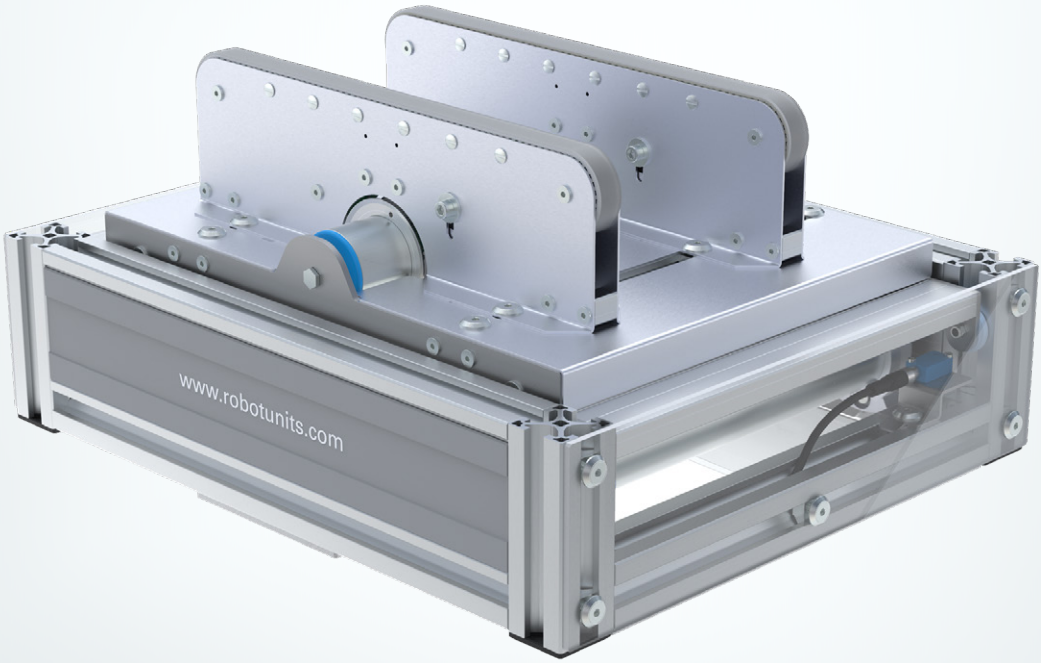
ROBOTUNITS®

Project:



Transfer Unit 90°

Operating Instructions

Table of contents

1. General information

1.1 Manufacturer of the system

Robotunits GmbH
Dr. Walter Zumtobel Str. 2
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www.robotunits.com

1.2 Version

Version	Type	Date
01	New document	16.09.2022

2. Safety

2.1 Intended use

The Transfer Unit 90° complements the Robotunits powered roller conveyors system, enabling a 90° transfer of conveyed material. For technical data, see chapter 3.

Since the Transfer Unit 90° is supplied with a control system, it is a "complete machine" as described in the Machinery Directive 2006/42/EC. Declaration of conformity: see appendix.

The Transfer Unit 90° is designed and built for:

- transporting parts or liquids in closed containers with zero pressure accumulation.
- being used in industrial and commercial applications.

⚠ CAUTION	
	**Danger due to operation by untrained personnel** The Transfer Unit 90° may only be operated by trained personnel

2.2 Reasonably foreseeable misuse

Not permitted are:

- the operation of the machine without safety equipment
- manipulating, bypassing, or disabling of installed safety equipment
- using the machine in or under water
- transporting animals or people
- transporting hot substances and objects (> 40°C)
- the transport and use of acids, corrosive / abrasive materials or substances
- transporting at excessive speed
- damages due to improper installation
- the use in potentially explosive atmospheres
- the use in corrosive atmospheres

2.3 Safety instructions for normal operation

- wear tight-fitting work clothes
- for long hair wear a hair net
- wear safety shoes with protective cap
- observe national laws and regulations on safety and health protection
- check the function and proper condition of the Transfer Unit 90°
- make sure to read and understand the instructions of the Transfer Unit 90°

