

Modular Belt Conveyor

Instruction manual / Installation instructions

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1. General

1.1 Manufacturer of the system

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1.2 Introduction / purpose of this instruction manual / installation instructions

Timing Belt Conveyors, that are delivered including a motor according to the Robotunits catalogue, are considered to be a complete machine (MRL 2006/42/ EC, Art. 2a) and accordingly, this document is to be considered as an instruction manual. The declaration of conformity required for this purpose can be found in the enclosed documents.

Timing Belt Conveyors, which are delivered without a motor are considered as partly completed machinery (MRL 2006/42/EC, Art. 2g) and accordingly this document is to be regarded as installation 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	Instruction manual / Installation instructions	01/01/2020

2. Safety

2.1 General

- These operating instructions are a component part of the conveyor and must be made readily available. The strict adherence to the information provided within these instructions is a pre-requisite for the correct operation of the conveyor.
- Robotunits will only accept responsibility for the conveyor unit in regards to safety, reliability and functionality. Assembly, adjustments, modifications, changes or repairs may only be carried out by Robotunits or an officially appointed distributor / service center of Robotunits. The conveyor must be operated in accordance with these operating instructions.

2.2 Intendend use



The Modular Belt Conveyor is designed and constructed primarily for:

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

2.3 Improper use and prohibited:



Any application other than those listed by the manufacturer in its technical documentation, data sheets, assembly-, installation-, and instruction manuals and also other specific requirements and the terms and conditions is prohibited.

2. Safety

2.3 Improper use and prohibited:



In particular to prevent is:

- the operation of the machine without safety installations.
- manipulation, bypassing or disabling of existing security installations.
- use in or under water.
- the transport of animals or humans.
- the transport of hot substances (> 80°C).
- the transport of objects, which can be damaged through static discharge.
- the transport of, and insertion into acids, corrosive / abrasive materials or substances.
- transporting at too high speeds (causing goods to slide).

General improper use is:

- the deliberate creation and handling of flammable or explosive materials.
- 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).

Should the operating company process / convey substances and materials other than those made known to the manufacturer, as stated in the agreements or in the specification respectively, is the manufacturers declaration therefore no longer valid. In this case the national regulations then take effect.

The conveyor is designed for use within an ambient temperature ranging from 0 up to + 60°C (32 to 140 F). In relation to the atmospheric moisture, the protection rating of IP54 is to be observed.

Using the machine in hazardous areas is prohibited.

2. Safety

2.4 Safety advice - normal operation

The machine has been designed and developed by Robotunits using current technologies. No hazards can be expected with normal use of the machine.

Other risks have been reduced to a minimum.

- When operating the machine, national laws and regulations on the safety and health of workers are to be considered! In the interest of a secure work flow the users and operators are responsible for the compliance of the regulations.
- The operator is responsible for checking the machine's operation prior to every working shift.
- The operator must be familiar with the operating instructions for the machine.

2.5 Safety advice - electrical



- The conveyor may only be used in conjunction with plugs, sockets, and other power supply components conforming to the local regulating standards.
- In the event of technical problems or other potentially endangering situations, isolate the conveyor immediately from the power supply by means of a switch or emergency stop.
- Installation may only be carried out by suitably qualified personnel.
- The provided rules, instructions and diagrams of the motor manufacturers is to be complied with.
- When using a frequency converter, the provided rules, instructions and diagrams of the frequency converter are to be complied with

2. Safety

2.6 Safety advice - mechanics



The conveyor may only be operated in its original condition (with all safety features ie. Covers etc.).

When installing or integrating the conveyor into a system, the "integration of safety" needs to be considered. It may be required that the owner/operator must expand or provide additional safety equipment, following a hazard analysis conducted by the operating owner of the machine.

2.7 Safety advice - cleaning

Before cleaning, be sure to put the conveyor in a safe state and isolate the conveyor from the power supply. Also take steps to prevent the unit being switched on during cleaning.

3. Transport / assembly

3.1 Storage / transport conditions



The conveyor must be suitably stored and transported so as to remove the possibility of the conveyor tipping over. Do not store the conveyor outdoors.

3.2 Transport requirements



When lifting consider the center of gravity of the machine.
Do not stand under the load.



Be sure to use adequate packaging and transport materials.

3.3 Electrical installation / wiring



The provided rules, instructions and diagrams of the motor manufacturer is to be complied with.

When using a frequency converter, the provided rules, instructions and diagrams of the frequency converter 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 when several conveyor sections are installed in the separate drive.

