Installation and Operating Instructions
Interroll High Performance Divert
RM 8711
RM 8712
RM 8713

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Translation of original instruction manual
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Introduction

Notes about working with the installation and operating instructions
The Interroll High Performance Divert 24 V and 400 V RM 8711 / RM 8712 / RM 8713 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.
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:

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER</td>
<td>Identifies a danger with high risk that can lead to death or serious injury if it is not avoided.</td>
</tr>
<tr>
<td>WARNING</td>
<td>Identifies a danger with medium risk that can lead to death or serious injury if it is not avoided.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Identifies a danger with low risk that can lead to minor or medium injury if it is not avoided.</td>
</tr>
<tr>
<td>NOTICE</td>
<td>Identifies a danger that can lead to property damages.</td>
</tr>
</tbody>
</table>

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 roller conveyor-ready 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 (see Technical Data) and may not be operated outside of these specific limits.

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

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 jewelry, 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.
Safety

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
Operation of the installed device at the end customer's as a component in a conveyor in a complete system.

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

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

Property
The High Performance Divert (HPD) is used for diverting unit loads, preferably with smooth bottom surfaces, at different angles onto a lateral track to the right or to the left. The HPD is available in two drive variants:

- HPD 24 V master, for which 24 V motors are used as travel and swivel drives
- HPD 400 V master, for which the travel drive from the flat belt conveyor is used, and the swivel drive is powered by a separate 24 V motor

One HPD module can consist of several cassettes, each 120 mm long, depending on the size of the product.

The HPD can be installed at any position of the conveyor path. A subsequent installation is possible, just like a shift in the grid of profiles.
HPD 24-V master (RM 8711)

Components

1. Lower lateral cover
2. Upper lateral cover
3. Carrying idlers
4. Slave belts (for carrying idlers)
5. Drive belt
6. Front cover
7. Drive motor for carrying idler movement
8. Sensor
9. Drive motor for swivel movement
## Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>RM 8711</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. load capacity</td>
<td>50 kg</td>
</tr>
<tr>
<td>Swiveling time</td>
<td>0.3 s per 90°</td>
</tr>
<tr>
<td>Max. roller speed</td>
<td>1.4 m/s</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>+5 to +40 °C</td>
</tr>
<tr>
<td>Overall height</td>
<td>330 mm</td>
</tr>
<tr>
<td>Material base frame</td>
<td>Steel</td>
</tr>
<tr>
<td>Drive medium</td>
<td>Round belt ø 4 mm</td>
</tr>
<tr>
<td>Control variants</td>
<td>MultiControl</td>
</tr>
<tr>
<td>Incline/decline</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Between frames</td>
<td>420 - 1020 mm</td>
</tr>
<tr>
<td>Length</td>
<td>120 mm / cassette</td>
</tr>
<tr>
<td>Roller pitch (P)</td>
<td>60 mm in x and y-direction</td>
</tr>
<tr>
<td>Noise level</td>
<td>Leq ≤ 70 dB(A)</td>
</tr>
</tbody>
</table>
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 side of the plate of the swivel motor.
Interroll High Performance Divert
RM 8711 / RM 8712 / RM 8713

Product identification

HPD 400-V master (RM 8712)

Components

High Performance Divert 400-V master (RM 8712)

1 Lower lateral cover          7 Idler pulleys (for flat belt)
2 Upper lateral cover          8 Lateral cover
3 Carrying idlers              9 Drive belt
4 Drive motor for swivel movement 10 Terminal
5 Sensor                       11 Central cassette unit
6 Slave belts (for carrying idlers)
## Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>RM 8712</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. load capacity</td>
<td>50 kg</td>
</tr>
<tr>
<td>Swiveling time</td>
<td>0.3 s per 90°</td>
</tr>
<tr>
<td>Max. roller speed</td>
<td>Same as roller conveyor</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>+5 to +40 °C</td>
</tr>
<tr>
<td>Overall height</td>
<td>330 mm</td>
</tr>
<tr>
<td>Material base frame</td>
<td>Steel</td>
</tr>
<tr>
<td>Drive medium</td>
<td>Round belt ø 4 mm</td>
</tr>
<tr>
<td>Control variants</td>
<td>MultiControl</td>
</tr>
<tr>
<td>Incline/decline</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Between frames</td>
<td>420 - 1020 mm</td>
</tr>
<tr>
<td>Length</td>
<td>120 mm / cassette</td>
</tr>
<tr>
<td>Roller pitch (P)</td>
<td>60 mm in x and y-direction</td>
</tr>
<tr>
<td>Noise level</td>
<td>Leq ≤ 70 dB(A)</td>
</tr>
</tbody>
</table>
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 side of the plate of the swivel motor.
HPD slave (RM 8713)

Components

1 Lower lateral cover
2 Upper lateral cover
3 Carrying idlers
4 Drive belt
5 Lateral cover
6 Slave belts (for carrying idlers)

High Performance Divert slave (RM 8713) (left) together with High Performance Divert 24-V master (RM 8712) (right)
### Technical data

<table>
<thead>
<tr>
<th>Product identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM 8713</td>
</tr>
<tr>
<td>Max. load capacity</td>
</tr>
<tr>
<td>Swiveling time</td>
</tr>
<tr>
<td>Max. roller speed</td>
</tr>
<tr>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Overall height</td>
</tr>
<tr>
<td>Material base frame</td>
</tr>
<tr>
<td>Drive medium</td>
</tr>
<tr>
<td>Control variants</td>
</tr>
<tr>
<td>Incline/decline</td>
</tr>
<tr>
<td>Between frames</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Roller pitch (P)</td>
</tr>
<tr>
<td>Noise level</td>
</tr>
</tbody>
</table>
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.

![Nameplate](image)

The nameplate is located on the underside of the bottom plate close to the side frame.
**Scope of supply**

The High Performance Divert is completely assembled and wired in its delivery state. The scope of delivery includes:

- Carrying idlers
- Slave belt (for carrying idlers)
- Drive motor for swivel movement (for HPD master)
- Drive motor for carrying idler movement (for HPD master)
- Drive rollers and belt pulleys
- Drive belt
- Covers at the top, bottom, and sides
- Control

When used in zone conveyor, supply incl. sensor kit and cable set.
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 conveyor.

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

The module is delivered to the location site as a pre-assembled unit and must be installed, connected and integrated into a roller conveyor on site.

⚠️ WARNING

Electrical voltage can cause serious injuries and even death

The HPD master cassettes as well as the corresponding roller and flat belt conveyors are powered by electrically operated motors (voltage: 24 V and 400 V). During assembly and maintenance work, accidents may occur if the modules are still in operation and supplied with voltage.

- 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.

⚠️ 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.

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.

