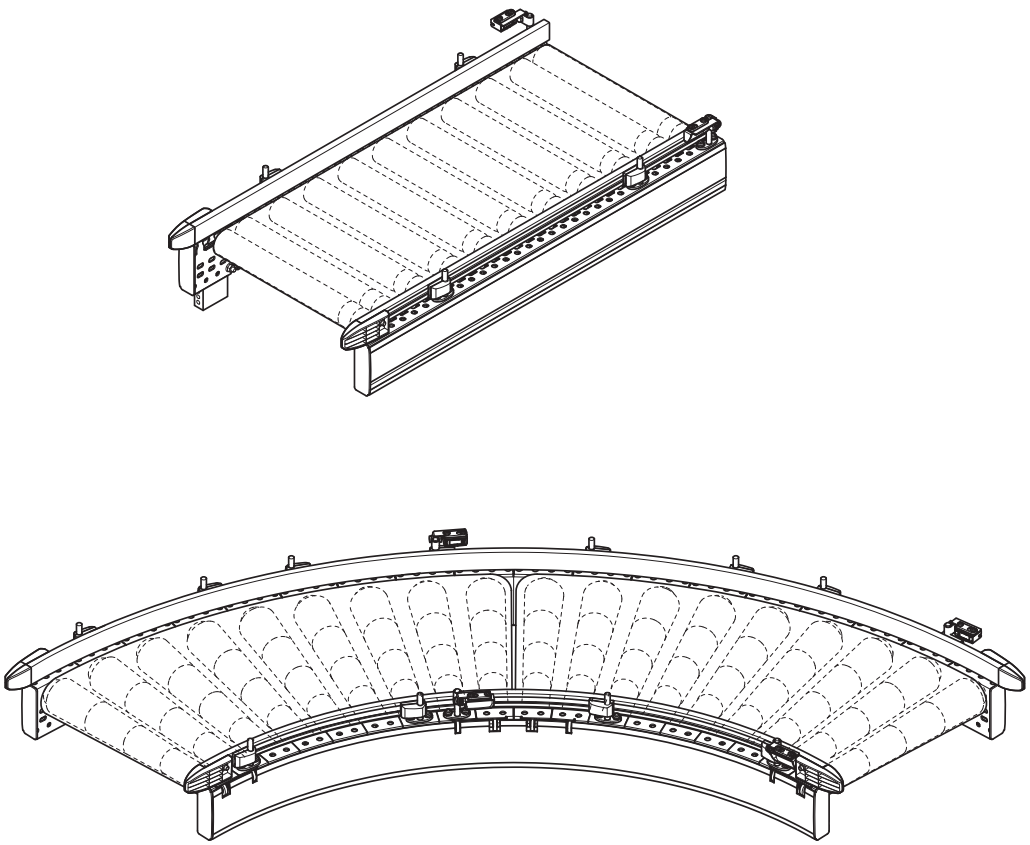
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Installation and Operating Instructions

Interroll 24 V Belt Conveyor

Straight / curve

BM 8350 / BM 8360

Version 1.1 (02/2016) en-US
Translation of original instruction manual

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Introduction

Notes about working with the installation and operating instructions

The Interroll 24 V Belt Conveyor is generally referred to as "module" in this document.

Contents of these installation and operating instructions

These installation and operating instructions contain important notes and information about the various operating phases of the module:

- Transport, assembly and startup
- Safe operation, required maintenance tasks, removal of any faults
- Spare parts, supplementary accessories

Integrated part of the product

The installation and operating instructions describe the module at the time of its initial delivery after manufacturing.

In addition to this manual, special contractual agreements and technical documents apply to special versions of the module and its additional equipment.

Installation and operating instructions are part of the module

- To ensure trouble-free and safe operation as well as the settlement of possible warranty claims, always read these installation and operating instructions first and observe all the information contained herein.
- Keep the installation and operating instructions close to the module.
- Pass the installation and operating instructions on to any subsequent operator or occupant. Interroll does not accept any liability for faults or defects due to non-observance of these installation and operating instructions.

If you have any questions after reading the installation and operating instructions, please contact the Interroll customer service. Contact persons close to you can be found on the Internet under: www.interroll.com/contacts.

Warning notices in this document

The warning notices refer to risks which may arise while using the module. They are available in four danger levels identified by the signal word:

Signal word	Meaning
DANGER	Identifies a danger with high risk that can lead to death or serious injury if it is not avoided.
WARNING	Identifies a danger with medium risk that can lead to death or serious injury if it is not avoided.
CAUTION	Identifies a danger with low risk that can lead to minor or medium injury if it is not avoided.
NOTICE	Identifies a danger that can lead to property damages.

Symbols

This symbol marks useful and important information.

Requirement:

☑ This symbol represents a prerequisite to be met prior to assembly and maintenance work.

▸ This symbol marks the steps to be carried out.

Safety

State of the art

The module has been built to comply with the state of the art. Nevertheless, users may encounter hazards during its use.

⚠ Disregarding the notices in this manual may lead to serious injury.

- Carefully read the manual and follow its content.

Intended use

The module may only be used for industrial applications and in an industrial environment to convey sortable goods such as small packages, cartons or boxes.

The module is an incomplete machine and must be integrated into a complete system prior to operation.

Field of use

The module is dimensioned only for a certain field of use and may not be operated outside of these specific limits. For additional information, see the chapter "Technical data".

Any other use is considered inappropriate. Deviating operating conditions require additional clarifications, a special release of the module and new contractual agreements.

Changes to the module

Any modifications that affect the safety are not permitted.

Personnel qualification

Unqualified personnel cannot recognize risks and, as a result, is subject to greater dangers.

- Authorize only qualified personnel with the activities described in these installation and operating instructions.
- The operating company must ensure that the personnel follows locally applicable regulations and rules during their work with regard to safety and dangers.

The following target groups are addressed in these installation and operating instructions:

Operators

Operators have been instructed in the operation and cleaning of the module and follow the safety guidelines.

Service personnel

The service personnel features a technical training and performs the maintenance and repair tasks.

Electricians

Persons working on electrical installations must have the pertinent technical training.

Dangers

The following list informs you about the various types of danger or damage that may occur while working with the module.

Safety devices

- Perform any maintenance and repair work on the module only in de-energized state and ensure that it cannot be started accidentally.
- In the passage area of persons or if persons can reach between transported materials, additional protective measures may apply.
- Do not remove protective covers or housing.
- Regularly check the safety devices.

Electricity

- Reach into the module only if the module is de-energized.

Rotating parts

- Never wear loose clothing.
- Never wear jewelery, such as necklaces or bracelets.
- If you have long hair, always wear a hair net.

Parts lying around or falling off

- Remove equipment or material which is not required from the workspace.
- Wear safety shoes.
- Specify and monitor careful placement of the goods on the conveyor.

Risk of injury due to faults during operation

- Regularly check the module for visible damage.
- Immediately shut down the module and ensure that it cannot be started accidentally in case of:
  fire vapors, unusual, noise, blocked or defective conveyor belt, defective supports, side guides or accessory devices, unauthorized removal of safety covers and with a defective suspension.
- Immediately determine the cause of the fault by qualified personnel.
- Immediately remove any escaping gear oil.
- Do not step on the module during operation.

Maintenance intervals

- Regularly perform maintenance and inspection work.
- Use only OEM spare parts.

Interfaces to other devices

New hazardous positions may occur while integrating the module into a complete system. These positions are not part of this manual and have to be analyzed during the assembly and startup of the complete system.

- When combining the module with other modules or machinery, check for new hazards before startup. In particular, observe the infeed point at the deflection shaft.
- Additional constructive measures may be required.

Operating modes

Normal mode The module is installed at the customer in a complete system and operated as part of the system.

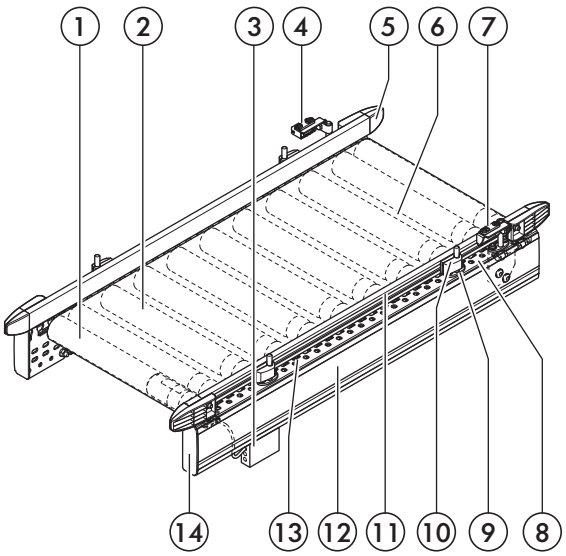
Special mode Special operation refers to all operating modes which are required to guarantee and maintain regular operation.

Special operating mode	Explanation	Comment
Transport/Storage	Loading and unloading, transport and storage	-
Assembly/Initial start-up	Installation at the end customer and performing the test run	-
Cleaning	External cleaning without removing protective devices	When de-energized
Maintenance/Repairs	Maintenance and inspection tasks	When de-energized
Troubleshooting	Troubleshooting in the event of a fault	-
Fault elimination	Eliminating the fault	When de-energized
Shutdown	Removing from the complete system	When de-energized
Disposal	Removing from the complete system and disassembly	When de-energized

Product identification

24 V Belt Conveyor Straight BM 8350

Components



24 V belt conveyor straight BM 8350

1	Drive roller	8	Side frame (C-profile)
2	Carrying idler	9	Universal support
3	Control	10	Side guide support
4	Photo cell	11	Side guide profile
5	End cap (side guide)	12	Side cover
6	Belt	13	Closing clip
7	Reflector	14	End cap (side frame)

Product identification

Property

The 24 V belt conveyor is a belt conveyor that is divided into zones and operates with zero pressure accumulation; its drive is based on the 24 V RollerDrive. It is possible to transport and accumulate small products, as well as products not suitable for roller tracks.

The 24 V belt conveyor straight is suitable for transporting products up to 50 kg – including products with uneven or soft bottom.

A closed conveyor belt is pulled over carrying idlers and a drive roller (RollerDrive) at the start of every zone. The last roller of each zone serves as tensioning roller. The conveyor belt can operate with low belt tensioning since the routing is not implemented using a spherical idler pulley, but by a taper strip affixed to the inside of the belt.

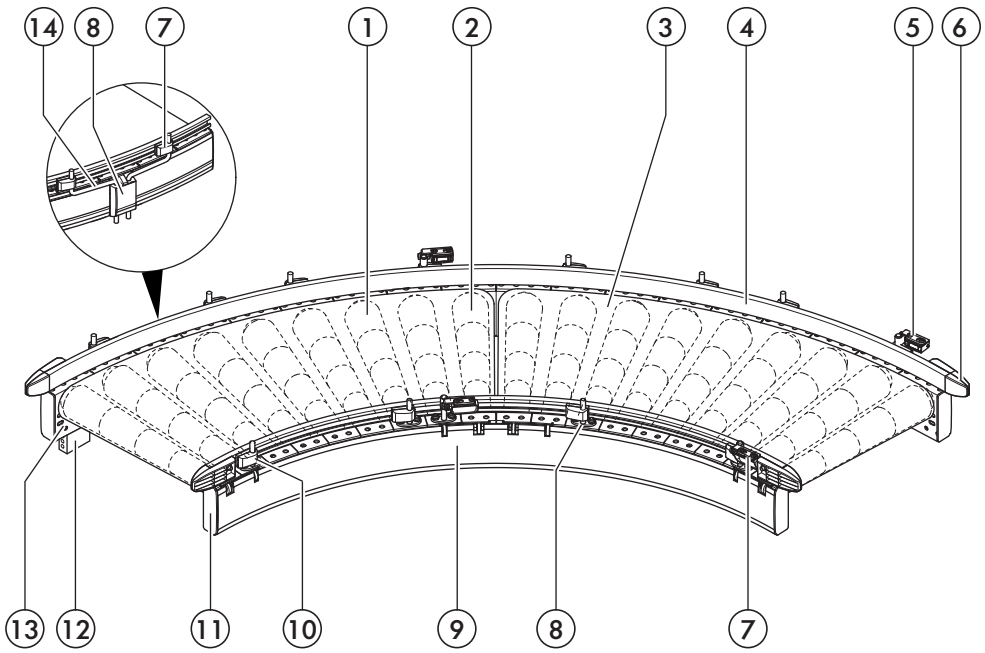
The RollerDrive is connected to a control card that generates the conveying logic or receives signals from a master controller (PLC).

Technical data

	Straight Belt Conveyor Light BM 8350
Max. load capacity per zone	50 kg
Conveying speed	Max. 0.8 m/s
Ambient temperature	+5 to +40 °C
Slider bed	Rollers, Interroll Series 1700
Diameter of drive roller	50 mm
Diameter of idler pulley	50 mm, series 1700 mm steel, zinc-plated
Roller material	Steel 1.5 mm, zinc-plated
Roller pitch (P)	Min. 60 mm + increments of 30 mm
Max. module length	ML = N x ZL, max. 4,080 mm
Zone length (ZL)	Multiple of pitch, max. 2040 mm
Number of zones (N)	1, 2, 3 or 4
Rated voltage	24 V
Motor type	Interroll RollerDrive EC310
Conveyor belt	Polyester with PVC coating
Control variants	MultiControl
Incline/decline	Max. 15°
Side profile	115 x 35 mm, without side guide
Between frames	300 to 840 mm
Noise level	Leq < 70 dB(A)

24 V Belt Conveyor Curve BM 8360

Components



24 V belt conveyor curve BM 8360

1	Conical carrying idler	8	Universal support
2	Conical drive roller	9	Side cover
3	Belt	10	Side guide support
4	Side guide profile	11	End cap (side frame)
5	Photo cell	12	Control
6	End cap (side guide)	13	Side frame (C-profile)
7	Reflector	14	Mounting bracket

Property

The 24 V belt conveyor curve is a belt curve that is divided into zones and operates with zero pressure accumulation; its drive is based on the 24 V RollerDrive. It is possible to transport and store small products, as well as products not suitable for roller tracks.

The 24 V belt conveyor curve is suitable for transporting products up to 20 kg – including products with uneven or soft bottom.

A closed conveyor belt is pulled over conical carrying idlers and a conical drive roller (RollerDrive) at the start of every zone. The last roller of each zone serves as tensioning roller. The conveyor belt can operate with low belt tensioning since the routing is not implemented using a spherical idler pulley, but by a taper strip affixed to the inside of the belt.

The RollerDrive is connected to a control card that generates the conveying logic or receives signals from a master controller (PLC).

