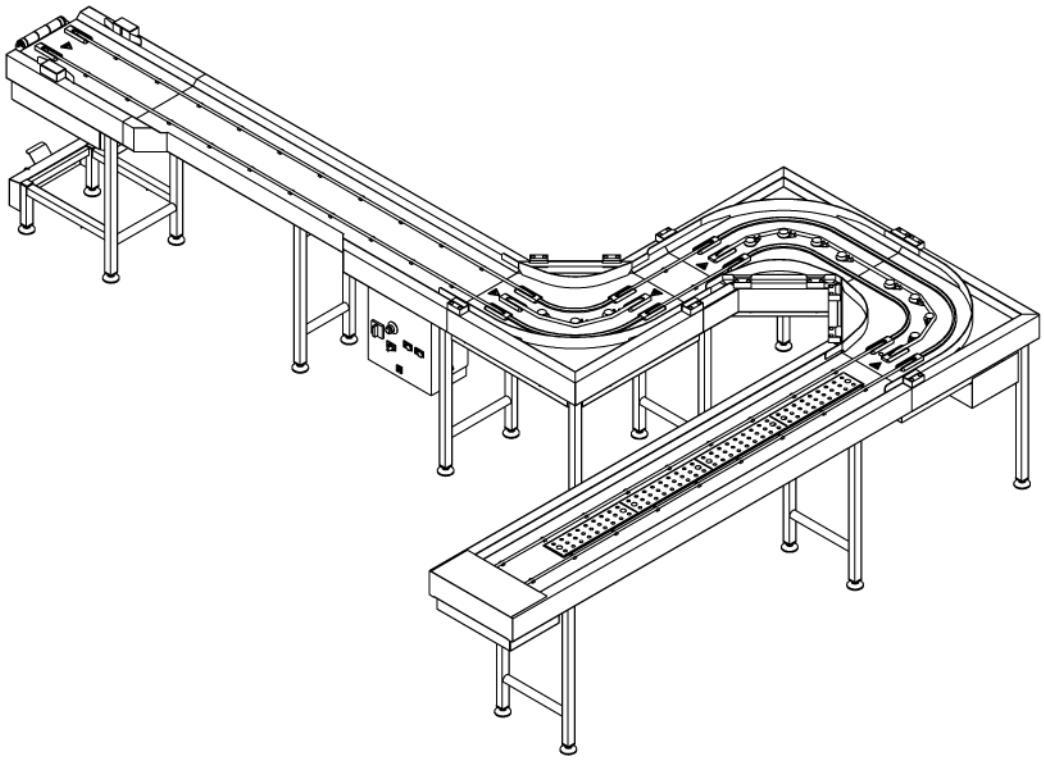
HUPFER

Operating instructions



Crockery return belt

SGR

Read the instructions prior to performing any task!

Manufacturer information

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1 General information

1.1 Product information

Product name	Crockery return belt
Product type	Cord conveyor

1.2 Target group

These operating instructions are intended for the following groups of people who perform the listed activities with or on the product:

Electrician

- Servicing or repairing the electrical installation within the product
- Rectifying electrical faults

Maintenance engineer

- Maintenance work on mechanical systems or trained activities on the electrical, cooling or heating systems
- Simple repairs
- Appropriately trained employees of the customer or an employee of the manufacturer

Operating staff

- Standard operating steps
- Rectifying faults as described in the “Troubleshooting” section
- Cleaning

Operator

The operator or an authorised person must carry out the work.

- Check the condition of the entire unit
- Determine maintenance requirements

1.3 Symbols

DANGER

“Danger” indicates a hazardous situation that will result directly in death or serious injury.

WARNING

“Warning” indicates a hazardous situation that may result in serious injury.

CAUTION

“Caution” indicates a potentially hazardous situation that may result in minor to moderate injury.

NOTICE

“Notice” indicates a situation that may result in damage to property.

“Notes” give tips on the correct use of the product.

1.4 Signs

Warning of electric current

This warning symbol is attached at points on the product where the electrical circuits are installed.

Warning of danger of being pulled in by the belt

This warning symbol is attached at points on the product where there is a risk of being drawn in by the moving conveyor.

Do not use pressure washers or steam cleaners

This warning symbol means that no steam cleaners or pressure washers may be used on or around the product.

1.5 Conformity

Manufacturer	**Hupfer** Metallwerke GmbH & Co. KG
Address	Dieselstraße 20 D-48653 Coesfeld
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Product name	Crockery return belt
Product type	Cord conveyor

Hereby the manufacturer declares that the products comply with the requirements of the following European legislation:

- 2006/42/EG – Machinery Directive
- 2014/35/EU – Low-Voltage Directive
- 2014/30/EU – EMC Directive

In addition, the following harmonised standards have been applied:

- DIN EN ISO 12100
- DIN EN ISO 14120
- DIN EN 614
- DIN EN 60204-1
- DIN EN ISO 13850
- DIN EN 61000
- DIN EN ISO 13857

CE

Coesfeld, 27.08.2021

Helmut Schumacher
Managing Director

Willem Kruit
Development Manager

2 Product description

2.1 Function

The crockery return belt (SGR) is used to transport trays of dirty crockery. The crockery return belt has a modular design, is installed in a fixed location and can be adapted to the requirements of the installation site.

The trays are conveyed by several driven, circulating cords. The entry points of the cords are secured with polymer finger protection. Depending on the belt length and the installation situation, the crockery return belt can consist of one or more conveyor sections, each with its own drive.

