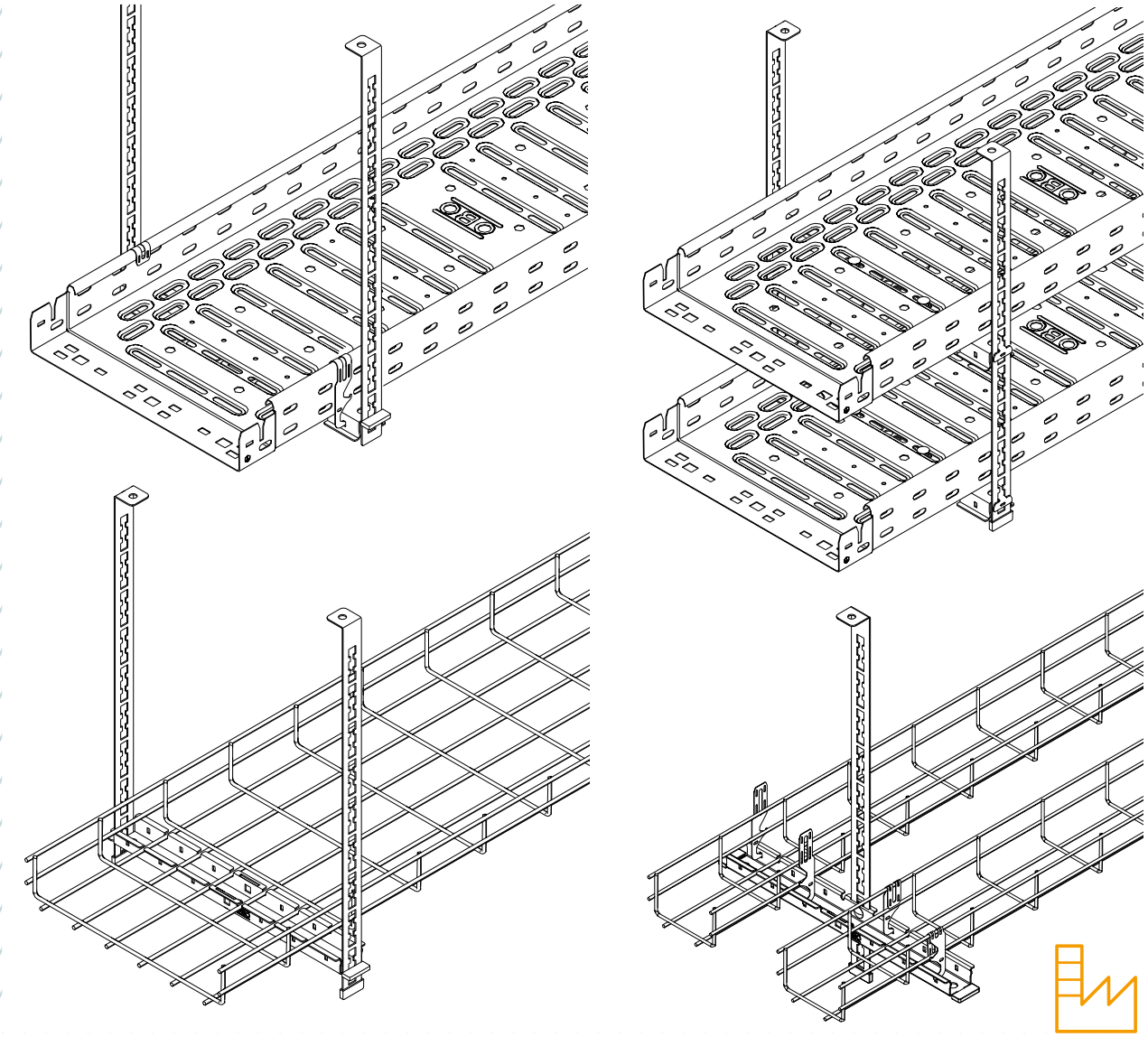

Mounting instructions

Support system MagicFix

OBO BETTERMANN

MagicFix system
Mounting instructions

Inhaltsverzeichnis

1 About these instructions

1.1 Target group

These mounting instructions are intended for the following target group:

– Engineers and architects charged with the planning of cable tray systems.

– Electrically trained specialists charged with installing cable tray systems.

1.2 Relevance of these instructions

These instructions are based on the standards valid at the time of compilation (May 2026).

Please read the instructions carefully before commencing mounting. We will not accept any warranty claims for damage and liability caused through non-observance of these instructions.

Any images are intended merely as examples. Mounting results may look different.

In these instructions, cables and lines are referred to simply as cables.

1.3 Types of warning information

WARNING

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

CAUTION

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

ATTENTION

Type of risk!
Shows a risky situation. If the warning information is not observed, then damage to the product or the surroundings may occur.

Note! *Indicates important information or assistance.*

1.4 Basic standards and regulations

The MagicFix system and associated components fulfil the requirements of DIN EN 61537 VDE 0639:2007-09 – Cable management – Cable tray systems and cable ladder systems.

1.5 Applicable documents

The declarations of conformity are linked to the products at www.obo-bettermann.com.

The mounting instructions listed below must be observed for the mounting of support structures with the MagicFix system.

– Mounting instructions Latchable Magic cable tray systems https://www.obo.de/out/media/04-100_TD_KTS_MA_Magic%20Kabelrinnen_EN_2025-05-16.pdf

– Mounting instructions Screw-on cable tray systems www.obo.de/out/media/04-100_TD_KTS_MA_Screw-on_cable_tray_systems_fittings_for_screwing_and_clamping_EN_2025-04-23.pdf

– Mounting instructions Mesh cable tray systems www.obo.de/out/media/04-250_MA_Mesh_cable_tray_systems_EN.pdf

– Mounting instructions Cable ladder systems www.obo.de/out/media/04-300_MA_Cable_ladder_systems_EN.pdf

– Mounting instructions Universal systems www.obo.de/out/media/04-150_MA_Universal_systems.pdf

2 Intended use

The MagicFix system is used to create support structures in the form of pendulum or centre suspensions from the ceiling. The suspensions with the MagicFix system are suitable for low loads in indoor areas. Depending on the application and size of the cable support system, the support structures are plugged together and locked or fastened with screws. Depending on the fastening method, mesh cable trays can be suspended up to a height of 105 mm, cable trays and cable ladders up to a height of 110 mm. Widths from 50 to 600 mm are possible. Standard screw fastening enables applications at any side height. Depending on the expected load values, the substrate and the ceiling fastening technique selected, multiple trays and ladders can also be suspended on top of each other.

The MagicFix system is not designed for any purpose other than the one described here. If the MagicFix system is used for another purpose, any liability, warranty or damage claims shall be rendered null and void.

3 Safety

3.1 General safety information

Observe the following general safety information:

– Design the support system according to the loads to be expected.

– Do not exceed the maximum support load of the support structure with the MagicFix system.

– During mounting, take the statics of the ceiling into account.

– Contact with electrical current can lead to an electric shock. Only specialist personnel may perform such operations.

– Include the support structure in the protection measures and/or the equipotential bonding.

– Have the inclusion in the equipotential bonding of the overall system performed by specialist personnel.

– Wear personal protective equipment.

3.2 Personal protective equipment

List of personal protective equipment to be used:

Use hand protection

Wear safety shoes

Wear eye protection

Wear head protection

Wear a harness

4 Necessary tools

List of tools to be used:

– Hammer drill with suitable bits

– Drill with suitable bits

– Battery-operated screwdriver

– Torque spanner

– Screwdriver

– Metal saw

– Hammer

– Combination pliers or pipe wrench, side cutter

5 System overview

5.1 System description

The MagicFix system can be used for pendulum suspensions of cable trays, cable ladders and mesh cable trays as well as for centre suspensions of mesh cable trays. It can support lighter trays and ladders with widths of 50 to 600 mm. Suitable options include RKSM, RKS, GRM or LG.

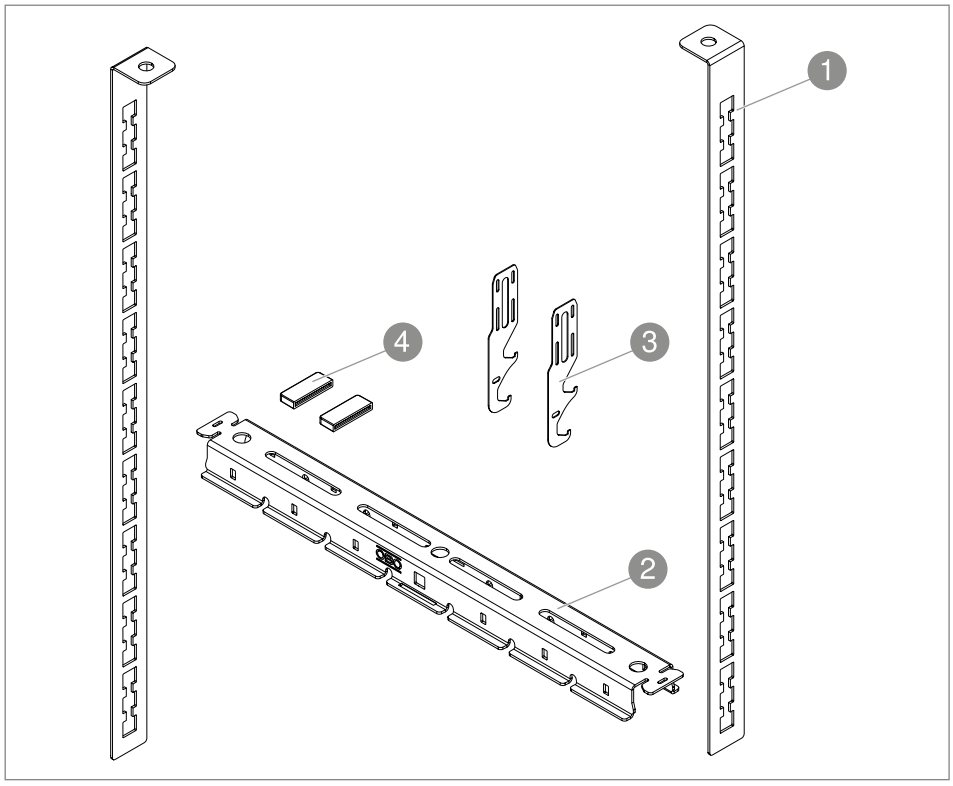

Fig. 1: System components

	Designation	Function
1	Suspension strip MagicFix	Suspension of support rail from the ceiling
2	Support rail MagicFix	Support for mesh cable tray or cable tray/cable ladder
3	Quick connector MagicFix	Screwless fastening of tray/ladder on support rail
4	Protective cap MagicFix	Protection against sharp edges, for attaching to fastening straps and suspension strips

Tab. 1: System components

Multiple cable trays can be mounted one on top of another on the suspension strips, depending on the planned cable volume and expected load values. The suspension strips are available in the lengths 500, 1,000, 1,500 and 2,000 mm.

The support rail is suspended into the suspension strips with finished fastening straps, then turned and clicked into place. The fastening of mesh cable trays and cable trays/ladders depends on the respective height. Mesh cable trays with a height of up to 105 mm are engaged in special clamping brackets without additional screw fastening. Higher mesh cable trays are placed on top and optionally fastened to the rail without screws using a quick connector, or alternatively bolted on with truss-head bolts. Cable trays and ladders are placed on top and optionally fastened to the rail without screws using a quick connector (up to a height of 60 mm), or alternatively bolted on with truss-head bolts.