Technical data

	Belt Curve Light BM 8360
Max. load capacity per zone	20 kg
Conveying speed	Max. 0.5 m/s
Ambient temperature	+5 to +40 °C
Slider bed	Rollers, Interroll Series 1700
Diameter of drive roller	50 mm, tapered bushings
Roller material	Steel 1.5 mm, zinc-plated
Number of zones (N)	1 at 45° 2 at 90°
Rated voltage	24 V
Motor type	Interroll RollerDrive EC310
Conveyor belt	Polyester with PVC coating
Control variants	MultiControl
Incline/decline	Not suitable
Side profile	115 x 35 mm, without side guide
Between frames	300 to 840 mm
Curve angle	45°, 90°
Inside radius	825 mm
Noise level	Leq ≤ 70 dB(A)

Scope of supply

The 24 V belt conveyor is completely assembled and wired in its delivery state. The scope of supply includes:

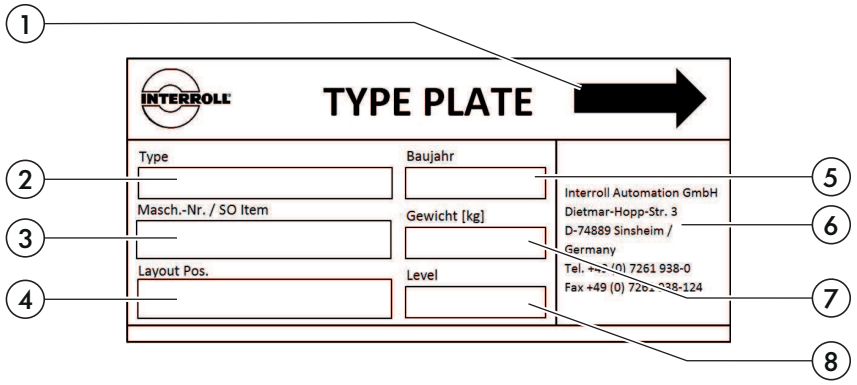
- Rack, including side frames, cross ties, side covers
- RollerDrive
- Carrying idlers
- Belt
- Closing clips
- Power supply cable
- Control
- Photo cell and reflector (1 each per zone)
- Side guide profiles, side guide support and universal supports

The side guide profiles can optionally be delivered assembled or unassembled.

The scope of delivery does not include:

- Supports
- End caps
- Bus (communication) cables

Nameplate



Nameplate (with arrow in transport direction)

1	Arrow in transport direction	5	Year of construction
2	Type designation	6	Company address
3	Machine no.	7	Weight in kg
4	Layout item no.	8	Level

The information on the nameplate is used to identify the conveyor. The type designation is required to use the conveyor according to its intended use.

The nameplate is located at the end of the conveyor in the right side frame in transport direction.

Transport and storage

Transport

⚠ WARNING

Risk of injury during transport

- Fix the module securely and slip-proof for the transport.
- Ensure that the lifting device (crane, fork lift, etc.) is rated for the weight of the module.
- Ensure that no persons are located under the suspended load while lifting and moving the module.

Additional information about the transport are located on an information sheet that accompanies the motor.

- Data about weight and requirements for loading capacity and lifting tackle are located on the information sheet.
- Remove any persons from the danger zone.
- Wear safety shoes.
- Check the correct fastening for the transport.

The load lifting points are marked on the packet. Individual modules must be gripped at the bottom profile edge at the ends. Gripping at the top edge is not allowed since it can lead to inaccuracies of the sensor.

Identification of load lifting points



After the delivery

- Inspect module for transport damages.
- Immediately notify the carrier and manufacturer in case of damages to avoid losing any claims for compensation.

Storage

⚠ WARNING

Risk of injury due to improper storage

- Do not stack modules. Do not place any other objects on the module.
- Check module for stability.

- If the module is not immediately placed in operation, store it at a location protected against humidity and dust.

Installation

⚠ WARNING

Risk of injury due to improper assembly

- Mechanical assembly tasks should be performed only by service personnel. Observe the safety information.
- Electrical assembly tasks should be performed only by authorized electricians. Observe the safety information.
- Carefully install all terminals and connections, such as cables, hoses and pipework, and check for correct fit.

The module is delivered to the location site as a pre-assembled unit and must be set up, connected and integrated into a system on site.

In principle, photo cell and reflector as well as the control are already pre-assembled and connected with each other. The side guides (universal support, side guide support and side guide profiles) are delivered, either assembled or unassembled, according to customer specifications.

The following tasks are required for the installation:

- Installing supports, *See "Installing supports", page 23*
- Connecting the modules, *See "Connecting the modules", page 24*
- Install side guide profiles,
  See "Installing the side guide profiles", page 26
- Install photo cell and reflector,
  See "Installing the photo cell and reflector", page 32
- Install side cover and end caps,
  See "Installing side cover and end caps", page 34

To be observed during installation

Torque

When tightening screws and nuts, always observe the standard tightening torque, unless specifically indicated otherwise. Standard screw lockers should be replaced as needed.

Grounding

During the installation of the module, its grounding must be observed. Among other things, the profile connectors are used for this purpose. If no profile connector is used for connecting the modules, alternate measures must be taken.

Orientation

- Align the module at the height-adjustable feet of the support. The decisive item for aligning the modules is the roller top edge (for roller conveyors) or the belt top edge (for belt conveyors).
  Secure the adjusted height. Use suitable tools for the alignment (spirit level or rotation laser).
- During the alignment of the module, ensure that no moving parts are touching.

Connection

- Connect the individual modules with each other using the profile connector.
- During the setup of the module, check the passageways for the personnel. Install transitions as necessary.

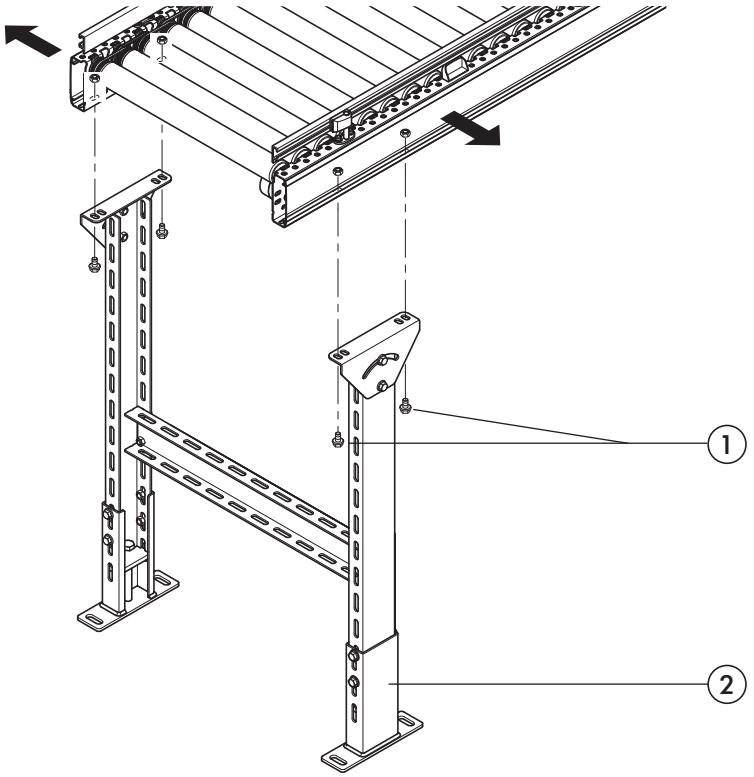
Anchoring

- Anchor or fasten the module torsion-free, e.g. to the floor or adjacent components.

Integration into complete system

- When integrating the module into the complete system, consider possible danger spots, particularly infeed locations and interfaces.

Installing supports



Support with two height-adjustable feet

1	Serrated flange bolts	2	Height-adjustable foot

⚠ CAUTION

Risk of injury when lifting heavy loads

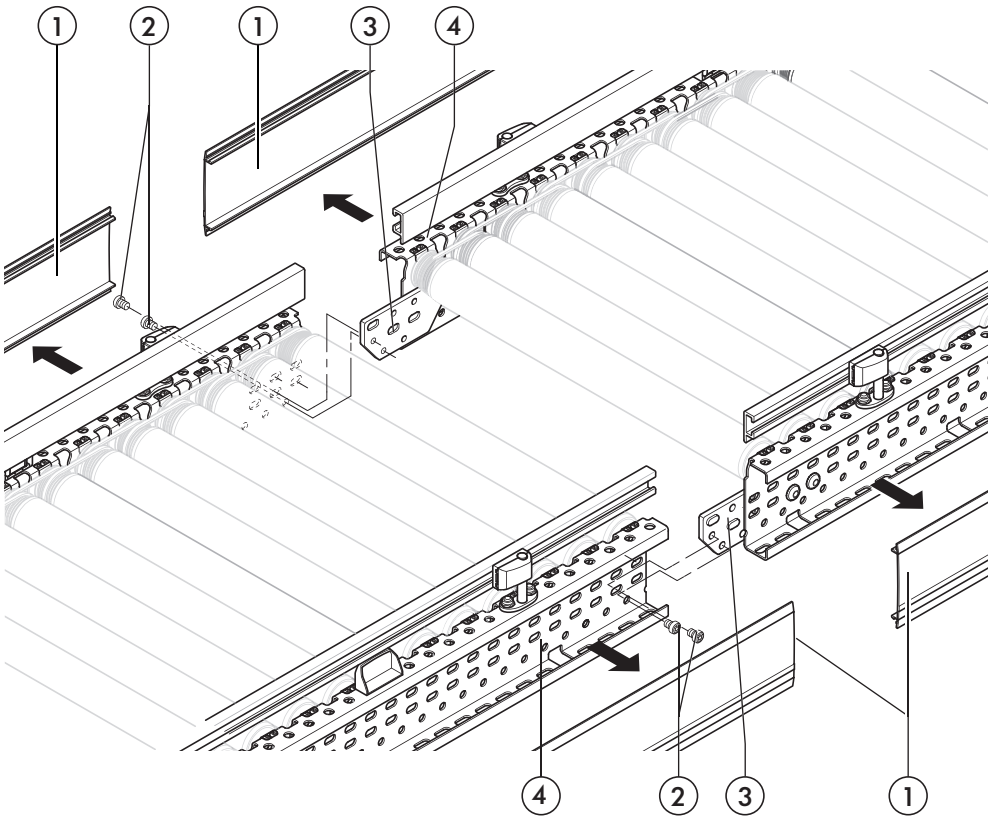
- During the installation and replacement of conveyor modules or heavy spare parts, work in pairs or use a suitable carriage.

The module sits on at least one support. Every support has two height-adjustable feet (2).

- Place the module on the support.
- Position the supports underneath the module.
- Fasten every support to the perforation profiles of the side frames with four serrated flange bolts (1) and nuts.

For further information about the adjustment options, see the installation instructions of the support.

Connecting the modules



1	Side cover	3	Profile connectors
2	Screws	4	Side frame

⚠ CAUTION

Risk of crushing and injuries from cuts

- When integrating the module into a complete system, consider possible danger spots, particularly infeed locations and interfaces.

During the setup of the conveyor system, check the passageways for the personnel. Install transitions as necessary.

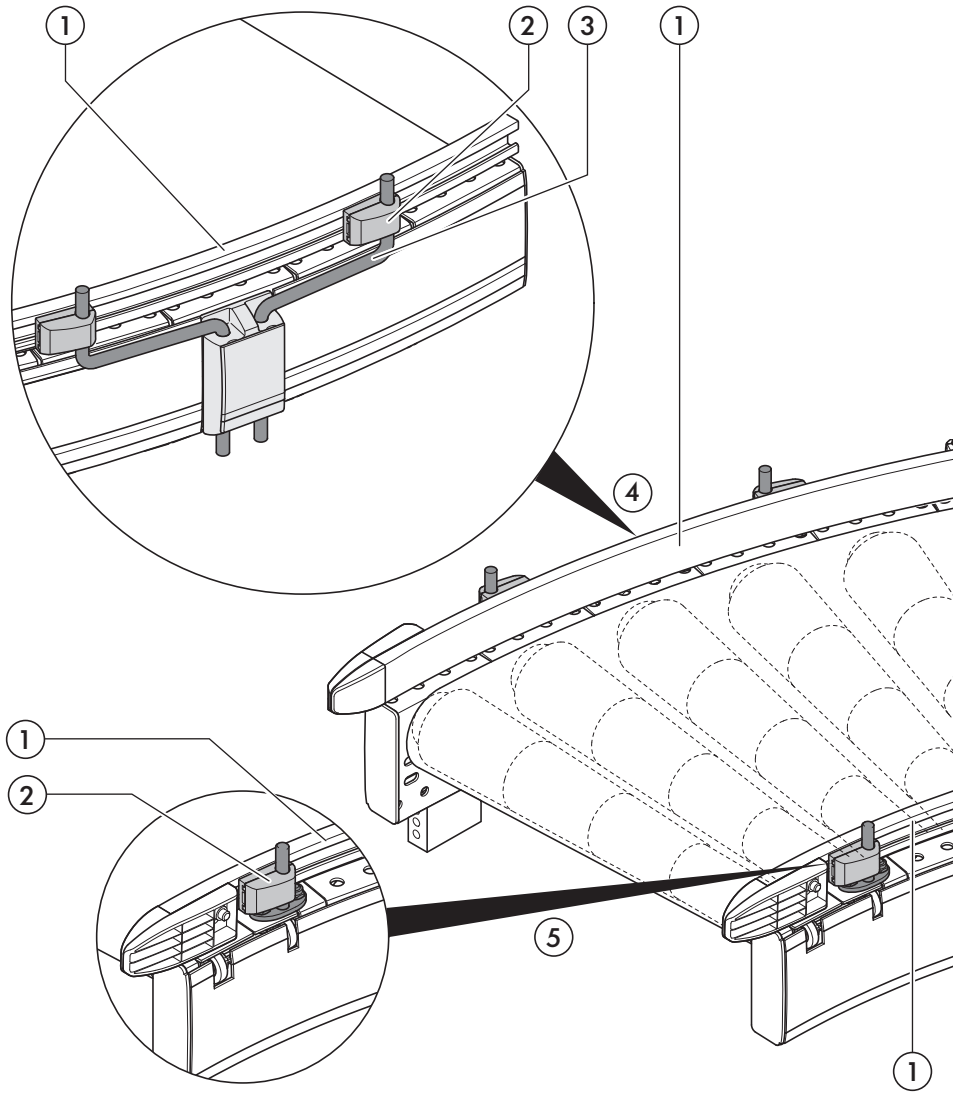
The roller top edge is decisive for the alignment of the modules. Suitable tools for the alignment are spirit level or rotation laser.

The individual modules of a complete conveyor system are screwed together using profile connectors (3):

- To connect straight sections and curves, use profile connectors with punch pressing and regular pitch.

- To connect sections for irregular pitches, use profile connectors with elongated holes and without punch pressing.
- Position the modules to be connected so that the side frames (4) are aligned.
- On the insides of the modules to be connected, place one profile connector (3) each at the side frames. The noses of the profile connectors must catch in the elongated holes of the side frames.
- Fasten profile connectors to the perforated profiles at the side frames using screws (2). Use four screws on each side for every module.
- Anchor or fasten the module torsion-free, e.g. to the floor or adjacent components.

Installing the side guide profiles



1	Side guide profile	4	Flexible universal support
2	Side guide support	5	Rigid universal support
3	Mounting bracket		



⚠ CAUTION

Risk of crushing due to circulating conveyor belt!

- Install side guide profiles for 24 V belt conveyor straight and curve lying directly on the side frame.

