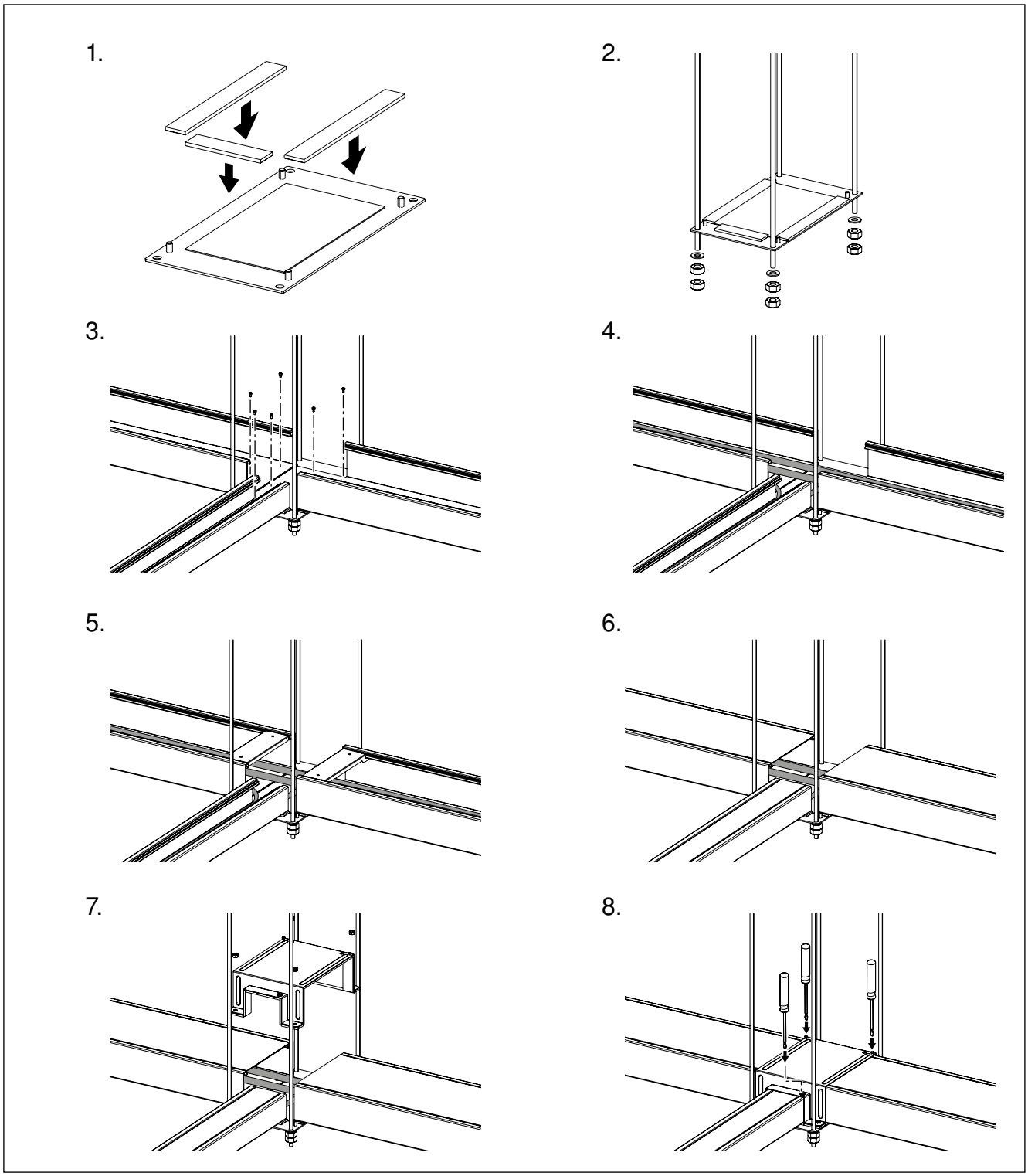


Fig. 58: Mounting a T reducing branch piece

6.3.7 Mounting a reducer

The reducer can be used to create a reduction from the main duct to a narrower duct. The following reductions are possible:

- 250 mm-wide duct routing (BSKM 1025) to a duct section of width 110 mm (BSKM 0711)
- 110 mm-wide duct routing (BSKM 0711) to a duct section of width 70 mm (BSKM 0407)

See Fig. 59:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the lock plate to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct sections with two self-tapping screws each (contained in the scope of delivery of the lock plate) on the lock plate.
4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the reducer and screw on with the supplied nuts.
8. Using connecting screws (contained in the scope of delivery of the T branch piece), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

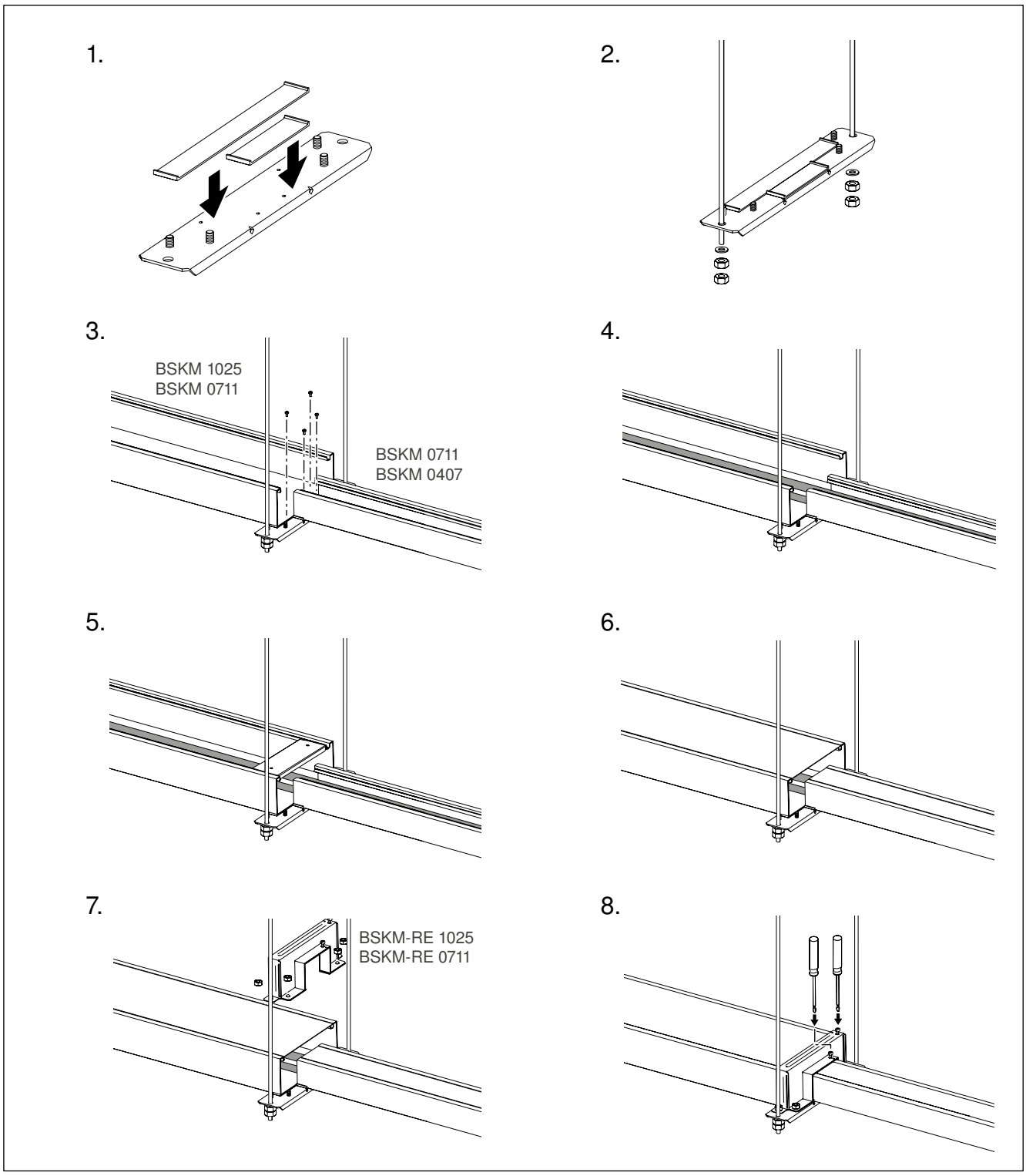


Fig. 59: Mounting a reducer

6.3.8 Mounting a wall/ceiling penetration

With wall or ceiling penetrations, for the achievement of the fire resistance class I30–I90, it is sufficient to plug the cavities around the duct with mineral wool and seal them with filler.

However, if I120 is to be achieved, then seal both sides of the penetration with a wall connection fitting BSKM-WA 0711 or BSKM-WA 1025. The overlapping ensures the necessary tightness. The wall connection fitting is only available for BSKM 0711 and BSKM 1025.

The following mounting examples show a wall penetration. The ceiling penetration is mounted in essentially the same way.

- Prepare the wall penetration as described in Section “6.2 Creating a wall/ceiling penetration” on page 45.

