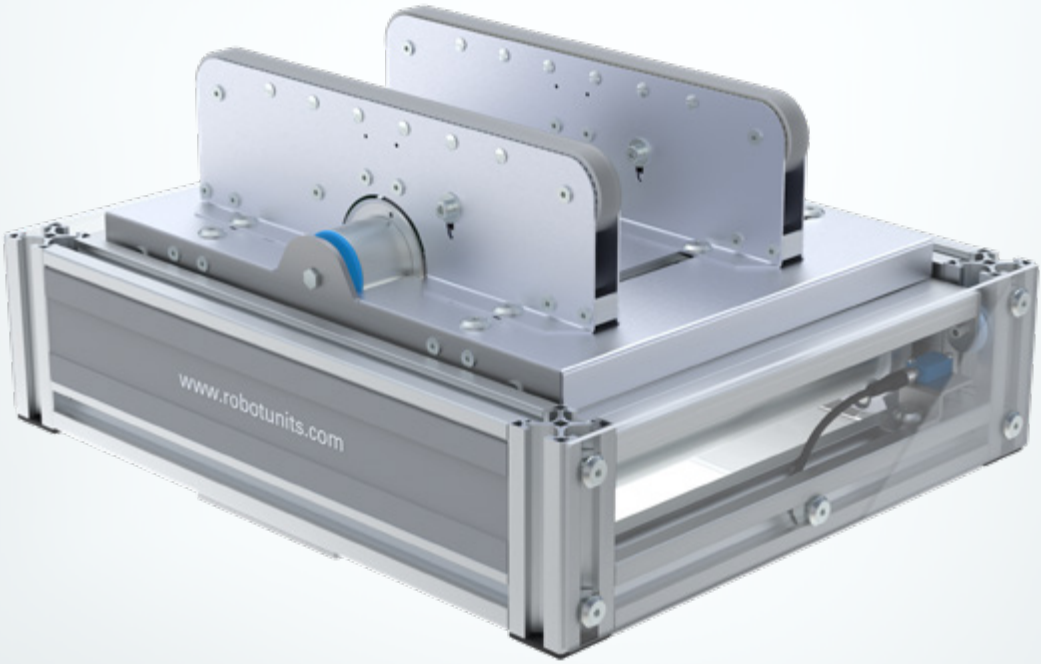
ROBOTUNITS®

Project:



Transfer Unit 90°, 50

Operating Instructions

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1. General information

1.1 Manufacturer of the system

Robotunits GmbH
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A-6850 Dornbirn
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www.robotunits.com

1.2 Version

Version	Type	Date
01	New document	16.09.2022
02	Redesign	25.04.2025

2. Safety

2.1 Intended use

The Transfer Unit 90° complements the Robotunits Powered Roller Conveyor 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 totes 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

The following is not permitted:

- the operation of the machine without safety equipment
- the manipulation, bypassing or disabling of existing safety equipment
- using the machine in or under water
- the transportation of animals or people
- the transportation of hot substances and objects (> 40°C)
- the transportation of and usage in acids, corrosive / abrasive materials or substances
- transportation 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
- in case of long hair, wear a hair net
- wear safety shoes with protective caps
- 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

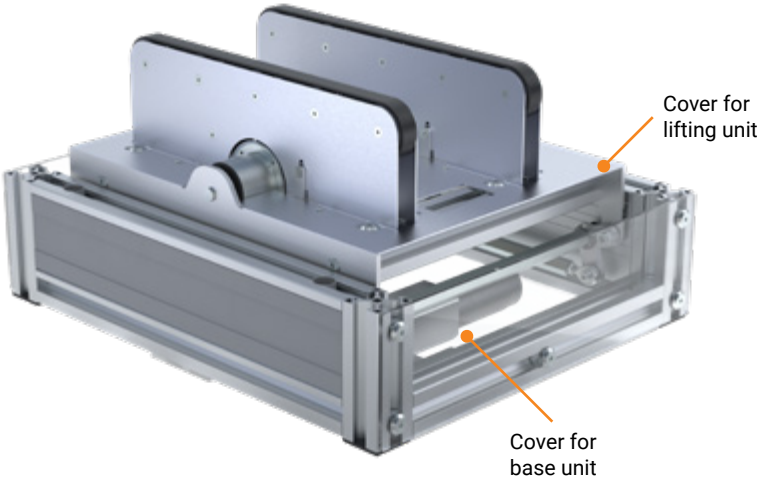
⚠ DANGER

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

Layout - see appendix!

