

Installation and Operating Instructions

Interroll Diverter

SH 1500

Rated width 690 mm (M), 842 mm (L)

Manufacturer's address

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Contents

We strive for the information presented to be correct, up to date and complete. We have carefully developed the contents of this document. Nevertheless, errors and changes are expressly subject to change.

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Introduction

Notes about working with the installation and operating instructions

The Interroll Übergabemodul product is generally referred to as "module" in this document.

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

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

In addition to these installation and operating instructions, special contractual agreements and technical documents apply to special versions of the module and its additional equipment.

- ▶ 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 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 Interroll customer service. Contact persons near you can be found on the Internet under: www.interroll.com/contact.

**Contents of these
installation and operating
instructions**

**Integrated part of the
product**

**Installation and operating
instructions are part of the
module**

Interroll Diverter SH 1500

Introduction

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 will result in death or serious injury if it is not avoided.
WARNING	Identifies a danger with medium risk that could result in death or serious injury if it is not avoided.
CAUTION	Identifies a danger with low risk that may result in minor or medium injury if it is not avoided.
NOTICE	Identifies a danger that results in property damages.

Symbols



This symbol marks useful and important information.

Requirement:

- This symbol represents a prerequisite to be met prior to installation 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 these installation and operating instructions may lead to life-threatening injuries!

- ▶ Carefully read the installation and operating instructions and follow their content.
- ▶ Observe local accident prevention regulations and general safety regulations that apply in the area of use.

Intended use

The module may only be used for industrial applications and in an industrial environment to convey belt conveyor-ready goods, such as all types of boxes, packaged food or beverage units.

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.

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Safety

Unintended use

Any use beyond the intended use is considered inappropriate or, if required, must be authorized by Interroll Trommelmotoren GmbH. Setup and operation in explosive atmospheres is prohibited. The use in a medical-pharmaceutical area requires the approval from Interroll.

The transport of persons is prohibited.

The transport of hazardous or damaging goods is prohibited.

The transport of hot or hygroscopic goods is prohibited.

Installation in unprotected rooms exposed to the weather or in areas where the technology deteriorates and can fail due to the prevailing climatic conditions is considered inappropriate use.

Use of the module is not intended for private end customers! Use in a residential area is prohibited without additional assessment and without the use of EMC protective measures that have been adapted accordingly!

Personnel qualification

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

- ▶ Authorize only qualified personnel to perform the activities described in these instructions.
- ▶ The operating company must ensure that personnel follow locally applicable regulations and rules about safety and hazards while working.

The following target groups are addressed in these 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 pertinent technical training.

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Safety

Personal protective equipment



- ▶ For all work, such as assembly, maintenance and cleaning tasks, wear personal protective equipment that is suitable and appropriate for the hazard situation.



Close-fitting work clothing



Protective gloves



Safety shoes



Hard hat



Hearing protection

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Safety

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 when it is powered down and ensure that it cannot be started accidentally.
- ▶ In an area frequented by people or if people can reach between conveying goods, take additional protective measures.
- ▶ Do not remove protective covers or housing.
- ▶ Regularly check the safety devices.

Heat

- ▶ Do not touch the drum motor during operation. Risk of burns.

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.
- ▶ Stop the module at once and ensure that it cannot be started accidentally in case of: Smoke from a fire, unusual noise, blocked or defective conveying good, defective supports, side guides or accessory devices, unauthorized removal of safety covers.
- ▶ Promptly have qualified personnel determine the cause of the fault.
- ▶ Immediately remove any escaping gear oil.
- ▶ Do not step onto the module during operation.

Insufficient hygiene

- ▶ Clean the module regularly.
- ▶ Follow all notices relevant to hygiene in these instructions.

Maintenance intervals

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

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Safety

Interfaces to other devices

Hazard locations may occur while integrating the module into a complete system. These are not part of this manual and have to be analyzed during the installation and startup of the complete system.

- ▶ When combining the module with other modules or machinery, check for new hazard locations before startup.
- ▶ If necessary, take further construction measures.

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 that are required to guarantee and maintain regular operation.

Special operating mode	Explanation	Comment
Transport/storage	Loading and unloading, transport and storage	-
Assembly/initial startup	Installation at the end customer and performing the test run	-
Cleaning	External cleaning without removing protective devices	When powered down
Maintenance/repairs	Maintenance and inspection tasks	When powered down
Troubleshooting	Troubleshooting in the event of a fault	-
Fault elimination	Eliminating the fault	When powered down
Decommissioning	Removal from the complete system	When powered down
Disposal	Removal from the complete system and disassembly	When powered down

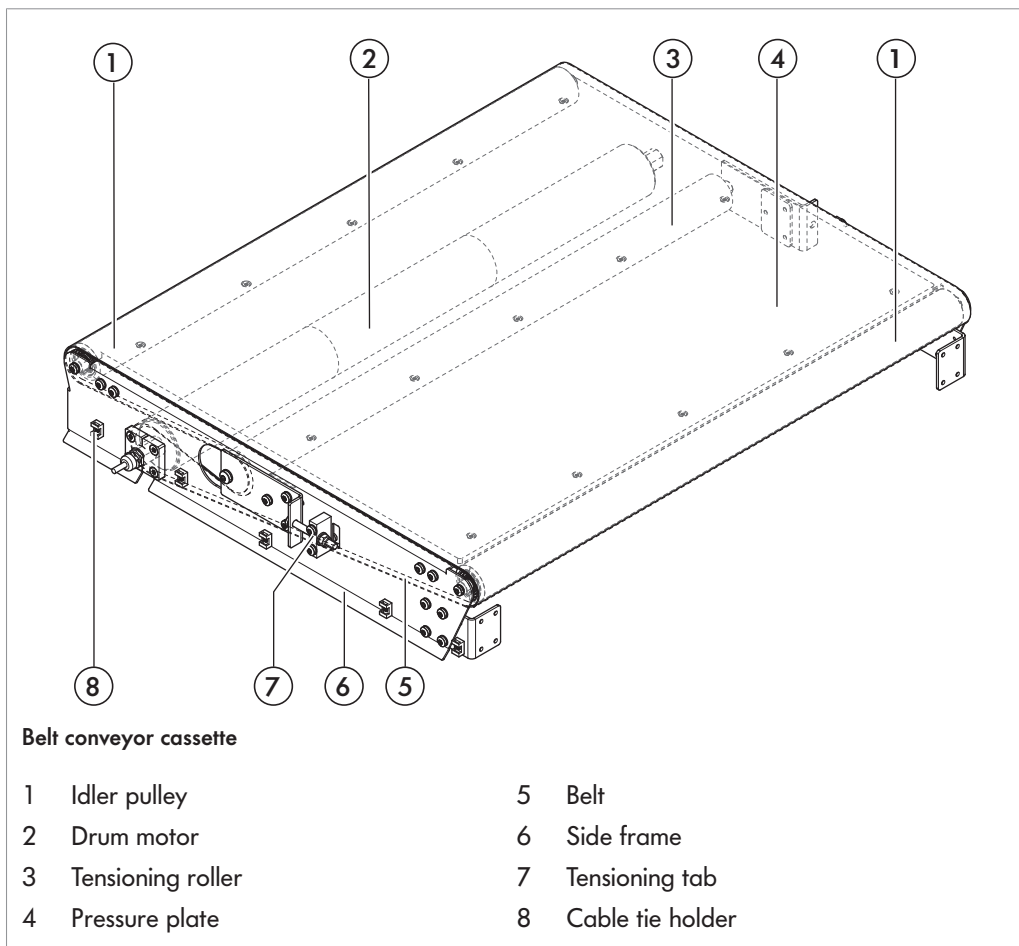
Interroll Diverter SH 1500

Product identification

Diverter (SH 1500)

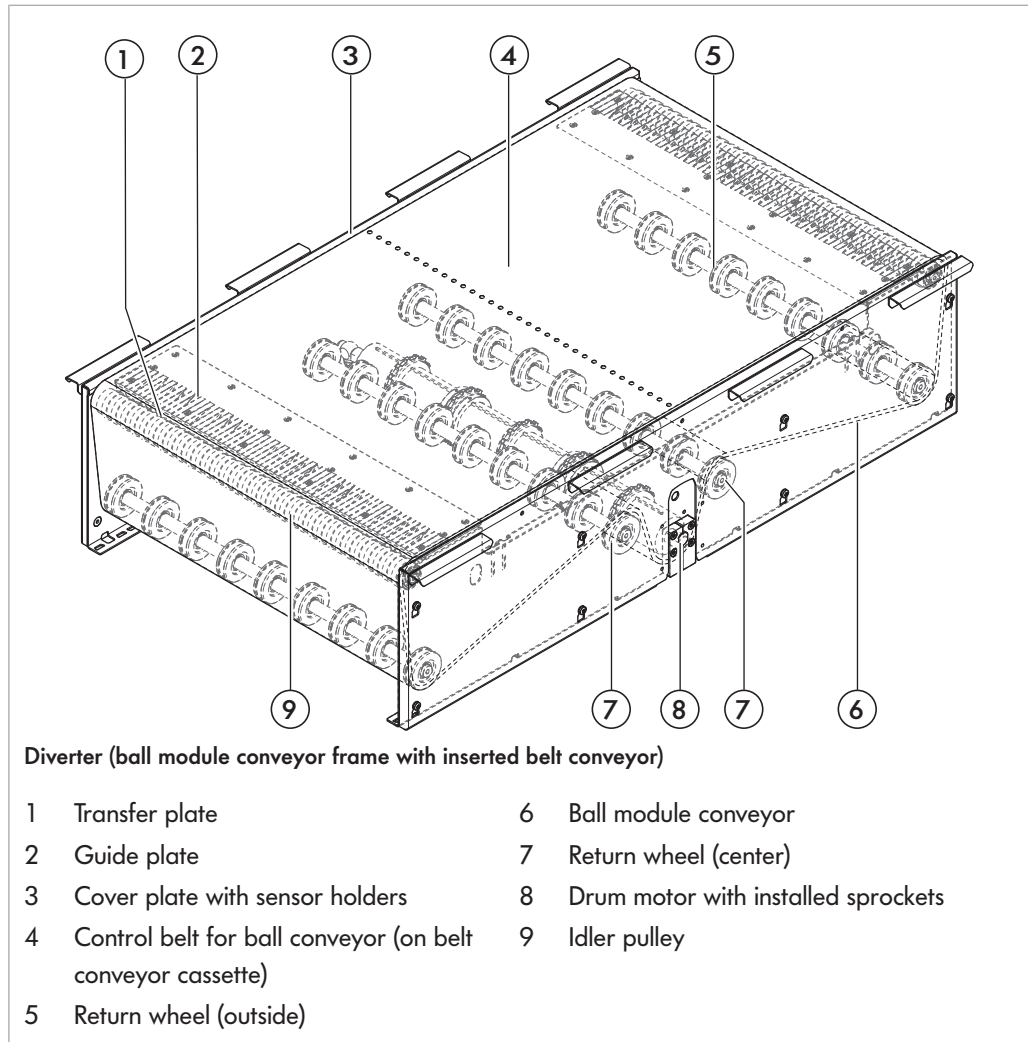
Components

The diverter consists of a cassette (belt conveyor) and a frame (ball module conveyor). They are assembled into a diverter.



Interroll Diverter SH 1500

Product identification



Property

The diverter SH 1500 is used for diverting a suitable conveying goods into 6 different directions. Turning the conveying goods is not possible in this process.

Depending on the size of the module, the rated width is 690 mm (M) or 842 mm (L).

The module consists of a cassette (belt conveyor) and a frame (ball module conveyor). They are assembled into a diverter: The belt conveyor controls the diverter with a transverse running belt. In the outside frame of the diverter, the ball module conveyor is controlled by the module conveyor drive assembly.

A frequency inverter can be used as an option. Observe the installation guidelines of the frequency inverter manufacturer (e.g. the frequency inverter from Getriebbau Nord).

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Product identification

Technical data

	SH 1500
Rated width (BF)	690 mm (M)
Conveying width (CW)	842 mm (L)
Dimensions of conveying good	Min.: 100 x 100 mm Max.: 700 x 800 mm
Max. load capacity	35 kg/m
Conveyor speed control belt	1.0 m/s
Conveyor speed ball belt	0.4 m/s
Ball circumferential speed	0.8 m/s
Max. conveying speed for straight transported goods	1 m/s
Max. conveying speed for 45° transported goods	1.18 m/s
Max. conveying speed for 90° transported goods	0.8 m/s
Ambient temperature	-5 to +40 °C
Incline/decline	Not suitable
Module length	1500 mm
Conveying height (TOB)	Preselected in the layouter
Motor type control belt (webbing)	Drum motor DM 0080 synchr./asynchr. rubber-coated
Motor type ball belt	Drum motor DM 0080 synchr./asynchr. with sprockets
Rated voltage	230/400 V 50 Hz 230/460 V 60 Hz
Electrical power	2x 550 W
Drive system ball belt	Center drive
Transmission of force	Sprockets
Frequency inverter	Standard: Getriebebau Nord
Throughput	approx. 1400 goods per hour
Diverter direction	0°, 45°, 90°, 180°
Conveyor material control belt	Ammeraal Ropanyl
Conveyor material ball belt	Ammeraal Uni QNB-Ball
Protection rating	Drum motor: IP 69 K Frequency inverter: IP 20 or IP 66



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Product identification

Scope of supply

The module is delivered completely assembled.

The scope of delivery includes:

- Rack for cassette including side frames, crossbeams and pressure plate
- Rack for frame including side frames and transfer plates
- Drive (drum motor with installed sprockets as OMEGA center drive (ball module conveyor) and drum motor (belt conveyor))
- Rollers (idler pulleys, return wheels)
- Webbing
- Ball module conveyor, transfer plates
- Side plates

Optional:

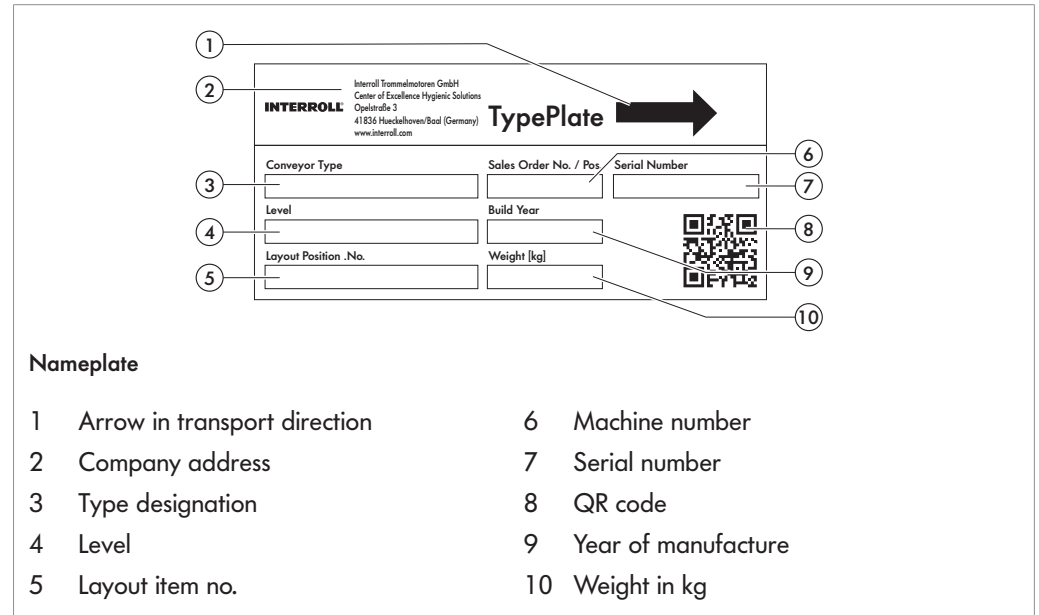
- Photo cell and reflector, sensor holder and universal support
- Side guides, side guide brackets and universal support
- Connector sets incl. module connectors and contact guards
- Frequency inverter (e.g. from Getriebebau Nord)
- Electronics
- Supports

The side guide profiles and sensors are delivered installed (if ordered).

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Product identification

Nameplate



Nameplate

1	Arrow in transport direction	6	Machine number
2	Company address	7	Serial number
3	Type designation	8	QR code
4	Level	9	Year of manufacture
5	Layout item no.	10	Weight in kg

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 on the right side frame.

Transport and storage

Transport

WARNING

Risk of injury during transport

- ▶ Fasten the module securely and slip-proof for transport.
 - ▶ Ensure that the lifting device (e.g. fork lift) is rated for the weight of the module.
 - ▶ Ensure that there are no persons under the suspended load while lifting and moving the module.
-

- ▶ Have any persons leave the danger zone.
- ▶ Wear safety shoes.
- ▶ Check correct fastening for transport.

