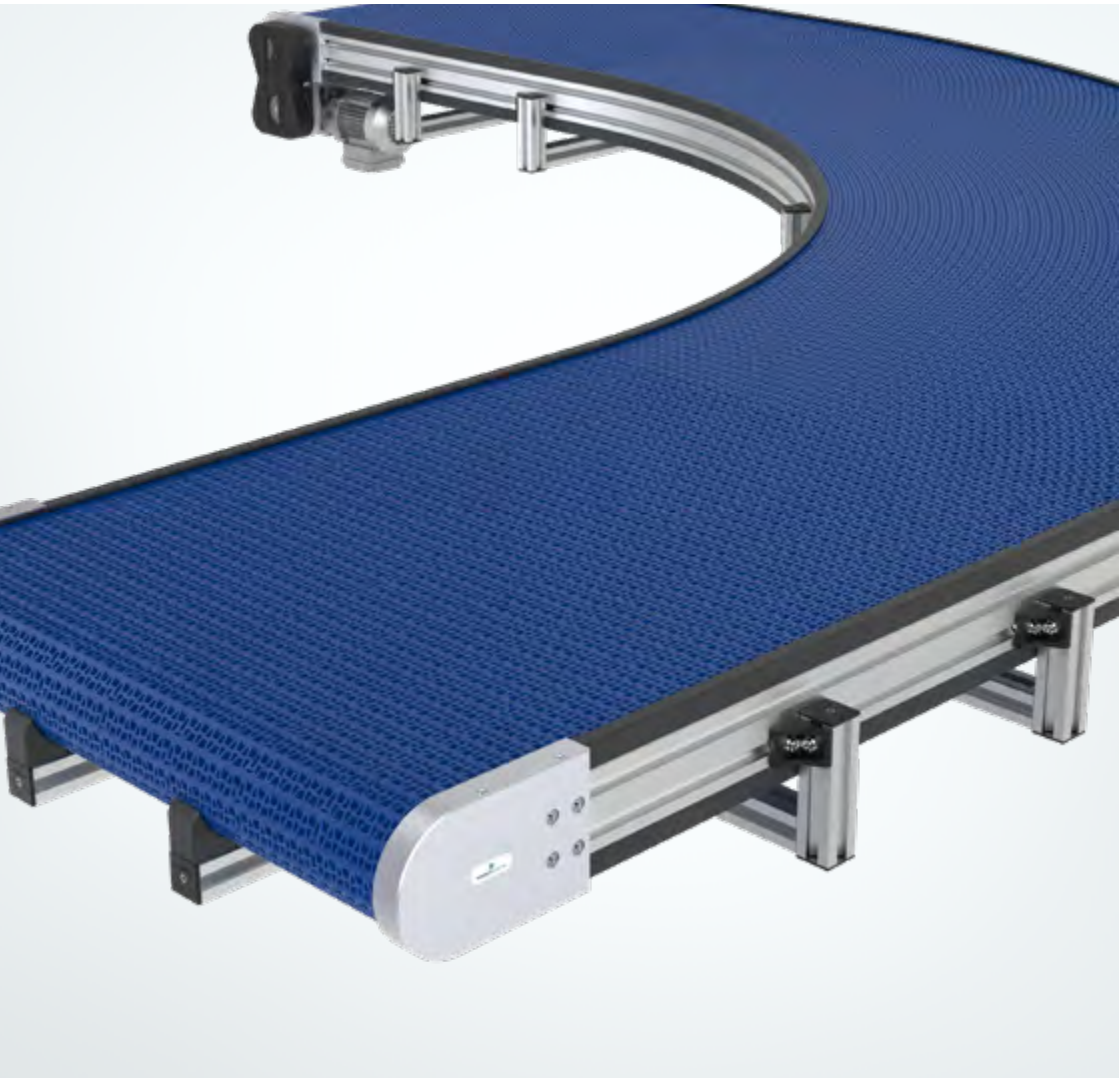
ROBOTUNITS®



Modular Belt Conveyor

Operating / Assembly Instructions

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1. General information

1.1 Manufacturer of the system

Robotunits GmbH
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1.2 Introduction / purpose of the Operating / Assembly Instructions

Modular Belt Conveyors that are delivered including a motor, as according to the Robotunits catalogue, are considered a complete machine (Machinery Directive 2006/42/EC, Art. 2a), and this document is accordingly considered a set of Operating Instructions.
The Declaration of Conformity required for this purpose can be found in the enclosed documents.

Modular Belt Conveyors that are delivered without a motor are considered as partly completed machinery (Machinery Directive 2006/42/EC, Art. 2g), and this document is accordingly considered a set of Assembly Instructions.
The Declaration of Incorporation required for this purpose can be found in the enclosed documents.

In the following only the term „machine“ will be used.