Wall penetration in **solid wall** (I120):

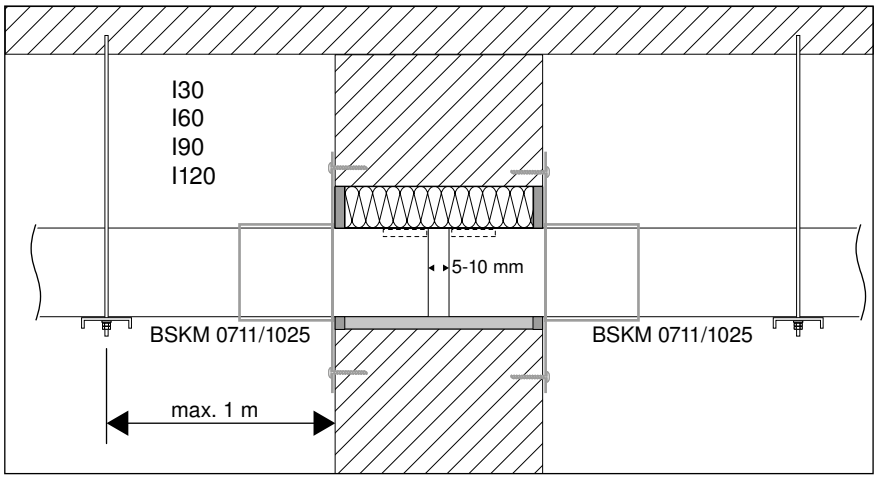


Fig. 60: Wall penetration through solid wall

Note! *Observe the minimum wall thicknesses according to the fire resistance class:*
I30: min. 75 mm, I60–I120: min. 100 mm

See Fig. 61:

1. Stick the self-adhesive sealing strip to the lock plate.

   Fasten the lock plate with washers and fire protection bolt ties (e.g. MMS-plus 7.5x50) to the bottom edge of the wall opening at the desired height.
2. Shorten the cables as necessary. If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Insert the duct in the wall, observing the gap width of the onward duct of 5–10 mm.

   Insert cables.
3. For duct BSKM 1025: insert the lid support (see “4.5 Using lid support” on page 20) and push it through to the end of the duct (see Fig. 50 on page 46).
4. Stick the enclosed sealing strip onto the wall connection fitting.
5. Attach the duct lid firmly.

   Plug the opening with mineral wool and seal with filler (see “6.2.1 Wall penetration in solid wall” on page 46).

   Attach the wall connection fitting.
6. Attach the wall connection plate.

7. Screw together the fitting with the supplied nuts and the wall connection plate with fire protection bolt ties (e.g. MMS-plus 7.5x50) in such a way that the fitting is pressed evenly against the duct and the wall, thus closing the wall connection tightly.
8. Using connecting screws (contained in the scope of delivery of the wall connection), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

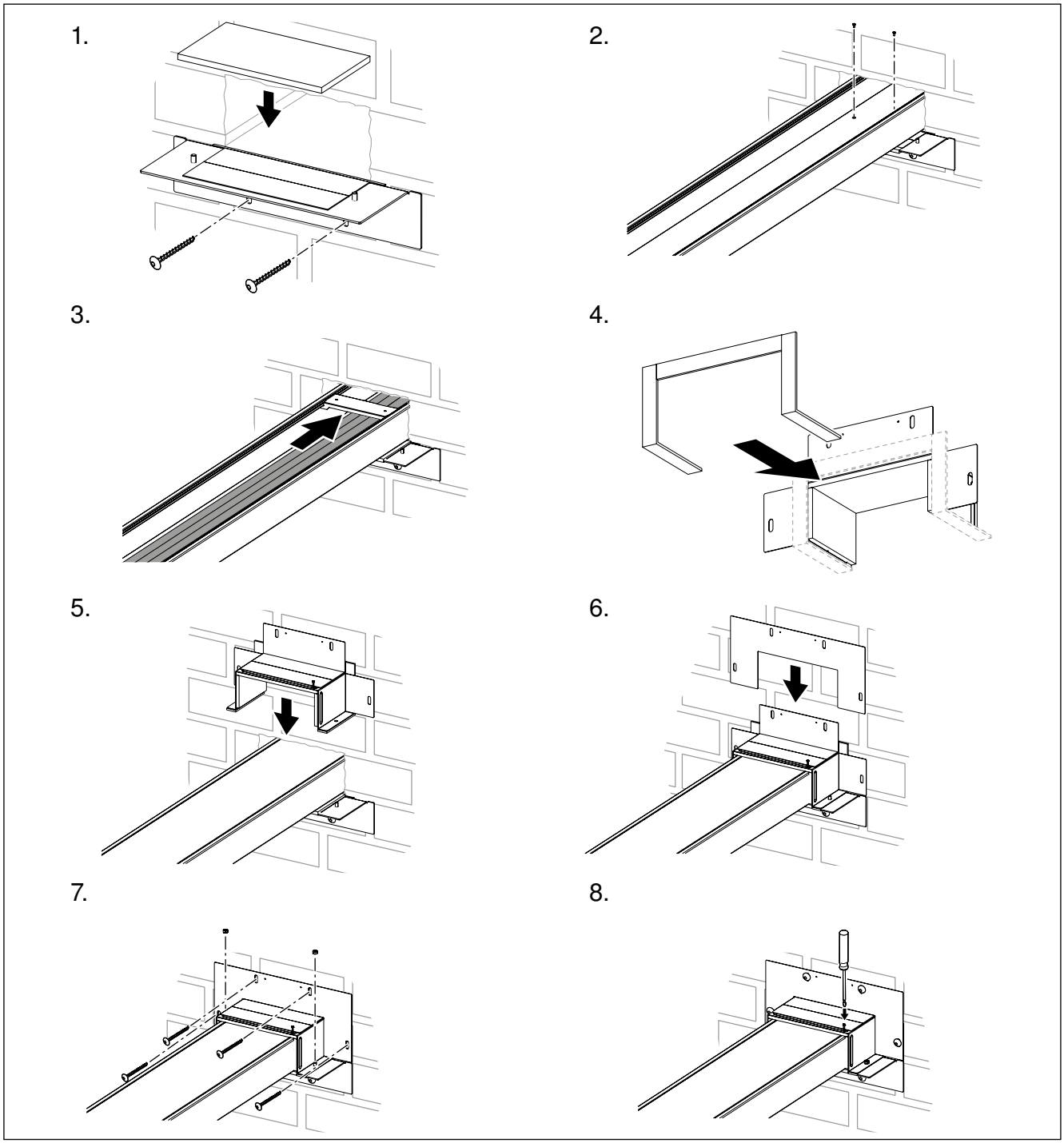


Fig. 61: Mounting a wall connection on a solid wall

Wall penetration in **dry/lightweight construction wall** (I120):

As the required lifespan is not guaranteed through screwing in in the lightweight construction wall, use threaded rods instead, which you can push through the wall and screw tight on both sides.

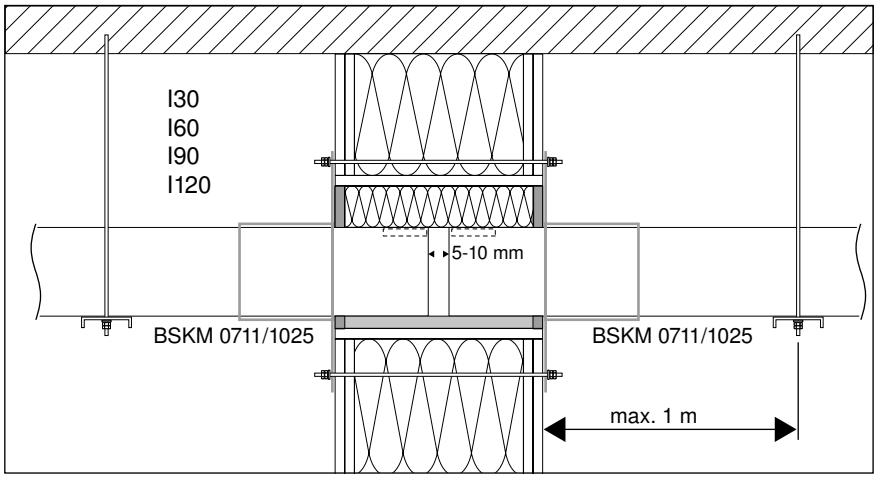


Fig. 62: Wall penetration through dry/lightweight construction wall

Note! *Observe the minimum wall thickness: For I30–I120 min. 100 mm*

Note! *An additional crossbar for load bearing in the wall is not required.*

See Fig. 63:

1. Stick the self-adhesive sealing strip to the lock plate.

   Drill the holes for the threaded rods.

   Fasten the lock plate with the threaded rods, washers and nuts to the bottom edge of the wall opening at the desired height.
2. Shorten the cables as necessary. If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Insert the duct in the wall, observing the gap width of the onward duct of 5–10 mm.

   Insert cables.
3. For duct BSKM 1025: insert the lid support (see “4.5 Using lid support” on page 20) and push it through to the end of the duct (see “Fig. 15: Inserting lid support” on page 20).
4. Stick the enclosed sealing strip onto the wall connection fitting.
5. Attach the duct lid firmly.

   Plug the opening with mineral wool and seal with filler (see “6.2.2 Wall penetration in dry/lightweight construction wall” on page 47).

   Attach the wall connection fitting.
6. Attach the wall connection plate.

   Drill the holes for the threaded rods.

7. Push the threaded rods through.

   Screw together the fitting with the supplied nuts and the wall connection plate with threaded rods, nuts and washers in such a way that the fitting is pressed evenly against the duct and the wall, thus closing the wall connection tightly.