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: 14 mm
- Belt width: 16 mm
- Speed*: ≤ 20 kg: 48 m/min
  ≤ 40 kg: 33 m/min
  ≤ 50 kg: 26 m/min
- Airborne noise emission: 67 dBA

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

3.2 Conveyed material

- Dimension: 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: 3.5 A
- Starting current per motor roller 5.0 A

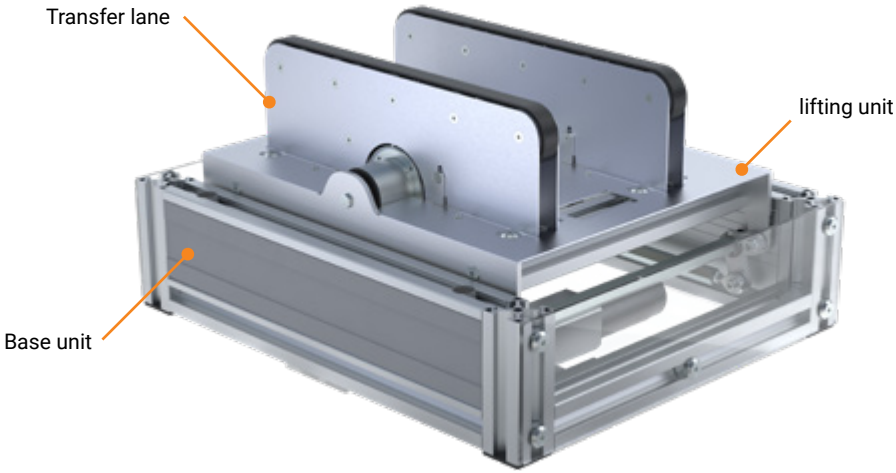
Connection data with Robotunits power supply
- Voltage: 400 VAC / 230 VAC
- Connection: CEE plug (16 A) / Schuko plug

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

3.5 Ambient conditions

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

4. Mechanical design



5. Operating modes

5.1 Starting with transfer lane in lower position

Procedure:

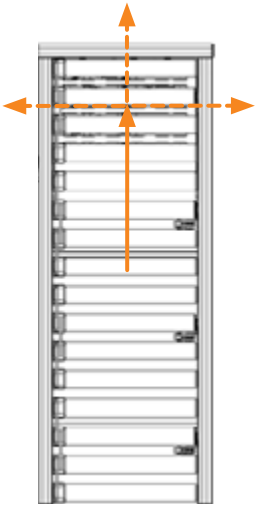
- Product moves to zone with Transfer Unit 90°, if vacant
- Product stops, transfer lane is in lower position
- Transfer Unit 90° lifts the product to upper position
- Transfer lanes transport the product to the next zone, if vacant

5.2 Starting with transfer lane in upper position

Procedure:

- Product moves to zone with Transfer Unit 90°, if vacant
- Product is transferred onto the transfer lane, the 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 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 transports 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 it from tipping over
- Do not store outdoors

6.2 Transportation requirements

DANGER

Hazard due to lifted load

- Use a suitable means of transportation.
- 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 equipotential bonding

- Connection/wiring must be carried out by trained electricians
- Observe wiring 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 of conveyed material possibly 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 panels 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:

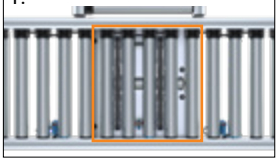
Maintenance schedule

Maintenance Point / Activity	Maintenance interval	Info
Electrical installations	every 6 months	visual inspection for damages and check for tight fit
Timing belt	every 3 months	visual inspection for damages (such as cracks or porosity)
Screw connections after initial commissioning	1 month after initial commissioning	check for tight fit
Screw connections	once a year	check for tight fit
Sensor	as required	remove any dirt that may be present

10.1 Transfer lane belt

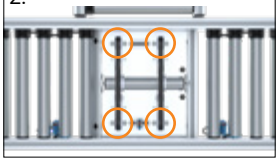
Belt replacement

1.



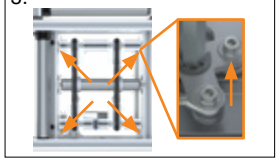
Remove rollers in the area of the Transfer Unit 90°

2.



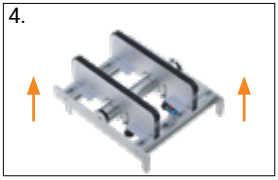
Loosen screws and remove covers

3.



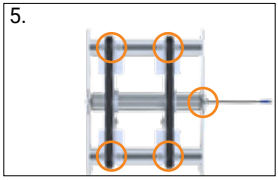
Remove the 4 connecting screws

4.