Fastening option	Mesh cable tray height in mm				Cable tray/ladder height in mm			
	35	55	75	105	35	60	85	110
Fastening in clamping bracket	x	x	x	x	-	-	-	-
Fastening with quick connector MagicFix	x	x	-	-	x	x	-	-
Screw connection	x	x	x	x	x	x	x	x

Tab. 2: Fastening options for different mesh cable tray and cable tray heights

Note! *The expected support load must always be taken into account for every application and fastening option.*

Support rail MagicFix overview

Overview of holes and slots on the support rail for different fastening and suspension options:

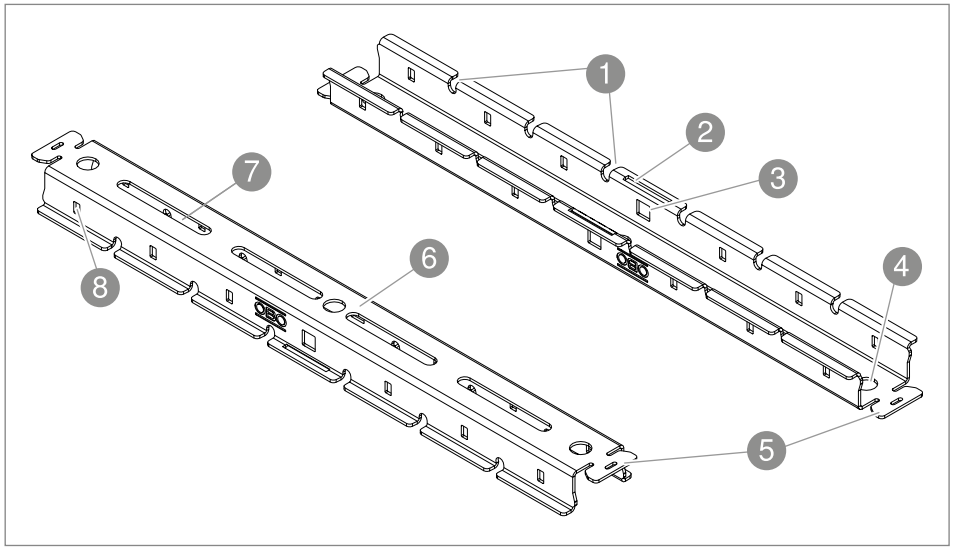

Fig. 2: Support rail MagicFix overview

1 Clamping brackets for mesh cable tray

2 Slot for mesh cable tray centre suspension

3 Perforation for centre suspension screw fastening

4 Perforation for suspension of a mesh cable tray with threaded rods

5 Fastening strap for suspension in suspension strips

6 Support surface for cable tray/cable ladder

7 Slot for screw fastening

8 Hole for hooking in quick fastening

5.2 Accessories

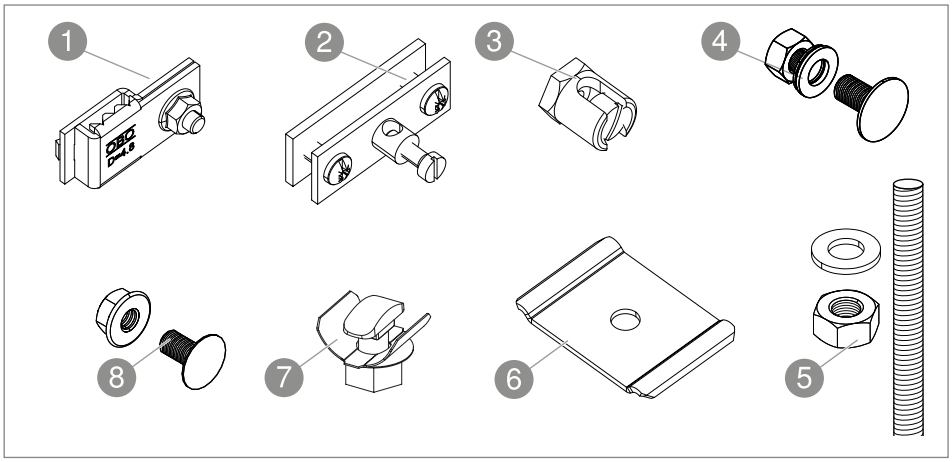

Fig. 3: Accessories

	Designation	Function
1	Connection and earthing clamp VEK-GRM	Mesh cable tray equipotential bonding
2	Earthing clamp 939	Mesh cable tray equipotential bonding
3	Earthing terminal EKL	Mesh cable tray and cable tray/ cable ladder equipotential bonding
4	Truss-head bolt with washer and nut M8x16	Fastening of suspension strips to support rail for centre suspension
5	Threaded rod M10 with washer and hexagonal nut M10	Optional: Standard pendulum or centre suspension
6	Hold-down clamp for screw M6 GKS 50 07 FS	Optional: Mesh cable tray fastening to support rail
7	Quick connector FCM F	Optional: Cable tray fastening to support rail
8	Truss-head bolt with combination nut FRSB 6x12	Optional: Cable tray/cable ladder fastening to support rail

Tab. 3: Accessories

6 Mount the MagicFix system

This chapter explains the mounting of pendulum and centre suspensions with cable trays and mesh cable trays. The creation of a pendulum suspension with cable ladders is not shown. This is done in the same way as the cable tray suspension.

WARNING

Danger due to high working height!
When installing at height, there is a risk of falling and/or that parts may fall. Falls and/or falling components can cause serious injuries.
- Do not work alone.
- Use fall protection as required.
- Secure the area below the installation against access.
- Wear a harness, safety shoes and a helmet.

Note! *Due to the individual mounting options with the MagicFix support rail, there are no general specifications for the permissible load capacity and maximum support spacing. Observe the permissible load capacity and maximum support spacing according to the individual plan.*

6.1 Create pendulum suspension for mesh cable tray

The pendulum suspension is created with suspension strips and support rail. Alternatively, threaded rods can also be used in place of the suspension strips.

The following support rails are suitable for different wire thicknesses of the mesh cable trays:

Support rail width	Ø mesh cable tray wire
≤ 200 mm	Ø 3.9 mm
≥ 300 mm	Ø 4.8 mm

6.1.1 Mount suspension strip MagicFix

To mount the suspension strips, the straps with the holes can be aligned inwards or outwards. The dimension for the hole spacing can be marked on the ceiling with the help of the support rail.

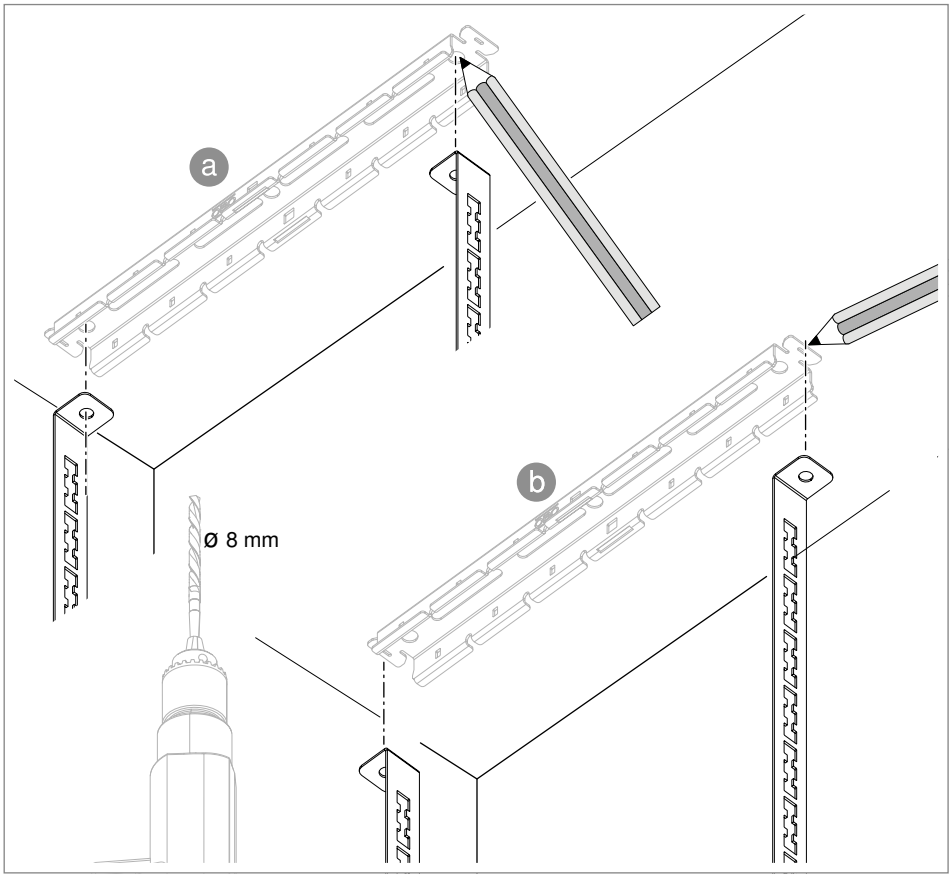

Fig. 4: Mark fastening holes

1. Depending on the alignment of the suspension strips, mark the fastening holes with the help of the holes (a straps facing inwards) or the outer edges of the support rail (b straps facing outwards).

2. Drill Ø 8 mm drill holes.

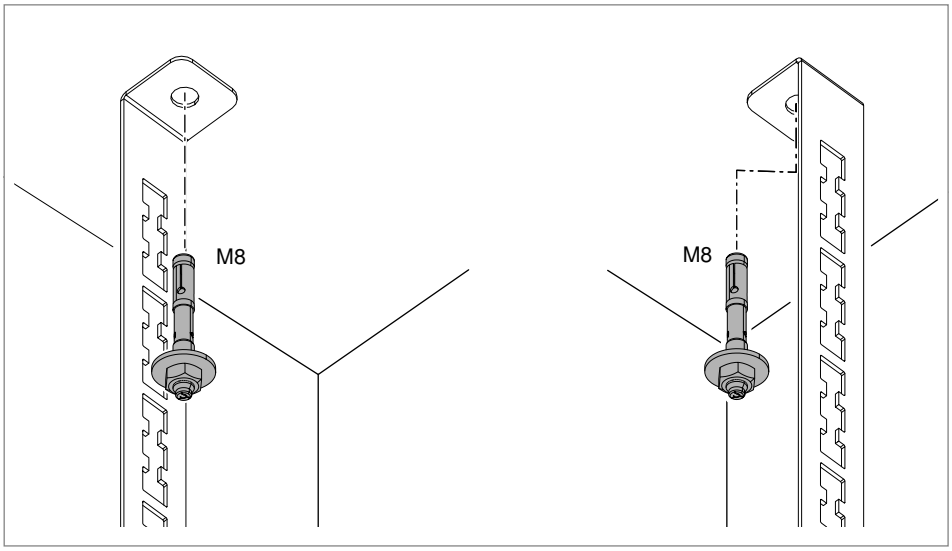

Fig. 5: Fasten suspension strips

3. Fasten suspension strips to the ceiling using suitable fastening materials.

6.1.2 Insert support rail MagicFix

The support rail can be inserted at any height. Refer to the planning of the cable support system for the exact position.

Note! *If the full length of the suspension strips is not needed, they can be cut at the bottom. To prevent injuries, a protective cap is fitted to the end, see chapter "6.1.4 Fit protective cap MagicFix" on page 17).*

