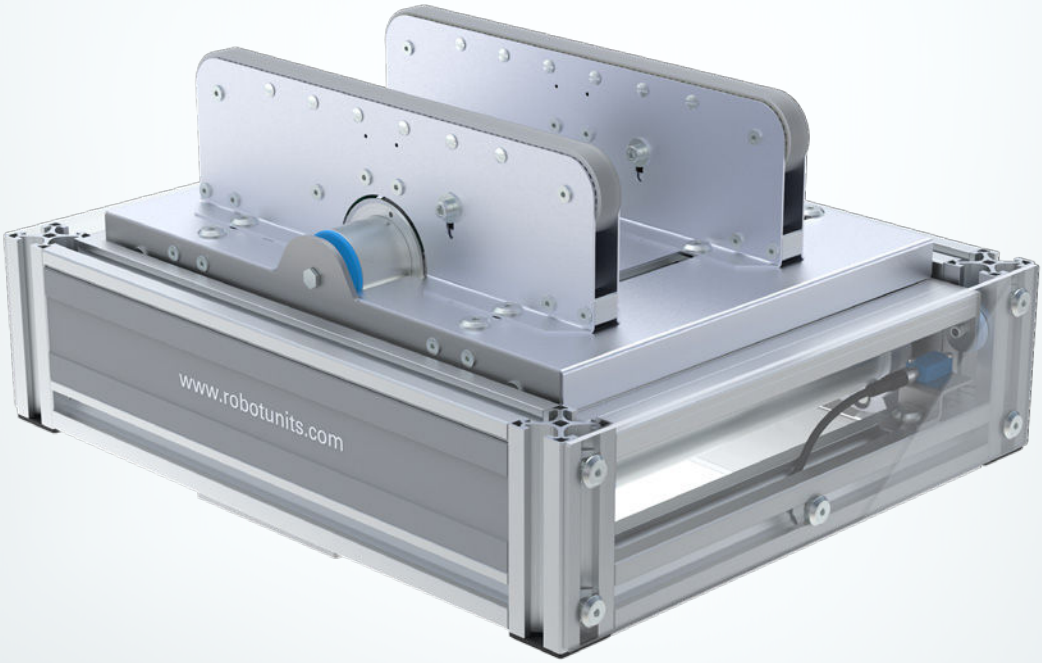
ROBOTUNITS®

Project:



Transfer Unit 90°

Assembly Instructions

Table of contents

1. General information

1.1 Manufacturer of the system

Robotunits GmbH
Dr. Walter Zumtobel Str. 2
A-6850 Dornbirn
Tel. +43 5572 22000 200
Fax +43 5572 22000 9200
www.robotunits.com

1.2 Version

Version	Type	Date
01	New document	16.09.2022

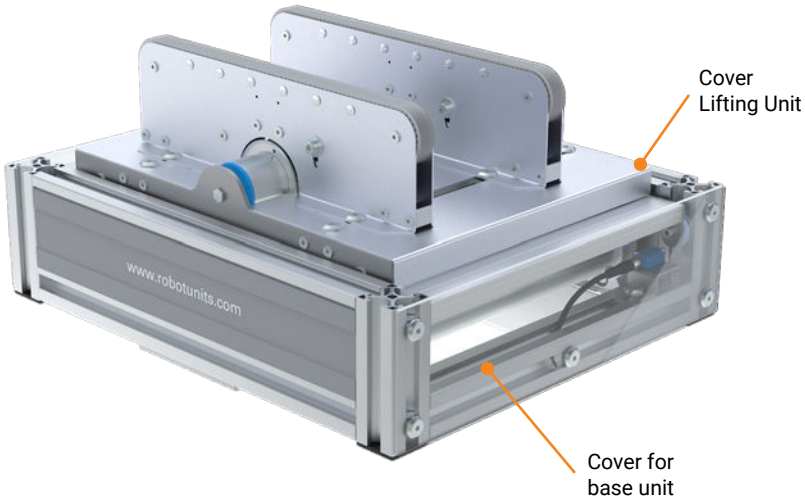
2. Safety

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 without a control system, it is a "partly completed machinery" as described in the Machinery Directive 2006/42/EC.
See appendix for Declaration of Incorporation.