- **Integration into complete system**
  
  When integrating the module into the complete system, consider possible danger spots, particularly infeed locations and interfaces.
Installing the HPD 24-V master

HPD 24-V master (RM 8711) in the roller conveyor

1 Carrying idler (in the roller conveyor)  4 Fastening screws for HPD master
2 Side frame (at roller conveyor)  5 Front cover
3 Side cover (at roller conveyor)  6 Fastening screws for front cover

⚠️ WARNING

Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
**CAUTION**

**Risk of injury when lifting heavy loads**

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

**Requirement:**

- Roller conveyor is out of operation.
- Remove side cover (2) on both sides of the roller conveyor.
- Define the installation position for HPD master cassette and remove the carrying idler (1) at the specific location of the roller conveyor.
- Remove front cover (5) of the cassette
- Insert cassette into the roller conveyor from the bottom and fasten it to the side frame (3) of the roller conveyor using two screws (4) in each case.
- Fasten the front cover to the side frame with two screws (6) and nuts.
- Attach the side cover on both sides of the roller conveyor.

**Install HPD in the middle of a zone**

If the HPD for the 24-V roller conveyor (RM 8310) is used in the middle of a zone (with a RollerDrive), several rollers are no longer driven. For this reason, a second RollerDrive on the other side of the HPD must be used to ensure that the entire zone is driven.

**Requirement:**

- Roller conveyor is out of operation.
- Remove side cover (2) on both sides of the roller conveyor.
- Define the installation position for HPD master cassette and remove the carrying idler (1) at the specific location of the roller conveyor.
- Remove front cover (5) of the cassette
- Insert cassette into the roller conveyor from the bottom and fasten it to the side frame (3) of the roller conveyor using two screws (4) in each case.
- Fasten the front cover to the side frame with two screws (6) and nuts.
- Use additional RollerDrives in the respective zone of the roller conveyor so that the carrying idlers on both sides of the HPD are driven.
- Connect the motor connection cable of the second RollerDrive with the control card.
- Attach the side cover on both sides of the roller conveyor.
Installing the HPD 400-V master

HPD 400-V master (RM 8712) in the flat belt conveyor

1. Drive shaft (HPD master)
2. Side frame (at flat belt conveyor)
3. Side cover (at flat belt conveyor)
4. Belt pulley (for drive belt)
5. Drive belt
6. Terminal (of HPD master)
7. Front covers
8. Idler pulleys (for flat belt)
9. Flat belt
10. Central cassette unit (of HPD master)

⚠️ WARNING

Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
⚠️ CAUTION

Risk of injury when lifting heavy loads

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Requirement:

- Roller conveyor is out of operation.
- Remove front covers (7) at central cassette unit (10) and at both deflection units (5).

**Step 1: Installing the central cassette unit**
Installation

- Remove side cover (6) on both sides of the flat belt conveyor.
- Slacken flat belt (5) of conveyor. For this purpose, see the operating instructions of the flat belt conveyor, chapter "Replacing the drive belt (flat belt)".
- Define the position for installing the HPD cassette (1) and remove the carrying idler (2) at the respective location. For this purpose, see the operating instructions of the flat belt conveyor, chapter "Replacing carrying idlers".
- Insert central cassette into the flat belt conveyor from the bottom and fasten it to the side frame (3) of the flat belt conveyor using two screws (4) in each case. Screw the screws in through the lower line of holes.
- Connect the drive motor for the swivel movement and the proximity switch to the control card.
Step 2: Installing the deflection units

Remove front covers (5) of both deflection units (6): Remove the screws (2).
Attach deflection units (6) on the left and right of the central cassette unit (1).
Fasten each deflection unit with a total of six screws (2) to the C profile of the side frame (4):
  - Screw in one screw through the upper hole line.
  - Screw in one screw through the middle hole line.
  - Screw in four screws through the hole line of the underside of the C profile.

Central cassette unit with the two deflection units of the HPD 400-V master (RM 8712)

1 Central cassette unit  5 Front covers
2 Fastening screws for deflection units  6 Deflection units
3 Hole lines (in C profile of side frame)  7 Side cover (at flat belt conveyor)
4 Side frame (at flat belt conveyor)
Step 3: Inserting the transfer belt

Slave belt and flat belt in HPD 400-V master (RM 8712)

1. Drive rollers (in deflection units)
2. Drive belt (transfer belt)
3. Drive rollers (in central cassette unit)
4. Flat belt

Requirement:
- The drive belts (2) are pre-installed on the drive rollers (1) of the deflection units.
- Place the drive belts from both deflection units once over the left and once over the right drive roller (3) of the central cassette unit.
Step 4: Inserting the flat belt

Fasten idler pulleys (3) and adapter plates with two screws (4) each in the deflection units.

Place the flat belt (5) around the idler pulleys (see figure).

Tension the flat belt. For this purpose, see the operation instructions for the flat belt conveyor.

Fasten the rear covers (2) with three screws (1) each on the left and right deflection unit.

Attach the side cover on both sides of the flat belt conveyor.
Installing the HPD slave

In the combination of 24-V HPD master and HPD slave, the cassettes are installed next to each other in the roller conveyor as described below.

In the combination of 400-V HPD master and HPD slave, the two deflection units are installed on the left and right of the two HPD cassettes that are screwed together:
- Deflection unit - HPD master - HPD slave - Deflection unit.
  - Uninstall one of the two deflection units at the HPD master (400 V).
  - Install the HPD slave at the position of the unpacked deflection unit, See "Installing the HPD slave next to the HPD 400-V master", page 36.
  - Install the deflection unit at the open position of the HPD slave.
Installing the HPD slave next to the HPD 24-V master

HPD slave (RM 8713) and HPD 24-V master (RM 8711) in the roller conveyor

1 Upper lateral cover  
2 Lower lateral cover  
3 Slave cassette (left)  
4 Master cassette (right)  
5 Side frame (of roller conveyor)  
6 Belt pulleys  
7 Drive belt  
8 Front cover (of HPD master)  
9 Drive rollers (of HPD master)  
10 Front cover (of HPD slave)

⚠️ WARNING

Risk of crushing and electric shock

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

Risk of injury when lifting heavy loads

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Requirement:
- The roller conveyors and the HPD master are out of operation.
- The HPD master is installed, See "Installing the HPD 24-V master", page 25.
- Remove the side cover on both sides of the roller conveyor.
- Define the installation position for the slave cassette (3) and remove the carrying idler at the specific location of the roller conveyor. For this purpose, see the chapter "Replacing the Carrying Idler" in the operating instructions of the roller conveyor.
- Remove front cover (10) of the HPD slave.
- Remove front cover (8) of the HPD master.
- Remove the upper and lower lateral cover (1, 2) of the HPD master on the side on which the HPD slave will be installed.
- Insert the slave cassette (3) from the bottom into the roller conveyor and place it directly next to the HPD cassette.
- Fasten the slave cassette on both sides with two screws each to the side frame (5) of the roller conveyor. Do not yet fully tighten the fastening screws.
- Connect the two cassettes in each case at the front and rear with a connecting plate (not shown) to form one module.
- Install the upper and lower lateral cover (1, 2) removed from the HPD master at the open side of the HPD slave.
- Place the connecting drive belt (7) around the drive roller (9) in the HPD master and the belt pulley (6) in the HPD slave.
- Now fully tighten the fastening screws of the slave cassette.
- Install the toothed belt on the underside of the two HPD cassettes, See "Installing the toothed belt", page 39.
- Ensure that the rollers of both HPD cassettes are aligned identically and the parallel keys on the drive rods underneath the two HPD cassettes point in the same direction.
- Fasten the front cover of the cassettes.
- Attach the side cover on both sides of the roller conveyor.
Installing the HPD slave next to the HPD 400-V master