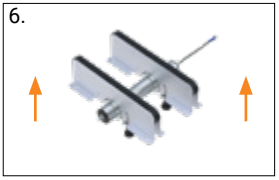
Remove the lifting unit

5.



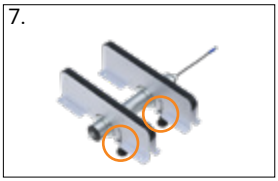
Mark the position of the transfer lanes, unscrew the connecting screws and disconnect the motor roller

6.



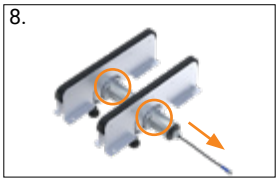
Lift out the transfer lanes and motor roller

7.



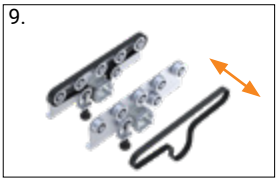
Release the tension on the transfer lane belt

8.



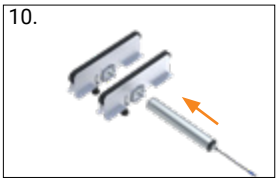
Loosen the clamping rings and remove the motor roller

9.



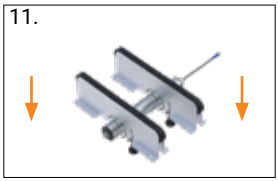
Remove the side panel and replace the belt

10.



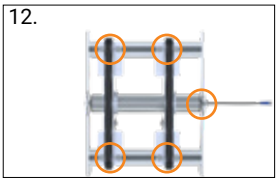
Insert the new motor roller

11.



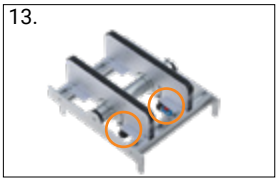
Insert the transfer lane and the motor roller

12.



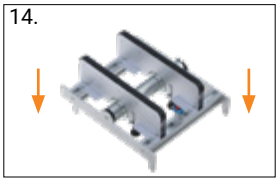
Insert the transfer lanes, tighten the connecting screws and connect the motor roller

13.



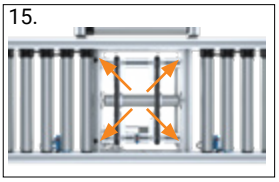
Tension the transfer lane belt with 50N

14.



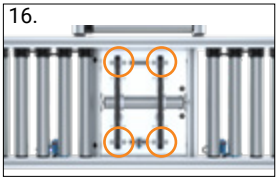
Insert the lifting unit

15.



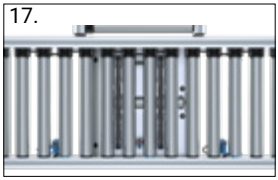
Tighten the 4 connecting screws

16.



Insert and fasten the covers

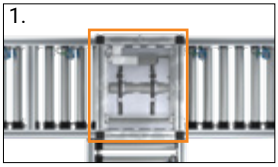
17.



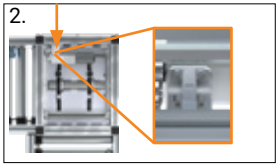
Insert rollers in the area of the Transfer Unit 90°

10.2 Motor (lifting unit)

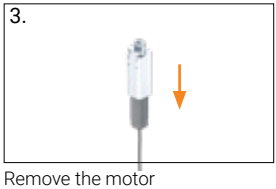
Motor roller replacement from below



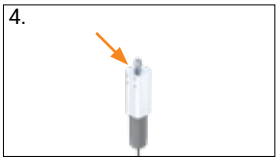
Remove screws and cover



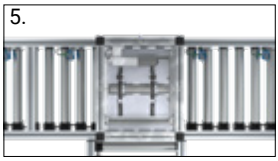
Remove the 4 connecting screws



Remove the motor

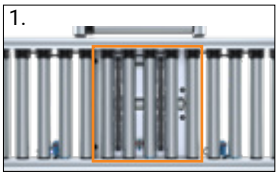


Remove the eccentric hub and replace the motor

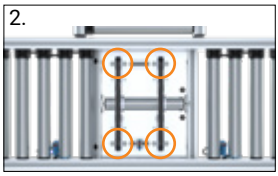


Steps 5 to 1: repeat in reverse order

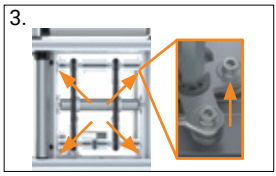
Motor replacement from above



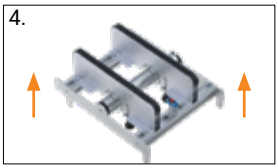
Remove rollers in the area of the Transfer Unit 90°