8. Using the connecting screw (contained in the scope of delivery of the wall connection), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

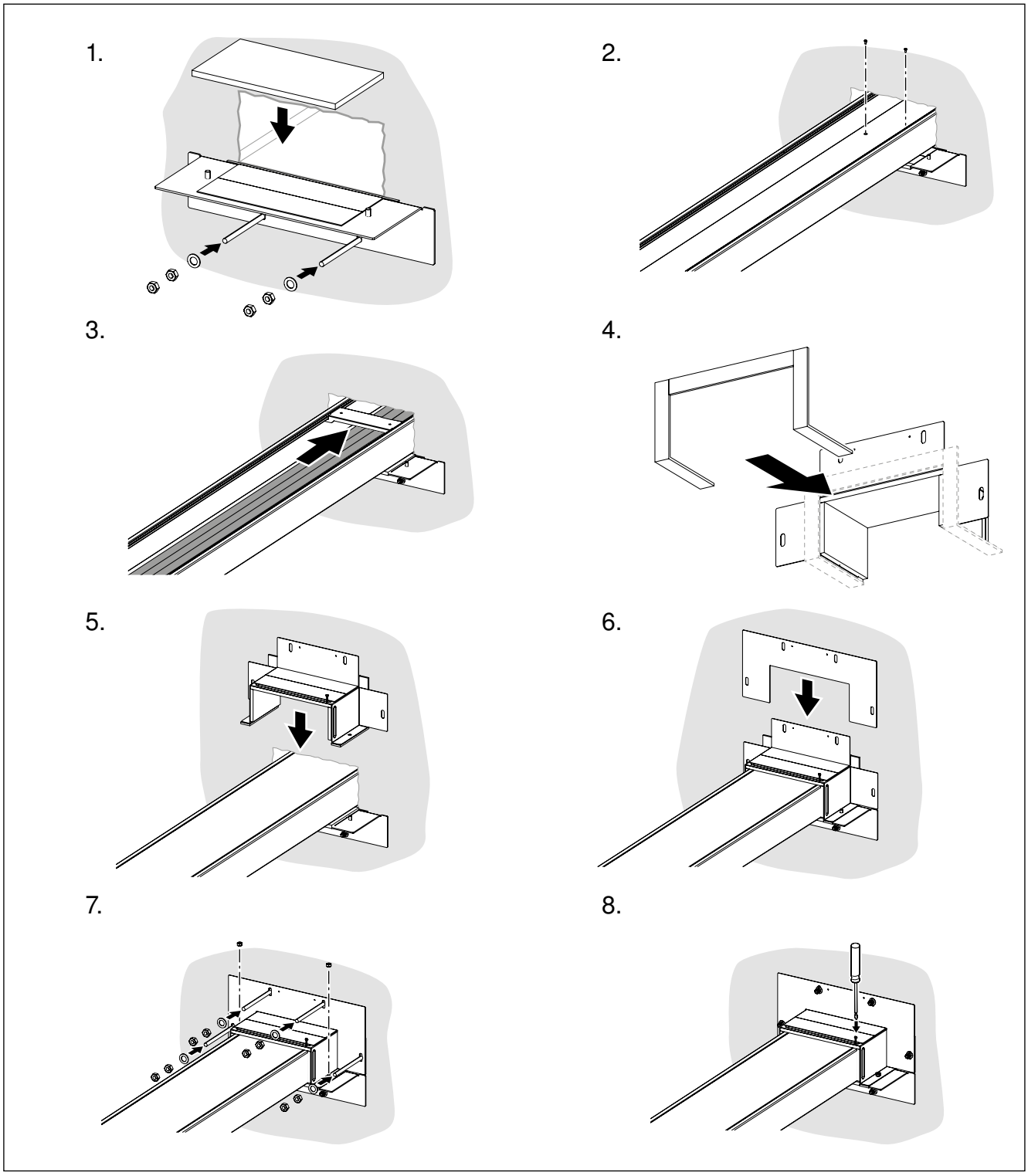


Fig. 63: Mounting a wall connection on a solid wall

6.3.9 Mounting an end piece

The end piece closes off the end of a duct. The support profile suspended from threaded rods (BSKM-AD 0407, BSKM-AD 0711 or BSKM-AD 1025) is used as a support element for the duct section. Together with the screwed-on end piece (BSKM-VK 0407, BSKM-VK 0711 or BSKM-VK 1025), it ensures the necessary tightness.

For information on closing off a duct with onward cabling, see “10.2 Creating wall end covers” on page 75.

See Fig. 64:

1. Stick the self-adhesive sealing strip to the lock plate.
2. Fasten the threaded rods to the ceiling and fasten the support profile to the threaded rods with washers and nuts at the desired height.
3. Shorten the ducts as necessary and then re-drill the duct fastening holes (see Fig. 12 on page 18). If necessary, use locking brackets for the duct lid (see “4.4 Inserting locking brackets” on page 19).

   Remove the duct lid and fix the duct with two self-tapping screws each (contained in the scope of delivery of the support profile) on the support profile.
4. Insert cables.
5. For duct BSKM 1025: insert lid support (see “4.5 Using lid support” on page 20).
6. Attach the duct lid firmly.
7. Attach the end piece and screw on with the supplied nuts.
8. Using the connecting screw (contained in the scope of delivery of the end piece), create the equipotential bonding (see “8.1 Create equipotential bonding” on page 72).

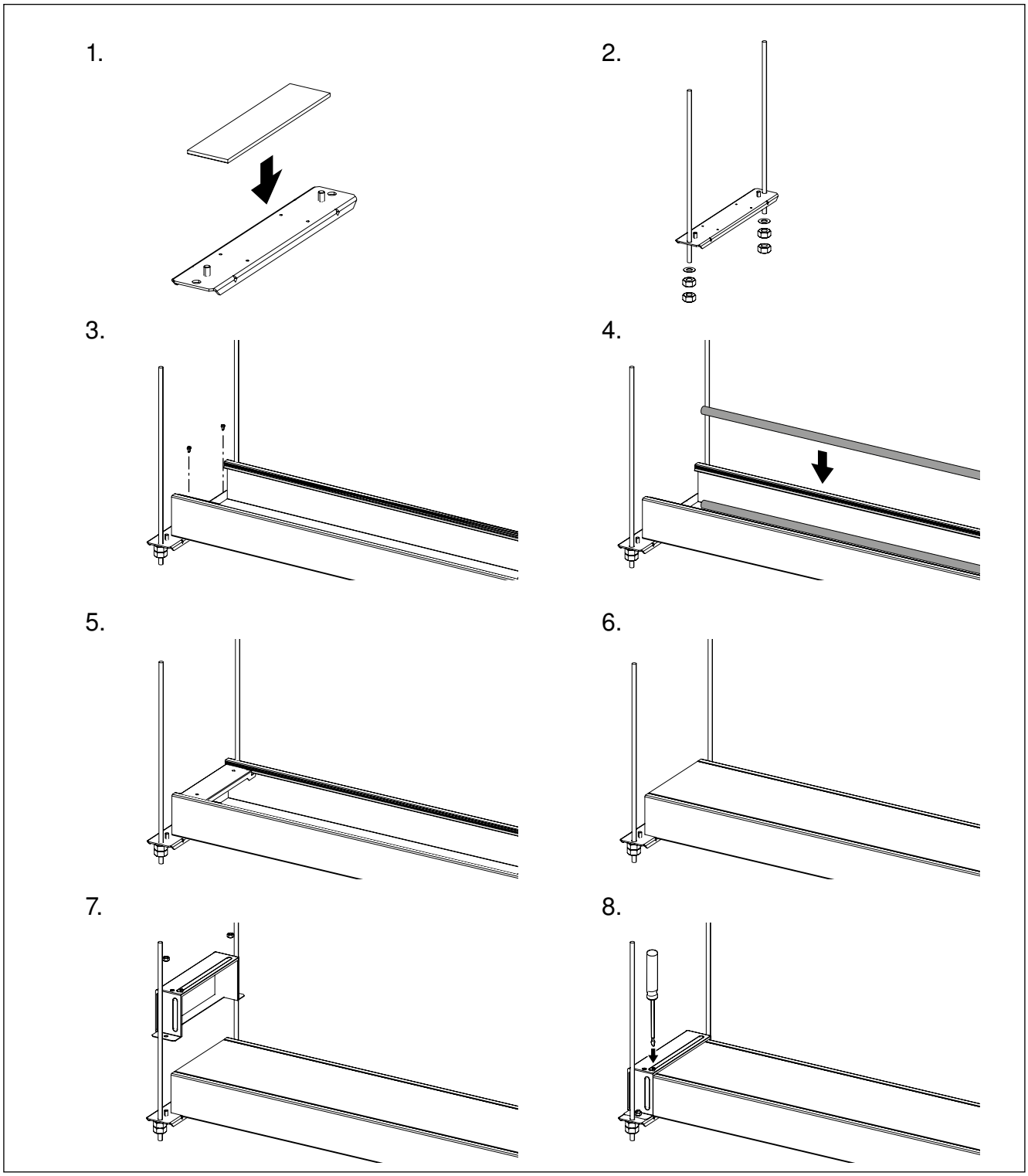


Fig. 64: Mounting an end piece

7 Creating cable outlets

7.1 Creating an individual outlet

You can create individual cable outlets on the duct basis, but not in the overlap areas of fittings or connectors.

V-TEC cable glands, made of brass and polyamide with a diameter of up to 35 mm (M50), are tested and approved as outlet elements.

In addition, multiple sealing inserts, type 107 C VM, can be used in the cable gland. It must be ensured that all the outlets of the insert are filled with cables, in order to guarantee tightness.

Note! *The distance between a cable outlet to a wall/ceiling penetration must be at least 200 mm.*

- Create the openings in the duct/fitting with a step drill and de-burr them carefully.
- Attach the cable gland.

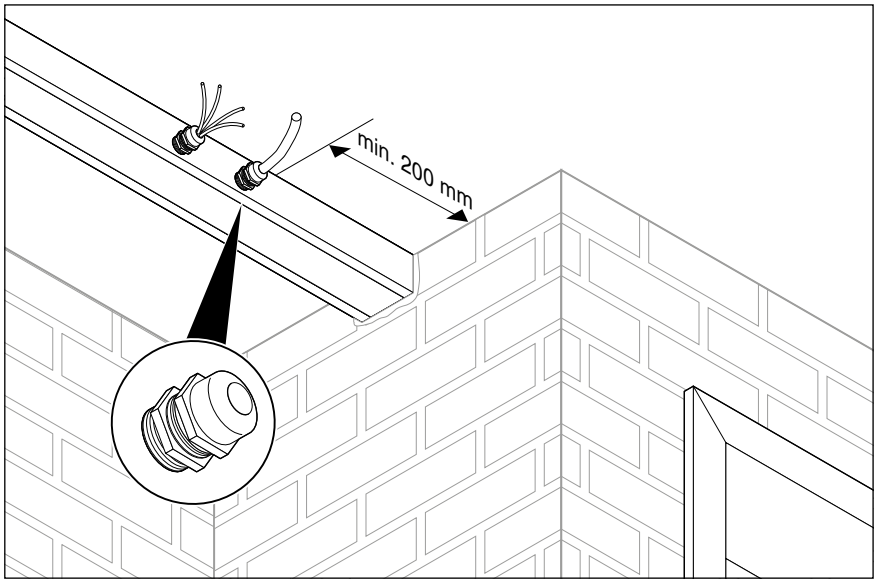


Fig. 65: Creating an individual cable outlet

7.2 Creating a multiple outlet

Use the foam seal BSKM-KA 0407, BSKM-KA 0711 or BSKM-KA 1025 to run cables with a diameter greater than 35 mm or whole cable bundles out of the end of the duct. It can be cut and is easy to drill in order to run cables through it. Fill remaining openings completely with the ASX ablation coating (see Fig. 66).

