

# Operating instructions

## TST 6

Tray infeed device

Translation of the „Original operating instructions”



EN



**Read operating instructions before using the machine!**

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# 1 Introduction and general instructions

Dear customer,

We are delighted about the confidence you have shown in our products.

It is very important to us that you enjoy using MEIKO products and that they are extremely useful to you, making your work easier.

If you follow the instructions in this document carefully, your installation will always work to your complete satisfaction and have a long service life.

After assembly at our factory, this system was put through a thorough inspection. This gives both you and us the assurance that you will always receive a trouble-free product.

**We would therefore like to ask you to read these operating instructions carefully before use. Any further related operating instructions for accessories and integrated third-party products must be strictly observed!**

These operating instructions are designed to familiarise the owner/operator of this device with its installation, modes of operation, use, safety instructions and servicing.

The notes help you get to know the installation in detail and use it correctly. They also enable you to avoid possible repairs and the loss of operational time that comes with them. Any damage caused by non-observance of the operating instructions will void the warranty. We accept no liability for any additional damage caused as a result.

MEIKO operates a policy of continuous development on all of its devices.

As a result of this, please understand that we reserve the right to make changes to the scope of supply concerning the design, equipment and technical features at any time.

No claims may therefore be asserted based on the details, the images or the descriptions contained in these operating instructions.

Should you require any further information, or in case any particular problems should arise that are not dealt with in great detail in the operating instructions, you can contact the relevant MEIKO branch to obtain the information you require.

All of MEIKO's obligations arise from the relevant purchase contract, which also contains the entire and only valid guarantee provisions.

These contractually guaranteed provisions shall be neither extended nor restricted as a result of any explanations given in the instructions.

Full technical documentation is provided free of charge.  
Additional copies are available for a nominal fee.

MEIKO wishes you much happiness and success.

### 1.1 Safe keeping

Always keep the operating instructions at the installation! The operating instructions must always be at hand!

### 1.2 Authorisation for service partners' service technicians

MEIKO empowers solely its authorised service partners to perform commissioning, instructions, repairs, maintenance, assembly and installation of the corresponding product groups or MEIKO devices.

### 1.3 Description of model

Please provide the following information on any query and/or when ordering spare parts:

Type	_____
SN:	_____
	_____

## 2 Explanation of the safety symbols used

The following safety symbols will appear throughout these operating instructions. These symbols are designed to draw the reader's attention to the text next to the safety instructions.



CAUTION!

This symbol warns that there is danger to human life and health.

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DANGER!

This symbol warns that there is danger to the installation, to material or to the environment.

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This symbol denotes information that helps you to understand the installation's operations.

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Warning of dangerous electric voltage!

---



Do not reach into the machine while it is running!

---



Read the operating instructions

---



Eye protection must be used or protective glasses must be worn

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Hand protection must be worn

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## 3 General description and intended use

### 3.1 General description

The incoming, empty tray is detected by sensors and automatically clocked lengthwise into the dishwashing machine.

#### 3.1.1 Data sheet

Length	980 mm
Width	500 mm
Transport height	915 or 1065 mm
Tray capacity	Max. 30 trays/min.
Area of application	Infeed device suitable for rectangular and trapezoidal trays Length 460 to 530 mm Width 320 to 370 mm <u>Use only the set tray size!</u>
Tray transport	Belt transport system

Tray stop provided by drive with brake

### 3.2 Intended use

The tray infeed device is designed exclusively for feeding in trays in a horizontal position.

Only the previously specified and factory-set tray size should be used.

Individual pieces of crockery or other objects should not be transported by the tray infeed device.

Any other use is contrary to the intended purpose.



## 4 EC-/EU-Declaration of conformity

A **declaration of incorporation** is provided with the machine if it is not supplied in a fully operational state, that is, as a **partially completed** machine pursuant to the Machinery Directive.

An **EC-/EU-Declaration of conformity** is provided with the machine if it is supplied in a fully operational state as a **complete machine**.

## 5 General safety instructions

### 5.1 Operator's duty of care

The installation has been constructed based on a risk analysis and after careful selection of the applicable harmonised standards as well as additional technical specifications. It is therefore state-of-the-art and provides maximum safety.