Depending on the design, trays can be automatically guided onto stacking equipment at the end of the belt or a monitoring system can stop the belt to ensure that trays are not pushed beyond the end of the belt.

2.2 Overview

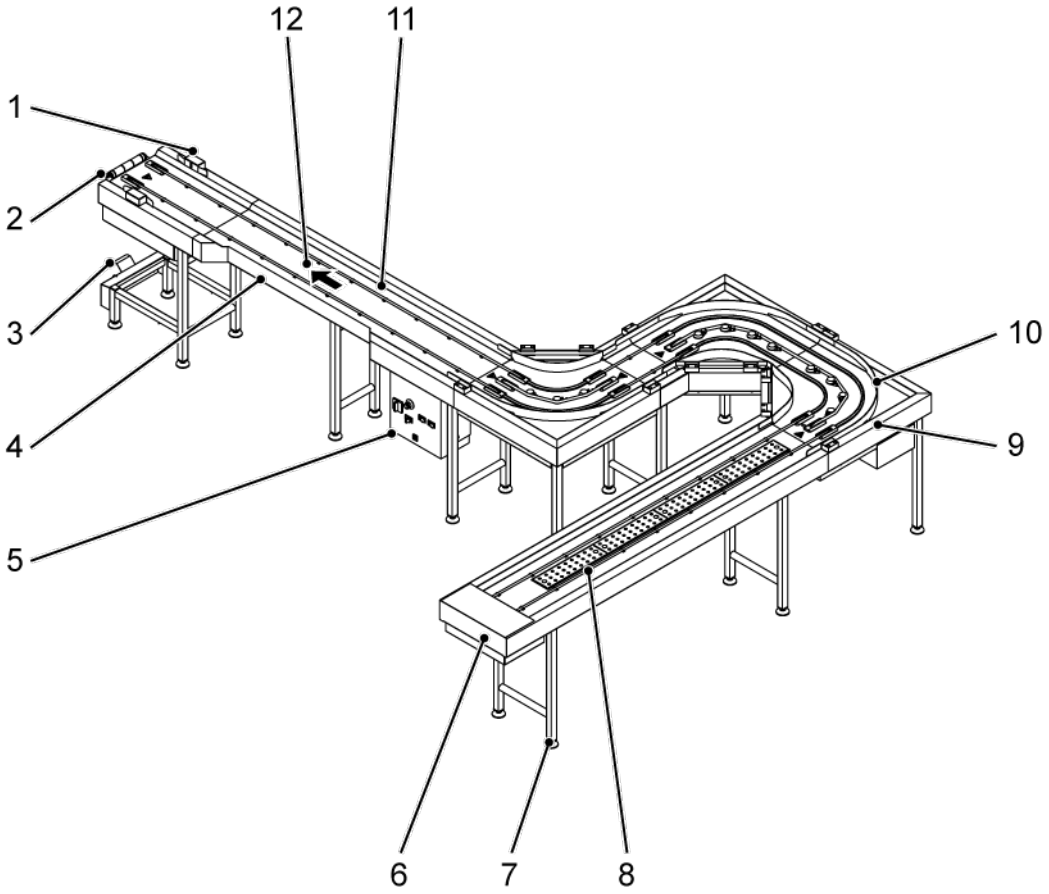


Fig. 1: Overview of the crockery return belt (SGR) with cords (example[1])

1 End monitoring, version with light barrier
2 Belt end with finger protection and optional tray stacking
3 Docking element for tray dispensers (optional)
4 Belt body with optional reduction
5 Control with operating elements
6 Belt start with finger protection
7 Belt system leg
8 Belt body with optional collecting pan
9 Curved element with its own drive
10 Tray guide in curved sections
11 Cords
12 Conveying direction

[1]The belt shown as an example contains optional equipment features.

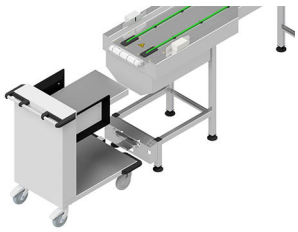
2.3 Equipment features

The crockery return belt is designed to allow access to the conveyor from both sides along the entire length of the conveyor. Operators have access to all controls for basic functions, while certain controls for setting optional functions are only accessible to service and maintenance personnel.

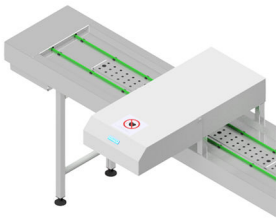
Housing	Self-supporting, hygienic design in modular construction made of stainless steel
Switch cabinet	With the control operating elements
Cords	For transporting the trays.

Feet	Height adjustable to compensate for unevenness in the floor surface
End monitoring	A light barrier monitors the end of the belt in the standard version. The end monitoring stops the belt and prevents trays from being pushed on or ejected. When the light barrier is re-enabled, the belt restarts automatically.

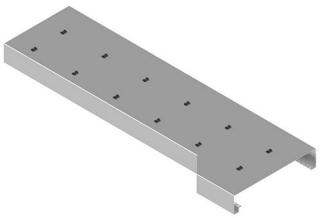
2.4 Equipment options



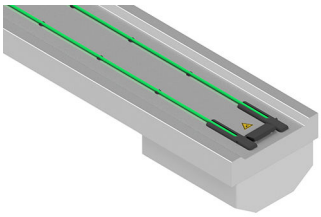
Docking mechanism	For stacking empty trays onto open tray dispensers (OTA). The trays are loaded from the conveyor onto the tray dispenser until the tray dispenser is full and a queue of trays has formed. The belt stops when the tray dispenser is full or when no tray dispenser is docked.