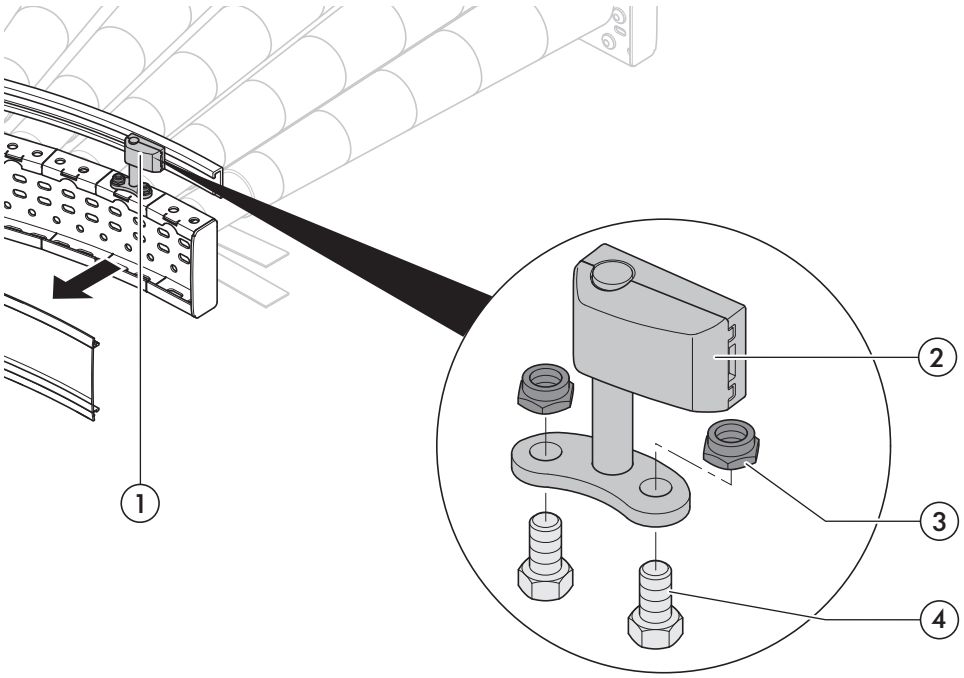
Rigid universal supports are used exclusively for installing the side guide profiles on the 24 V belt conveyor straight.

For installing the side guide profiles on the 24 V belt conveyor curve, rigid universal supports are used on the inside and flexible universal supports on the outside.

The installation of the side guide profiles (1) is done in several steps:

- Attach rigid universal support (5) to side frames,
  .*See "Installing the rigid universal support", page 27*.
- Attach flexible universal support (4) to side frames,
  See "Installing the flexible universal support", page 28.
- Fasten side guide profiles (1) to side guide supports, *See "Fastening the side guide profile on the universal support", page 30*.

Installing the rigid universal support



1	Rigid universal support	3	Nuts
2	Side guide support	4	Hexagon head screws

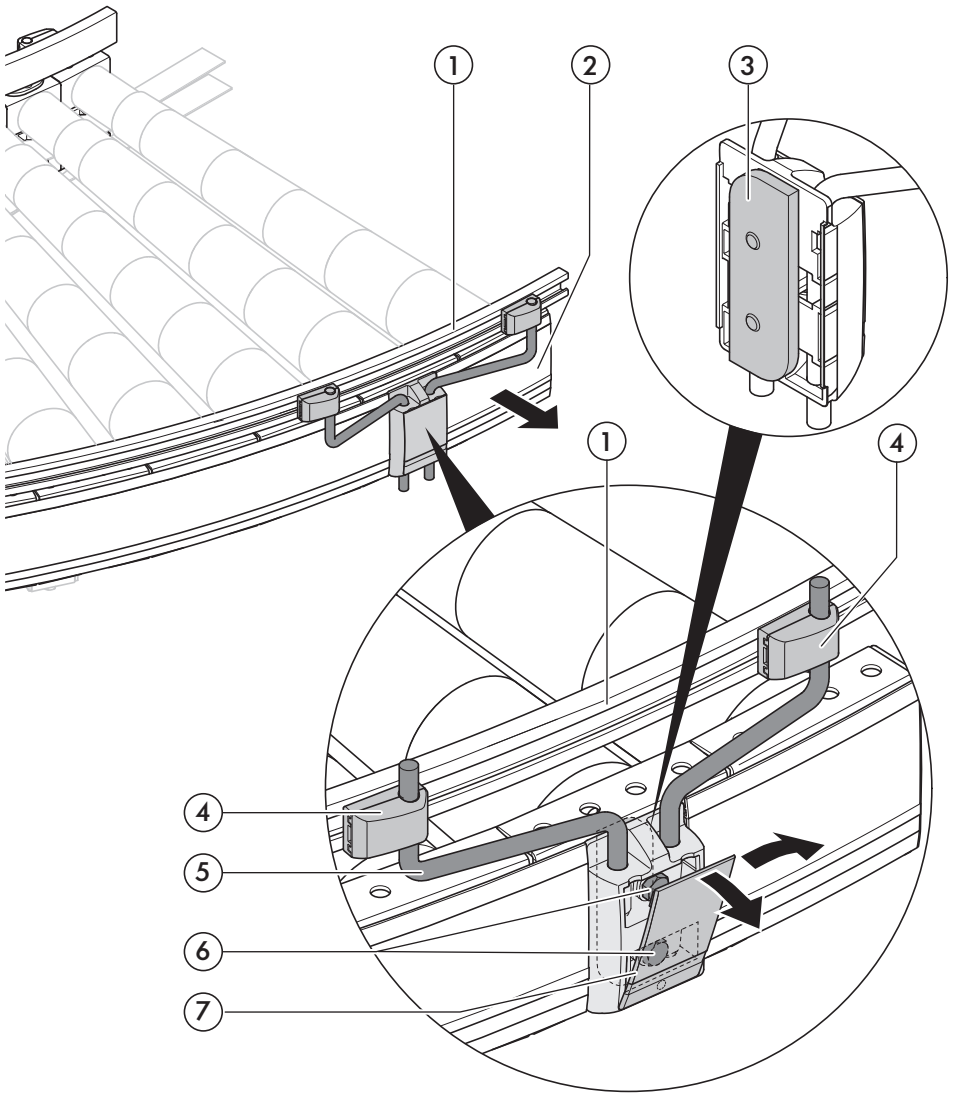
The rigid universal support is installed on the perforated profile of the side frame from the top.

Requirement:

☑ The module is out of operation.

- Loosen the side cover at the module.
- Position the rigid universal support and place it on the perforated profile of the side frame.
- Fasten the rigid universal support with two hexagon head screws and two nuts.
- Reattach the side cover.

Installing the flexible universal support



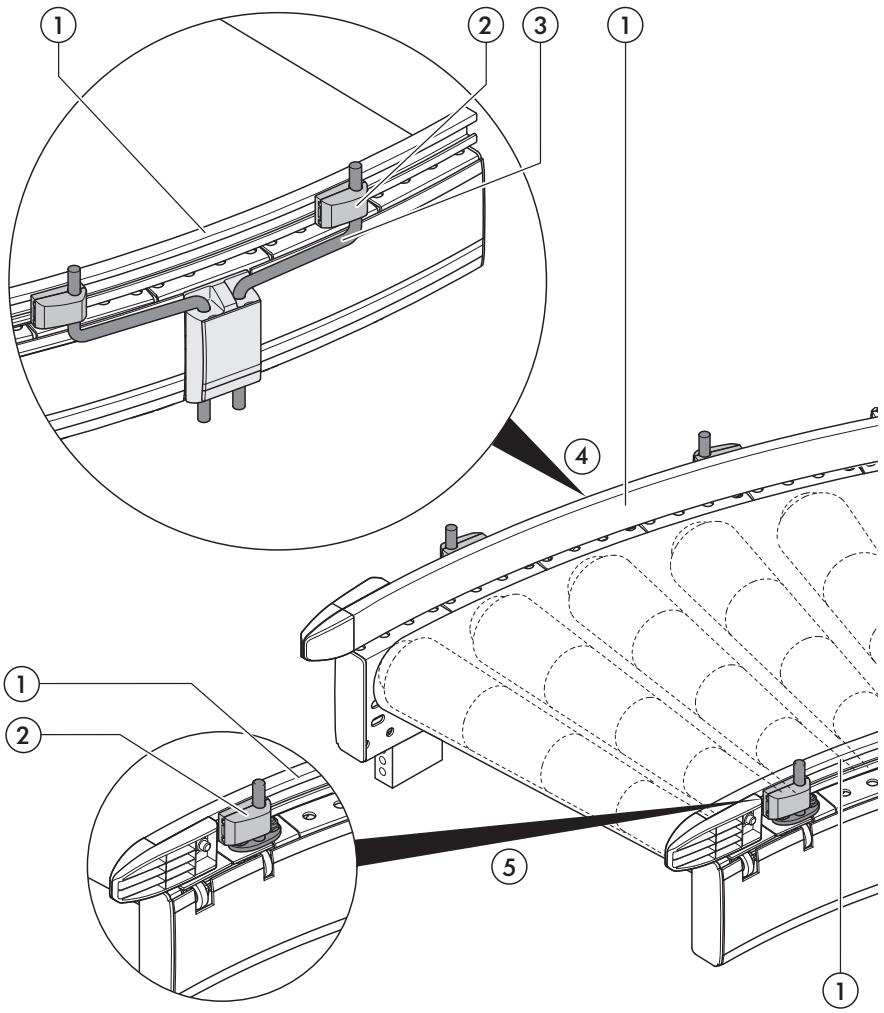
1	Side guide profile	5	Mounting bracket
2	Side cover	6	Hexagon head screws
3	Clamping plate	7	Universal support cover
4	Side guide support		

The flexible universal supports can be delivered pre-assembled upon request. In this case, the universal supports are turned to the conveyor center for the transport and still have to be positioned before startup depending on their use (for the installation of adjustable side guide, photo cell or reflector).

The flexible universal support is laterally inserted into the C-profile of the side frame and clamped in place.

- Loosen side cover (2) from the side frame.
- Swing up the cover (7) of the universal support.
- Loosen hexagon head screws (6) in the universal support, but do not remove them.
- Insert the clamping plate (3) into the side frame at the rear side of the universal support by slightly turning the support.
- Position the universal support on the side frame and slightly tighten the two hexagon head screws at the desired location.
- Align the mounting bracket (5).
- Firmly tighten the hexagon head screws.
- Swing up the cover (7) of the universal support until you hear it snap in.
- Attach the side cover. Cut the side cover apart at the locations at which the universal support is installed. Snap in the individual parts of the side cover on the right and left of the universal support.

Fastening the side guide profile on the universal support

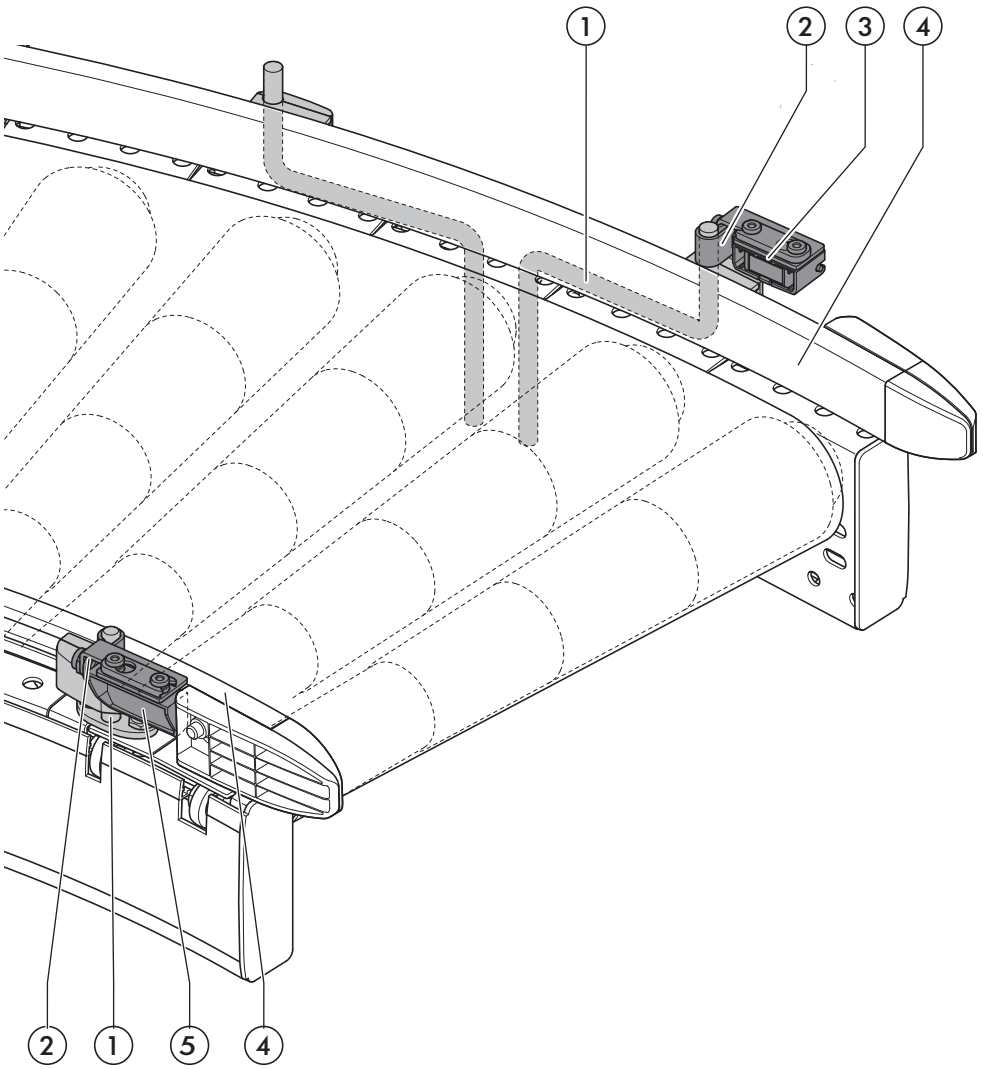


1	Side guide profile	4	Flexible universal support
2	Side guide support	5	Rigid universal support
3	Mounting bracket		

- Break out the upper hole cover in the side guide support.
- Push side guide support (2) onto one of the mounting brackets (3) of the universal support (4, 5).
- Tip up the cover of the side guide support.
- Slightly loosen hexagon nut in side guide support.
- Place side guide profile (1) at side guide support (2) and position it.
- Slightly turn the hammer head bolt located in the side guide support and insert it into the side guide profile.
- Slightly screw in hexagon nut.
- Push side guide profile with side guide support down and place it directly on the side frame.
- Tighten hexagon nut in the side guide support.

- Close the cover of the side guide support and snap it in place.

Installing the photo cell and reflector



1 Mounting bracket
2 Mounting plate
3 Photo cell
4 Side guide profile
5 Reflector

The photo cell and the reflector are each delivered as a finished unit:

- The photo cell (3) is in the photo cell holder.
- The reflective tape is affixed to the reflector holder.

The photo cell (3) and the reflector (5) are attached to the universal supports above the side guide profile with the help of a mounting plate (2) and installed opposite each other.

- ▸ Disconnect photo cell or reflector from the sprue clip (not shown).
- ▸ Professionally dispose of the sprue.