However, safety can only be guaranteed during operation if all necessary measures are taken. The operator of the machine has an obligation of care to ensure that these measures are planned for and also to check that they are correctly implemented.

After installation, commissioning and handing over of the installation to the customer/operator, no modifications may be made (e.g., electrical system or location). Modifications of the tray infeed device and, in particular, technical modifications carried out without the manufacturer's written authorization, or any modifications carried out by unauthorised persons, will lead to the complete loss of any guarantee claims and will invalidate any liability for the product.



#### **The operator has to ensure in particular that ...**

... the installation is only used in accordance with the regulations.

In case of other use or operation, damage or risks may arise for which we accept no liability (see the section on "intended use").



... in order to guarantee functionality and safety, use only original parts supplied by the manufacturer when needed.

Any potential claims by the user shall be rendered void if the device was altered using parts other than original spare parts.



... only appropriately qualified and authorised employees may use, maintain and repair the installation.



... personnel is regularly trained in all questions relating to occupational safety and environmental protection and, in particular, the staff is familiar with the operating instructions as well as the safety instructions that they contain.



... the installation is only operated in perfect, operationally efficient condition, all protection devices and cover panels are installed, and, in particular, that the safety systems and switch elements are regularly checked for their operational efficiency.



... the required personal protective equipment is made available to and used by maintenance and repair personnel.



... the operating instructions are always in a legible state, complete and available at the installation's location of use.



... none of the safety and warning notices attached by the operator are removed and that they are legible.



#### **... suitable clothing is worn**

Loose clothing and jewellery increase the risk of being caught on protruding parts.

- Wear fitted work clothing. Wear full-length trousers or an apron.
- Do not wear rings, necklaces or other pieces of jewellery.
- Wear protective gloves and goggles.



Wear sturdy, suitable shoes. (We recommend wearing safety shoes with steel toe caps)



Parts carrying electric current as well as moving or rotating parts can cause danger to the user's life and limb and material damage. Do not reach into the machine while it is running! Doing so could cause injury.

## 5.2 Basic safety measures

### 5.2.1 Basic safety measures during normal operation

The installation may only be operated by trained and authorised persons who are familiar with the operating instructions and who are capable of working in accordance with them!



CAUTION!

#### Ensure the following before switching on the installation...

- ... only authorised persons are present in the installation's operating area
- ... nobody could be injured by starting of the installation!

#### Before every commissioning

- Inspect the machine for any visible damage and ensure that it is only operated in perfect working condition.  
Report any defects to the supervisor immediately!
- Remove any material/objects from the operating area that are not required for the operation of the installation.
- Check and ensure that all safety systems are operating perfectly!

### 5.2.2 Basic safety measures during maintenance and repair

Observe the maintenance intervals specified in the operating instructions!  
Please note the maintenance instructions for the individual components in these operating instructions.



CAUTION!

Block access for unauthorised persons to the operating area of the installation before starting maintenance or repair work. Display a sign drawing attention to the maintenance or repair work.

Before carrying out any maintenance and repair work, switch off the main switch for the power supply and secure the switch with a padlock! The key for this lock must be kept in the hands of the person carrying out the maintenance and repair work! Failure to observe these precautions may result in serious bodily injury or damage to property.



Before carrying out any maintenance or repair work, ensure that all the parts of the machine that may be touched have cooled down to room temperature.

Environmentally hazardous lubricants, coolants or detergents must be disposed of correctly.



### 5.2.3 Working on the electrical equipment

Work on the electrical system must be conducted by a qualified electrician who complies with the electrotechnical rules.

Disconnect the machine from the power supply before working on the electrical system and before lifting the cover panels. To do this, turn the local mains switch to OFF and ensure that it cannot be switched back on again.

Attach all cover panels before putting the machine back into operation.

Check the electrical equipment regularly.

Tighten any loose connections.

Replace damaged lines/cables immediately.

Always keep the control cabinet closed. Access is only permitted to authorised persons with the key/tool.

Electrical parts, control cabinets and other housings of electrical equipment must not be sprayed with a water hose or high pressure cleaner. (EN 60 335 and accident prevention regulations -APR)

### 5.2.4 Before commissioning after maintenance and repair work

Before commissioning after maintenance and repair work...

- ...check tightness of any screw connections that have been loosened.
- ...ensure that removed sieves, screens or accident prevention devices are reinstalled.