2.4 Mechanical safety information

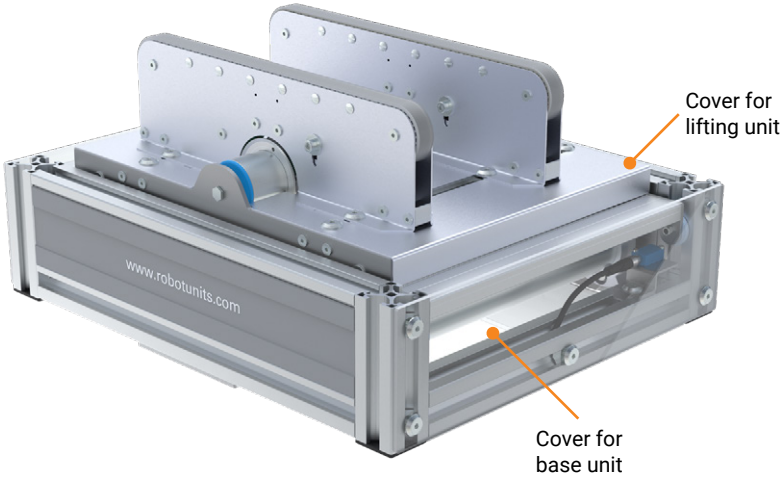
⚠ DANGER

Hazard due to misconduct / improper use

It is not permitted to:

- Stand or walk on the Transfer Unit 90° or the frame
- Reach between rollers while they are in operation
- Reach between the drive belt and drive belt head while they are in operation

The Transfer Unit 90° may only be operated in its original condition (with all safety equipment). All supplied safety components must be installed and must fulfill the safety function flawlessly.



By the installation or completion of a system, the “Integration of Safety” must be taken into account. The integrator or operator must ensure that further suitable protection and safety equipment are implemented where required.

2.5 Electrical safety information

⚠ WARNING	
	**Danger due to inadequate power supply unit** Only connect the Transfer Unit 90° using a sufficiently rated power supply unit

- Installation carried out by a qualified and authorized electrical specialist
- Observe technical data in chapter 3

3. Technical data

3.1 Mechanical

- Weight of conveyed material: kg (max. 50 kg)
- Weight of Transfer Unit 90°: max. 30 kg (depending on version)
- Roller pitch: mm
- Stroke: 13.5 mm
- Transfer lane width: 24 mm
- Belt width: 16 mm
- Cycle time (L300xW400): 2 s (15 kg), 3 s (30 kg), 4 s (50 kg)
- Speed*: max. 30 m/min (for loads up to 25 kg)
  max. 20 m/min (for loads from 26 to 50 kg)
- Airborne noise emission: 67 dBA

* ...set the speed of the motor rollers 25% lower than of the powered roller conveyor before or after. Reason: larger pitch diameter of the toothed belt pulley

3.2 Conveyed material

- Dimensions: mm
- Material:

3.3 Layout

Layout see appendix!

3.4 Electrical

Connection data (without power supply)

- Control voltage: 24 VDC
- Continuous current per motor roller: max. 2,5 A (≤ 30 kg)
  max. 3,5 A (> 30 kg)
- Starting current per motor roller max. 3,5 A (≤ 30 kg)
  max. 5,0 A (> 30 kg)
  max. 8,0 A (> 30 kg and belt support length > 600 mm)

Connection data with Robotunits power supply

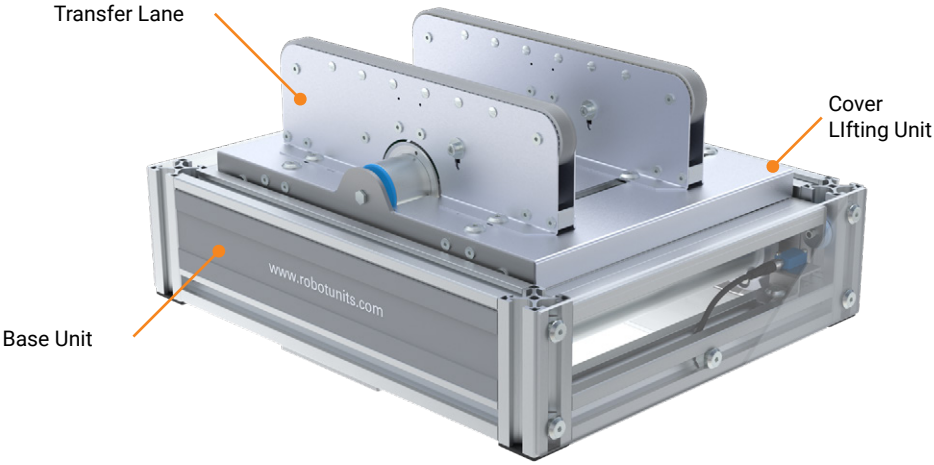
- Voltage: 400 VAC
- Connection: CEE plug (16 A)