Automatic cutlery collection	A magnet lifts magnetic cutlery from the tray and drops it off to the side of the conveyor, e.g. into a cutlery soak sink, a container or a demagnetised chute. The conveying direction of the cutlery collection is at a 90° angle to the conveying direction of the belt conveyor.

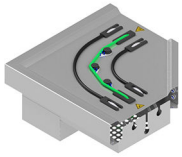


Tapered belt body	For easier access to trays and over the entire depth of the belt, preferably in the sorting area of the system. There is no raised edge for liquids in the tapered section.

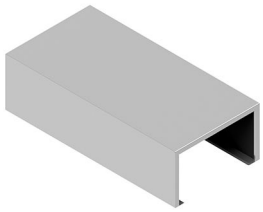


End monitoring with limit rocker switch	Mechanical rocker instead of light barrier. The end monitoring stops the belt and prevents trays from being pushed on or ejected. When the rocker is re-enabled, the belt restarts automatically.

Basket shelf	For the reception and storage of crockery washing baskets. The area can be used for sorting crockery items.



Curves	With an angle of 15°, 30°, 45°, 60°, 90° or 180°. Curved elements are equipped with a central cord Ø 15 mm and stainless steel and polymer guides.

	Tilt switch	Stops the belt when the crockery items on the belt collide with the bar. When the tilt switch is re-enabled, the belt restarts automatically. Tilt switches are the preferred option for use with glasses with stems.
	Sound/screening tunnel	For sound protection and as a visual screen and for protected guidance through clean rooms.
--	Queue-clocked circuit	The belt segment in the drop-off area runs continuously. The following belt segment switches on automatically when trays are dropped off. If the scullery is overloaded, the drop-off area can be selectively switched off until the segment in the scullery is clear again. The queue-clocked circuit can be switched off if required. The selector switch is located on the switch box in the standard version of the controls.
	Sockets	On the belt body for the supply of peripheral devices.
	Tub body with trough	Catches spilled fluids. The cords become less dirty as a result. The cover can be removed without tools for cleaning.

2.5 Technical data

		Crockery return belt
Dimensions and total weight		
Width	mm	500
Working height	mm	900
Length	mm	Depending on configuration [1]
Length of the conveyor line	mm	The conveying length corresponds to the total length minus 250 mm at the start and end of the belt
Total weight	kg	Depending on construction length and equipment. Information on the rating plate
Payload per metre of belt	kg	10

		Crockery return belt
Number of belt feet	--	1 for every 1.5 m of belt length 1 additional foot for each curved segment
Cords		
Number of cords	--	2 (standard version)
Diameter of cords	mm	12
Cord spacing	mm	180
Electrical connection		
Nominal voltage	V	Depending on configuration [1]
Frequency	Hz	50
Motor power	kW	0.25
Additional power per socket	kW	Depending on configuration [1]
Conveying speed	m/min	4 to 20
Motor protection class	IP	55
Switch cabinet protection class	IP	66
Terms of use		
Ambient conditions	°C	+5 to +32
Approved trays	--	Gastronorm, Euronorm and other sizes
Max. tray size	mm	530 × 375
Min. tray size	mm	285 × 250
Tray orientation	--	With the long side parallel to the conveying direction

[1] Detailed information can be found in the project-specific product data sheet.

2.6 Rating plate

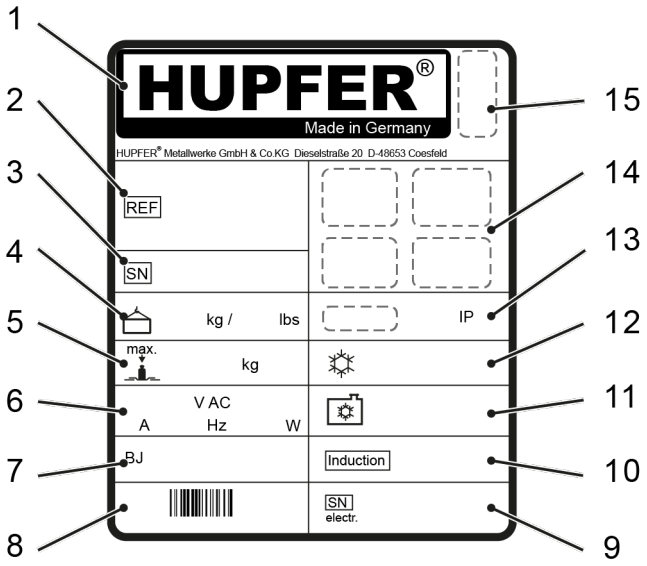


Fig. 2: Rating plate

1 Manufacturer and address
2 Type designation and product code
3 Order number
4 Total weight
5 Payload
6 Electrical connection
7 Model year
8 Product code as barcode
9 Electrical serial number
10 Induction frequency
11 Refrigerant
12 Refrigeration capacity
13 Protection code
14 Certification mark/CE label if available
15 Disposal of old appliances

3 Safety information

3.1 Intended use

Crockery return belts are used to receive Gastronorm and Euronorm-sized trays with dirty crockery items and to convey them in a fixed conveying direction by means of a circulating cord.

Trays and crockery items may be placed on and removed from the conveyor at the beginning and end as well as from the sides.