HPD slave (RM 8713) and HPD 400-V master (RM 8712) in the flat belt conveyor

1. HPD slave
2. Carrying idler (in flat belt conveyor)
3. Side frame (at flat belt conveyor)
4. Fastening screws for front cover
5. Flat belt
6. Side cover (at flat belt conveyor)

⚠️ WARNING

Risk of crushing and electric shock

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

Risk of injury when lifting heavy loads

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Step 1: Preparing the installation of the HPD slave

Requirement:
- The flat belt conveyors and the HPD master are out of operation.
- The HPD master is already installed, See "Installing the HPD 400-V master", page 27.
- Remove side cover (6) on both sides of the flat belt conveyor.
- Slacken the belt tension. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the flat belt conveyor.
- Define the installation position for the slave cassette (1) and remove the carrying idler (2) at the desired location in the flat belt conveyor, see the chapter "Replacing the carrying idler" in the operating instructions of the flat belt conveyor for this purpose.
- Remove front cover of the slave cassette.
- Remove front cover of the master cassette.
- Disassemble the adjacent deflection unit of the HPD master: Pull drive belts off of the belt pulleys and remove flat belt from the idler pulleys of the HPD master, See "Disassembling and shifting the HPD 400-V master with HPD slave", page 50.

Step 2: Installing the HPD slave in the flat belt conveyor

- At the adjacent sides of HPD master and HPD slave, disassemble the upper and lower side cover in each case.
- Insert the slave cassette (1) from the bottom into the flat belt conveyor and place it directly next to the HPD cassette.
- Fasten the slave cassette on both sides with two screws each to the side frame (3) of the flat belt conveyor.
- Connect the two cassettes in each case at the front and rear with a connecting plate (not shown) to form one module.
- Install the missing deflection unit at the open side of the HPD slave: Fasten the deflection unit with a total of six serrated flange bolts to the side frame of the flat belt conveyor.
Step 3: Inserting the belt in HPD master and HPD slave

- Place a drive belt between the central cassette unit of the HPD master (belt head from drive shaft) and the adjacent deflection unit (belt pulley).
- Place a drive belt between the central cassette unit of the HPD master (belt head from drive shaft) and the HPD slave (belt pulley).
- Place a drive belt between the HPD slave (belt pulley) and the other adjacent deflection unit (belt pulley).
- Place a flat belt around the idler pulleys of both deflection units, See "Installing the HPD 400-V master", page 27.
- Install the toothed belt on the underside of the two HPD cassettes, See "Installing the toothed belt", page 39.
  Ensure that the rollers of both HPD cassettes are aligned identically and the parallel keys on the drive rods underneath the HPD cassettes point in the same direction.
- Fasten the front cover of the cassettes.
- Reattach the side covers to the flat belt conveyor.
Installing the toothed belt

Toothed belt between HPD master and HPD slave
Interroll High Performance Divert
RM 8711 / RM 8712 / RM 8713

Installation

1 Drive rod
2 Pulley
3 Toothed belt
4 Parallel key
5 Ball bearing
6 Bearing shell
7 Upper motor plate
8 Switching cam
9 Sensor
10 Lower motor plate with drive motor for swivel operation
11 Guard (2 pieces)
12 Setscrew (for switching cam)

Requirement:
☐ The roller conveyor and the HPD cassettes are out of operation.
☐ The HPD master cassette is installed.
☐ The HPD slave cassette was installed according to the instructions from the chapter "Installing the HPD slave" (See "Installing the HPD slave", page 33).

Step 1: Disassemble the swivel motor and motor plates at the HPD master.
Step 2: Disassemble the motor plate at the HPD slave.
Step 3: Install the toothed belt with pulleys.
Step 4: Re-assemble the HPD slave.
Step 5: Re-assemble the HPD master.

⚠️ WARNING
Risk of crushing and electric shock

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

Step 1: Disassemble the swivel motor and motor plates at the HPD master.
In order to install the pulley (2) at the HPD master, the drive motor for the swivel movement of the carrying idlers, the two motor plates (10, 7), the sensor (9) and the switching cam (8) must be disassembled first.

- Disassemble the protective cover (11) for the swivel motor: Unscrew the two screws from the lower motor plate (10) and remove the protective cover.
- Insert a screwdriver through the small slot in the lower motor plate to loosen the setscrew (12) of the switching cam – but do not unscrew it completely.
- Disassemble the lower motor plate including the swivel motor (10): Unscrew the four small screws at the foot of the lower motor plate and remove plate together with motor and sensor (9). Please observe: The lower and upper motor plate are held by the same screws.
- Disassemble the switching cam (8): If necessary, loosen setscrew (12) further and remove switching cam from the drive rod (1).
- Remove the upper motor plate (7) with the pressed-in bearing shell (6) and the ball bearing (5) – the four small screws have already been unscrewed. The drive rod (1) for the swivel movement of the carrying idlers is exposed.
Installation

Step 2: Disassembling the motor plate at the HPD slave
In order to install the pulley at the HPD slave, the motor plate must be disassembled first – analogous to the disassembly of the upper motor plate at the HPD master.

- Unscrew the four small screws at the feet of the motor plate.
- Remove the motor plate with bearing shell and ball bearing.
  The drive rod (1) for the swivel movement of the carrying idlers is exposed.

Step 3: Installing the toothed belt with pulleys
- On the two drive rods (1) of the HPD master and HPD slave, insert one parallel key (4) each in the parallel key grooves.
- Ensure that both parallel keys (4) on HPD master and HPD slave point in the same direction.
  Align the parallel keys, if necessary.
- Place the toothed belt (3) around the two pulleys (2).
- Push the two pulleys together with toothed belt onto the drive rods (1) of the HPD cassettes.

Step 4: Re-assembling the HPD slave
- Place motor plate with bearing shell and ball bearing over the drive rod and fasten with four screws.

Step 5: Re-assembling the HPD master
- Place upper motor plate (7) with bearing shell (6) and ball bearing (5) over the drive rod (1).
- Push switching cam (8) onto the drive rod and fasten it with the setscrew (12). Do not yet tighten the setscrew.
- Place the lower motor plate (10) including the swivel motor over the drive rod onto the upper motor plate (7) and fasten both motor plates with four screws.
- Readjust sensor and switching cam, See "Adjusting the sensor", page 59.
- Now tighten the setscrew (12) for the switching cam.
- Place the protective cover (11) on the swivel motor and fasten with two screws.
Disassembling and shifting the HPD 24-V master

WARNING
Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
CAUTION
Risk of injury when lifting heavy loads

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Step 1: Uninstall the HPD master
Requirement:
- The roller conveyor and the module are out of operation.
- Remove side cover (3) on both sides of the roller conveyor.
- Pull the motor connecting cable of the HPD out of the control system of the roller conveyor.
- Remove front cover (5) of the HPD cassette: Unscrew screws (6) from the side frame (2) of the roller conveyor.
- Unscrew screws (4) on both sides of the roller conveyor and remove HPD cassette towards the bottom.