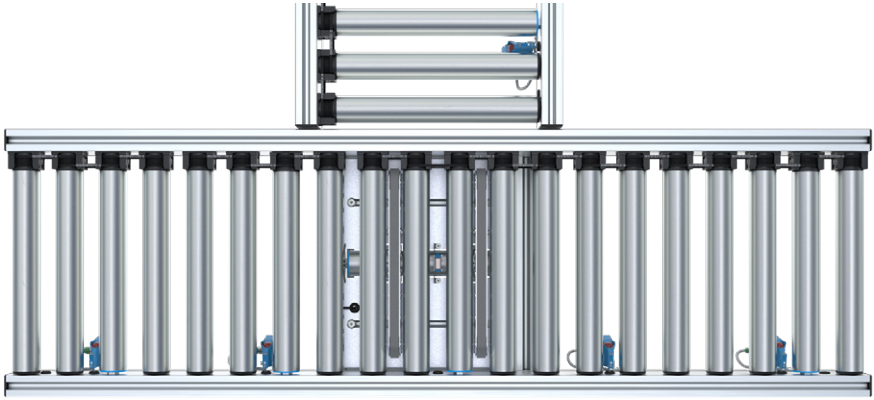
The positions must be held by the dynamic brake of the motors.

3.5 Ambient conditions

- Ambient temperature: + 2°C to + 40°C (avoid thermal shocks)
- Humidity: < 90%
- Vibrations: < 0.5g

4. Mechanical design





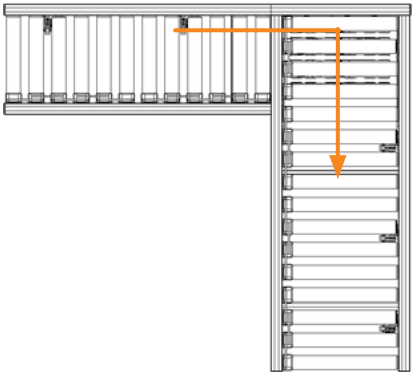
5. Operation modes

5.1 Starting with transfer lane in lower position

Procedure:

- Product moves to zone with Transfer Unit 90°, if vacant
- Product stops, transfer lane is in lower position
- Transfer Unit 90° lifts the product to upper position
- Transfer lanes transport the product to the next zone, if vacant

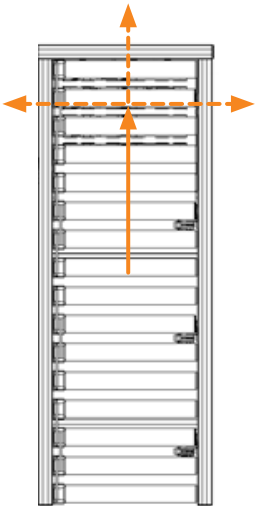
5.2 Starting with transfer lane in upper position



Procedure:

- Product moves to zone with Transfer Unit 90°, if vacant
- Product is transferred by the transfer lane, transfer lane is in the upper position
- Transfer Unit 90° lowers the product to the lower position
- Power roller conveyor transports the product to the next following zone, if vacant

5.3 Customer version



Procedure:

- Product moves to zone with Transfer Unit 90°, if vacant
- Transfer Unit 90° stops and waits for the customer signal
  Option 1: Product moves to the left
  Option 2: Product moves to the right
  Option 3: Product moves straight ahead
- For options 1+2: Transfer Unit 90° lifts the product to the upper position and the transfer lane trans ports the product to the left or to the right
- For option 3: Powered roller conveyor transports the product straight ahead

6. Transportation

6.1 Storage/transport conditions

DANGER

Hazard due to improper storage

- During transport and storage, secure the machine to prevent tipping
- Do not store outdoors