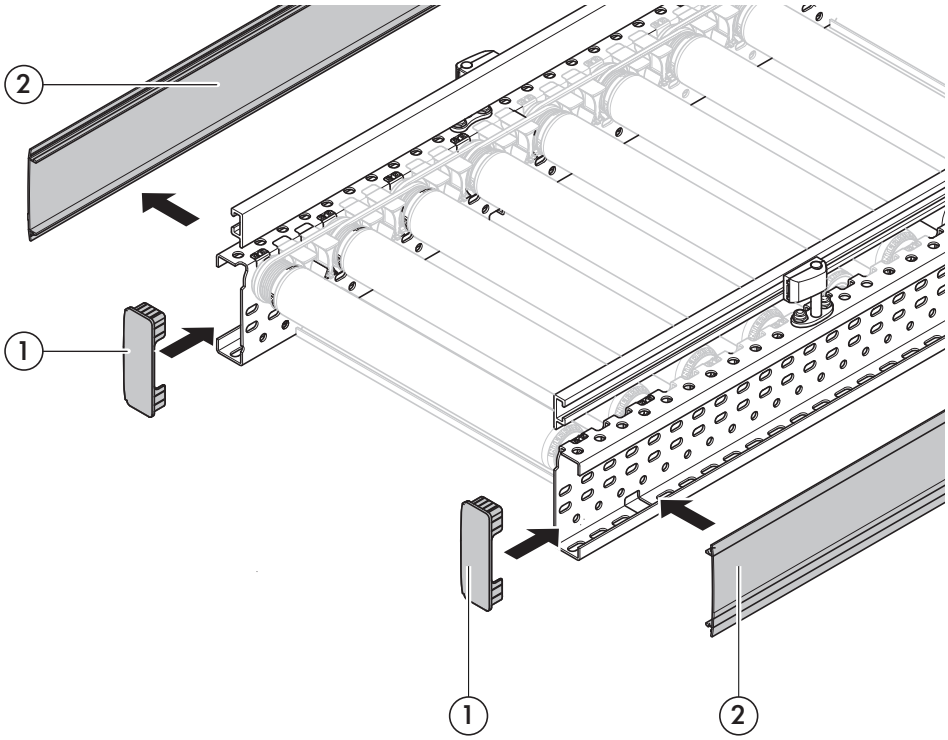
- Fasten photo cell or reflector to mounting plate: Place the strap on the mounting cam at the underside of the photo cell/reflector and snap it into place.
- Place the mounting plate (2) with photo cell (3) at the desired location on the mounting bracket (1) of a universal support. The photo cell is above the side guide profile.
- Tighten the hexagon nut on the mounting plate.

A setscrew in the foot of the photo cell holder is intended for the fine adjustment of the photo cell. Turning the setscrew in slightly raises the photo cell until it "sees" the reflector.

- Install the mounting plate (2) with reflector (5) opposite the photo cell. The reflector is also above the side guide profile.
- Tighten the hexagon nut on the mounting plate.
- After installing the photo cell and reflector: Connect the photo cell cable to the control system of the module.
- Check whether both LEDs are lit.
- If the yellow LED flashes, position reflector and photo cell to each other.

LED green	LED yellow	Meaning
On	Off	Photo cell is operational. No signal from reflector.
On	On	Photo cell is correctly adjusted. Light beam is well reflected.
On	Flashing	Photo cell is operational. Weak signal. Reflector is dirty, damaged or not correctly adjusted.

Installing side cover and end caps



1 End caps 2 Side cover

- Snap side cover (2) into the C-profile of the side frame.
- Push end caps (1) into the C-profile of the side frame.

Initial startup and operation

Initial startup

⚠ WARNING

Risk of injuries due to incorrect handling

- Check electrical connections and protective devices.
- Remove the materials from the module.
- Remove unauthorized persons from the danger zone.
- Wear safety shoes and work clothing.

The module has been checked at the factory.

Operation

Before every operation start

- Check the module for visible damage.
- Ensure that all safety devices operate flawlessly.
- Ensure that only authorized personnel is in the operating area of the module.
- Remove equipment or material which is not required from the operating area.
- Guide and monitor correct placement of the goods on the conveyor.

Procedure in case of accident or fault

- Stop the module and ensure that it cannot be started accidentally.
- In case of an accident: Render first aid and make an emergency call if necessary.
- Inform qualified personnel.
- Have the fault removed by qualified personnel.
- Restart the module only after this has been approved by qualified personnel.

Cleaning

⚠ WARNING

Risk of injuries due to incorrect handling

- Only perform cleaning work on the module after you have switched off the power. Switch off the voltage supply and ensure that it cannot be started accidentally.
- Do not remove protective devices.
- Wear safety shoes and close-fitting work clothing.

- Clean belts only dry.
- For the remaining parts of the module, use only suitable cleaning agents (water-soluble, free of phosphate, silicone and potassium, non-acidic). Observe the manufacturer's instructions.

Maintenance and repair

Observe the following for maintenance and repair

⚠ WARNING

Risk of crushing and injuries

- Ensure that the personnel involved in maintenance and repair have secure footing and sufficient room to move.
- Mechanical maintenance and repair work may only be performed by service personnel. Observe the safety information.
- Electrical maintenance and repair work should be performed only by authorized electricians. Observe the safety information.
- Observe the weight of the module (see nameplate); if necessary work in pairs.
- Use suitable loading and lifting equipment. Secure the module against falling or tipping.

When tightening screws and nuts, always observe the standard tightening torque, unless specifically indicated otherwise. Standard screw lockers should be replaced as needed.

- Set up warning signs that indicate maintenance and repair work.
- Block off the area around the module.
- Inform persons who have to enter the blocked-off area about the risks.

Straight travel and belt tension

Straight travel

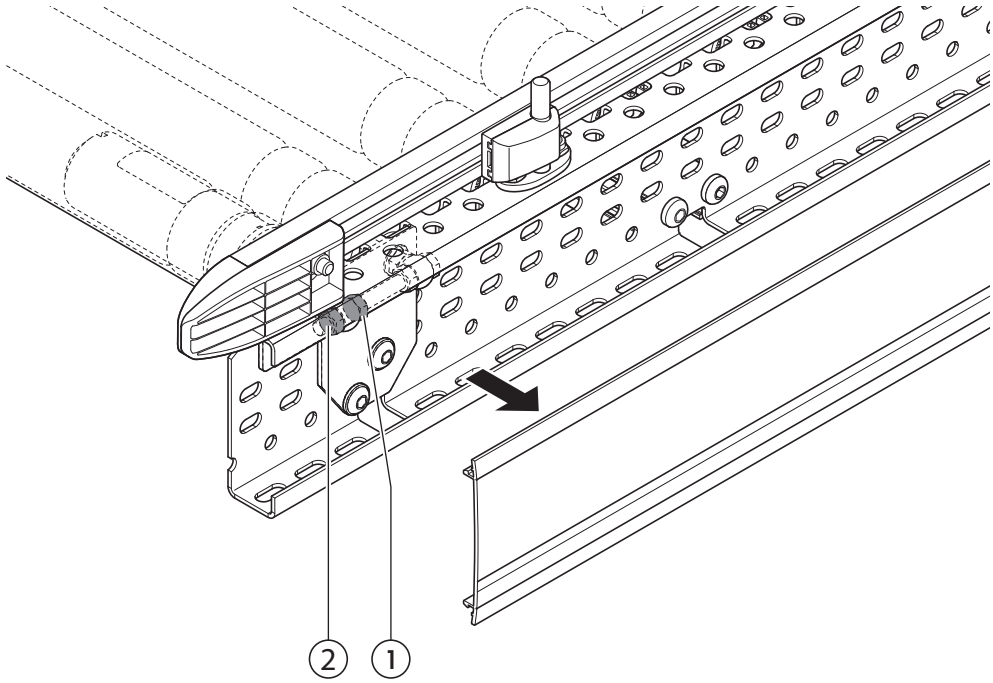
Straight travel is ensured by a taper strip on the inside of the belt and does not have to be implemented using belt tension.

Adjusting the belt tension

Given the taper strip of the belt that is guided in the grooves of the rollers, no high tension is required. The belt tension should be set just high enough to ensure that the belt is slaved, but not too high to avoid exerting unnecessary stress on the roller bearings.

The belt tension can be adjusted via the tensioning devices on the tensioning roller.

Adjusting belt tension in straight section



Tensioning device at the 24 V belt conveyor straight

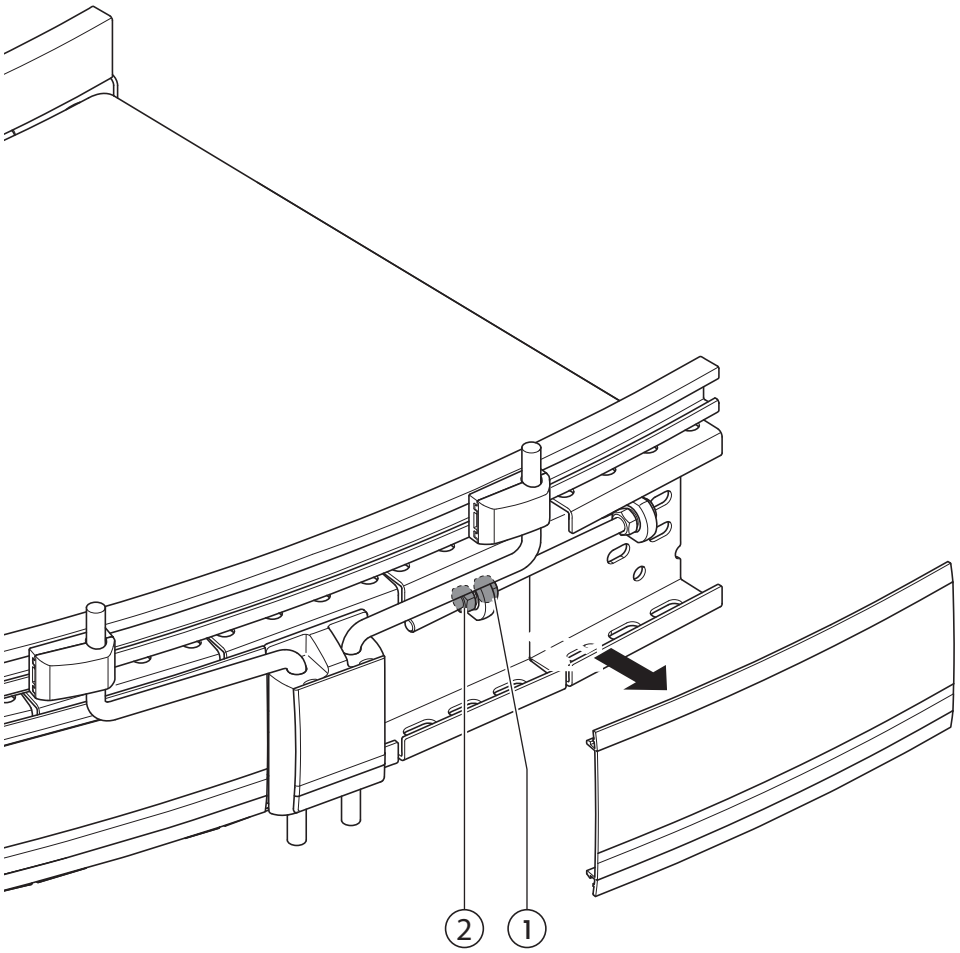
1	Adjusting nut	2	Locknut

Requirement:

☑ The module is out of operation.

- De-energize the module and ensure that it cannot be started accidentally.
- Remove the side cover on both sides.
- Loosen the locknuts (2) of the tensioning devices on both sides of the conveyor.
- Set the belt tension using the adjusting nuts (1) at the tensioning devices.
- Fix the position by tightening the locknuts.
- Attach the side cover.

Adjusting the belt tension in the curve section



Tensioning device at the 24 V belt conveyor curve

1 Adjusting nut
2 Locknut

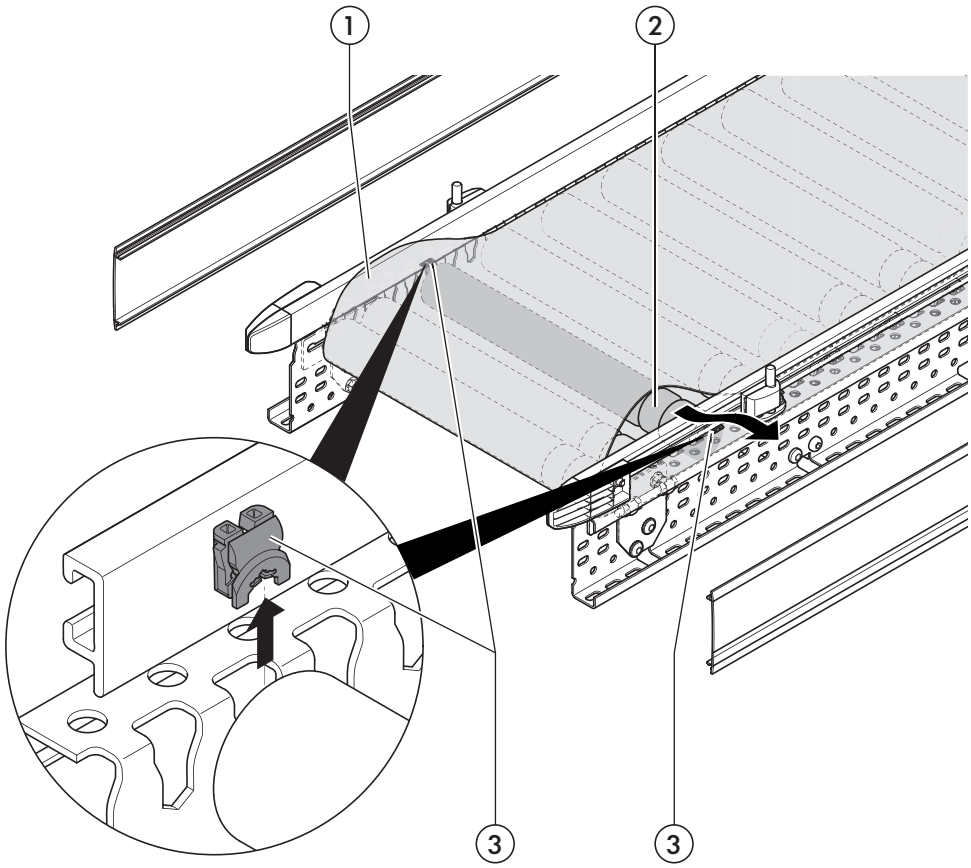
Requirement:

☑ The module is out of operation.

- De-energize the module and ensure that it cannot be started accidentally.
- Remove the side cover on both sides.
- Loosen the locknuts (2) of the tensioning devices on both sides of the conveyor.
- Set the belt tension using the adjusting nuts (1) at the tensioning devices.
- Fix the position by tightening the locknuts.
- Attach the side cover.

Replacing the carrying idler

Replacing the carrying idler in the straight section



1 Belt
2 Carrying idler
3 Closing clip

Requirement:

☑ The module is out of operation.