Step 2: Shift the HPD master
- Define the new position for the HPD cassette and uninstall the carrying idler (1) at the respective position. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the roller conveyor.
- Insert the HPD cassette from below to the new position and fasten with screws (4) on both sides to the side frame of the roller conveyor.
- Install front cover (5) of the HPD cassette: Screw in screws (6) into the side frame (2) of the roller conveyor.
- Plug the motor connecting cable of the HPD into the control system of the roller conveyor.
- Install a carrying idler (1) at the old position of the HPD cassette. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the roller conveyor.
- Attach the side cover on both sides of the roller conveyor.
Disassembling and shifting the HPD 24-V master with HPD slave

HPD 24-V master (RM 8711) and HPD slave (RM 8713) in the roller conveyor

1  Carrying idler (in the roller conveyor)  
2  Side frame (at roller conveyor)  
3  Side cover (at roller conveyor)  
4  Fastening screws for HPD cassette  
5  Front cover (at HPD master)  
6  Drive belt  
7  Fastening screws for front covers  
8  Front cover (at HPD slave)

⚠️ WARNING

Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
CAUTION
Risk of injury when lifting heavy loads
- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Step 1: Uninstalling the HPD master and HPD slave
Requirement:
- The roller conveyor is out of operation.
- Remove side cover (3) on both sides of the roller conveyor.
- Pull the motor connecting cable of the HPD master out of the control system of the roller conveyor.
- Remove front covers (5, 8) of the HPD cassettes: Unscrew screws (7) from the side frame of the roller conveyor.
- Pull the drive belt (6), which runs between the two HPD cassettes, off of the belt pulleys.
- Remove the connecting plates (not shown) between the two HPD cassettes.
- Uninstall the pulleys and toothed belt on the underside of the two HPD cassettes, See “Installing the toothed belt”, page 39.
- Uninstalling the HPD slave cassette: Unscrew screws (4) on both sides of the side frame (2) of the roller conveyor and remove cassette towards the bottom.
- Uninstalling the HPD master cassette: Unscrew screws (4) on both sides of the side frame (2) of the roller conveyor and remove cassette towards the bottom.

Step 2: Shifting the HPD master and HPD slave
- Define the new position for HPD cassettes and remove a carrying idler (1) from the roller conveyor at the respective position for each HPD cassette. For this purpose, see the chapter “Maintenance and repair” in the operating instructions of the roller conveyor.
- Installing the HPD master cassette: Insert the module from below to the new position and fasten with screws (4) on the side frames of the roller conveyor.
- Installing the HPD slave cassette: Insert the module from below into the roller conveyor at the new position directly next to the HPD master cassette and position it.
- Ensure that the rollers of the two HPD cassettes are aligned identically.
- Fasten the HPD slave cassette with serrated flange bolts (4) to the side frames of the roller conveyor.
Installation

- Install the connecting plates (not shown) between the two HPD cassettes.
- Install the pulleys and toothed belt on the underside of the two HPD cassettes. See "Installing the toothed belt", page 39.
- Pull the drive belt (6), which runs between the two HPD cassettes, onto the belt pulleys.
- Install the front covers (5, 8) of the two HPD cassettes: Screw the fastening screws into the side frame of the roller conveyor.
- Plug the motor connecting cable of the HPD master into the control system of the roller conveyor.
- Install the respective number of carrying idlers (1) at the old position of the HPD cassettes.
  For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the roller conveyor.
- Attach the side cover on both sides of the roller conveyor.
Disassembling and shifting the HPD 400-V master

HPD 400-V master (RM 8712) in the flat belt conveyor

1. Drive shaft (of HPD master)
2. Side frame (at flat belt conveyor)
3. Side cover (at flat belt conveyor)
4. Belt attachment of drive shaft (of HPD master)
5. Drive belt
6. Terminal
7. Idler pulleys (for flat belt)
8. Fastening screws for front cover
9. Front cover
10. (Rear) covers of deflection units
11. Flat belt
12. Central cassette unit
Installation

⚠️ WARNING
Risk of crushing and electric shock
- De-energize the complete conveyor module and ensure that it cannot be started accidentally.

⚠️ CAUTION
Risk of injury when lifting heavy loads
- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Step 1: Uninstall the HPD master
Requirement:
- The flat belt conveyor and the module are out of operation.
- Remove side cover (3) on both sides of the flat belt conveyor.
- Slacken the belt tension. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the flat belt conveyor.
- Disassembling the front cover (9) of the central cassette unit (12): Unscrew fastening screws (8) from the side frame (2) of the flat belt conveyor.
- Pull the drive belts (5), which are running between the central cassette unit (12) and the two deflection units (6), off of the belt attachments (4) of the drive shafts (1).
- Disassemble the rear covers (10) of the two deflection units (6) on the left and right: In each case, unscrew three fastening screws (not shown) from the rear cover.
- Take the flat belt (11) out of the total of six idler pulleys (8) of the HPD cassette.
- Disassemble the left and right deflection units (6): Unscrew fastening screws from the side frame (2) of the flat belt conveyor and remove the deflections towards the bottom.
- Disassemble the central cassette unit: Unscrew fastening screws from both sides of the side frame (2) of the flat belt conveyor and remove the module towards the bottom.
Step 2: Shift the HPD master

- Define the new position for the entire HPD cassette and uninstall a carrying idler at the respective position in the flat belt conveyor. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the flat belt conveyor.
- Install the central cassette unit (12): Insert the module from below and screw it onto the side frames of the flat belt conveyor.
- Insert the deflection units (6) from below and screw them to the side frame of the flat belt conveyor on the left and right side of the central cassette unit.
- Insert the flat belt (11) of the roller conveyor into the HPD cassette, Step 4: Inserting the flat belt.
- Tension the flat belt. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the flat belt conveyor.
- Install the rear covers (10) of the two deflection units.
- Affix the drive belts (5) from the deflection units around the belt attachments (4) of the drive shafts in the HPD master.
- Reinstall front cover (9) of the HPD master.
- Reattach side cover (3) to both sides of the flat belt conveyor.
Disassembling and shifting the HPD 400-V master with HPD slave

In the combination of HPD master (400 V) and HPD slave, the two deflection units of the HPD master must be installed around both HPD cassettes: Deflection unit - HPD master - HPD slave - Deflection unit.

⚠️ WARNING
Risk of crushing and electric shock
- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
CAUTION

Risk of injury when lifting heavy loads

- During the installation and replacement of HPD cassettes work in pairs or use a suitable carriage.