6.2 Transportation requirements

DANGER

Hazard due to lifted load

- Use suitable means of transport
- Consider the center of gravity when lifting the machine
- Standing under the load is prohibited

7. Commissioning

7.1 Personnel requirements

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

7.2 Connecting the machine

DANGER

Hazard due to misconduct / improper use

- Attachment to Robotunits powered roller conveyor frame
- Measures regarding electromagnetic compatibility (EMC) must be observed
- Ensure continuous equipotential bonding

- Connection/wiring must be carried out by trained electricians
- Observe connection diagram (see appendix)
- Connect frame with protective grounding
- Connect the 0V of the power supply unit with protective grounding
- If required, install a mains disconnection device for switching off in an emergency.

7.3 Initial commissioning

⚠ WARNING	
	**Hazard due to misconduct / improper use** Before initial commissioning, check the following: 1. The proper installation of all safety equipment and covers. In case of an increased risk due to conveyed material falling down, additional safety equipment must be installed. 2. The proper connection of the Transfer Unit 90° to the conveyor system. 3. The speed and running direction after the first operation of the powered roller conveyor.

8. Operation

The Transfer Unit 90° is ready for operation immediately after being switched on and is in the corresponding position as described in chapter 5.

9. Maintenance, servicing and cleaning

Proper maintenance of the machine is essential for reliable operation and a long service life.

Work to be performed by the operating personnel:

- Machine shutdown
- Clean with dry or slightly damp, soft cloths (Polycarbonate sheets are susceptible to scratches)
- Use a vacuum cleaner to remove larger quantities of contamination.
- Clean sensors, if necessary
- Visual inspection for damage; if necessary, request repair from the plant maintenance department

10. Maintenance, repair and troubleshooting

The spare parts list can be found in the appendix.
Work to be carried out by trained specialists from the plant maintenance department are:

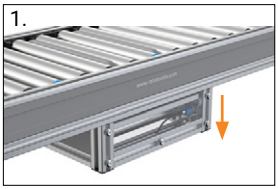
Maintenance schedule

Maintenance Point / Activity	Maintenance interval	Info
Electrical installations	2 times per year	Visual inspection for damage and firm attachment
Timing Belt	Every 3 months	Visual inspection for damage (such as cracks or porosity)
Screw connections after initial commissioning	1 month after initial commissioning	Check for tightness
Screw connections	Once a year	Check for tight fit
Sensor	as needed	Remove any dirt that may be present

10.1 Transfer belt

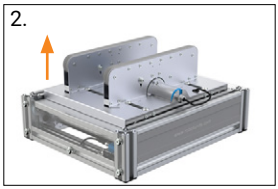
Belt replacement

1.



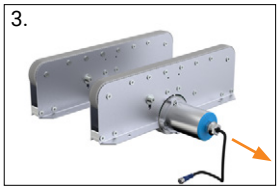
Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



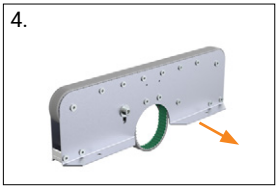
Loosen the fastening screws of the transfer lanes, loosen the fastening nut of the motor roller and remove the motor roller including the transfer lanes

3.



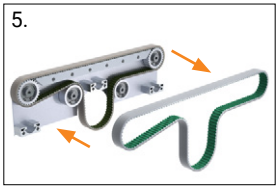
Slacken the belt and remove the transfer lane

4.



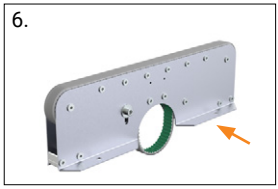
Loosen the fastening screws and remove the side panel

5.



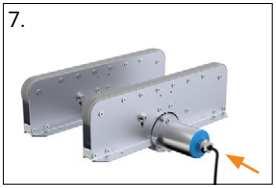
Replace the belt and also the pulley wheels, if necessary

6.



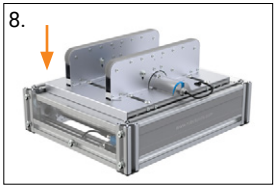
Reassemble the side panel and tighten the fastening screws

7.