Loosen the transport locks around the package. The crossbeams above the top module can then be removed, thereby exposing the module. The individual module is lifted out of the package using a suitable lifting device.

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 installation site as a pre-assembled unit and must be set up, connected and integrated into a system on site.

If available, photo cell and reflector are already pre-assembled and connected. The side guides (universal support, side guide brackets and side guides) are also delivered assembled.

The installation tasks are divided into two sections:

- Setting up the module
- Integrating the module into a complete system

To be observed during installation

Electrical installation



DANGER

Danger - energized cable ends!

- ▶ Electrical installation should only be performed by qualified electricians.
 - ▶ Ensure that the device is powered down.
 - ▶ Minimum bending radii of cables, hoses and lines must be maintained.
-



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.
-

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Installation

The module is provided with voltage either via CEE plug or direct installation in the control cabinet.

- ▶ Check cables and components for damage before installation.
- ▶ The connection values of the module are listed on the motor nameplate.



Static electricity

Take proper measures for grounding and potential equalization.



Use only original fuses with specified amperage.

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 installation of the module, its grounding must be ensured. A grounding connection, which is fastened at the supports, is intended for this purpose. It is recommended to connect a grounding connection with grounding cable every 20 m.

Orientation

- ▶ Align the module using the height-adjustable feet of the support. The roller top edge (for roller conveyors) or the module conveyor top edge (for module belt conveyors) is the relevant height for aligning the modules. Use suitable tools for the alignment (spirit level or rotation laser).
- ▶ Secure the adjusted height.
- ▶ During 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 to adjacent components.

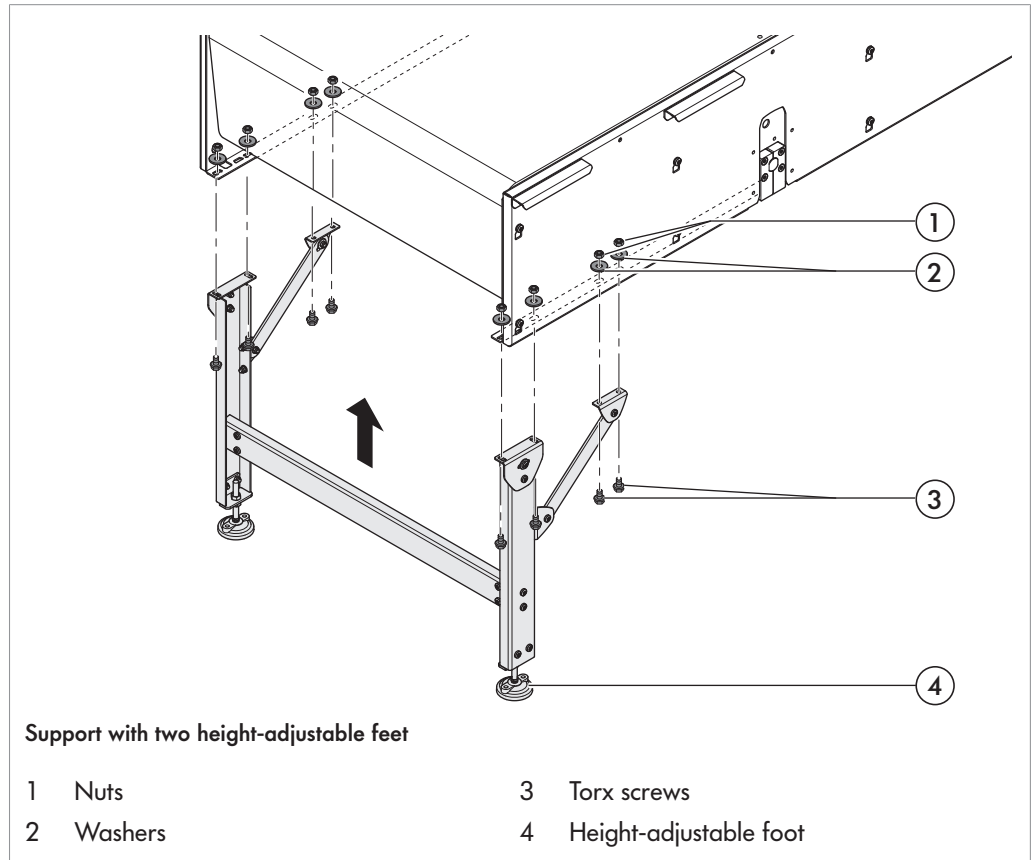
Integration into complete system

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

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Installation

Installing supports



⚠ CAUTION

Risk of injury when lifting heavy loads

- ▶ During the installation and replacement of conveyor modules or heavy spare parts, always work in pairs or use suitable lifting devices.

The module sits on at least one support. Each support has two height-adjustable feet (4).

- ▶ Place the module on the supports.
- ▶ Position the supports underneath the module.
- ▶ Fasten the rack with screws (3) and washers (2) from below as well as washers (2) and nuts (1) inside in the side profile.

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Installation

Integrating the module in a complete system

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.
-

The module is delivered pre-assembled, but integration into a complete system may still require individual installation tasks:

- Install the universal support, see "*Installing the universal support*", page 23.
- Fasten the side guide, see "*Installing the side guide*", page 25.
- Install photo cell and reflector, see "*Installing the photo cell and reflector*", page 26.
- Attach the module connectors and contact guards, see "*Connecting the modules*", page 29.

Integrating the module in a complete system may require installing other components. The corresponding instructions are available in the chapter "Maintenance and Repair".

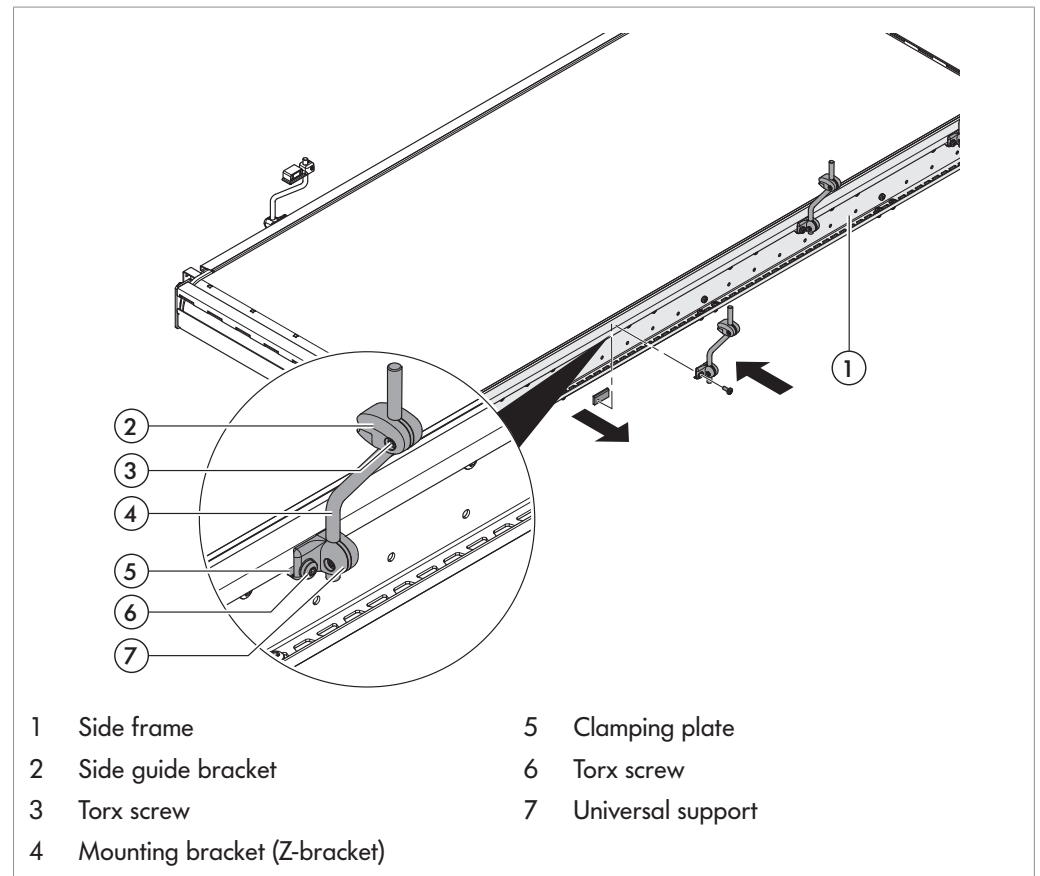
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Installation

Installing the universal support



The universal supports are delivered pre-assembled, with Z or U mounting brackets depending on the selection. The universal supports are turned towards the conveyor center for transport and still must be positioned before startup depending on their use (for the installation of adjustable side guide, photo cell or reflector).



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.



Fasten screws with a tightening torque of 19 Nm.

The universal support (7) is installed at the top on the profile of the side frame.

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Installation

Requirement:

- ☑ The module is shut down.
- ▶ Loosen screw (6) in the universal support, but do not remove it.
- ▶ Bring clamping plate (5) with universal support (7) from below into position at the profile of the side frame.
The profile of the side frame is located between clamping plate and universal support.
- ▶ Tighten the screw (6) at the desired location.
- ▶ Push side guide bracket (2) onto the mounting bracket (4) of the universal support (7).



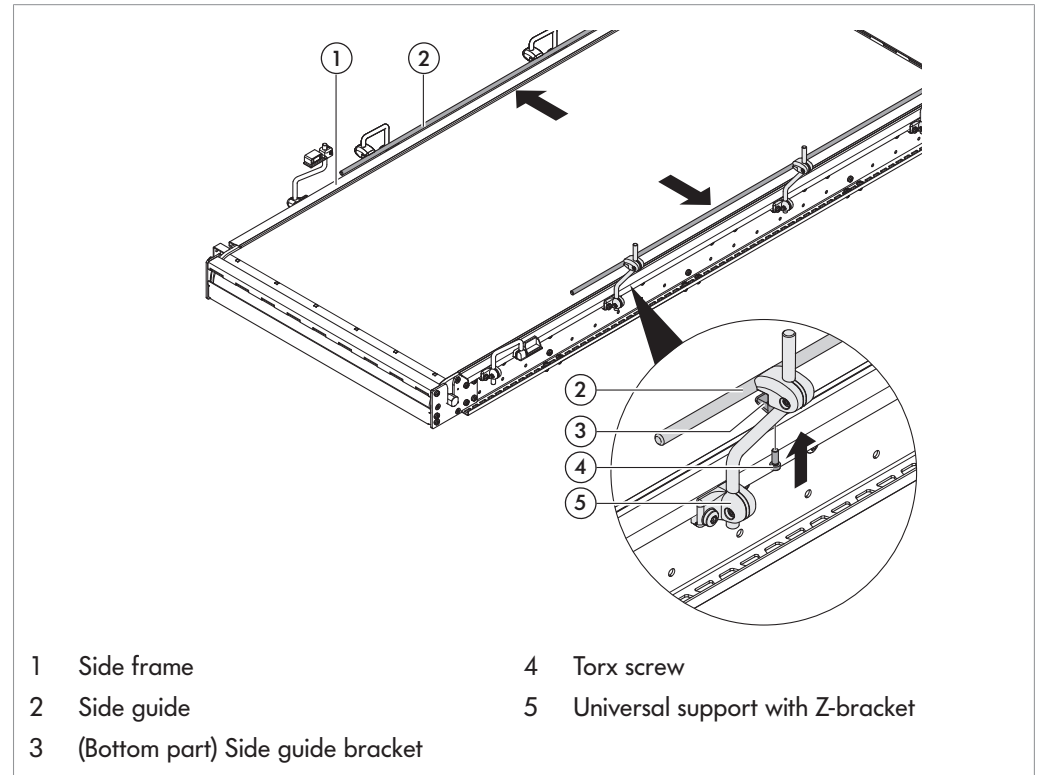
Fasten screws with a tightening torque of 6 Nm.

- ▶ Position side guide bracket and firmly tighten screw (3) in the side guide bracket.

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Installation

Installing the side guide



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.



Fasten screws with a tightening torque of 6 Nm.

Requirement:

- The module is shut down.
 - ▶ Install the universal support, see "*Installing the universal support*", page 23.
 - ▶ Loosen screw (4) slightly.
The bottom part of side guide bracket (3) loosens.
 - ▶ Place side guide (2) in the opening created and position it.
 - ▶ Tighten the screws (4).
- ⇒ Screw is secured. The side guide bracket sits firmly on the universal support.

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Installation

Installing the photo cell and reflector

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

- The photo cell is in the photo cell housing.
- The reflective tape is affixed to the reflector.



Photo cell and reflector can be installed along the C-profile of the side frame. The flexible universal support enables adjusting the sensors with respect to height and distance and correctly align them to each other.

DANGER



Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.
-



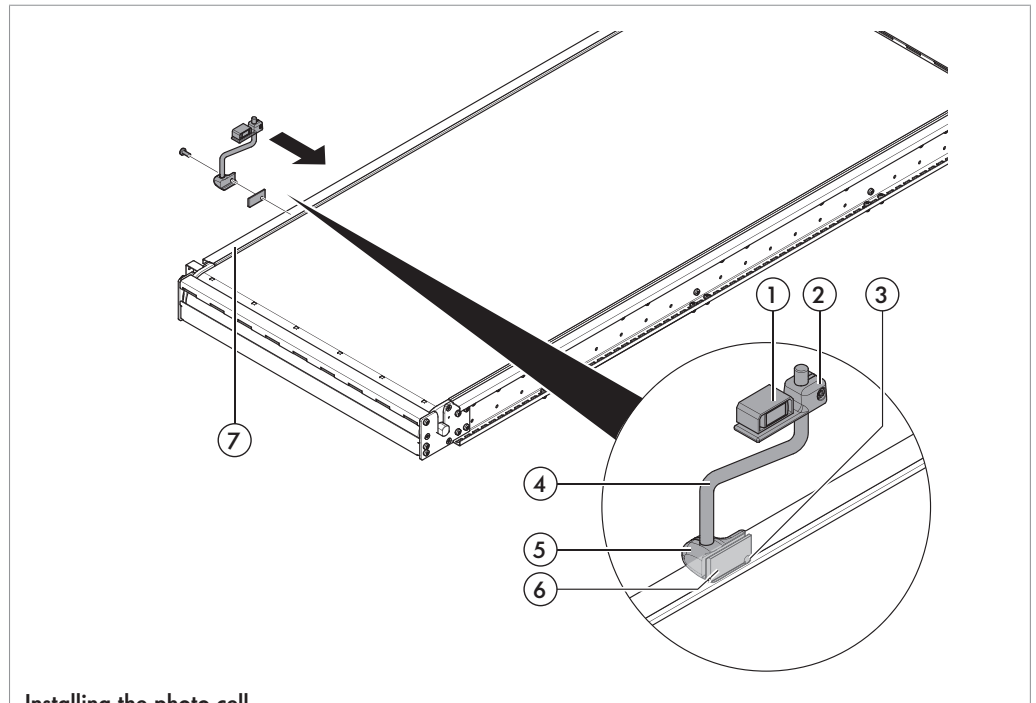
Fasten screws with a tightening torque of 19 Nm.

Photo cell and reflector must be installed exactly facing each other:

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Installation

Installing the photo cell



Installing the photo cell

- | | | | |
|---|------------------------------|---|-------------------|
| 1 | Photo cell | 5 | Universal support |
| 2 | Sensor holder | 6 | Clamping plate |
| 3 | Torx screw | 7 | Side frame |
| 4 | Mounting bracket (Z-bracket) | | |

Requirement:

- ☑ The module is shut down.
 - ▶ Loosen screw (3) in the universal support (5), but do not remove it.
 - ▶ Bring clamping plate (6) with universal support (5) from below into position at the profile of the side frame (7).
The profile of the side frame is located between clamping plate and universal support.
 - ▶ Tighten the screw (3) at the desired location.



The fine adjustment of the photo cell is done with the vertical adjustment of the sensor holder on the mounting bracket until it "sees" the reflector.

