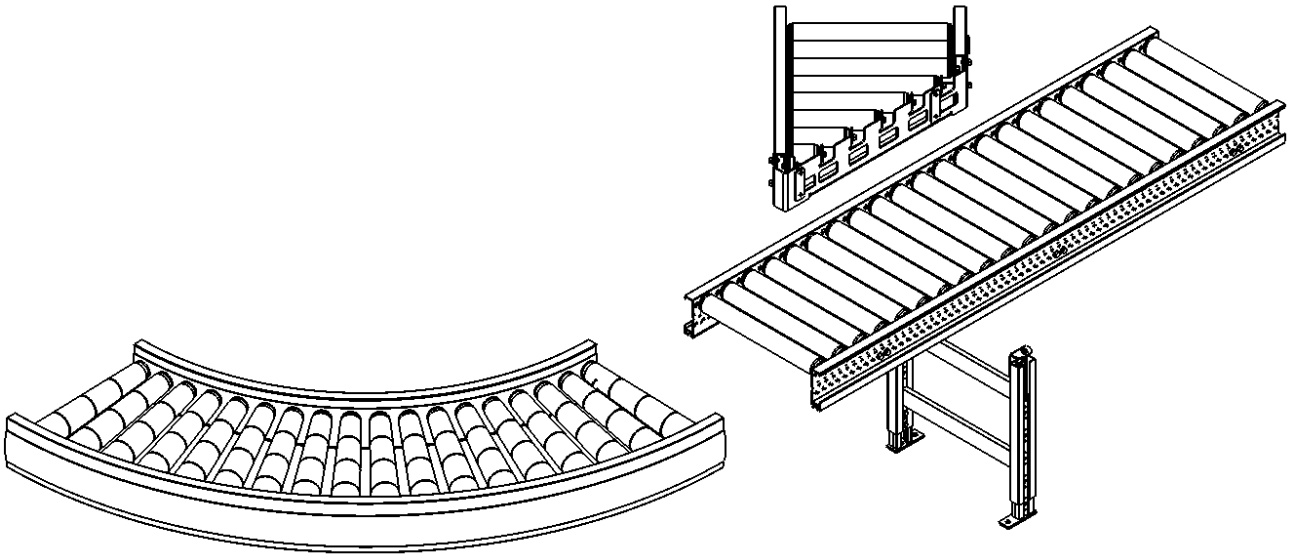
swisslog

# Assembly Instructions

## ERS 50 Gravity Roller Conveyor



Content:



November 20

**Manufacturer**
Swisslog GmbH
Martin-Schmeißer-Weg 6-8
44227 Dortmund
Germany
Tel. +49 231 75895 00
www.swisslog.com
logistics@swisslog.com

# Content

# 1 General Safety Instruction

## 1.1 Target Group

This documentation is aimed at users with the following knowledge and skills:

- Advanced knowledge of mechanical engineering
- Advanced knowledge of electrical engineering

## 1.2 Key to Symbols

| | |
|---|---|
|  | **Caution**<br>For your personal safety please precisely observe the working and operating procedures |
|  | **Warning**<br>Observe all instructions and procedures,<br>in order to maintain your plant in working condition. |
|  | **Note**<br>In order to keep the machine in working order, observe precisely all technical requirements for appropriate handling of the machine. |
|  | **Additional information**<br>Helps you to make optimum use of all the functions on your machine. |

## 1.3 Requirements and Conditions

| | |
|---|---|
| ⚠ CAUTION | **Supplement to the documentation**<br><br>- Generally applicable and local rules for accident prevention.<br>- Law on staff protection.<br>- Regulations on the protection of the environment. |
| NOTE | **Qualification of staff**<br><br>- You have the required training.<br>- You are thoroughly familiar with the use of the plant.<br>- You are familiar with the documentation contents. |
| ⚠ CAUTION | **Safe operation**<br><br>- There are no persons or obstacles in the danger areas.<br>- Shut down operation at once when there is a threat of danger.<br>- Regular inspection and maintenance keeps your plant ready for use.<br>- Immediately rectify any defects or damage which occurs.<br>- Ensure all use is for the purpose intended.<br>- Protective equipment is fitted professionally and is fully functional.<br>- Safety and danger notices must be fully legible. |
| i | **Explanation of terminology**<br><br>Maintenance: Measures for upkeep and repairs of the projected status and also determining and assessing the actual status of the technical devices of a system. The measures comprise:<br><br>- Inspection<br>- Servicing<br>- Repairs |
| ⚠ CAUTION | **Safe maintenance**<br><br>- Access to the plant is forbidden for all unauthorized persons.<br>- You are thoroughly aware of all sources of danger.<br>- You have switched off the main switch and secured it against being switched on again.<br>- You access the plant only at those points designed for access.<br>- Never ignore or fail to use safety equipment.<br>- Always observe the safety notices. |

| | |
|---|---|
| WARNING | **Correct maintenance**<br><br>- Appropriately trained maintenance staff.<br>- You are familiar with the maintenance measures.<br>- You have completed the tests required within the time period laid down.<br>- You use suitable tools.<br>- Immediately rectify any defects or damage which occurs. |

### 1.3.1 Special safety devices

| | |
|---|---|
| CAUTION | **Protective measures**<br><br>- Machine movements are dangerous.<br>- Danger areas of this kind are to be separated from the rest of the plant by protective screens, Plexiglas barriers, etc. and marked with safety warning notices. |
| i | **Further safety devices**<br><br>- See documentation on electrical system, controls. |

### 1.3.2 Intended use and misuse

Intended use

| | |
|---|---|
| WARNING | **Products to be transported**<br><br>- You must not exceed the maximum load capacity. |
| CAUTION | **Products to be transported**<br><br>- The load must not project more than the amount foreseen above the carrier, in order to avoid tipping, catching or falling.<br>- The carrier must be in a satisfactory condition. |
| CAUTION | **Plant**<br><br>- You must observe the generally valid safety notices.<br>- You must observe the maintenance regulations. |

Misuse

| | |
|---|---|
| ⚠ CAUTION | **Not permitted is**<br><br>The transport of:<br>- Explosives, highly inflammable or radioactive materials.<br>- Fluids not in closed barrels.<br>- Materials to which special hygienic regulations apply.<br>- Parts with high electrical potential and magnetic fields.<br>- Live animals.<br>- The removal of or ignoring of safety equipment.<br>- The ignoring of safety notices. |

### 1.3.3 Special Regulations

These regulations apply when working with the ERS Gravity Roller Conveyors.

| | |
|---|---|
| ⚠ WARNING | **Clothing & Appearance**<br><br>- Wear suitable work clothes and Personal Protection Equipment (no loose hanging clothes, safety shoes, gloves, etc.).<br>- Tie up long hair or wear a cap or hairnet.<br>- Remove jewellery (necklaces, rings, bracelets, watches, etc.). |

## 1.4 Risks

| Danger | Cause | Avoidance |
|---|---|---|
| Permanent injury to the area of the spine<br><br>Permanent injury to the area of the wrist | Excessive bodily strain during manual lifting of the products | Do not manually lift the product<br><br>Use appropriate lifting equipment |
| Serious injury to hands | Clamping of hands between moving objects<br><br>Catching of clothing / jewellery in moving machine parts during maintenance / operation | Do not touch the product when connected to a power source<br><br>Observe the general safety notices<br><br>Approved working clothes<br><br>Remove jewellery |
| Serious injury to head | Catching of hair in moving machine parts during maintenance / operation | In case of long hair, bind them together or wear a hairnet or cap |
| Serious injury to body parts | Falling of products during manual removal e.g. after a failure of the machine controls | Use of safety straps<br><br>Do not lift products exceeding specified weight limits<br><br>Use of protective gloves with grip coating |
| Serious injury to body parts | Falling of products from conveyor | If conveyor is placed overhead, make sure to place protection against falling products around the conveyor<br><br>Place side guard<br><br>Provide a stop at the end of each conveyor |

| Danger | Cause | Avoidance |
|---|---|---|
| Serious injury to body parts | During set up, sharp edges of the frame are accessible | Wear protective gloves during handling of the conveyor<br><br>Wear protective gloves during set up of the conveyor<br><br>Place cover caps after set up and installation of the conveyor |
| Serious injury to body parts | Uncontrolled movement of products on a declined gravity roller conveyor | If a gravity roller conveyor is used in a declined position, a risk assessment should be performed,<br><br>Apply brake rollers into the gravity roller conveyor to control the movement of products |

# 2 Product Information

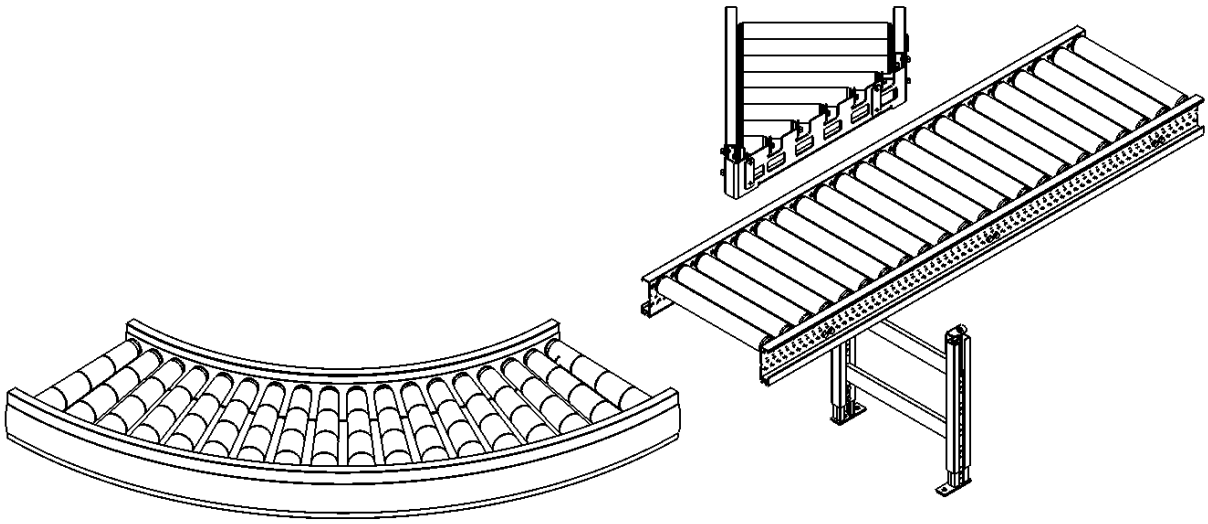
## 2.1 ERS 50 Gravity Roller Conveyor system

### 2.1.1 Product Description

The ERS Gravity Roller Conveyor System is a modular system used to transport products. The ERS Gravity Roller Conveyor System provides a low noise, high volume solution. The throughput of the standard ERS Gravity Roller Conveyor System depends on the weight and dimensions of the transported products.

The ERS Gravity Roller Conveyor System consists of the following principal components:

- ERS 50 Straight Module
- ERS 50 Curve Module
- ERS 50 Infeed - Outfeed Module



## 2.2 ERS 50 Straight Module

The ERS Straight Module is a straight gravity roller conveyor, used to transport products in a straight line. The ERS Straight Module provides a low noise, high volume solution. The throughput of the standard ERS Straight Module depends on the weight and dimensions of the transported products. ERS 50 Curve Module

## 2.3 ERS 50 Curve Module

The ERS Curve Module is a curved gravity roller conveyor, used to transport products in a curve. The ERS Curve Module provides a low noise, high volume solution. The throughput of the standard ERS Curve Module depends on the weight and dimensions of the transported products. ERS 50 Infeed - Outfeed Module

### 2.4 ERS 50 Infeed – Outfeed Module

The ERS Infeed / Outfeed Module is a gravity roller conveyor, used to merge / divide transport products. The ERS Infeed / Outfeed Module provides a low noise, high volume solution. The throughput of the standard ERS Infeed / Outfeed Module depends on the weight and dimensions of the transported products.

## 2.5 ERS Support

The ERS Gravity Roller Conveyor needs to be supported by a suitable supporting system in at least every 1.5 m distance. The supporting system has to be mounted with M8 hammerhead bolts onto the side profiles of the ERS Gravity Roller Conveyor.

### 2.5.1 ERS 60 Support

The ERS 60 Support could be used to support a roller conveyor and is placed underneath a roller conveyor and is bolted onto the ground.

## 2.6 ERS Sensor and Reflector

The ERS Sensor is a photocell based sensor used to detect an object or to control a zone of a ERS Gravity Roller Conveyor. The sensor can be integrated in High Profile Conveyors Modules or added to the Low Profile Conveyors Modules with a dedicated mounting brackets.

## 2.7 ERS Side Guide

The ERS Side Guide is used to guide conveyed objects on the ERS Gravity Roller Conveyor. The guide can be integrated on the Low Profile Conveyor Modules using the dedicated mounting brackets. There are two types of brackets; a fixed guide bracket and an adjustable guide bracket.

## 2.8 ERS Side Cover Profile

The ERS Side Covers profiles are used to cover the sides of the ERS Gravity Roller Conveyor profiles.

## 2.9 ERS Cover Caps

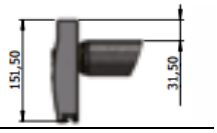
The ERS Cover Caps are used to cover the edges on the front and back side of the ERS Gravity Roller Conveyor profiles. The ERS Cover Caps are available for high and low profiles.

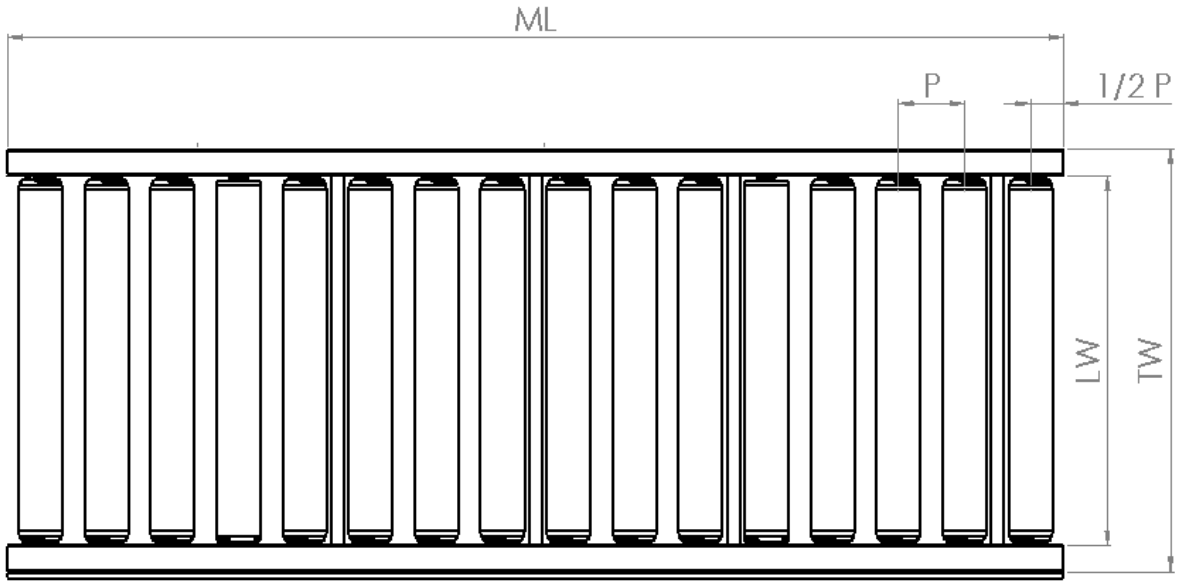
## 2.10 ERS Straight Connector

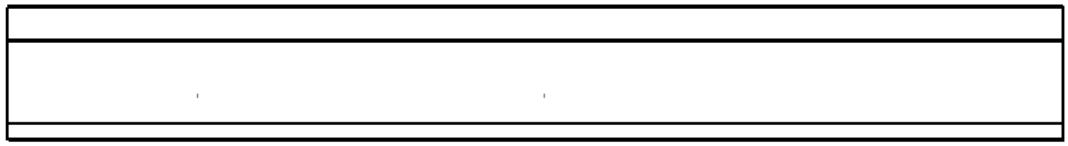
The ERS Straight Connector is used to connect multiple ERS Gravity Roller Conveyors. The connector is equipped with a plastic screen cover.