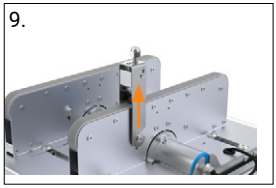
Mount the transfer lane onto the motor roller

8.



Bring the motor roller incl. the transfer lane into the specified position, tighten the fastening nut of the motor roller (50 Nm) and tighten the fastening screws

9.



Tension the belt (tool: 344028)

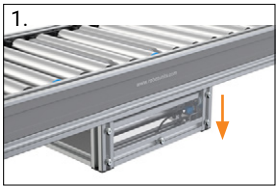
10.

Assemble the Transfer Unit 90° to the Powered Roller Conveyor

10.2 Motor roller (transfer lane)

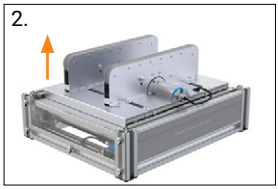
Motor roller replacement

1.



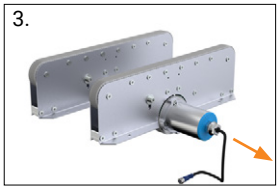
Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



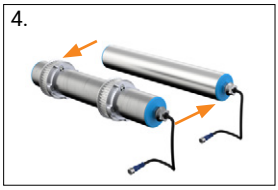
Loosen the fastening screws of the transfer lanes, loosen the fastening nut of the motor roller and remove the motor roller including the transfer lanes

3.



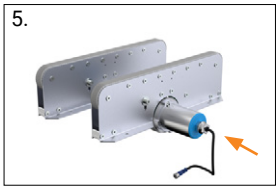
Slacken the belt and remove the transfer lane

4.



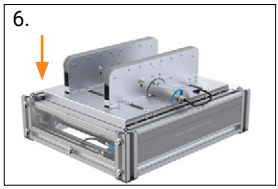
Transfer the toothed belt pulleys incl. the tensioning rings from the old pulley to the new pulley

5.



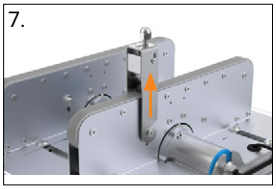
Mount the transfer lane onto the motor roller

6.



Bring the motor roller incl. the transfer lane into the specified position, tighten the fastening nut of the motor roller (50 Nm) and tighten the fastening screws

7.



Tension the belt (tool: 344028)

8.

Assemble the Transfer Unit 90° to the Powered Roller Conveyor

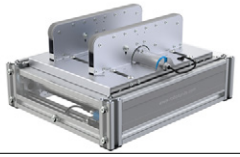
10.3 Motor roller (stroke)

Motor roller/ conveyor roller replacement

1.

Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



If necessary, remove fasteners and remove the lifting unit incl. the transfer belts from the base frame

3.

Dismantle the push rod

4.

Remove the motor roller on both sides conveyor roller

5.

Transfer the eccentric cam from the old to the new roller

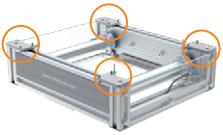
6.

Mount the push rod

7.

Install the motor roller/ conveyor roller

8.



Synchronize the rollers (tool 366684)

9.

Place the lifting unit incl. the transfer lane onto the base frame

10.

Assemble the Transfer Unit 90° to the Powered Roller Conveyor

11. Disposal

The product contains valuable materials (metals, plastics, electrical assemblies) which can be recycled separately.

At the end of its service life, the machine must be taken to a specialist disposal center.

11.1 Wiring/connection diagram

See appendix.

12. EU Declaration of Conformity

We, as the manufacturer of the machine, hereby declare under our sole responsibility that the designated machine complies with the harmonization regulations of the EU, as listed below. The listed relevant harmonized standards of the EU and, if applicable, further specifications were used as a basis for conformity.