The Transfer Unit 90° is mechanically designed with the appropriate covers.



2.2 Safety instructions for transportation

- Do not store outdoors
- Consider the center of gravity when lifting
- Standing under the load is prohibited
- Use a suitable means of transport

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 (up to 25 kg)
  max. 20 m/min (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

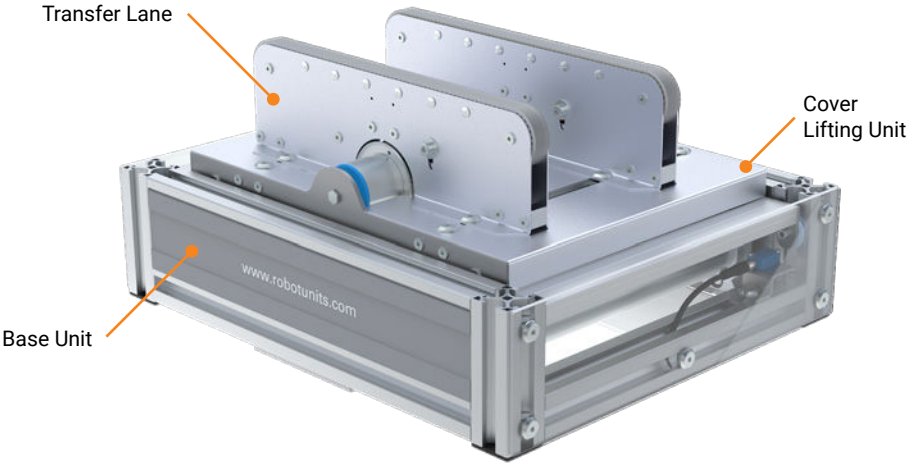
3.2 Conveyed material

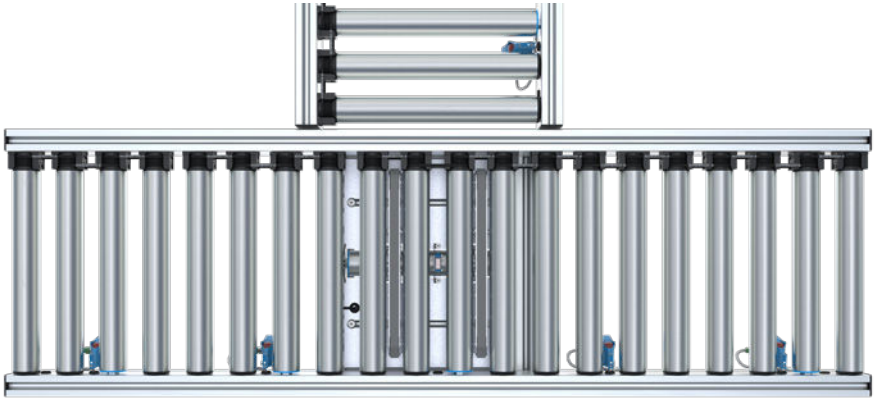
- Dimensions: mm
- Material:

3.3 Ambient conditions

- Ambient temperature: + 2°C to + 40°C
  (avoid thermal shocks)
- Humidity: < 90 %
- Vibrations: < 0,5 g