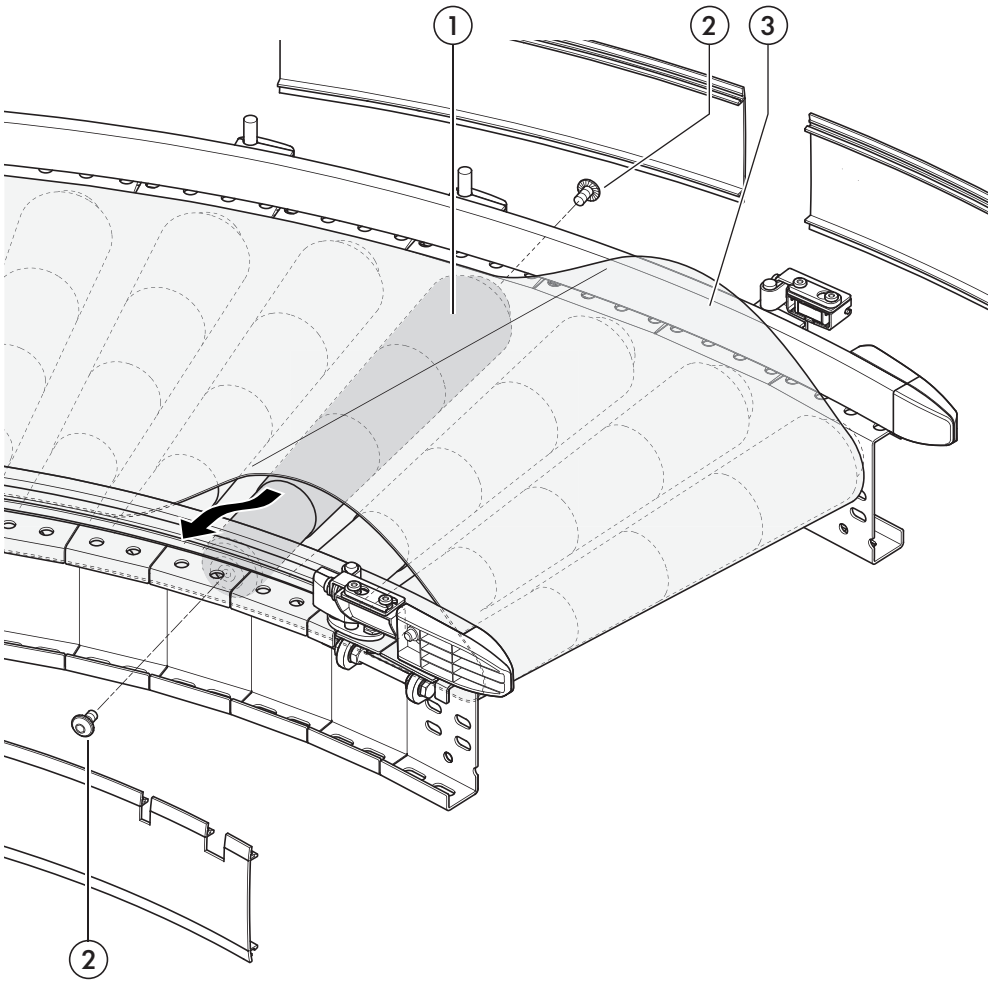
- Loosen the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Remove closing clips (3) on both sides of the roller with needle-nose pliers, *See "Replacing the roller clip", page 52.*
- Push up the belt (1) and remove carrying idler (2) between belt and side frame.
- Insert new carrying idler underneath the belt and place it in the open elongated hole.

The pocket holes for carrier rollers and RollerDrive are closed with clips after the installation:

- Close the pocket holes over the carrier rollers using roller clips.
- Close the pocket holes over the RollerDrive with a suitable clip.
- Optional: Close empty pocket holes with a dummy clip.

- Insert the closing clip until it completely snaps into place.
- Adjust belt tension at tensioning roller using the tensioning device, *See "Adjusting belt tension in straight section", page 38.*

Replacing the carrying idler in the curve section



1 Carrying idler
2 Serrated flange bolts
3 Belt

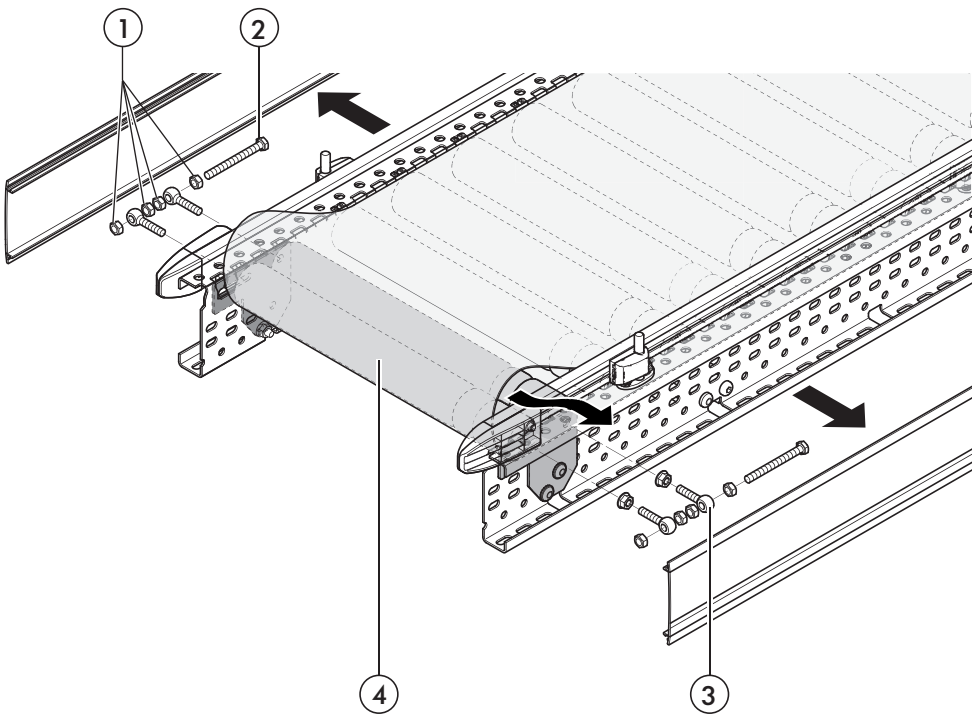
Requirement:

☑ The module is out of operation.

- Remove the side cover on both sides.
- Loosen the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Unscrew the ribbed screws (2) on both sides of the carrying idler (1) from the C profile of the side frame.
- Push up the belt and remove carrying idler between belt (3) and side frame.
- Insert the new carrying idler underneath the belt and fasten it with ribbed screws.
- Adjust the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*

Replacing the tensioning roller

Replacing the tensioning roller in the straight section



Tensioning device

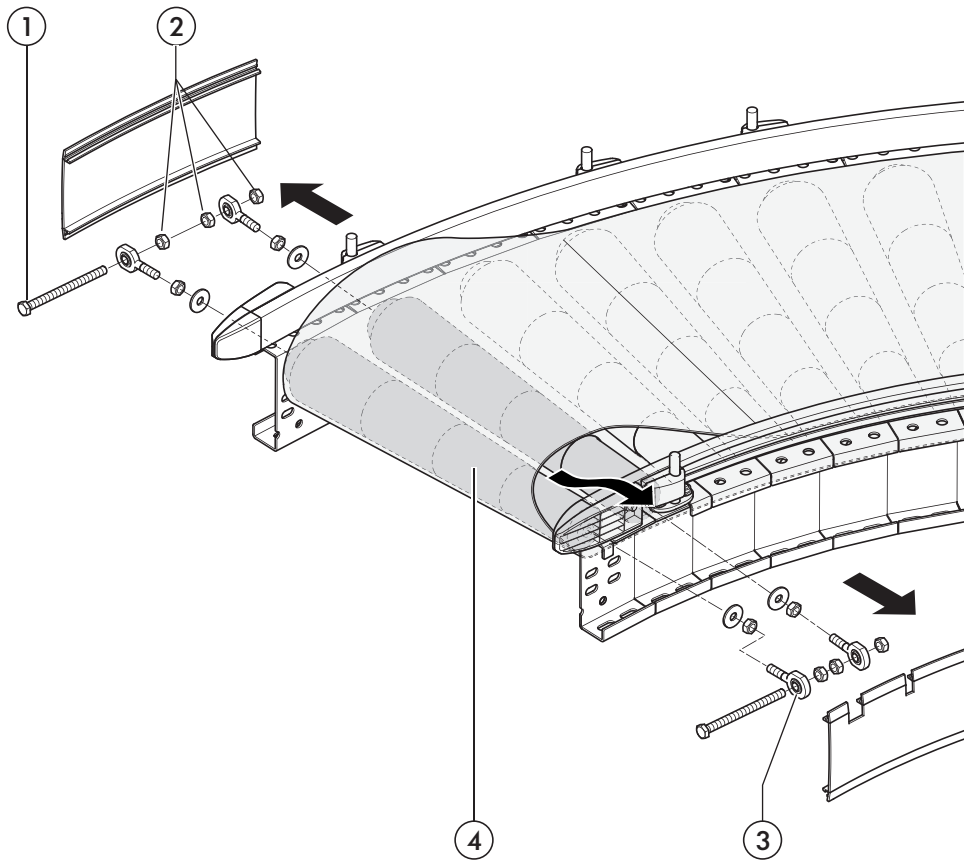
1	Nuts	3	Pivot heads
2	Tensioning screw	4	Tensioning roller

Requirement:

☑ The module is out of operation.

- Remove the side cover on both sides.
- Loosen the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Unscrew the nuts (1) in both tensioning devices and laterally pull out the tensioning screws (2) from the pivot heads.
- Unscrew the pivot heads (3) on both sides from the tensioning roller to be replaced.
- Push up the belt and remove the tensioning roller (4).
- Insert the new tensioning roller underneath the belt and screw it tight on both sides with the pivot heads.
- Insert tensioning screws on both sides into the pivot heads of the tensioning devices. Screw the nuts onto the tensioning screws.
- Adjust the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Attach the side cover.

Replacing the tensioning roller in the curve section



Tensioning device

1	Tensioning screws	3	Pivot heads
2	Nut	4	Tensioning roller

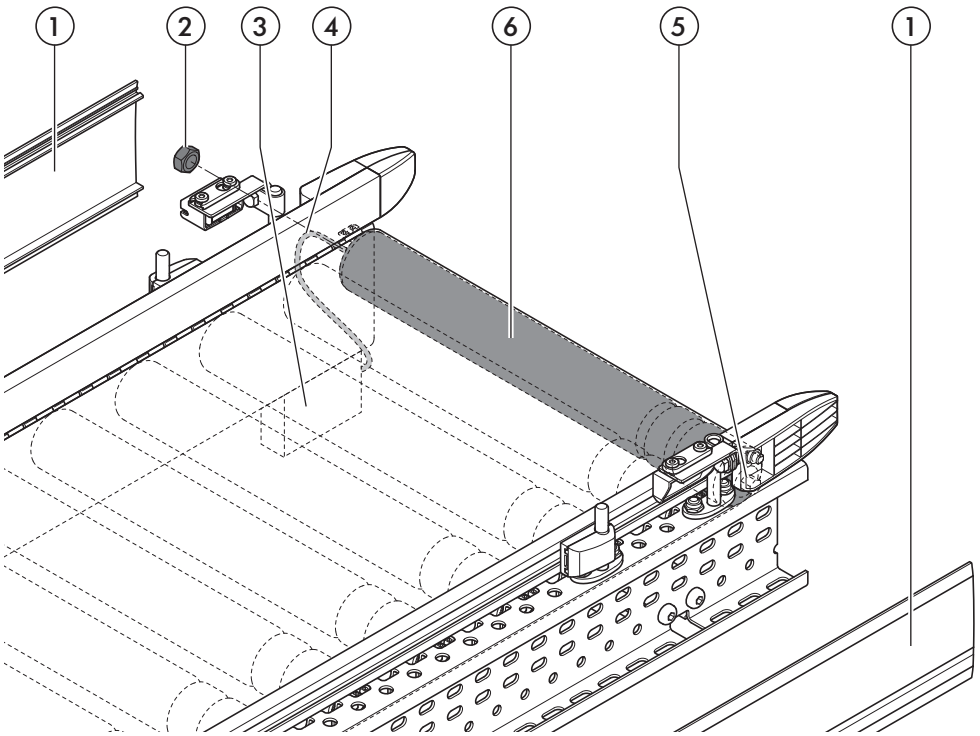
Requirement:

☑ The module is out of operation.

- Remove the side cover on both sides.
- Loosen the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Screw off the nuts (2) in both tensioning devices and pull out the pivot heads (3) laterally from the tensioning screws (1).
- Unscrew the pivot heads on both sides from the tensioning roller (4) to be replaced.
- Push up the belt and remove the old tensioning roller.
- Insert the new tensioning roller underneath the belt and screw it tight with the pivot heads of the tensioning device.
- Insert the tensioning screws into the tensioning devices. Screw the nuts onto the tensioning screws.
- Adjust the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Attach the side cover.

Replacing the drive roller

Replacing the drive roller in the straight section



1	Side cover	4	Motor connecting cable
2	Ribbed nut	5	Closing clip
3	Control	6	Drive roller

⚠ CAUTION



Risk of crushing and electric shock

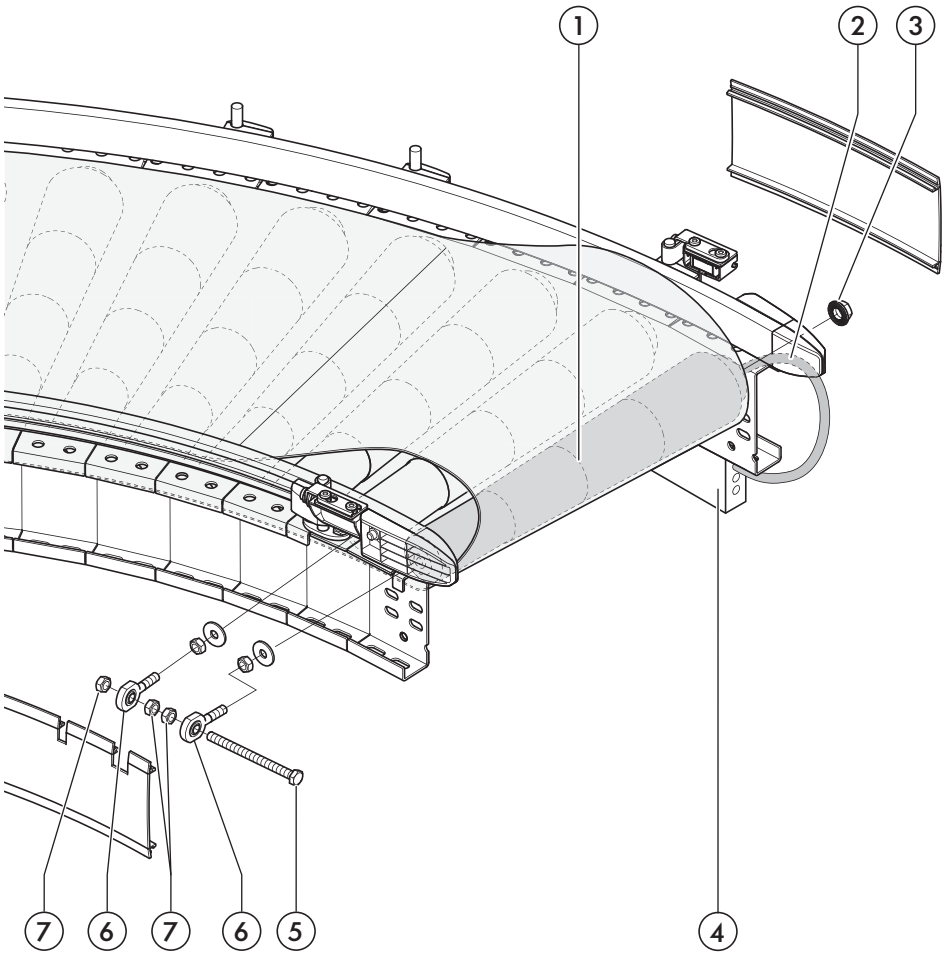
Installation and maintenance tasks on a conveyor system during its operation can lead to crushing and electric shock.

- De-energize the module and ensure that it cannot be started accidentally.

- Remove the side cover (1) on both sides.
- Loosen the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Pull motor connecting cable (4) off of the control system (3) or the extension cable.
- Pull out the closing clip (5) using needle-nose pliers.
- Unscrew the ribbed nut (2) on the cable side.
- Push up the belt and lift out the old drive roller (6).
- Insert new carrying idler underneath the belt and place it in the elongated hole.
- Insert the closing clip and push it in until it completely snaps into place.
- Fasten the drive roller on the cable side with ribbed nut.
- Tighten ribbed nut with torque wrench. Observe maximum torque of 70 Nm.

- Plug motor connecting cable onto control card.
- Adjust the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Attach the side cover.

Replacing the drive roller in the curve section



1 Drive roller
2 Motor connecting cable
3 Ribbed nut
4 Control
5 Tensioning screw
6 Pivot heads
7 Nuts

In the 24 V belt conveyor curve, the drive roller is fastened on the outside of the curve with a ribbed nut (3) and on the inside with a pivot head (6) in a tensioning device.