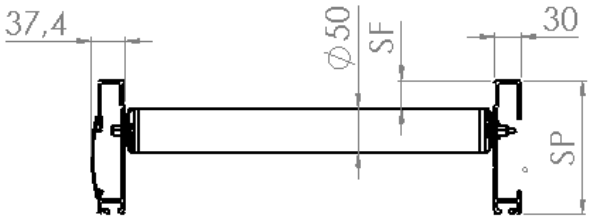
# 3 Technical data

## 3.1 ERS 50 Straight Module

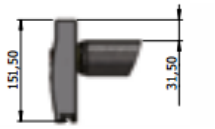
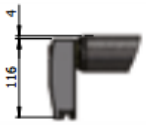
| General technical data | |
|---|---|
| Max. load capacity | 100 kg |
| Inclined / Declined | Suitable for decline |
| Ambient temperature | -5°C to +50°C |
| Humidity | Maximum 90%, no condensation |
| Noise emission | 70 < dB(A) (value can vary on installation conditions) |
| | **Maximum load capacity is depending on the combination of speed & load** |
| **Rollers** | |
| Roller diameter | Ø 50 mm |
| Roller material | Steel, galvanised |
| **Side profile** | |
| H profile (high) | 151.5 mm high<br>31.5 mm from top edge of the roller   |
| L profile (low) | Maximum sideways shift<br>116 mm high<br>4 mm from top edge of the roller   |
| Combinations (left/right) |   |
| **Dimensions** | |
| LW dimension | 420/520/620/820 mm |
| TW - Module width | LW +75 mm |
| P Roller separation | 75/100 mm |
| Sp - Side profile | 116/151.5 mm |
| SF - Side guide | 31.5 mm |

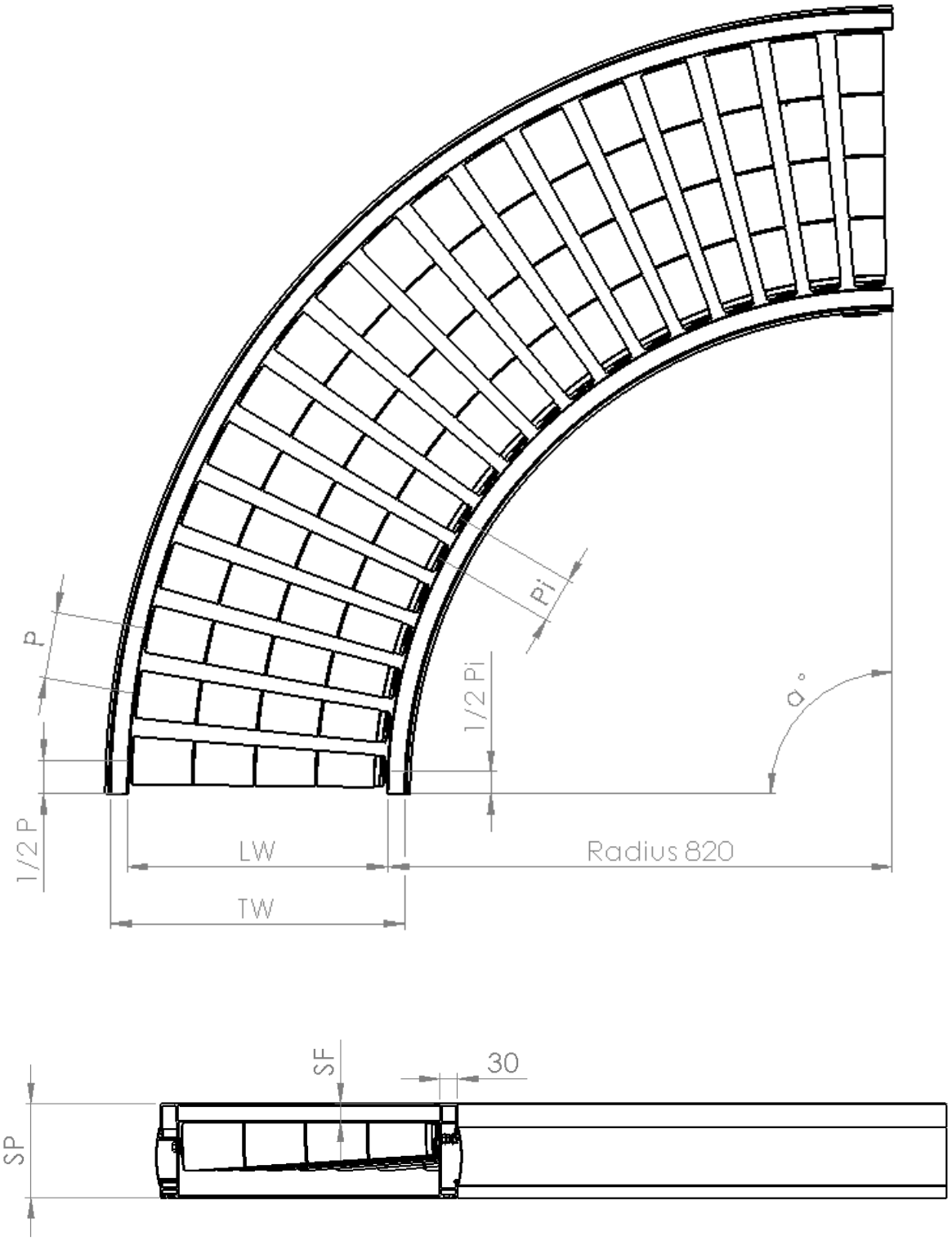


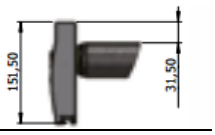
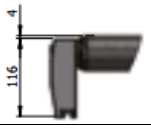


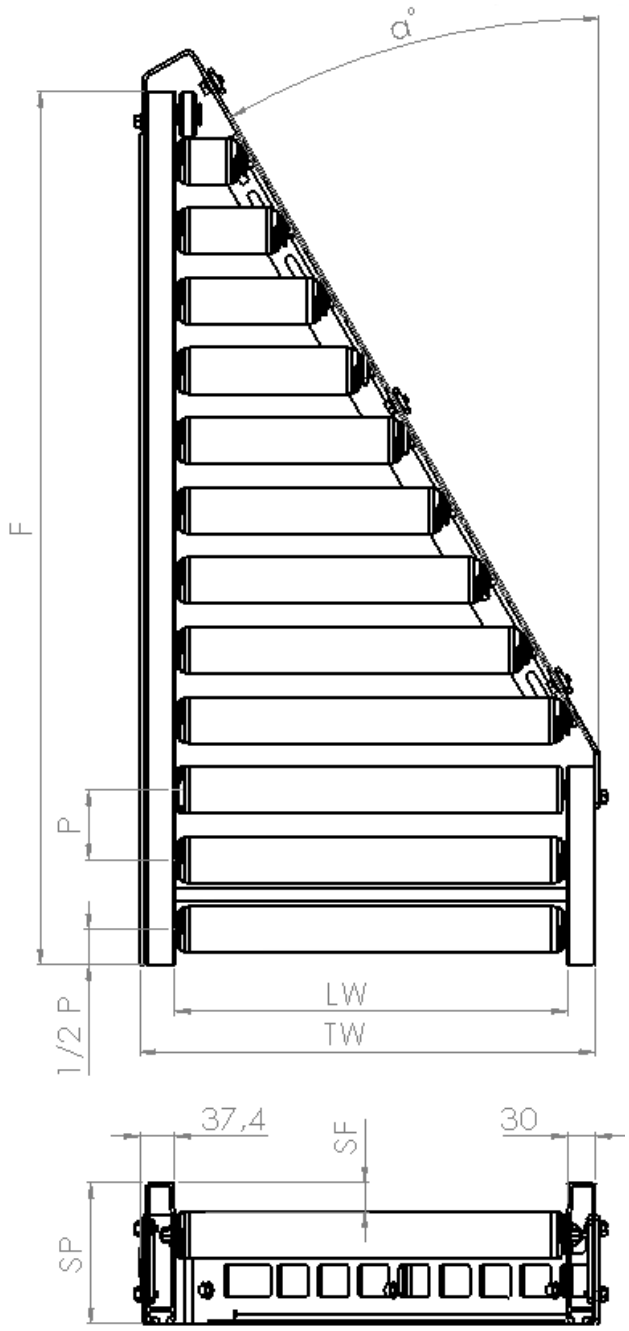
## 3.2 ERS 50 Curve Module

| General technical data | |
|---|---|
| | |
| Max. load capacity | 100 kg |
| Inclined / Declined | Not Suitable |
| Ambient temperature | -5°C to +50°C |
| Humidity | Maximum 90%, no condensation |
| Noise emission | 70 < dB(A) (value can vary on installation conditions) |
| | **Maximum load capacity is depending on the combination of speed & load** |
| | |
| **Rollers** | |
| Roller diameter | Ø 50 mm |
| Roller material | Steel with grey conical plastic elements |
| | |
| **Side profile** | |
| H profile (high) | 151.5 mm high<br>31.5 mm from top edge of the roller   |
| L profile (low) | Maximum sideways shift<br>116 mm high<br>4 mm from top edge of the roller   |
| Combinations (left/right) |   |
| | |
| **Dimensions** | |
| LW dimension | 420/520/620/820 mm |
| TW - Module width | LW + 75 mm |
| α-angle | 30°/45°/60°/90° |
| P Roller separation, external | ~ (0.087 mm x LW) + Pi |
| Pi Roller separation, internal | ~72 mm |
| Sp - Side profile | 116/151.5 mm |
| SF - Side guide | 31.5 mm |



## 3.3 ERS 50 Infeed - Outfeed Module

| | |
|---|---|
| **General technical data** | |
| | |
| Max. load capacity | 100 kg |
| Inclined / Declined | Suitable for decline |
| Ambient temperature | -5°C to +50°C |
| Humidity | Maximum 90%, no condensation |
| Noise emission | 70 < dB(A) (value can vary on installation conditions) |
| | **Maximum load capacity is depending on the combination of speed & load** |
| | |
| **Rollers** | |
| Roller diameter | Ø 50 mm |
| Roller material | Steel, galvanised |
| | |
| **Side profile** | |
| H profile (high) | 151.5 mm high<br>31.5 mm from top edge of the roller<br>  |
| L profile (low) | Maximum sideways shift<br>116 mm high<br>4 mm from top edge of the roller<br>  |
| Combinations (left/right) |  |
| | |
| **Dimensions** | |
| LW dimension | 420/520/620/820 mm |
| TW - Module width | LW +75 mm |
| F Front length | See attachment: Table sheet Infeed – Outfeed Module |
| α-angle | 30°/45° |
| P Roller separation | 75 mm |
| Sp - Side profile | 116/151.5 mm |
| SF - Side guide | 31.5 mm |



## 3.4 ERS Support

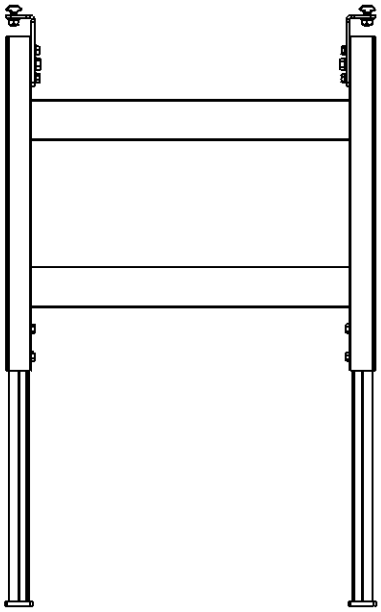
| General requirements | |
|---|---|
| Max. horizontal load capacity | Depends on the conveyor type and load |
| Max. vertical load capacity | Depends on the conveyor type and load |
| Max. pitch | 1500 mm |

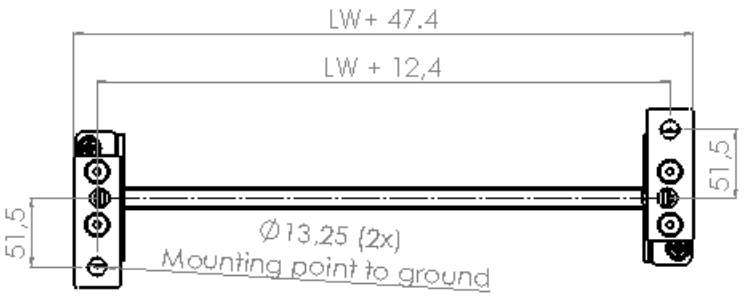
| | |
|---|---|
| i | For further information, see the ERS 69 Steel Supports - Assembly Instructions. |

### 3.4.1 ERS 60 Support

### 3.4.2

| General technical data | |
|---|---|
| Max. load capacity | 200 kg |
| | |
| Number of cross-members | 1 with 350 to 800 mm top edge of roller |
| | 2 with 800 to 1400 mm top edge of roller |
| | 3 with 1400 to 2000 mm top edge of roller |
| | |
| **Dimensions** | |
| LW dimension | 420/520/620/820 mm |
| Height to top side of rollers | 362 to 2000 mm |

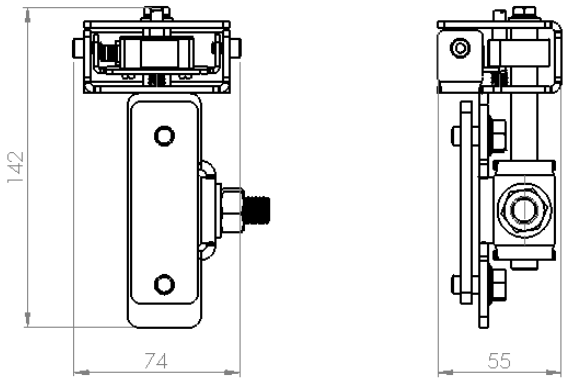




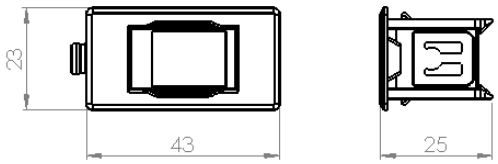
## 3.5 ERS Sensor and Reflector

| | |
|---|---|
| **General technical data** | |
| Operating range | 0.02 ... 4.5 m, With reflector TK(S) 100x100 |
| Light source | LED, RED |
| Supply voltage | 10 ... 30 V, DC |
| Open-circuit current | 0 ... 20 mA |
| Weight (sensor only) | 20 g |
| Operation temperature | -40 ... 60˚C |
| | |
| **Bracket** | |
| Weight | 660 g |
| | |
| **Clip** | |
| Weight | 3 g |

Sensor Bracket




Sensor Clip

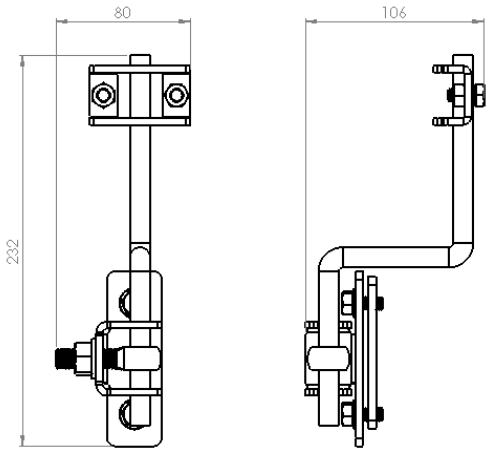



| | |
|---|---|
| i | More variations available, please refer to the Additional Parts Assembly Instruction. |

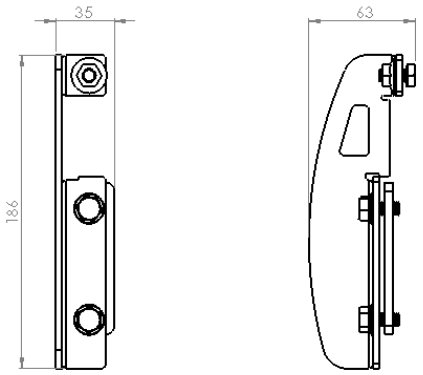
## 3.6 ERS Side Guide

| General technical data | |
|---|---|
| | |
| **Adjustable Guide Bracket** | |
| Roller conveyor profile | Low |
| Adjustability range (height) | 50 mm |
| Adjustability range (track width) | 50 mm |
| Suitable for curved conveyor track | Yes |
| Number of brackets in curve track | 90° = 7 / 60° = 5 / 45° = 5 / 30° = 4 |
| Number of brackets straight track | Every 0.5 m |
| Weight | 660 g |
| | |
| **Fixed Guide Bracket** | |
| Roller conveyor profile | Low |
| Suitable for curved conveyor track | No |
| Number of brackets straight track | Every 0.5 m |
| Weight | 430 g |
| | |
| **Guides** | |
| Side Guide Profile order length | **5600 mm** |
| Weight | 1940 g |
| | |
| Guide Wear Strip order length | **3000 mm** |
| Weight | 650 g |

Adjustable Guide Bracket



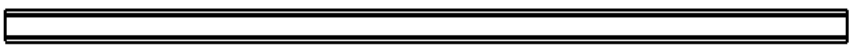

Fixed Guide Bracket




Side Guide Profile

Guide End

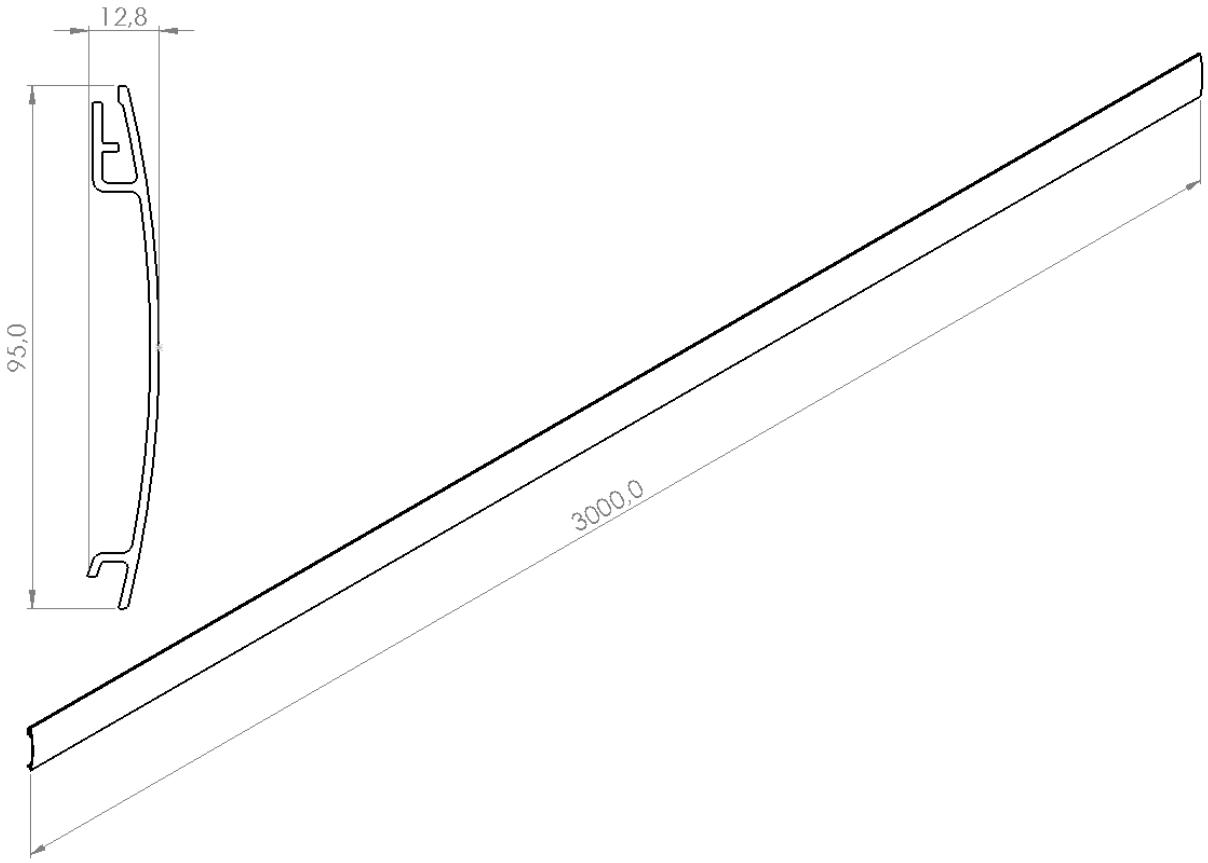
Guide Wear Strip



| | |
|---|---|
| i | More variations available, please refer to the Additional Parts Assembly Instruction. |