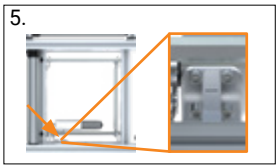
Loosen screws and remove covers



Remove the 4 connecting screws

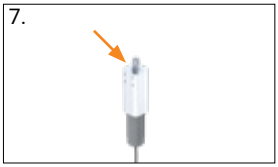


Lift out the lifting unit

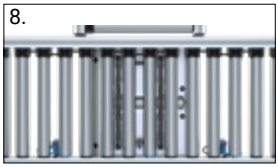


Loosen the connecting screw of the motor

Remove the motor



Remove the eccentric hub and replace the motor



Steps 6 to 1: repeat in reverse order

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 harmonized standards:

EN ISO 12100:2010	Safety of machinery, General principles for design, Risk assessment and 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

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

Signed for and on behalf of: Robotunits GmbH

Christian Beer
Managing Partner

Dornbirn, 25.04.2025

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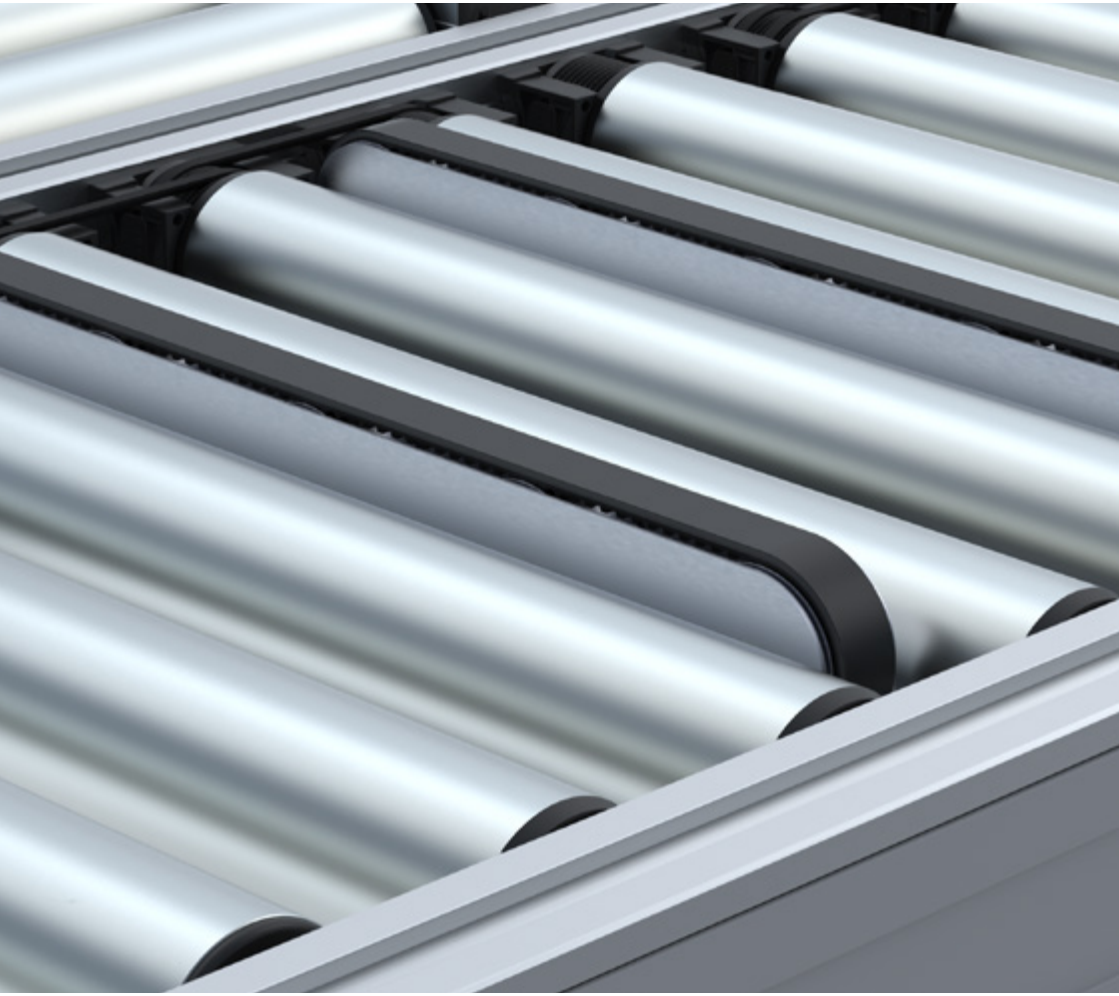

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