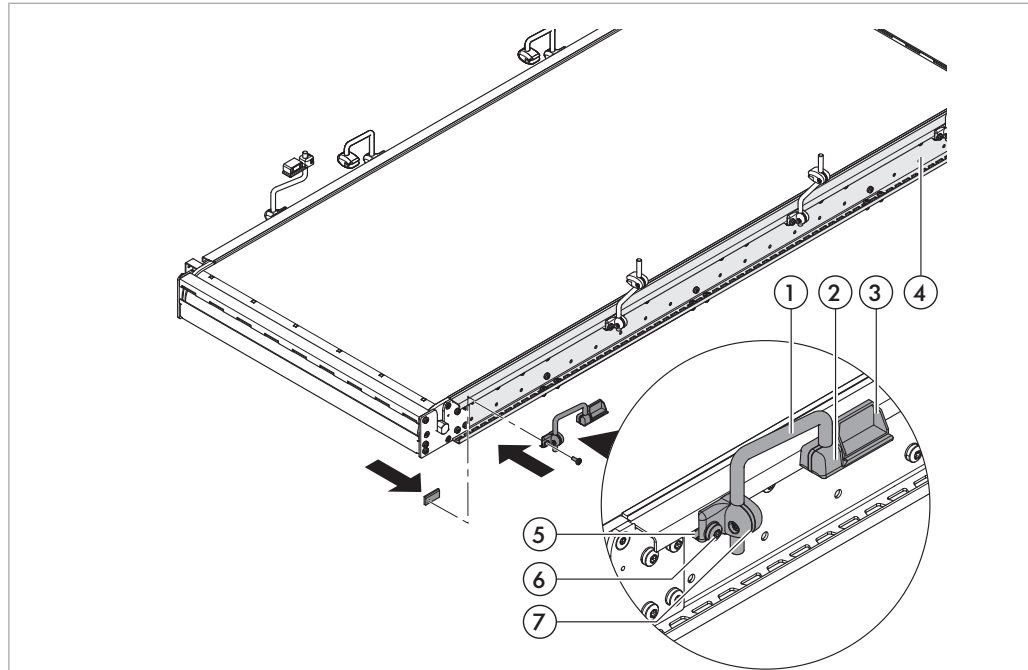


The electrical installation of the photo cell takes place after installing the reflector.

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Installation

Installing the reflector



Installing the reflector

- | | | | |
|---|------------------------------|---|-------------------|
| 1 | Mounting bracket (U-bracket) | 5 | Clamping plate |
| 2 | Sensor holder | 6 | Torx screw |
| 3 | Reflector | 7 | Universal support |
| 4 | Side frame | | |

- ▶ Install the reflector (3) opposite the photo cell.
- ▶ Loosen screw (6) in the universal support (7), but do not remove it.
- ▶ Bring clamping plate (5) with universal support (7) from below into position at the profile of the side frame (4).
The profile of the side frame is located between clamping plate and universal support.
- ▶ Tighten the screw (6) at the desired location.
- ▶ After installing the photo cell and reflector: Connect the photo cell to the control of the module with a cable.
- ▶ Check whether both LEDs are lit.
- ▶ If the yellow LED flashes, position reflector and photo cell relative 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.

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Installation

Connecting the modules

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.
-

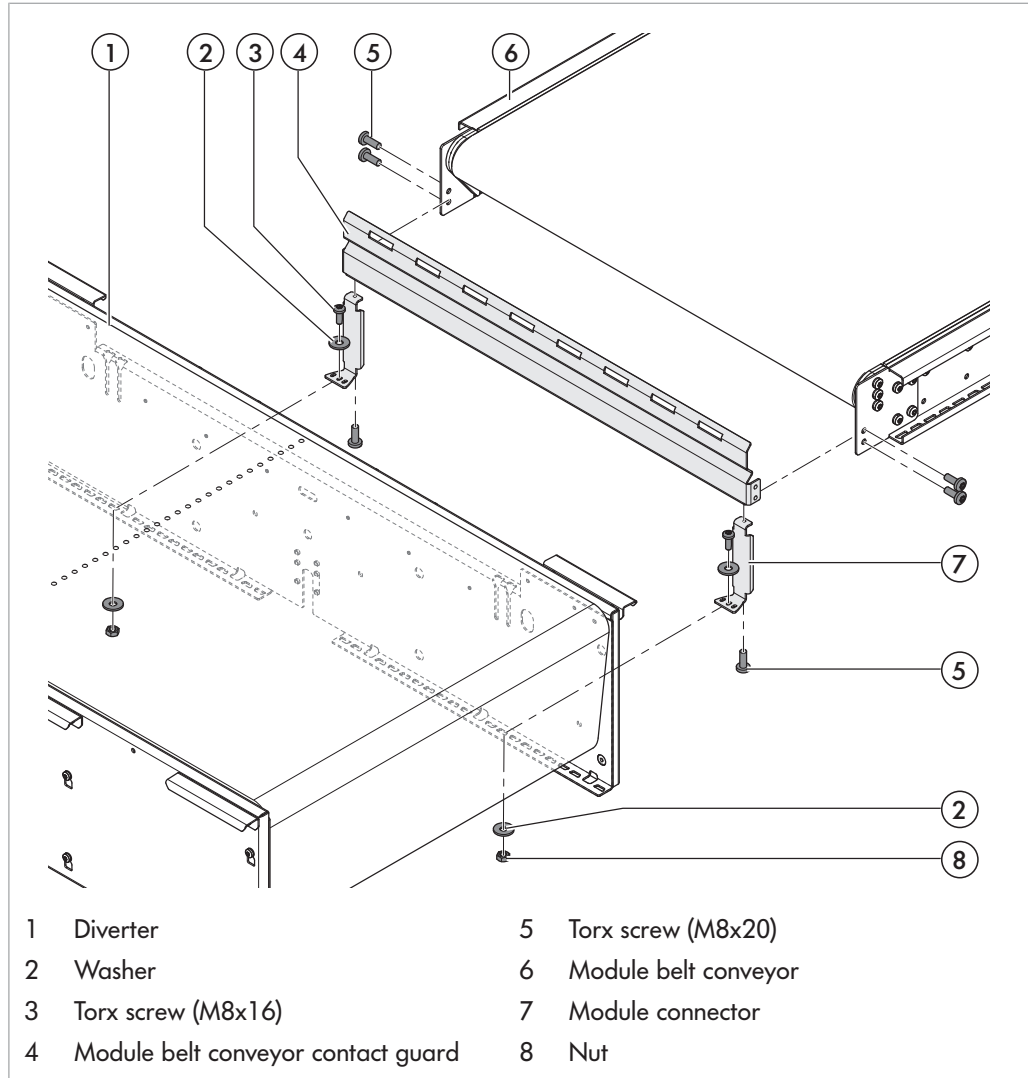
-  The profile connectors are also used for grounding between modules. If no profile connectors are used, alternative measures must be taken for grounding.
-  The modules are aligned based on the top edge of the roller conveyor or module conveyor. Suitable tools for alignment are a spirit level or rotation laser.
-  During setup of the conveyor system, check for passageways for personnel. Install crossings as necessary.
-  Fasten screws with a tightening torque of 19 Nm.

The individual modules of a complete conveyor system are screwed together using connector sets. The following module connectors are available for this module:

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Installation

Straight module belt conveyor (50) - lateral diverter



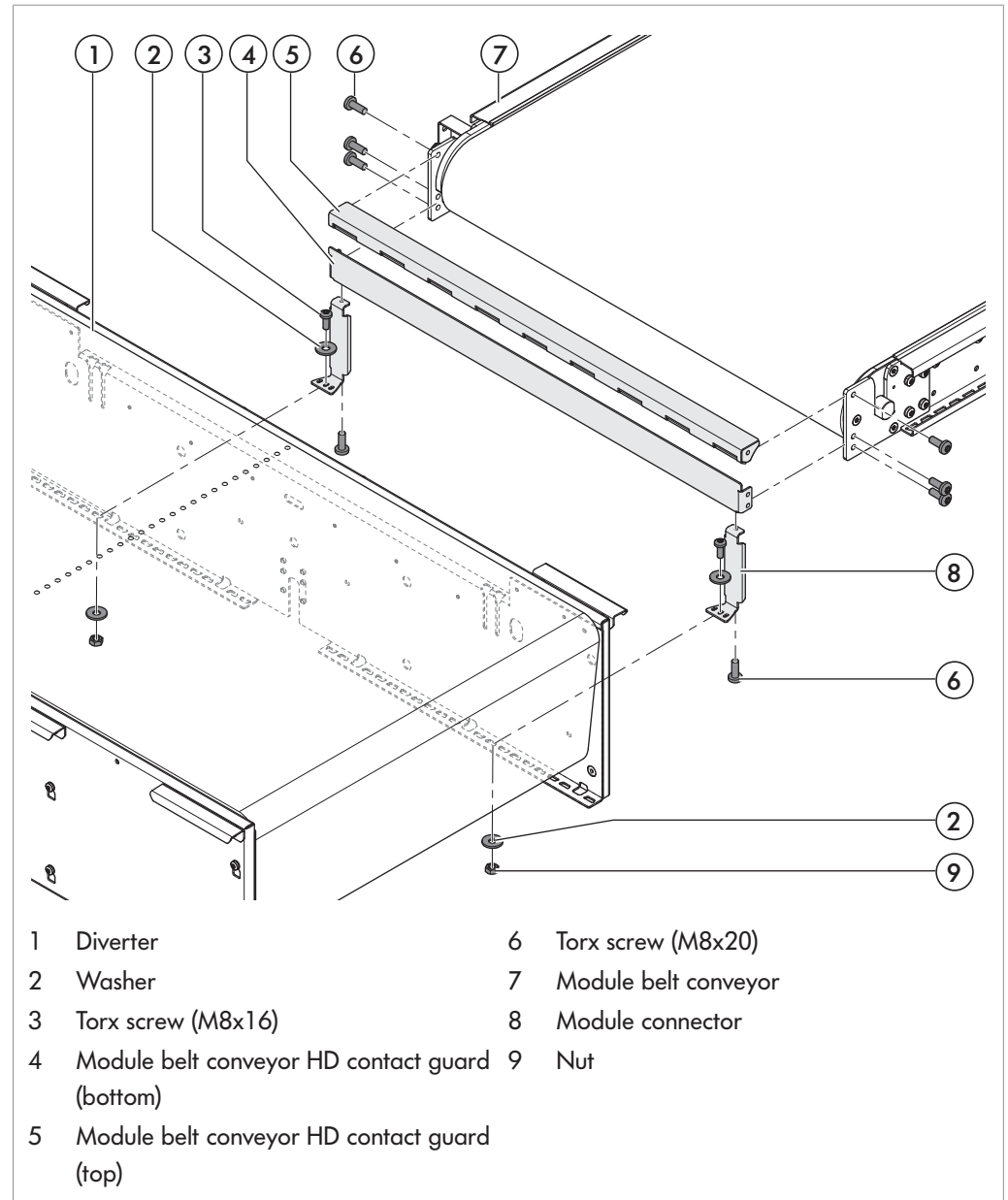
This connection does not allow incline or decline.

- ▶ Position the modules to be connected (1, 6) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Attach contact guard (4) at side profile of module belt conveyor (6) at idler axle and fasten it with screws (5).
- ▶ Fasten module connector (7) on the right and left at the bottom of the side profile of the diverter (1) with screws (3), washers (2) and nuts (8).
- ▶ Fasten contact guard (4) and module connector (7) each with one screw (5) and washer (2) to each other.
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Lateral diverter - straight
module belt conveyor (80)



This connection does not allow incline or decline.



The conveying direction is only allowed from left to right (HD pulling).

- ▶ Position the modules to be connected (1, 7) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.



Interroll Diverter SH 1500

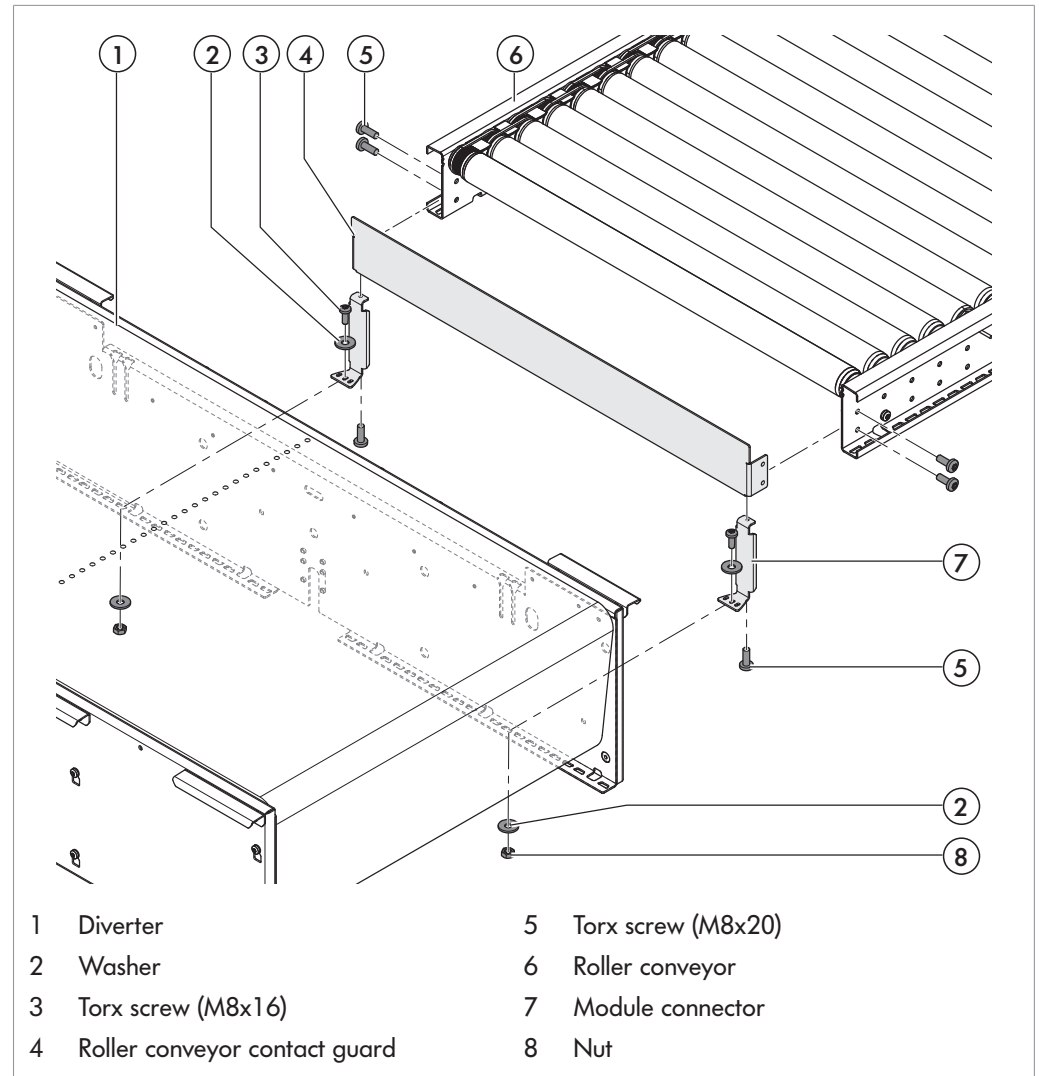
Installation

- ▶ Attach contact guard (4) at the bottom at side profile of module belt conveyor (7) for the drum motor (HD) and fasten it with screws (6).
- ▶ Attach contact guard (5) at the top at side profile of module belt conveyor (7) for the drum motor (HD) and fasten it with screws (6).
- ▶ Fasten module connector (8) on the right and left at the bottom of the side profile of the diverter (1) with screws (3), washers (2) and nuts (9).
- ▶ Fasten contact guard (4) and module connector (8) each with one screw (6) and washer (2) to each other.
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Straight roller conveyor - lateral diverter



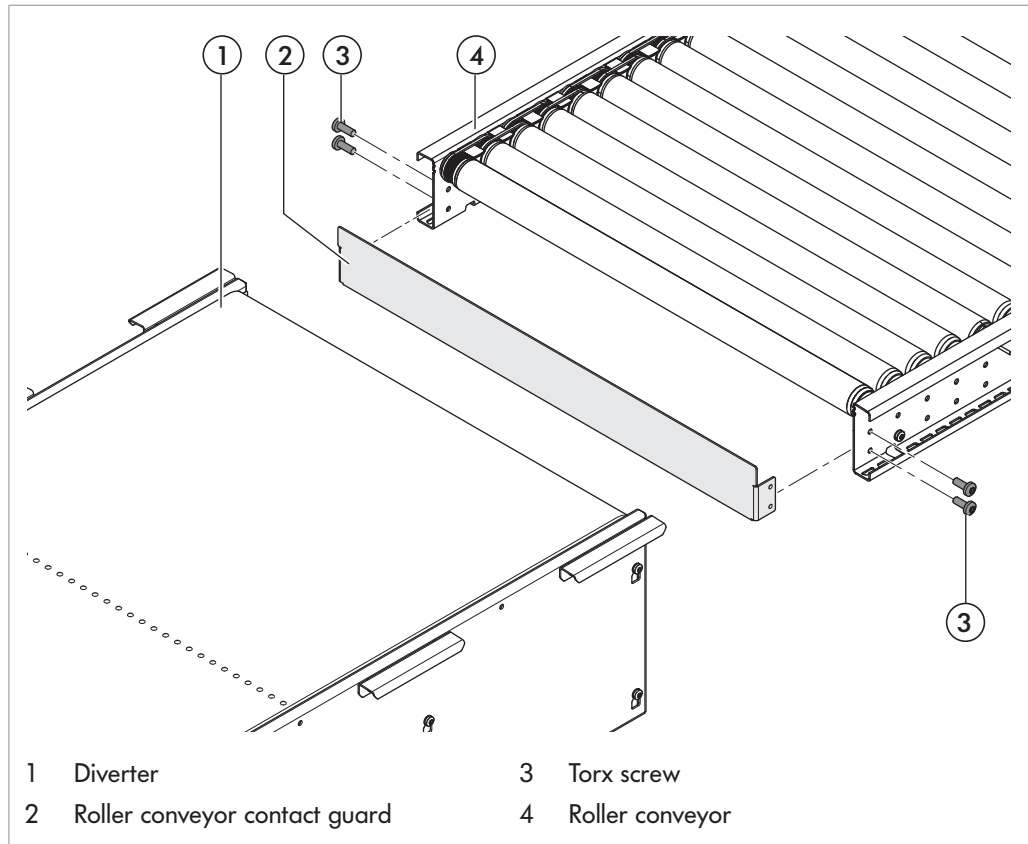
This connection does not allow incline or decline.