4. Operating instructions

4.1 Requirements of personnel

All work carried out with this conveyor may only be carried out by suitably qualified personnel.

4.2 Installation



Injury to the lower limbs (crushing and colliding) can be caused through tipping of the machine due to assembly on or in an unstable situation. The machine should always be secured against tipping.

The installation may only be carried out by qualified and authorized personnel.

The safety advice - electrical (2.5) is to be observed.

4. Operating instructions

4.3 Initial operation



Injury to the upper limbs due to cutting and pinching on the transported work pieces / goods can be caused when one can reach into the hazard area.

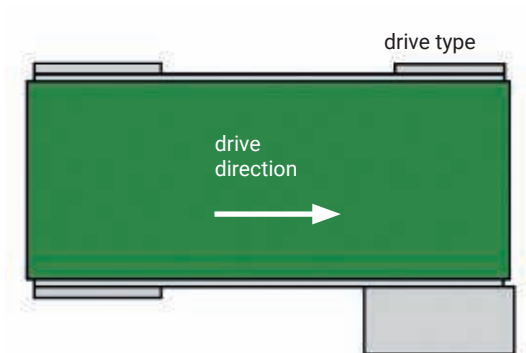


Should such dangerous goods be transported, the operating company must prevent the reaching in by means of safety guarding or similar effective means.



The following is to be checked before initial operation:

1. All safety devices are correctly installed and functioning properly (covers etc.).
With an elevated risk due to the transported goods, the appropriate protection and / or safety guarding is to be fitted.
2. Check the belt speed, belt tracking and belt direction at the start-up of the conveyor. In order to guarantee a safe operation the belt must always “pull” the load.



4. Operating instructions

4.4 During operation



The removal of safety equipment, covers and safety guarding during operation is prohibited.

Likewise, the hazard areas must be secured.

The approaching and / or operating of the machine is only allowed with the appropriate clothing, (hair net, ear protection, safety shoes, etc.).

4.5 Placing out of operation



Injury by electric shock!

Before the machine is put out of operation, make sure the machine has been stopped and unplugged before further removal work is carried out. When placing out of operation, the machine must be in a safe state.

Preparation for storage of the conveyor is only to be carried out by suitably qualified personnel.

4.6 Disposal

The machine and associated materials must be disposed of in a manner according to local laws and regulations.

5. Maintenance

The security of the operator and trouble-free operation of the machine is only guaranteed with the use of original machine parts. Proper machine maintenance is essential for reliable operation and long life.

Any maintenance, with the exception of checking the driving direction, may only be carried out after the conveyor has been disconnected from the power supply.

5.1 Requirements of maintenance personnel

For maintenance work, the stability of the machine must be ensured.
Any maintenance is only to be carried out by suitably qualified personnel.

5.2 Maintenance schedule

Service point / to do	Service interval	Info
Bearing	2 x per year	Check for wear
Electrical installation	2 x per year	Optical check for damage
Timing belt (if applicable)	1 x per month	Optical check for damage
Transport belt	1 x per month	Optical check for damage
Transport belt	1 x per month	Check the tracking and drive direction
Drive sprockets	2 x per year	Check for wear
Idler sprockets	2 x per year	Check for wear
Screws / bolts, after the initial operation	1x month after initial operation	Check the tightness
Screws / bolts	1x per year	Check the tightness

5.3 Corrective maintenance / repairs

Repairs of the conveyor may only be carried out by Robotunits or an approved service center technician appointed by Robotunits.

5.4 Bearing replacement

see drawings

6. Installation of Modular Belt Conveyor

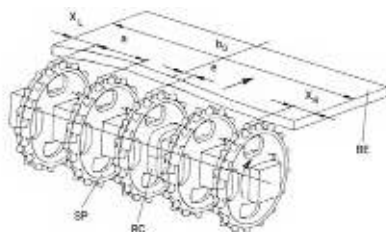
6.1 Alignment of sprockets

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



6.2 Positioning of sprockets

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



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

6.3 Checking of 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 top surface.



6. Installation of Modular Belt Conveyor

6.4 Rod

The rod has a diameter of 5 mm must have a chamfered end. If the belt is delivered 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
- The round rod head allows the use of a hammer to drive the rod into the belt

Check that rod head is flush with the belt!



6.6 Extraction of the rod

Extraction of the rod with the Habasit extraction tool or a narrow side cutter.

Pull out the rod

Be careful not to cut off the rod head!

The belt must not be under tension!



Extraction of the rod using a punch and a hammer

Hit the rod with punch and hammer from the opposite side. Secure the module edge to avoid link breakage.

The belt must not be under tension!





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