#### After completion of maintenance or repair work and before commissioning the installation again, make sure that...

- ...all materials, tools and other equipment necessary for performing the maintenance or repair work have been removed from the installation's operating area.
- ...any liquids that may have escaped have been cleaned up.
- ...all safety systems for the installation operate perfectly.

### 5.2.5 Observe environmental protection regulations

For all work on or with the machine, observe legal requirements relating to the avoidance of waste materials and to their recycling/removal.

In particular, during installation, repair and maintenance work, materials that could pollute water such as:

- grease and oils
- hydraulic oils
- coolants
- cleaning fluids containing solvents

must not be allowed to pollute the soil or enter the sewage system. These materials must be stored, shipped, collected and disposed of in suitable containers.



CAUTION!

## 6 Delivery, transport, installation and assembly

### 6.1 Delivery

Check that the delivery is complete immediately after receiving it by comparing it with MEIKO contract confirmation and/or the delivery note.

If necessary, submit a claim for any missing parts immediately to the freight forwarder and notify MEIKO. Check the entire installation for any damage that may have occurred during shipping. Should you suspect any damage has occurred during shipping, you should inform:

- The freight forwarder,
- MEIKO,

in writing, and also send a photo of the damaged parts to MEIKO.

### 6.2 Transport

In order to avoid damage to the machine and life-threatening injuries when moving the system, the following requirements must be observed:

- Transport work must be performed only by appropriately qualified persons observing the safety instructions.

For safe transport, the machine parts are supported by a special square-timber frame. The installation must be transported in this timber frame by means of a pallet jack or fork stacker.

- Please also read the chapter "general safety instructions".

### 6.3 Installation and assembly

MEIKO has prepared an installation drawing, according to your requests and ideas, showing location, connected loads and energy consumption.

Installation and assembly work must be carried out in accordance with the specifications in this installation drawing.

The machine must only be set up at the location intended in the installation drawing using the intended feet or wall supports.

The equipment must be fastened to the floor so that it cannot be moved, particularly in the dishwashing area.

The installation area may only be changed with MEIKO's permission.

Should you wish to install and assemble the installation yourself, we would ask you to request the comprehensive, detailed installation and assembly instructions.

The installation may be connected **o n l y** by technically competent personnel.

We do not accept any liability for damage caused by unprofessionally implemented connection work.

### 6.4 Instructions – tray infeed station

Please observe user instruction plates.



CAUTION!



CAUTION!

## 7 Preparation for operation

The system can be operated in continuous operation or in restricted operation!

### 7.1 Continuous operation

1. Switch on the main switch of the connected dishwashing machine.
2. Release the emergency stop switch (if activated).
3. Release the transport stop switch on the conveyor belt (if activated).
4. Wait until the dishwashing machine is ready for operation.
5. Switch on the dishwasher transport system.
6. Press the on/off button on the conveyor belt control centre. The conveyor belt starts to run.

**The tray infeed device is now ready for operation and the trays to be cleaned can be fed into the dishwashing machine!**

### 7.2 Restricted operation (without dishwashing machine and TST 6)

1. Switch on the main switch.
2. Release the emergency stop switch (if activated).
3. Release the transport stop switch on the conveyor belt (if activated).
4. Press the on/off button on the conveyor belt control centre. The conveyor belt starts to run.

## 8 Switching off and cleaning

1. Press the off button on the conveyor belt control centre.
2. Switch off the dishwashing machine.
3. Set the main switch on the control cabinet to OFF!
4. Sticky dirt should be removed from the round belt glide surface and the round belt.
5. Make sure that no cleaning additives are used that become sticky after drying.
6. Detergents containing alcohol, acid and chlorine as well as disinfectants, etc. should be avoided, as they attack the round belts and pulleys.
7. We recommend using mildly alkaline detergents when cleaning.
8. General information: Check sensors for contamination.
9. Check the transport belt for cleanliness and any damage in the infeed and return.
10. All foreign objects must be removed.