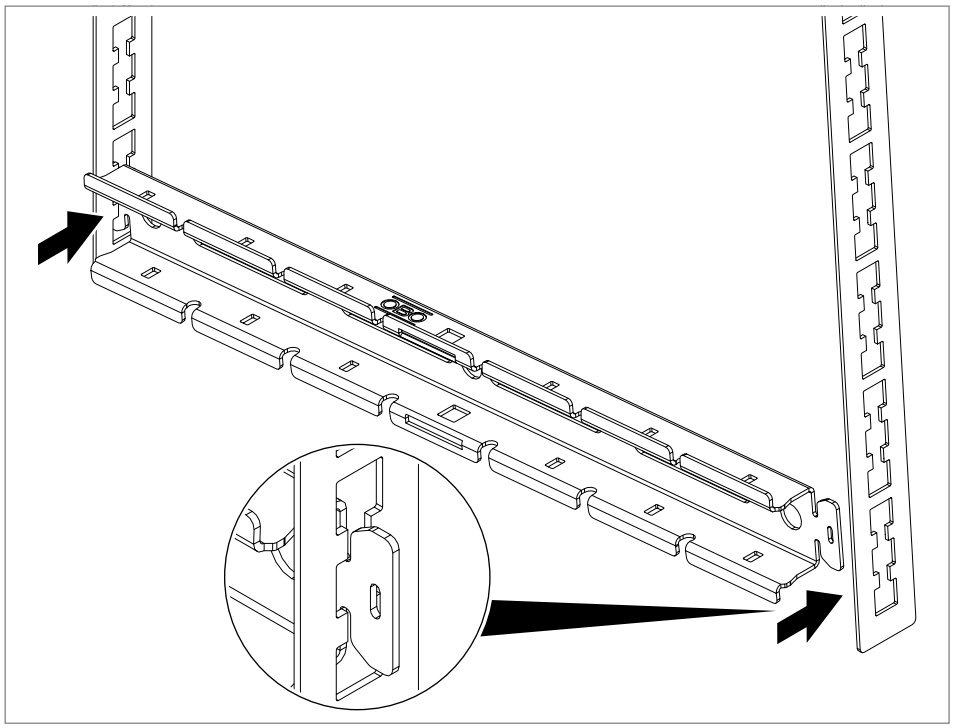

Fig. 6: Suspend support rail

1. Suspend the fastening straps of the support rail in the suspension rails.

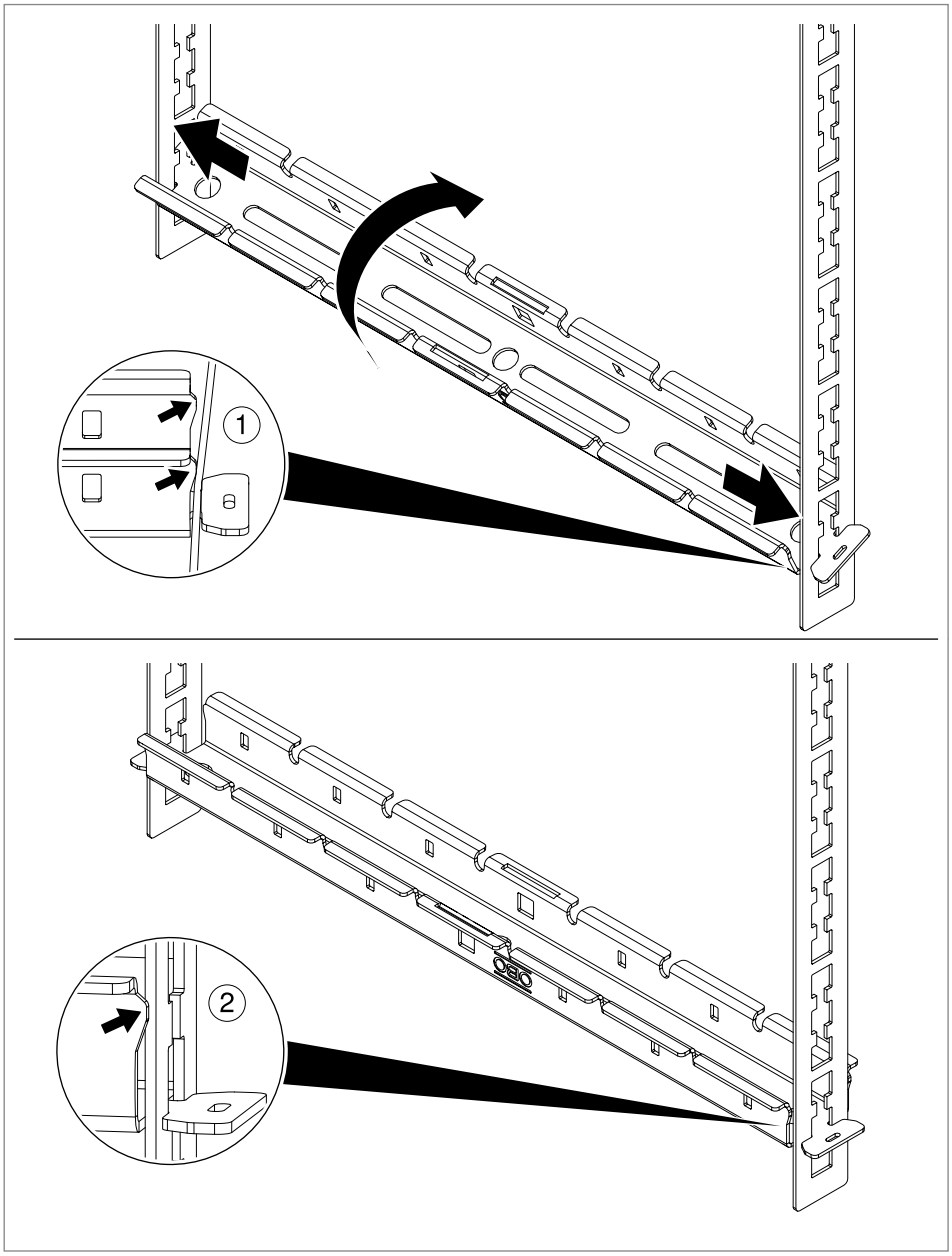

Fig. 7: Engage support rail

2. Push the suspension rails slightly outwards ① and rotate the support rail by 90° to engage the rail in the suspension rails ②. For mesh cable tray mounting, the side with the clamping brackets must be facing up.

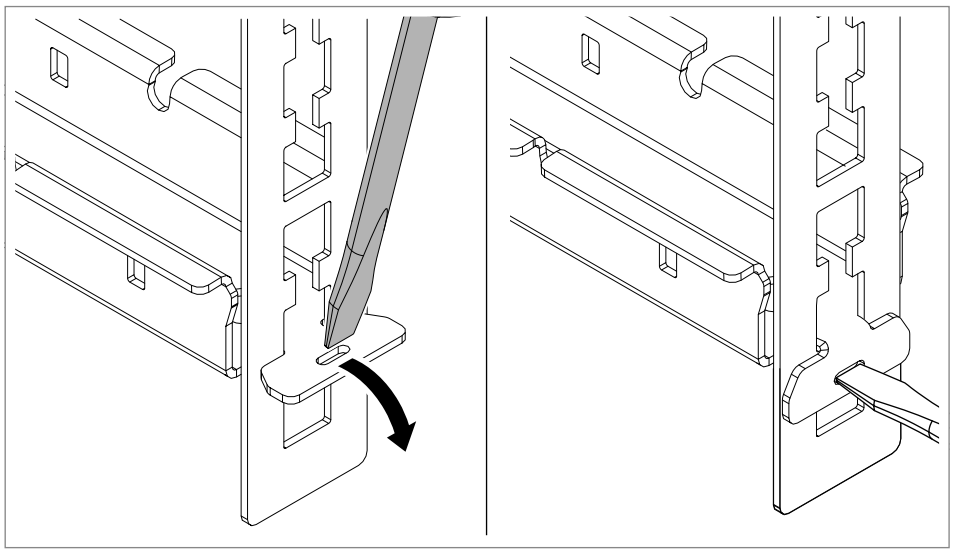

Fig. 8: Bend fastening straps

3. **Optionally,** the fastening straps can be bent using a slotted screwdriver to additionally fasten the support rail.

6.1.3 Alternative for mesh cable tray: Suspend support rail MagicFix with threaded rods

The support rail can also be suspended with threaded rods M10 in place of suspension strips. The different fastening options under the ceiling are described in the separate "Universal systems" mounting instructions, see chapter "1.5 Applicable documents" on page 6.

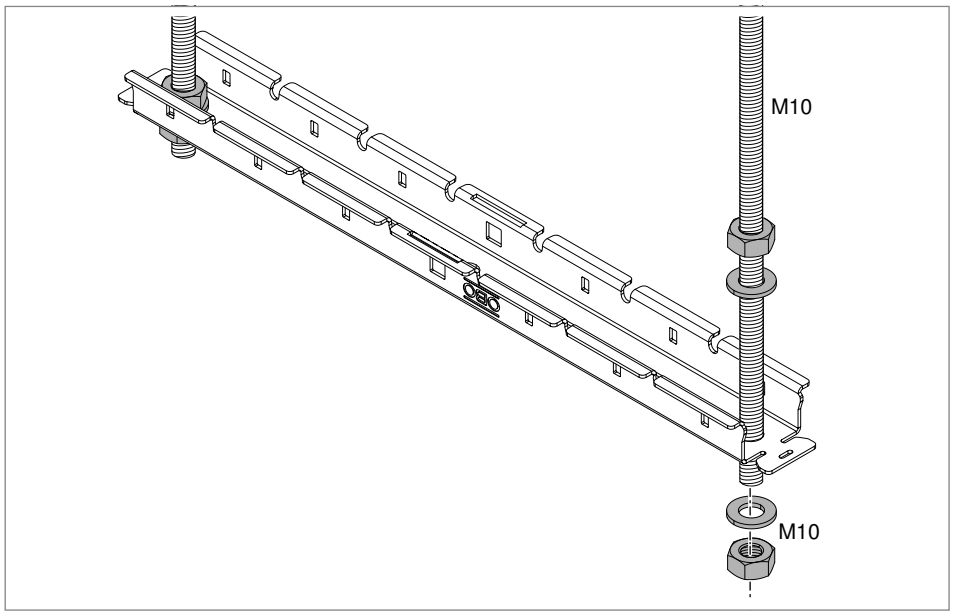

Fig. 9: Suspend support rail with threaded rods

1. Insert threaded rods M10 through holes in support rail and lock with appropriate washers and hexagonal nuts. For mesh cable tray mounting, the side with the clamping brackets must be facing up.

6.1.4 Fit protective cap MagicFix

To prevent injuries, protective caps are fitted on the fastening straps of the support rail that are not bent as well as the ends of the suspension strips.

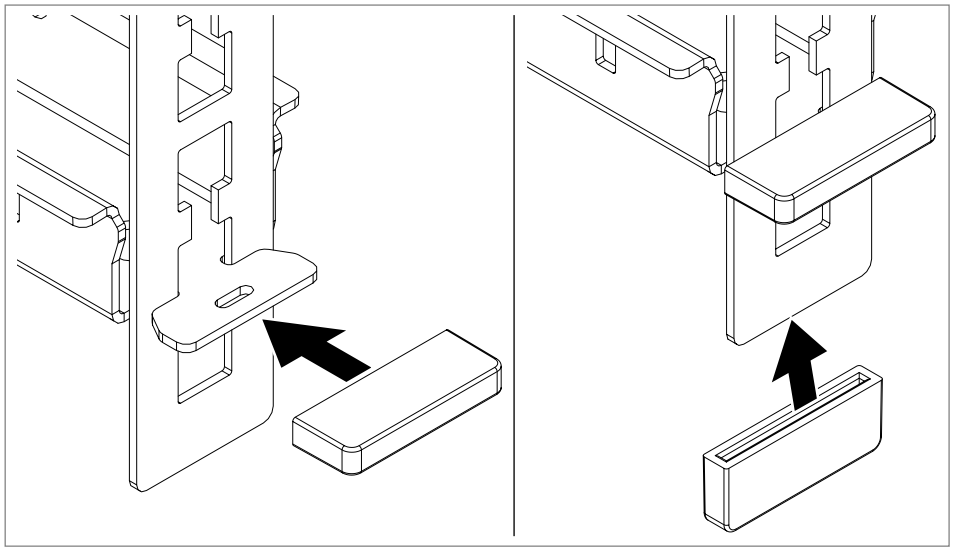

Fig. 10: Fit protective caps

1. Fit protective caps on fastening straps.
2. Fit protective caps on suspension strips.

6.1.5 Insert mesh cable tray

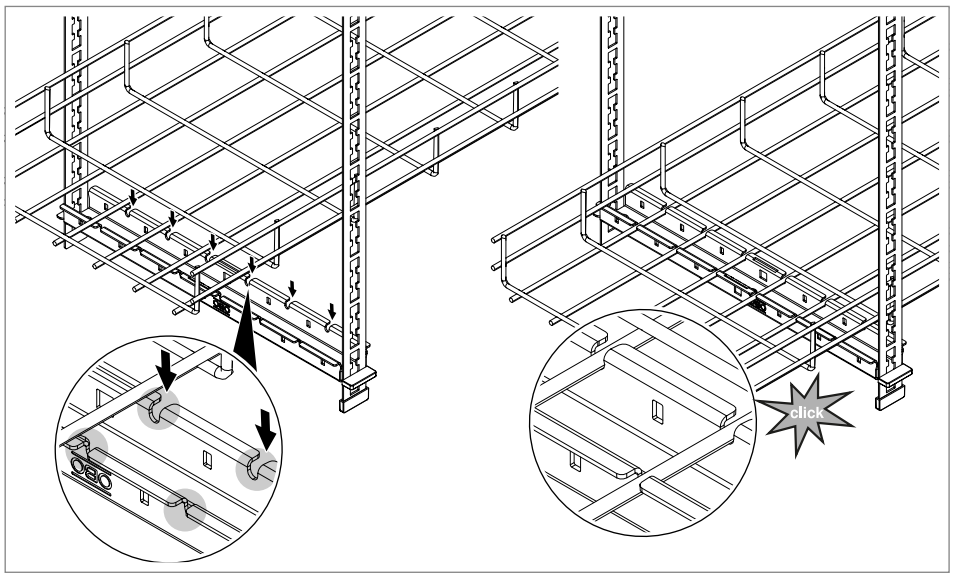

Fig. 11: Engage mesh cable tray

1. Engage mesh cable tray in clamping brackets.

6.1.6 Fix mesh cable tray with quick connector MagicFix

Optionally, mesh cable trays with side heights 60 and 35 mm can be fixed additionally with quick connectors.