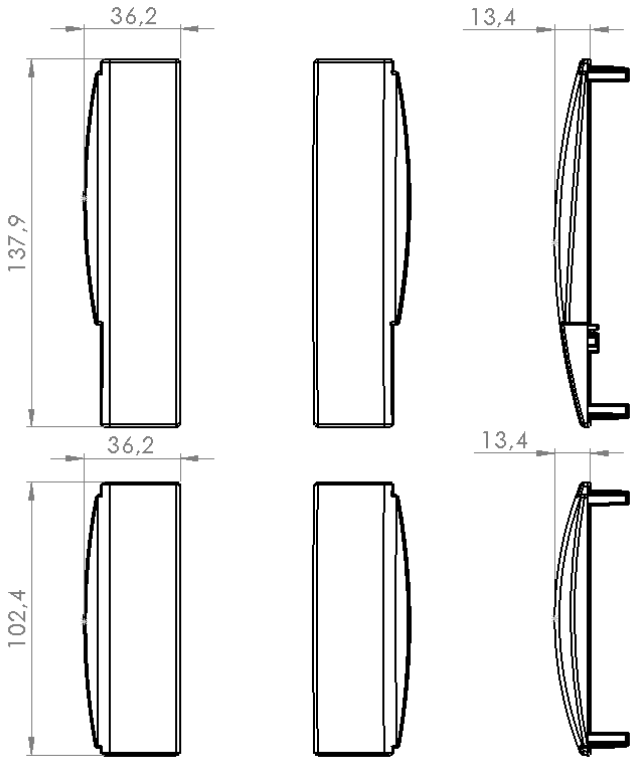
## 3.7 ERS Side Cover Profile

| General technical data | |
|---|---|
| **Dimensions** | |
| Side Cover Profile order length | 3000 mm |
| Weight | 826 g |



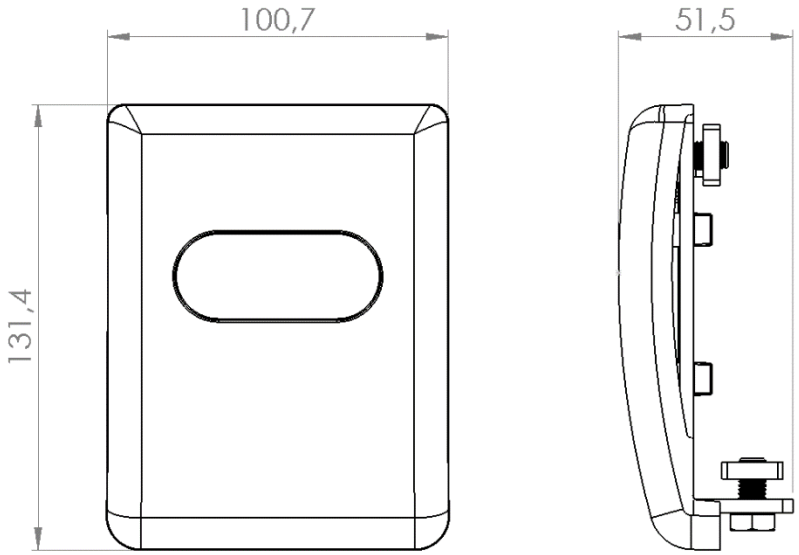
## 3.8 ERS Cover Caps

| General technical data | |
|---|---|
| **Dimensions** | |
| High profile Cover Cap weight | 16 g |
| Low profile Cover Cap weight | 12 g |



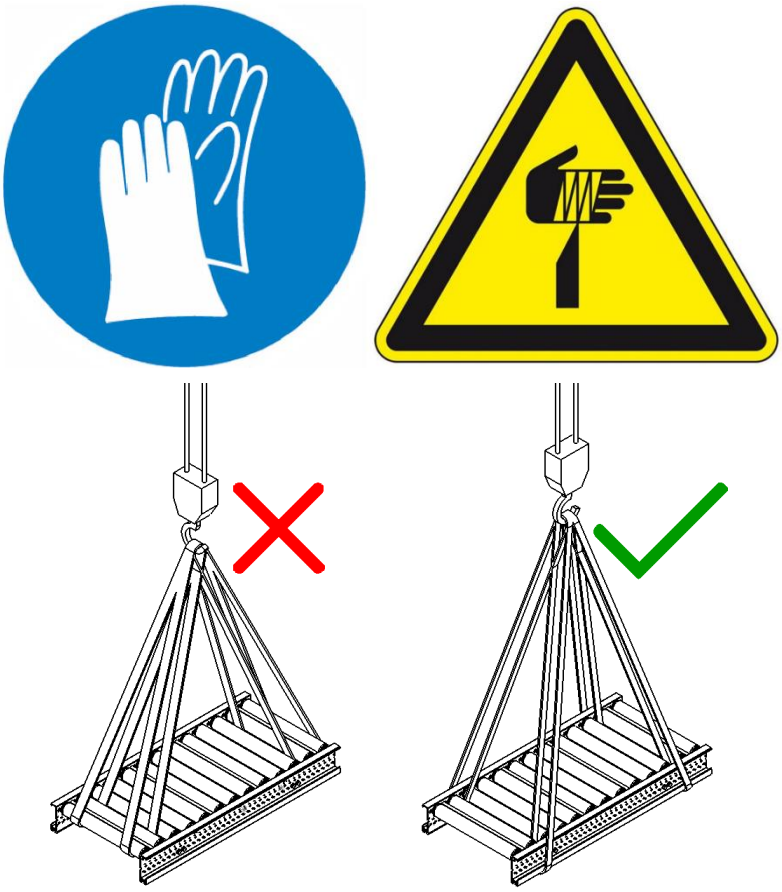
## 3.9 ERS Straight Connector

| General technical data | |
|---|---|
| Dimensions | |
| Weight | 476 g |



# 4 Transportation

| | |
|---|---|
| ⚠ CAUTION | Transportation<br><br>- Only qualified and authorized personnel should transport the packaged ERS Gravity Roller Conveyor System.<br>- If packaged contents are unstable, unload the package unit by unit and not by truck.<br>- When unpacked only transport single modules, unless they are already coupled before transportation by the supplier.<br>- Wear protective clothing, gloves and shoes during handling of the conveyor. Sharp edges are exposed.<br>- Be aware that the center of gravity is not always in the middle of the Conveyor Module. |



# 5 Assembly and installation

| | |
|---|---|
| ⚠ WARNING | **Installation**<br><br>- As the ERS Gravity Roller Conveyor Modules are a partial system of an overall installation, you need to perform a risk analysis of the entire installation.<br>- Identify the protective measures required concerning risks related to local conditions at the site and to usage.<br>- Define a safety zone in the working area.<br>- Secure the zone and set up proper signaling and appropriate protection<br>- For assembling modules at special heights, refer to safety rules concerning working on heights.<br>- Never climb or walk on top of the ERS Gravity Roller Conveyor Modules.<br>- During assembly wear appropriate Personal Protective Equipment.<br><br>- Always provide a control circuit with at least:<br>  - Main switch<br>  - Start–Stop function,<br>  - Emergency stop<br>- The control circuit has to be made according to EN-IEC 60204-1<br>- The emergency stop system has to be made according to EN-ISO13850 |

## 5.1 General Information

### 5.1.1 Assembly rules

The assembly method provided by Swisslog Technology Center Netherlands is a guide line in how to assemble the different modules. Always adapt the provided assembly method to the national and local safety rules and requirements.

The ERS Gravity Roller Conveyor Modules will always be delivered pre-assembled.

| | |
|---|---|
| i | **Edited components**<br><br>If any changes are made to the components or their location in the lanes, then Swisslog Technology Center Netherlands is no longer responsible for the product, as this represents unintended use of the ERS Gravity Roller Conveyor Modules. |

### 5.1.2 Qualified Personnel

Assembly and installation of the ERS Gravity Roller Conveyor Modules can only be done by properly instructed personnel. This personnel must be under the supervision of a manager who is technically competent and trained concerning the following:

- The products and their use.
- The dangers inherent in the assembly of heavy components.
- The risks related to incorrect assembly.
- The adjustments required for correct operation of the ERS Gravity Roller Conveyor Modules.

### 5.1.3 General Rules

Before starting the assembly take account for the following:

- Comply with the designed layout.
- Before starting assembly, clean the work site to create a safe environment.
- If other systems connect to the ERS Gravity Roller Conveyor Modules, use the same reference points to level the systems.
- Before unpacking the shipped ERS Gravity Roller Conveyor Modules, check the stability before remove packaging.
- Make sure you do not damage the ERS Gravity Roller Conveyor Modules.
- After assembly and before testing clean the work environment. Do not leave any spare parts or tools in the work site and surrounding areas.

### 5.1.4 Assembly

The ERS Gravity Roller Conveyor Modules, are always delivered completely assembled (up to 3 meters in length). The final assembly on site should only consist out of the following:

1. Mounting Support Stands or Support.
2. Coupling of Modules.
3. Wiring.

| | |
|---|---|
| ⚠ CAUTION | **Mounting**<br><br>Always mount a support stand or similar to the ground or another solid part of a construction. |
| ⚠ CAUTION | **Coupling**<br><br>Before coupling the different sections always place the sections on a support stand or Support. Never couple sections without proper support. Do not transport sections when connected, this could possibly cause failures. |
| i | **Wiring**<br><br>For wiring instructions check manufactures website or check the dealer section on our website for applicable user manuals. |

### *5.1.5 Start-up checks*

| | |
|---|---|
| ⚠ CAUTION | **Visual safety check**<br><br>- When connecting the ERS Gravity Roller Conveyor Modules to another machine or system perform a risk analysis of the entire installation.<br>- Check the installed modules for damage.<br>- Check the working area for foreign material in the working area.<br>- Check that all signage is in place (max. load capacity and restriction for use). |
| ⚠ WARNING | **Safety check**<br><br>- Check all personnel are properly instructed before working with or near the ERS Gravity Roller Conveyor Modules.<br>- Check for visible damage on the ERS Gravity Roller Conveyor Modules.<br>- Check for foreign material preventing correct operation. |

### 5.1.6 Operation

| | |
|---|---|
| ⚠ WARNING | **In operation**<br><br>Close down a system or ERS Gravity Roller Conveyor Modules Module if any of the following occurs:<br><br>- Suspicious noise from any of the component.<br>- A visibly worn or damaged component.<br>- Damage to structural components such as frame and support. |

### 5.1.7 In case of an accident

1. Stop the ERS Gravity Roller Conveyor Modules.
2. Secure the area and set up appropriate signage.
3. In the event of an accident: provide first aid and call the emergency services.
4. Inform qualified personnel.
5. Have the system repaired by qualified maintenance personnel.
6. Do not use the ERS Gravity Roller Conveyor Modules until authorized by qualified maintenance personnel.

## 5.2 ERS 50 Coupling Gravity Conveyor Modules

### 5.2.1 Couple/ uncouple of ERS Modules

Before coupling of the different ERS Gravity Roller Conveyor Modules could take place, the modules must be mounted on support stands.

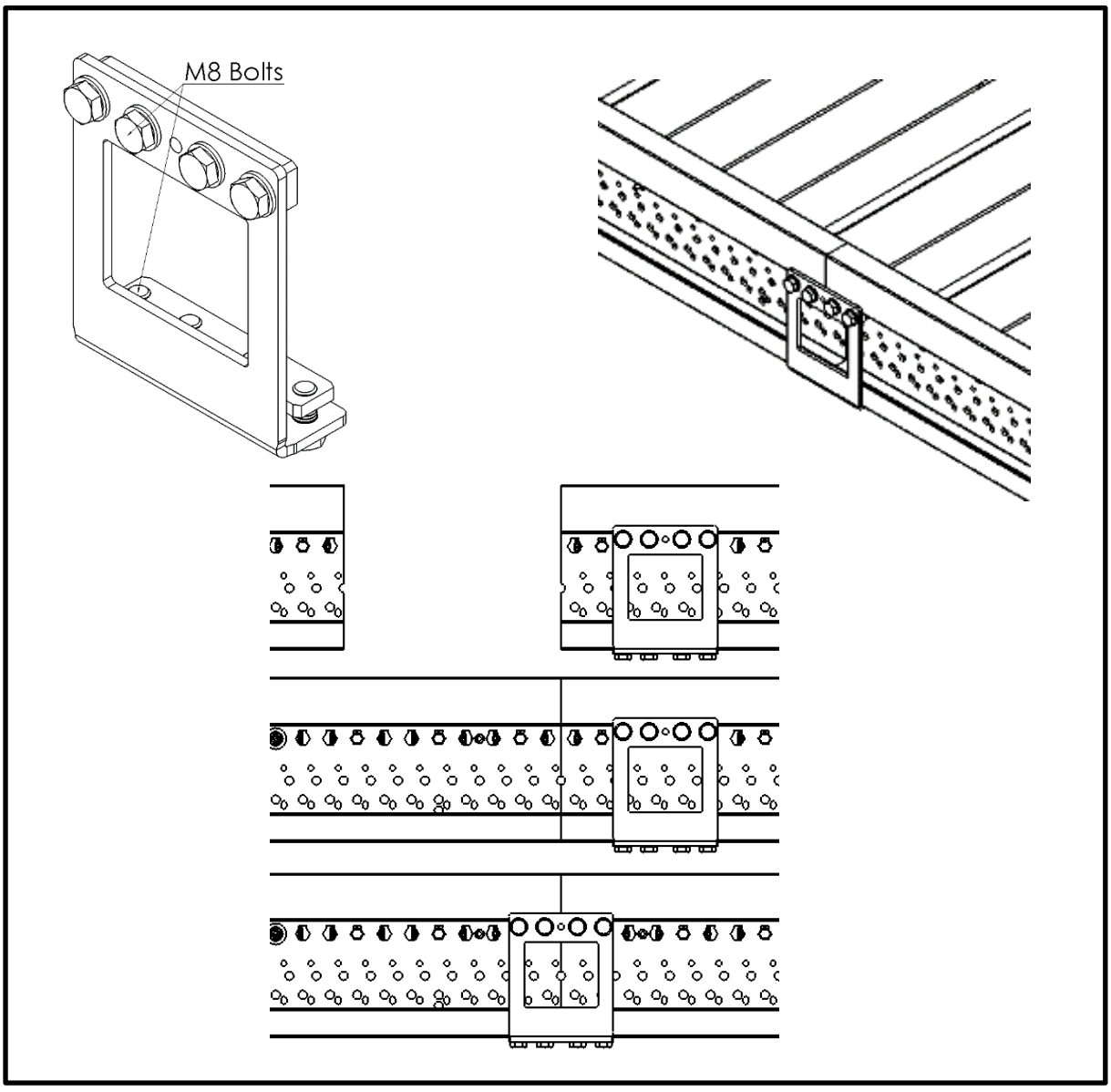
***Step 1*** Place two ERS Gravity Roller Conveyor Modules next to each other and slide Straight Connectors into both sides of the side profile of one of the ERS Gravity Roller Conveyor Modules.

***Step 2*** Align the ERS Gravity Roller Conveyor Modules.

***Step 3*** Slide the Straight Connectors halfway onto both modules.

***Step 4*** Tighten the M8 bolts with a torque of 23 Nm.

For uncoupling, repeat the steps above in reverse order.



## 5.3 ERS 50 Infeed – Outfeed Module

### 5.3.1 Mounting/ dismounting the ERS 50 Infeed - Outfeed Module

The Infeed – Outfeed Module could be connected to the side profile of the Straight Module, using clamping plates. The Infeed – Outfeed Module could only be connected to the side where no zone controller is attached.

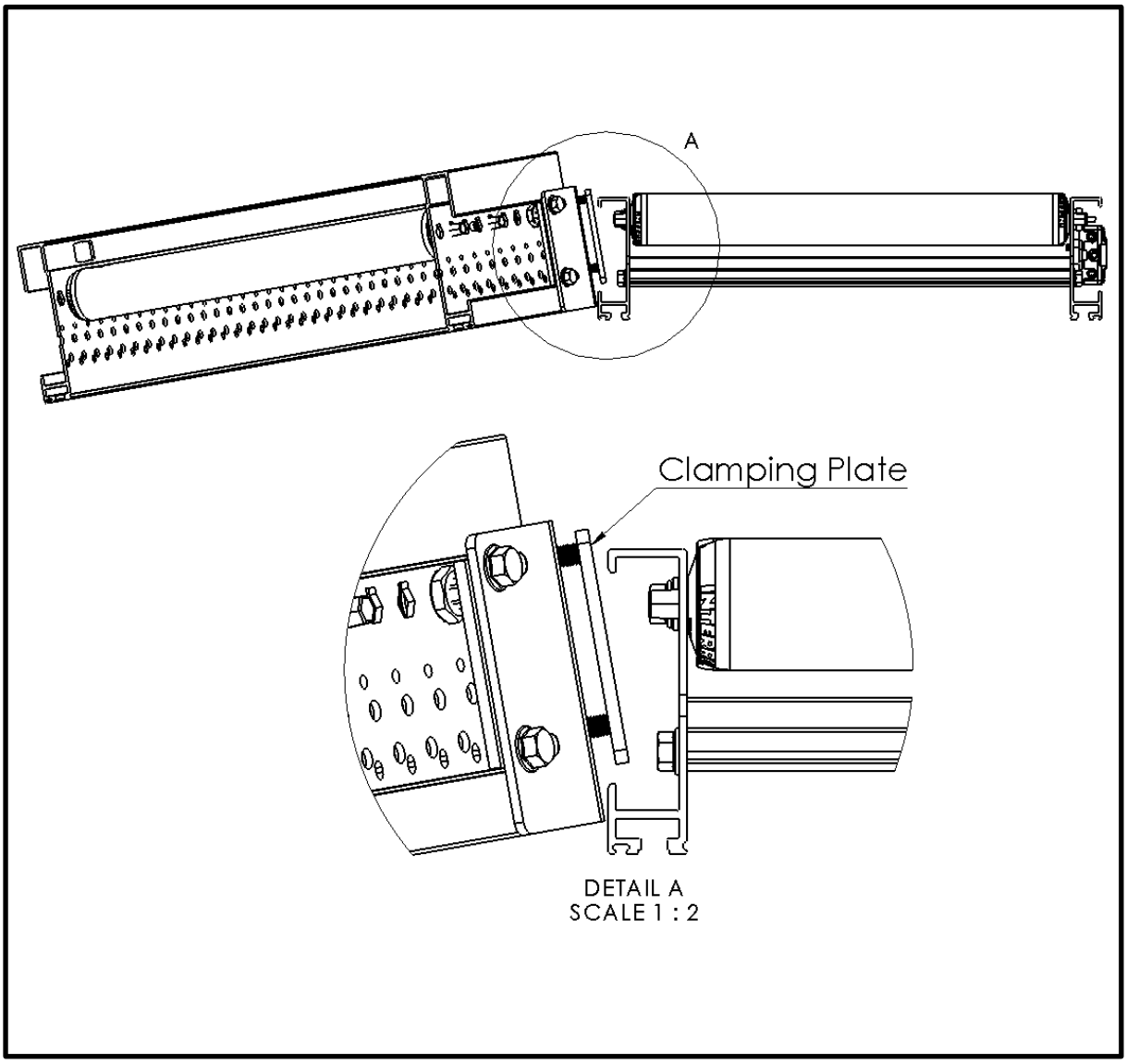
***Step 1*** Hoist and hang an Infeed – Outfeed Module next to a Straight Module, using appropriate lifting equipment.