Requirement:
- The roller conveyor is out of operation.
- HPD master is already installed at the new position in the roller conveyor, See "Disassembling and shifting the HPD 400-V master", page 47.
- Remove side cover (6) on both sides of the flat belt conveyor.
- Define the installation position for the slave cassette and remove the carrying idler (2) at the desired location in the flat belt conveyor.
- Remove front cover of the slave cassette.
- Remove front cover of the master cassette.
- Fasten the slave cassette on both sides with two screws each to the side frame of the roller conveyor.
- Connect the two cassettes in each case at the front and rear with a connecting plate (not shown) to form one module.
- Install toothed belt between HPD master and HPD slave, See "Installing the toothed belt", page 39.
  Ensure that the rollers of both HPD cassettes are aligned identically and the parallel keys on the drive rods underneath the HPD cassettes point in the same direction.
- Pull drive belt onto the belt pulleys and belt heads of HPD master and HPD slave, See "Replacing the drive belt for the HPD 400-V master", page 69.
- Insert the flat belt, See "Installing the HPD slave next to the HPD 400-V master", page 36.
- Tension the flat belt. For this purpose, see the chapter "Maintenance and repair" in the operating instructions of the flat belt conveyor.
- Fasten the front covers of the HPD cassettes.
- Attach the side cover on both sides of the flat belt conveyor.
Integrating the module in the overall system

The power supply of the HPD master is done via the control system of the roller or flat belt conveyors. From this control system, the HPD masters also receive the corresponding signals for the two drive motors: with respect to drive and swivel movement of the small rollers. At the roller or flat belt conveyor, photo cell kits and reflectors are installed in the travel direction of the HPD cassettes. As soon as transport materials pass this photo cell kit, signals are issued to the control system and, if necessary, are forwarded to the HPD as commands.
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.

The following control measure is still required:
- Before the initial startup, check the module for the distance to the side frames and, if necessary, to the rollers of the conveyor with which it was connected.

Operation

Before every operation start
- Check the module for visible damage. In particular, observe belt, guides and supports.
- Ensure that all safety devices operate flawlessly.
- Ensure that only authorized personnel is in the operating area of the module.
- Ensure that it is running freely and that no parts are jammed.
- Remove material or equipment which is not required from the workspace.
- Guide and monitor correct placement of the materials on the conveyor.

During operation

⚠️ WARNING
Danger from rotating parts
Crushing and serious injuries from parts of the body and clothing being pulled into the module!
- Do not remove the protective covers.
- Wear close-fitting clothing, avoid jewelry and bands/ribbons.
- If you have long hair, always wear a hair net.

- If materials are jammed between side guides, switch off the module and ensure that it cannot be started accidentally, then remove the fault.
Initial startup and operation

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

⚠️ DANGER

Danger - electrical voltage!

- Switch off the power supply system, ensure that it cannot be switched on accidentally and that it is de-energized.

⚠️ 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.

- Always have work on electrical equipment carried out by authorized electricians.
- 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.
Replacing the sensor

Sensor in the lower motor plate on the underside of the HPD master

1 Setscrew  
2 Screw  
3 Small slot in lower motor plate  
4 Nut  
5 Sensor  
6 Lower motor plate  
7 Switching cam

⚠️ WARNING

Risk of crushing and electric shock

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

The sensor is attached to the underside of the HPD cassette – on the motor plate directly next to the motor for the swivel movement.
Requirement:

- The module is out of operation.
- Pull the motor connecting cable off of the control card or extension cable.
- Insert screwdriver through one of the small slots (3) in the lower motor plate and loosen setscrew (1) in the switching cam (7) – do not unscrew it.
- Unscrew four mounting screws (2) for the motor plates and remove lower motor plate including motor from the drive rod.
- Secure upper motor plate with mounting screws (2) against falling down.
- Loosen setscrew – do not unscrew it. Remove switching cam from the drive rod.
- Unscrew nuts (4) on the sensor (5) and remove old sensor.
- Insert new sensor into the wide slot of the lower motor plate and fasten it with the nuts.
- Push switching cam onto the drive rod and slightly fasten the setscrew.
- Place lower motor plate including motor onto the drive rod and the upper motor plate and screw it onto the base frame of the HPD cassette.
- Align switching cam through one of the small slots in the lower motor plate and fix it with the setscrew.
Adjusting the sensor

Sensor in the lower motor plate at the HPD master

1. Setscrew
2. Switching cam
3. Mounting screw for motor plates
4. External nut (on sensor)
5. Slot (in lower motor plate)
6. Sensor
7. Lower motor plate

⚠️ WARNING
Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
Requirement:
- The module is out of operation.
- Unscrew four mounting screws (3) for the motor plates and remove lower motor plate including motor from the drive rod.
- Secure upper motor plate with mounting screws against falling down.
- Loosen external nut (4) on sensor (6). Counter internal nut with a tool.
- Move sensor horizontally within the slot (5) in the lower motor plate (7) and position it.
- In the defined sensor position, tighten the external nut (4).
- Unscrew the mounting screws (3) for the motor plate again, place lower motor plate including motor on the upper motor plate and screw it tight.
- Switch on the power supply and check the position of the carrying idlers.
- Repeat the process, if necessary.

The sensor is set correctly if the carrying idlers of the HPD are aligned straight (0° position) and the switching cam triggers the sensor.
Replacing the drive motor for the swivel movement

Drive motor for swivel movement
1 Mounting screws for swivel motor
2 Mounting screws for motor plate
3 Lower motor plate
4 Sensor
5 Switching cam
6 Setscrew in switching cam

The drive motor for the swivel movement is located on the underside of the HPD master cassette. The motor movements are transferred to the small rollers of the HPD via a drive rod and a gear unit.

⚠️ WARNING
Risk of crushing and electric shock
- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
Requirement:

- The module and the roller conveyor are out of operation.
- Pull the plug out of the control system.
- Remove the protective cover of the motor.
- Insert screwdriver through one of the small slots in the lower motor plate and loosen setscrew (6) in the switching cam (5) – do not unscrew it.
- Loosen and unscrew four mounting screws (2) of the lower motor plate (3).
- Remove lower motor plate (3) including motor (4).
- Remove switching cam (5) from the drive rod, if necessary.
- Loosen and unscrew four mounting screws (1) of the motor.
- Remove the old motor and place the new motor on the motor plate.
- Fix the motor onto the motor plate with four mounting screws.
- Push switching cam back onto the drive rod and slightly fasten the setscrew, if necessary.
- Place the new motor with motor plate on the drive rod underneath the HPD cassette and fix motor plate using the four mounting screws.
- Readjust sensor (3), if necessary, See "Adjusting the sensor", page 59.
- Firmly tighten the setscrew in the switching cam.
- Fasten the protective cover of the motor again using two screws.
Replacing the drive motor for the carrying idler movement

Drive motor for carrying idler movement

1 Drive unit of HPD
2 Motor plate
3 Motor mounting screws
4 Adapter
5 Drive journal
6 Mounting screws for motor plate
7 Carrying idler movement drive motor
8 Drive shaft

The drive motor for the carrying idler movement is located on the underside of the HPD cassette, directly behind the belt pulleys. The drive motor is encased by a protective cover (not shown). The motor movements are transferred to the two drive shafts of the HPD via the drive belts at the head side of the cassette.
**WARNING**

Risk of crushing and electric shock

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

Requirement:

- The module and the roller conveyor are out of operation.
- Pull the plug out of the control system.
- Loosen three mounting screws for the protective cover of the drive motor, but do not unscrew them. Remove the protective cover.
- Loosen and unscrew the four mounting screws (6) of the motor plate.
- Remove motor plate (2) together with drive motor (7).
- Loosen and unscrew the four mounting screws (3) of the motor.
- Remove old drive motor from motor plate.
- Install the new drive motor on the motor plate using the four mounting screws (3).
- Flange-mount the motor plate together with the new drive motor onto the rear side of the HPD drive unit (1). In the process, guide the drive journal (5) of the motor into the opening of the adapter (4).
- Fasten the motor plate using four screws (6).
- Fasten the protective cover of the drive motor using three screws.
Replacing the drive belt for the HPD 24-V master and HPD slave

Replacing the drive belt for the HPD 24-V master (RM 8711)

![Diagram showing the parts of the HPD master](image)

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</tr>
<tr>
<td>6</td>
<td>Drive belt</td>
</tr>
</tbody>
</table>

**WARNING**

**Risk of crushing and electric shock**

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

At the 24-V HPD master (RM 8711) and HPD slave (RM 8713), the drive belts are located behind the front covers of the HPD cassettes.
Requirement:
- The module and the roller conveyor are out of operation.
- Remove side cover (3) on the roller conveyor.
- Unscrew the two mounting screws (2) of the front cover (4) from the C profile of the side frame (1).
- Remove the front cover (4) of the drive unit.
- Pull the drive belt (6) off of the belt pulleys (5).
- Pull the new slave belt onto the belt pulleys.
- Reinstall the lateral cover using the two screws.
- Attach the side cover on the roller conveyor.
Replacing the drive belt for the HPD slave (RM 8713)

Drive belt at HPD slave (RM 8713) and HPD 24-V master (RM 8711)

1 Side frame (at roller conveyor) 4 Belt pulleys (for drive belt)
2 Side cover (at roller conveyor) 5 Drive belt
3 Mounting screws (for front cover) 6 Front cover

⚠️ WARNING
Risk of crushing and electric shock

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

The small rollers of the HPD slave (RM 8713) are driven by the adjacent HPD 24-V master (RM 8711). The drive force is transferred by one of the drive belts between the two cassettes.
Requirement:
- The module and the roller conveyor are out of operation.
- Remove side cover (2) on the roller conveyor.
- Unscrew the two mounting screws (3) of the front covers (6) of HPD master and HPD slave from the C profile of the side frame (1).
- Remove front covers (6) of both deflection units.
- Pull the drive belt (5) off of the belt pulleys (4).
- Pull the new slave belts onto the belt pulleys.
- Reinstall the front covers using the mounting screws.
- Reattach the side cover to the roller conveyor.
Replacing the drive belt for the HPD 400-V master

With the HPD 400-V master, the drive belt runs on two belt pulleys and two drive rollers behind the covers of the HPD cassette.
WARNING

Risk of crushing and electric shock

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

Requirement:
- The module and the flat belt conveyor are out of operation.
- Remove side cover (2) of flat belt conveyor on the drive side.
- Removing the front cover (10) of the central cassette unit: Unscrew the two screws (3) from the side frame of the flat belt conveyor.
- Unscrew three mounting screws (not shown) for the rear cover of the deflection unit and remove cover towards the conveyor center.
- Loosen belt tension of flat belt (12). For this purpose, see the chapter "Adjusting the belt tension" in the operating instructions of the flat belt conveyor.
- Uninstall the drive roller (8) with belt head (7) from the deflection: Unscrew the front (7) and rear mounting screw of the drive roller.
- Remove drive roller (8) together with drive belt (11).
- Remove the drive belt (11) from the belt pulley (10) in the central cassette unit.
- Remove the drive belt from the belt head (7) of the drive roller.
- Place the new drive belt around the belt head.
- Reinstall drive roller with drive belt in the deflection: Screw in the rear mounting screw on the rear side of the drive roller (not shown), but do not yet completely tighten it.
- Pull the drive belt onto the belt pulley (10) in the central cassette unit.
- Tighten the mounting screws of the drive roller (9).
- Tension the flat belt. For this purpose, see the chapter "Adjusting the belt tension" in the operating instructions of the flat belt conveyor.
- Reinstall covers on the deflections and the central cassette unit.
- Attach the side cover to the flat belt conveyor.
Replacing the idler pulley

With the HPD 400-V master, the idler pulleys are located on a metal sheet of the two-part deflection units. The flat belt of the flat belt conveyor is guided via the idler pulleys through the HPD.

⚠️ WARNING

Risk of crushing and electric shock

- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
Requirement:

- The module and the flat belt conveyor are out of operation.
- Slacken the flat belt (5). For this purpose, see the chapter "Adjusting the belt tension" in the operating instructions of the flat belt conveyor.
- From the rear: Uninstall the rear cover (4) of the deflection unit: Unscrew three screws (not shown).
- Pull the flat belt (3) off of the idler pulleys (2).
- From the front: Unscrew the fastening screws (3) of the respective idler pulley.
  Please observe: The mounting screws for the upper idler pulleys are inside the C profile of the side frame. In order to unscrew them, the side cover of the flat belt conveyor must be removed first.
- From the rear of the deflection unit: Take out the respective idler pulley, with the adapter plate, if necessary.
- Insert the new idler pulley, if necessary with adapter plate, and install from the front of the deflection unit with two mounting screws (1) each.
- Place the flat belt back around the idler pulleys.
- Install the rear cover (4) of the deflection unit: Screw in three screws (3).
- Tension the flat belt. For this purpose, see the chapter "Adjusting the belt tension" in the operating instructions of the flat belt conveyor.
Replacing the carrying idlers

The central cassette unit of the HPD contains a total of 20 carrying idlers (4) firmly anchored in separate brackets. A slave belt (5) runs over every individual carrying idler.

⚠️ WARNING
Risk of crushing and electric shock
- De-energize the complete conveyor module and ensure that it cannot be started accidentally.
Requirement:
- The module and the roller conveyor are out of operation.
- Remove the upper cover (1) of the HPD cassette: Remove the screws (2).
- Push the plastic cover (3) for the belt of the respective carrying idler up using a tool (e.g. screwdriver) and remove it.
- Pull the respective carrying idler (4) up and out of the bracket and turn it out of the slave belt (5).
- Pull up the belt and slip new carrying idler into the belt loop.
- Insert new carrying idler into the bracket.
- Re-insert the plastic cover for the belt and press it into place.
- Reinstall the upper cover of the HPD cassette with screws.
Replacing the slave belt for the swivel unit

The central HPD cassette features a total of 20 carrying idlers and 20 slave belts for the swivel unit. These slave belts are replaced in two steps:

- Step 1: Disassemble the drive motors and remove the lower cover
- Step 2: Remove the upper cover and replace the slave belts

**Step 1: Disassemble the drive motors and remove the lower cover (HPD master)**

![Diagram of HPD master with drive motors and slave belts](image)

HPD master with the two drive motors for swivel movement and carrying idler movement as well as detailed view of slave belts

1. Swivel movement drive motor
2. Carrying idler movement drive motor
3. Mounting screws for lower cover
4. Mounting screws for motor plate
5. Lower motor plate (for swivel motor)
6. Slave belts (for carrying idlers)
7. Drive shaft (of HPD master)
8. Lower cover (of HPD master)
Warning