- ▶ Position the modules to be connected (1, 6) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Attach contact guard (4) at side profile of roller conveyor (6) and fasten it with screws (5).
- ▶ Fasten module connector (7) on the right and left at the bottom of the side profile of the diverter (1) with screws (3), washers (2) and nuts (8).
- ▶ Fasten contact guard (4) and module connector (7) each with one screw (5) and washer (2) to each other.
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Straight roller conveyor - front diverter



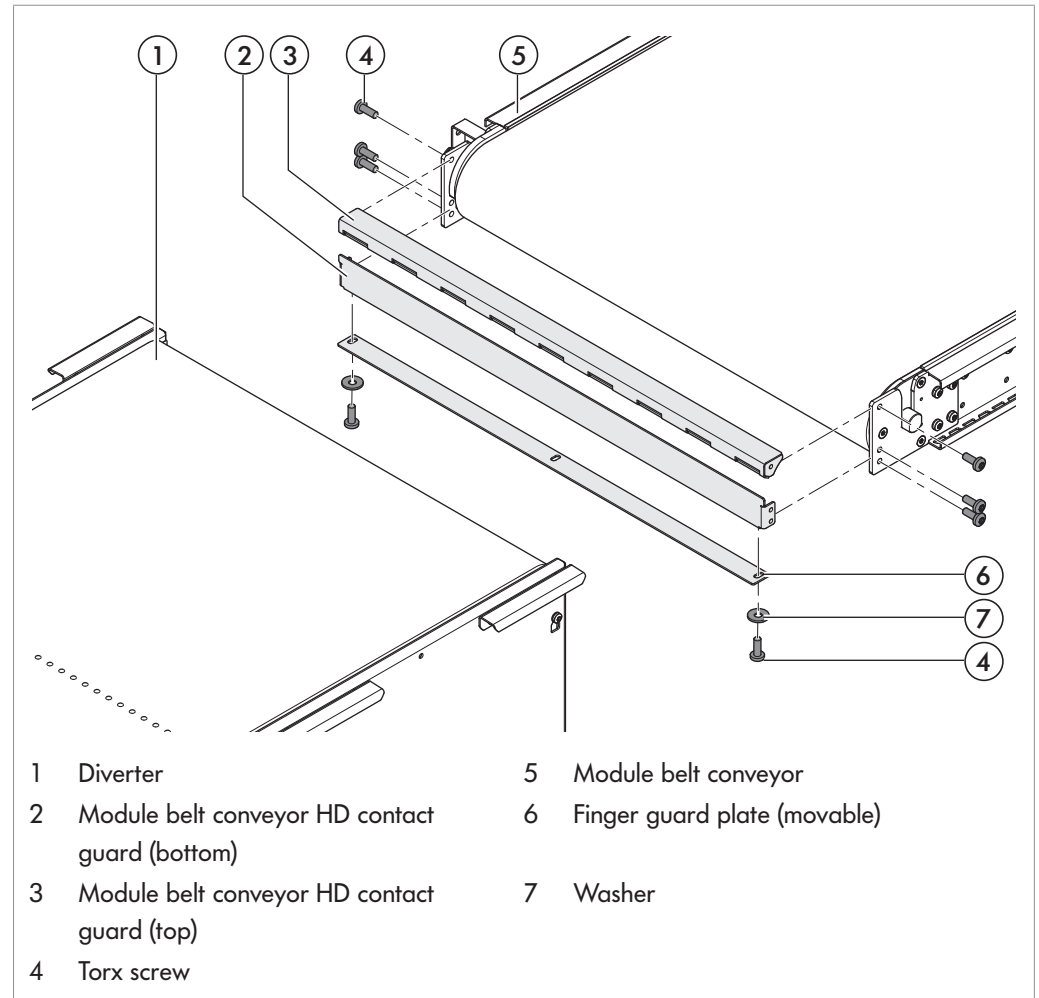
This connection does not allow incline or decline.

- ▶ Position the modules to be connected (1, 4) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Attach contact guard (2) at side profile of roller conveyor (4) and fasten it with screws (3).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Straight module belt conveyor (80) - front diverter



This connection does not allow incline or decline.



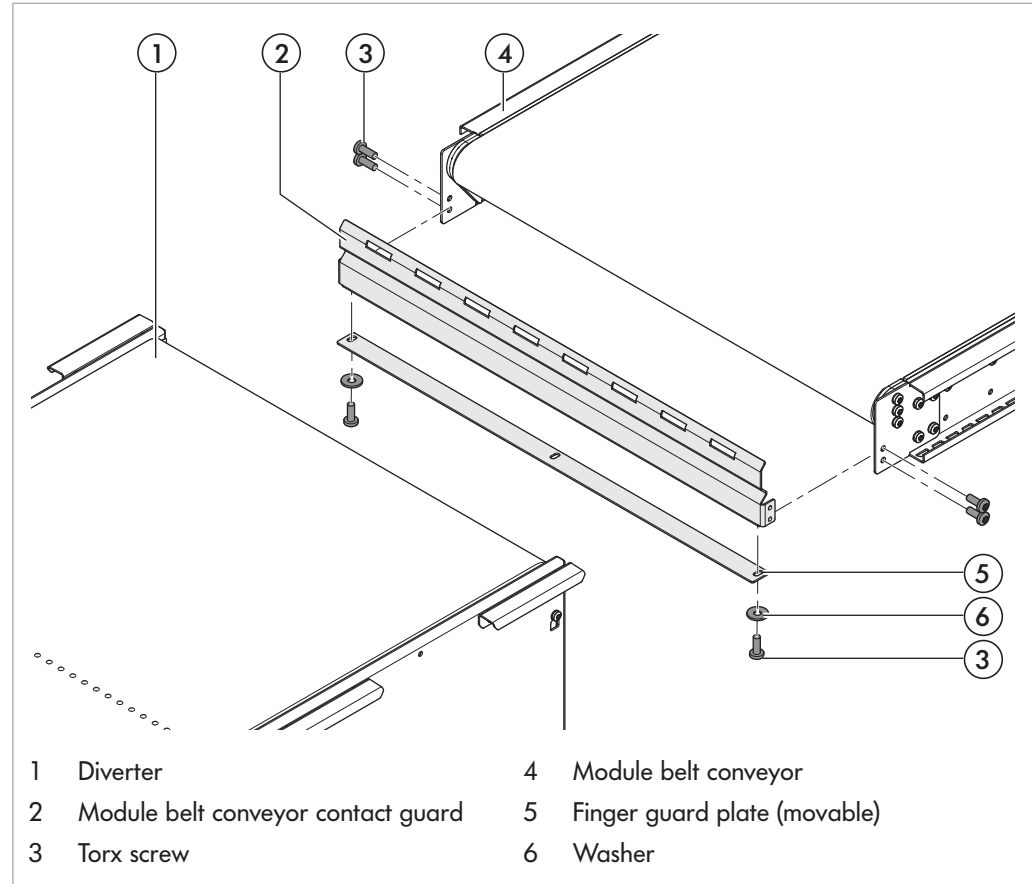
The conveying direction is only allowed from left to right (HD pulling).

- ▶ Position the modules to be connected (1, 5) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Attach contact guard (2) at the bottom at side profile of module belt conveyor (5) for the drum motor (HD) and fasten it with screws (4).
- ▶ Attach contact guard (3) at the top at side profile of module belt conveyor (5) for the drum motor (HD) and fasten it with screws (4).
- ▶ Fasten finger guard plate (6) at contact guard (2) with screws (4) and washers (7).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Front diverter - straight module belt conveyor (50)



This connection does not allow incline or decline.

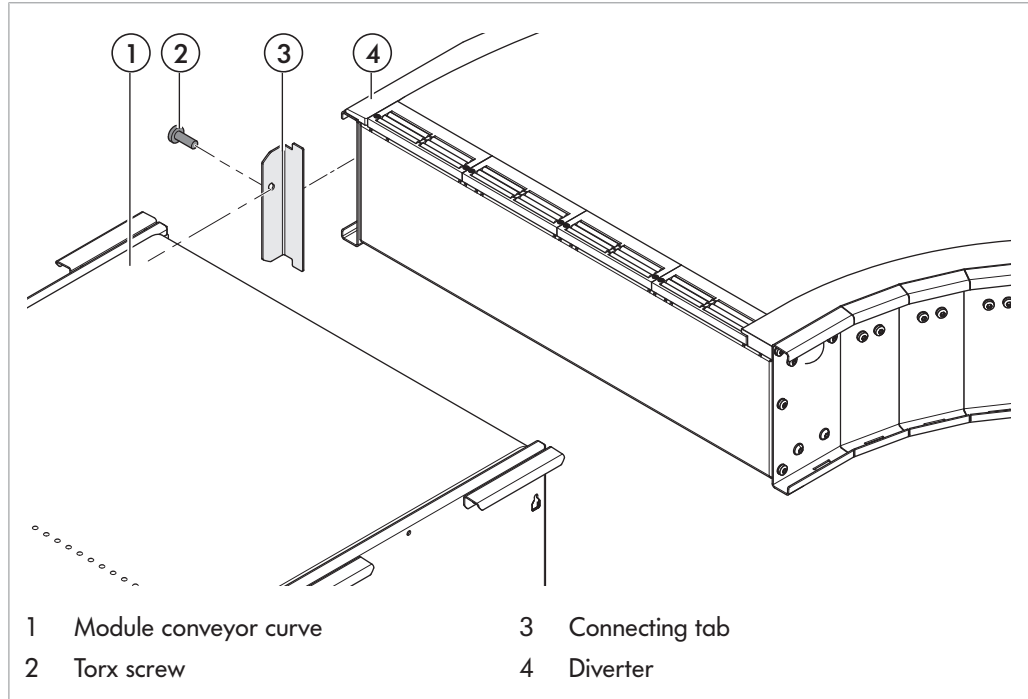
- ▶ Position the modules to be connected (1, 4) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Attach contact guard (2) at side profile of module belt conveyor (4) at the idler axle and fasten it with screws (3).
- ▶ Fasten finger guard plate (5) at contact guard (2) with screws (3) and washers (6).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Module conveyor curve to the right - away from diverter (M)

The connecting tab is used to connect a right module conveyor curve in conveying direction away from the diverter as well as a diverter and a left module conveyor curve in conveying direction towards the diverter.



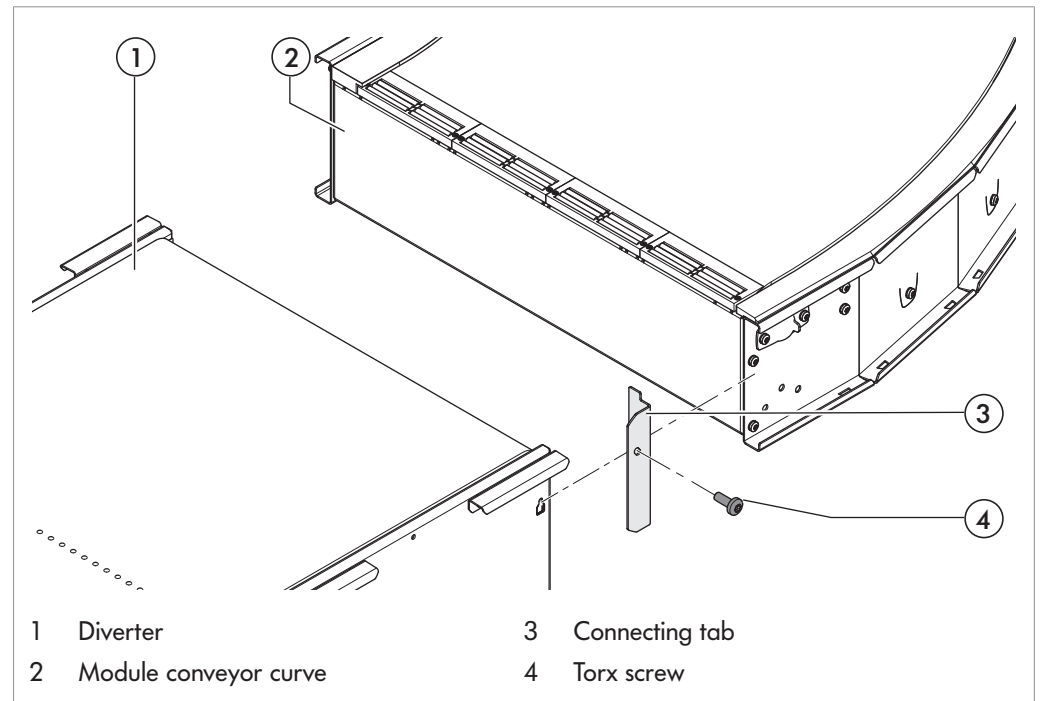
- ▶ Position the modules to be connected (1, 4) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ **NOTICE! Observe conveying and curve direction!** Use the connecting tab (3) to connect the module conveyor curve (4) and the diverter (1) at the outer radius of the side profile using the screw (2).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Module conveyor curve to the left - away from diverter (M)

The connecting tab is used to connect a diverter and a left module conveyor curve in conveying direction away from the diverter as well as a right module conveyor curve in conveying direction towards the diverter.

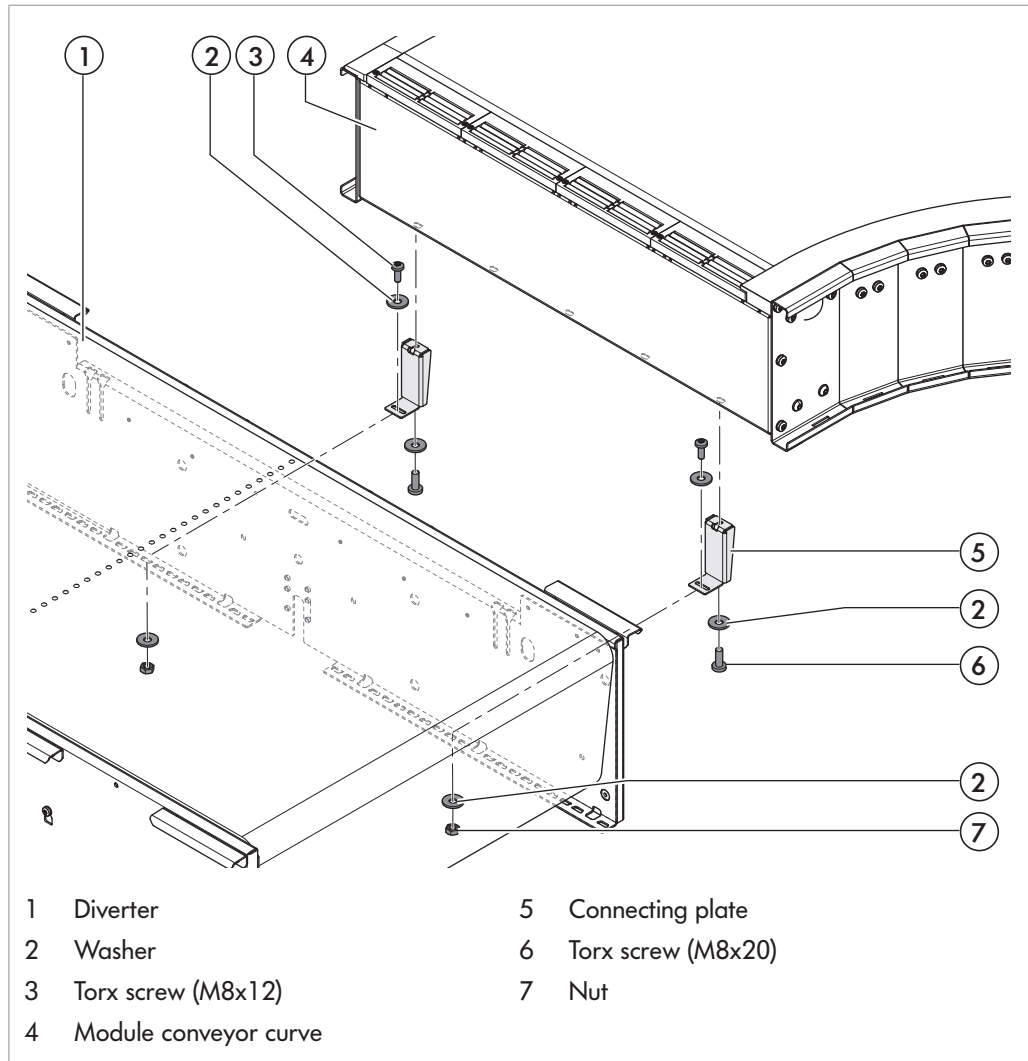


- ▶ Position the modules to be connected (1, 2) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ **NOTICE! Observe conveying and curve direction!** Use the connecting tab (3) to connect the module conveyor curve (2) and the diverter (1) at the outer radius of the side profile using the screw (4).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Module conveyor curve - lateral diverter