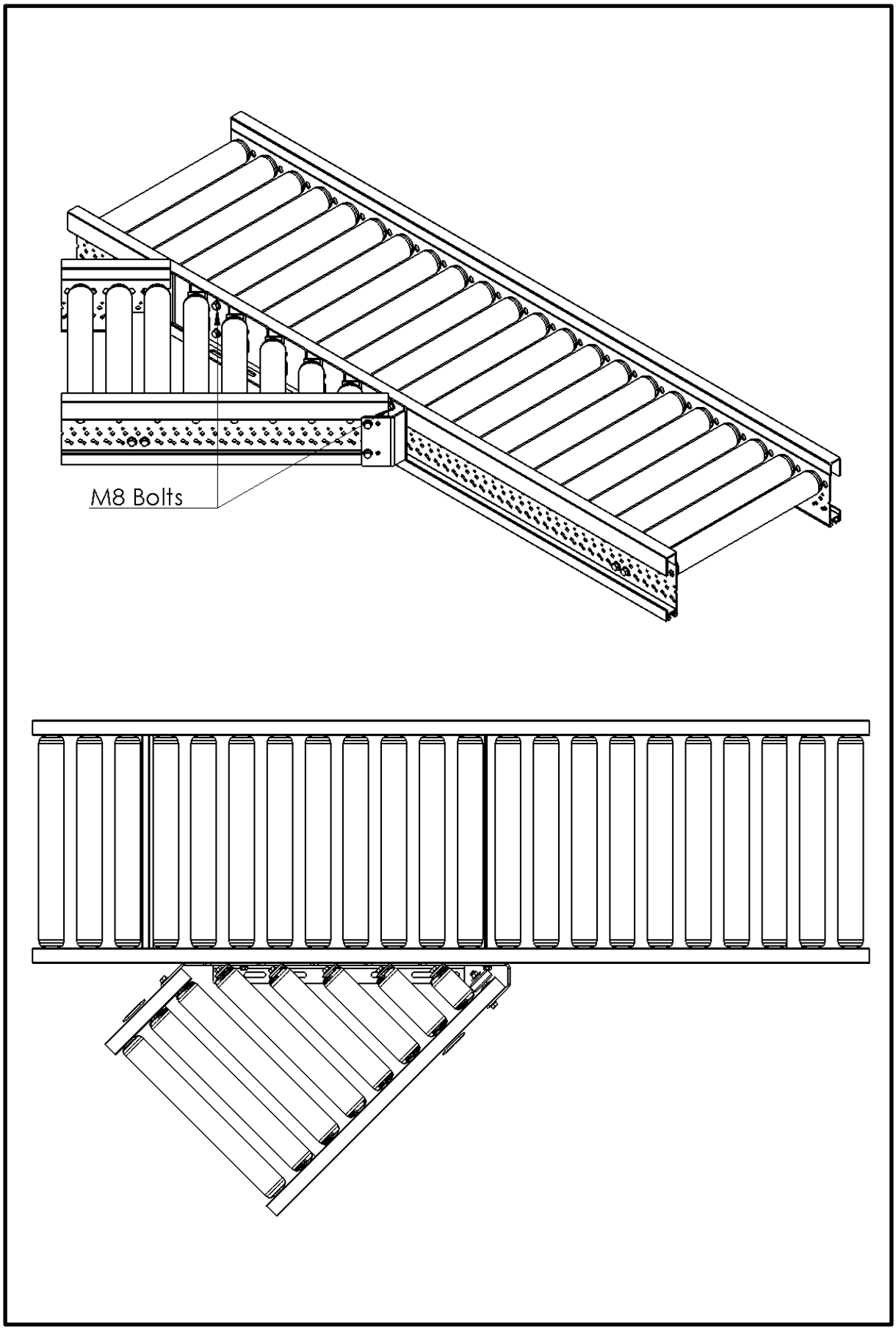
***Step 2*** Tilt the Infeed – Outfeed Module downward so the clamping plates fit into the side profile of the Straight Module.

***Step 3*** Tilt the Infeed – Outfeed Module horizontal.

***Step 4*** Tighten the M8 bolts with a torque of 23 Nm.

For dismounting the Infeed – Outfeed Module, repeat the steps above in reverse order.





## 5.4 ERS 60 Support

### 5.4.1 Mounting/ dismounting the ERS 60 Support

Before coupling of the different modules could take place, the modules must be mounted on support stands. Supports are attached with four M8 hammerhead bolts and torque nuts onto the side profiles of the module.

***Step 1*** Hoist and hang a roller conveyor module above the ground, 100 mm higher than the Support height, using appropriate lifting equipment.

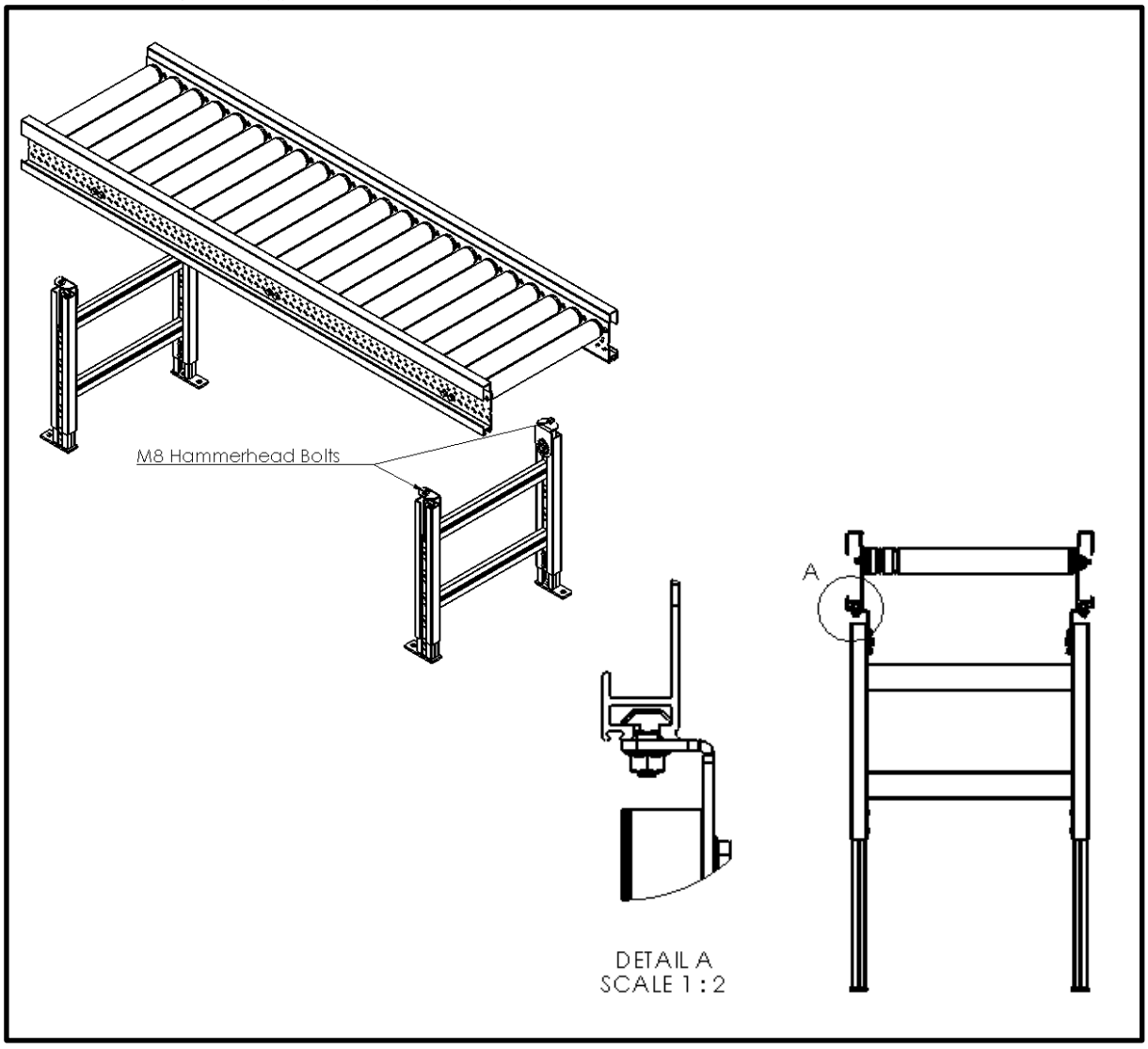
***Step 2*** Slide two Supports provided with M8 hammerhead bolts into each side of the roller conveyor module.

***Step 3*** Slide the Supports to the desired place.

***Step 4*** Place the M8 torque nuts onto the hammerhead bolts and tighten them.

***Step 5*** Lower the roller conveyor onto the ground.

For dismounting the Supports, repeat the steps above in reverse order.



## 5.5 ERS Sensor and Reflector

### 5.5.1 Mounting/ dismounting the ERS Sensor and Reflector – Sensor Clip

A High Profile ERS Gravity Roller Conveyor Module is equipped with dedicated mounting holes for the Sensorclip.

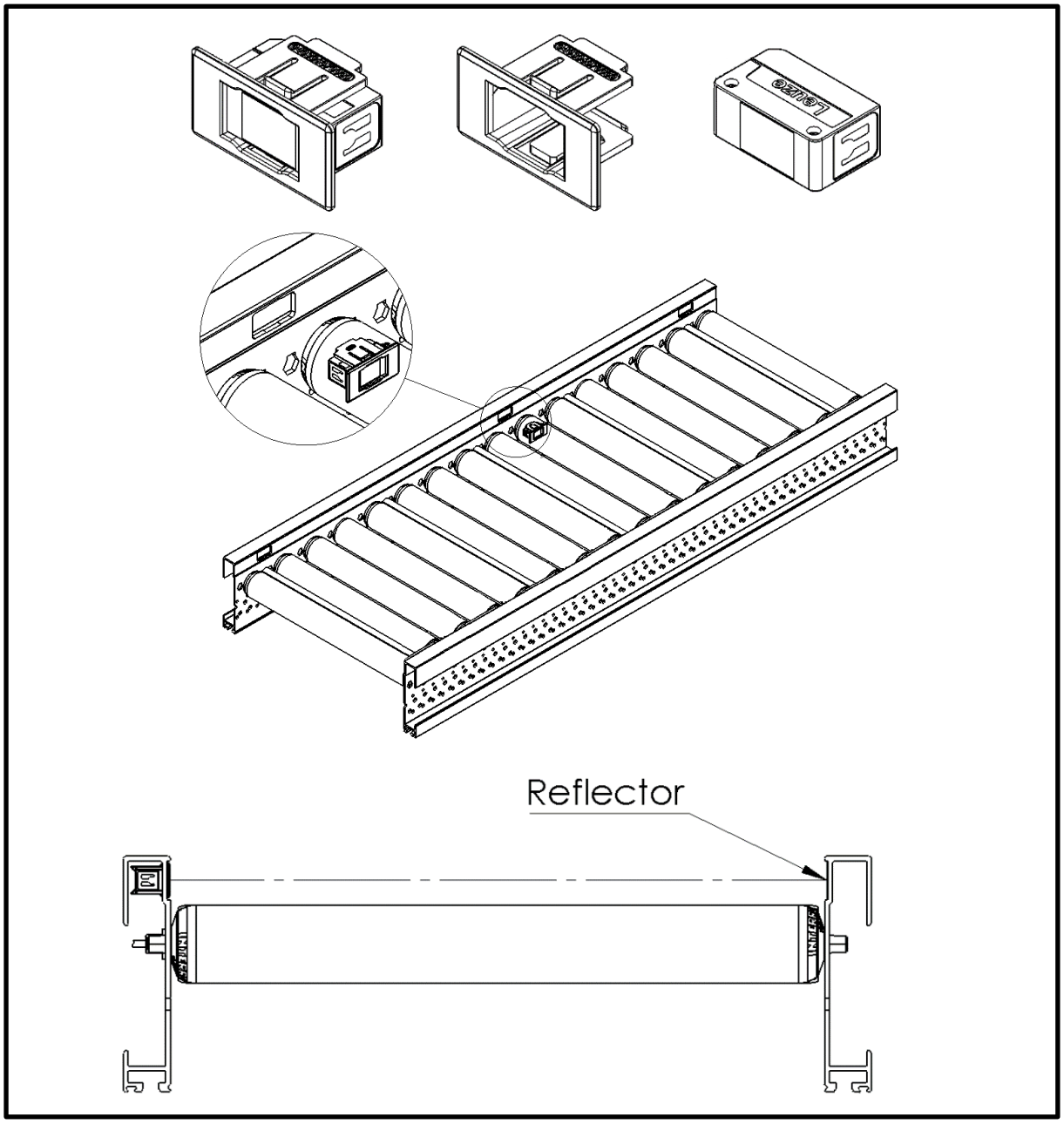
***Step 1*** Place the ERS Sensor in the Sensorclip as shown in the illustration

***Step 2*** Determine the desired position of the sensor.

***Step 3*** Push-click the clip with sensor in the corresponding hole.

***Step 4*** Place the reflector in line with the sensor on the opposite side of the roller conveyor.

For dismounting the Sensor and Reflector, repeat the steps above in reverse order.



### 5.5.2 Mounting/ dismounting the ERS Sensor and Reflector – Sensor Bracket

The Sensor bracket is suitable for Low Profile ERS Gravity Roller Conveyor Modules.

***Step 1*** Loosen the two M8 Bolts.

***Step 2*** Determine the desired position of the Sensor.

***Step 3*** Place the bracket on the roller conveyor as shown in the illustration below.

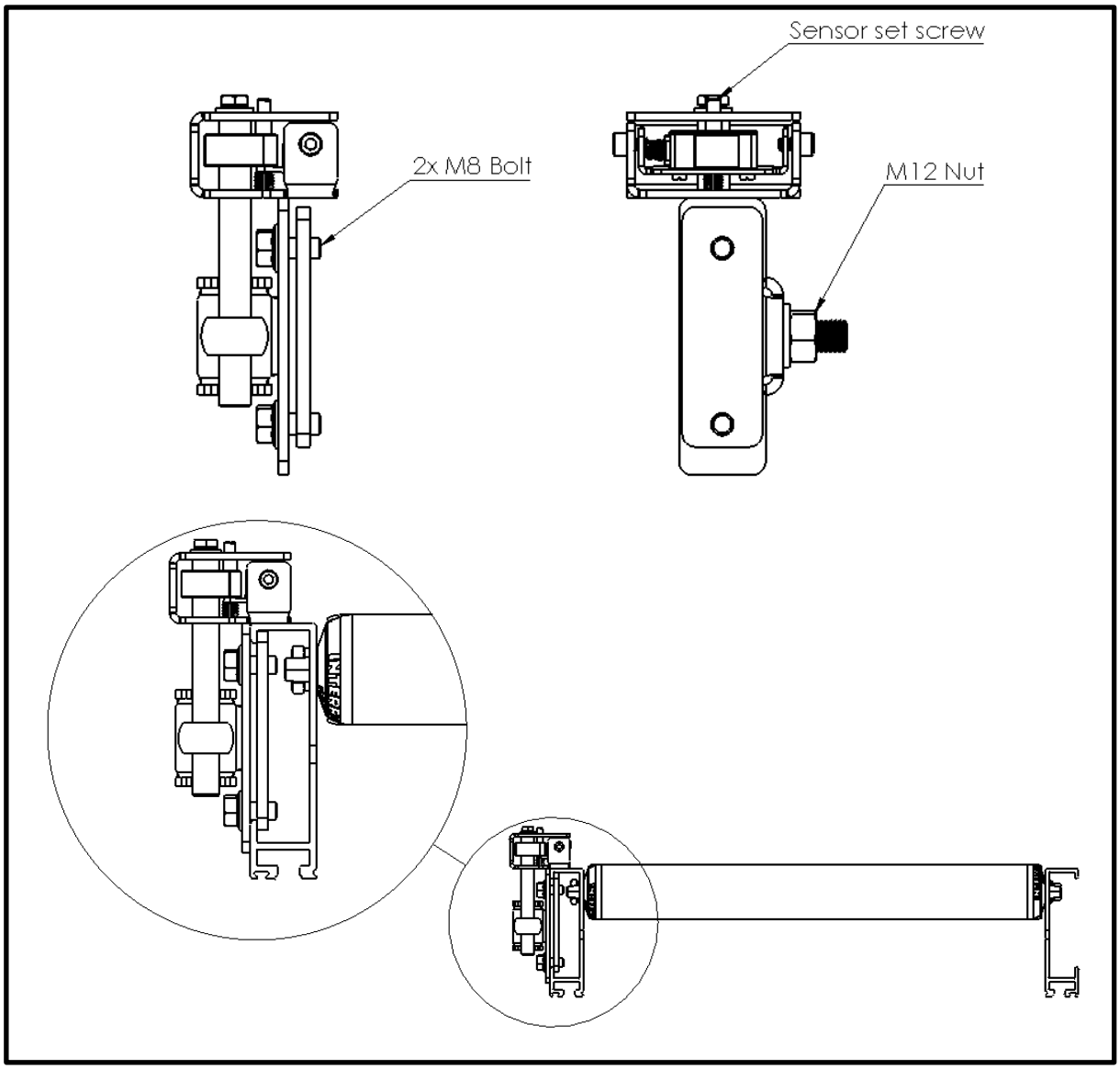
***Step 4*** Clamp the bracket to the Straight Module by tightening the M8 Bolts.