Risk of crushing and electric shock

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

Requirement:
- The module and the roller conveyor are out of operation.
- Disassemble the drive motor (2) for the small roller movement, See "Replacing the drive motor for the carrying idler movement", page 63.
- Disassemble the drive motor (1) for the swivel movement, See "Replacing the drive motor for the swivel movement", page 61.
- Unscrew the six screws (3) for fastening the lower cover (8) and remove the lower cover. The two drive shafts (7) of the HPD master are exposed. The individual slave belts (6) are guided in the grooves of the drive shafts.
Step 2: Remove the upper cover and replace the slave belts

Sequence 1

1  Upper cover (HPD cassette)  4  Carrying idlers
2  Mounting screw for upper cover  5  Slave belts (on carrying idlers)
3  Plastic cover (for carrying idlers)

- Unscrew the screws (2) in the upper cover (1) of the HPD cassette and take out the upper cover.
- Above the respective carrying idler, push the plastic cover (3) for the slave belts (5) up with a tool and remove it.
- Take the old slave belts (5) off of the carrying idlers. Cut the slave belts, if necessary, and pull them out.
- Place the new replacement belt over the carrying idlers and allow the ends to hang.
- Weld the open belt ends from below with a mirror welding unit.
- Reinsert the plastic covers for the carrying idlers and press them into place.
- Reinstall the upper cover of the HPD cassette and screw it tight.
Re-assembling the module

- Reattach the upper cover of the HPD cassette with screws.
- Install the drive motor for the swivel movement (see above), See "Replacing the drive motor for the swivel movement", page 61.
- Install the drive motor for the carrying idler movement (see above), See "Replacing the drive motor for the carrying idler movement", page 63.
Replacing the toothed belt

Toothed belt between HPD master and HPD slave
Requirement:
☐ The roller conveyor and the HPD cassettes are out of operation.
☐ The HPD master cassette is already installed.
☐ The HPD slave cassette was installed up to this step according to the instructions from the chapter "Installing the HPD slave" (See "Installing the HPD slave", page 33).

- Step 1: Disassemble the swivel motor and motor plates at the HPD master.
- Step 2: Removing the motor plates at the HPD slave.
- Step 3: Replacing the toothed belt with pulleys.
- Step 4: Re-assemble the HPD slave.
- Step 5: Re-assemble the HPD master.

⚠️ WARNING

Risk of crushing and electric shock

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

**Step 1: Disassemble the swivel motor and motor plates at the HPD master.**

In order to install the pulley (2) at the HPD master, the drive motor for the swivel movement of the carrying idlers, the two motor plates (10, 7), the sensor (9) and the switching cam (8) must be disassembled first.

- Disassemble the protective cover (11) for the swivel motor: Unscrew the two screws from the lower motor plate (10) and remove the protective cover.
- Insert a screwdriver through the small slot in the lower motor plate to loosen the setscrew (12) of the switching cam – but do not unscrew it completely.
- Disassemble the lower motor plate including the swivel motor (10): Unscrew the four small screws at the foot of the lower motor plate and remove plate together with motor and sensor (9).
  
  Please observe: The lower and upper motor plate are held by the same screws.
- Disassemble the switching cam (8): If necessary, loosen setscrew (12) further and remove switching cam from the drive rod (1).
- Remove the upper motor plate (7) with the pressed-in bearing shell (6) and the ball bearing (5) – the four small screws have already been unscrewed.

The drive rod (1) for the swivel movement of the carrying idlers is exposed.
Maintenance and repair

**Step 2: Disassembling the motor plate at the HPD slave**

In order to install the pulley at the HPD slave, the motor plate must be disassembled first – analogous to the disassembly of the upper motor plate at the HPD master.

- Unscrew the four small screws at the feet of the motor plate.
- Remove the motor plate with bearing shell and ball bearing.

**Step 3: Replacing the toothed belt with pulleys.**

- Pull the old toothed belt (3) with the two pulleys (2) off of the drive rods (1) of the HPD cassettes.
- On the two drive rods (1) of the HPD master and HPD slave, insert a parallel key (4) in the parallel key grooves, if necessary.
- Ensure that both parallel keys (4) on HPD master and HPD slave point in the same direction. Align the parallel keys, if necessary.
- Place a new toothed belt around the two pulleys.
- Push the two pulleys together with toothed belt onto the drive rods (1) of the HPD cassettes.

**Step 4: Re-assembling the HPD slave**

- Place motor plate with bearing shell and ball bearing over the drive rod and fasten with four screws.

**Step 5: Re-assembling the HPD master**

- Place upper motor plate (7) with bearing shell (6) and ball bearing (5) over the drive rod (1).
- Push switching cam (8) onto the drive rod and fasten it with the setscrew (12).
- Place the lower motor plate (10) including the swivel motor over the drive rod onto the upper motor plate (7) and fasten both motor plates with four screws.
- Place the protective cover (11) on the swivel motor and fasten with two screws.
**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 motors are maintenance-free within the operating parameters.
All bearings of the module feature a life-time lubrication and are maintenance-free within the operating parameters.

**Maintenance and inspection list**

<table>
<thead>
<tr>
<th>Component</th>
<th>Interval</th>
<th>Tasks / check</th>
<th>Work to be performed</th>
<th>Performed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete module</td>
<td>Weekly</td>
<td>General visual and acoustic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>remote check</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annually</td>
<td>Check screw connections</td>
<td>Retighten acc. to DIN standard, if necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Every 6 months</td>
<td>Check for cleanliness</td>
<td>Clean as required</td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>Every 6 months</td>
<td>Check temperature*</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for noise</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for oil loss</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for concentricity</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td>Carrying idlers</td>
<td>Every 6 months</td>
<td>Check for damage and wear</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td>Belt</td>
<td>Every 6 months</td>
<td>Check for damage and wear</td>
<td>Replace as required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check running behavior</td>
<td>Adjust as required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for cleanliness</td>
<td>Clean as required</td>
<td></td>
</tr>
<tr>
<td>Sensor</td>
<td>Every 6 months</td>
<td>Check fastening of components</td>
<td>Retighten acc. to DIN standard, if necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for cleanliness</td>
<td>Clean as required</td>
<td></td>
</tr>
</tbody>
</table>

* For permissible temperatures, see the operating instructions 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