The conveyors have a modular design, are stationary and can be adapted to the installation site. Crockery return belts may only be set up and used on flat surfaces.

Intended use includes following the prescribed procedures, complying with the given specifications, and using the genuine accessories that are provided or additionally available. Any other use of the unit is considered improper.

3.2 Improper use

All uses other than the intended one are improper. Improper use may result in damage to property or injury.

In particular, make sure that the following inappropriate uses are avoided:

- Transport of heavy, sharp-edged objects
- Transport of stacked crockery
- Transport of persons
- Use as storage space for objects
- Use as a seat or climbing aid
- Operation with structural changes
- Operation in a defective condition and/or without protective coverings or safety devices
- Operation with safety devices that are not in perfect condition, or are short-circuited or out of service

In the case of improper use, the manufacturer and suppliers shall assume no liability for resulting damage. Damage caused by improper use shall result in loss of liability and of guarantee claims.

3.3 Safety instructions

3.3.1 General information

The unit may only be used in a technically sound condition, taking risks and safety into consideration, for its intended purpose and in accordance with the operating instructions.

All operating elements and controls must be in a technically sound condition and functioning reliably.

Before each use, the unit must be checked for any visibly apparent damage and defects. If damage occurs, immediately notify those responsible and take the unit out of use.

Changes or conversions are only permitted after consultation and written consent from the manufacturer.

3.3.2 Transport

If the appliance has to be lifted, only use lifting gear and load-bearing equipment approved for the weight of the device.

Only use transport vehicles that are approved for the weight of the device.

3.3.3 Operation and use

Persons working on or with the crockery return belt must not wear loose clothing or jewellery that could catch on the conveyor.

The conveyor may only be taken into operation when unloaded.

3.3.4 Cleaning

The transport cart must not be cleaned with high-pressure or steam cleaners.

3.3.5 Maintenance

Troubleshooting may only be carried out by maintenance technicians.

3.3.6 Safety devices

The following devices are safety-relevant:

- Emergency stop button for stopping the crockery return belt with all optional additional functions, number depending on the total length and installation situation. The number and position of the emergency stop buttons depends on the statutory working conditions at the installation site, e.g. number of rooms passed through.
- Catch protection at the end of the conveyor
- End monitoring of the conveyor via a mechanical limit rocker switch, light scanner or light barrier
- Main switch with emergency stop function

4 Transport

4.1 Delivery

Delivery is performed by a transport company, whose specialists are responsible for securing the load during transport. At the place of delivery, the transport cart can then be moved on its own wheels.

4.2 In-house transport

The crockery return belt is permanently mounted at the installation site and cannot be moved after installation.

Crockery return belts are not designed for conveying items up or down slopes. Transport to other building storeys is also not permitted.

4.3 Lifting

The conveyor does not have any attachment points for eyelets or similar lifting aids.

Always transport the modules of the conveyor in an upright position if possible. It can be lifted using a lifting platform, for example.

5 Assembly

Installing the crockery return belt

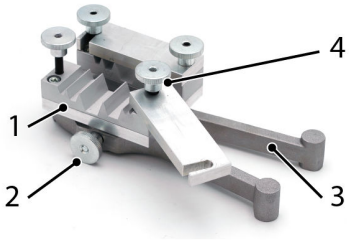
The crockery return belt is delivered pre-assembled. Depending on the installation site and overall length, final assembly may be necessary at the installation site. This will be performed by Hupfer or by qualified personnel commissioned by Hupfer.

Mounting the cord

Mounting the cord may be carried out by Hupfer or qualified personnel commissioned by Hupfer.

The welding and tensioning set for cords must be used to mount the cords. The welding and tensioning set can be borrowed or purchased from Hupfer.

The welding and tensioning set consists of the following components:



Welding tongs

For fixing and joining the cord ends

1 – Cord holder

2 – Spacer screw

3 – Handle

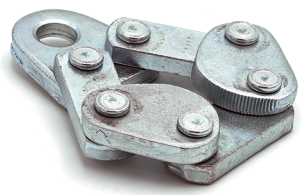
4 – Tensioning screw

Welding spatula

For heating and welding the cord ends.

Mitre shears

For precise cutting of the cord



Wire stretcher

For gripping and tensioning the cord ends

2× included in the welding set

“Jockey” cable winch

For tensioning the cord

1 – Activation

2 – Hook

3 – Wire guide outlet

4 – Safety catch

5 – Wire guide inlet

6 – Release lever

7 – Tensioning lever

Measuring the cord

When the belt is mounted, the cords are delivered in the correctly cut length.

If the cords need to be cut to size, use the following formula.

Formula

Length of one cord = [(total belt length - distance to belt end) × 2 + deflection] × 8% tension

= [(total belt length - 330 mm) × 2 + 400 mm] × 0.92

Example

Length of one cord = [(10,000 mm – 330 mm) × 2 + 400] × 0.92

= 18,160.8 mm

Twist

Twist-free The cord must be installed without twisting. The cord finds its neutral position in an unloaded and unfixed condition.

Length differences

none All cords that run parallel must be of the same length. If the cords are unequal, the trays will rotate during conveying.

Tensioning cords

When the cord has been measured and cut to size, you can thread and tension the cord.

1. Thread the cord without twisting.
2. Leave the end of the cord loose.

➡ The cord settles in a twist-free position.

CAUTION

Risk of rupturing

If a cord is welded at several points, there is an increased risk of rupturing during welding.