***Step 5*** Optional: Adjust the height and rotation by loosening the M12 nut.

***Step 6*** Optional: Adjust the orientation of the sensor with the Sensor set screw.

***Step 7*** For mounting the Reflector bracket repeat the steps above. Place the reflector in line with the sensor on the opposite side of the roller conveyor.

For dismounting the Sensor or Reflector, repeat the steps above in reverse order.



## 5.6 ERS Side Guides

### 5.6.1 Mounting/ dismounting the ERS Side Guide – Fixed Bracket Type

The ERS Side Guide Fixed Bracket is mounted on the low profile ERS Gravity Roller Conveyor Modules. The Fixed Bracket is not suitable for bended ERS Gravity Roller Conveyor Modules. The Side Guide Profile and the Guide Wear Strip should be cut to the desired length with a proper cutting tool. The Guide Wear Strip should be 50 mm longer then the Side Gide Profile to properly assemble the Guide Ends.

***Step 1*** Define the required amount of brackets (can be found in the product description).

***Step 2*** Loosen the M8 Bolts of the fixed bracket(s).

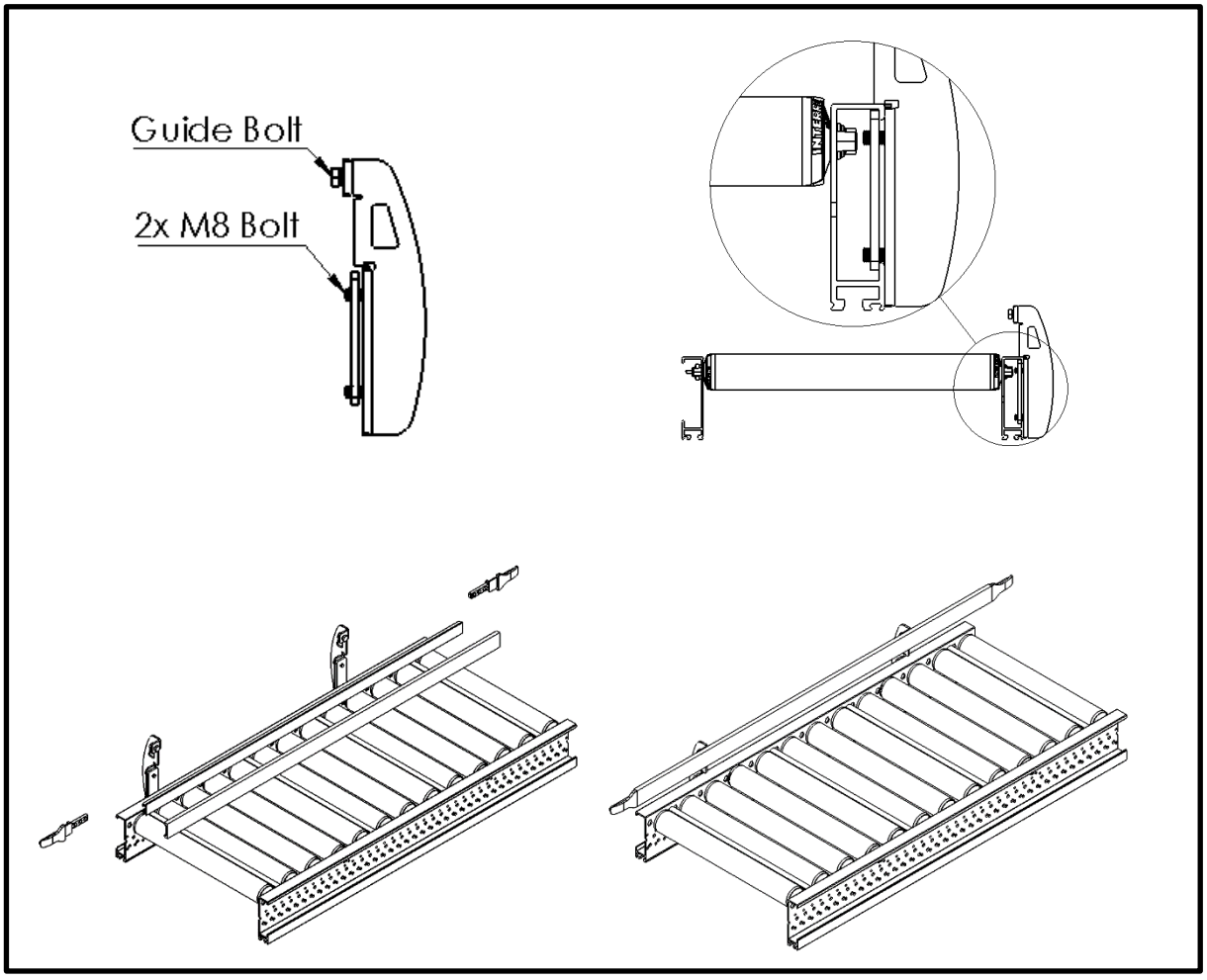
***Step 3*** Place the bracket(s) on the roller conveyor at the desired location and tighten the M8 Bolts.

***Step 4*** Slide the Side Guide Profile over the Guide Bolt and tighten it.

***Step 5*** Slide the Guide Wear Strip over the Side Guide Profile.

***Step 6*** Place the Guide End on both sides of the Side Guide.

For dismounting the ERS Side Guide, repeat the steps above in reverse order.



### 5.6.2 Mounting/ dismounting the ERS Side Guide – Adjustable Bracket Type

The ERS Side Guide Adjustable Bracket is mounted on the low profile ERS Gravity Roller Conveyor Modules. The Adjustable Bracket is suitable for curved ERS Gravity Roller Conveyor Modules. In case of a curved module, the ERS Side Guide Profile should be bend with a dedicated bending machine. The Side Guide Profile and the Guide Wear Strip should be cut to the desired length with a proper cutting tool. The Guide Wear Strip should be 50 mm longer then the Side Gide Profile to properly assemble the Guide Ends.

***Step 1*** Define the required amount of brackets (can be found in the product description).

***Step 2*** Loosen the M8 Bolts of the adjustable bracket(s).

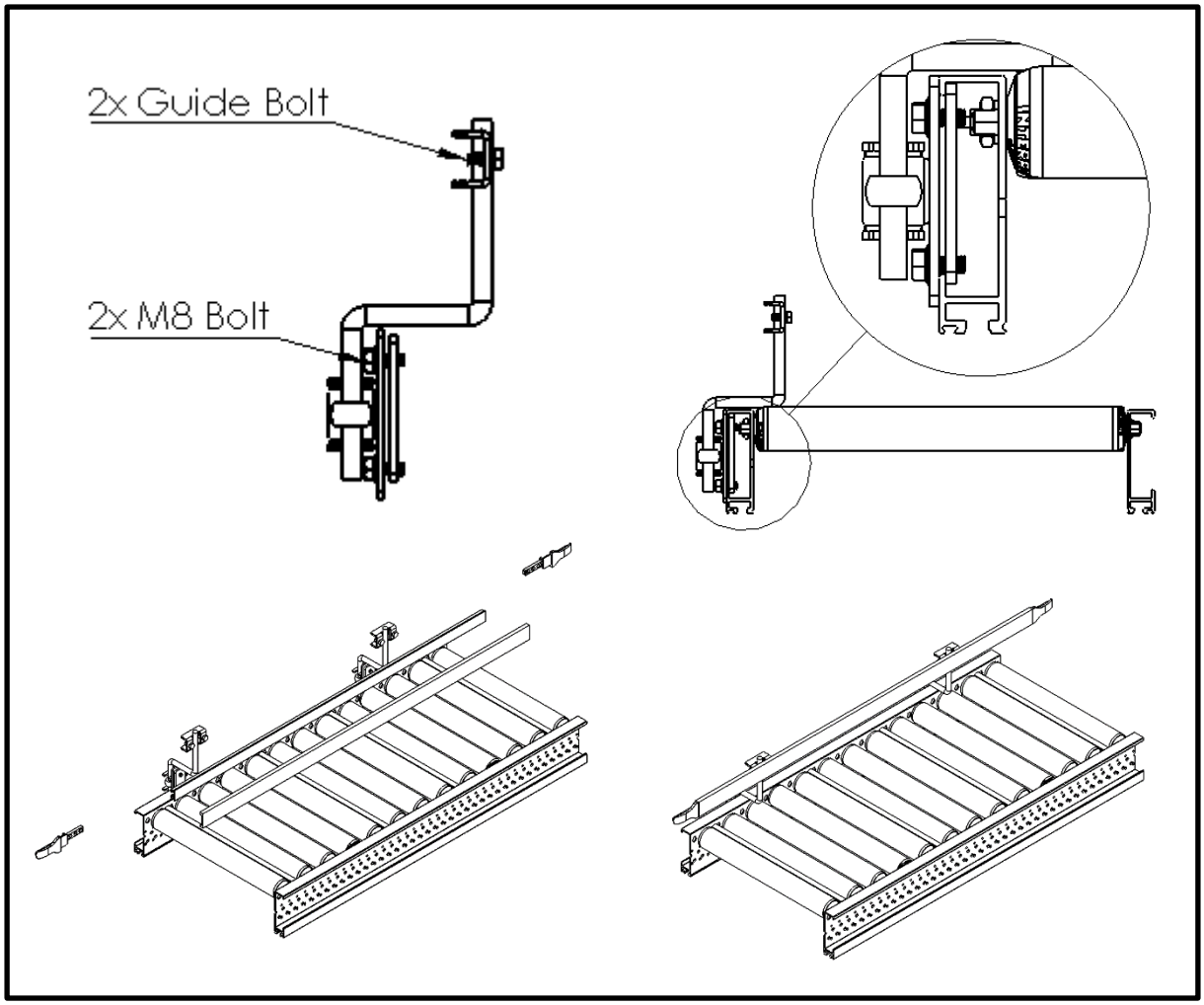
***Step 3*** Place the bracket(s) on the roller conveyor at the desired location and tighten the M8 Bolts.

***Step 4*** Slide the Side Guide Profile over the two Guide Bolts and tighten them.

***Step 5*** Slide the Guide Wear Strip over the Side Guide Profile.

***Step 6*** Place the Guide End on both sides of the Side Guide.

For dismounting the ERS Side Guide, repeat the steps above in reverse order.



## 5.7 ERS Side Cover Profile and ERS Cover Caps

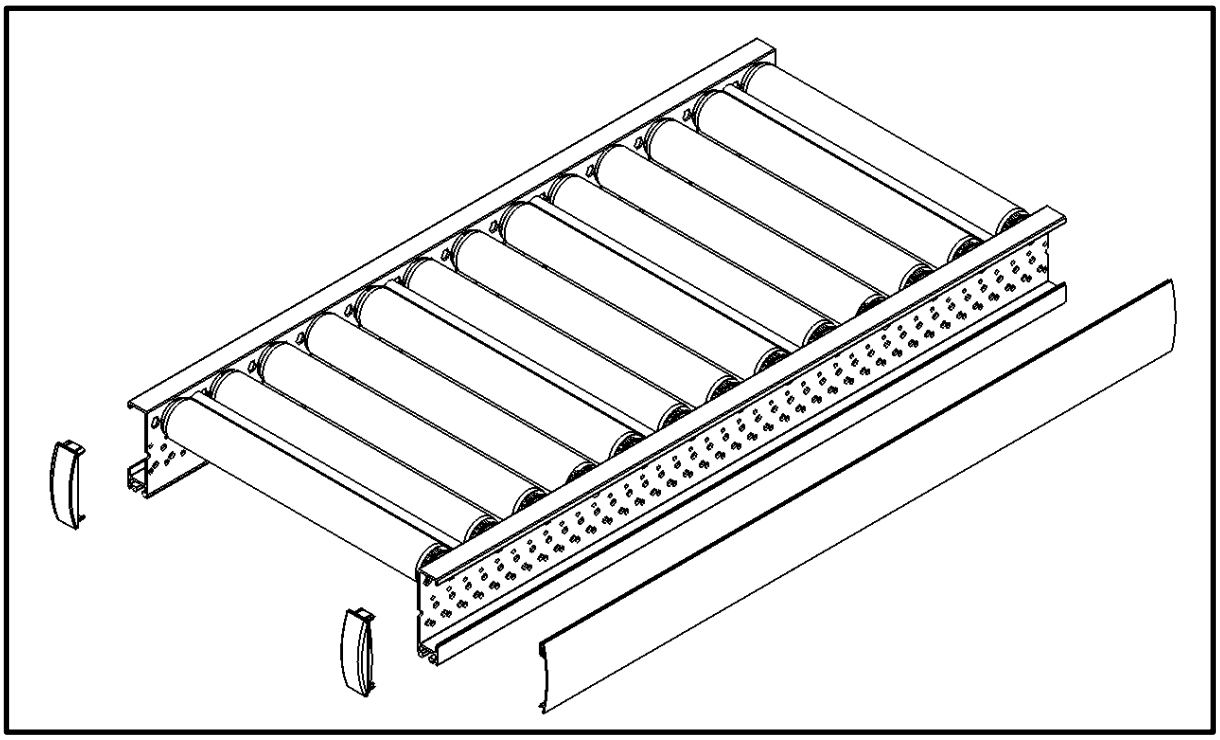
### 5.7.1 Mounting/ dismounting the ERS Side Cover Profile and ERS Cover Caps

The ERS Side cover Profile and ERS Cover Caps are mounted on the ERS Gravity Roller Conveyor Module side profiles. The ERS Side Cover Profile should be cut to the desired length with a proper cutting tool.

*Step 1* Define the required length of the ERS Side Cover Profile and cut the profile to the desired length.

*Step 2* Slide in or push in the ERS Side cover Profile and ERS Cover Caps.

For dismounting the ERS Side Cover Profile and ERS Cover Caps, repeat the steps above in reverse order.



# 6 Cleaning, Maintenance and Replacements

Make sure the ERS Gravity Roller Conveyor Module is disconnected from the power source when carrying out cleaning, maintenance or replacements.

## 6.1 General information

### 6.1.1 Cleaning Information

| | |
|---|---|
| NOTE | **Products**<br><br>- Do not use abrasive products, pressurized jets or products which may cause oxidization or damage the equipment.<br>- Clean the ERS Gravity Roller Conveyor Modules using a dry cloth. |

### 6.1.2 Maintenance Information

| | |
|---|---|
| ⚠ CAUTION | **Safety**<br><br>- Make sure maintenance is carried out by qualified personnel who are familiar with the proper procedures and instructions.<br>- Secure the working area and shut down the machinery and apply appropriate signage. Make sure nobody can start up the machinery during maintenance.<br>- Wear Personal Protective Equipment.<br>- When in doubt contact the supplier or manufacturer of the parts.<br>- Make sure the complete system is disconnected from the power source when carrying out cleaning, maintenance or replacements. |
| i | **Third party spare parts**<br><br>Some parts are used from third parties, mostly electronics.<br>In case of the ERS Gravity Roller Conveyor Modules this can be:<br><br>- Inductive Sensors<br><br>The third parties deliver these parts with stand-alone user manuals. Please check the appendix or visit the manufacturer's website for additional maintenance and mounting information. |

### 6.1.3 Maintenance intervals

defines the maintenance intervals according to the **operating hours**. During these periods, The ERS Gravity Roller Conveyor System has to be disconnected from the electrical network, cleaned, and investigated for wear. Faults observed during the inspections and unforeseen changes must be corrected immediately.

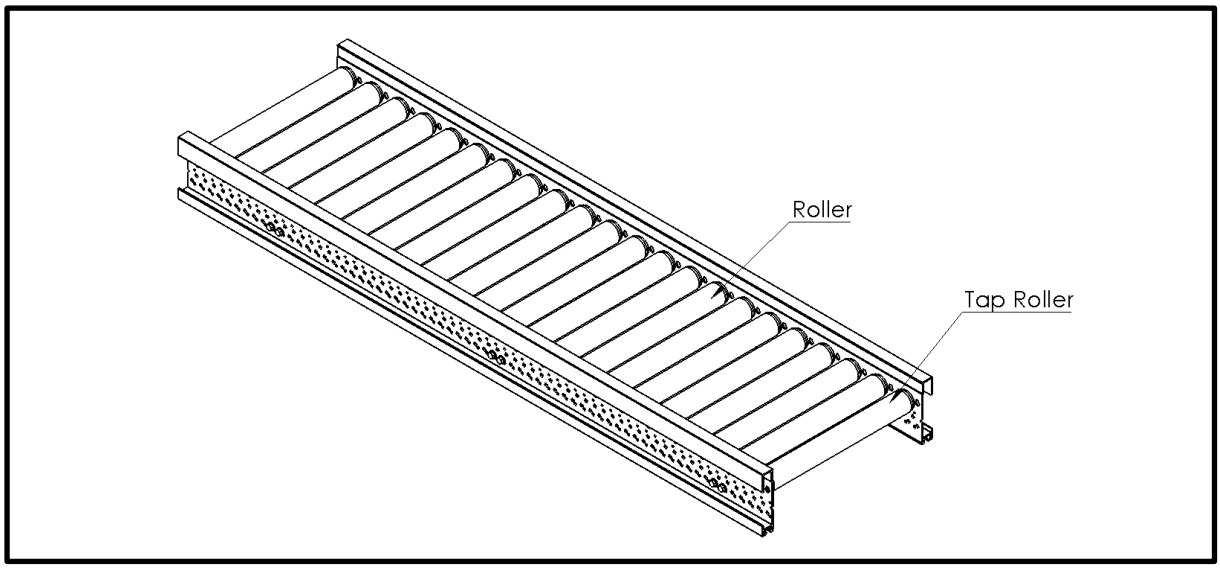
The maintenance activities are to be performed as listed.

| **Working period**<br>In hours per day | **Interval**<br>In months |
|---|---|
| 0-8 | 3 |
| 8-16 | 2 |
| 16-24 | 1 |

If maintenance is not performed as scheduled, damage can occur. If maintenance intervals are not complied with, guarantee expires.