Note! *To ensure the best possible stability, the quick connectors are hooked into the perforations of the support rail in opposite directions. The quick connectors can generally be hooked in from the outside or inside of the support rail.*

Mesh cable tray height 60 mm

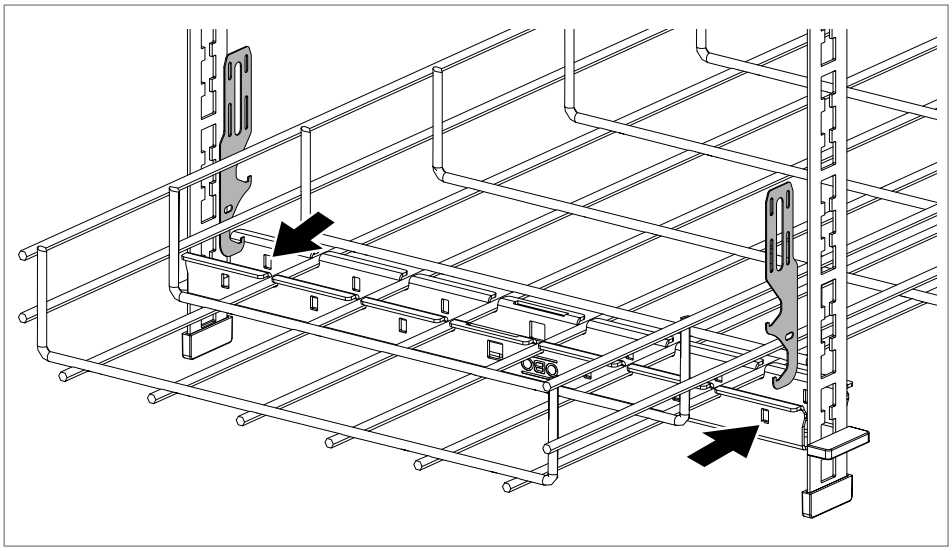

Fig. 12: Hook quick connectors into support rail

1. Place mesh cable tray and hook quick connectors into the perforation at the side of the tray.

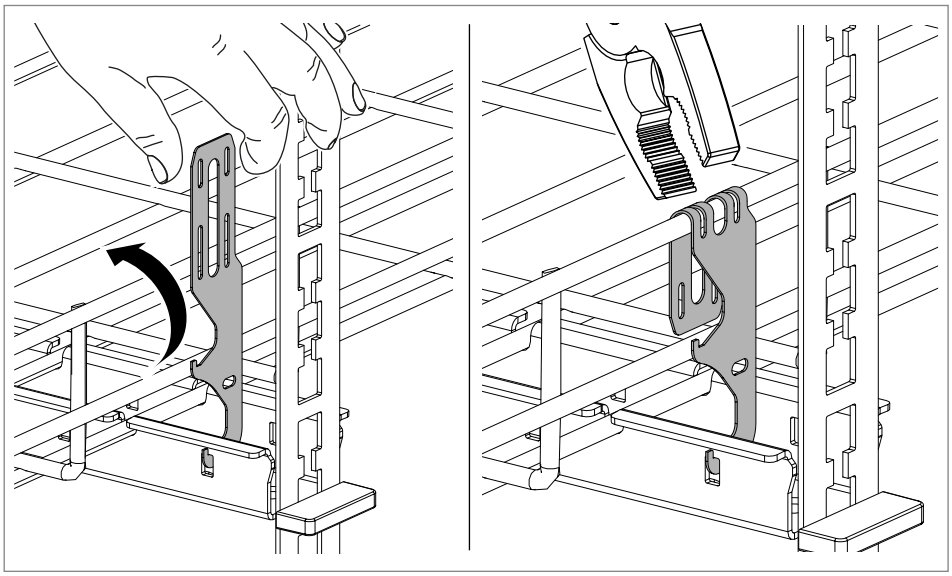

Fig. 13: Fix mesh cable tray with quick connectors

2. Using your hand and/or pliers, bend the quick connectors around the upper mesh cable tray wire.

Mesh cable tray height 35 mm

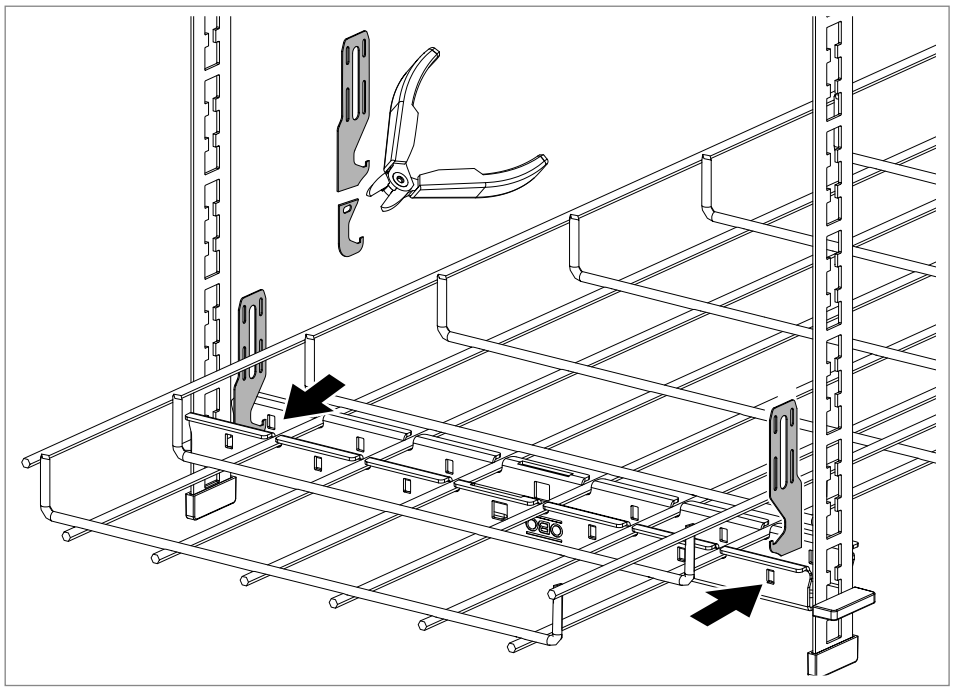

Fig. 14: Cut quick connectors and hook into support rail

1. Cut the quick connectors to be able to use the upper hook. Alternatively, you can also bend the quick connector 90°.

2. Place mesh cable tray and hook quick connectors into the perforation at the side of the tray.

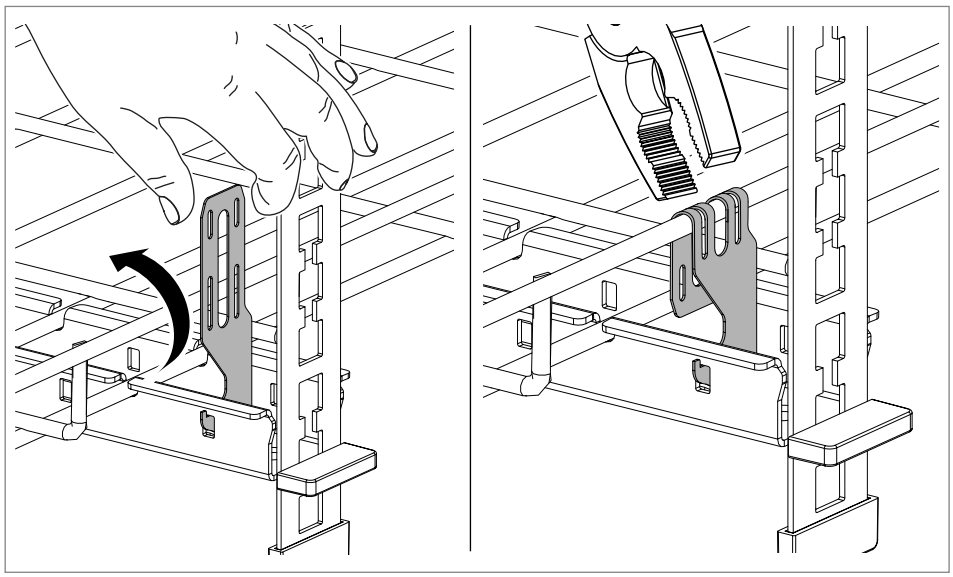

Fig. 15: Fix mesh cable tray with quick connectors

3. Using your hand and/or pliers, bend the quick connectors around the upper mesh cable tray wire.

6.2 Mount multiple mesh cable trays on top of one another

Optionally, multiple mesh cable trays can be mounted on top of one another in the suspension strips. The permissible load values for the planned cable support system may not be exceeded.

Note! *It is also possible to combine cable and mesh cable trays.*

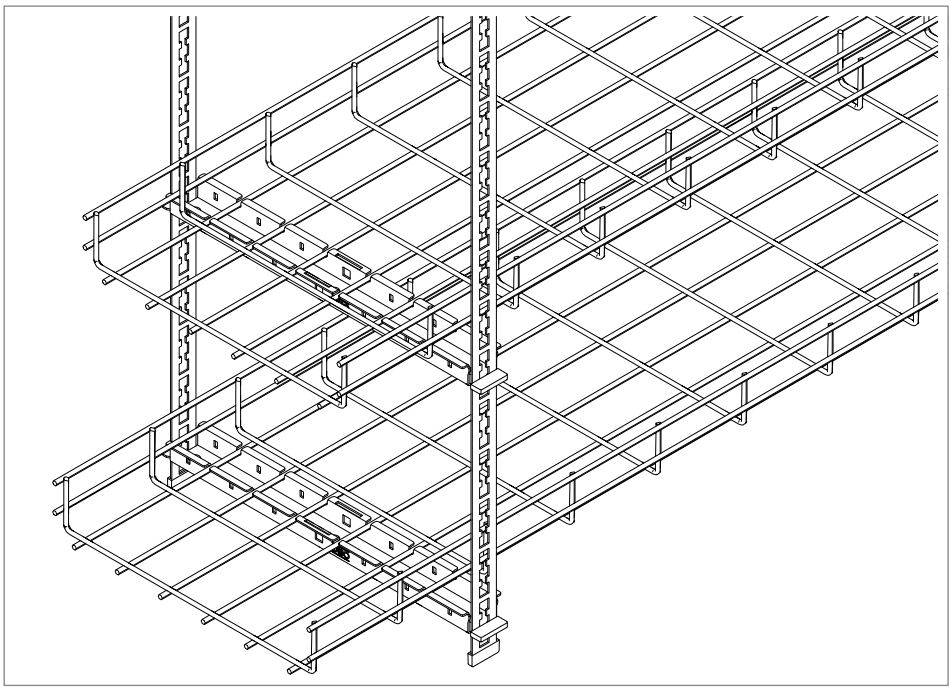

Fig. 16: Fit multiple components to suspension strips, e.g. additional mesh cable trays

1. Mount mesh cable trays as described previously in the chapters "6.1.2 Insert support rail MagicFix" on page 14 to "6.1.6 Fix mesh cable tray with quick connector MagicFix" on page 18.

6.3 Create centre suspension for mesh cable trays

Centre suspensions can be created for one or two mesh cable trays per support rail. The following describes the suspension of two mesh cable trays with suspension strips. Centre suspension with threaded rod is also possible.

Note! *For the centre suspension of one single mesh cable tray per support rail, the tray must first be engaged in the support rail before the support rail can be screwed to the suspension strip or the threaded rods can be mounted.*

6.3.1 Mount suspension strip MagicFix for centre suspension

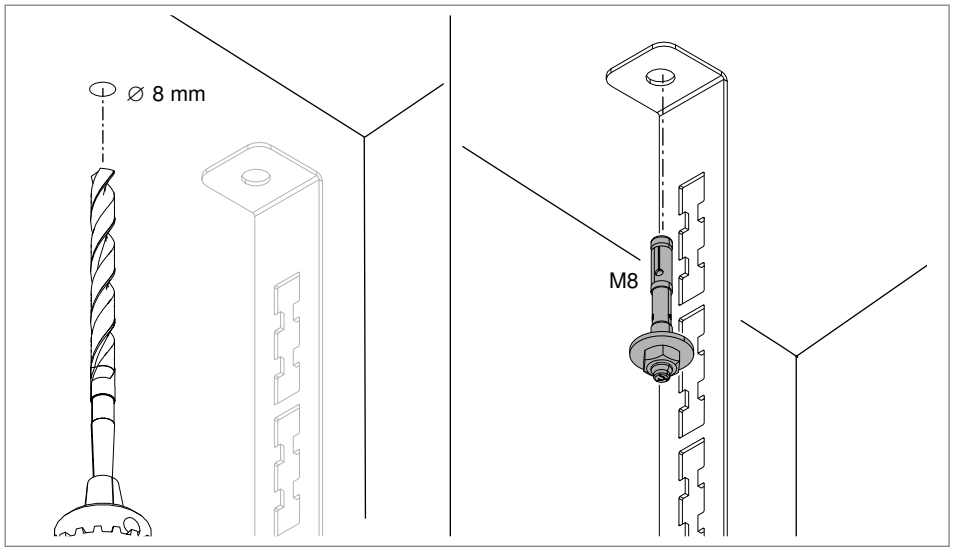

Fig. 17: Mount suspension strip for centre suspension

1. Drill Ø 8 mm fastening hole.
2. Fasten suspension strips to the ceiling using suitable fastening materials.

6.3.2 Mount support rail MagicFix

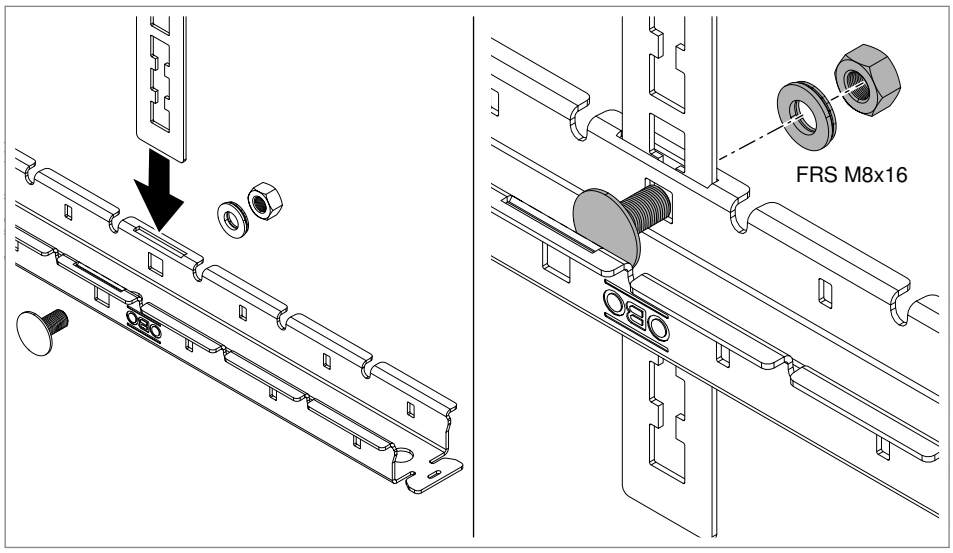

Fig. 18: Mount support rail

1. Insert suspension strip in slot on support rail.
2. Fasten support rail to suspension strip with bolt, washer and nut.