⚠ CAUTION



Risk of crushing and electric shock

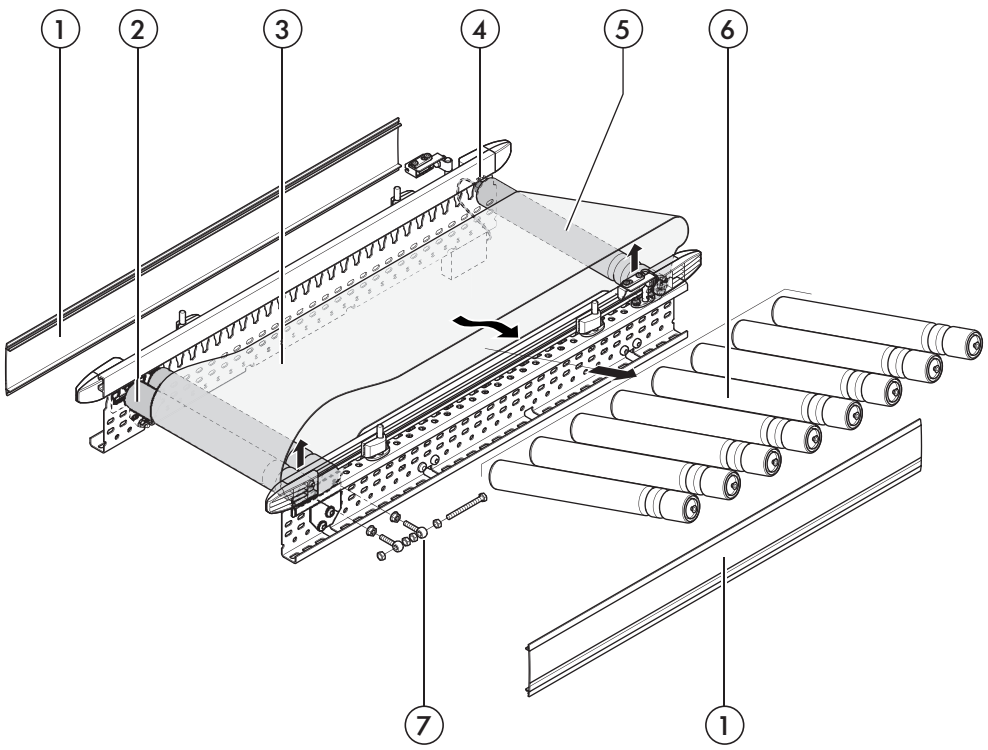
Installation and maintenance tasks on a conveyor system during its operation can lead to crushing and electric shock.

- De-energize the module and ensure that it cannot be started accidentally.

- Remove the side cover on both sides.
- Loosen the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Pull motor connecting cable (2) off of the control system (4) or the extension cable.
- At the tensioning device on the inside of the curve, unscrew the nuts (7) from the tensioning screw (5) and pull out the tensioning screw laterally from the pivot heads (6).
- Unscrew the pivot head at the drive roller (1) and hold the drive roller with the other hand.
- Unscrew ribbed nut (3) on the cable side (outside) of the drive roller.
- Remove the old drive roller from underneath the belt.
- Insert the new drive roller underneath the belt and ensure that the cable side of the drive roller points to the outside of the curve.
- Fasten the drive roller with the ribbed nut on the outside and with the pivot head on the inside.
- Tighten ribbed nut with torque wrench. Observe maximum torque of 70 Nm.
- Insert the tensioning screw through the pivot heads of the tensioning device and tighten the nuts.
- Adjust the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Plug motor connecting cable onto control card.
- Attach the side cover.

Replacing the conveyor belt

Replacing the conveyor belt in the straight section



Replacing the conveyor belt for the 24 V belt conveyor straight

1	Side cover	5	Drive roller
2	Tensioning roller	6	Carrying idlers
3	Conveyor belt	7	Tensioning device
4	Closing clip		

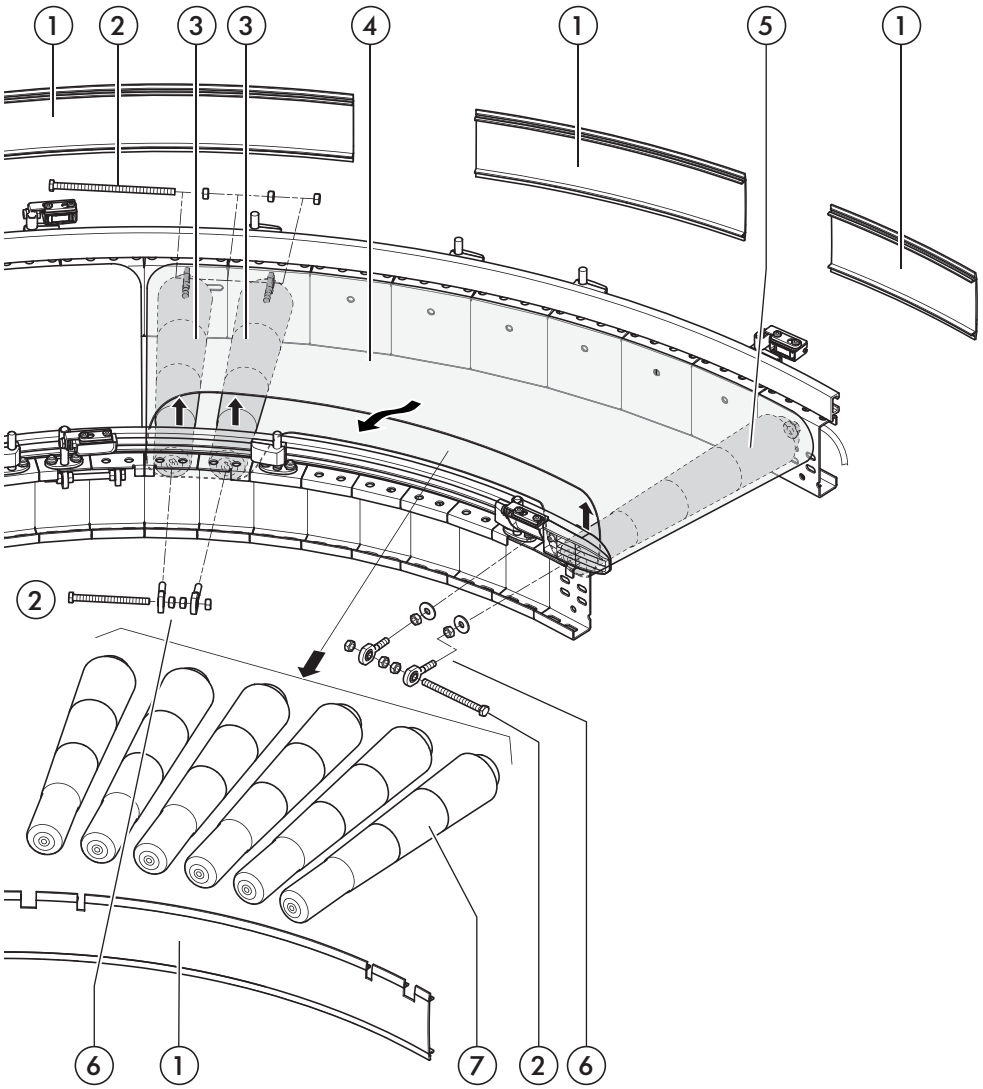
Requirement:

☑ The module is out of operation.

- Remove the side cover (1) on both sides.
- Loosen belt tension in the respective zone, *See "Adjusting belt tension in straight section", page 38.*
- Remove all carrying idlers (6) in the respective zone, *See "Replacing the carrying idler in the straight section", page 40.*
- For drive roller (5) in the respective zone: Loosen ribbed nut on the cable side (do not remove) and remove closing clip on the non-cable side, *See "Replacing the drive roller in the straight section", page 44.*
- Remove nuts and tensioning screw of the tensioning device (7) on both sides.
- Loosen eyebolts of the tensioning roller (2) and the adjacent carrying idler on the cable side (do not remove) and completely unscrew on the non-cable side, *See "Replacing the tensioning roller in the straight section", page 42.*

- Pull off old conveyor belt (3) on the open non-cable side from the drive roller (5) and tensioning roller (2) and dispose of it properly.
- Pull new conveyor belt from the non-cable side onto the drive roller (5) and carrying roller (2).
- **NOTICE! Ensure that the belt-guiding taper strip lies in the grooves of the rollers.**
- Re-insert eyebolts of the tensioning roller (2) and the adjacent carrying idler on the non-cable side and tighten on both sides, *See "Replacing the tensioning roller in the straight section", page 42.*
- Re-install the tensioning device on the non-cable side.
- For the drive roller: Re-insert the closing clip on the non-cable side and tighten the ribbed nut on the cable side, *See "Replacing the drive roller in the straight section", page 44.*
- Re-insert the carrying idlers, *See "Replacing the carrying idler in the straight section", page 40.*
- Adjust the belt tension, *See "Adjusting belt tension in straight section", page 38.*
- Attach the side cover.

Replacing the conveyor belt in the curve section



Replacing the conveyor belt for the 24 V belt conveyor curve

1	Side cover	5	Drive roller
2	Tensioning screw	6	Tensioning device
3	Tensioning roller	7	Carrying idlers
4	Conveyor belt		

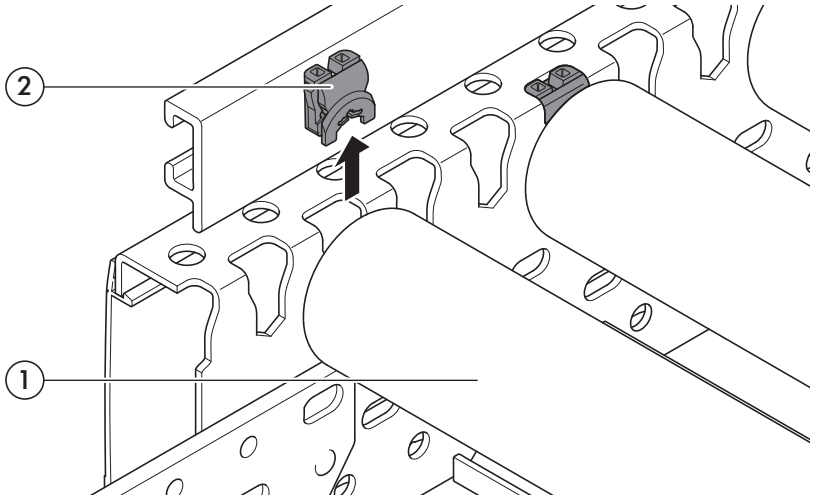
Requirement:

☑ The module is out of operation.

- Remove the side cover (1) on both sides.
- Loosen belt tension in the respective zone, *See "Adjusting the belt tension in the curve section", page 39.*
- Remove all carrying idlers (7) in the respective zone, *See "Replacing the carrying idler in the curve section", page 41.*

- Unscrew the nuts at all three tensioning devices (6) of the respective zones and laterally pull out the tensioning screws (2).
- For the drive roller (5), loosen the ribbed nut in the respective zone on the cable side (outside) (do not remove) and remove ribbed screw on the inside, *See "Replacing the drive roller in the curve section", page 46.*
- Loosen eyebolts of the tensioning roller (3) and the adjacent carrying idler in the respective zone on the outside (do not remove) and unscrew on the inside, *See "Replacing the tensioning roller in the straight section", page 42.*
- Pull out old conveyor belt (4) to the inside and dispose of it properly.
- Pull the new conveyor belt from the inside onto the tensioning and drive roller.
- **NOTICE! Ensure that the belt-guiding taper strip lies in the grooves of the rollers.**
- Re-insert eyebolts of the tensioning roller (3) and the adjacent carrying idler on the inside and tighten on both sides, *See "Replacing the tensioning roller in the straight section", page 42.*
- For the drive roller: Re-insert the ribbed nut on the inside and tighten the ribbed nut on the outside, *See "Replacing the drive roller in the curve section", page 46.*
- Re-insert tensioning screws and nuts on the three tensioning devices.
- Install the carrying idlers, *See "Replacing the carrying idler in the curve section", page 41.*
- Adjust the belt tension, *See "Adjusting the belt tension in the curve section", page 39.*
- Attach the side cover.

Replacing the roller clip



Closing clip in the side frame

1	Roller	2	Closing clip

⚠ CAUTION

Risk of crushing from rotating parts

- Before any assembly and maintenance work, the respective devices must be decommissioned and disconnected from the voltage supply.
- Secure the respective devices against accidental activation.
- When integrating the module into a complete system, consider possible danger spots, particularly infeed locations and interfaces.

The pocket holes for carrier rollers and RollerDrive are closed with clips after the installation:

- Close the pocket holes over the carrier rollers using roller clips.
- Close the pocket holes over the RollerDrive with a suitable clip.
- Optional: Close empty pocket holes with a dummy clip.

Requirement:

☑ The module is out of operation.

- Remove the closing clip (2) with needle-nose pliers from the opening in the side frame.
- After inserting the roller (1), insert the new closing clip in the opening of the side frame until it completely snaps into place.

Replacing the photo cell

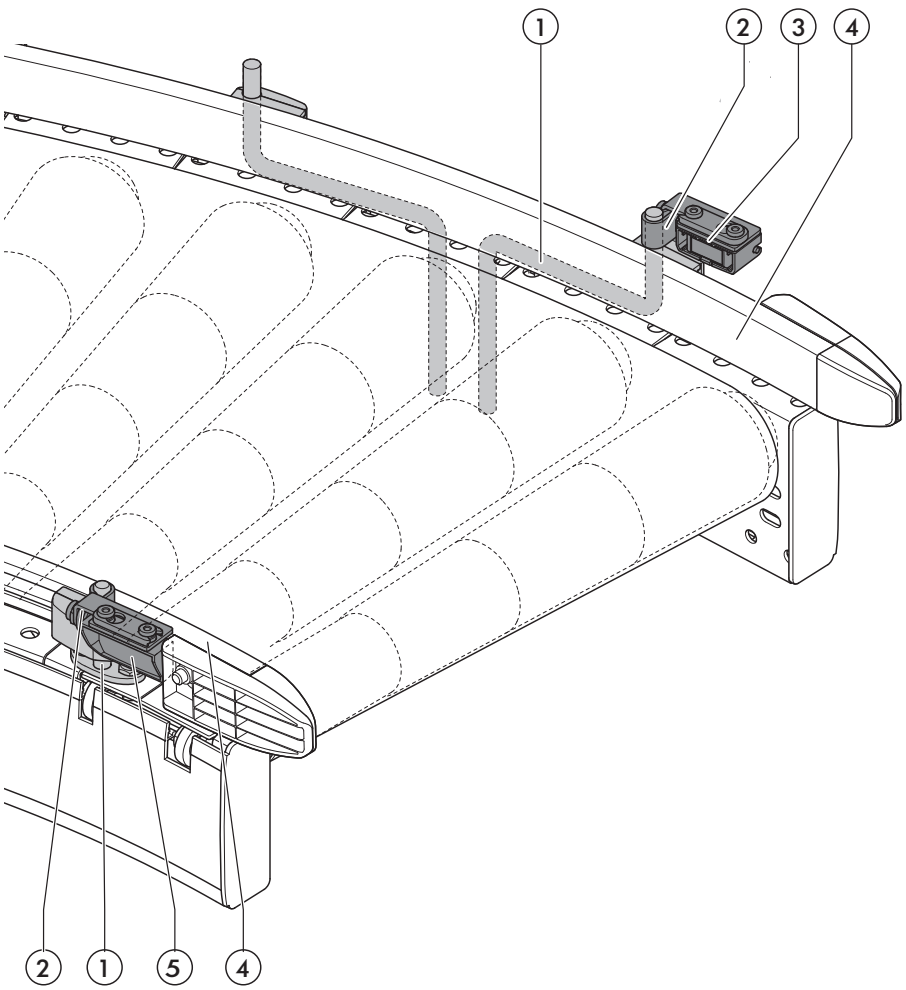


Photo cell with detail view of underside

1	Mounting bracket	4	Side guide profile
2	Mounting plate	5	Reflector
3	Photo cell		

The photo cell holder is fitted with a setscrew to be able to adjust the photo cell vertically on the mounting bracket.