- Have the cord retensioned or replaced by Hupfer or an authorised specialist.
- Wear safety goggles and protective gloves.

CAUTION

Risk of injury

Dangers occur when operating the “Jockey” cable winch.

- Observe the information in the operating instructions of the cable winch.
- Wear safety goggles and protective gloves.

NOTICE

Scratches and corrosion

The cable winch, wire ropes and wire stretcher scratch the unprotected stainless steel surfaces and lead to corrosion.

- Place cardboard under the cable winch and the wire rope.
- Leave the protective film on stainless steel surfaces.

Fig. 3: Release the “Jockey” cable winch

Fig. 4: Lock the “Jockey” cable winch

3. Place the Jockey on the belt.
4. Operate the side safety catch and pull out the release lever.
   ➡ The release mechanism has been released. The wire rope can be threaded in.
5. Thread the wire rope into the guide in the direction shown by the arrow.
   ➡ The wire rope has been completely pushed through the guide.
6. Push the release lever in completely.
   ➡ The release mechanism has been locked. The wire rope can be tensioned.
7. Tension both ends of the cord in the wire stretchers. The ends must protrude sufficiently for welding.
8. Tension the wire stretchers in the wire ropes, also use a wire rope on the hook of the cable winch.
9. Place the lever extension on lever A.

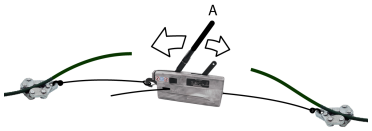


Fig. 5: Tensioning cords

10. Pull lever A on the cable winch until the ends of the cord touch.

➡ The cord is tensioned.

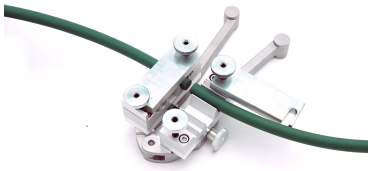


Fig. 6: Clamp the cord

11. Tension both ends of the cord in welding tongs. Use the appropriate cord holders.

➡ There is a gap of 3-4 mm between the ends. The welding spatula can be moved easily between the ends.

➡ When you close the welding tongs, both ends touch each other with pressure.

12. Preheat the welding spatula for 10 minutes.

13. Insert the hot welding spatula between the ends.

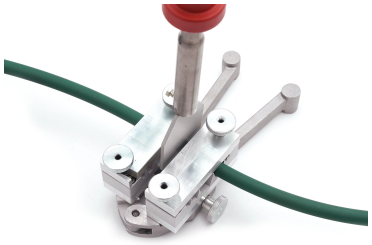


Fig. 7: Insert the welding spatula

14. Gently press the ends together using the handles of the welding tongs.

➡ The ends of the cord touch the surfaces of the welding spatula.

15. If bubbles form around the welding spatula, open the welding tongs a little.

16. Place the welding spatula on a non-combustible surface. Do not remove liquid material with the spatula.

17. Press the ends together using the handles of the welding tongs.

➡ A small bulge forms.

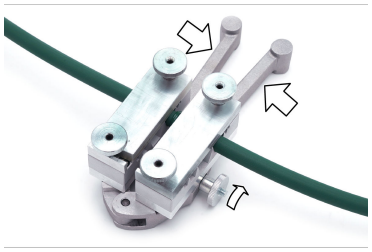


Fig. 8: Fix the welding tongs

18. Fix the welding tongs using the adjusting wheel. Keep the welding tongs closed for 5 minutes.

19. Open the welding tongs.

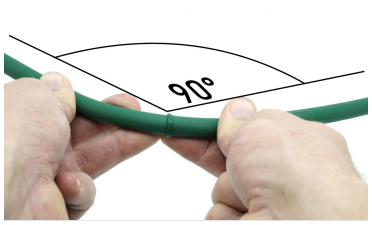


Fig. 9: Check the welded seam

20. Check the welded seam. Bend the weld several times by 90° in all directions.

If breaks or cracks appear during the bending test, cut out the weld by removing a 10 mm long piece from the belt, then repeat the welding process. Shorten all other cords in the same belt segment. Parallel running cords must be of the same length, otherwise the trays will rotate during transport.

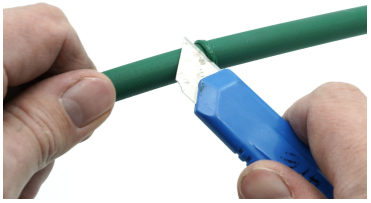


Fig. 10: Remove the bulge

21. Remove the bulge with a sharp knife. Cut away from your body. Take care not to injure bystanders.

    If you cut too deeply, the cord may tear during operation. Remove the incision from the belt with a piece at least 10 mm long and repeat the welding process. Shorten all other cords in the same belt segment. Parallel running cords must be of the same length, otherwise the trays will rotate during transport.

Electrical connection

The electrical connection of the crockery return belt is made via a hard-wired connection at the installation site in accordance with the specifications in the technical data. The connection must be carried out by trained electricians.

6 Commissioning

Switching on the crockery return belt

CAUTION

Rotating machine parts

When operating the crockery return belt, there is a risk of injury due to being caught and crushed by the moving cord.

- When working on the crockery return belt make sure that your fingers do not get caught under the cord.
- Do not wear jewellery or loose clothing such as scarves or ties when working on the crockery return belt.
- Observe the local regulations for occupational safety, e.g. the German Employer's Liability Insurance Association in Germany.