**Thorough cleaning of the system every day is imperative for flawless and hygienic operation of the tray feeding belt and the TST 6.**

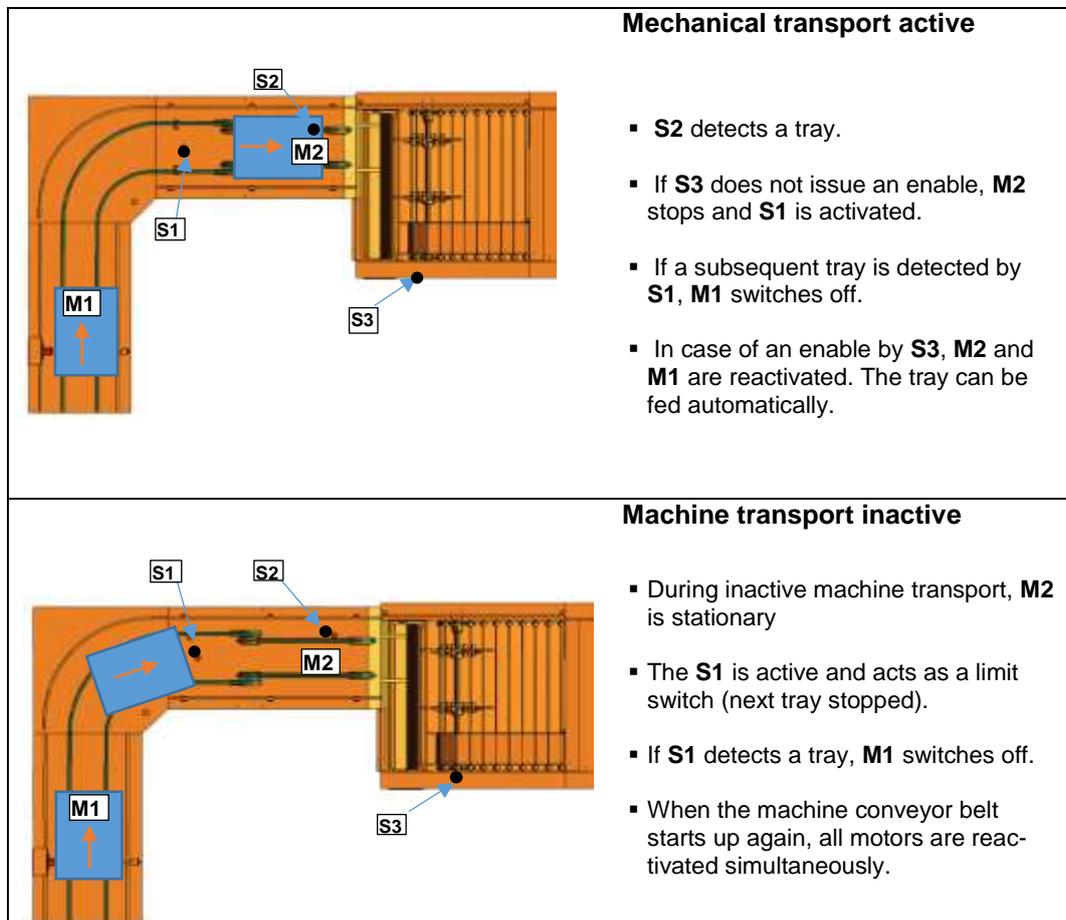
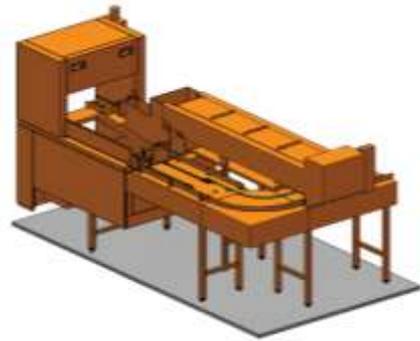
#### **Note!**

**In case of any device defects, only specially trained personnel are permitted to work on the mechanical or electrical parts of the machine. We will not accept any responsibility for damage caused as a result of incorrect handling.**

## 9 Setting

### 9.1 Functional description

- S1** - Next tray stopped, restricted operation
- S2** - Tray detection, infeed
- S3** - M-IQ pulse generator
- M1** - Dishwashing area motor
- M2** - Tray stop motor



M1-2 = Motors  
S1-3 = Sensors

## 9.2 Tray infeed

On the drive wheel of the dishwasher's conveyor, there is an adjustable disk with 8 (division - 60) or 4 (division - 108) recesses to control the automatic infeed of trays.