The mounting plate remains at the mounting bracket. Only the photo cell holder with the photo cell is being replaced.

- Disconnect the cable of the photo cell from the control system.
- Pull strap off of the fastening cams of the photo cell (3) and remove old photo cell from the mounting plate.
- Insert new photo cell and snap the strap fully into the mounting cams of the photo cell.
- Connect the photo cell cable to the control system of the module.

- Check whether both LEDs are lit.
- If the yellow LED flashes, position reflector and photo cell to each other.

LED green	LED yellow	Meaning
On	Off	Photo cell is operational. No signal from reflector.
On	On	Photo cell is correctly adjusted. Light beam is well reflected.
On	Flashing	Photo cell is operational. Weak signal. Reflector is dirty, damaged or not correctly adjusted.

Replacing the reflector

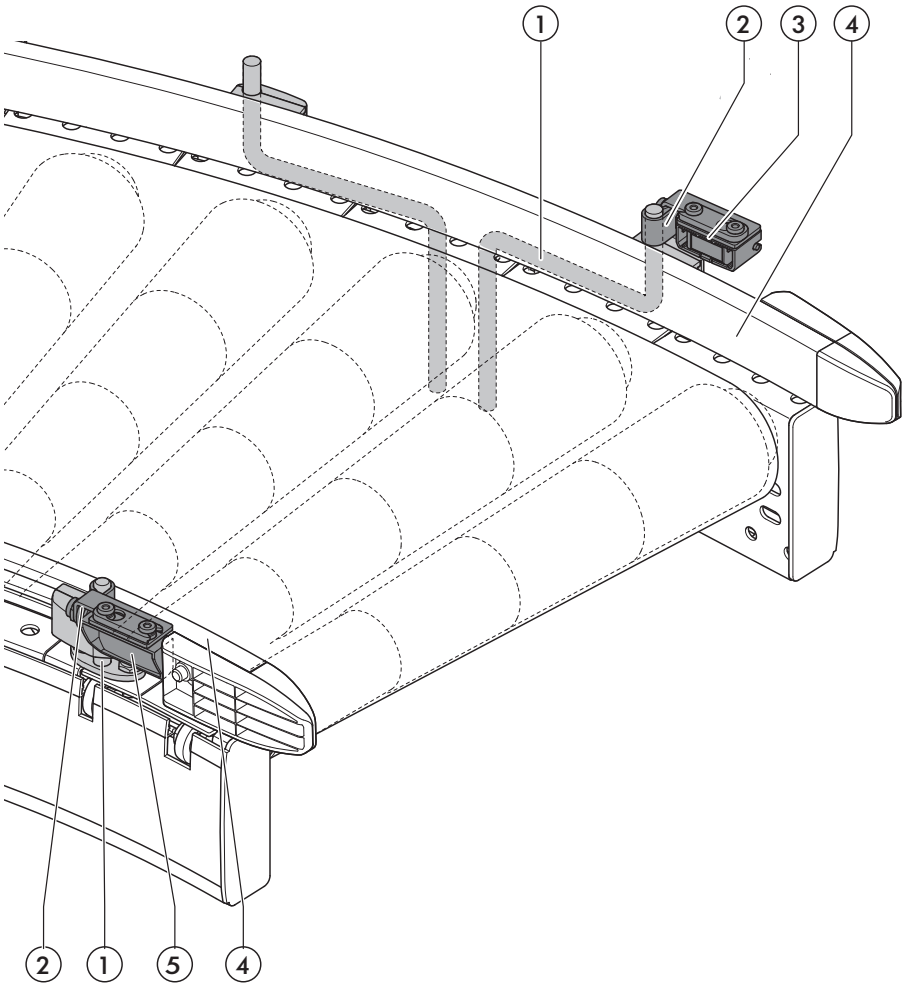


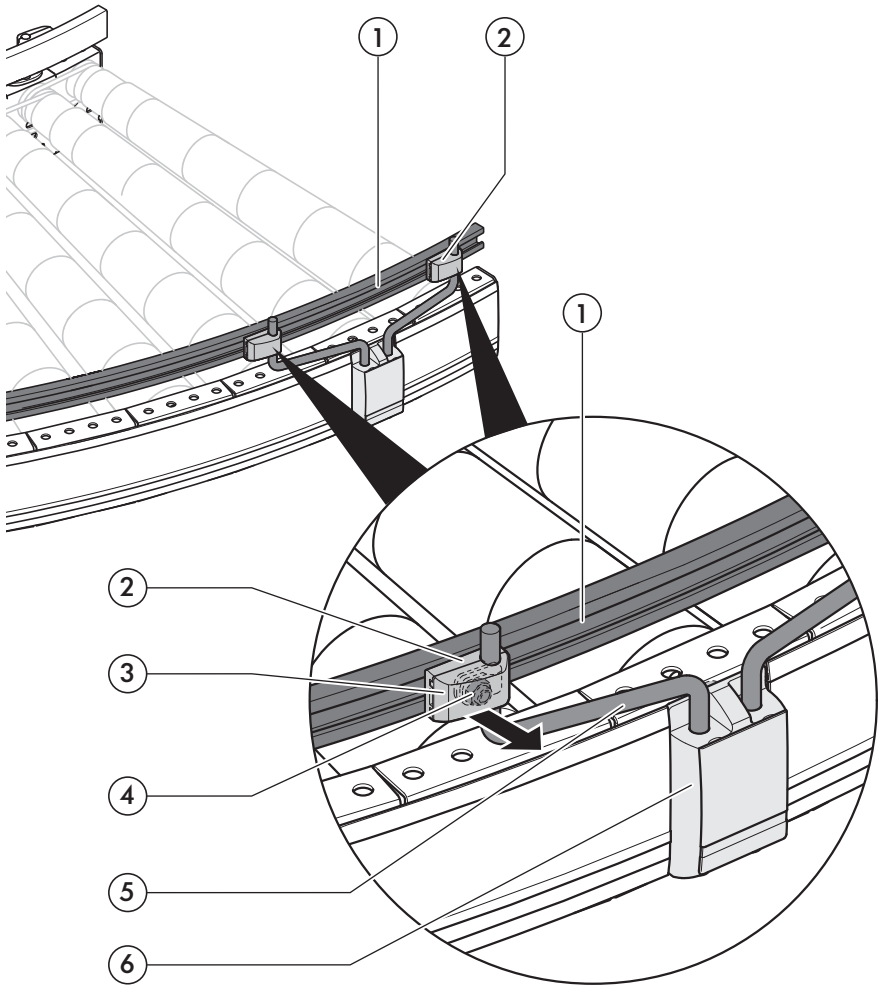
Photo cell with detail view of underside

1	Mounting bracket	4	Side guide profile
2	Mounting plate	5	Reflector
3	Photo cell		

Reflector and reflector holder are replaced together:

- Pull strap off of the fastening cams of the reflector.
- Remove old reflector (5).
- Place new reflector onto the mounting plate (2).
- Snap the strap fully into the mounting cams of the reflector from the underside.

Replacing the side guide profile



Flexible universal support with detailed view of side guide support at side guide profile

1	Side guide profile	4	Hexagon nut
2	Side guide support	5	Mounting bracket
3	Side guide support cover	6	Flexible universal support



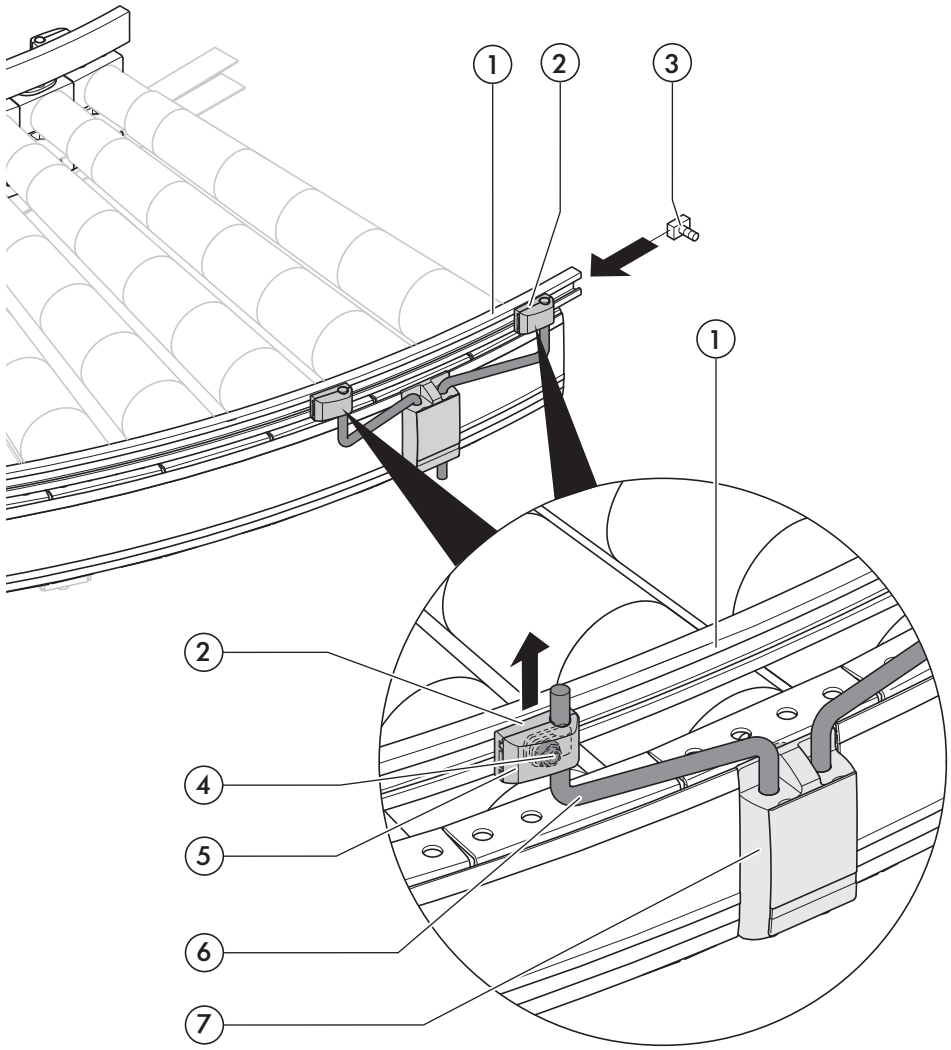
⚠ CAUTION

Risk of crushing due to circulating conveyor belt!

- Install side guide profiles for 24 V belt conveyor straight and curve lying directly on the side frame.

- Open the cover of the side guide support (3) with a tool (e.g. screwdriver).
- Loosen the hammer nut (4) in the side guide support (2) to the point when the hammer head bolt can be removed from the side guide profile (1) by slightly turning it.
- Replace the side guide profile.

Replacing the side guide support



1	Side guide profile	5	Side guide support cover
2	Side guide support	6	Mounting bracket
3	Hammer head bolt	7	Flexible universal support
4	Hexagon nut		

Requirement:

☑ The module is out of operation.

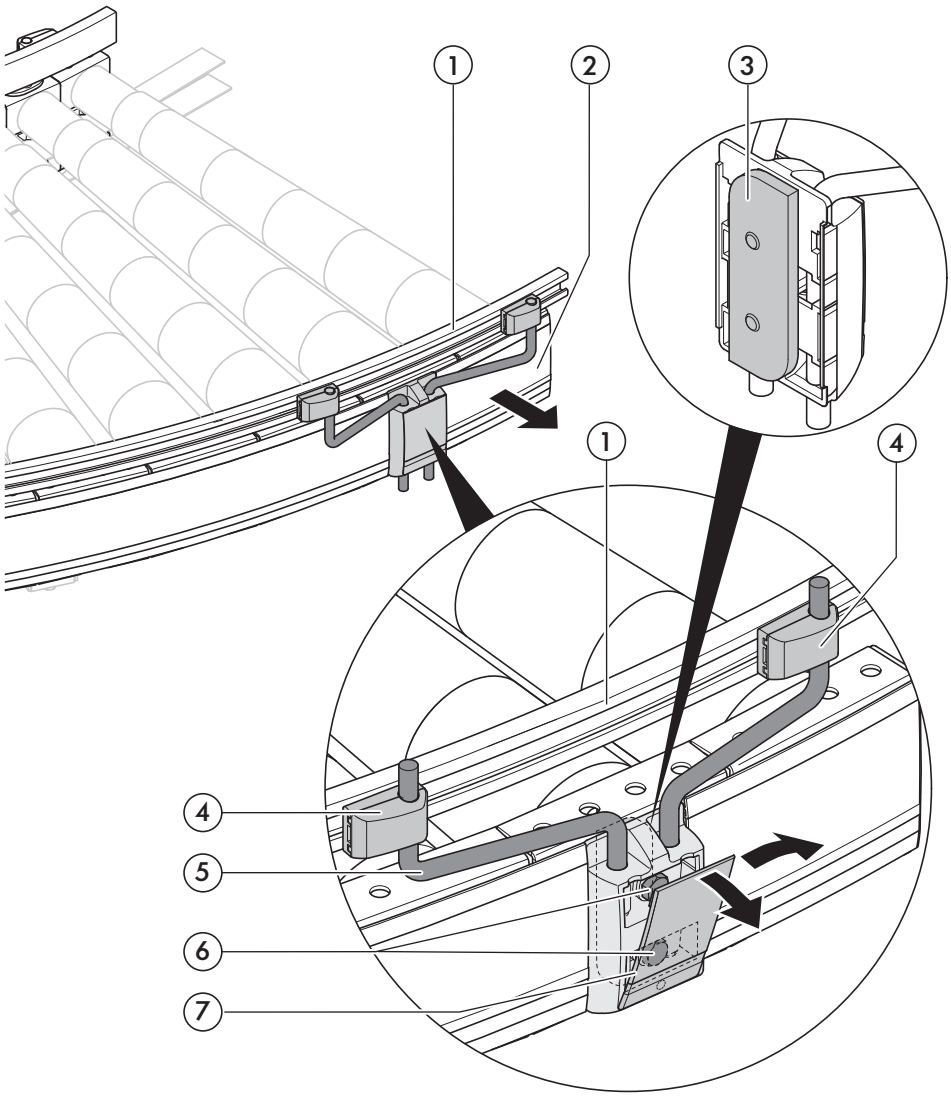
- Open the cover of the side guide support (5) with a tool (e.g. screwdriver).
- Loosen the hexagon nut (4).
- Move the hammer head bolt (3) inside the side guide support to the horizontal position by turning it and pull it out of the side profile.
- Pull the side guide support (2) off of the mounting bracket (6) of the universal support (7).

- Loosen the hexagon nut at the new side guide support, but do not remove it. Create sufficient clearance so that the hammer head bolt can later be inserted into the side profile and the clamp can be pushed onto the mounting bracket.
- Push the new side guide support onto the mounting bracket of the universal support. If needed, break out the upper hole cover.
- Insert the hammer head bolt into the side profile by slightly turning it.
- Tighten the hexagon nut.