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport process cannot be started and motor does not start up</td>
<td>Main switch and/or control, system switched off (is LED lit on control card?)</td>
<td>Check switch position, switch on main switch and/or key switch of the control system as required</td>
</tr>
<tr>
<td></td>
<td>Supply line damaged</td>
<td>Check supply line</td>
</tr>
<tr>
<td></td>
<td>Motor defective</td>
<td>Check motor, replace as required</td>
</tr>
<tr>
<td>Transport process cannot be started (RM 8712 only).</td>
<td>Main drive of flat belt conveyor standing still</td>
<td>Check flat belt conveyor motor, replace as required</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small rollers do not swivel</td>
<td>Control card defective</td>
<td>Replace control card</td>
</tr>
<tr>
<td></td>
<td>Supply line damaged</td>
<td>Check supply line</td>
</tr>
<tr>
<td></td>
<td>Control card settings incorrect</td>
<td>Change settings – see Control card manual</td>
</tr>
<tr>
<td></td>
<td>Bus connection interrupted</td>
<td>Check, replace cable as required</td>
</tr>
<tr>
<td></td>
<td>Motor defective</td>
<td>Check motor, replace as required</td>
</tr>
<tr>
<td></td>
<td>Motor plug connection interrupted</td>
<td>Check, replace as required</td>
</tr>
<tr>
<td>Diversion angle is not correct</td>
<td>Proximity switch shifted</td>
<td>Adjust proximity switch</td>
</tr>
<tr>
<td>Transport shows jerky movements</td>
<td>Foreign objects in roller area</td>
<td>Remove foreign objects</td>
</tr>
<tr>
<td>Goods are not being transported</td>
<td>Round belt torn</td>
<td>Replace round belt</td>
</tr>
<tr>
<td></td>
<td>Round belt tension too low</td>
<td>Replace round belt</td>
</tr>
<tr>
<td></td>
<td>Control card defective</td>
<td>Replace control card</td>
</tr>
<tr>
<td></td>
<td>Control card settings incorrect</td>
<td>Change settings – see Control card manual</td>
</tr>
<tr>
<td></td>
<td>Bus connection interrupted</td>
<td>Check, replace cable as required</td>
</tr>
<tr>
<td></td>
<td>Motor defective</td>
<td>Replacing the motor</td>
</tr>
<tr>
<td></td>
<td>Motor plug connection interrupted</td>
<td>Check, replace as required</td>
</tr>
<tr>
<td>Zone starts up sporadically</td>
<td>Photo cell kit shifted, dirty or defective</td>
<td>Adjust, clean or replace photo cell kit</td>
</tr>
<tr>
<td>(10-second cycle)</td>
<td>Supply voltage out of range</td>
<td>Adjust voltage at power supply (22 V - 28 V)</td>
</tr>
<tr>
<td></td>
<td>Output of power supply too low</td>
<td>Dimension power supply accordingly</td>
</tr>
</tbody>
</table>
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.
HPD 24-V master (RM 8711)
## Spare and wear parts

### Tab. 1: RM 8711

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Designation</th>
<th>Comment</th>
<th>S/W/T*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Slave belt</td>
<td>Round belt</td>
<td>W</td>
</tr>
<tr>
<td>2</td>
<td>Drive shaft</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>Ball bearing</td>
<td>DIN 625-6204</td>
<td>S</td>
</tr>
<tr>
<td>4</td>
<td>Carrying idlers (for slave belt)</td>
<td>Complete</td>
<td>S</td>
</tr>
<tr>
<td>5</td>
<td>Drive belt (PolyVee)</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>6</td>
<td>Belt pulley (for drive belt)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>7</td>
<td>Gear</td>
<td>T = 31, m = 1.75</td>
<td>S</td>
</tr>
<tr>
<td>8</td>
<td>Gear</td>
<td>T = 17, m = 1.75,</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x = 0.2085 mm</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Swivel unit (top)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>10</td>
<td>Swivel unit (bottom)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>11</td>
<td>PTFE ring</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>12</td>
<td>Ball bearing</td>
<td>DIN 625-6004</td>
<td>S</td>
</tr>
<tr>
<td>13</td>
<td>Sensor</td>
<td>Proximity switch</td>
<td>S</td>
</tr>
<tr>
<td>14</td>
<td>Drive motor for carrying idler movement</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>15</td>
<td>Drive motor for swivel movement</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>16</td>
<td>Control card (not shown)</td>
<td></td>
<td>S</td>
</tr>
</tbody>
</table>

* S = spare part, W = wear part, T = tool
Spare part drawing
RM 8712

HPD 400-V master (RM 8712)

High Performance Divert 400-V master
## Spare parts list

### HPD 400-V master (RM 8712)

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Designation</th>
<th>S/W/T*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Slave belt</td>
<td>Round belt</td>
</tr>
<tr>
<td>2</td>
<td>Drive shaft</td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>Ball bearing</td>
<td>DIN 625-6204</td>
</tr>
<tr>
<td>4</td>
<td>Carrying idlers (for slave belt)</td>
<td>Complete</td>
</tr>
<tr>
<td>5</td>
<td>Drive belt (transfer belt) (PolyVee)</td>
<td>W</td>
</tr>
<tr>
<td>6</td>
<td>Belt pulley (for drive belt)</td>
<td>S</td>
</tr>
<tr>
<td>7</td>
<td>Gear</td>
<td>T = 31, m = 1.75</td>
</tr>
<tr>
<td>8</td>
<td>Gear</td>
<td>T = 17, m = 1.75, x = 0.2085 mm</td>
</tr>
<tr>
<td>9</td>
<td>Swivel unit (top)</td>
<td>S</td>
</tr>
<tr>
<td>10</td>
<td>Swivel unit (bottom)</td>
<td>S</td>
</tr>
<tr>
<td>11</td>
<td>PTFE ring</td>
<td>W</td>
</tr>
<tr>
<td>13</td>
<td>Sensor</td>
<td>Proximity switch</td>
</tr>
<tr>
<td>15</td>
<td>Drive motor for swivel movement</td>
<td>S</td>
</tr>
<tr>
<td>16</td>
<td>Control card (not shown)</td>
<td>S</td>
</tr>
<tr>
<td>17</td>
<td>Drive roller with belt head</td>
<td>S</td>
</tr>
<tr>
<td>18</td>
<td>Idler pulley</td>
<td>S</td>
</tr>
</tbody>
</table>

Tab. 2: RM 8712

* S = spare part, W = wear part, T = tool
High Performance Divert Slave
## Spare and wear parts

### Spare parts list HPD slave (RM 8713)

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Designation</th>
<th>Comment</th>
<th>S/W/T*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Slave belt</td>
<td>Round belt</td>
<td>W</td>
</tr>
<tr>
<td>2</td>
<td>Drive shaft</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>Ball bearing</td>
<td>DIN 625-6204</td>
<td>S</td>
</tr>
<tr>
<td>4</td>
<td>Carrying idlers (for slave belt)</td>
<td>Complete</td>
<td>S</td>
</tr>
<tr>
<td>5</td>
<td>Drive belt (PolyVee)</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>6</td>
<td>Belt pulley (for drive belt)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>7</td>
<td>Gear</td>
<td>$T = 31, m = 1.75$</td>
<td>S</td>
</tr>
<tr>
<td>8</td>
<td>Gear</td>
<td>$T = 17, m = 1.75$, $x = 0.2085$ mm</td>
<td>S</td>
</tr>
<tr>
<td>9</td>
<td>Swivel unit (top)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>10</td>
<td>Swivel unit (bottom)</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>11</td>
<td>PTFE ring</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>19</td>
<td>Toothed belt (not shown)</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>20</td>
<td>Pulley (not shown)</td>
<td></td>
<td>S</td>
</tr>
</tbody>
</table>

**Tab. 3: RM 8713**

* S = spare part, W = wear part, T = tool
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 High Performance Divert 24 V and 400 V RM 8711 / RM 8712 / RM 8713

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)