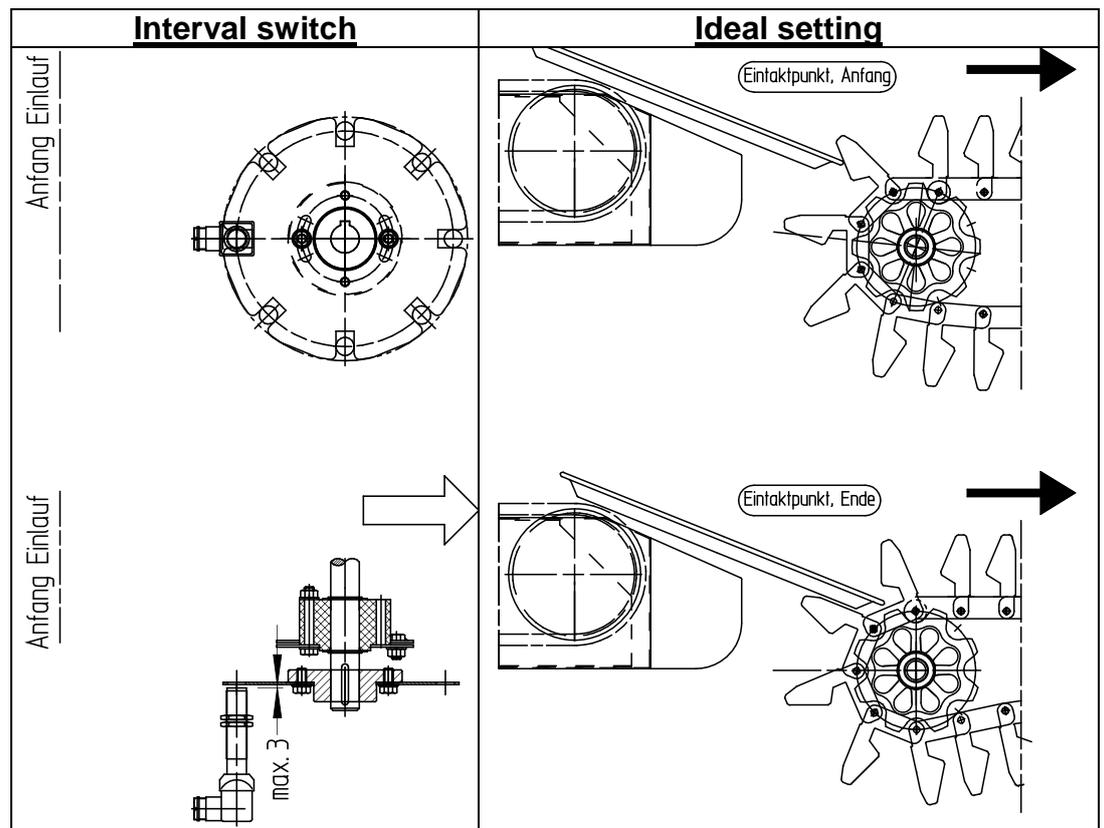
The pulse is generated by a sensor (S3).

The sensor (S3) uses recesses to signal pulse enable or pulse stop.

This enable or stop function is executed by the tray stop motor (M2).

The sensor (S2) positioned at the end of the tray stop path detects the incoming tray and lets it pass if pulse enable (S3) is active.

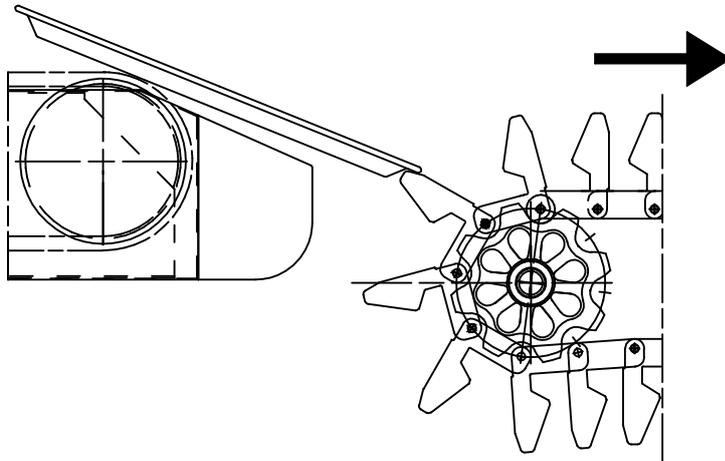
If a pulse enable signal is not present, the tray is stopped by the tray stop motor (M2) until the next enable signal is issued.