Note! *The distance between a multiple outlet and a wall/ceiling penetration must be at least 500 mm.*

1. Push the foam seal fully into the duct.
2. Create openings (e.g. by drilling) and run the cables through individually, or adjust the foam seal to the existing installation with a knife.
3. Attach the duct lid and seal the residual openings fully with ASX.
4. Fully seal the surface of the foam seal in this way with ASX, creating a dry layer thickness of ≥ 1 mm.

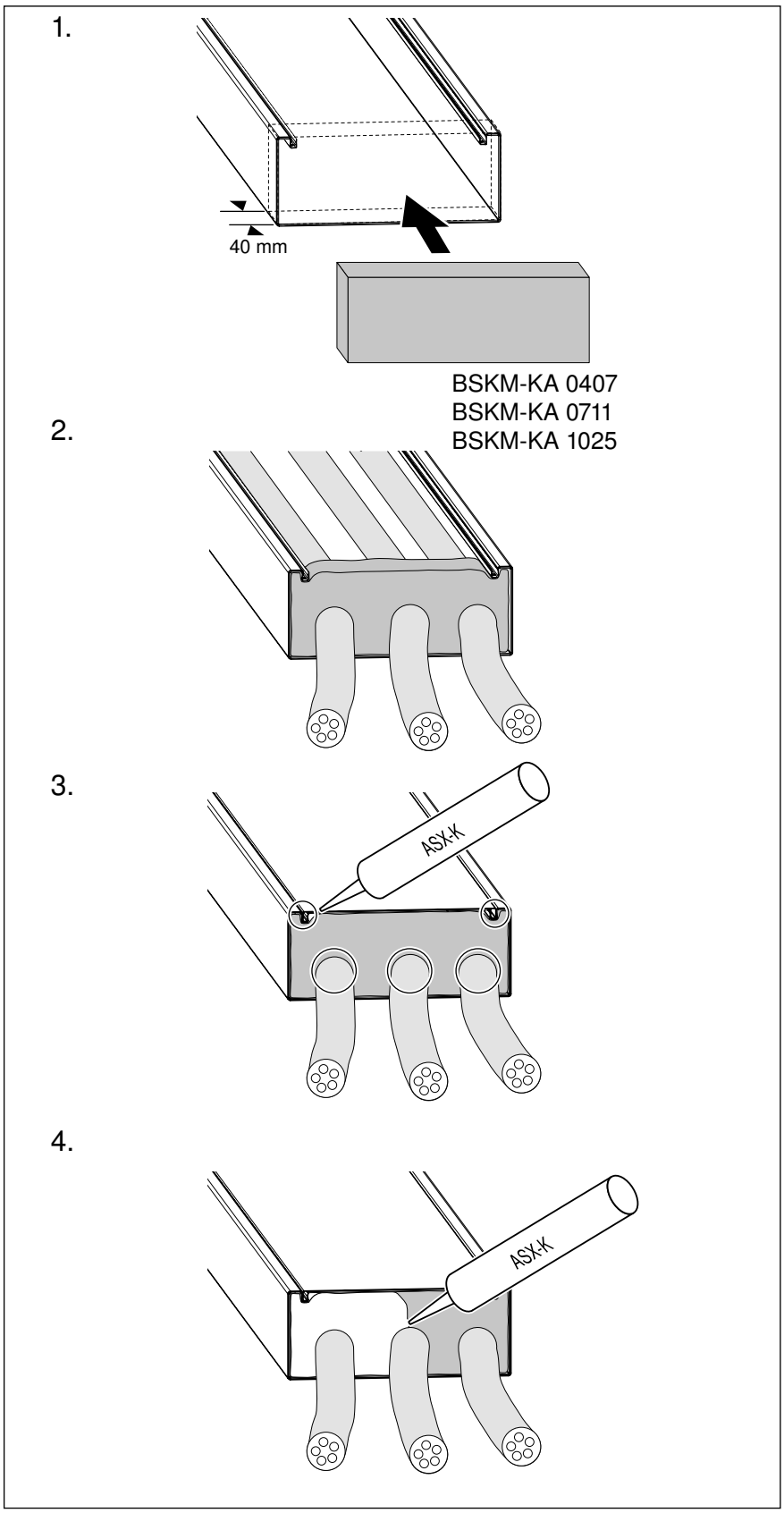


Fig. 66: Creating a multiple cable outlet

To create a multiple outlet in the middle of a section, install a T branch piece and seal the multiple outlet with a foam seal BSKM-KA 0407, BSKM-KA 0711 or BSKM-KA 1025 as shown below (see Fig. 67).

Note! *In a T branch piece, the distance from a multiple outlet to a wall/ceiling penetration must be at least 500 mm, measured from the centre of the T branch piece.*

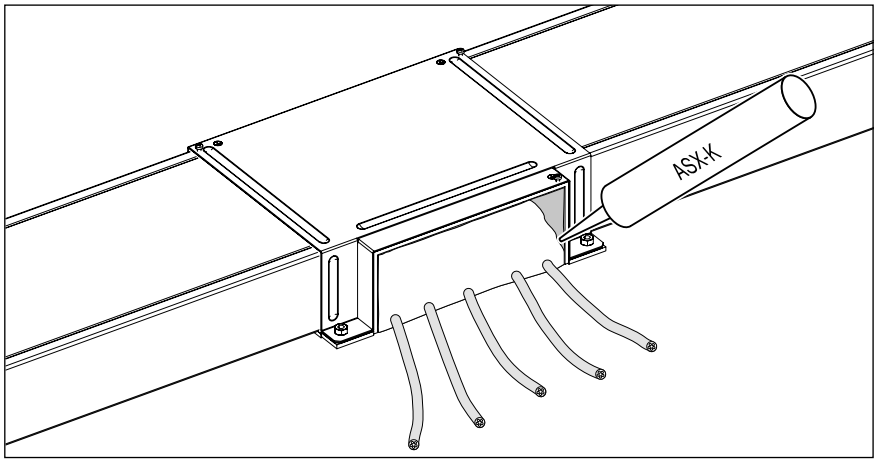


Fig. 67: Multiple cable outlet in a T branch piece

7.3 Creating a rear-side cable outlet

With ducts that are fastened on the rear side to a solid wall or ceiling, you can create a round opening on the rear side and use it as a cable outlet (see Fig. 68).

The maximum opening diameter for BSKM 0711 and BSKM 1025 is 80 mm and 40 mm for BSKM 0407.

- Create an opening on the rear side of the duct, e.g. with a step drill.
- Carefully de-burr the edges.
- Run the core drill hole through the masonry.
- Pass the cables through.
- Completely close the opening with a suitable fire protection filler. We recommend the OBO system PYROPLUG® Mini (1-component filler PYROPLUG® Screed, type FBA-SP).

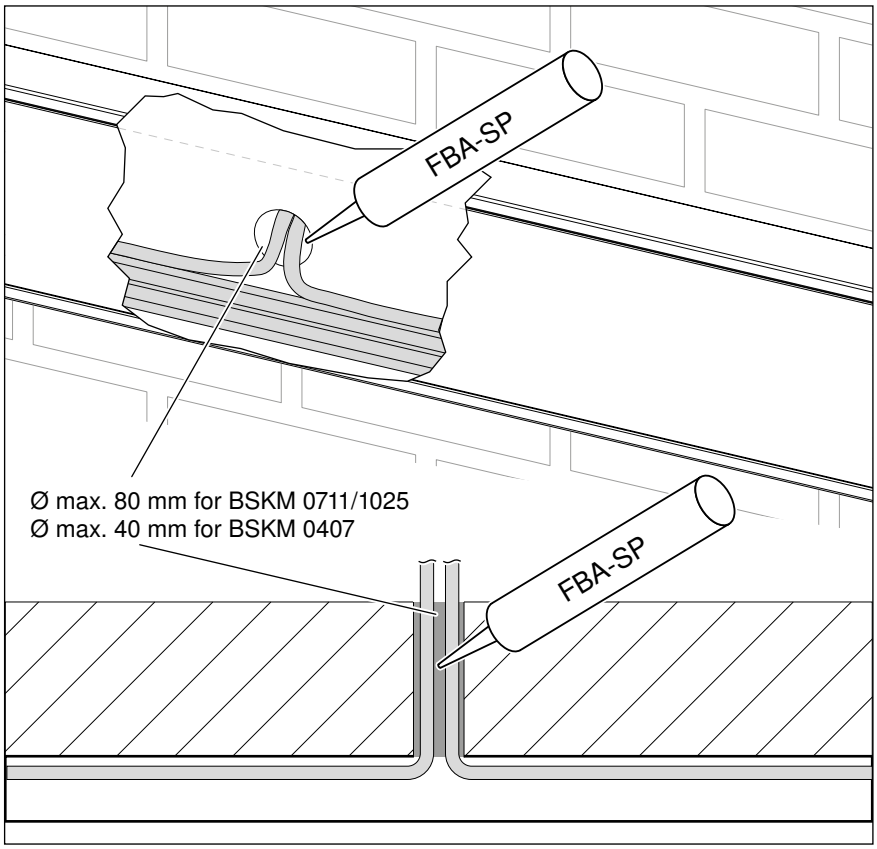


Fig. 68: Rear side cable outlet

8 Completing mounting

8.1 Create equipotential bonding

Duct sections are normally not interconnected with electrical conductivity. To create the necessary equipotential bonding, the connectors and fittings have drill holes. Turning in the supplied connecting screws allows the creation of an electrically conductive connection between the duct sections (see Fig. 69).