Manufacturer: Robotunits GmbH
Dr. Walter Zumtobel Strasse 2
6850 Dornbirn, AUSTRIA

Product:

Relevant harmonization regulations (directives):

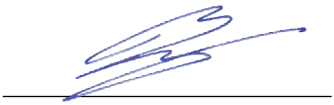
2006/42/EC (09.06.2006)	Machinery Directive
2014/30/EU (29.03.2014)	EMC Directive

Applied harmonization standards:

EN ISO 12100:2010	Safety of machinery, General principles for design, Risk assessment, Risk reduction;
EN 60204-1:2018	Safety of machinery, Electrical equipment of machines - Part 1: General requirements;
EN 619+ A1:2010	Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads belt conveyors

Authorized representative for the technical documentation: Robotunits GmbH
Dr. Walter Zumtobel Str. 2
6850 Dornbirn, AUSTRIA

Signed for and in the name of: Robotunits GmbH



Christian Beer
Managing Partner

Dornbirn, 29.04.2022

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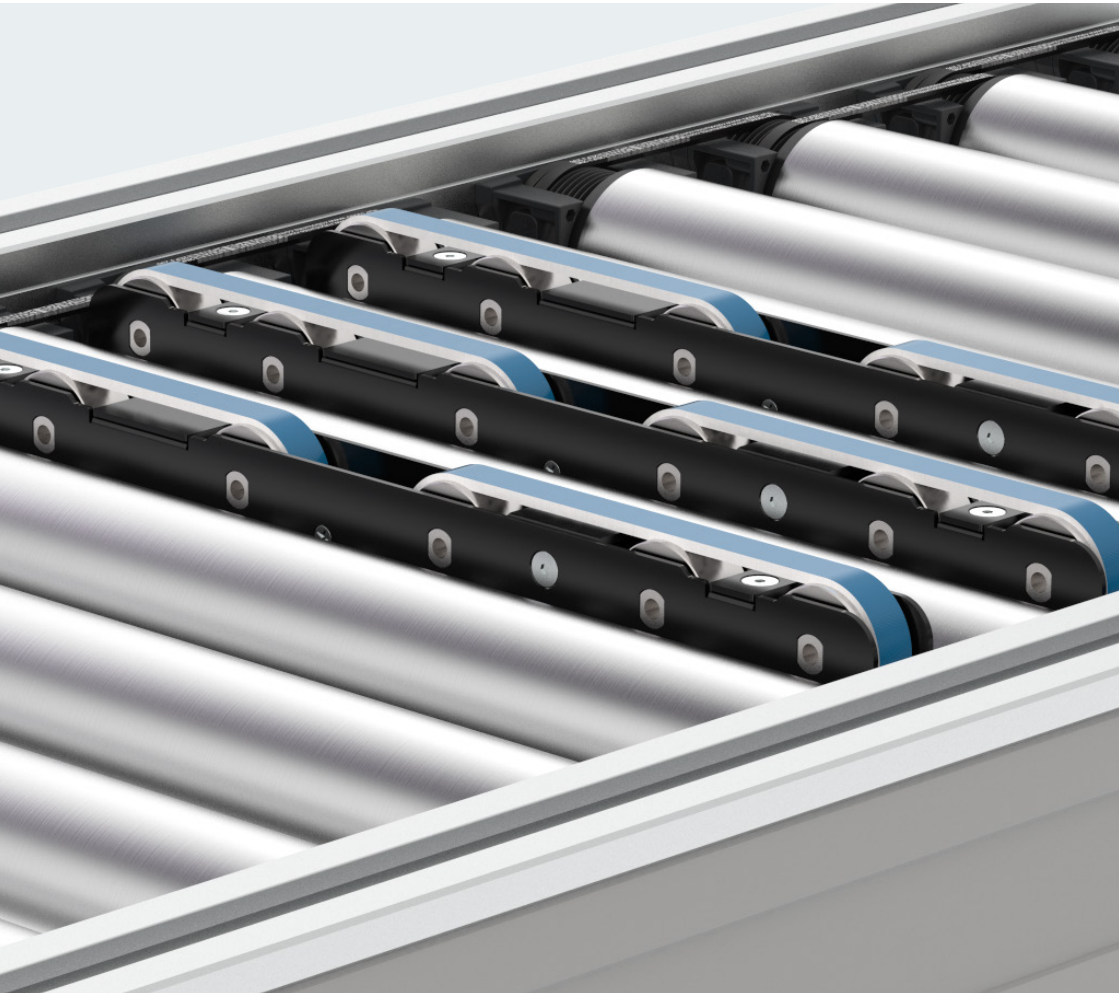

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