## 6.2 ERS 50 Straight / Curve / Infeed / Outfeed

### 6.2.1 Maintenance




| | Part | Inspection | Result | Action |
|---|---|---|---|---|
| 1. | Tap Roller | Mounting check | Mounting bolt too loose | Tighten |
| | | Acoustic check | Noise | Replace Tap Roller |
| | | Visual check | Damaged Roller | Replace Tap Roller |
| 2. | Roller | Acoustic check | Noise | Replace Roller |
| | | Visual check | Damaged Roller | Replace Roller |

### 6.2.2 Replacements

#### *6.2.2.1 Roller Replacement*

| | |
|---|---|
| ⚠ CAUTION | Make sure the Module is disconnected from the power source when carrying out cleaning, maintenance or replacements. |

**Step 1.**

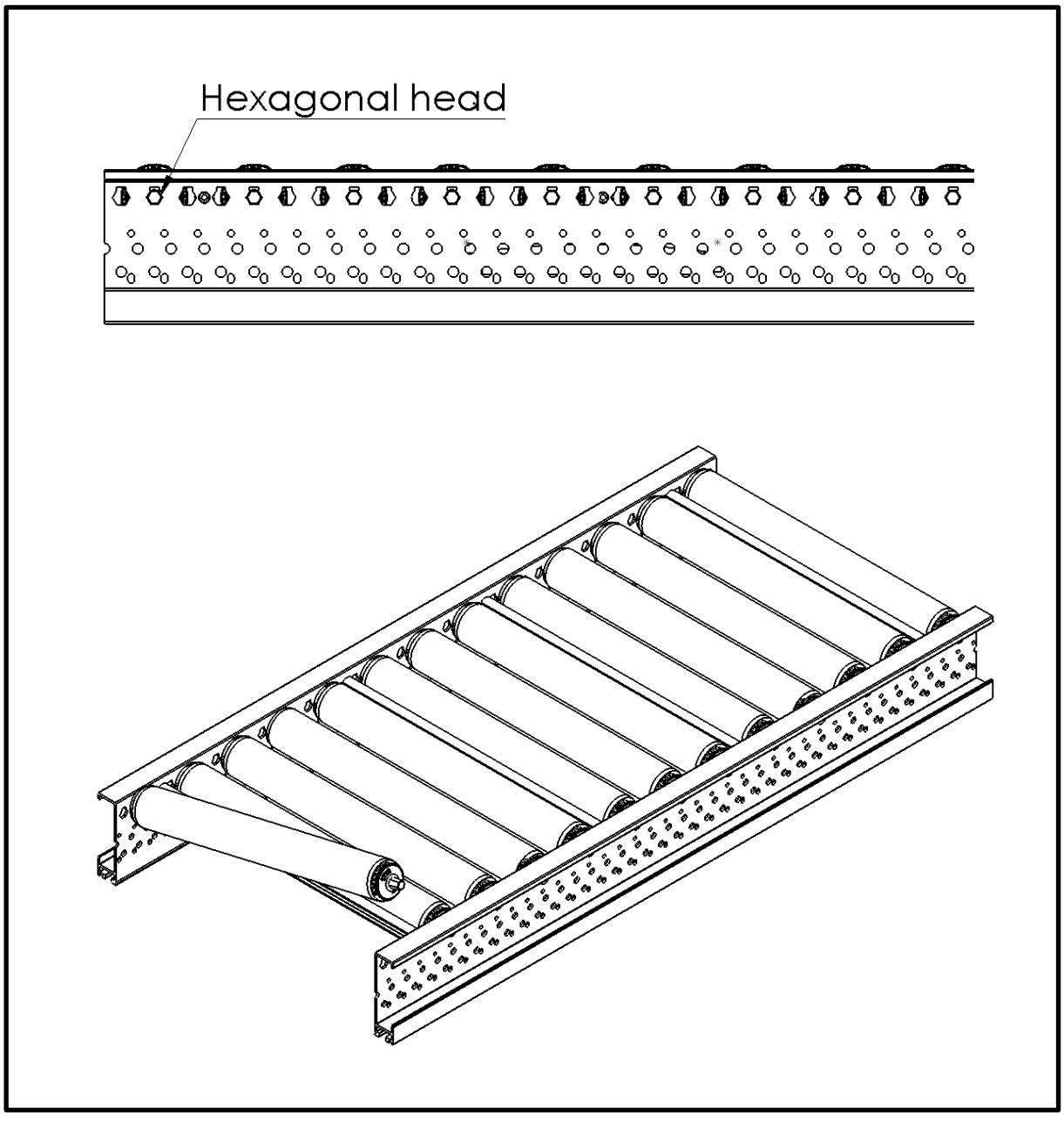
Push in the hexagonal head on one end of the roller.

**Step 2.**

Tilt and lift the Roller.

**Step 3.**

Replacing the Roller could be done by repeating the steps in reverse order.



### *6.2.2.2 Tap Roller Replacement*

| | |
|---|---|
| **⚠ CAUTION** | Make sure the Module is disconnected from the power source when carrying out cleaning, maintenance or replacements. |

**Step 1.**

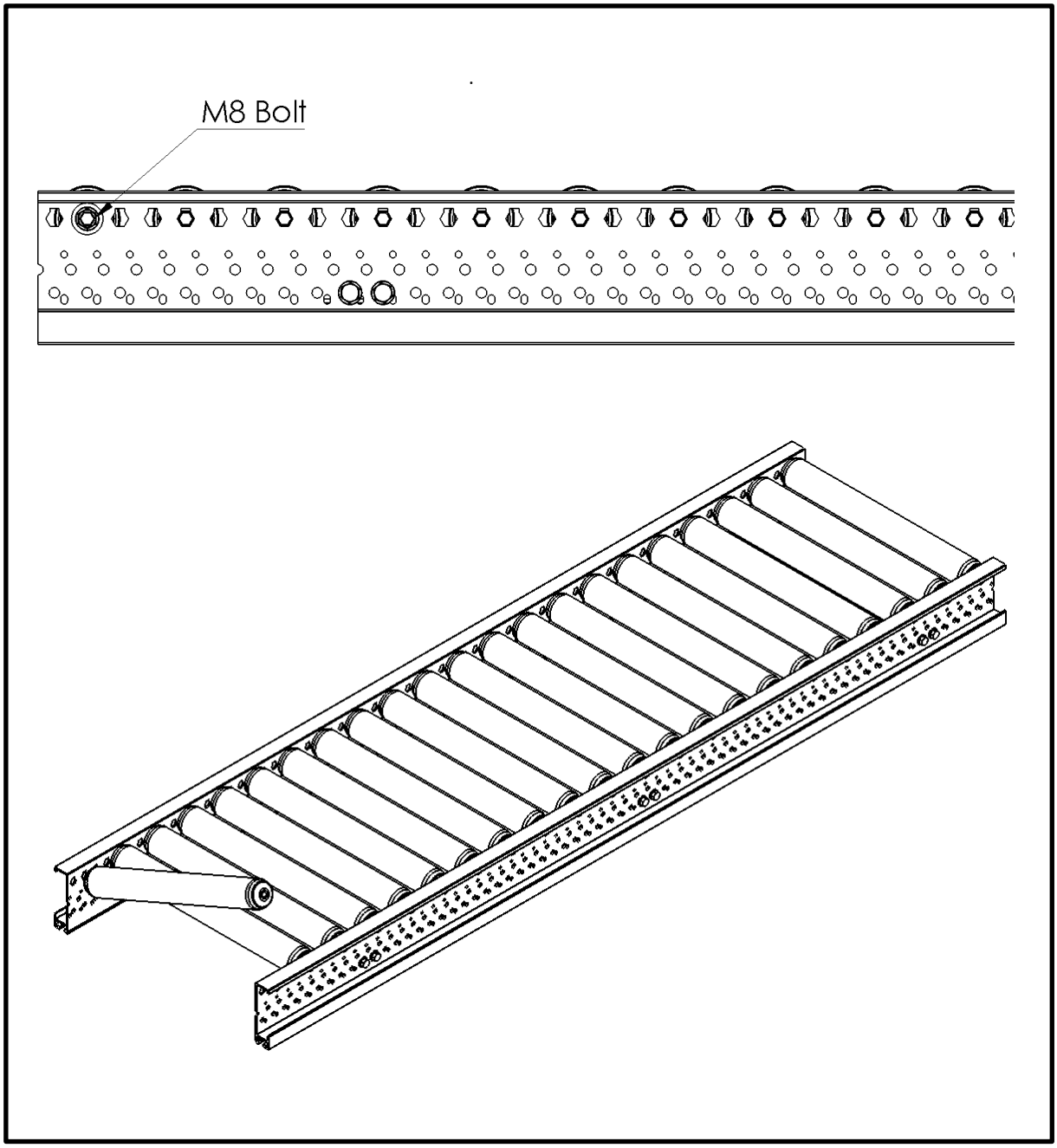
Remove the M8 Bolts on both sides of the roller.

**Step 2.**

Tilt and lift the Roller.

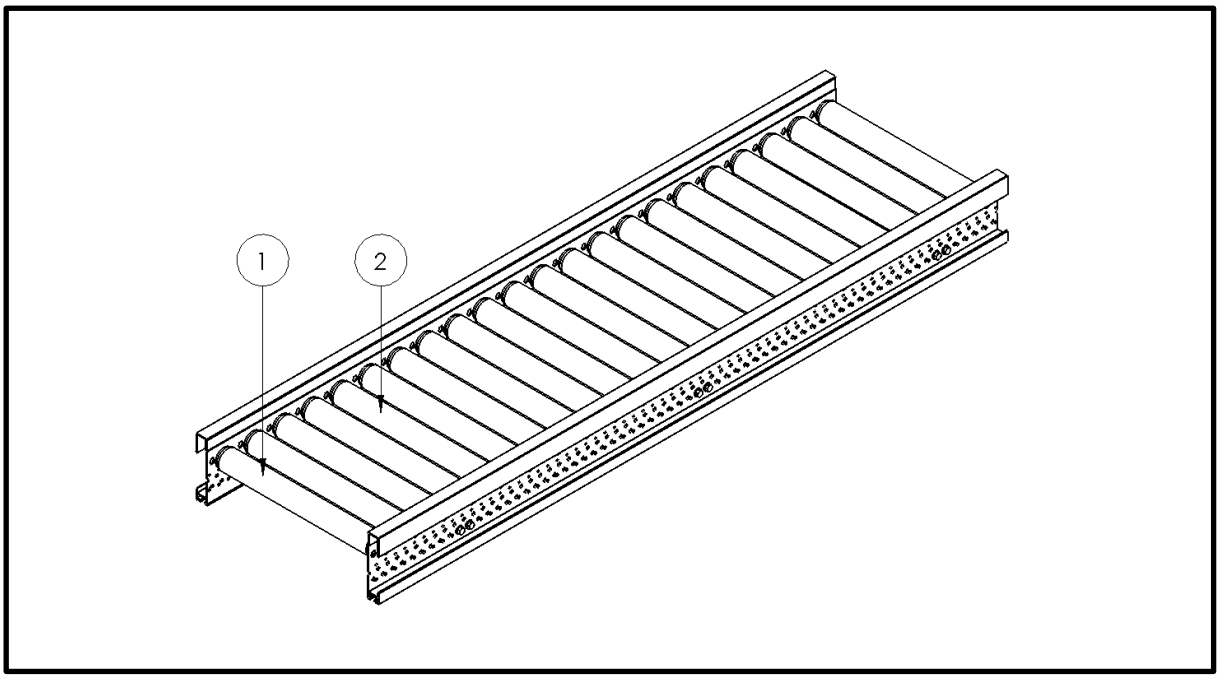
**Step 3.**

Replacing the Roller could be done by repeating the steps in reverse order.



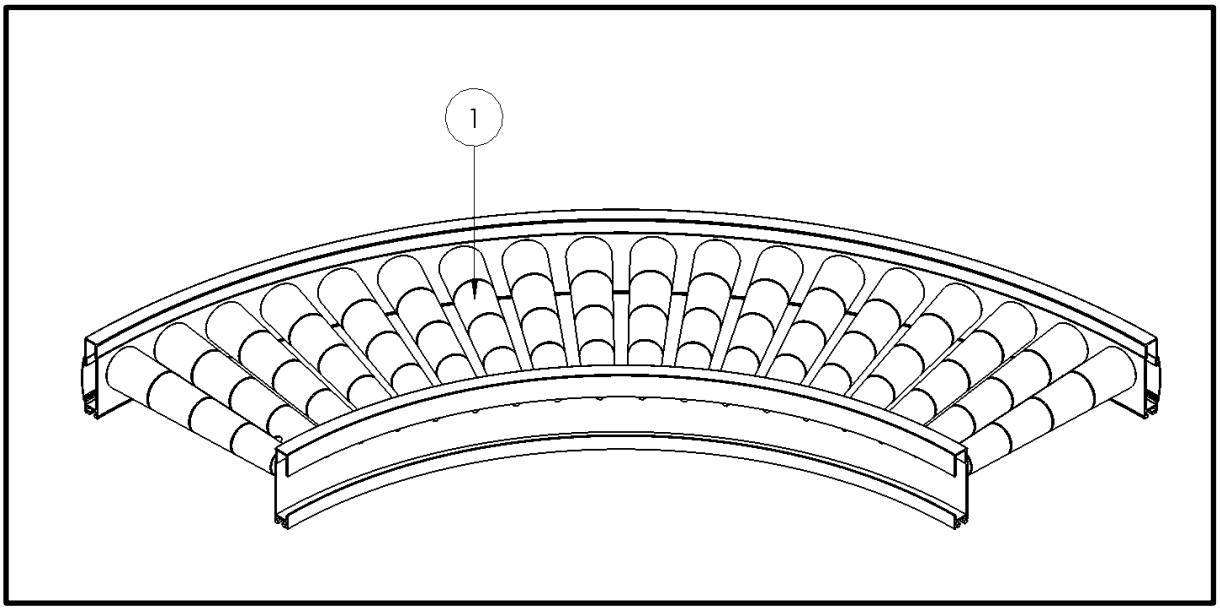
### 6.2.3 Spare parts

#### *6.2.3.1 ERS Straight Module*



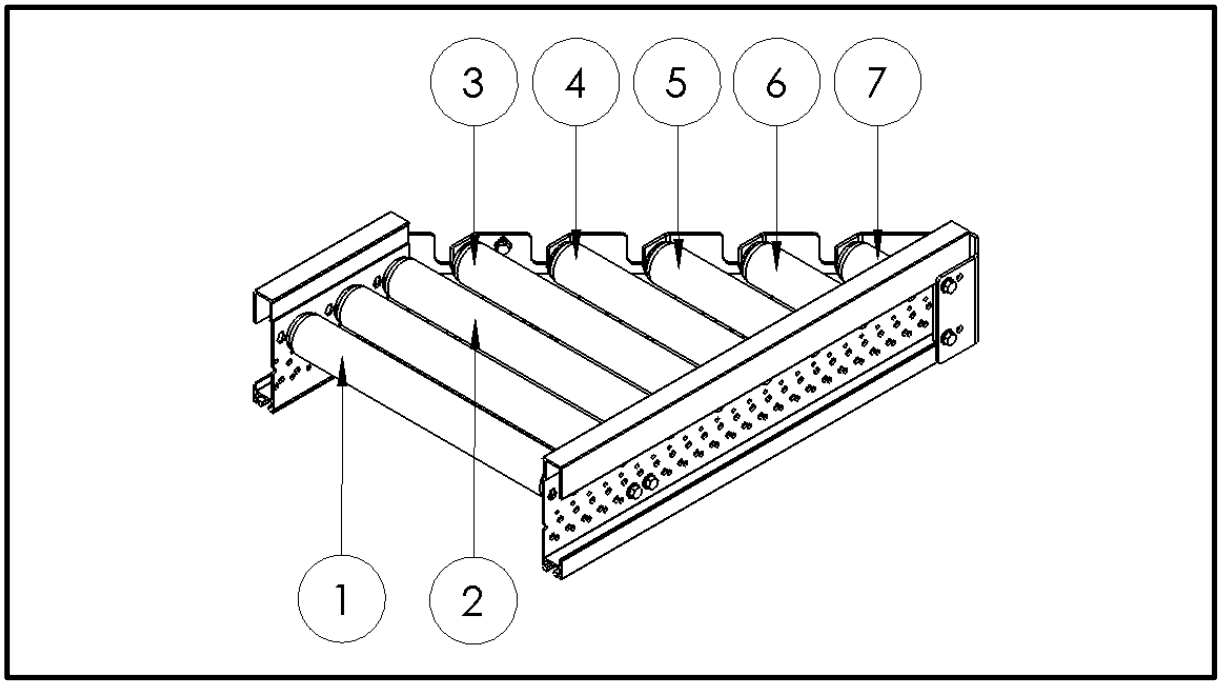

| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | ERS040308170420 | 420 | Tap Roller |
| | ERS040308170520 | 520 | Tap Roller |
| | ERS040308170620 | 620 | Tap Roller |
| | ERS040308170820 | 820 | Tap Roller |
| 2 | ERS040308000420 | 420 | Roller |
| | ERS040308000520 | 520 | Roller |
| | ERS040308000620 | 620 | Roller |
| | ERS040308000820 | 820 | Roller |

### *6.2.3.2 ERS Curve Module*



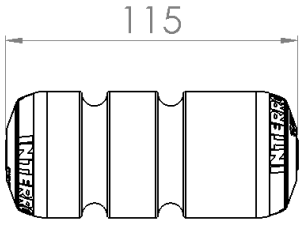

| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | ERS040308020420 | 420 | Tapered Roller |
| | ERS040308020520 | 520 | Tapered Roller |
| | ERS040308020620 | 620 | Tapered Roller |
| | ERS040308020820 | 820 | Tapered Roller |