6.3.3 Fit protective caps MagicFix

To prevent injuries, protective caps are fitted on the fastening straps of the support rail as well as the end of the suspension strip.

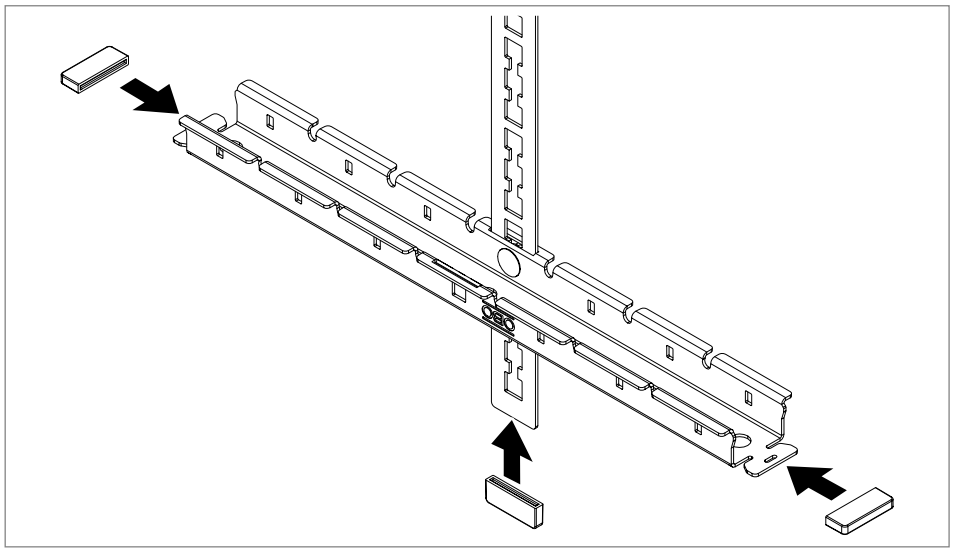

Fig. 19: Fit protective caps

1. Fit protective caps on fastening straps and suspension strips.

6.3.4 Insert mesh cable trays

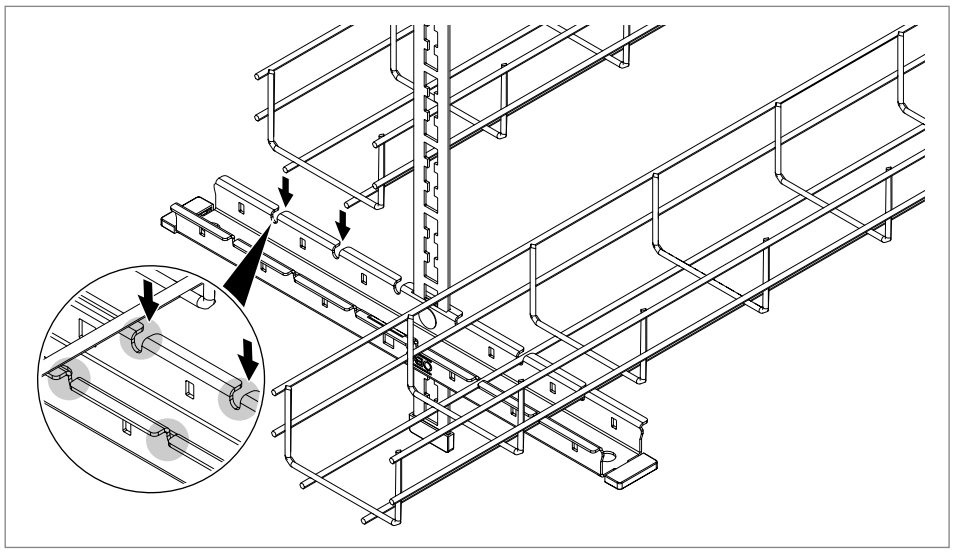

Fig. 20: Insert mesh cable trays

1. Insert mesh cable trays in clamping brackets.

6.3.5 Fix mesh cable trays with quick connector MagicFix

Suitable for mesh cable trays with side heights 60 and 35 mm.

For a centre suspension with two mesh cable trays per support rail, it is necessary to secure the components with quick connectors due to the smaller wire thickness. To fasten mesh cable trays with a side height of 35 mm, the quick connector has to be cut or bent to be able to use the upper hook, see chapter „6.1.6 Fix mesh cable tray with quick connector MagicFix“– "Mesh cable tray height 35 mm" on page 19.

Note! *To ensure the best possible stability, the quick connectors are hooked into the perforations of the support rail in opposite directions. The quick connectors can generally be hooked in from the outside or inside of the support rail.*

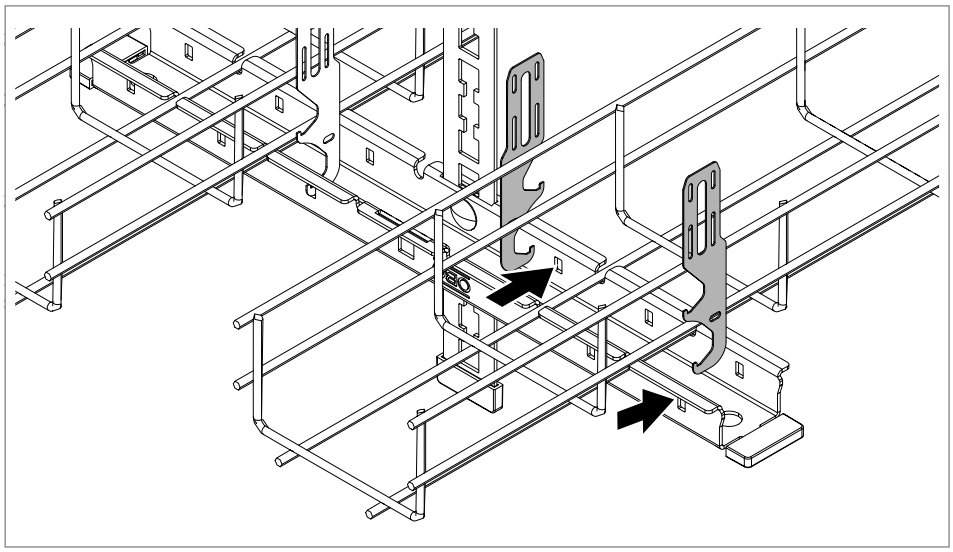

Fig. 21: Hook quick connectors into support rail

1. Hook quick connectors into the perforation at the side of the mesh cable trays.

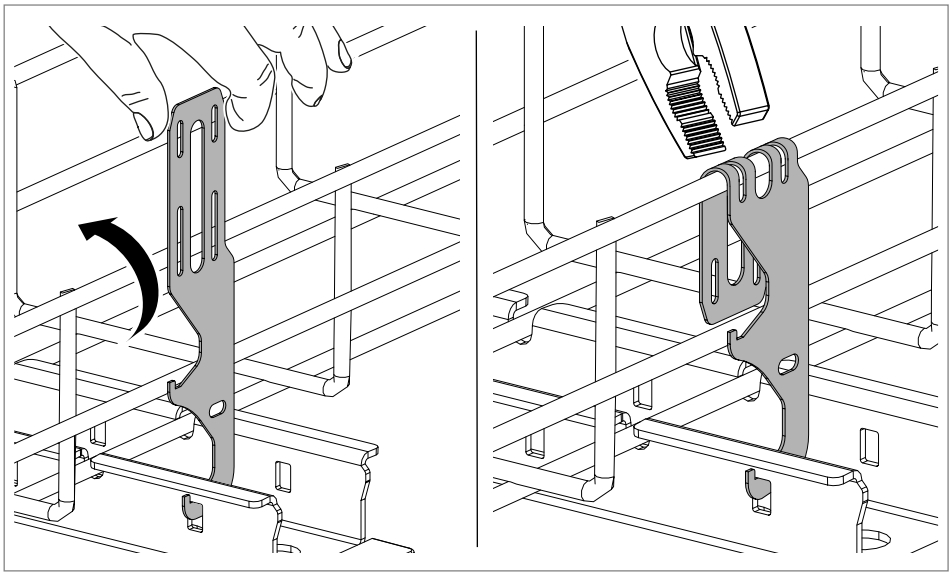

Fig. 22: Fix mesh cable trays with quick connectors

2. Using your hand and/or pliers, bend the quick connectors around the upper mesh cable tray wires.

6.4 Create pendulum suspension for cable trays

The instructions can also be used to create a pendulum suspension for cable ladders.

6.4.1 Mount suspension strip MagicFix

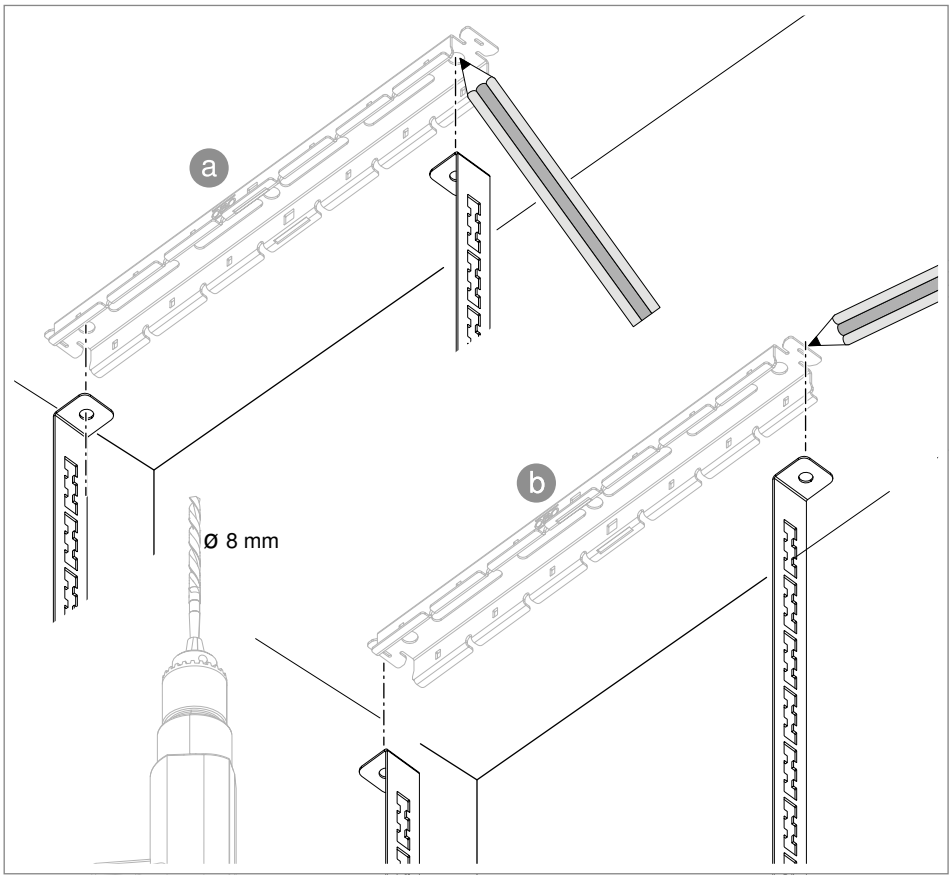

Fig. 23: Drill fastening holes

1. Depending on the alignment of the suspension strips, mark the fastening holes with the help of the holes (a straps facing inwards) or the outer edges of the support rail (b straps facing outwards).
2. Drill Ø 8 mm fastening holes.