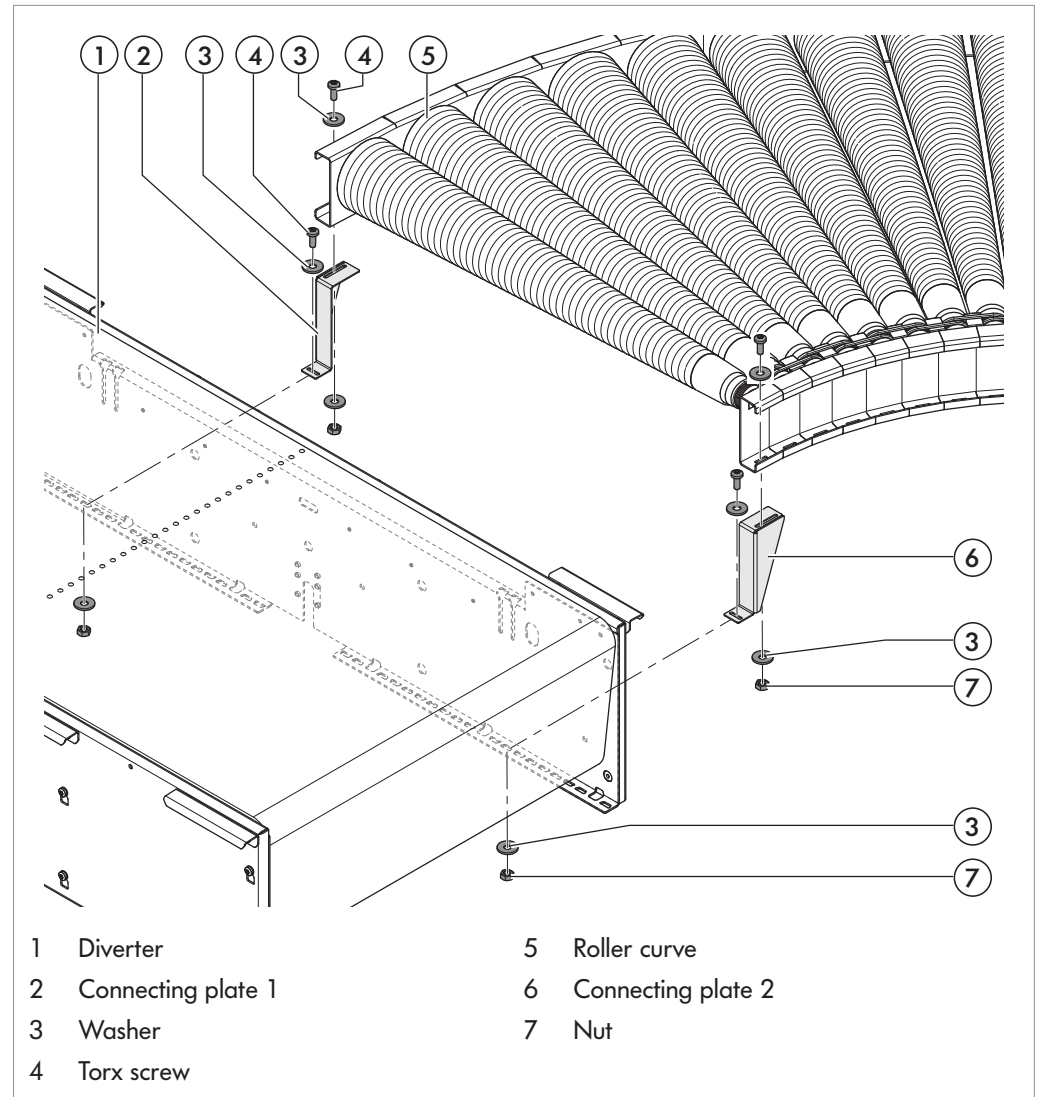
A connection is possible only at the diverter side without cable output.

- ▶ Position the modules to be connected (1, 4) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Use the connecting plate (5) to connect the two modules at the underside of the side profile of the diverter (1) and on the right and left at the end plate of the module conveyor curve (4) with screws (3, 6), washers (2) and nuts (7).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Roller curve - lateral diverter

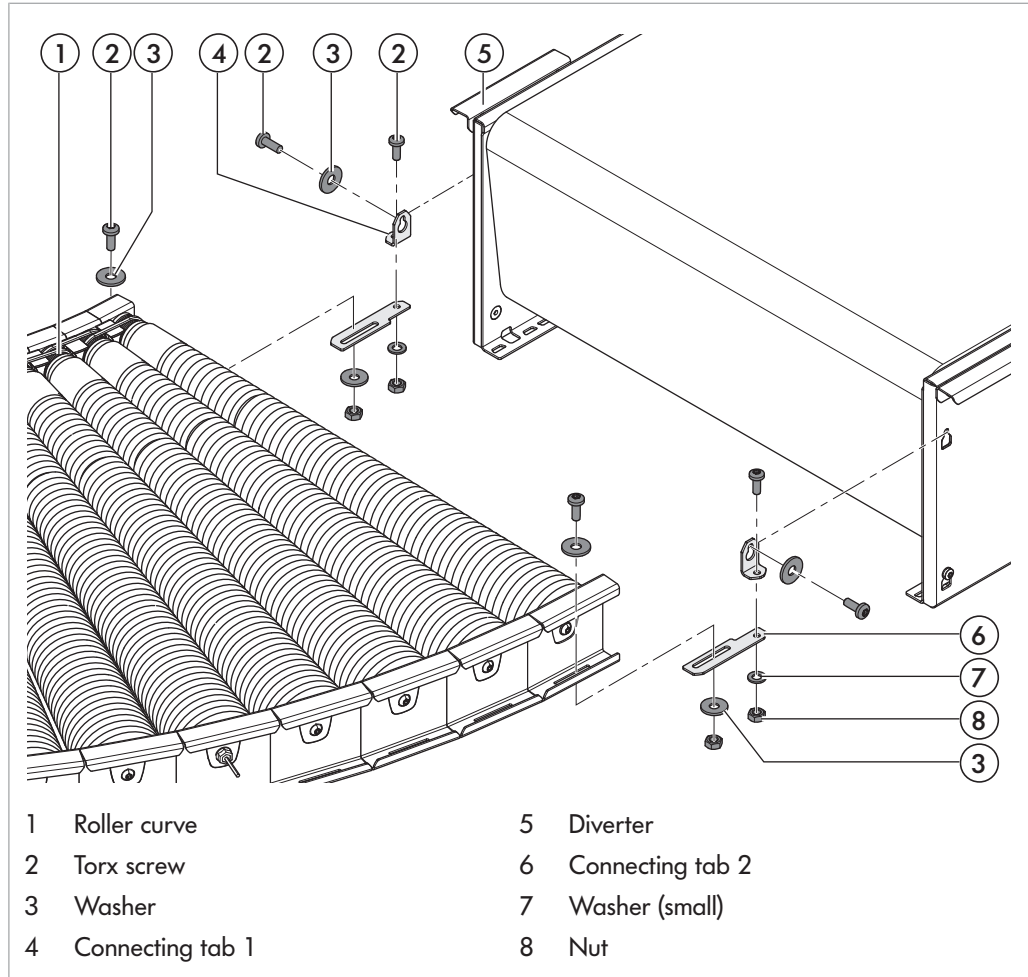


- ▶ Position the modules to be connected (1, 5) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Use the connecting plate 1 (2) to connect the two modules at the underside of the side profile at the diverter (1) and at the outside radius of the roller curve (5) with screws (4), washers (3) and nuts (7).
- ▶ Use the connecting plate 2 (6) to connect the two modules at the underside of the side profile at the diverter (1) and at the inside radius of the roller curve (5) with screws (4), washers (3) and nuts (7).
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Interroll Diverter SH 1500

Installation

Roller curve - front diverter



- ▶ Position the modules to be connected (1, 5) in such a way that the side profiles are aligned.
- ▶ Align the top edges of the modules by using the height-adjustable feet of the supports.
- ▶ Check horizontal alignment with a spirit level or rotation laser.
- ▶ Secure the adjusted height.
- ▶ Fasten connecting tab 1 (4) on the right and left at the side profile of the diverter (5) with screws (2) and washers (3).
- ▶ Fasten connecting tab 2 (6) at the inside and outside radius of the roller curve (1) with screws (2), washers (3) and nuts (8).
- ▶ Fasten connecting tabs (4, 6) with screws (2), small washers (7) and nuts (8) to one another.
- ▶ Fasten the module torsion-free, e.g., by anchoring it to the floor or to adjacent components.

Initial startup and operation

Initial startup

WARNING

Risk of injuries due to incorrect handling

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

The module has been checked at the factory. Module conveyor setting and module conveyor tension are preset at the factory and generally do not have to be changed.

Nevertheless, the following control measure is required:

- ▶ Before initial startup, check the travel direction of the module and correct as necessary
The travel direction is indicated on the module by an arrow. See the chapter "Nameplate".
- ▶ If faults occur during startup, adjust the module conveyor setting. For additional information, see see "*Maintenance and repair*", page 49 ff.

Interroll Diverter SH 1500

Initial startup and operation

Operation

Before every operation start

- ▶ Check the module for visible damage.
- ▶ Ensure that all safety devices operate flawlessly.
- ▶ Ensure that only authorized persons are in the operating area of the module.
- ▶ Ensure that the module is running freely and that no parts are jammed.
- ▶ Remove equipment or material that is not required from the operating area.
- ▶ Specify and monitor correct placement of the conveying good.

During operation

WARNING

Danger from rotating parts

Crushing and serious injuries due to parts of the body and clothing being pulled into the module!



- ▶ Do not remove the protective covers.
- ▶ Wear personal protective equipment.
- ▶ Avoid jewelry and bracelets.

CAUTION

Danger from shearing between product and universal support of side guide

- ▶ Do not reach in from the side.
- ▶ Take additional protective measures.



- ▶ If material is jammed between side guides, switch off the module and ensure that it cannot be started accidentally, then remove the fault.

Procedure in case of accident or fault

- ▶ Press the Emergency Stop pushbutton, power it down and ensure that it cannot be switched on accidentally.
- ▶ In case of an accident: Provide first aid and make an emergency call, if necessary.
- ▶ Inform qualified personnel.
- ▶ Have the fault corrected by qualified personnel.
- ▶ Restart the module only after this has been approved by qualified personnel.

Interroll Diverter SH 1500

Cleaning

CAUTION

Risk of injury due to improper handling or accidental motor starts

- ▶ Maintenance work and cleaning must only be performed by qualified and authorized persons.
 - ▶ Perform maintenance work only after switching off the power. Ensure that the conveyor cannot be switched on accidentally.
 - ▶ Set up signs indicating that maintenance work is in progress.
-

CAUTION

Risk of infections due to non-observance of hygiene regulations for the food industry!

When conveying damaged products, dangerous bacteria can be deposited at the conveyor. They could lead to health risks for the end consumer.

- ▶ Observe all legal regulations and hygiene regulations for food safety.
 - ▶ Use solely food-safe lubricants as well as cleaning and disinfecting agents.
 - ▶ Observe the cleaning intervals.
-

CAUTION

Risk of injury from slipping on the floor!

Slipping on a wet floor can lead to a fall. The fall can cause injuries.

- ▶ Immediately pick up leaking and spilled fluids using suitable means.
-



The conveyor platform is generally designed for protection rate IP55.

IP identifier	Definition
5 - dust protection	Dust is not completely prevented from entering, but dust may not enter at a magnitude that would impair the function of the module.
5 - Protected against water jets	A water jet from a nozzle (6.3 mm (0.25 in)), that is directed at the module from all directions, may not have any damaging effect. Test duration: 1 m ² /min for at least 3 minutes Water volume: 12.5 l/min Pressure: 30 kPa (4.4 psi or 0.3 bar) at a distance of 3 m (9.8 ft)

Interroll Diverter SH 1500

Cleaning

The module is designed specifically for use in the food sector that does not require daily intensive cleaning, such as the area behind packaging equipment where the food is protected by packaging. Should food packaging leak, the conveyor can still be cleaned dry or with soft water. For this purpose, use low-pressure water, e.g., with a water hose with water pressure, or by splashing water over the conveyor, e.g., using a bucket.

Preparation for cleaning by hand

- ▶ Switch off the power supply to the conveyor.
- ▶ Switch off the main switch to de-energize all the drives.
- ▶ Open terminal box or distribution box and disconnect cables if there is no switch. Ensure that live components or cables are electrically insulated to prevent electrocution.
- ▶ Attach a sign to the control cabinet that maintenance work is in progress.
- ▶ Remove foreign materials from all accessible surfaces.
- ▶ Do not use sharp-edged tools to clean the module.
- ▶ Do not use a high-pressure cleaner for cleaning, particularly not for the roller conveyors.

Manual cleaning



The conveyor platform is not designed for cleaning with alkaline or acidic cleaning agents. In particular, rollers and drive rollers should not be cleaned with cleaning agents, only dry or with water.

NOTICE

Seal not tight due to excessive pressure

- ▶ Do not direct the nozzle directly on the seals during cleaning.
- ▶ Observe a maximum water pressure of 8 bar (116 psi).
- ▶ Move the nozzle continuously and evenly over the entire module.
- ▶ Ensure that the distance between the nozzle of the water hose and the conveyor is at least 100 cm.

NOTICE

Risk of damage to the conveyor due to improper cleaning

- ▶ Never use an acidic cleaner together with a chlorinated cleaner since the resulting dangerous chlorine gases can damage stainless steel and elastomers.
 - ▶ Avoid temperatures over 35 °C so that no proteins can be deposited on the surface.
 - ▶ Remove greases at lower temperatures and with suitable cleaners.
 - ▶ Avoid water pressures over 8 bar so that no aerosols are created and to prevent damages.
 - ▶ Maintain a distance of 100 cm between the nozzle and the surface to be cleaned.
 - ▶ Do not direct the nozzle directly on the seals during cleaning, particularly not in the area of the drum motor axle or drive rollers.
-

Interroll Diverter SH 1500

Cleaning

- ▶ Wipe off larger, loose contamination.
- ▶ Pre-clean with water (8 bar, 35 °C).
- ▶ Direct the nozzle down onto the surfaces at an angle of 45°.
- ▶ For a more thorough cleaning, clean seals, grooves and other recesses with a soft brush.
- ▶ In case of heavy contamination, use a soft brush and/or a plastic scraper together with spraying water.
- ▶ Spray off with water (8 bar, 35 °C).
- ▶ After cleaning, check surfaces, grooves and other recesses for residues.
- ▶ Wipe the floor dry.
- ▶ Observe the corresponding certificates at www.interroll.com.



Interroll Diverter SH 1500

Cleaning

Resistance

The conveyor platform consists of various parts. Some parts are more resistant to cleaning agents than others. Drum motors and plastic modular belts can be cleaned, e.g. with certain cleaning agents.

Chemical resistance of the plastic modular belts Polyoxymethylene (POM), polypropylene (PP) and polyamide (PA):

- Acidic acid, aqueous solution 5 %
- Calcium chloride, aqueous solution 10 %
- Dimethylformamide
- Dioctylphthalate
- Ethyl ether
- Isopropanol
- Soap solution, aqueous solution
- Sodium carbonate, aqueous solution 10 %
- Sodium chloride, aqueous solution 10 %
- Sodium nitrate, aqueous solution 10 %
- Sodium thiosulphate, aqueous solution 10 %
- Water, cold

The resistance of the polymers is affected by temperature, exposure to force, UV exposure, and the duration of exposure and concentration of the medium.

A thorough suitability test of the polymer to be used by the user is indispensable.