### *6.2.3.3 ERS Infeed - Outfeed Module*



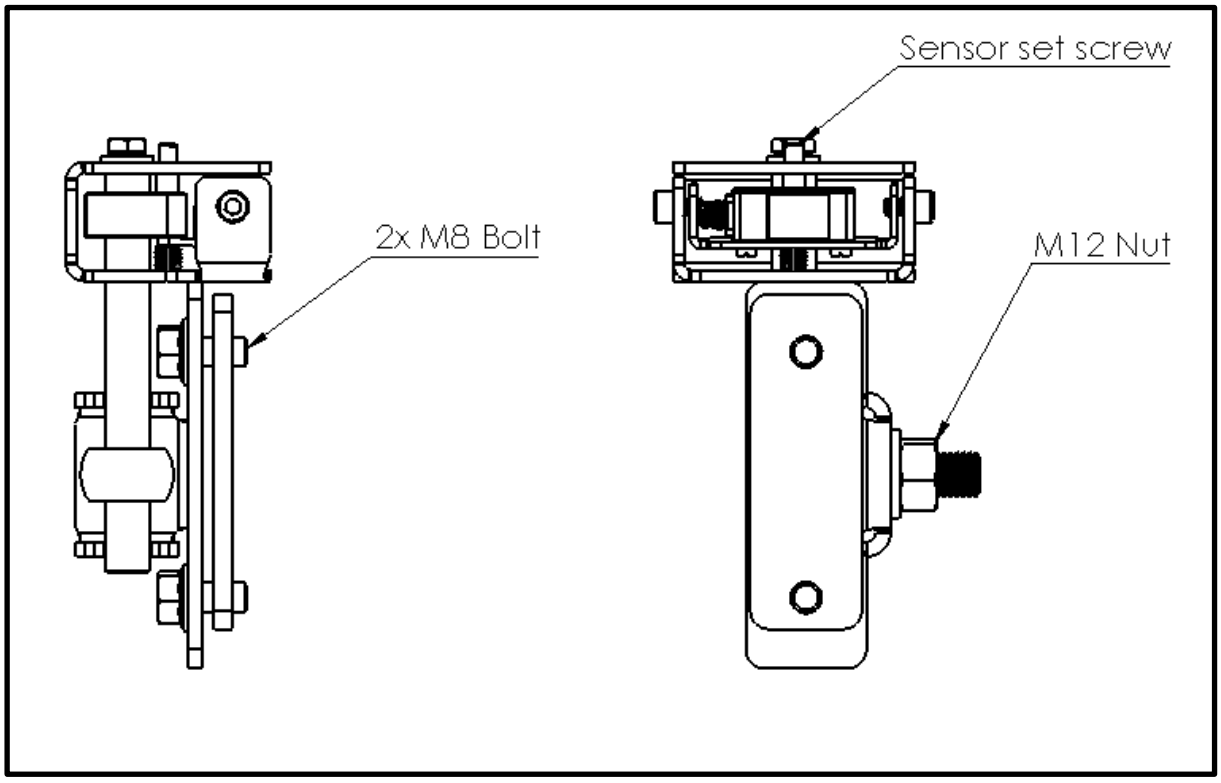

| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | ERS040308170420 | 420 | Tap Roller |
| | ERS040308170520 | 520 | Tap Roller |
| | ERS040308170620 | 620 | Tap Roller |
| | ERS040308170820 | 820 | Tap Roller |
| 2 | ERS040308000420 | 420 | Roller |
| | ERS040308000520 | 520 | Roller |
| | ERS040308000620 | 620 | Roller |
| | ERS040308000820 | 820 | Roller |
| 3-7 | ERS040308170xxx* | - | Merge Roller |

* Example: Width of Merge Roller = 115 mm
xxx = 115
Art. number = ERS040308170115



## 6.3 ERS Sensor and Reflector

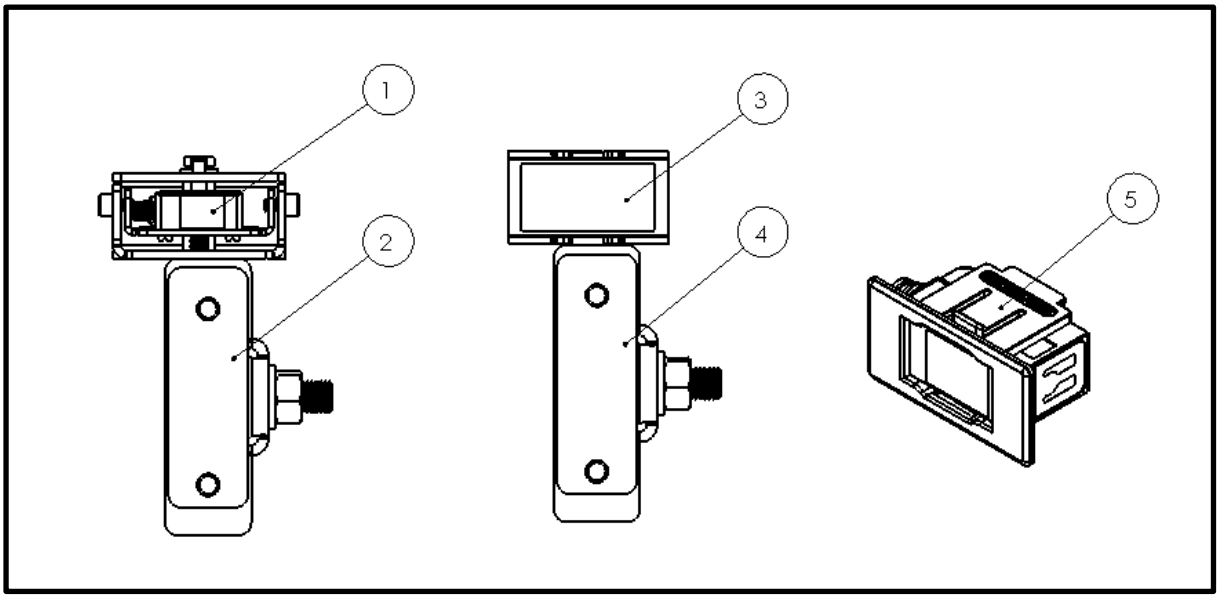
### 6.3.1 Maintenance




| | Part | Inspection | Result | Action |
|---|---|---|---|---|
| 1. | Sensor | Visual check | LED not burning | Check / Replace Wiring<br><br>Check Power Supply<br><br>Replace Sensor |
| 2. | Bracket | Visual Check | Misalignment<br><br><br><br>Disjointed | Adjust height<br><br>Adjust orientation<br><br>Tighten joint M8 Bolts |

### 6.3.2 Spare parts

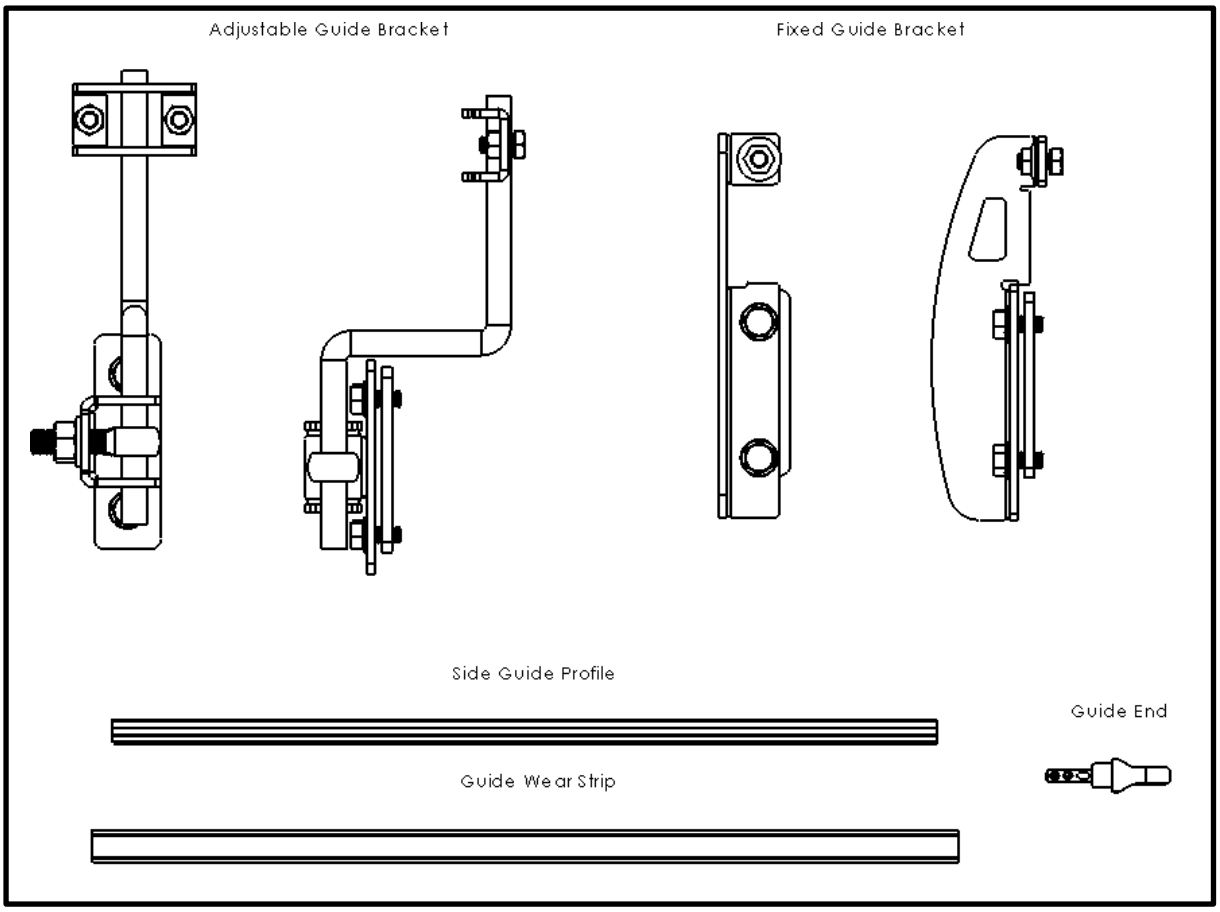
#### *6.3.2.1 ERS Sensor and Reflector*




| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | 040310010003 | - | Sensor, Leuze PRK5/4P-M8 |
| 2 | ERS040311020000 | - | Sensor Bracket |
| 3 | 040310010001 | - | Reflector |
| 4 | ERS040311020001 | - | Reflector Bracket |
| 5 | ERS090315000000<br>040306070001 | - | Sensor Clip |

## 6.4 ERS Side Guide

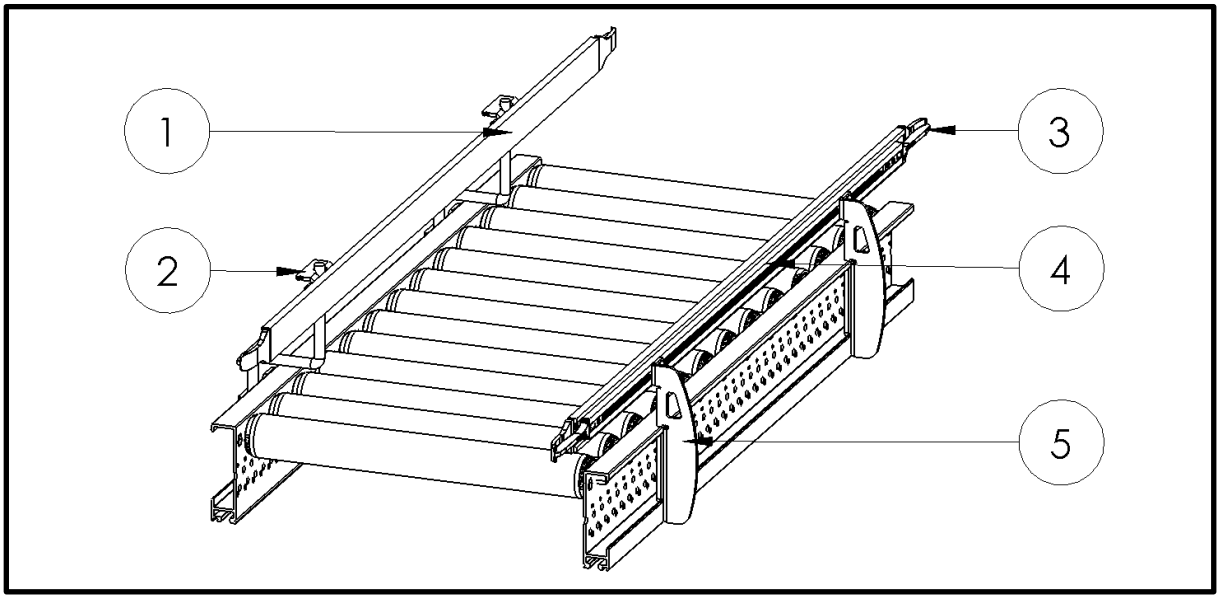
### 6.4.1 Maintenance




| | Part | Inspection | Result | Action |
|---|---|---|---|---|
| 1. | Fixed Guide Bracket | Visual Check | Disjointed | Tighten joint M8 Bolts<br><br>Replace Bracket |
| 2. | Adjustable Guide Bracket | Visual Check | Misalignment<br><br><br><br>Disjointed | Adjust height<br><br>Adjust orientation<br><br>Tighten joint M8 Bolts<br><br>Replace Bracket |
| 3. | Side Guide Profile | Visual Check | Cracks/ Broken | Replace Side Guide Profile |
| 4. | Guide Wear Strip | Visual Check | Cracks/ Broken | Replace Guide Wear Strip |
| 5. | Guide End | Visual Check | Cracks/ Broken | Replace Guide End |

## 6.4.2 Spare parts

### *6.4.2.1 ERS Side Guide*

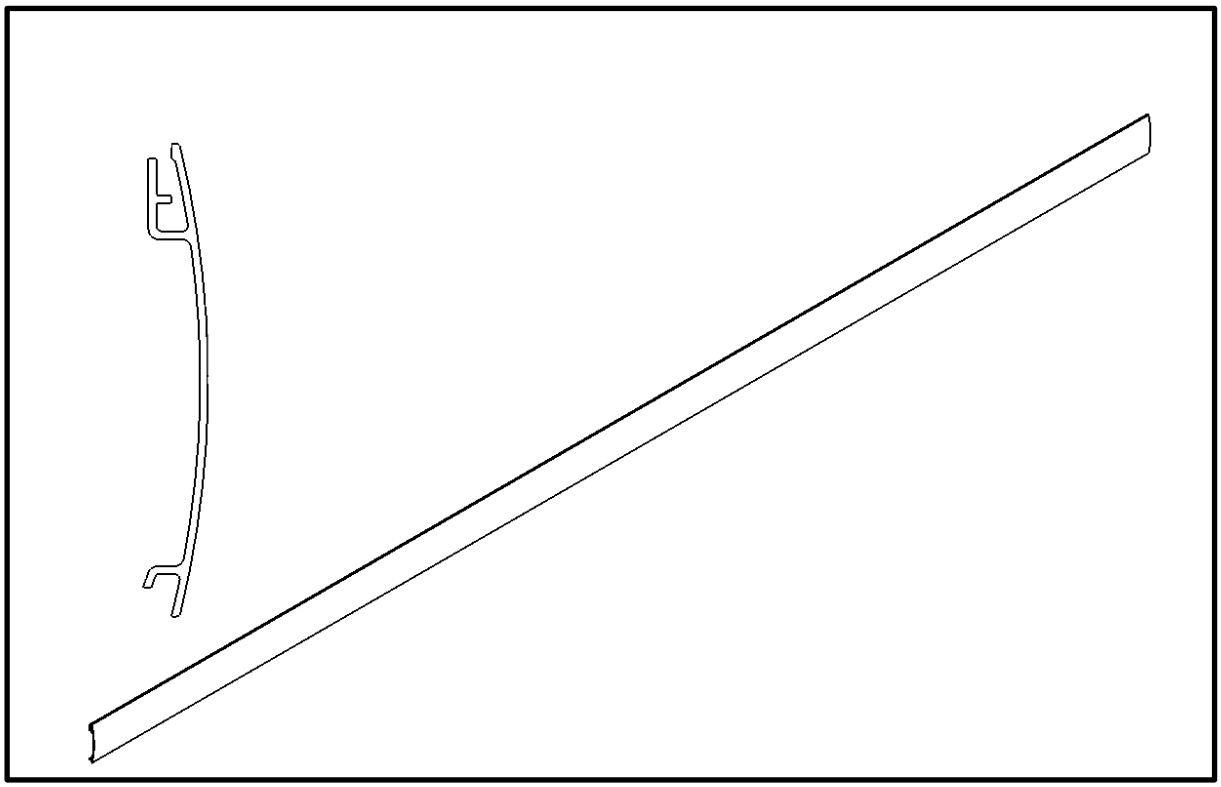



| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | ECP040103000000 | - | Guide Wear Strip (3000 mm) |
| 2 | ERS040311000002 | - | Adjustable Guide Bracket |
| 3 | ETS040809050000 | - | Guide End |
| 4 | ETS040809000000 | - | Side Guide Profile (5600 mm) |
| 5 | ERS040311010000 | - | Fixed Guide Bracket |