4. Mechanical design





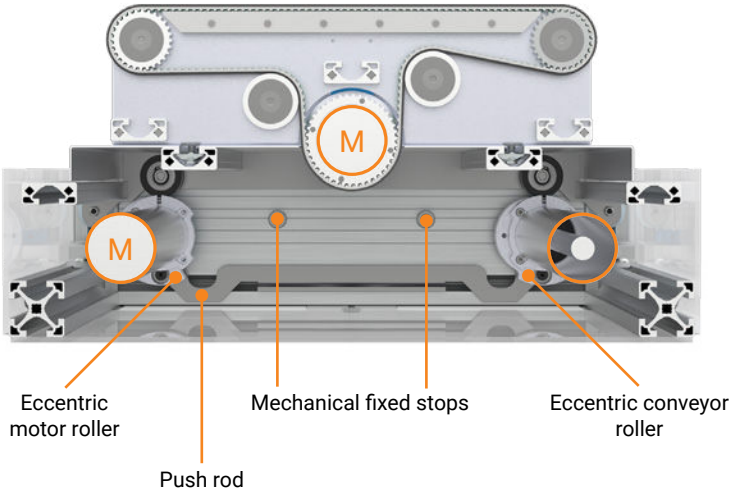
5. Functions

5.1 Lifting unit

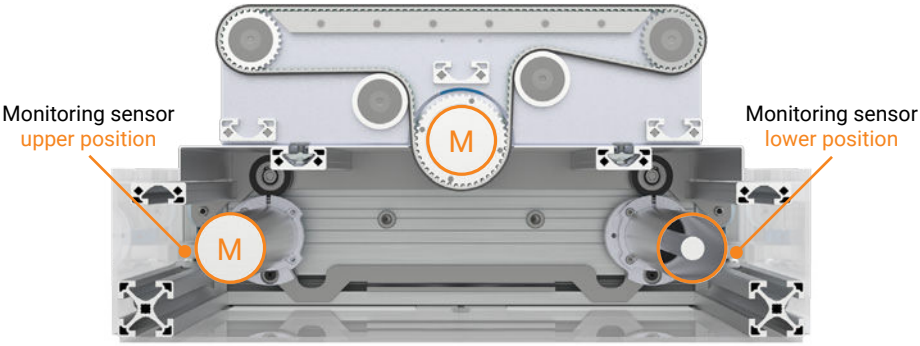
The lift of the transfer unit is achieved electrically via a 24V motor roller and an eccentric cam. The monitoring of the upper and lower dead centres is achieved via 2 monitoring sensors.

5.2 Transfer lane

The transfer lanes are driven electrically via a 24V motor roller and toothed belt pulleys.



5.3 Motor settings



Lifting unit:	5 A
Transfer lane:	up to 25 kg: 3.5 A – 30 m/min up to 35 kg: 5 A – 20 m/min up to 50 kg: 8 A – 20 m/min

5.4 Normal operation

In order to ensure optimum process reliability, the Transfer Unit 90° must be controlled as follows:

Starting with transfer lane in lower position	Lifting roller	Transfer roller	Lower end position sensor	Upper end position sensor
Lower limit position (starting point)	STOP (servo brake)	STOP	ON	OFF
Upward stroke (UP)	Clockwise rotation	STOP	OFF	OFF
Upper limit position	STOP (servo brake)	STOP	OFF	ON
Transfer	STOP (servo brake)	Clockwise / counter-clockwise rotation	OFF	ON
Downward stroke (DOWN)	Counterclock-wise rotation	STOP	OFF	OFF

[1] The lifting movement may only take place when the zone after the Transfer Unit 90° is empty.

Starting with transfer lane in upper position	Lifting roller	Transfer roller	Lower end position sensor	Upper end position sensor
Upper limit position (starting point)	STOP (servo brake)	STOP	OFF	ON
Downward stroke (DOWN)	Counterclock-wise rotation	STOP	OFF	OFF
Upper limit position	STOP (servo brake)	STOP	ON	OFF
Transfer	STOP (servo brake)	Clockwise / counter-clockwise rotation	ON	OFF
Upward stroke (UP)	Clockwise rotation	STOP	OFF	OFF

[2] The lifting movement must take place directly after the conveyed material has reached the Transfer Unit 90°.

The upper and lower position must be held by the dynamic brake of the motor.

The following guide values can be used for the motor adjustment of the stroke:

Guide values Motor setting Stroke			
weight kg	max. speed m/s	acceleration mm	delay mm
50	0,1	5	3
35	0,12	5	5
25	0,17	5	5
10	0,24	5	5
0	0,24	5	7

6. 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
- Check tension of toothed belt
- Visual inspection for damage; if necessary, request repair from the plant maintenance department

7. 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:

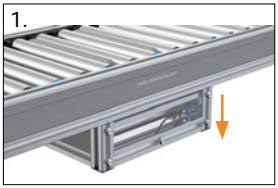
Maintenance schedule

Maintenance location / 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 tight fit
Screw connections	Once a year	Check for tight fit
Sensor	As needed	Remove any dirt that may be present

7.1 Transfer belt

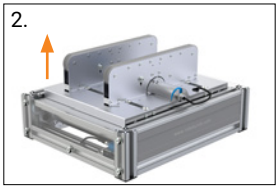
Belt replacement

1.