1. Make sure that no material is placed on the crockery return belt.
2. Make sure that all emergency stop buttons are unlocked.
3. Switch on the power supply at the main switch.
4. Press the *[Start]* button to start the crockery return belt.
   - ➡ The conveyor starts.
   - ➡ The speed can be adjusted freely via the potentiometer.

7 Operation

7.1 Controls

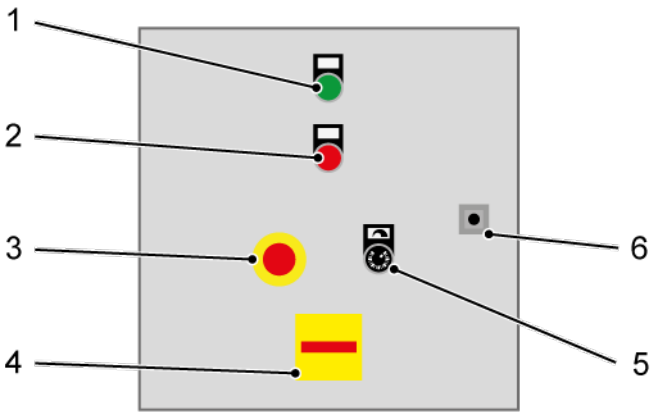


Fig. 11: Switch cabinet of a crockery return belt (example)

1 *[Start]* button
2 *[Stop]* button
3 Emergency stop button
4 Main switch
5 Conveying speed potentiometer
6 Lock

The arrangement of the control elements may vary depending on the configuration.

7.2 Working on the crockery return belt

Trays with food can be placed on the conveyor or removed from it during operation.

1. Place the trays on the conveyor at the beginning of the belt or on the side of the belt body.
2. Remove the trays from the conveyor at the end of the belt or at the workstation on the side of the belt body.

7.3 Operating the crockery return belt

Switching the conveyor function on and off

1. Press the green *[start]* button to switch on the conveying function.
2. Press the *[stop]* button to switch off the conveying function.

Setting the conveyor speed

Depending on requirements, the possible adjustment range of the belt speed can be less than that specified in the technical data. Setting “1” is the minimum belt speed, “10” is the maximum belt speed.

→ Adjust the conveyor speed progressively via the potentiometer at the end of the belt.

Loading the conveyor

CAUTION

Risk of injury

High stacks of crockery can tip over and break. There is a risk of injury from broken crockery.

- Do not place overloaded trays on the conveyor.
- Instruct untrained persons on correct conveyor loading.

Only load the conveyor with trays that meet the following requirements:

- Crockery items MUST NOT protrude beyond the edge of the tray.
- Crockery items, glasses or bottles must be upright and stand securely. No crockery items can tilt or slip.

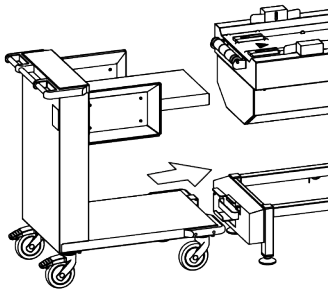
1. → Place the trays on the conveyor with the long side parallel to the direction of travel.
2. → Instruct untrained persons on correct loading.

7.4 Operating automatic tray stacking

The optional, automatic tray stacking system allows the trays to be stacked at the end of the belt onto an open tray dispenser (OTA/S) from Hupfer. The tray dispenser must be docked at the end of the belt.

When the tray dispenser is full, the trays accumulate and the end monitoring stops the conveyor. Observe the information in the operating instructions of the tray dispenser.

Docking the open tray dispenser

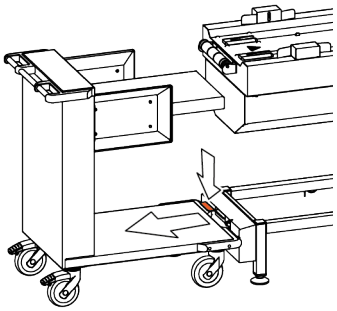


You can dock empty open tray dispensers (OTA/S) to the end of the belt.

1. Move the tray dispenser to the end of the belt.
2. Align the tray dispenser so that the platform is orientated in the same direction as the incoming trays.
3. Dock the tray dispenser.
   - ➡ The tray dispenser locks into place.
   - ➡ The end monitor enables the stacking function.

Fig. 12: Docking the open tray dispenser

Undocking the tray dispenser



You can undock tray dispensers.

1. If necessary, remove a jammed tray at the end of the conveyor.
2. Release the locks on the tray dispenser.
3. Press down the foot pedal at the end of the conveyor.
   - ➡ You can move the tray dispenser.

Fig. 13: Undocking the tray dispenser

7.5 Operating the magnetic cutlery take-off

WARNING

Risk of interference

Interference, e.g. with pacemakers, can occur due to the magnetic cutlery take-off.

- Only operate the magnet when the shielding enclosure is mounted.
- Keep a safe distance from the magnet if you are fitted with a pacemaker.

The magnetic cutlery take-off can pick up magnetisable metals on the running conveyor and transport them from the tray into a collection container.

You can switch on the take-off magnet.

- Press the green *[Start]* button.
  - ➡ The magnet is supplied with electricity and the integrated conveyor starts.

You can stop the take-off magnet.

→ Press the black *[Stop]* button.

➡ The magnet and the integrated conveyor stop.

8 Care and cleaning

DANGER

Electrical hazard

Electricity is a serious hazard and can cause injury or even death.