## 6.5 ERS Side Cover Profile

### 6.5.1 Spare parts

#### *6.5.1.1 ERS Side Cover Profile*

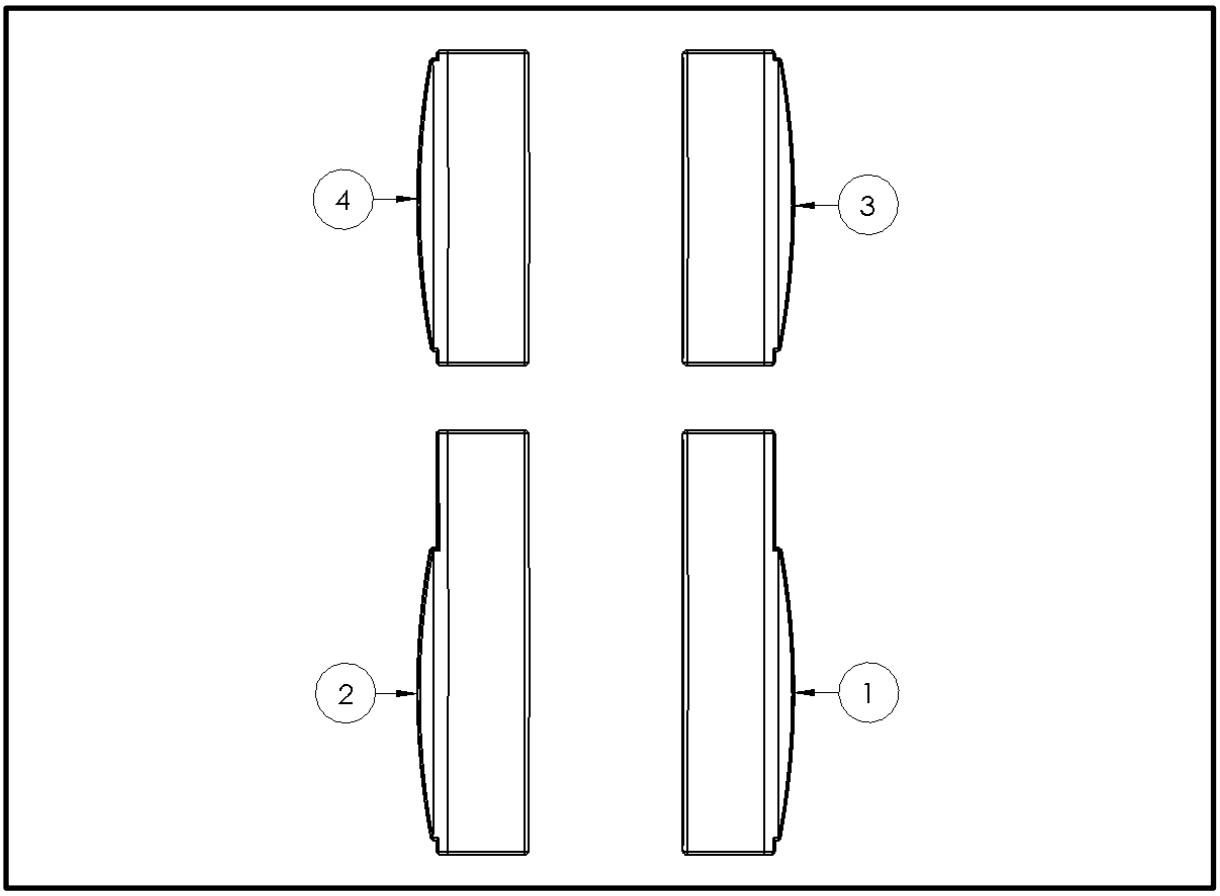


| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | 040307000002 | - | ERS Side Cover Profile (3000 mm) |

## 6.6 ERS Cover Caps

### 6.6.1 Spare parts

#### *6.6.1.1 ERS Cover Caps*

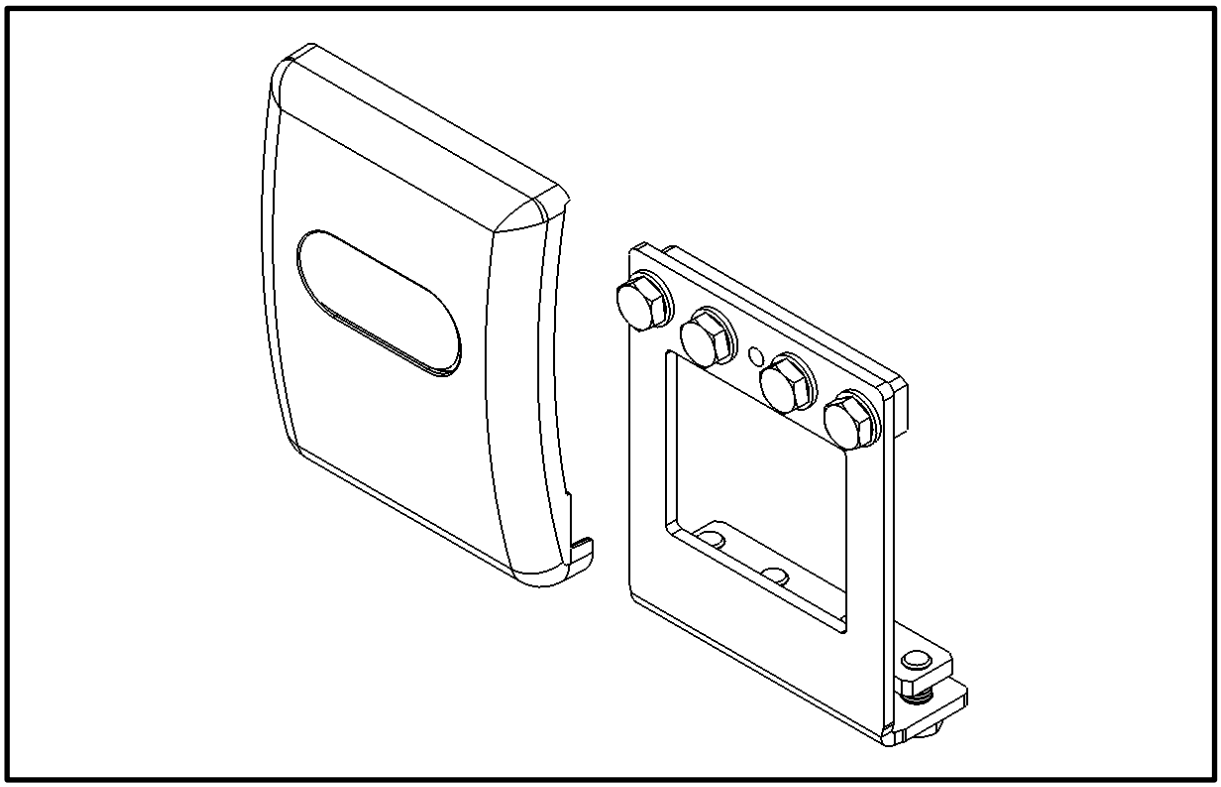



| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | 040306080001 | - | Cover Cap Right High |
| 2 | 040306080002 | - | Cover Cap Left High |
| 3 | 040306080003 | - | Cover Cap Right Low |
| 4 | 040306080004 | - | Cover Cap Left Low |

## 6.7 ERS Straight Connector

### 6.7.1 Spare parts

#### *6.7.1.1 ERS Straight Connector*



| POS. | ART. NUMBER | WIDTH(LW) | COMMENT |
|---|---|---|---|
| 1 | ERS04030504000 | - | ERS Straight Connector |

# 7 Storage and disposal

## 7.1 Storage

| | |
|---|---|
| ⚠ WARNING | **Storage**<br><br>- Store the ERS Gravity Roller Conveyor Modules indoors.<br>- Never store the ERS Gravity Roller Conveyor Modules outdoors, in a dusty or in a humid environment.<br>- Do not add additional loads unto the packaged ERS Gravity Roller Conveyor Modules. |

## 7.2 Disposal

| | |
|---|---|
| NOTE | **Disposal**<br>When the ERS roller Conveyor Module reaches the end of its useful life, it can be removed from the system and dismantled and the materials can be disposed of properly by type.<br>For the correct proposal please check your local waste disposal regulations! |

# 8 Appendix

Attachments:

- Table Sheet Infeed – Outfeed Module
- Declaration of Incorporation of partly completed machinery

Manuals:

- Photoelectric sensor, Leuze PRK5/4P-M8

-

## Table sheet Infeed – Outfeed Module

**Dimensions of Infeed – Outfeed Module**

The angles and separations of an Infeed – Outfeed module define the dimensions of the module. The following tables show the standard dimensions for the modules.

| Dimension LW in mm | Dimension LWT in mm | Module width ML in mm | Front length F in mm | Module width ML in mm | Front length F in mm |
|---|---|---|---|---|---|
| | | with angle α =45° and roller pitch P = 75 mm | | with angle α =45° and roller pitch P = 75 mm | |
| 420 | 420 | 900 | 637.5 | 1200 | 937.5 |
| 520 | 420 | 900 | 637.5 | 1200 | 937.5 |
| 620 | 420 | 900 | 637.5 | 1200 | 937.5 |
| 820 | 420 | 900 | 637.5 | 1200 | 937.5 |
| 420 | 620 | 1200 | 787.5 | 1500 | 1312.5 |
| 520 | 620 | 1200 | 787.5 | 1500 | 1312.5 |
| 620 | 620 | 1200 | 787.5 | 1500 | 1312.5 |
| 820 | 620 | 1200 | 787.5 | 1500 | 1312.5 |
| 620 | 820 | 1500 | 1012.5 | 1950 | 1612.5 |
| 820 | 820 | 1500 | 1012.5 | 1950 | 1612.5 |

## Declaration of Incorporation of partly completed machinery

swisslog

**Original Declaration of Incorporation**

# Declaration of Incorporation

**according to EC Machinery Directive 2006/42/EC, Annex II B**

The manufacturer / company placing the product on the market:
**Swisslog GmbH, Martin-Schmeißer-Weg 6-8, 44227 Dortmund, Germany**

hereby declares that the product:

| | |
|---|---|
| **General designation** | **QuickMove** |
| **Model/type designation** | **ERS 50, non-driven roller conveyor elements** |
| **Unique identification number** | |

conforms to the requirements of EC Machinery Directive 2006/42/EC listed in Appendix 1 of this declaration. Furthermore, conformity with the following additional directives is declared:

| | |
|---|---|
| **EU RoHS Directive 2011/65/EU** | -- |
| -- | -- |

The following harmonized standards and, where appropriate, additional standards were applied:

- **EN 619:2002+A1:2010**
- **EN 619:2019**
- **EN ISO 12100:2010**

Furthermore, we declare that the relevant technical documentation described in Annex VII, part B, has been prepared for this partly completed machinery. We undertake to transmit, in response to a duly reasoned request by the authorities responsible for market surveillance, the relevant technical documentation.

Authorized representative for the compilation of the technical documentation:
**KUKA Aktiengesellschaft, CLD-PC, Zugspitzstrasse 140, 86165 Augsburg, Germany**

The putting into service of the partly completed machinery is not allowed until the partly completed machinery has been incorporated into machinery, or has been assembled with other parts to form machinery, and this machinery complies with the terms of the EC Machinery Directive, and the EC declaration of conformity is present in accordance with Annex II A.

Dortmund, 10/23/2020

Heino Heitplatz, Head of LGCTC

Björn Eisbach, Product Manager LGCTC

swisslog

**Appendix 1**

**List of essential requirements complied with in accordance with Annex I, Directive 2006/42/EC**

| | |
|---|---|
| **General designation** | **QuickMove** |
| **Model/type designation** | **ERS 50, non-driven roller conveyor elements** |
| **Unique identification number** | |

| Section | Requirements | Complied with for the scope of the partly completed machinery | To be complied with by the system integrator for the final machinery | Not relevant |
|---|---|---|---|---|
| 1.1. | GENERAL | | | |
| 1.1.1. | Definitions | ☒ | ☐ | ☐ |
| 1.1.2. | Principles of safety integration | ☒ | ☐ | ☐ |
| 1.1.3. | Materials and products | ☐ | ☐ | ☒ |
| 1.1.4. | Lighting | ☐ | ☐ | ☒ |
| 1.1.5. | Design of machinery to facilitate its handling | ☒ | ☐ | ☐ |
| 1.1.6. | Ergonomics | ☐ | ☒ | ☐ |
| 1.1.7. | Operating positions | ☐ | ☐ | ☒ |
| 1.1.8. | Seating | ☐ | ☐ | ☒ |
| 1.2. | CONTROL SYSTEMS | | | |
| 1.2.1. | Safety and reliability of control systems | ☐ | ☐ | ☒ |
| 1.2.2. | Control devices | ☐ | ☐ | ☒ |
| 1.2.3. | Starting | ☐ | ☐ | ☒ |
| 1.2.4.1. | Normal stop | ☐ | ☒ | ☐ |
| 1.2.4.2. | Operational stop | ☐ | ☐ | ☒ |
| 1.2.4.3. | Stopping the machine in an emergency | ☐ | ☐ | ☒ |
| 1.2.4.4. | Assembly of machinery | ☐ | ☒ | ☐ |
| 1.2.5. | Selection of control or operating modes | ☐ | ☐ | ☒ |
| 1.2.6. | Failure of the power supply | ☐ | ☐ | ☒ |
| 1.3. | PROTECTION AGAINST MECHANICAL HAZARDS | | | |
| 1.3.1. | Risk of loss of stability | ☒ | ☒ | ☐ |
| 1.3.2. | Risk of break-up during operation | ☒ | ☐ | ☐ |
| 1.3.3. | Risks due to falling or ejected objects | ☒ | ☐ | ☐ |
| 1.3.4. | Risks due to surfaces, edges or angles | ☒ | ☒ | ☐ |
| 1.3.5. | Risks related to combined machinery | ☐ | ☐ | ☒ |
| 1.3.6. | Risks related to variations in operating conditions | ☐ | ☐ | ☒ |
| 1.3.7. | Risks related to moving parts | ☒ | ☐ | ☐ |
| 1.3.8. | Choice of protection against risks arising from moving parts | ☐ | ☒ | ☐ |
| 1.3.8.1. | Moving transmission parts | ☐ | ☒ | ☐ |
| 1.3.8.2. | Moving parts involved in the process | ☐ | ☒ | ☐ |
| 1.3.9. | Risks of uncontrolled movements | ☒ | ☐ | ☐ |
| 1.4. | REQUIRED CHARACTERISTICS OF GUARDS AND PROTECTIVE DEVICES | | | |
| 1.4.1. | General requirements | ☐ | ☐ | ☒ |
| 1.4.2. | Special requirements for guards | ☐ | ☐ | ☒ |
| 1.4.2.1. | Fixed guards | ☐ | ☐ | ☒ |
| 1.4.2.2. | Interlocking movable guards | ☐ | ☐ | ☒ |
| 1.4.2.3. | Adjustable guards restricting access | ☐ | ☐ | ☒ |
| 1.4.3. | Special requirements for protective devices | ☐ | ☐ | ☒ |

swisslog

| Section | Requirements | Complied with for the scope of the partly completed machinery | To be complied with by the system integrator for the final machinery | Not relevant |
|---|---|---|---|---|
| 1.5. | RISKS DUE TO OTHER HAZARDS | | | |
| 1.5.1. | Electricity supply | ☐ | ☐ | ☒ |
| 1.5.2. | Static electricity | ☐ | ☒ | ☐ |
| 1.5.3. | Energy supply other than electricity | ☐ | ☐ | ☒ |
| 1.5.4. | Assembly error | ☒ | ☐ | ☐ |
| 1.5.5. | Extreme temperatures | ☐ | ☐ | ☒ |
| 1.5.6. | Fire | ☒ | ☐ | ☐ |
| 1.5.7. | Explosion | ☐ | ☐ | ☒ |
| 1.5.8. | Noise | ☒ | ☒ | ☐ |
| 1.5.9. | Vibrations | ☐ | ☐ | ☒ |
| 1.5.10. | Radiation | ☐ | ☐ | ☒ |
| 1.5.11. | External radiation | ☐ | ☐ | ☒ |
| 1.5.12. | Laser radiation | ☐ | ☐ | ☒ |
| 1.5.13. | Emissions of hazardous materials and substances | ☐ | ☐ | ☒ |
| 1.5.14. | Risk of being trapped in a machine | ☐ | ☐ | ☒ |
| 1.5.15. | Risk of slipping, tripping or falling | ☐ | ☐ | ☒ |
| 1.5.16. | Lightning | ☐ | ☐ | ☒ |
| 1.6. | MAINTENANCE | | | |
| 1.6.1. | Machinery maintenance | ☒ | ☒ | ☐ |
| 1.6.2. | Access to operating positions and servicing points | ☐ | ☒ | ☐ |
| 1.6.3. | Isolation of energy sources | ☐ | ☒ | ☐ |
| 1.6.4. | Operator intervention | ☐ | ☒ | ☐ |
| 1.6.5. | Cleaning of internal parts | ☐ | ☐ | ☒ |
| 1.7. | INFORMATION | | | |
| 1.7.1. | Information and warnings on the machinery | ☒ | ☒ | ☐ |
| 1.7.1.1. | Information and information devices | ☐ | ☒ | ☐ |
| 1.7.1.2. | Warning devices | ☐ | ☒ | ☐ |
| 1.7.2. | Warning of residual risks | ☒ | ☒ | ☐ |
| 1.7.3. | Marking of machinery | ☒ | ☐ | ☐ |
| 1.7.4. | Instructions | ☒ | ☒ | ☐ |
| 1.7.4.1. | General principles for the drafting of instructions | ☒ | ☒ | ☐ |
| 1.7.4.2. | Contents of the instructions | ☒ | ☐ | ☐ |
| 1.7.4.3. | Sales literature | ☒ | ☐ | ☐ |
| 2. | SUPPLEMENTARY ESSENTIAL HEALTH AND SAFETY REQUIREMENTS FOR CERTAIN CATEGORIES OF MACHINERY | | | |
| 2.1. | Foodstuffs machinery and machinery for cosmetics of pharmaceutical products | ☐ | ☐ | ☒ |
| 2.2. | Portable hand-held and/or hand-guided machinery | ☐ | ☐ | ☒ |
| 2.3. | Machinery for working wood and material with similar physical characteristics | ☐ | ☐ | ☒ |
| 2.4. | Machinery for pesticide application | ☐ | ☐ | ☒ |
| 3. | Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery | ☐ | ☐ | ☒ |
| 4. | Supplementary essential health and safety requirements to offset hazards due to lifting operations | ☐ | ☐ | ☒ |
| 5. | Supplementary essential health and safety requirements for machinery intended for underground work | ☐ | ☐ | ☒ |
| 6. | Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of persons | ☐ | ☐ | ☒ |

swisslog

**Appendix 2**

**Information pertaining to the assembly instructions described in Annex VI, Directive 2006/42/EC**

| | |
|---|---|
| **General designation** | **QuickMove** |
| **Model/type designation** | **ERS 50, non-driven roller conveyor elements** |
| **Unique identification number** | |

The assembly instructions provide the person incorporating the partly completed machinery described above into machinery, or assembling it with other parts to form the final machinery, with the necessary information, relating in particular to the safety-relevant interfaces, for correct assembly without endangering the health and safety of persons.

In addition to these assembly instructions, the relevant European Directives and national regulations must be taken into account.

The complete compliance documentation to be provided by the manufacturer consists of

- the present document "Declaration of Incorporation",
- all accompanying documents in printed form.