Note! *Turn the connecting screws in such a way that the screw head is pushed firmly against the duct lid, creating an electrically conductive connection. However, neither the connector nor the fitting may lift off of the duct end pieces, but must enclose them tightly.*

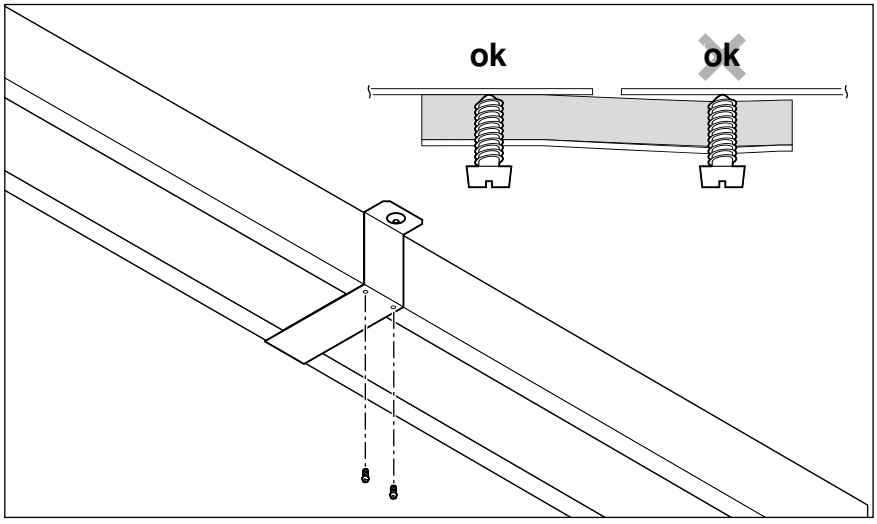


Fig. 69: Creating equipotential bonding using connectors

Create a connection to the building's equipotential bonding system at one point in the duct, e.g. using a cable lug on a fastening screw of a connector or fitting (see Fig. 70).

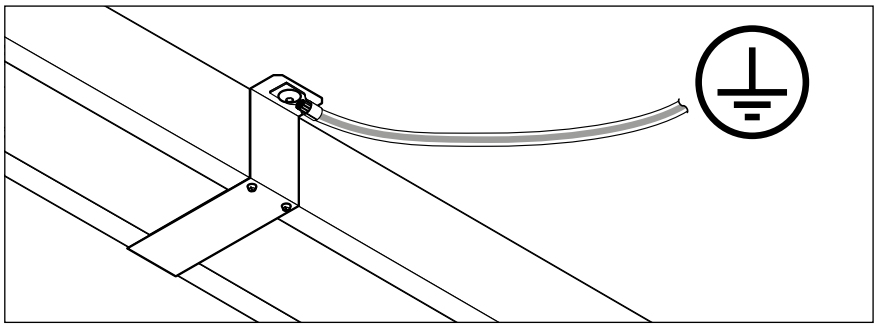


Fig. 70: Creating a connection to the equipotential busbar

8.2 Tightness test

When all the mounting work has been completed, a visual check of the duct route must be carried out to check tightness, in order to ensure, in the case of a cable fire in the interior of the duct, that the fire and smoke are encapsulated in the duct.

Ensure

- that all the duct lids are attached.
- that all the joints of ducts are covered with connectors and are screwed on tightly.
- that all the fittings are attached and are screwed on tightly.
- that the duct ends are properly closed with end pieces or a wall connection.
- that the cable outlets are closed tightly.
- that cable outlets, which are closed off with foam seals, are sealed with the ASX ablation coating.

8.3 Completing the declaration of conformity

German construction law demands that, after mounting the fire protection duct system, the installation engineer completes a declaration of conformity and hands it over to the client for documentation purposes. In this way, they certify that the requirements of the general type approval were fulfilled and that the duct system was erected correctly,

You can find a sample declaration of conformity in the appendix.

8.4 Attaching the identification plate

If the fire protection duct system is used as an I duct to encapsulate fire loads, then identification plates (type KS-K, item no. 7214734) must be attached. The identification plate must contain the fire resistance class, the duct type, the approval number and the name of the erection engineer and the year of the installation.

The identification plates must be attached so that they are

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

.

Note! *If the fire protection duct system with a pure white surface is installed, then, for visual reasons, the identification plate can be attached on the inside of the duct.*

9 Installation at a later date

You can add cables to the fire protection duct system PYROLINE® Rapid at any time. To prevent harm to the cables during routing, we recommend opening the duct route at as many points as possible and laying the cables, rather than pulling the cables along long duct routes. See also “4.6 Routing cables” on page 21.

Here is how to install cables at a later date:

- Dismantle connectors and fittings.
- Open the duct lid.
- Insert cables.
- Attach the duct lid firmly.
- Attach the connectors and fittings and screw them tight.
- Check the tightness.
- Check, and if necessary restore, the equipotential bonding along the whole duct section.

10 Mounting variants

10.1 Intersection with other systems

A duct route mounted on the ground can be passed over as shown in Fig. 71 (does not apply to BSKM 0407).

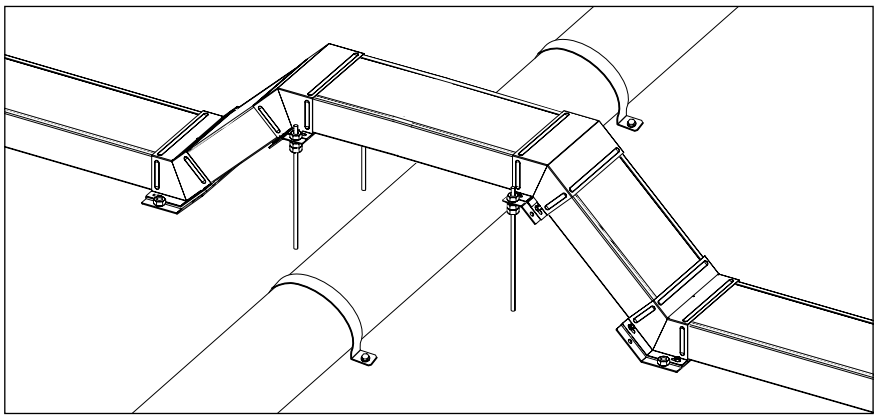


Fig. 71: Create intersection as pass-over

10.2 Creating wall end covers

If a duct route ends in front of a wall and the cable routing is to continue through a wall opening, then a wall end cover must be created. The wall penetration for the continuing cables must be sealed using classified insulation according to DIN 4102 Part 9 or DIN EN 1366 Part 3. You can find details of proper insulation mounting in the appropriate mounting instructions.

Use an end piece to close off a duct route, which ends in front of a wall without continuing cables (direct mounting: see “5.6.8 Mounting an end piece” on page 37, support system mounting: see “6.3.9 Mounting an end piece” on page 66).

10.2.1 Wall penetration smaller than or the same size as the duct opening

With the wall end variant, the duct ends at the wall. It is supported by the lock plate of a wall end cover fitting and sealed by the fitting. To seal the wall penetration of the cables (1), use, for example, OBO PYROPLATE® Fibre or PYROPLUG® block. This wall end variant cannot be used for BSKM 0407.

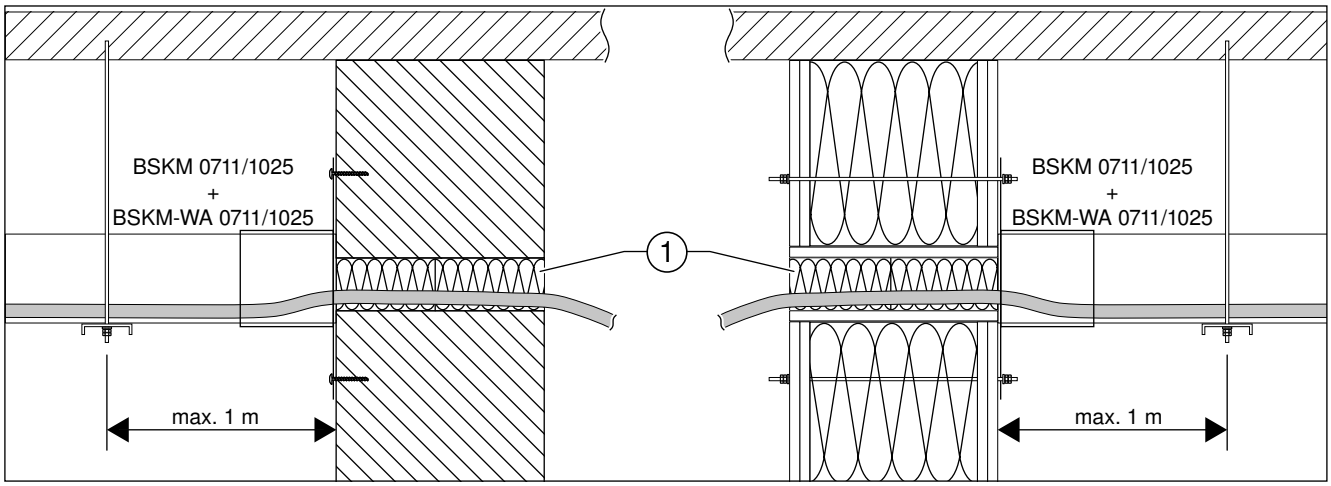


Fig. 72: Wall end cover in front of the wall

Wall thicknesses	Solid wall	Dry/lightweight construction wall
≥ 75 mm + BSKM-WA..	F30	–
≥ 100 mm + BSKM-WA..	F30–F120	F30–F120

10.2.2 Wall penetration larger than the duct opening

For fire resistance classes I30–I120:

With the wall end variant, the duct ends within the wall. Seal both the duct end ① and the wall penetration of the cables ② using approved insulation, e.g. through PYROPLATE® Fibre or PYROPLUG® Block. Seal the cavity in the wall around the duct end ③ using mineral wool (mineral wool insulation, material class A1, melting point > 1,000 °C, e.g. OBO MIW), and push as much as possible into the gap, for example with a stick, in order to achieve as high a density as possible. Finally, seal the mineral wool with a layer of filler ④ (min. thickness: 2 mm).