1.3 Version

Version	Type	Date
4	Operating / Assembly Instructions	01.01.2020
5	Revision	20.05.2025

2. Safety

2.1 General information

- This manual is considered part of the machine. It must be kept in close proximity to the machine at all times. Carefully observing this manual is required in order to ensure proper use and correct operation of the machine.

- Robotunits will only accept responsibility for the safety, reliability and function of the machine if assembly, adjustments to the settings, modifications, additions and repairs are carried out by Robotunits or an entity authorized by Robotunits, and the machine is used in accordance with the operating instructions.

2.2 Intended use

The Modular Belt Conveyor is designed and constructed primarily for

- horizontal conveying of parts or liquids in closed containers
- and/ or for the applications mentioned in the quotation or order. The conveying of goods >10 mm with a given weight defines and influences the width of the belt and its ability to transport heavier weights.
- use by trained adults.

2.3 Improper use

Any unintended use, as well as the following, are prohibited: Using the machine under different conditions and stipulations than those set forth by the manufacturer in the technical documents, data sheets, assembly, installation and operating manuals, as well as in other specifications.

2. Safety

2.3 Improper use

The following, in particular, must be prevented:

- the operation of the machine without safety equipment.
- the manipulation, bypassing or disabling of installed safety equipment.
- using the machine in or under water.
- the transportation of animals or people
- the transportation of hot substances and objects (> 80°C)
- the transportation of objects that can be damaged by static discharges.
- the transportation of and usage in acids, corrosive / abrasive materials or substances
- the transportation of material at too high a speed (causing conveyed material to be propelled outwards)

General improper use is:

- the deliberate generation and handling of flammable or explosive substances.
- the use in areas in which frequent or permanent occurrence of explosive atmospheres of gas or dust are expected. (The use in hazardous areas must be agreed beforehand with Robotunits as design changes may be required.)

If the operator moves or transports other or additional materials and substances besides those known to the manufacturer and/or indicated in the agreements and technical specifications, then the manufacturer's declaration no longer applies. In this case the national regulations on industrial safety and health will take effect.

The machine is designed for operation at ambient temperatures from 0 to + 60 °C. In regards to atmospheric humidity, the limit values of protection class IP54 must be observed.

Using the machine in potentially explosive atmospheres is prohibited.

2. Safety

2.4 Safety information for normal operation

Robotunits has developed and designed the machine according to state of the art technology. No hazards are to be expected if used as intended. Residual risks have been reduced to a minimum.

- National laws and regulations on safety and health protection for employees must be observed when operating the machine! In the interest of a safe work process, operators and users are responsible for compliance with the regulations.
- The operator must check the machine to ensure it is working properly and in good condition before each use.
- The operator must be familiar with the operating instructions for the machine.

Do not reach between the motor and the modular belt!
(risk of hand injuries)

2.5 Electrical safety information

- The machine may only be connected to a properly installed plug or terminal contact.
- Immediately shut down the machine using the switch or EMERGENCY STOP in hazardous situations or in case of a technical fault.
- Installation must be carried out by qualified and authorized personnel.
- The specifications, instructions and wiring diagrams provided by the motor manufacturer must be observed.
- When using a speed controller, the specifications, instructions and wiring diagrams provided by the speed controller manufacturer must be observed and, if necessary, a red/yellow device for shutting down the power supply in an emergency must be installed.

2. Safety

2.6 Mechanical safety information

The machine may only be operated in its original condition (with all safety equipment i.e. covers, etc.).

The principles of “safety integration” must be observed when integrating the machine in a system. This can result in the owner/operator requiring separate or further protective and safety equipment. This must be determined based on a hazard analysis at the work site, to be conducted by the operating owner/employer.

2.7 Cleaning and maintenance safety information

Before cleaning/maintaining, disconnect the machine from the power supply and prevent it from being switched on.

3. Transportation/assembly

3.1 Machine storage/transportation conditions

The machine must be secured against tipping over during transportation and storage. Do not store outdoors.

3.2 Transportation equipment requirements

Consider the center of gravity when lifting the machine. Standing under the load is prohibited.

Suitable transportation equipment must be used.

3.3 Electrical installation/wiring

The specifications, instructions and wiring diagrams provided from the motor manufacturer are to be complied with.

When using a speed controller, the specifications, instructions and wiring diagrams from the speed controller manufacturer are to be complied with.

If necessary, a mains disconnection device must be installed in the supply line for switching off in an emergency, in particular if several conveyor sections with separate drives are installed.

4. Commissioning

4.1 Personnel requirements

All work on the machine must be carried out by qualified and authorized specialists.

4.2 Connecting the machine

Injury to the lower limbs (from crushing or colliding) can be caused if the machine tips over due to instability during the installation. Always secure the machine against tipping over.
Installation must be carried out by qualified and authorized personnel.

The electrical safety information (2.5) must be observed.