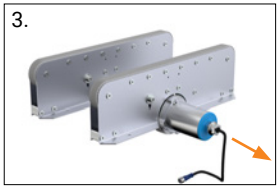
Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



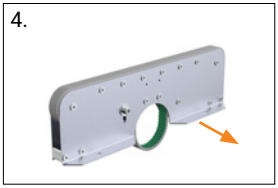
Loosen the fastening screws of the transfer lanes, loosen the fastening nut of the motor roller and remove the motor roller including the transfer lanes

3.



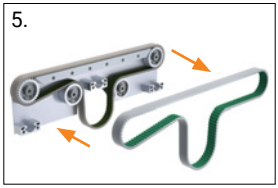
Slacken the belt and remove the transfer lane

4.



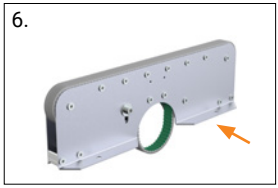
Loosen the fastening screws and remove the side panel

5.



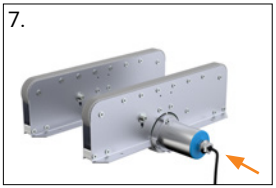
Replace the belt and also the pulley wheels, if necessary

6.



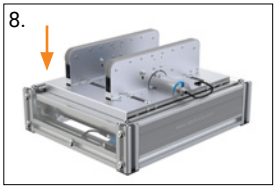
Reassemble the side panel and tighten the fastening screws

7.



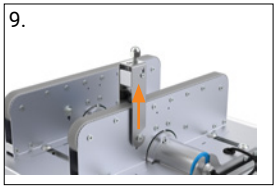
Mount the transfer lane onto the motor roller

8.



Bring the motor roller including 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)

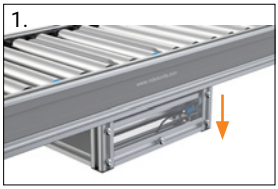
10.

Assemble the Transfer Unit 90° to the Powered Roller Conveyor

7.2 Motor roller (transfer lane)

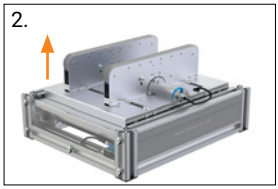
Motor roller change

1.



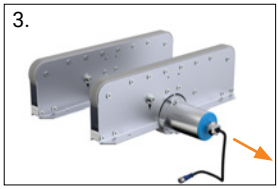
Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



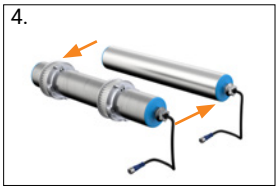
Loosen the fastening screws of the transfer lanes, loosen the fastening nut of the motor roller and remove the motor roller including the transfer lanes

3.



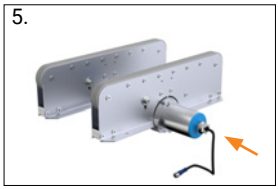
Slacken the belt and remove the transfer lane

4.



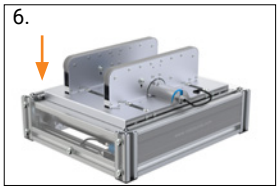
Transfer the toothed belt pulleys including the tensioning rings from the old pulley to the new pulley

5.



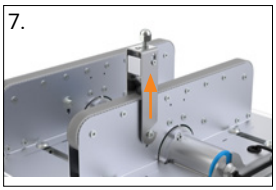
Mount the transfer lanes onto the motor roller

6.