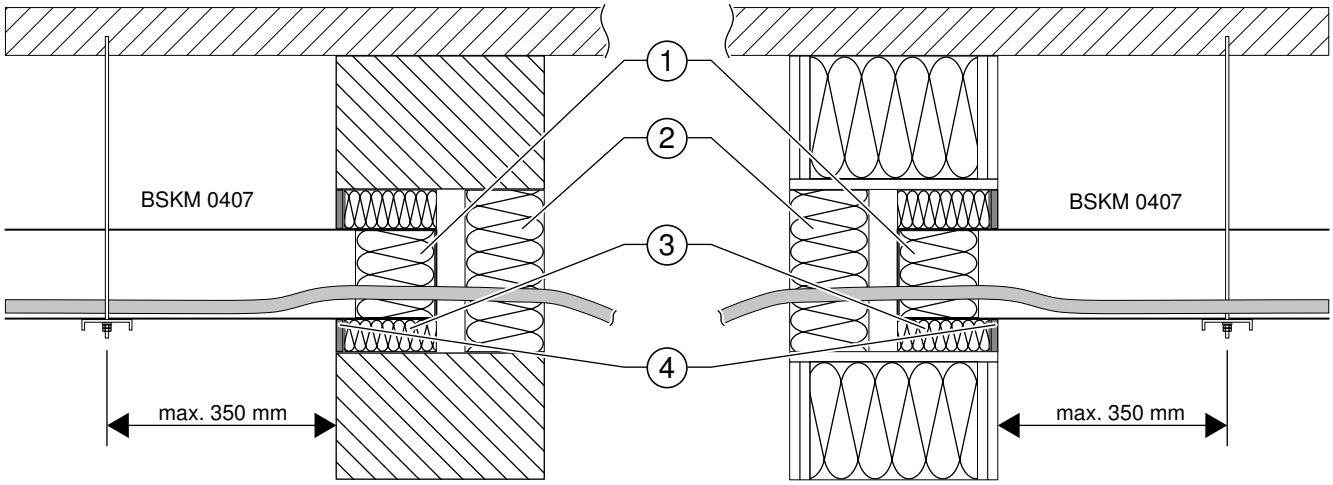


Fig. 73: Wall end cover within the wall for BSKM 0407

To achieve the fire resistance class I120, you should additionally mount a wall end cover fitting ⑤ (direct mounting: see “5.6.7 Mounting a wall/ ceiling penetration” on page 36, support system mounting: see “6.3.8 Mounting a wall/ceiling penetration” on page 62).

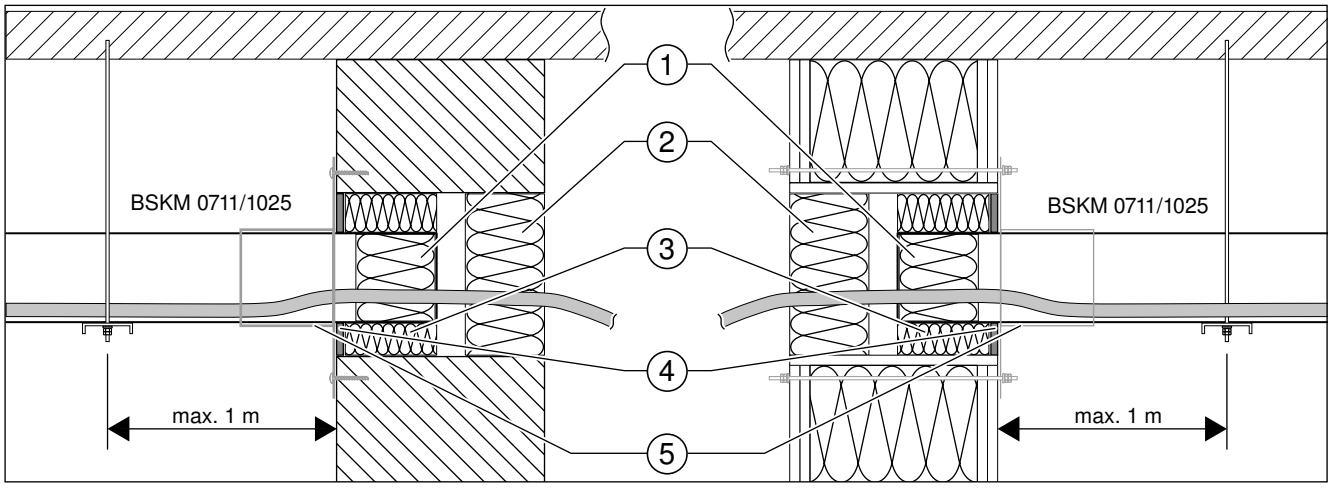


Fig. 74: Wall end cover within the wall for BSKM 0711 and BSKM 1025

For fire resistance classes I30:

For this, create the wall end cover as described above, but do not use the insulation in the duct end ① and do not use the wall end cover fitting ⑤.

Wall thicknesses	Solid wall	Dry/lightweight construction wall
≥ 75 mm	I30	–
≥ 100 mm + ①	I30–I90	I30–I90
≥ 100 mm + ① + ⑤	I30–I120	I30–I120

10.2.3 Wall penetration for direct mounting

As the wall end cover fitting cannot be used for direct mounting in the corner of a room, the wall end cover described below can be created there instead. The precondition for this is that the wall penetration is smaller than the duct opening.

See Fig. 75:

Close off the wall penetration carrying the cables ② using an approved insulation system, e.g. PYROSIT® NG or PYROPLUG® Mini. The fire resistance class of the wall determines which insulation must be used.

Close off the butt of the fire protection duct on the wall with a calcium silicate strip ① (50 mm wide, 30 mm thick), e.g. OBO KSI. Plug the remaining gap between the duct surface and the calcium silicate strip with mineral wool and seal it with filler (min. thickness 2 mm).

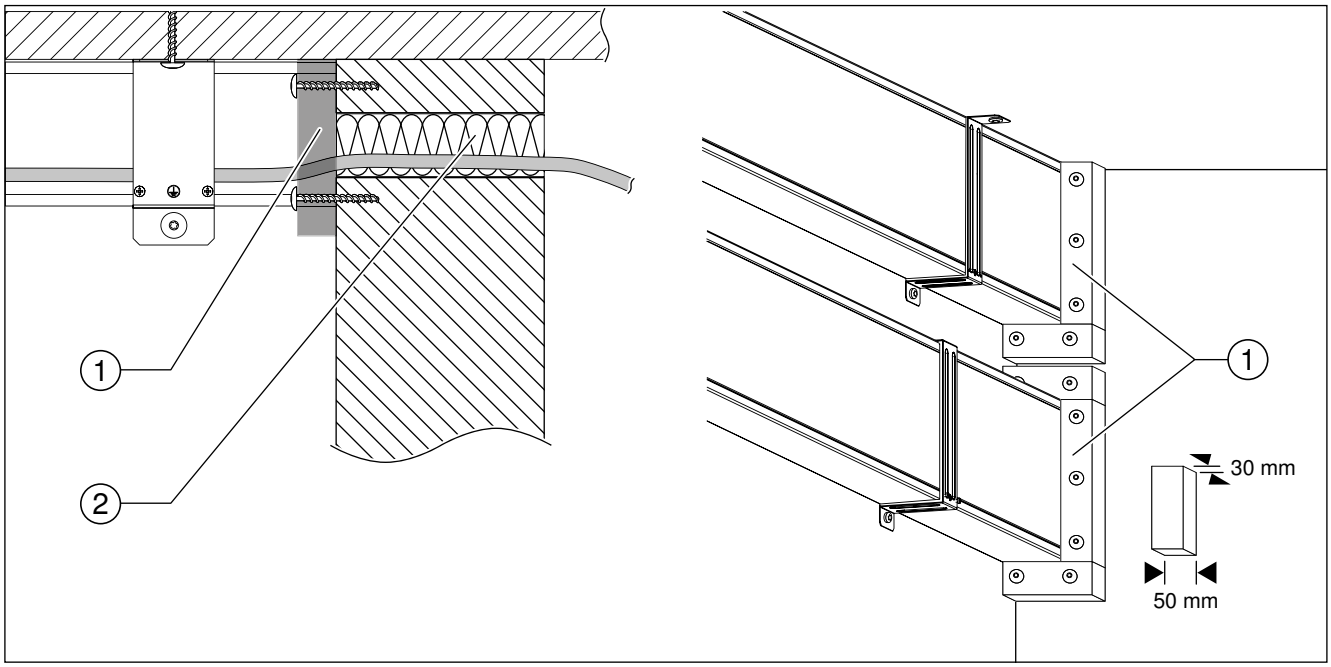


Fig. 75: Wall cover with calcium silicate strip

This procedure is also possible with dry/lightweight construction walls. In this case, fasten the calcium silicate strip to the dual-planked dry construction wall with quick construction bolts and also seal the residual gaps with mineral wall and filler.

11 Maintenance

The PYROLINE® Rapid fire protection duct does not require maintenance.