- Disconnect the conveyor from the power supply before starting troubleshooting.
- Secure the conveyor against being switched on again.
- Pull out the mains plug, if present.
- Do not clean the unit with steam cleaners or high-pressure cleaners.

CAUTION

Danger of being drawn in and crushed

In the area of the drive rollers, drive shafts and cords, there is a risk of injury from being pulled in and crushed.

- Disconnect the conveyor from the power supply before starting cleaning and maintenance work.
- Secure the conveyor against being switched on again.
- Pull out the mains plug, if present.

8.1 Cleaning intervals

Interval	Maintenance work	Personnel
After each use and according to the in-house hygiene concept	Clean the housing and conveyor area	Operating staff
weekly	Clean the light scanner, light barrier and reflector[1]	Operating staff
	Clean the drain channel[1].	Operating staff
monthly	Clean the interior of the motor compartment and deflection box	Maintenance engineer

[1] This work should only be carried out on conveyors if the optional equipment is installed.

8.2 Permissible cleaning types

Cleaning type		Definition of the cleaning operation	Approval for
			SGR
Manual cleaning	Dry	Cleaning with dry cleaning agents	✗
	Damp	Cleaning with a damp cloth and degreasing liquid cleaner	✓
	Wet	Cleaning with a wet sponge and degreasing liquid cleaner	✓
Water hose	Pressure ≤ 8 bar	Cleaning with a spray jet and degreasing cleaning agents if required: ■ Do not spray into the bearings.	✗
High-pressure/steam cleaning	High-pressure ≤ 200 bar	Cleaning the surfaces: ■ max. 30-90 seconds ■ Do not spray into the bearings ■ Use a flat stream nozzle ■ Keep a distance of at least 30 cm	✗
	Wet steam ≤ 135°C	Cleaning the surfaces: ■ max. 30-90 seconds ■ Short exposure time for individual sections ■ Do not spray into the bearings	✗
Washing devices	Water temperature ≤ 90°C	Spraying with cleaning and rinsing agent: ■ max. 30-90 seconds	✗

8.3 Permissible cleaning agents

! NOTICE

Incorrect cleaning agents

Incorrect treatment of the installed material surfaces will result in damage and corrosion.

- Only use cleaning agents approved for cleaning.
- Follow the instructions of the cleaning agent manufacturer.

Suitable cleaning agents

The manufacturer cannot assess the suitability of specific detergents or disinfectants.

- Check the notes on the cleaning agents or disinfectants to find out whether they are suitable for the materials of the transport cart.
- If in doubt, ask the manufacturer of the agent if it is suitable for the materials of the transport cart.

Cleaning agent	Approval
Degreasing agent ■ Neutral liquid cleaner	✓
Salty cleaning agents ■ Table salt ■ Hydrochloric acid	✗
Sulphuric cleaning agents ■ Sulphur dioxide ■ Sulphuric acid	✗
Chlorinated cleaning agents ■ Chlorine cleaner ■ Sea water ■ Bleach	✗
Ferrous material ■ Water with iron content	✗
Low-oxygen cleaning agents ■ Low-oxygen water ■ CO_2 atmosphere	✗
Neutral cleaning agents ■ Neutral cleaning agents pH 7 ■ Slightly acidic cleaning agents pH 6 – 7 ■ Slightly alkaline cleaning agents pH 7 – 8	✓
Acidic cleaning agents pH 1 – 5 ■ Acids	✗

Cleaning agent	Approval
Alkaline cleaning agents pH 8 – 14 ■ Alkalis	✗
Abrasive cleaning agents ■ Scouring pad ■ Pot scrubber	✗
Non-abrasive cleaning agents ■ Uncoated sponges ■ Soft cloths	✓

8.4 Material compatibility

When selecting the cleaning agent, make sure it is compatible with the materials used.

Material	Components
Stainless steel	Housing
PE 500 (polyethylene)	Bumper strip
PA (polyamide)	Rocker, finger protection
PUR (polyurethane)	Cords

8.5 Manual cleaning

8.6 Disinfecting

All the surfaces can be disinfected with commercially available surface disinfectants.

9 Maintenance and repair

DANGER

Electrical hazard

Electricity is a serious hazard and can cause injury or even death.

- Disconnect the conveyor from the power supply before starting troubleshooting.
- Secure the conveyor against being switched on again.
- Pull out the mains plug, if present.
- Do not clean the unit with steam cleaners or high-pressure cleaners.

CAUTION

Danger of being drawn in and crushed

In the area of the drive rollers, drive shafts and cords, there is a risk of injury from being pulled in and crushed.

- Disconnect the conveyor from the power supply before starting cleaning and maintenance work.
- Secure the conveyor against being switched on again.
- Pull out the mains plug, if present.

9.1 Maintenance intervals

Interval	Maintenance work	Personnel
weekly	Check the entire conveyor for mechanical damage.	Operator
monthly	Check the functioning of the electrical and mechanical components: ■ Limit switch ■ Switches and controls ■ Emergency stop button and emergency off switch (main switch) ■ Drive and deflection rollers, bearings and housing	Maintenance engineer
	Clean the interior of the motor compartment and deflection box	Maintenance engineer
every six months	Check cords for correct tension, damage and wear	Maintenance engineer
annually	Check electrical protective conductor (VDE 0701); limit value for protective conductorresistance < 100 mΩ	Electrician
	Perform DGUV V3 measurement for portable equipment.	Electrician

9.2 Maintenance activities

All maintenance work may only be performed by trained service technicians.