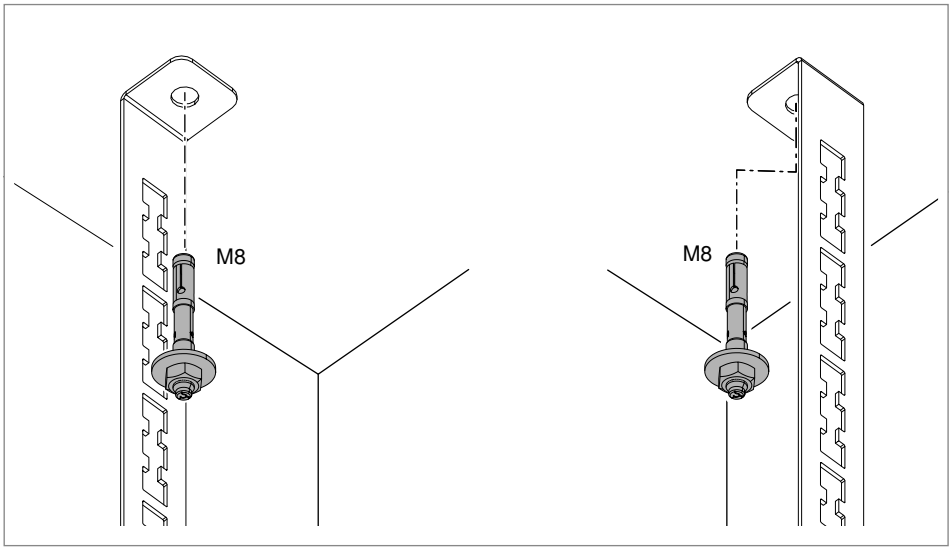

Fig. 24: Fasten suspension strips

3. Fasten suspension strips to the ceiling using suitable fastening materials.

6.4.2 Insert support rail MagicFix

Note! *If the full length of the suspension strips is not needed, they can be cut at the bottom. To prevent injuries, a protective cap is fitted to the end, see chapter "6.4.4 Fit protective caps MagicFix" on page 29).*

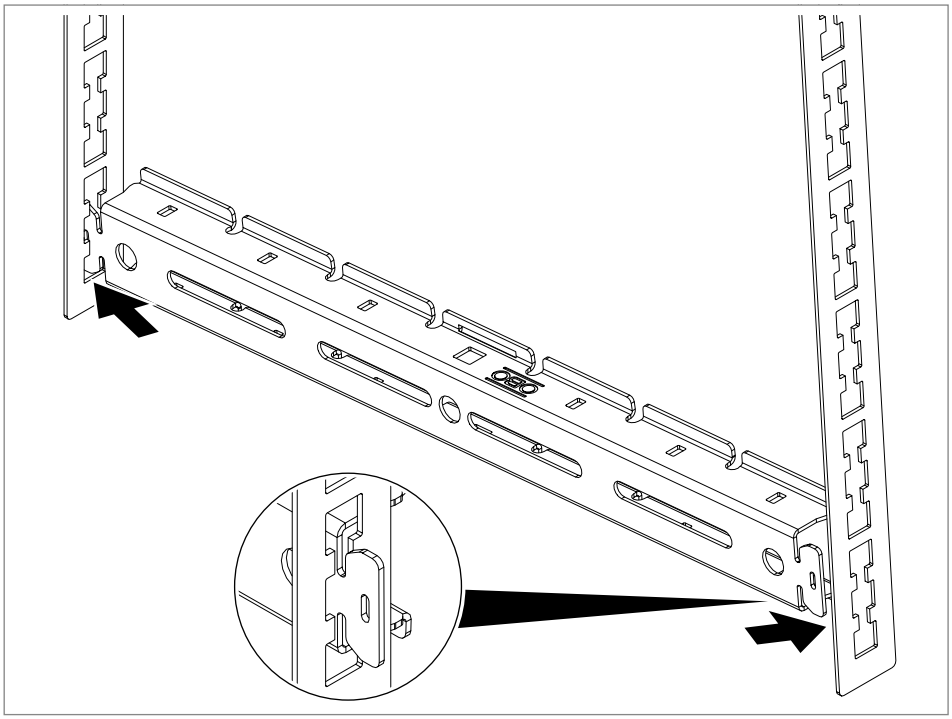

Fig. 25: Suspend support rail

4. Suspend the fastening straps of the support rail in the suspension rails.

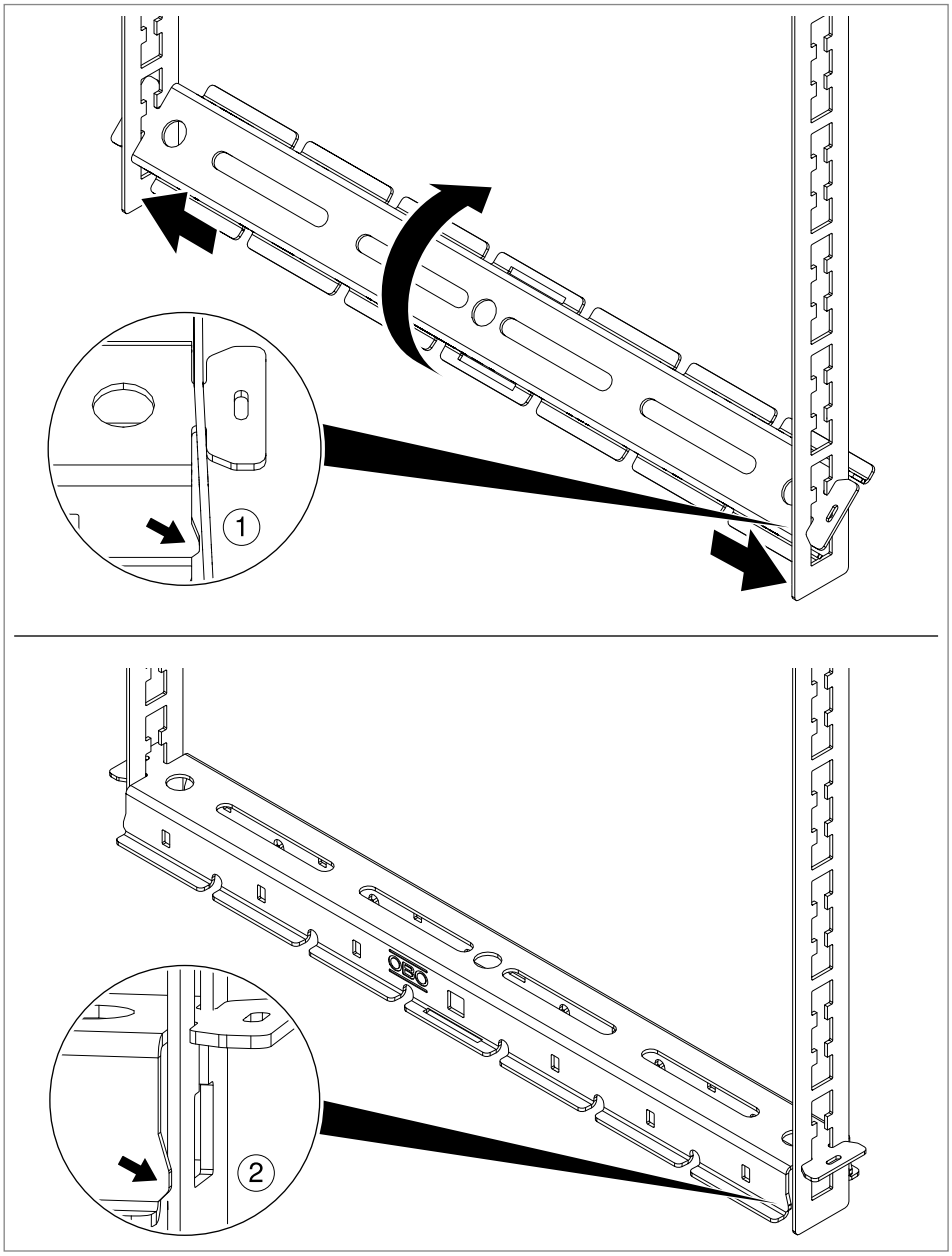

Fig. 26: Engage support rail

5. Push the suspension rails slightly outwards ① and rotate the support rail by 90° to engage the rail in the suspension rails ②. For cable tray mounting, the side with the slots must be facing up.

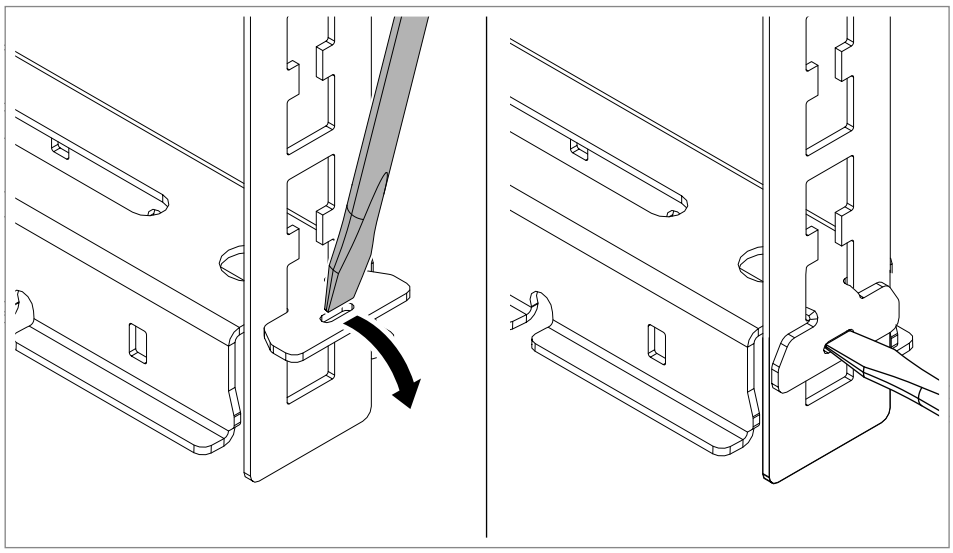

Fig. 27: Bend fastening straps

6. **Optionally,** the straps can be bent to additionally fasten the support rail.

6.4.3 Alternative for cable tray: Suspend support rail MagicFix with threaded rods

The support rail can also be suspended with threaded rods M10 in place of suspension strips. The different fastening options under the ceiling are described in the separate "Universal systems" mounting instructions, see chapter "1.5 Applicable documents" on page 6.

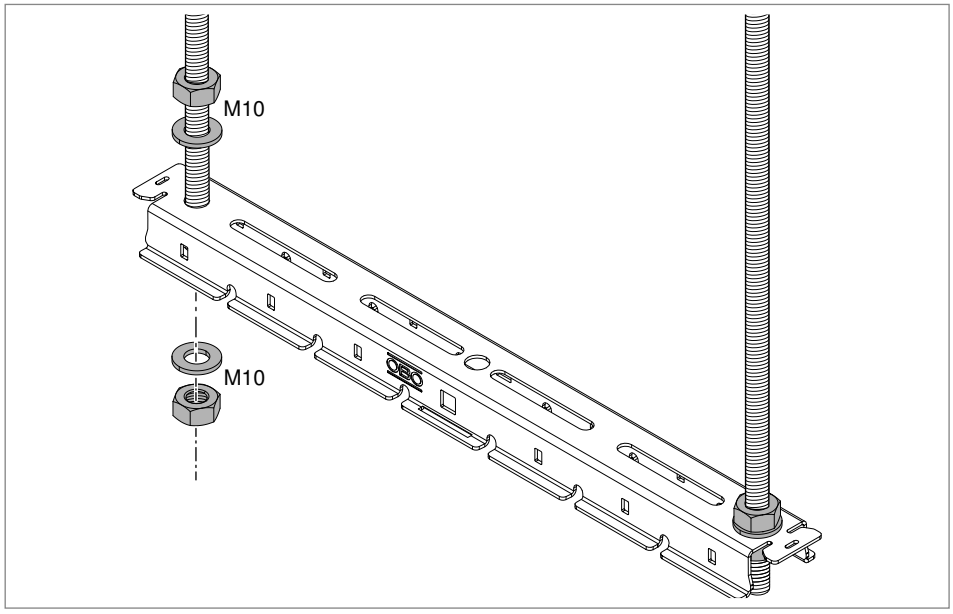

Fig. 28: Suspend support rail with threaded rods

1. Insert threaded rods M10 through holes in support rail and lock with appropriate washers and hexagonal nuts. For cable tray mounting, the side with the slots must be facing up.

6.4.4 Fit protective caps MagicFix

To prevent injuries, protective caps are fitted on the fastening straps of the support rail that are not bent as well as the ends of the suspension strips.

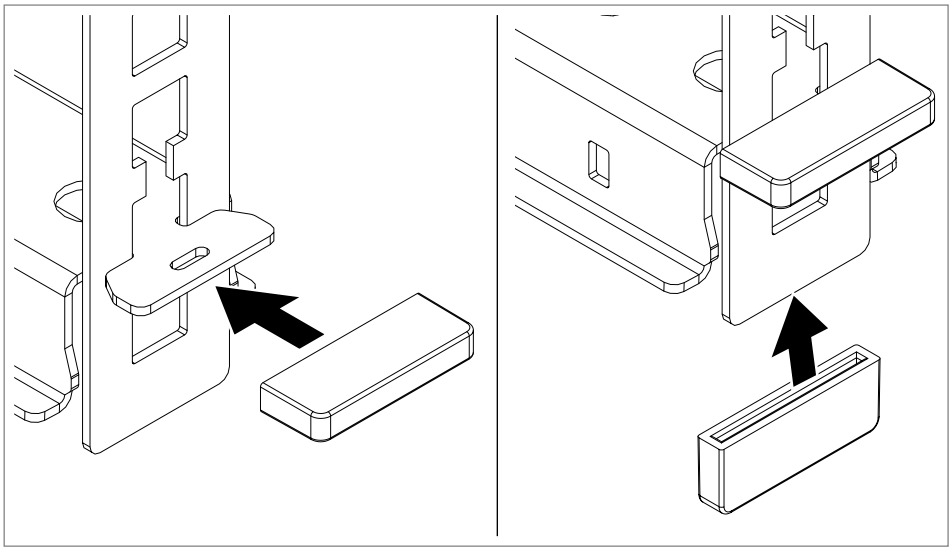

Fig. 29: Fit protective caps

1. Fit protective caps on fastening straps.
2. Fit protective caps on suspension strips.

6.4.5 Fasten cable tray to support rail

The cable tray can be fastened to the support rail without any screws using quick connectors (side heights 60 and 35 mm) or with truss-head bolts with combined nuts FRSB 6x12. Alternatively, cable trays can also be fastened with quick connector type FCM F (not described in these instructions).