Nonetheless, carry out a visual inspection of fire protection duct at regular intervals, as part of the inspection of the electrical systems. Replace possibly damaged parts of the fire protection duct.

The function is guaranteed by external monitoring according to GCA.

12 Disposal

Note! *Comply with the local and national waste disposal regulations.*

12.1 Disposal during mounting

- Residual material of the duct system (also with coating): As old metal
- Packaging: As household waste
- Protective film: As household waste

12.2 Disposal during building demolition

- Residual material of the duct system (also with coating): as old metal

12.3 Disposal after a fire

Parts of the fire protection duct system that have been subjected to fire damage must be completely removed and disposed of. The cables must also be replaced and reinstalled.

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

CAUTION

Danger from corrosive effect of fire residues!
If there is a fire in the interior of the duct, the burned cable insulation will create corrosive gases, which have an irritant and corrosive effect. Before opening and disposing of duct sections that have been subjected to a fire, wear breathing protection and protective clothing.

Use breathing protection with a filter or breathing protection which is independent of the ambient air.

Wear a protective suit (e.g. disposable protective suit).

Wear protective gloves.

Wear protective glasses.

13 Technical data

System parts for BSKM 0407, strip galvanised surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 0407 FS	7216500	Fire protection duct I30 to I120	70 x 40 x 2,000	5.00	1
BSKM-VD 0407 FS	7216510	Connector with seal	134 x 45 x 62	0.24	2
BSKM-VE 0407 FS	7216512	Corner connector with seal	102 x 92 x 62	0.17	2
BSKM-AD 0407 FS	7216515	Support profile	180 x 67 x 12	0.36	2
BSKM-VK 0407 FS	7216560	End piece	134 x 45 x 64	0.31	2
BSKM-AE 0407 FS	7216520	External corner	134 x 110 x 110	0.61	1
BSKM-GA 0407 FS	7216522	Lock plate, external corner	65 x 65 x 180	0.57	2
BSKM-IE 0407 FS	7216528	Internal corner	134 x 110 x 110	0.63	1
BSKM-GI 0407 FS	7216530	Lock plate, internal corner	115 x 115 x 180	0.77	2
BSKM-FW 0407 FS	7216524	Flat angle	165 x 48 x 165	0.65	1
BSKM-GF 0407 FS	7216526	Lock plate, flat angle	165 x 165 x 3	0.71	2
BSKM-TA 0407 FS	7216532	T branch piece	134 x 48 x 170	0.66	1
BSKM-GT 0407 FS	7216534	Lock plate, T branch piece	170 x 180 x 3	0.80	2
BSKM-RE 0711 FS	7216393	Reducer	174 x 72 x 61	0.32	1
BSKM-RG 0711 FS	7216395	Lock plate reducer	60 x 3 x 234	0.37	2

System parts for BSKM 0711, strip galvanised surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 0711 FS	7216300	Fire protection duct I30 to I120	110 x 70 x 2,000	7.70	1
BSKM-VD 0711 FS	7216310	Connector with seal	174 x 75 x 62	0.38	2
BSKM-VE 0711 FS	7216312	Corner connector with seal	142 x 122 x 62	0.20	2
BSKM-AD 0711 FS	7216315	Support profile	220 x 12 x 67	0.44	2
BSKM-AE 0711 FS	7216320	External corner	174 x 170 x 170	1.28	1
BSKM-GA 0711 FS	7216325	Lock plate, external corner	95 x 95 x 220	0.99	1
BSKM-FW 0711 FS	7216330	Flat angle	209 x 78 x 209	1.16	1
BSKM-GF 0711 FS	7216335	Lock plate, flat angle	210 x 210 x 3	1.22	1
BSKM-IE 0711 FS	7216340	Internal corner	174 x 135 x 135	0.72	1
BSKM-GI 0711 FS	7216345	Lock plate, internal corner	135 x 135 x 220	1.45	1
BSKM-ES 0711 FS	7216350	Level, rising	220 x 159 x 159	1.64	1
BSKM-EF 0711 FS	7216355	Level, falling	220 x 154 x 154	1.40	1
BSKM-VK 0711 FS	7216360	End piece	174 x 75 x 64	0.40	2
BSKM-TA 0711 FS	7216362	T branch piece	174 x 78 x 210	1.11	1
BSKM-GT 0711 FS	7216364	Lock plate, T branch piece	220 x 170 x 3	1.15	2
BSKM-KR 0711 FS	7216615	Intersection	174 x 210 x 73	1.16	1
BSKM-TR 0711 FS	7216366	T reducing branch piece	174 x 170 x 78	0.74	1
BSKM-GR 0711 FS	7216368	Lock plate, T reducing branch piece	220 x 170 x 3	1.15	2
BSKM-WA 0711 FS	7216380	Wall connection 0711	320 x 183 x 150	2.52	2
BSKM-GW 0711 FS	7216385	Lock plate, wall connection 0711	320 x 96 x 150	1.70	2

System parts for BSKM 1025, strip galvanised surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 1025 FS	7216400	Fire protection duct I30 to I120	250 x 100 x 2,000	12.78	1
BSKM-VD 1025 FS	7216410	Connector with seal	314 x 105 x 62	0.67	2
BSKM-VE 1025 FS	7216412	Corner connector with seal	282 x 152 x 62	0.45	2
BSKM-AD 1025 FS	7216415	Support profile	360 x 12 x 67	0.70	2
BSKM-AE 1025 FS	7216420	External corner	314 x 200 x 200	2.15	1
BSKM-GA 1025 FS	7216425	Lock plate, external corner	360 x 95 x 95	1.61	2
BSKM-FW 1025 FS	7216430	Flat angle	349 x 108 x 349	2.90	1

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM-GF 1025 FS	7216435	Lock plate, flat angle	350 x 350 x 3	3.08	2
BSKM-IE 1025 FS	7216440	Internal corner	314 x 165 x 165	1.58	1
BSKM-GI 1025 FS	7216445	Lock plate, internal corner	165 x 165 x 360	2.76	2
BSKM-ES 1025 FS	7216450	Level, rising	360 x 176 x 176	2.83	1
BSKM-EF 1025 FS	7216455	Level, falling	360 x 171 x 171	2.42	1
BSKM-VK 1025 FS	7216460	End piece	314 x 105 x 67	1.06	1
BSKM-TA 1025 FS	7216462	T branch piece	314 x 108 x 350	2.63	1
BSKM-GT 1025 FS	7216464	Lock plate, T branch piece	350 x 360 x 3	3.13	2
BSKM-RE 1025 FS	7216404	Reducer	314 x 108 x 61	0.73	1
BSKM-RG 1025 FS	7216406	Lock plate reducer	360 x 12 x 67	0.73	2
BSKM-TR 1025 FS	7216466	T reducing branch piece	314 x 108 x 210	1.53	1
BSKM-TRK 1025 FS	7216467	T reducing branch piece	314 x 108 x 170	1.18	1
BSKM-GR 1025 FS	7216468	Lock plate, T reducing branch piece	350 x 360 x 3	1.90	2
BSKM-GRK 1025 FS	7216469	Lock plate, T reducing branch piece	170 x 360 x 3	1.53	2
BSKM-WA 1025 FS	7216480	Wall connection I120	460 x 150 x 213	4.10	2
BSKM-GW 1025 FS	7216485	Lock plate, wall connection I120	96 x 96 x 460	2.60	2

System parts for BSKM 0407, pure white surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 0407 RW	7216501	Fire protection duct I30 to I120	70 x 40 x 2,000	5.00	1
BSKM-VD 0407 RW	7216511	Connector with seal	134 x 45 x 62	0.24	2
BSKM-VE 0407 RW	7216513	Corner connector with seal	102 x 92 x 62	0.17	2
BSKM-AD 0407 RW	7216516	Support profile	180 x 67 x 12	0.36	2
BSKM-VK 0407 RW	7216561	End piece	134 x 45 x 64	0.31	2
BSKM-AE 0407 RW	7216504	External corner	134 x 110 x 110	0.61	1
BSKM-GA 0407 RW	7216505	Lock plate, external corner	65 x 65 x 180	0.57	2
BSKM-IE 0407 RW	7216508	Internal corner	134 x 110 x 110	0.63	1
BSKM-GI 0407 RW	7216509	Lock plate, internal corner	115 x 115 x 180	0.77	2
BSKM-FW 0407 RW	7216506	Flat angle	165 x 48 x 165	0.65	1
BSKM-GF 0407 RW	7216507	Lock plate, flat angle	165 x 165 x 3	0.71	2
BSKM-TA 0407 RW	7216563	T branch piece	134 x 48 x 170	0.66	1
BSKM-GT 0407 RW	7216565	Lock plate, T branch piece	170 x 180 x 3	0.80	2
BSKM-RE 0711 RW	7216624	Reducer	174 x 72 x 61	0.32	1
BSKM-RG 0711 RW	7216626	Lock plate reducer	60 x 3 x 234	0.37	2

System parts for BSKM 0711, pure white surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 0711 RW	7216600	Fire protection duct I30 to I120	110 x 70 x 2,000	7.70	1
BSKM-VD 0711 RW	7216601	Connector with seal	174 x 75 x 62	0.38	2
BSKM-VE 0711 RW	7216602	Corner connector with seal	142 x 122 x 62	0.20	2
BSKM-AD 0711 RW	7216603	Support profile	220 x 12 x 67	0.44	2
BSKM-AE 0711 RW	7216604	External corner	174 x 170 x 170	1.28	1
BSKM-GA 0711 RW	7216605	Lock plate, external corner	95 x 95 x 220	0.99	1
BSKM-FW 0711 RW	7216606	Flat angle	209 x 78 x 209	1.16	1
BSKM-GF 0711 RW	7216607	Lock plate, flat angle	210 x 210 x 3	1.22	1
BSKM-IE 0711 RW	7216608	Internal corner	174 x 135 x 135	0.72	1
BSKM-GI 0711 RW	7216609	Lock plate, internal corner	135 x 135 x 220	1.45	1
BSKM-ES 0711 RW	7216610	Level, rising	220 x 159 x 159	1.64	1
BSKM-EF 0711 RW	7216611	Level, falling	220 x 154 x 154	1.40	1
BSKM-VK 0711 RW	7216612	End piece	174 x 75 x 64	0.40	2
BSKM-TA 0711 RW	7216613	T branch piece	174 x 78 x 210	1.11	1
BSKM-GT 0711 RW	7216614	Lock plate, T branch piece	220 x 170 x 3	1.15	2