4. Commissioning

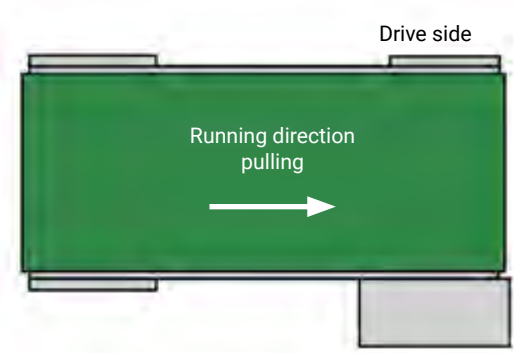
4.3 Initial commissioning

Injury to the upper limbs due to cutting and pinching on the transported workpieces or goods can be caused when one can reach into the danger zone.
Should such dangerous goods be transported, the operating company must prevent the reaching in by means of safety guarding or similar effective means to prevent intervention.

Before initial commissioning, check the following:

1. The proper installation of all safety equipment and covers.
   If the conveyed material poses an increased hazard, ensure appropriate safety equipment and/or secure the hazardous area.

2. After starting up the conveyor for the first time, check the belt speed, belt tracking and running direction. To ensure safe operation, the running direction must be "pulling".



4. Commissioning

4.5 During commissioning

The removal of safety equipment, covers, or guards during commissioning is prohibited. Hazardous areas must be secured.
Approaching and/or operating the machine is only permitted with appropriate protective clothing (hair net, hearing protection, safety shoes, etc.).

4.6 Decommissioning

Injury due to electric shock!
Before decommissioning, shut down the machine and disconnect it from the mains power before completing further disassembly work. The machine must be in a safe state during decommissioning.
Decommissioning must be carried out by qualified and authorized personnel.

4.7 Disposal

The machine must be disposed of in accordance with national regulations.

5. Maintenance

Operator safety and fault-free operation of the machine can only be guaranteed if original machine parts are used. Proper maintenance of the machine is essential for reliable operation and a long service life.

Any maintenance, with the exception of checking the running direction, may only be carried out when the machine has been disconnected from the power supply.

5.1 Maintenance personnel requirements

Ensure the stability of the machine during maintenance work.
Maintenance must be carried out by a qualified and authorized technician.

5.2 Maintenance table

Maintenance point	Maintenance interval	Task
Bearing	Every 6 months	Check for wear
Electrical installations	Every 6 months	Visual check for damage
Timing belt (if applicable)	Once a month	Visual check for damage
Transport belt	Once a month	Visual check for damage
Transport belt	Once a month	Check belt tracking and running direction
Drive sprockets	Every 6 months	Check for wear
Idler sprockets	Every 6 months	Check for wear
Screw connection after initial commissioning	1 month after initial commissioning	Check for tight fit
Screw connections	once a year	Check for tight fit

5.3 Corrective maintenance / repairs

Maintenance or repair work may only be carried out by Robotunits or by an approved service center appointed by Robotunits.

5.4 Bearing replacement

see drawings

6. Installation instructions for Modular Belt Conveyor

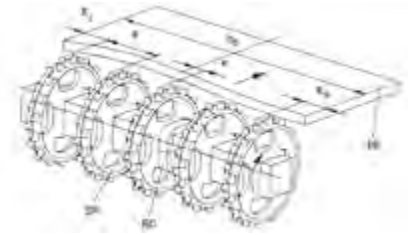
6.1 Alignment of sprockets on shafts

Check the axial alignment of the sprockets using the alignment mark. If the bore is square and the number of teeth is a multiple of the alignment mark may be missing.

4,

6.2 Positioning of sprockets

Place the sprockets between the min. and max. distance (a). Maintain the lateral distance between sprockets X_L and X_R . The offset (e) is determined by the shaft design. Fasten the center sprocket with moderate play.



Belt type	Sprocket distance a		Min. lateral sprocket distance	
M2500	min. = 50 mm	max. = 100 mm	X_L = 25 mm	X_R = 25 mm

6.3 Checking the correct sprocket engagement

The sprockets and modular belt must be properly engaged.

The bottom of the belt must touch the bottom of the sprocket tooth.

Check the correct sprocket engagement of flush grid belts from the belt surface.

6. Installation instructions for Modular Belt Conveyor

6.4 Rod

The round-headed Ø 5 mm rod must have a chamfered end. If the belt is delivered, alternate in sections, alternate the insertion direction of the rod, e.g. one section has all rod heads on the left side, the next section has all heads on the right side.

6.5 Insertion of the rod

- Join the belt sections.
- The rod end must have a chamfer for easy insertion.
- Drive in the rod with a hammer, hitting the rod on the round head.

Check that the rod end is flush with the belt!

6.6 Extraction of the rod

Extraction of the rod with a Habasit extraction tool or side cutters:
Pry out the rod using the head.
Be careful not to cut off the rod head!
The belt must not be under tension!

Extraction of the rod using a hammer and punch
Hit the rod with the punch and hammer from the end opposite the head. Secure the edge of the module on the opposite side to avoid link breakage.
The belt must not be under tension!

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