Fasten cable tray with quick connector MagicFix

Note! *To ensure the best possible stability, the quick connectors are hooked into the perforations of the support rail in opposite directions.*

Cable tray height 60 mm

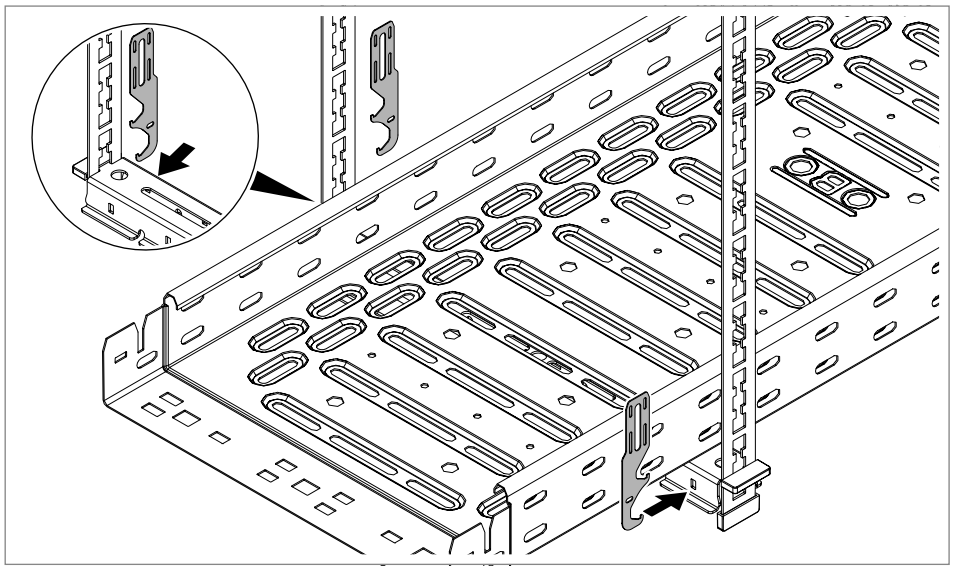

Fig. 30: Hook quick connectors into support rail, tray height 60 mm

1. Place cable tray and hook quick connectors into the perforation at the side of the tray.

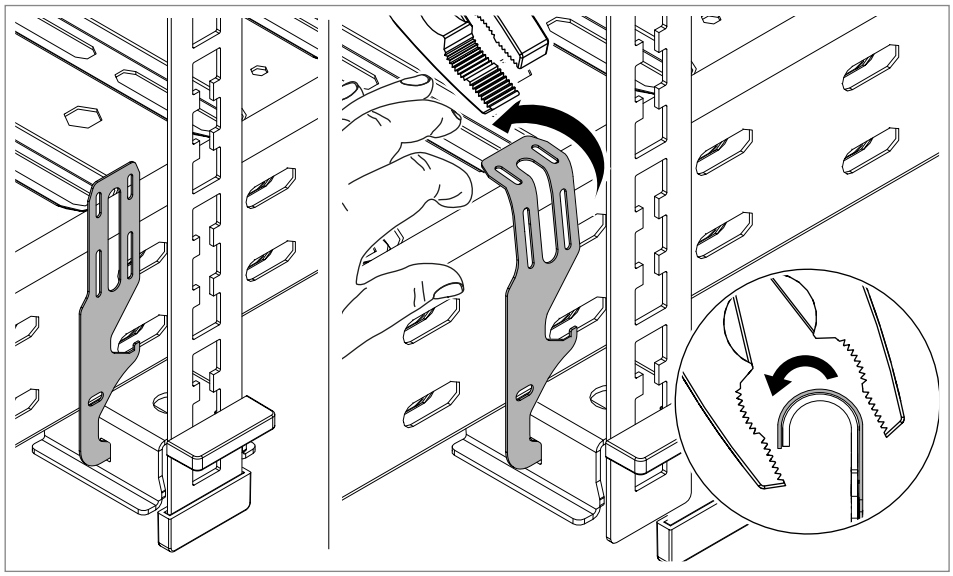

Fig. 31: Fix cable tray (height 60 mm) with quick connectors

2. Using your hand and/or pliers, bend the quick connectors around the

top edge of the rail.

Cable tray height 35 mm

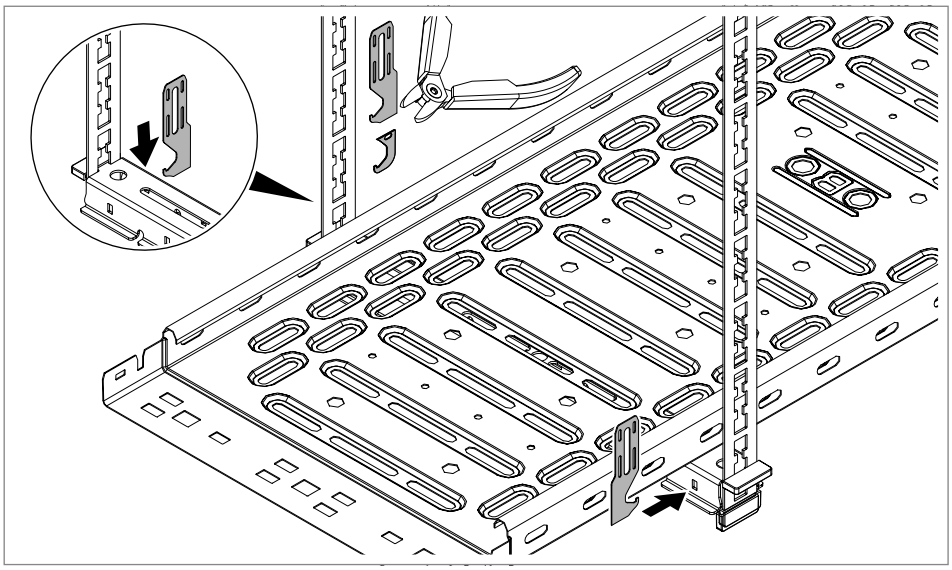

Fig. 32: Hook quick connectors into support rail, tray height 35 mm

1. Cut the quick connector to be able to use the upper hook. Alternatively, you can also bend the quick connector 90°.

2. Place cable tray and hook quick connectors into the perforation at the side of the tray.

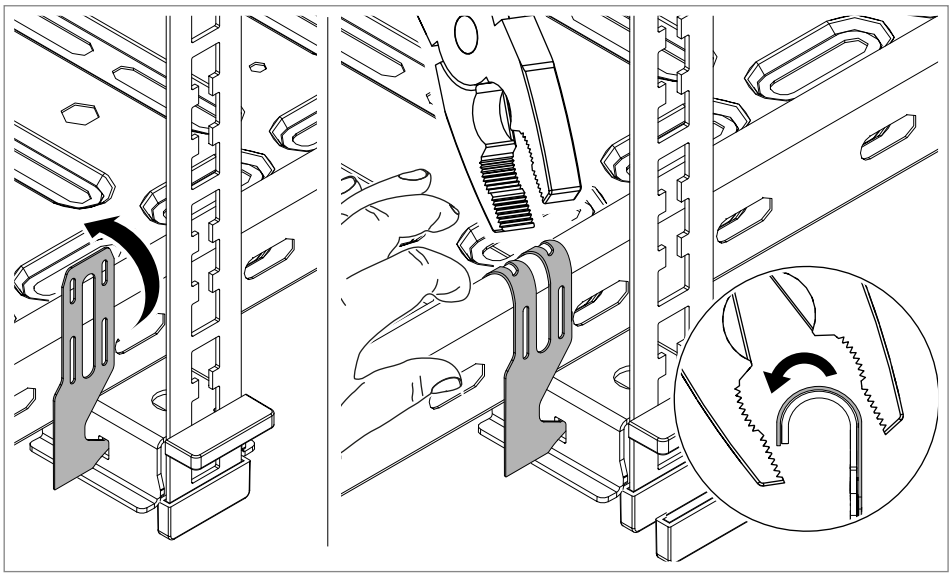

Fig. 33: Fix cable tray (height 35 mm) with quick connectors

3. Using your hand and/or pliers, bend the quick connectors around the top edge of the rail.

Screw on cable tray

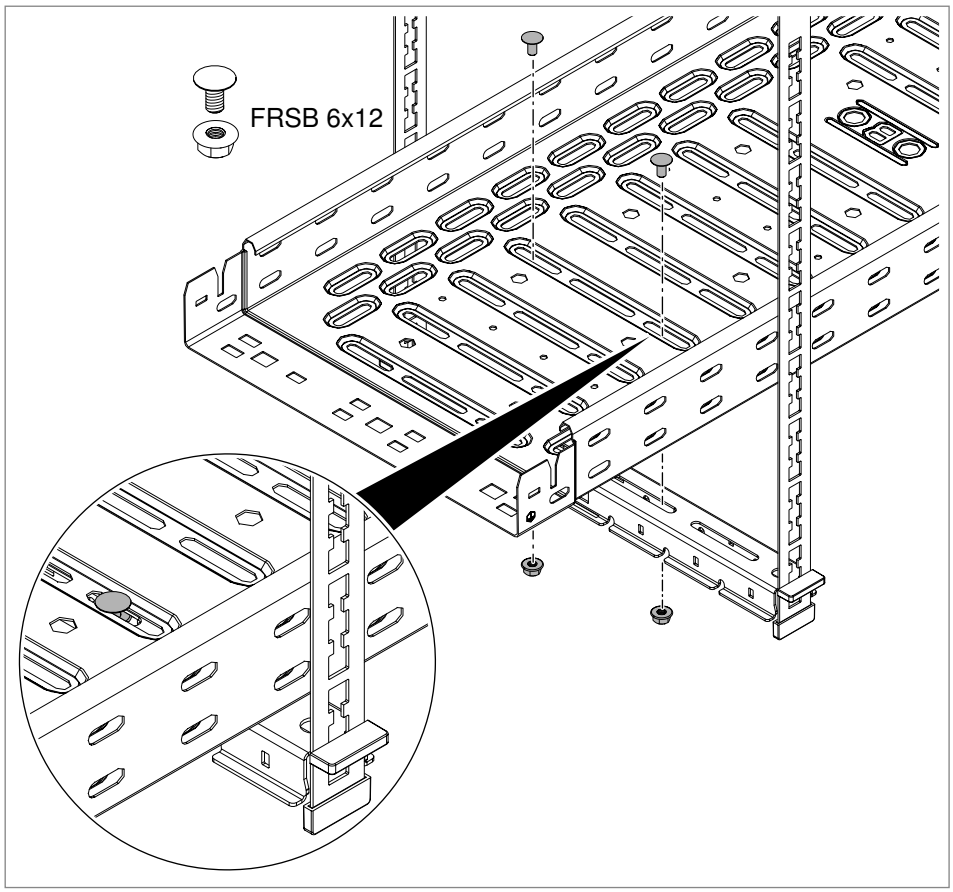

Fig. 34: Screw on cable tray

1. Place the cable tray and screw on with truss-head bolts with combined nuts.

6.5 Mount multiple cable trays on top of one another

Optionally, multiple cable trays can be mounted on top of one another with the suspension strips. The permissible load values for the planned cable support system may not be exceeded.

Note! *It is also possible to combine cable and mesh cable trays.*

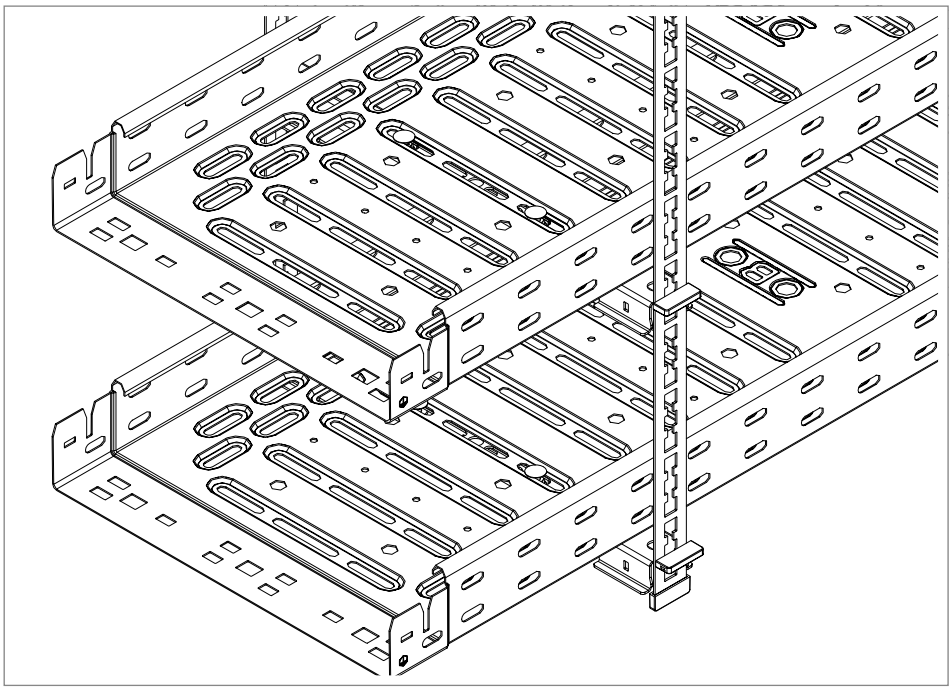

Fig. 35: Fit multiple components to suspension strips, e.g. additional cable trays

1. Mount cable trays as described previously in the chapters "6.4.2 Insert support rail MagicFix" on page 26 to "6.4.5 Fasten cable tray to support rail" on page 30.