Maintenance and repair

Observe the following for maintenance and repair



⚠ DANGER

Danger to life from electrical voltage!

- ▶ Switch off the power supply system, ensure that it cannot be switched on accidentally and check that there is no voltage.
-

⚠ 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 should be performed only 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 type plate), if necessary, work in pairs.
 - ▶ Use suitable loading and lifting equipment. Secure the module against falling or tipping.
-

⚠ CAUTION

Risk of injury due to improper handling or accidental motor starts

- ▶ Maintenance work and cleaning must only be performed by qualified and authorized persons.
 - ▶ Perform maintenance work only after switching off the power. Ensure that the conveyor cannot be switched on accidentally.
 - ▶ Set up signs indicating that maintenance work is in progress.
-



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





Torx screws and nuts used in elongated holes must have a washer so that they can be loosened again if necessary (e.g., for disassembly).

- ▶ Work on electrical equipment must only be performed by authorized electricians.
- ▶ Set up warning signs that indicate maintenance and repair work.
- ▶ Block off the area around the module.
- ▶ Inform persons who must enter the blocked-off area about the risks.

Interroll Diverter SH 1500

Maintenance and repair

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

Component	Interval	Task / check	Work to be performed	Performed by
Complete module	Daily	Check for soiling.	Clean and disinfect	
Complete module	Weekly	Perform an acoustic check.	Initiate further measures depending on the component	
Control/ball belt	Weekly	Check belt-carrying side for cleanliness.	Clean dry as required	
Control/ball belt	Every 6 months	Check running behavior and tension.	Adjust as required	
		Check for damage.	Replace as required	
Drive roller/idler pulley	Every 6 months	Check for damage.	Replace as required	
		Check for unusual noise and ease of movement.	Replace as required	
Drive roller/idler pulley/ return roller/tension roller	Every 6 months	Check for soiling.	Clean with commercially available cleaners as necessary	
Drum motor	Every 6 months	Check temperature*.	Replace as required	
		Check for noise.	Replace as required	
		Check for true running.	Replace as required	
		Check drive for oil leaks (visual inspection).	Replace as required	
Complete module	Annually	Check screw connections.	Tighten to standard as required	

* For permissible temperatures: see the motor's operating instructions

Interroll Diverter SH 1500

Maintenance and repair

Preparatory and follow-up maintenance work



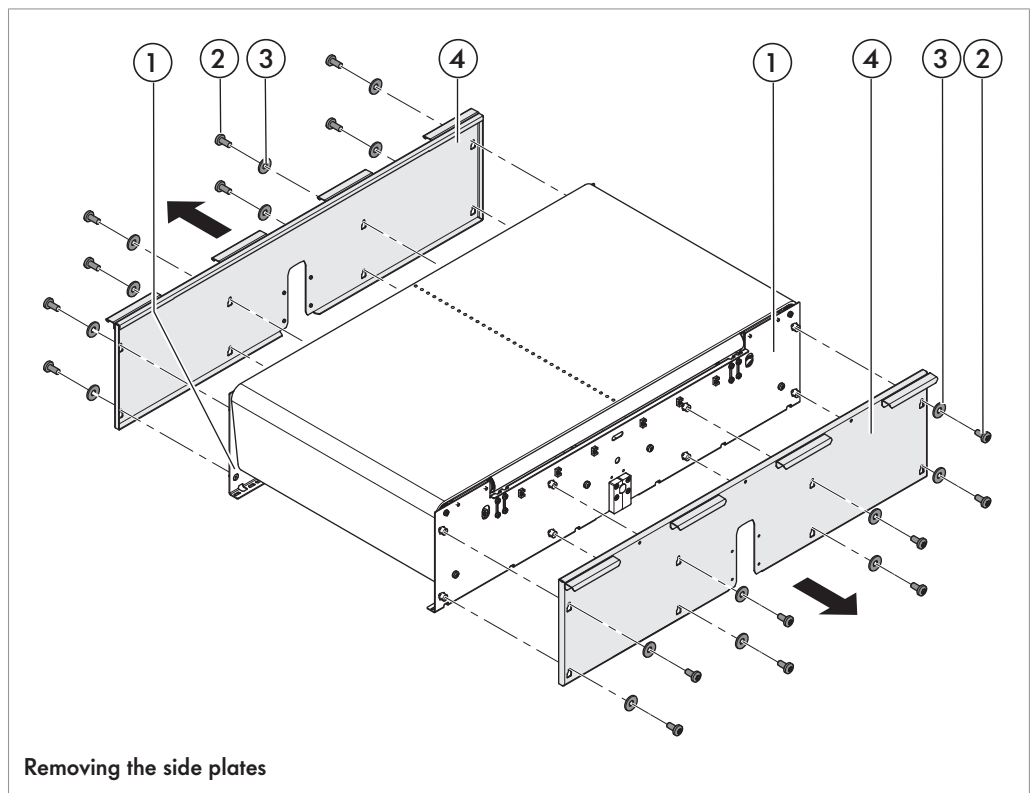
⚠ DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

Removing/installing the side plates



- | | | | |
|---|------------|---|------------|
| 1 | Side frame | 3 | Torx screw |
| 2 | Washer | 4 | Side plate |

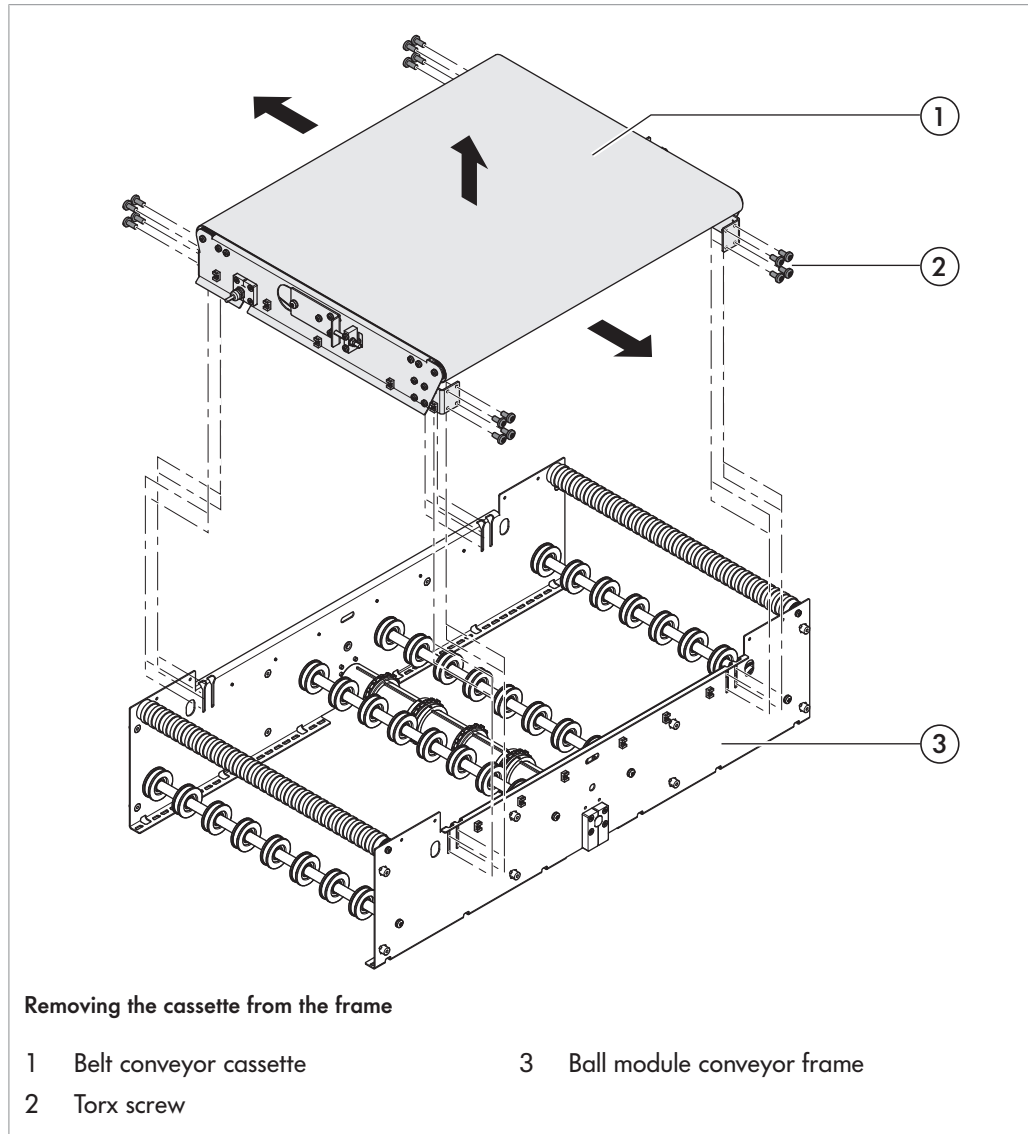
Requirement:

- The module is shut down.
- ▶ Remove screws (2) and washers (3) on the right and left from the side plate (4) and take the side plate off the side frame.
- ▶ After the maintenance work: Fasten side plates (4) on the right and left with screws (2) and washers (3) at the side frames (1).

Interroll Diverter SH 1500

Maintenance and repair

Replacing the belt conveyor



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

Interroll Diverter SH 1500

Maintenance and repair

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 lifting equipment.
-

Requirement:

- The module is shut down.
 - ▶ Remove the ball module conveyor, see *"Replacing the ball module conveyor"*, page 56.
 - ▶ Remove the side covers, see *"Removing/installing the side plates"*, page 51.
 - ▶ Loosen screws (2) at every corner of the belt conveyor (1) from the side frames of the frame from the ball module conveyor and lift the belt conveyor out of the frame.
 - ▶ Properly dispose of the old guide plate.
 - ▶ Insert new belt conveyor cassette and fasten with screws (2) at every corner.
 - ▶ Reattach side covers and ball module conveyor in reverse order.

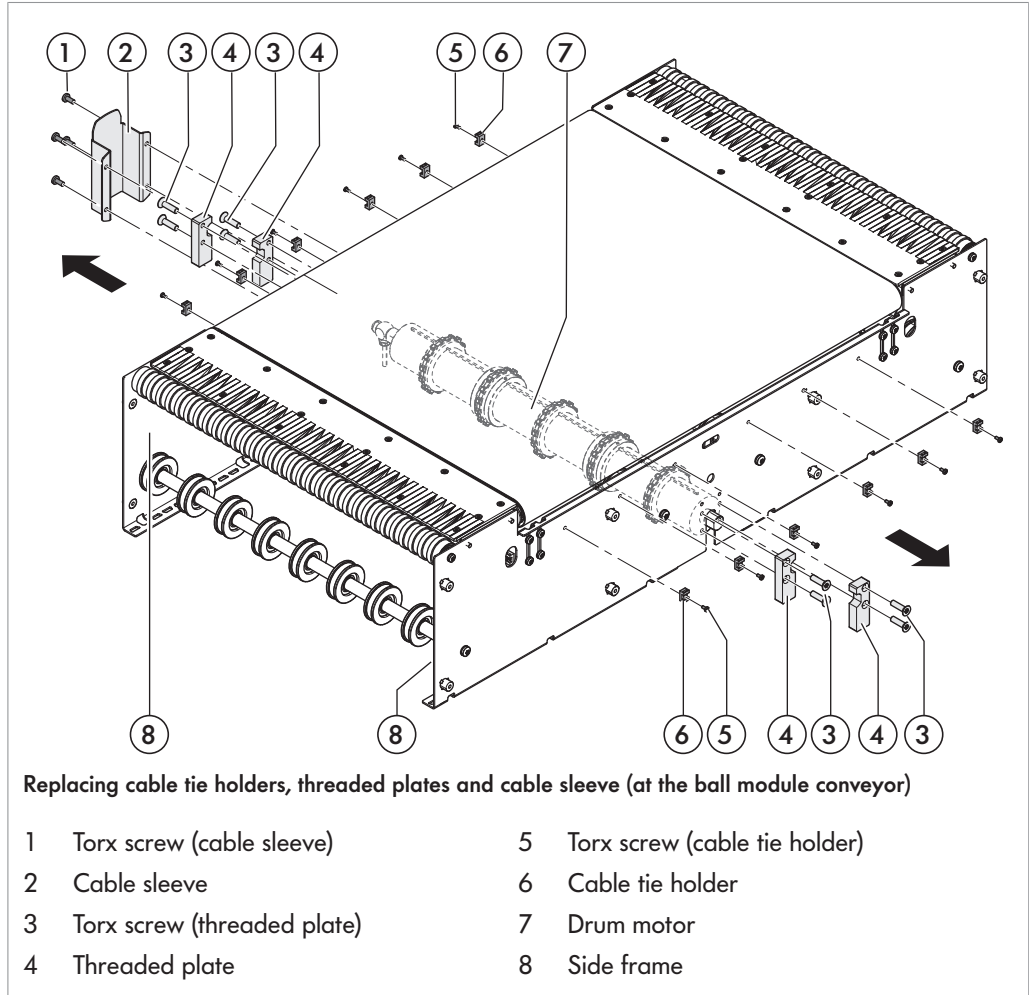
Interroll Diverter SH 1500

Maintenance and repair

Replace drum motor fastening



The instructions apply to the replacement of the fasteners for the cables of the drum motor for the webbing drive as well as the ball module conveyor drive.



DANGER



Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

Interroll Diverter SH 1500

Maintenance and repair

Requirement:

- ☑ The module is shut down.
 - ▶ Disconnect the drum motor (7) from the power supply (detach it).
 - ▶ Remove the side covers, see *"Removing/installing the side plates"*, page 51.
 - ▶ Remove screws (5) from cable tie holders (6) at the side frames (8) and attach new cable tie holders (6) at the side frames (8).
 - ▶ Properly dispose of the old cable tie holders.
 - ▶ Attach new cable tie holders (6) at the side frames (8).
 - ▶ Remove screws (1) from cable sleeves (3) and detach cable sleeve from the side frame (8).
 - ▶ Remove screws (3) on the right and left from the side frames (8) of the module from the two threaded plates (4) in each case and remove them.
 - ▶ Properly dispose of the old cable sleeve and threaded plates.
 - ▶ Attach new threaded plates (4) as holders on both sides of the drum motor (7) and fasten with screws (3).
 - ▶ Fasten new cable sleeve (2) with screws (1) on the cable side of the drive drum.
 - ▶ Reattach the side covers.
 - ▶ Connect the drum motor to the power supply (clamp it).