Checking cords

The cords must be checked for the following:

- Wear and damage, e.g. cracks

1. Check the tension of the cord.

   The following indicate insufficient tensioning of the cord.

   - Uneven speed of the cords
   - Spinning of the deflection wheel
   - Running noises

2. Check the cords for wear and damage such as cracks.

The cords may only be retensioned and replaced in the event of damage or wear and tear by the Hupfer customer service.

9.3 Troubleshooting

DANGER

Electrical hazard

Electricity is a serious hazard and can cause injury or even death.

- Disconnect the conveyor from the power supply before starting troubleshooting.
- Secure the conveyor against being switched on again.
- Pull out the mains plug, if present.
- Do not clean the unit with steam cleaners or high-pressure cleaners.

Always contact Hupfer customer service or a designated service partner in the case of malfunctions and complaints within the warranty period.

After expiry of the warranty period, repairs may only be carried out by service technician.

When contacting customer service or a service partner, always provide the data listed on the rating plate of the unit.

Fault description	Cause	Remedy	Personnel
The conveyor runs noisily.	The conveyor is overloaded.	Remove the entire load from the conveyor.	Operating staff
	The housing is dirty or stuck.	Clean the conveyor according to the instructions.	Operating staff
	The tension of one or more cords is set incorrectly.	Check the tension. The cord must be retensioned.	Maintenance engineer
	The bearings in the deflection rollers or drive rollers are damaged.	The rollers must be checked and replaced if necessary.	Maintenance engineer
The conveyor runs in a one-sided manner or the load does not run straight.	The housing or the rollers are dirty or stuck	Clean the conveyor according to the instructions.	Operating staff
	The cords are tensioned unevenly	Check the tension. The cord must be retensioned.	Maintenance engineer
A cord has torn.	The cord was welded incorrectly	The cord must be retensioned	Maintenance engineer
	The cord is too short/too tight	The cord must be replaced	Maintenance engineer
The conveyor does not start.	The end monitoring of the belt is blocked	Remove all objects from the end of the conveyor.	Operating staff
	The end monitoring of the belt is dirty [1]	Clean the light scanner, light barrier and reflector with a cloth.	Operating staff

Fault description	Cause	Remedy	Personnel
The conveyor does not start.	The main switch is not switched on	Switch on the conveyor at the main switch	Operating staff
	An emergency stop button has been pressed	When the fault has been rectified, unlock all emergency stop buttons on the conveyor	Operating staff
	The end monitoring is defective	The end monitoring must be checked and replaced if necessary.	Maintenance engineer
	There is a fault in the electrical system of the conveyor	The switches, fuses and components for energy optimisation must be checked and replaced if necessary	Maintenance engineer
	There is a fault in the mains connection	The power supply cable and, if necessary, the mains plug as well as the fuse provided by the customer must be checked and replaced if necessary	Electrician
	The conveyor is overloaded	Remove the entire load from the conveyor. Check the tension of the cords.	Operating staff
The conveyor is running too slow	The speed on the rotary switch is set incorrectly	Set the speed using the rotary switch	Operating staff
The conveyor is running too fast	The speed on the rotary switch is set incorrectly.	Set the speed using the rotary switch	Operating staff
	The frequency converter is set incorrectly.	The setting of the frequency converter must be checked and adjusted if necessary	Electrician
	The rotary switches or the control unit are defective	The rotary switch (potentiometer) and the control unit must be checked and replaced if necessary.	Maintenance engineer
The speed of the conveyor cannot be adjusted	The relays and control unit of the conveyor are defective	The relays and control unit must be checked and replaced if necessary Switch off the conveyor at the main switch	Maintenance engineer
	The limit switch of the conveyor is defective	The components of the limit switch must be checked and replaced if necessary Switch off the conveyor at the main switch	Maintenance engineer
The limit switch does not switch off the conveyor	The light scanner or the light barrier is dirty	Clean the light scanner or the light barrier and the reflector	Operating staff
	A fuse is defective	The fuses of the motor must be checked and replaced if necessary	Maintenance engineer

Fault description	Cause	Remedy	Personnel
The drive motor is not working	The overload protection has tripped	The electrical system and the motor must be checked by a service technician. The overload protection may only be switched on again after the check	Maintenance engineer
	The motor control is defective	The motor control including frequency converter must be checked and replaced if necessary	Maintenance engineer
	The motor is defective	The motor must be checked and replaced if necessary	Maintenance engineer

[1] only for conveyors with optional equipment

9.4 Repairs and spare parts

Spare parts and accessories are available from our customer service. Replace defective components with genuine spare parts. Only then can safe and reliable operation be guaranteed. When ordering spare parts or requesting customer service, always state the order number and the information on the rating plate. This information helps avoid follow-up queries and speeds up the process.

9.5 Recommissioning

The transport cart may only be used in a technically sound condition, for its intended use, and in accordance with the operating instructions. Check the transport cart for visible damage before each use. In the event of damage, inform the responsible departments immediately. Only operate transport carts in faultless technical order.

- Check the transport cart functions, especially the lock and cooling.
- Clean the transport cart thoroughly before putting it back into operation.

10 Disposal

Help protect our environment. Make sure that the materials are recycled.

– Have the transport trolley disassembled and disposed of by recycling companies. All the materials are recyclable.

Dispose of the product using the following steps.

6. Take the components to a designated disposal centre.