7 Creating equipotential bonding

Note! *When mounting the system components, the click or screw connections automatically create continuous equipotential bonding of the entire system. The system must be connected to the equipotential bonding of the overall system at least once.*

In mesh cable tray systems, equipotential bonding is realised with a connection and earthing clamp type VEK-GRM or an earthing clip type 939. In cable tray and cable ladder systems, an earthing terminal type EKL is used.

WARNING

Risk of electric shock!
A lack of equipotential bonding can, in cases of damage, mean that parts of the support structure may be energised. If contact creates a conductive connection, this can lead to fatal injuries.
– Create equipotential bonding.

7.1 Create equipotential bonding in mesh cable tray systems

7.1.1 Create equipotential bonding with earthing clip type 939

Suitable for GRM, G-GRM

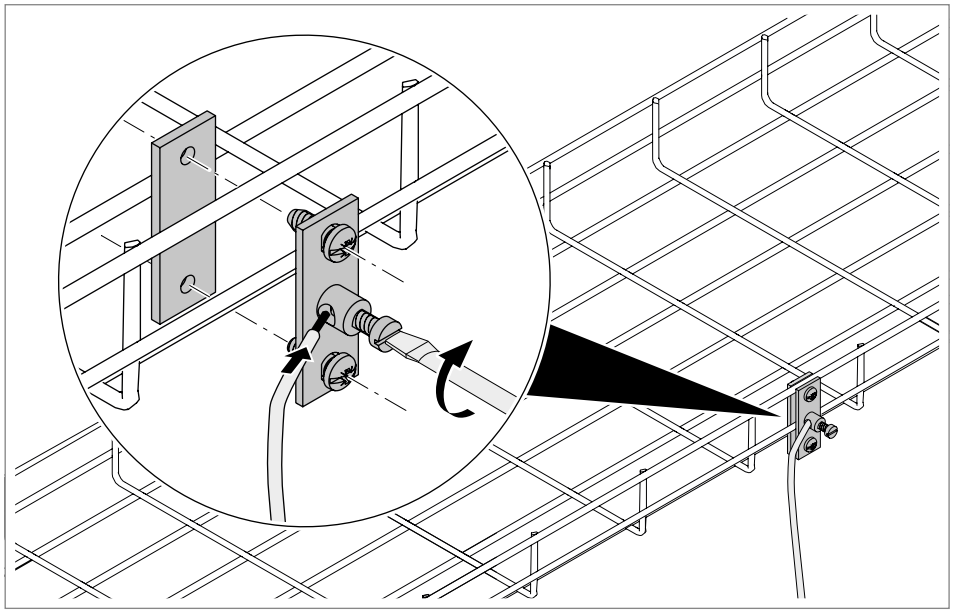

Fig. 36: Mounting an earthing clamp

1. Place the earthing clamp parts on the inside and outside of the mesh cable tray edges.
2. Connect the earthing clamp parts with screws.
3. Mount the equipotential bonding cable to the earthing clamp.

7.1.2 Create equipotential bonding with connection and earthing clamp type VEK-GRM

Suitable for GRM, G-GRM, C-GR

The VEK-GRM earthing terminal is mounted together with the EKL earthing terminal in order to be able to connect an earthing cable.

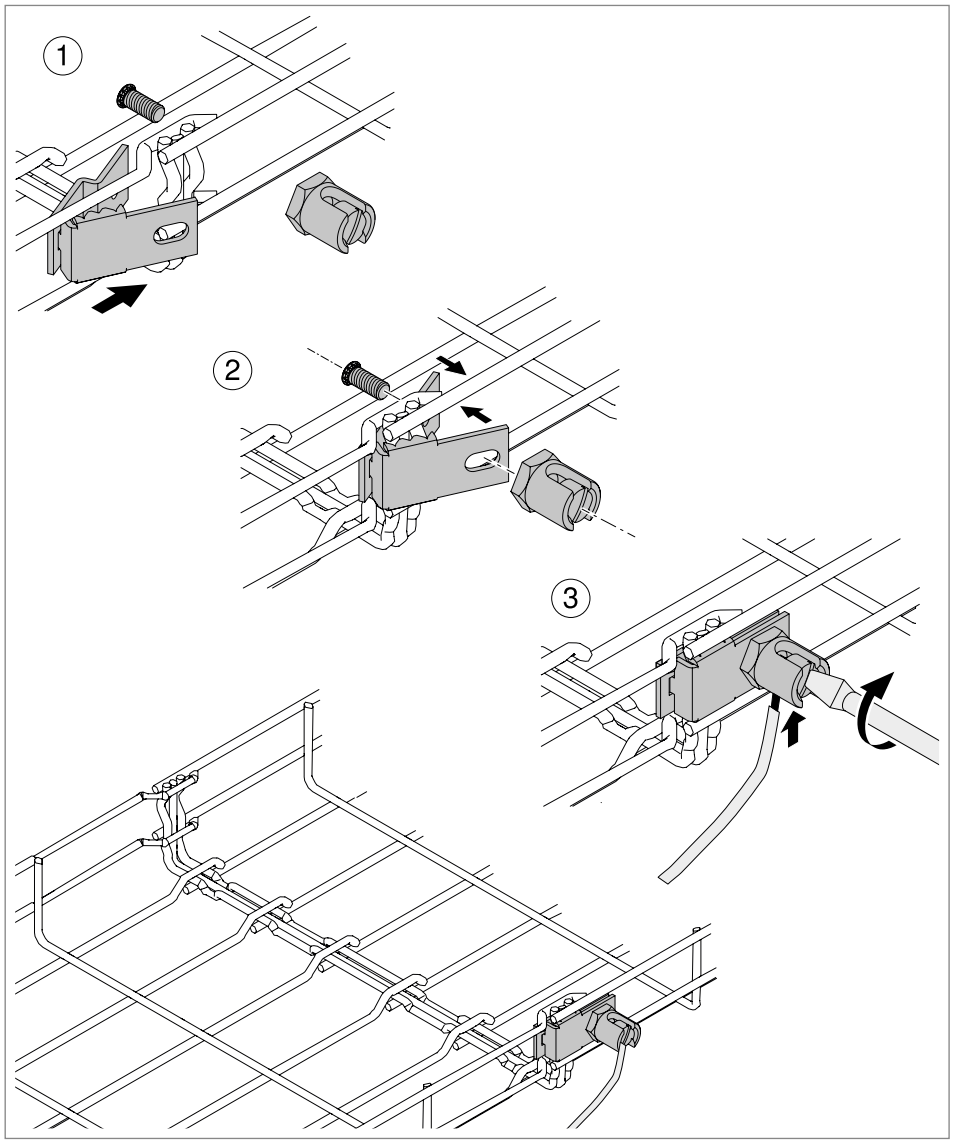

Fig. 37: Mount connection and earthing clamp

1. Place earthing terminal VEK-GRM at the joint of 2 mesh cable tray edges.
2. Mount earthing terminal VEK-GRM with earthing terminal EKL to the mesh cable tray.
3. Mount equipotential bonding cable to earthing terminal EKL.

7.2 Create equipotential bonding in cable tray systems

The instructions can also be used to create equipotential bonding for cable ladders.

7.2.1 Create equipotential bonding with earthing terminal type EKL

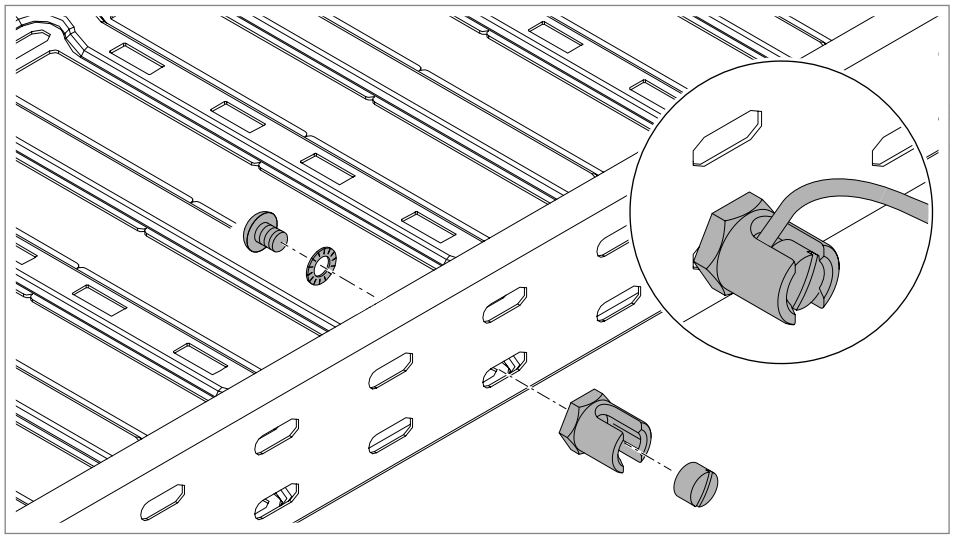

Fig. 38: Mounting the earthing terminal

1. Drill a hole in the cable tray if it does not yet exist.
2. Screw the earthing terminal on the cable tray rail with an FRSB 6x12 screw.
3. Connect the earthing terminal electrically to the overall equipotential bonding.

8 Maintaining the system

The stability and function of the MagicFix support system can be impaired by external influences, such as damage or machine vibrations.

Reconnect or engage loose connections and tighten connection elements. If necessary, apply a bolt lock using nuts with an internal plastic ring or bolt locking agent. Replace damaged parts. Check regularly to see if the connection to the overall equipotential bonding is still intact.

9 Dismantling the system

WARNING

Danger due to high working height!
When installing at height, there is a risk of falling and/or that parts may fall. Falls and/or falling components can cause serious injuries.
- Do not work alone.
- Use fall protection as required.
- Secure the area below the installation against access.
- Wear a harness, safety shoes and a helmet.

Dismantling of all the elements of the MagicFix system takes place in the reverse order to mounting.

10 Disposing of the product

Comply with the local waste disposal regulations.

– Metal: As scrap metal

– Plastic parts: As plastic

– Packaging: As household waste/plastic/metal (depending on packaging type)

11 Technical data

FS	Strip galvanised steel	CuZn	Brass
F	Hot-galvanised steel	PE	Polyethylene
G	Electrogalvanised steel		

Designation	Type	Dimensions, mm	Material	Item no.
Support rail MagicFix	TSM 50 FS	22 x 45 x 121	FS	6426300
Support rail MagicFix	TSM 100 FS	22 x 45 x 171	FS	6426302
Support rail MagicFix	TSM 150 FS	22 x 45 x 221	FS	6426304
Support rail MagicFix	TSM 200 FS	22 x 45 x 271	FS	6426306
Support rail MagicFix	TSM 300 FS	22 x 45 x 371	FS	6426308
Support rail MagicFix	TSM 400 FS	22 x 45 x 471	FS	6426310
Support rail MagicFix	TSM 500 FS	22 x 45 x 571	FS	6426312
Support rail MagicFix	TSM 600 FS	22 x 45 x 671	FS	6426314
Suspension strip MagicFix	ASM 50 FS	490 x 28	FS	6426200
Suspension strip MagicFix	ASM 100 FS	990 x 28	FS	6426202
Suspension strip MagicFix	ASM 150 FS	1,490 x 28	FS	6426204
Suspension strip MagicFix	ASM 200 FS	1,990 x 28	FS	6426206
Quick connector MagicFix	SBM FS	23.5 x 101	FS	6426160
Protective cap MagicFix	SKM OR	12 x 32	PE	6426180
Hold-down clamp	GKS 50 07 FT	60 x 40	FT	6015271
Truss-head bolt with combination nut	FRSB M6x12 FS	M6 x 12	FS	6406122
Connection and earthing clamp	VEK-GRM 3.9 FS	42 x 19 x 11	FS	6016694
Earthing clamp	939 G	≤ 16 mm² FL ≤ 30 mm	G	5043107
Earthing terminal	EKL	4–50 mm² 25–75 mm²	CuZn	6404001/06 6404014/16
Quick connector	FCM F	M6 x 12	F	6424548
Truss-head bolt with nut and washer	FRS 8x16 F 8.8	M8 x 16	F	6406963
M10 threaded rod	TR M10 1M G	M10x 1,000	G	3141209
Washer	WS M10 D20 G	M10 Ø20	G	3402096
Hexagonal nut	HN M10 G	M10	G	3400107

Tab. 4: Technical data

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Building Connections

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