Interroll Diverter SH 1500

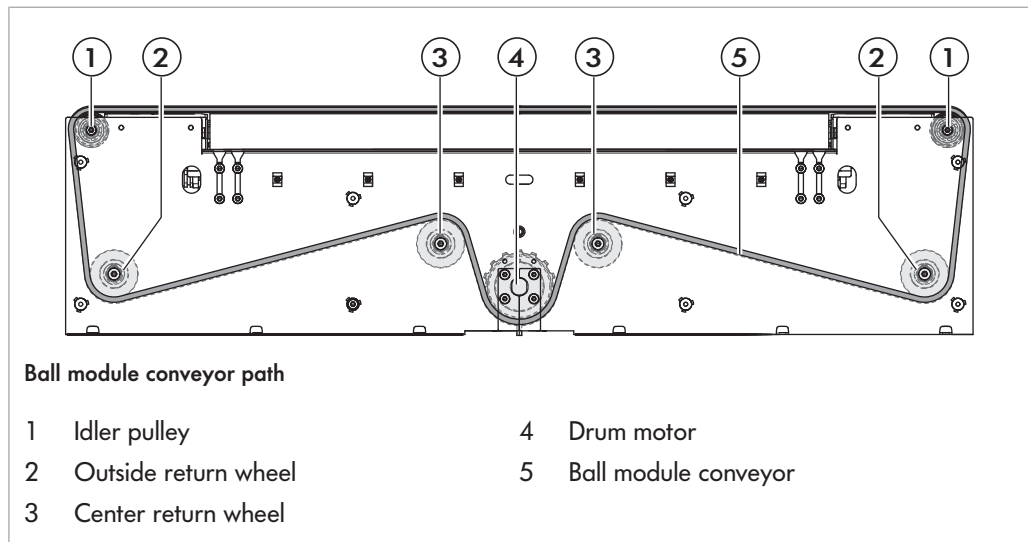
Maintenance and repair

Maintenance tasks on the ball module conveyor

The ball module conveyor may require the following maintenance tasks to be performed or parts to be replaced:

- Replace the ball module conveyor, see "Replacing the ball module conveyor", page 56
- Replace the drum motor, see "Replacing the drum motor", page 57
- Replace the sprockets, see "Replace the sprockets", page 59
- Replace return wheel (outside), see "Replacing the return wheel (outside)", page 60
- Replace return wheel (center), see "Replacing the return wheel (center)", page 61
- Replace the idler pulley, see "Replacing the idler pulley", page 62
- Replace the guide plate, see "Replacing the guide plate", page 63

Replacing the ball module conveyor



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

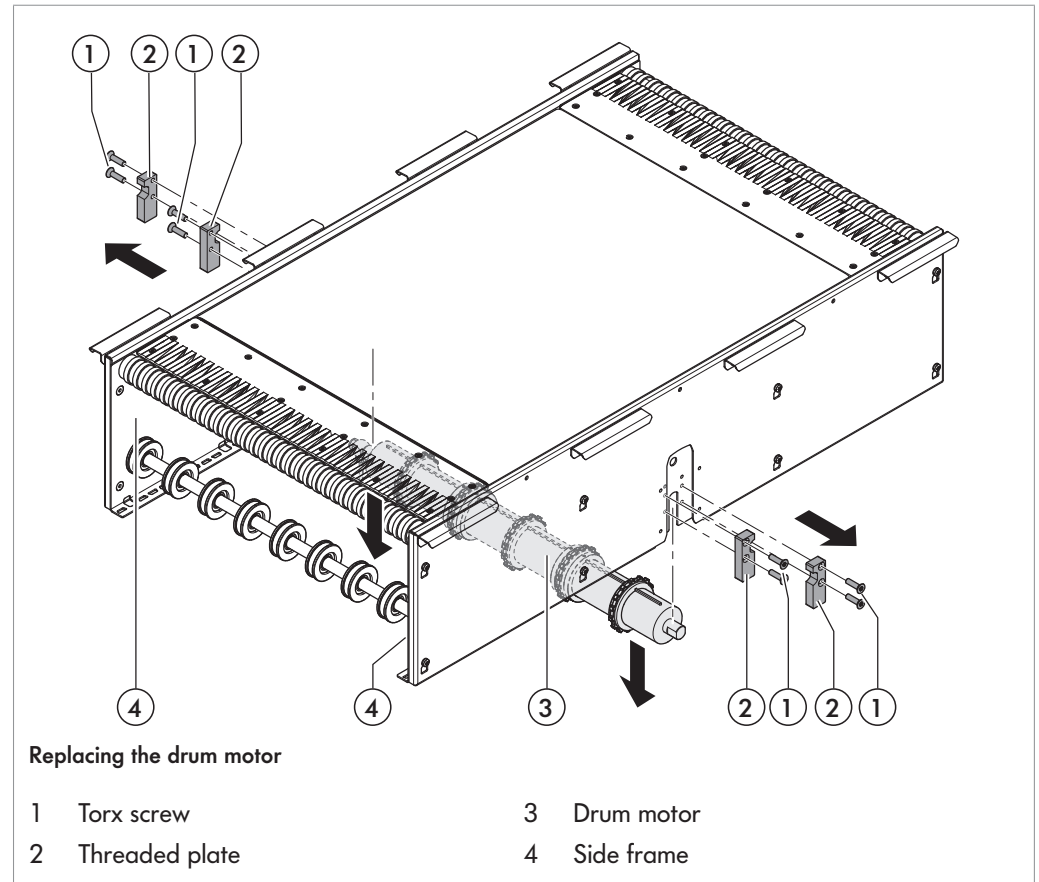
Requirement:

- The module is shut down.
- ▶ Drive the connecting rod out of the module conveyor (5) with a hammer and mandrel.
- ▶ Thread out the old module conveyor mat and properly dispose of it.
- ▶ Guide the new module conveyor (5) around the idler pulleys (1) and return wheels (outside) (2) and thread it in above the center return wheels (3) and around the drive drum (4).
- ▶ Combine the module conveyor without sagging and drive in the connection rod using a hammer and mandrel.

Interroll Diverter SH 1500

Maintenance and repair

Replacing the drum motor



⚠ DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

⚠ CAUTION

Risk of injury when lifting heavy loads

- ▶ Use a tool or a second person for steps directly involving the motor.

Requirement:

- The module is shut down.
 - ▶ Disconnect the drum motor from the power supply (detach it).
 - ▶ Remove the ball module conveyor, see "Replacing the ball module conveyor", page 56.



Interroll Diverter SH 1500

Maintenance and repair

- ▶ Remove screws (1) on the right and left from the side frames (4) of the module from the two threaded plates (2) in each case and remove them, pull the drum motor (3) downward out of the side frames.
- ▶ Guide the new drum motor (3) from below into the opening of the side frames (4). Reattach the threaded plates (2) on both sides of the drum motor (3) and fasten them with screws (1).
- ▶ Reattach the ball module conveyor.
- ▶ Connect the drum motor to the power supply (clamp it).

Interroll Diverter SH 1500

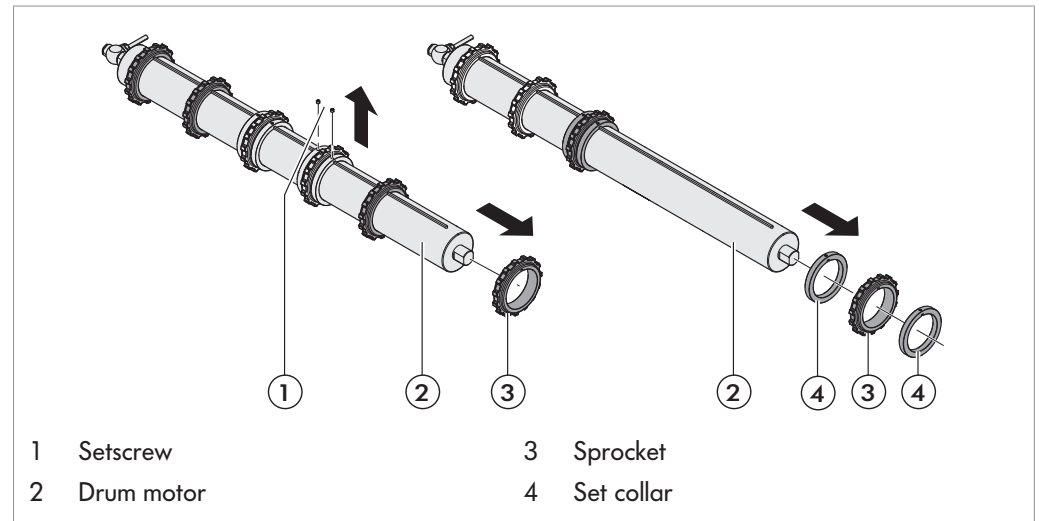
Maintenance and repair

Replace the sprockets

To replace the sprockets, it is first necessary to remove the drum motor.



When replacing the sprockets, the set collars must also be replaced.



⚠ CAUTION

Risk of injury when lifting heavy loads

- ▶ Use a tool or a second person for steps directly involving the motor.



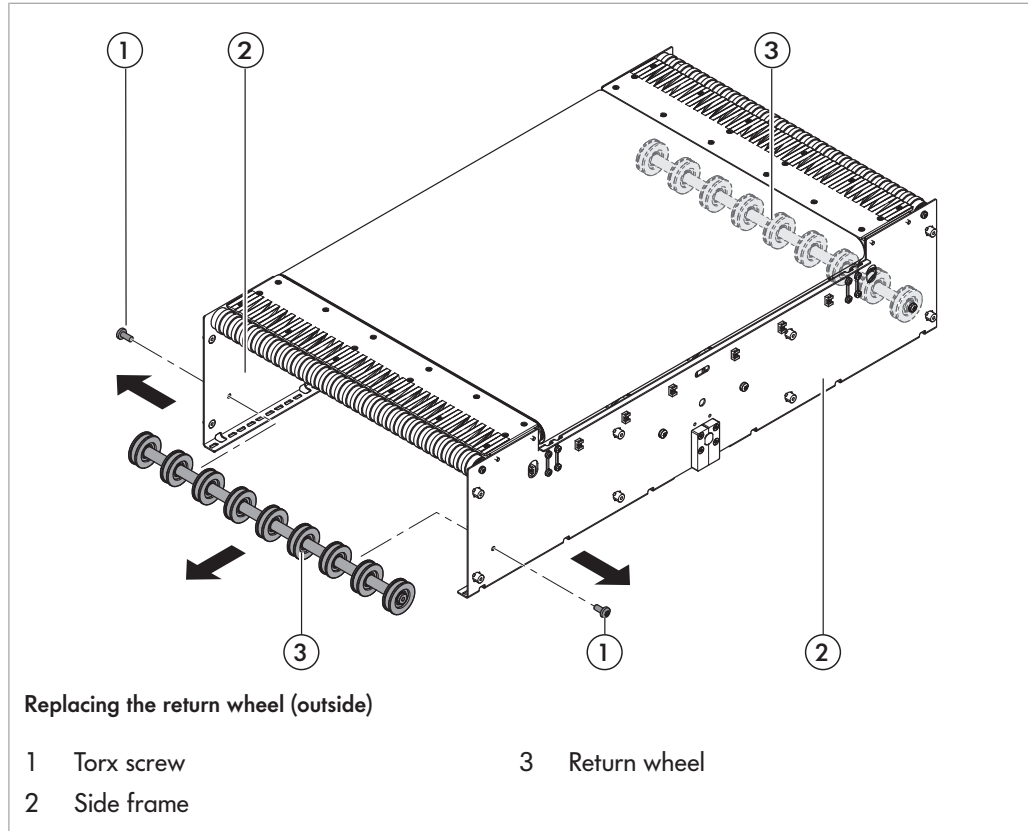
Fasten screws with a tightening torque of 3.5 Nm.

Requirement:

- The module is shut down.
 - ▶ Remove the ball module conveyor, see "Replacing the ball module conveyor", page 56.
 - ▶ Remove the drum motor, see "Replacing the drum motor", page 57.
 - ▶ Pull the sprockets (3) off the drum motor (2) by and by.
 - ▶ Loosen setscrews (1) from the set collars (4) to be able to replace the two middle sprockets (3).
 - ▶ Pull set collars (4) off the drum motor (2).
 - ▶ Properly dispose of the old sprockets and set collars.
 - ▶ Push new set collars (4) onto the drum motor (2) to position the two middle sprockets (3), fasten set collars (4) with setscrews (1).
 - ▶ Push new sprockets (3) onto the drum motor (2) by and by.
 - ▶ Reinstall drum motor and ball module conveyor in reverse order.

Maintenance and repair

Replacing the return wheel (outside)



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.

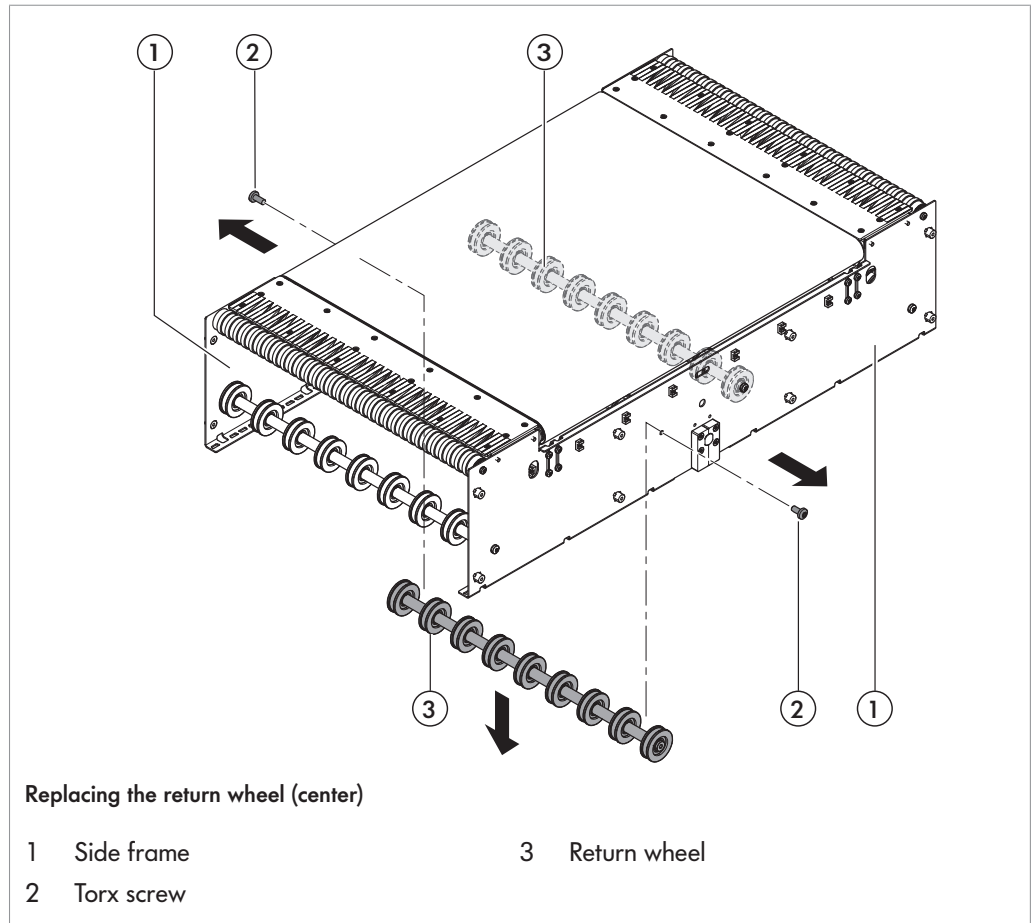
Requirement:

- The module is shut down.
- ▶ Remove the ball module conveyor, see *"Replacing the ball module conveyor"*, page 56.
- ▶ Remove the side covers, see *"Removing/installing the side plates"*, page 51.
- ▶ Take the return wheel at the front and rear out of the side frames: Unscrew screws (1) on the right and left in the side frames (2) and remove the return wheel (3) to the side.
- ▶ Properly dispose of the old return wheel.
- ▶ Place new return wheel (3) between the side frames (2) and fasten with screw (1) on the right and left at the side frames (2) from the outside.
- ▶ Reattach side covers and ball module conveyor in reverse order.

Interroll Diverter SH 1500

Maintenance and repair

Replacing the return wheel (center)



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.



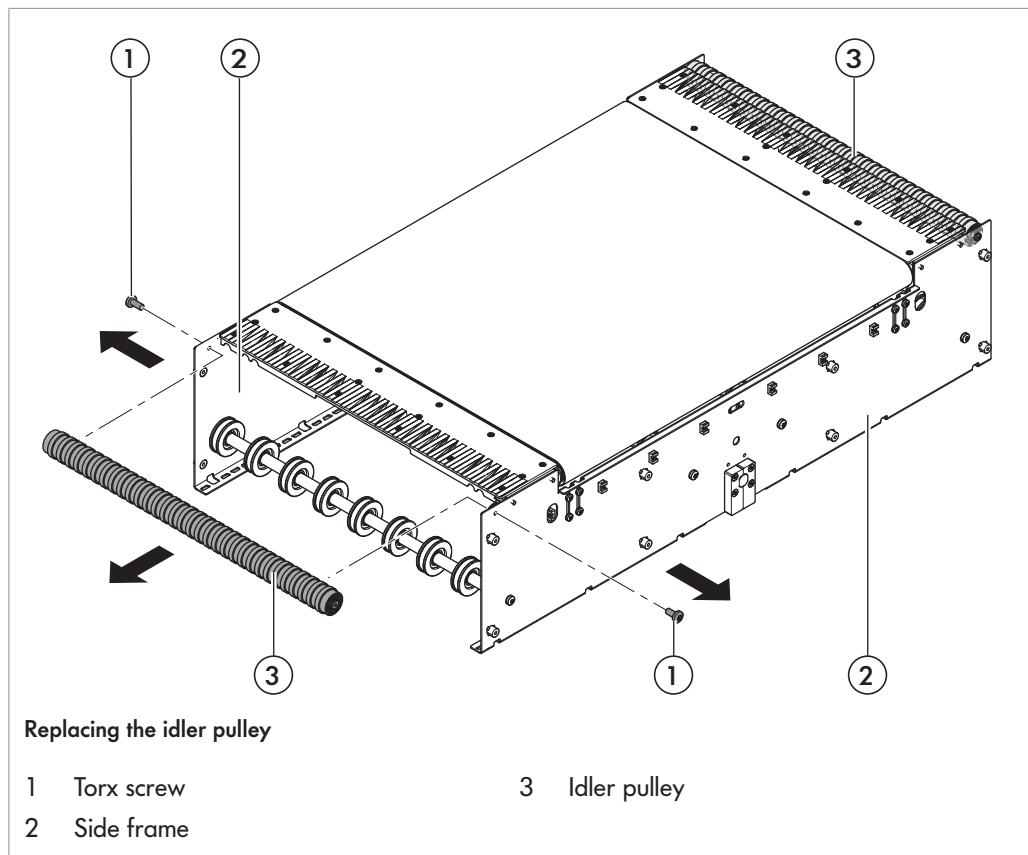
Interroll Diverter SH 1500

Maintenance and repair

Requirement:

- ☑ The module is shut down.
- ▶ Replacing the ball module conveyor, see "*Kugelmodulband ersetzen*", page 56.
- ▶ Remove the side covers, see "*Removing/installing the side plates*", page 51.
- ▶ Unscrew screws (2) on the right and left in the side frames (1) and remove the old return wheel (3) to the bottom.
- ▶ Properly dispose of the old return wheel.
- ▶ Push new return wheel (3) between the side frames (1) and fasten with screw (2) on the right and left at the side frames (1) from the outside.
- ▶ Reattach side covers and ball module conveyor in reverse order.