Bring the motor roller including 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

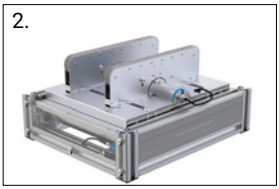
7.3 Motor roller (stroke)

Motor roller/ conveyor roller replacement

1.

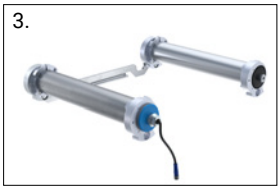
Remove the Transfer Unit 90° from the Powered Roller Conveyor

2.



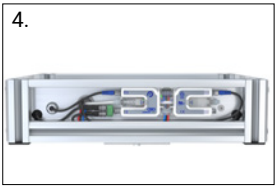
If necessary, remove fasteners and remove the lifting unit incl. the transfer belts from the base frame

3.



Dismantle the push rod

4.

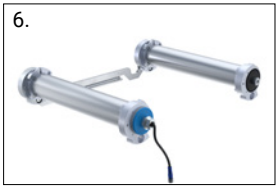


Remove the motor roller on both sides conveyor roller

5.

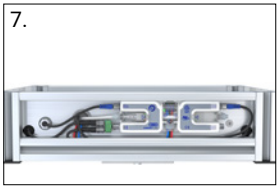
Transfer the eccentric cam from the old to the new roller

6.



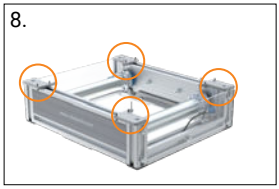
Mount the push rod

7.



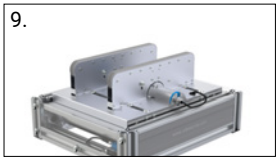
Install the motor roller/ conveyor roller

8.



Synchronize the rollers (tool 366684)

9.



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

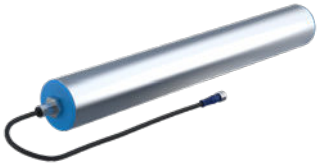
10.

Assemble the Transfer Unit 90° to the Powered Roller Conveyor

8. Components used

8.1 Motor roller

Motor roller for lift and belt drive

	**Manufacturer:** **Type:** **Item number:**	Pulseroller Synergy Ai Speedcode 15 341906 (stroke) 341965 (belt)

8.2 Motor controller

Motor controller for motor roller

	**Manufacturer:** **Type:** **Item number:**	Pulseroller ConveyLinx Ai2/ MotionLinx Ai 297340/ 297341

8.3 Zone sensor

Roller conveyor zone sensor in the zone with the Transfer Unit 90°

- for detecting products in the zone with the Transfer Unit 90°
- for checking whether the product is in the right position

	**Manufacturer:** **Type:** **Item number:**	Wenglor P1KY102 313262

8.4 Inductive sensor

- Sensor for upper and lower position of the Transfer Unit 90°

	**Manufacturer:** Wenglor **Type:** I1CH003 **Item number:** 145392

8.5 Timing belt

- Belt for the transfer of the products

	**Manufacturer:** Optibelt **Type:** ALPHA LINEAR V T5 **Item number:** COL1605SNN

9. EU Declaration of Incorporation

(in accordance with 2006/42/EG from 09.06.2006, Annex VII, part B for the installation of a partly completed machinery)

We, as the manufacturer of the partly completed machinery, hereby declare under our sole responsibility that for the machine specified below:

- the essential requirements of the harmonized directive 2006/42/EC listed below were applied and complied with
- the specific technical documentation was created in accordance with Annex VII, Part B
- this specific technical documentation will be transmitted in accordance with Annex VII, Part B, in response to a reasoned request, to the national authorities in printed form or electronically (pdf)

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

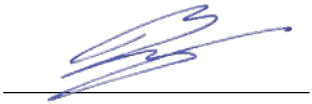
Product:

Harmonized regulation (directive):
2006/42/EC (09/06/2006) Applied and fulfilled essential requirements:
1.1.2., 1.1.3., 1.1.5., 1.3.1., 1.3.2, 1.5.8, 1.5.9, 1.5.13
2014/35/EU Low Voltage Directive
2014/30/EU EMC Directive

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

This partly completed machinery must not be put into service until the machine into which this partly completed machinery is to be incorporated has been declared in conformity with the regulations of the Machinery Directive 2006/42/EC.