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM-KR 0711 RW	7216615	Intersection	174 x 210 x 73	1.16	1
BSKM-TR 0711 RW	7216616	T reducing branch piece	174 x 170 x 78	0.74	1
BSKM-GR 0711 RW	7216617	Lock plate, T reducing branch piece	220 x 170 x 3	1.15	2
BSKM-WA 0711 RW	7216620	Wall connection 0711	320 x 183 x 150	2.52	2
BSKM-GW 0711 RW	7216621	Lock plate, wall connection I120	320 x 96 x 150	1.70	2

System parts for BSKM 1025, pure white surface

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM 1025 RW	7216630	Fire protection duct I30 to I120	250 x 100 x 2,000	12.78	1
BSKM-VD 1025 RW	7216633	Connector with seal	314 x 105 x 62	0.67	2
BSKM-VE 1025 RW	7216634	Corner connector with seal	282 x 152 x 62	0.45	2
BSKM-AD 1025 RW	7216635	Support profile	360 x 12 x 67	0.70	2
BSKM-AE 1025 RW	7216636	External corner	314 x 200 x 200	2.15	1
BSKM-GA 1025 RW	7216637	Lock plate, external corner	360 x 95 x 95	1.61	2
BSKM-FW 1025 RW	7216638	Flat angle	349 x 108 x 349	2.90	1
BSKM-GF 1025 RW	7216639	Lock plate, flat angle	350 x 350 x 3	3.08	2
BSKM-IE 1025 RW	7216640	Internal corner	314 x 165 x 165	1.58	1
BSKM-GI 1025 RW	7216641	Lock plate, internal corner	165 x 165 x 360	2.76	2
BSKM-ES 1025 RW	7216642	Level, rising	360 x 176 x 176	2.83	1
BSKM-EF 1025 RW	7216643	Level, falling	360 x 171 x 171	2.42	1
BSKM-VK 1025 RW	7216644	End piece	314 x 105 x 67	1.06	1
BSKM-TA 1025 RW	7216645	T branch piece	314 x 108 x 350	2.63	1
BSKM-GT 1025 RW	7216646	Lock plate, T branch piece	350 x 360 x 3	3.13	2
BSKM-RE 1025 RW	7216631	Reducer	314 x 108 x 61	0.73	1
BSKM-RG 1025 RW	7216632	Lock plate reducer	360 x 12 x 67	0.73	2
BSKM-TR 1025 RW	7216647	T reducing branch piece	314 x 108 x 210	1.53	1
BSKM-TRK 1025 RW	7216648	T reducing branch piece	314 x 108 x 170	1.18	1
BSKM-GR 1025 RW	7216649	Lock plate, T reducing branch piece	350 x 360 x 3	1.90	2
BSKM-GRK 1025 RW	7216650	Lock plate, T reducing branch piece	170 x 360 x 3	1.53	2
BSKM-WA 1025 RW	7216654	Wall connection I120	460 x 150 x 213	4.10	2
BSKM-GW 1025 RW	7216655	Lock plate, wall connection I120	96 x 96 x 460	2.60	2

System accessories

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
BSKM-KA 0407	7216590	Foam seal	70 x 40 x 40	0.002	3
BSKM-KA 0711	7216390	Foam seal	110 x 70 x 40	0.003	3
BSKM-KA 1025	7216490	Foam seal	250 x 100 x 40	0.00	3
ASX-K	7202310	Coating compound	-	0.50	-
BSKM-BW 0711	7216370	Cable clamp for wall mounting	65 x 53 x 102	0.10	2
BSKM-BD 0711	7216372	Cable clamp for ceiling mounting	54 x 54 x 40	0.07	2
BSKM-BW 1025	7216470	Cable clamp for wall mounting	95 x 83 x 243	0.30	2
BSKM-BD 1025	7216472	Cable clamp for ceiling mounting	84 x 124 x 40	0.19	2
BSKM-DS 1025	7216474	Lid support	70 x 20 x 737	0.16	1
MMS-plus 7.5x50	3498261	Fire protection bolt tie	7.5 x 50	0.015	2
KS-K DE	7214734	Test certificate label, German	43 x 250	-	-
RKV3V	6288700	Locking bracket	20 x 10 x 6	0.001	2
BSKM-S4008	3498092	Connecting screw	M4 x 8	-	2
MS4121P0200FT	1122933	Profile rail	41 x 21 x 200	0.35	2
MS4121P0400FT	1122935	Profile rail	41 x 21 x 400	0.70	2
MS4121 SK	1122902	End cap	-	-	-
TR M10 1M G	3141209	Threaded rod	M10 x 1000	0.49	2
HN M10 G	3400107	Hexagonal nut	M10	-	2

Type	Item no.	Designation	Dimensions W x H x D [mm]*	Weight [kg]*	Material
WS M10 D28 G	3402223	Large washer	Ø 28	-	2
V-TEC VM12 MS	2086018	V-TEC cable outlet, brass	M12 x 1.5	0.01	-
V-TEC VM16 MS	2086024	V-TEC cable outlet, brass	M16 x 1.5	0.01	-
V-TEC VM20 MS	2086030	V-TEC cable outlet, brass	M20 x 1.5	0.03	-
V-TEC VM25 MS	2086036	V-TEC cable outlet, brass	M25 x 1.5	0.04	-
V-TEC VM32 MS	2086042	V-TEC cable outlet, brass	M32 x 1.5	0.07	-
V-TEC VM40 MS	2086048	V-TEC cable outlet, brass	M40 x 1.5	0.12	-
V-TEC VM50 MS	2086054	V-TEC cable outlet, brass	M50 x 1.5	0.22	-
169 MS M12	2091607	Locknut, brass	M12 x 1.5	0.002	-
169 MS M16	2091615	Locknut, brass	M16 x 1.5	0.003	-
169 MS M20	2091623	Locknut, brass	M20 x 1.5	0.005	-
169 MS M25	2091631	Locknut, brass	M25 x 1.5	0.008	-
169 MS M32	2091658	Locknut, brass	M32 x 1.5	0.012	-
169 MS M40	2091666	Locknut, brass	M40 x 1.5	0.019	-
169 MS M50	2091674	Locknut, brass	M50 x 1.5	0.030	-
V-TEC VM12 SGR	2022843	V-TEC cable outlet, plastic	M12 x 1.5	0.003	-
V-TEC VM16 SGR	2022845	V-TEC cable outlet, plastic	M16 x 1.5	0.006	-
V-TEC VM20 SGR	2022847	V-TEC cable outlet, plastic	M20 x 1.5	0.008	-
V-TEC VM25 SGR	2022849	V-TEC cable outlet, plastic	M25 x 1.5	0.013	-
V-TEC VM32 SGR	2022851	V-TEC cable outlet, plastic	M32 x 1.5	0.022	-
V-TEC VM40 SGR	2022853	V-TEC cable outlet, plastic	M40 x 1.5	0.034	-
V-TEC VM50 SGR	2022855	V-TEC cable outlet, plastic	M50 x 1.5	0.054	-
116 M12 SGR PA	2048752	Locknut, plastic	M12 x 1.5	-	-
116 M16 SGR PA	2048760	Locknut, plastic	M16 x 1.5	-	-
116 M20 SGR PA	2048779	Locknut, plastic	M20 x 1.5	-	-
116 M25 SGR PA	2048787	Locknut, plastic	M25 x 1.5	-	-
116 M32 SGR PA	2048795	Locknut, plastic	M32 x 1.5	-	-
116 M40 SGR PA	2048809	Locknut, plastic	M40 x 1.5	-	-
116 M50 SGR PA	2048817	Locknut, plastic	M50 x 1.5	-	-
107 C VM 20 2x4	2029672	Multiple sealing ring	M20	-	-
107 C VM 20 4x5	2029675	Multiple sealing ring	M20	-	-
107 C VM 20 2x6	2029677	Multiple sealing ring	M20	-	-
107 C VM 25 5x4	2029679	Multiple sealing ring	M25	-	-
107 C VM 25 3x6	2029682	Multiple sealing ring	M25	-	-
107 C VM 25 2x6	2029685	Multiple sealing ring	M25	-	-
107 C VM 25 3x7	2029688	Multiple sealing ring	M25	-	-
107 C VM 25 2x8	2029690	Multiple sealing ring	M25	-	-
107 C VM 32 2x8	2029693	Multiple sealing ring	M32	-	-
107 C VM 32 4x8	2029696	Multiple sealing ring	M32	-	-
KS-K DE	7214734	Identification plate for I duct	250 x 43	-	PVC

* rounded

Material 1: sheet steel, strip-galvanised,
Inner coating: material to form an insulating layer

Material 2: sheet steel, strip-galvanised

Material 3: Foam seal

14 Appendix – declaration of conformity (sample)

Name and address of the company, which carried out the mounting of the installation duct

Construction project and building

Creation date

It is hereby confirmed that the fire-resistant installation duct (subject of approval) has been completed and erected professionally with respect to all details and in compliance with all provisions of the general construction test approval No. Z-19.30-2229 of Deutsches Institut für Bautechnik from 22.02.2017, as well as the mounting instructions dated 07/2019.

Place, date

Stamp and signature

This confirmation must be given to the client for forwarding, if necessary, to the responsible construction supervisory board.

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Building Connections