⇨ The hammer head bolt is fixed. The side guide support sits firmly at the universal support.

- Close the top cover and snap it in place.

Replacing the flexible universal support



1	Side guide profile	5	Mounting bracket
2	Side cover	6	Hex nuts
3	Clamping plate	7	Universal support cover
4	Side guide support		

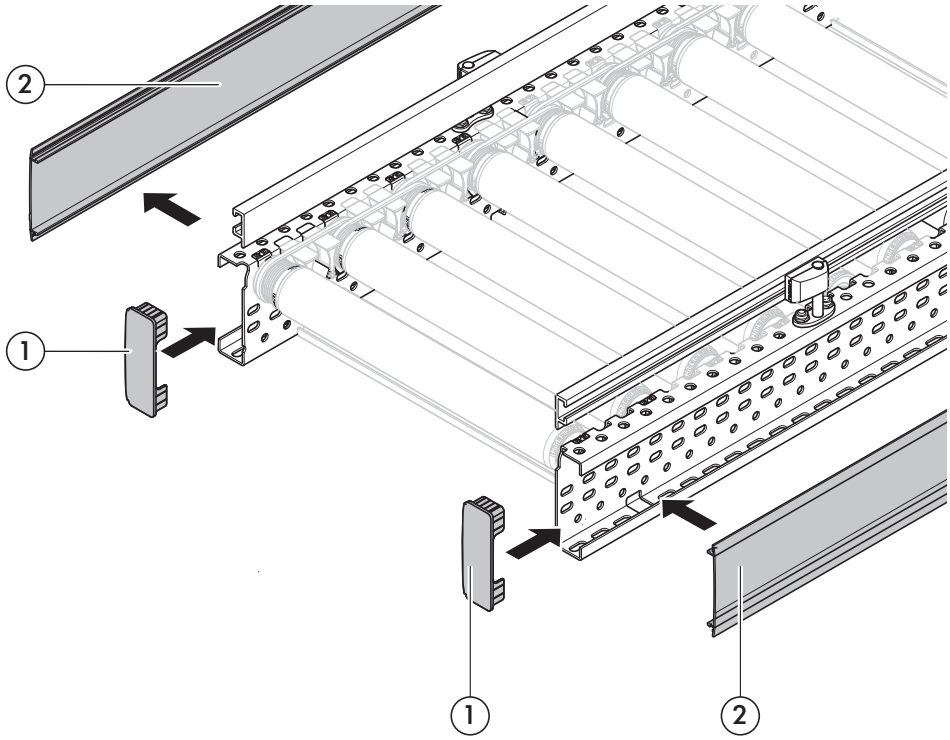
Requirement:

☑ The module is out of operation.

- Loosen side cover (2) from the side frame.
- Remove the side guide support (4), *See "Replacing the side guide support", page 57.*
- Open the cover of the universal support (7) with a tool (e.g. screwdriver) and swivel it down.
- Loosen the hexagon nuts (6), but do not remove them.

- Slightly turn the clamping plate (3) with the complete universal support and remove it from the C-profile of the side frame.
- Loosen the hexagon head screws at the new universal support, but do not remove it.
- Insert the clamping plate into the side frame by slightly turning the complete universal support.
- Position the universal support on the side frame and slightly tighten the hexagon nuts at the desired location.
- Install the side guide support, *See "Replacing the side guide support", page 57*.
- Align the angles of the mounting brackets (5).
- Firmly tighten the hexagon nuts.
- Swing up the cover of the universal support until you hear it snap in.

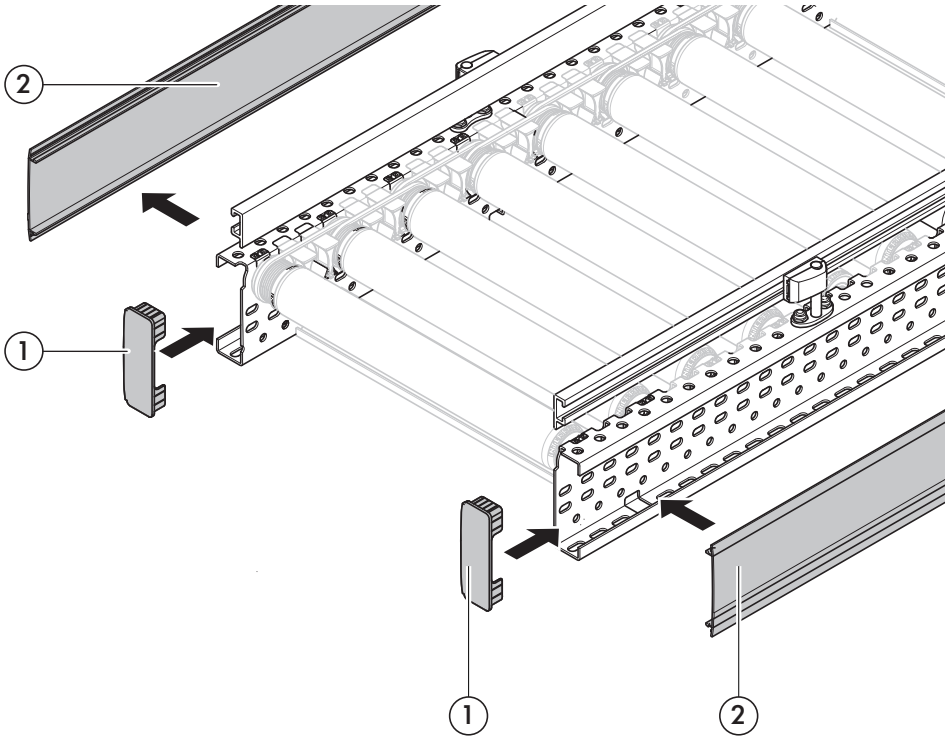
Replacing the side cover



1 End cap 2 Side cover

- Carefully pry out the side cover (2) out of the side profile at one end using a tool (e.g. screwdriver).
- Starting at this point, loosen the complete side cover from the side profile.
- Snap new side cover into the C-profile of the side frame.

Replacing the end cap



1 End cap 2 Side cover

- Remove end caps (1) from the side frame using a tool (e.g. screwdriver).
- Push the new end caps into the C-profile of the side frame.

Maintenance intervals

If maintenance is not performed according to schedule, it may lead to damages and failures. If maintenance intervals are not followed, the warranty will be void.

All bearings of the module feature a life-time lubrication and are maintenance-free within the operating parameters.

Maintenance and inspection list

Mach. no./type:		**Date:**		
Component	**Interval**	**Task/check**	**Activities**	**Performed by**
Entire conveyor	Weekly	General visual and acoustic remote check		
	Annually	Check screw connections	Retighten in accordance with DIN standard as required	
RollerDrive	Every 6 months	Check temperature*	Replace as required	
	Every 6 months	Check for noise	Replace as required	
		Check for damages	Replace as required	
	Every 6 months	Ensure that axle is secured in the transport frame		
Carrying idlers / belt	Every 6 months	Check running behavior and tension of the belt	Replace as required	
		Check for wear or damages	Replace as required	
		Check for cleanliness	Clean as required	

* For permissible temperatures, see the operating manual of the motor.

Troubleshooting

In case of a fault



⚠ DANGER

Danger - electrocution

- Only perform maintenance and repair work after you have switched off the power.
- Faults on electrical equipment may be removed only by a trained electrician!

Requirement:

☑ The danger spots on the module are covered by protective plates and other protective devices.

- Immediately de-energize the complete conveyor system and ensure that it cannot be started accidentally.
- Remove material and blocking objects.
- Before switching it on again, ensure that no persons are at risk.
- Professionally dispose of any gear oil that as leaked out. Have the motor replaced by qualified personnel if necessary.

Troubleshooting

Fault	Possible cause	Remedy
Transport process cannot be started	Main switch or control system not switched on	• Check LED on DriveControl
		• Check switch position, switch on main switch and/or key switch of the control system as required
	Supply line damaged	• Check supply line
	Belt tension too low	• Tension the belt
	Transport weight too high	• Observe maximum weight
RollerDrive does not turn (current limitation/overvoltage protection)	Bearing or gear box of RollerDrive defective	• Replacing the drive roller
	Short circuit	• Check electrical connection
	Transport weight too high, overload protection of RollerDrive responds	• Observe maximum weight
Noise development	Bearing (carrying idler, RollerDrive) defective	• Replace carrying idler / RollerDrive
Belt jumps out of guide	Belt tension too low	• Adjust belt tension

Spare and wear parts

All spare and wear parts are available from Interroll. Maintenance and repair work may be performed only by qualified personnel. Interroll offers training sessions about required maintenance and repair tasks upon request.

Ordering information

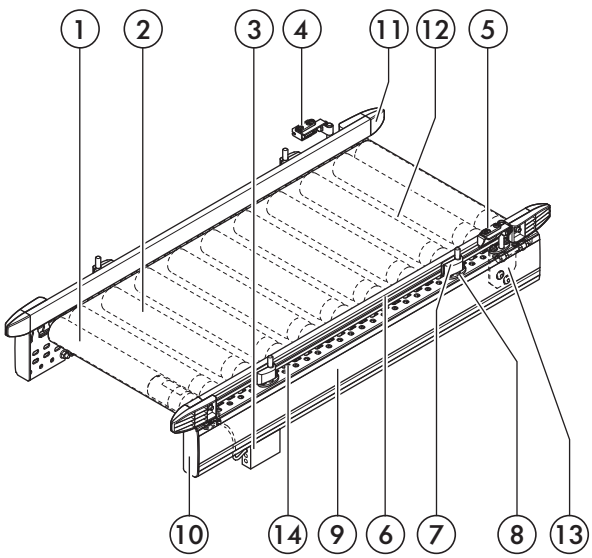
Ordering spare and wear parts requires the exact identification of the module, Nameplate.

The following information is required for an order:

- Machine number
- Type
- Item number of spare parts list
- Designation
- Comment

For additional information about the spare parts portfolio, please contact your supplier.

Spare part drawing BM 8350



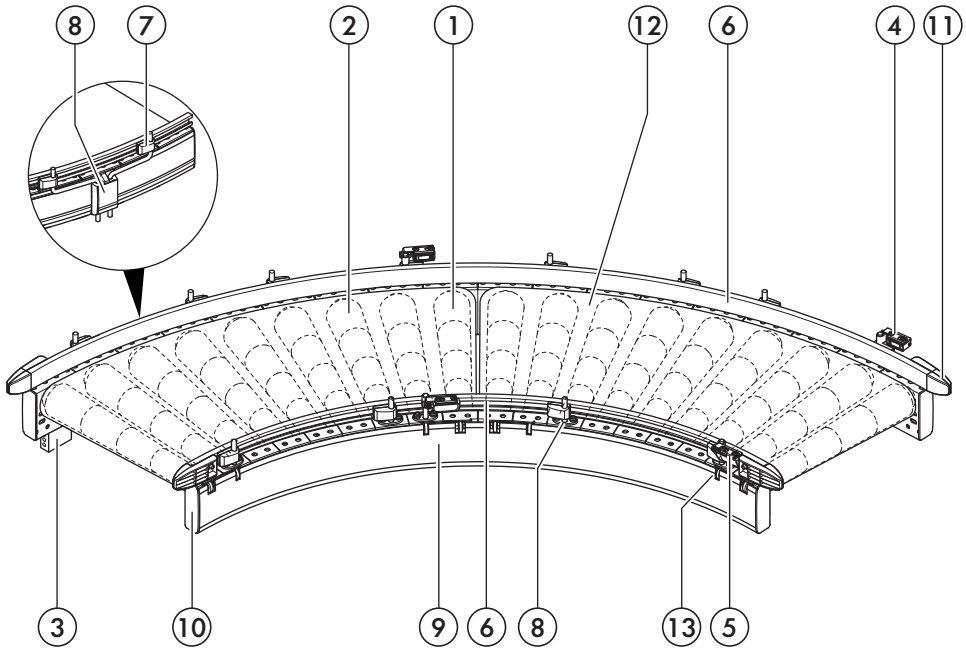
24 V Belt Conveyor Straight BM 8350

Spare parts list BM 8350

S = spare part, W = wear part, T = tool

Type:	BM 8350		
Item no.:	**Designation**	**Comment**	**S/W/T**
1	Drive roller	EC 310	S
2	Carrying idler		S
3	Control card		S
4	Photo cell incl. holder		S
5	Reflector incl. holder		S
6	Side guide		S
7	Side guide support		S
8	Universal support		S
9	Side cover		S
10	End cap (side frame)		S
11	End cap (side guide)		S
12	Conveyor belt		W
13	Complete tensioning station		S
14	Closing clip		S

Spare part drawing BM 8360



24 V belt conveyor curve BM 8360

Spare parts list BM 8360

S = spare part, W = wear part, T = tool

Type:	BM 8360		
Item no.:	**Designation**	**Comment**	**S/W/T**
1	Conical drive roller	EC 310 KXO	S
2	Conical carrying idler	KXO	S
3	Control card		S
4	Photo cell incl. holder		S
5	Reflector incl. holder		S
6	Side guide		S
7	Side guide support		S
8	Universal support		S
9	Side cover		S
10	End cap (side frame)		S
11	End cap (side guide)		S
12	Conveyor belt		W
13	Complete tensioning station		S

Decommissioning and disposal

- When disposing the motor oil, observe the disposal documents of the motor manufacturer.
- The packaging must be recycled to provide environmental relief.

Environmental protection regulations

For all work on and with the module, the legal regulations concerning waste avoidance and proper disposal and recycling must be followed.

NOTICE



Substances with a water hazard class, such as greases and oils, hydraulic oils, coolants or cleaning agents with solvents may not be allowed to come into contact with the ground or reach the sewer system!

- Store, transport, catch and dispose these substances in suitable containers!
- Observe the notices on the supply containers.
- Observe any additional national regulations.

Installation declaration

In accordance with the EC Machinery Directive 2006/42/EC, Appendix II 1 B.

The manufacturer:
Interroll Automation GmbH
Dietmar-Hopp-Straße 3
D-74889 Sinsheim, Germany

herewith declares that the conveyor module described below is an incomplete machine in accordance with the EU Machinery Directive:

- Interroll 24 V belt conveyor straight BM 8350
- Interroll 24 V belt conveyor curve BM 8360

Important Note! The incomplete machine may only be put into operation if it has been determined that the overall machine/system, into which the incomplete machine is to be installed, meets the requirements of this directive.

The following safety requirements as stated in Appendix I have been applied:

- 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.7, 1.3.8, 1.4.1, 1.5.4, 1.5.8, 1.5.9, 1.6.1, 1.6.4, 1.7.4

The special technical documents mentioned in Appendix VII B have been prepared and will be sent to the responsible authority if necessary. The transmission is done electronically.

Responsible for EC documentation: Interroll Automation GmbH, Dietmar-Hopp-Straße 3, D-74889 Sinsheim, Germany

Applicable EC Directives:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU

Applicable harmonized standards:

- EN ISO 12100:2011-03 "Safety of machinery - Basic concepts - risk assessment and reduction"
- EN ISO 13857:2008-06 "Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs"
- EN 349:2008-09 "Safety of machinery - Minimum gaps to avoid crushing of parts of the human body"
- EN 60204-1:2007-06 "Safety of machinery - Electrical equipment of machines - Part 1: General requirements"

Sinsheim, dated

Robert Lugauer
(Manager)

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For your local contacts please visit
interroll.com/contacts

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