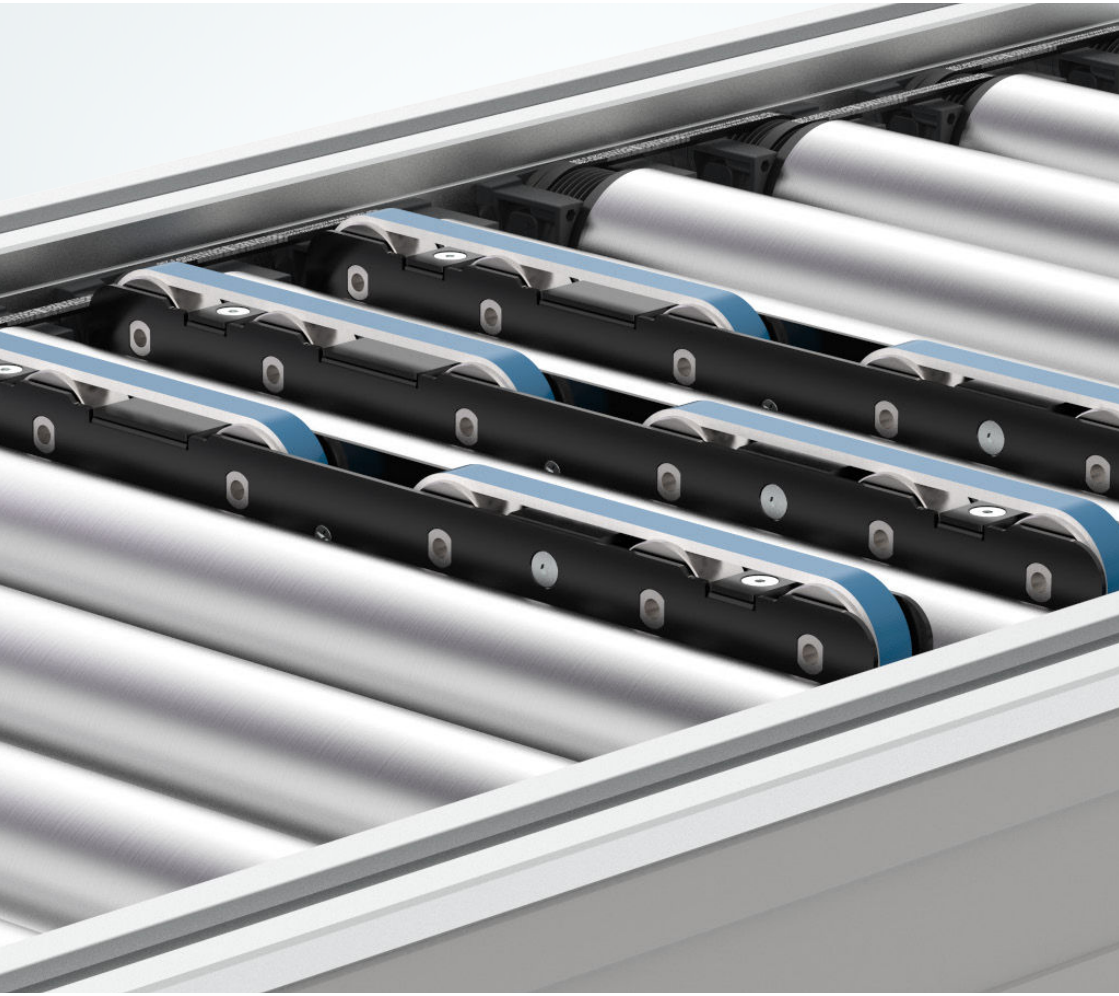
Signed for and in the name of: Robotunits GmbH



Christian Beer
Managing Partner

Dornbirn, 29.04.2022

ROBOTUNITS®



Austria • Germany • Switzerland • Italy • France • Spain • Czech Republic • USA • Australia

www.robotunits.com