Replacing the idler pulley



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.



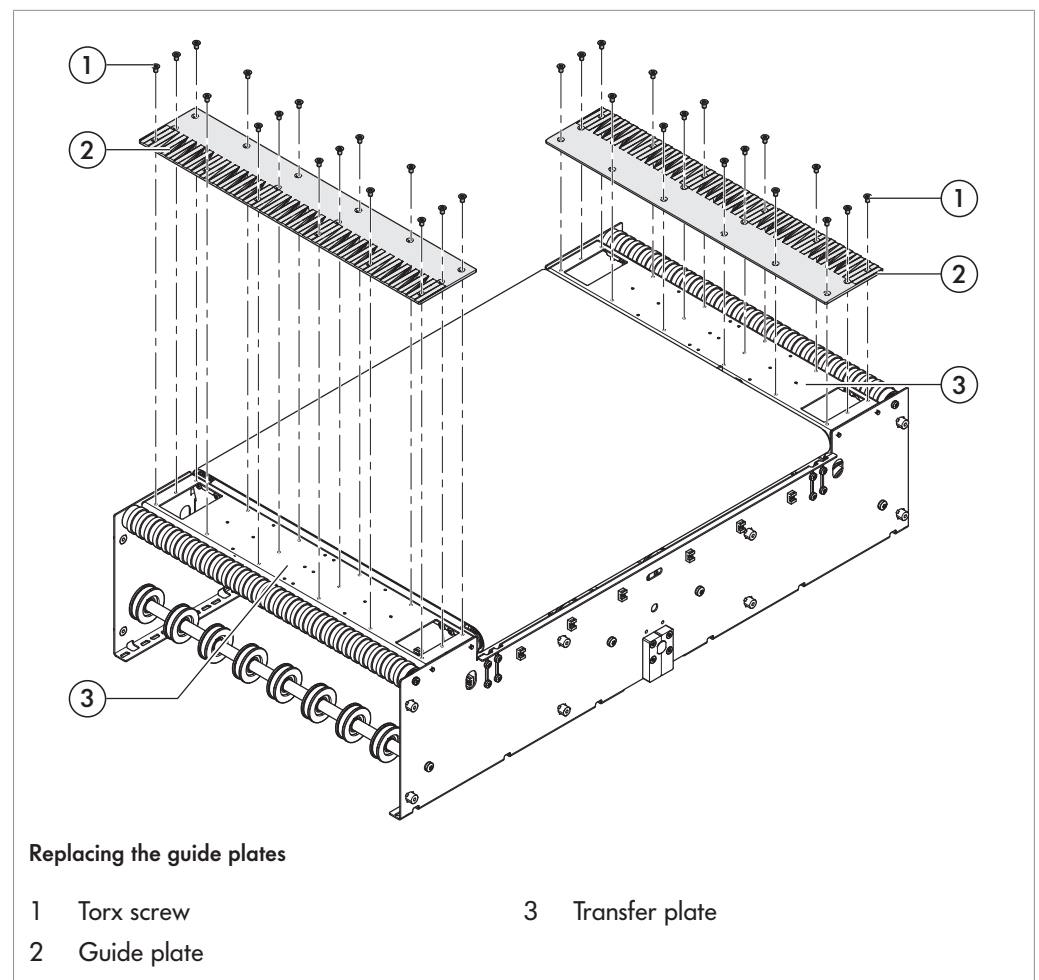
Interroll Diverter SH 1500

Maintenance and repair

Requirement:

- ☑ The module is shut down.
- ▶ Remove the ball module conveyor, see "Replacing the ball module conveyor", page 56.
- ▶ Remove the side covers, see "Removing/installing the side plates", page 51.
- ▶ Take the idler pulley at the front and rear out of the side frames: Unscrew screws (1) on the right and left in the side frames (2) and take the idler pulley (3) out to the side.
- ▶ Properly dispose of the old idler pulley.
- ▶ Place new idler pulley (3) between the side frames (2) and fasten with screw (1) on the right and left at the side frames from the outside.
- ▶ Reattach side covers and ball module conveyor in reverse order.

Replacing the guide plate



Interroll Diverter SH 1500

Maintenance and repair



DANGER

Danger to life from electrocution and crushing

Installation and maintenance tasks on 400-V conveyor systems while they are in operation can cause life-threatening electrocution and serious crushing.

- ▶ Power down the entire conveyor module and ensure that it cannot be started accidentally.
-

Requirement:

- The module is shut down.
 - ▶ Remove the ball module conveyor, see "*Replacing the ball module conveyor*", page 56.
 - ▶ Loosen screws (1) from the guide plate (2) at the front and rear at the module and remove the guide plates from the transfer plates (3).
 - ▶ Properly dispose of the old guide plates.
 - ▶ Position new guide plates (2) on transfer plates (3) and fasten with screws (1).
 - ▶ Reattach the ball module conveyor.

Troubleshooting

In case of a fault



⚠ DANGER

Danger to life from electrocution

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

- ▶ Immediately power down the module and ensure that it cannot be started accidentally.
- ▶ Remove material and objects that block the conveyor.
- ▶ Before switching it on again, ensure that no persons are at risk.
- ▶ Properly dispose of any gear oil that has leaked. Have the motor replaced by qualified personnel, if necessary.

Troubleshooting

Fault	Cause	Remedy
Conveying goods jam between the side guides	Conveying goods sit on the module at an angle	Align conveying goods parallel to the side guide
	Center of gravity of the load is not centered	Align the center of gravity of the load
Transport process cannot be started and motor does not run	Main switch and/or control turned off	Check the switch position; turn on main switch and/or key switch of the control as required
	Supply line damaged	Check supply line
Transport process cannot be started and motor is running	Control or ball module conveyor too loose	Retension control or ball module conveyor
	Transport weight too high	Observe maximum weight
Transport shows jerky movements	Foreign objects in roller area	Remove foreign objects
Conveying goods are not being transported	Drum motor (control belt) defective	Replace belt conveyor with defective motor, see "Replacing the belt conveyor", page 52
	Drum motor (ball module conveyor) defective	Replace defective motor, see "Replacing the drum motor", page 57
	Defective roller	Replace defective roller

Interroll Diverter SH 1500

Troubleshooting

Fault	Cause	Remedy
Ball module conveyor brushes against the side frame	Ball module conveyor adjustment is not straight	Adjust ball module conveyor path
Motor circuit breaker is triggered due to excessive current consumption	Gear box defective, bearing of drive roller/idler pulley defective	Replace the defective part
	Short circuit	Check electrical connections and replace defective parts
	Unit weight too high	Observe maximum weight
Noise development/ squeaking/whistling	Bearing defective	Replace bearing
	Control belt or ball module conveyor brushes	Remove the cause
	Dirty roller	Clean roller

Interroll Diverter SH 1500

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.



The spare parts for the connector sets can be ordered from Interroll upon request. The different connector sets are matched to all available conveyor modules and include static connectors as well as safety-relevant protective devices.

Ordering information

Ordering spare and wear parts requires the exact identification of the module, see type plate.

The following information is required for an order:

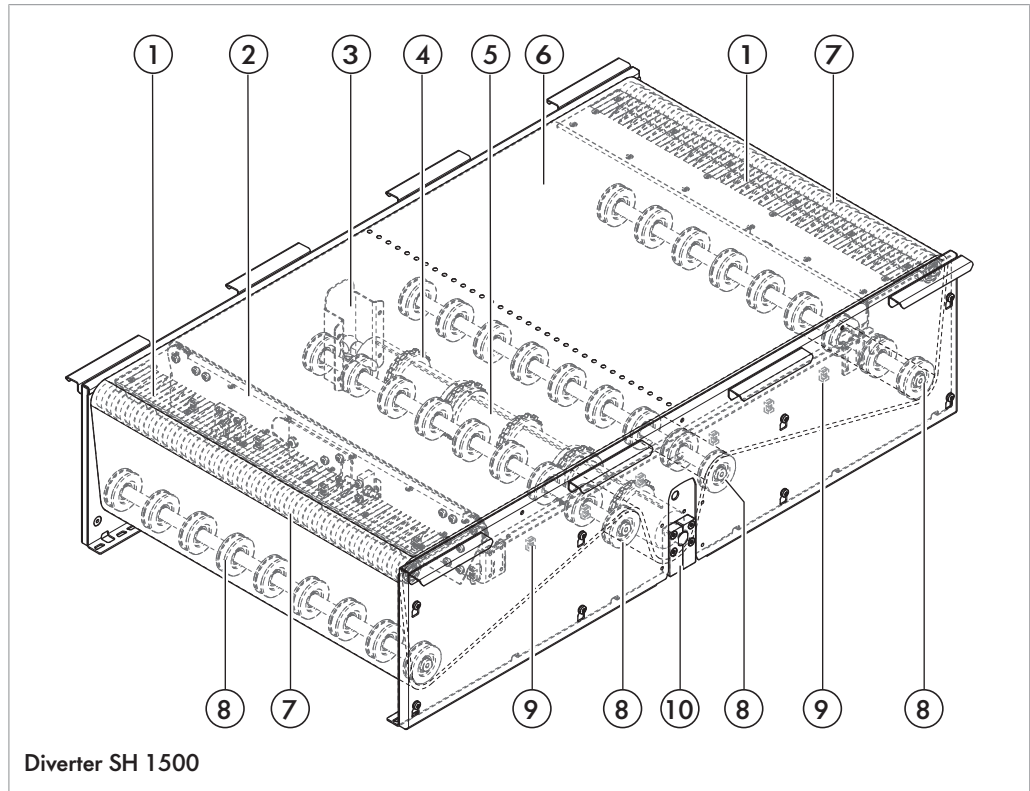
- Machine number
- Type
- Item number in spare parts list
- Designation
- Material number

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

Interroll Diverter SH 1500

Spare and wear parts

Spare parts drawing




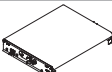








Interroll Diverter SH 1500

Spare and wear parts

Spare parts list

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

Type: 1500 (M, L)

Item No.:	Designation	Material number	S/W/T	
1	Guide plate	M: 63171640 L: 63171591	S	
2	Belt conveyor assembly (with webbing, drum motor, idler pulleys, tension roller)	See project data	S	
3	Cable sleeve	1130315	W	
4	Individual module conveyor sprocket	63171643		
5	Module conveyor drive assembly (drum motor with installed sprockets)	See project data	S	
6	Ball module conveyor (module conveyor QNB 685-3733 (M), QNB 838-3733 (L))	M: 1129571 L: 1129572	S	
7	Ball module conveyor idler pulley	M: 63171623 L: 63171544	S	
8	Center and outside return wheel	See project data	S	
9	Cable tie holders (for cables of the drum motor for webbing drive and ball module conveyor drive)	1130316	S	
10	Plug holder (threaded plates for drum motor for webbing drive and ball module conveyor drive)	63171592	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.
-

Declaration of incorporation

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

Manufacturer and person authorized to prepare the technical documents

Interroll Trommelmotoren GmbH

Center of Excellence Hygienic Solutions

Opelstraße 3

41836 Hueckelhoven/Baal (Germany)

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

- Interroll diverter SH 1500

The incomplete machine may only be started up if it has been determined that the complete machine/system into which the incomplete machine is to be installed meets the requirements of this directive.

The following safety and occupational health 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, 1.3.6, 1.3.7, 1.3.8, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.5.4, 1.5.5, 1.5.6, 1.5.8, 1.5.9, 1.6.1, 1.6.2, 1.6.4, 1.7.1, 1.7.2, 1.7.3, 1.7.4

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

Applicable EC Directives:

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

Applicable EC/EU regulations:

- Regulation 10/2011/EU
- Regulation 1935/2004/EU

Applied harmonized standards:

- EN 415-10:2014 "Safety of machinery - Ergonomic design principles - Part 1: Terminology and classification of packaging machines and associated equipment"
- EN 619:2011-02 "Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads"
- EN ISO 12100:2011-03 "Safety of machinery - General principles for design - Risk assessment and risk reduction"
- DIN EN 1672-1:2014-12 "Food processing machinery - Basic concepts - Part 1: Safety requirements"
- EN ISO 13854:2020-01 "Safety of machinery - Minimum gaps to avoid crushing of parts of the human body"
- EN ISO 13849-1:2016-06 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"



Interroll Diverter SH 1500

Declaration of incorporation

Hueckelhoven/Baal, dated 16 May 2022

A handwritten signature in black ink, appearing to read 'H. Tiedemann'.

Dr. Hauke Tiedemann
Managing Director

Interroll Diverter SH 1500

Declaration of incorporation

UK Supply of Machinery (Safety) Regulations 2008

The manufacturer

Interroll Trommelmotoren GmbH
Opelstr. 3
D - 41836 Hueckelhoven/Baal
Germany

represented in the UK by

Interroll Limited
Unit 1a, Orion Way Kettering, Northants
NN15 6NL
England

hereby declares that the "incomplete machine"

- Interroll Ball Belt Diverter SH1500

is an incomplete machine in the sense of the EC Machinery Directive (2006/42/EC), but complies with the following requirements according to Annex I of this Directive:

1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.6, 1.3.7, 1.3.8, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.5.4, 1.5.5, 1.5.6, 1.5.8, 1.5.9, 1.6.1, 1.6.2, 1.6.4, 1.7.1, 1.7.2, 1.7.3, 1.7.4

The specific technical documentation according to Annex VII B has been prepared and will be submitted to the competent authority if required.

The commissioning of the incomplete machine is prohibited until the conformity of the overall machine/system in which it is installed with the UK Supply of Machinery (Safety) Regulations 2008 has been declared.

Further applied guidelines and resulting UKCA marking:

- UK Electromagnetic Compatibility Regulations 2016
- UK Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 212

Applied harmonized standards:

- EN ISO 12100:2011-03
- EN 60204-1:2019-06
- EN IEC 63000:2019-05
- EN 619:2011-02
- EN 1672-1:2014-12

Other standards applied:

- EN 60034-1:2011-02
- EN 60034-11:2005-04
- EN IEC 60034-14:2019-04
- EN IEC 60034-5:2021-05
- EN 60034-6:1996-08
- EN 61984:2009-11



Interroll Diverter SH 1500

Declaration of incorporation

- EN 61800-1:2018:11

The partly completed machine may only be put into operation when it has been established that the complete machine/system in which the partly completed machine is to be installed is to be installed, complies with the provisions of this directive.

Authorised for compiling technical documentation:

Interroll Trommelmotoren GmbH, Opelstr. 3, Germany - 41836 Hueckelhoven
Hueckelhoven, 16th May 2022

A handwritten signature in black ink, appearing to read "H. Tiedemann".

Dr. Hauke Tiedemann
(Managing Director)

Appendix

Warranty for Interroll module belt conveyors

Interroll grants a two-year warranty on its module belt conveyor range; the warranty applies to manufacturing and material defects and starts with the delivery or pickup at the factory. The warranty period is based on the regular operation of the product eight hours per day, provided no written agreement to the contrary is in effect.

As part of this warranty, Interroll repairs or replaces any defective product, free of charge, that is returned to the factory before the warranty period expires. The warranty period shall not be extended by repairs performed within the framework of the warranty.

Restrictions

Interroll and its dealers do not assume any liability for shutdowns or damages to the product that are due to the following causes:

- Non-observance of the installation or maintenance notes from Interroll
- Operation of the motor without suitable motor protection
- Not connecting the internal Interroll thermal circuit breaker (if available)
- Reversing the rotational direction before the motor has reached complete standstill
- Use of the module belt conveyor outside the specifications stated on the nameplate and/or in the current Interroll catalog or quotation

Repairs, modifications or conversions to the product that are not performed by a qualified Interroll technician or service partner, void the warranty, unless such work was clarified beforehand with Interroll in writing.

Exceptions

The Interroll warranty excludes any liability for the following damages:

- Damages caused by incorrect use or normal wear on materials used
- Costs for removal and return shipment of the product to Interroll as part of this warranty
- Damage to other systems that are used in conjunction with the product
- Loss of income, injuries or other costs in conjunction with the failure of the product

Interroll Service

Do you any questions or issues?

Our Service Team will gladly provide support:

Hotline: +49 (0) 2193 - 23 222

E-mail: ceu.service@interroll.com