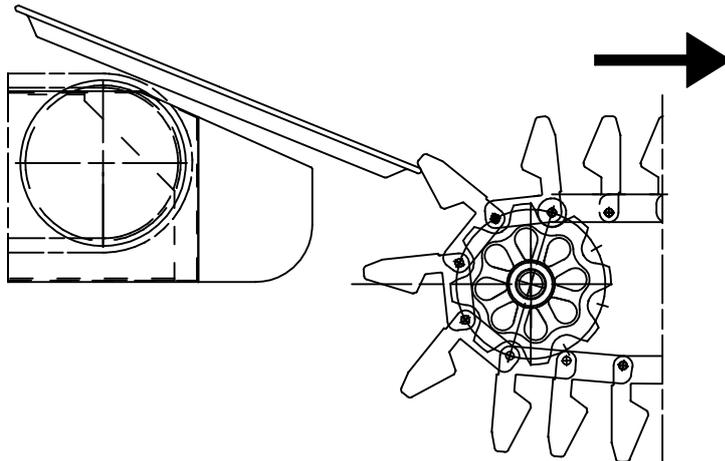
To adjust the infeed point, see the following instructions:

**Caution!** The infeed sensor (S2) must be released after each tray to be fed in before the next tray arrives!

If the tray runs against the tray transport finger during infeed (see illustration below), the disk **must** be turned slightly **towards the transport direction**.  
**If the infeed sensor (S2) is busy and S3 issues the enable signal (tray continues without braking), the tray must be gripped by the finger!**



If the tray runs against the tray transport finger during infeed (see illustration below), the disk **must** be turned slightly **opposite to the transport direction**.



## 10 Self-help in event of malfunctions

Malfunction	Remedy
Tray infeed device does not move	<ul style="list-style-type: none"> <li>• Motor defective</li> <li>• Warewashing machine conveyor does not move</li> <li>• Sensor defective or dirty</li> </ul>
The tray is not fed into the warewashing machine conveyor properly.	<ul style="list-style-type: none"> <li>• Check setting of the pulse disk.</li> <li>• Distance of pulse generator (S3) too large. It should be max. 3 mm.</li> <li>• The brake lever is still inserted in the infeed motor (M2)</li> </ul>

## 11 Training of personnel

Only trained and instructed personnel are allowed to work at the machine. Personnel responsibilities for operation, maintenance and repairs must be clearly defined.

Any personnel undergoing training are only allowed to work at the installation under the supervision of an experienced person.

Activity \ Individuals	Trained personnel	Personnel with technical training	Electricians	Supervisor with appropriate expertise
Installation and assembly				
Commissioning				
Operation				
Checking safety devices				
Operation				
Fault finding				
Troubleshooting, mechanical				
Troubleshooting, electrical				
Upkeep				
Cleaning				
Repairs				
Maintenance				

Only trained personnel are allowed to operate the control system.

The instructions should be acknowledged in writing.

## 12 Dismantling and disposal

In addition to valuable raw materials and recyclable materials, the packaging and the old device may also contain substances that are harmful to health and the environment and were required for the function and safety of the old device.

Please do not dispose of your old device in residual waste. Instead, contact your dealer or the collection points set up in your community for information regarding the disposal of your old device.

### 12.1 Disposal of packaging materials

All the packaging materials are recyclable. The following materials are used:

- Square timber frame
- Plastic sheeting (PE film)
- Cardboard packaging (edge protection)
- Packaging strap (steel strip)
- Packaging strap (plastic (PP))



#### Note

The square timber frame consists of untreated raw pine / spruce. In order to guard against pests, country-specific import regulations may also stipulate the use of treated wood.

### 12.2 Dismantling and disposal of the old device

#### Warning

##### Risk of injury from contact with chemicals

Detergent and rinse aid result in damage to health if in contact with skin or eyes or if swallowed.

- Use eye protection.
- Wear protective gloves.
- Contact a physician immediately if chemicals or water containing chemicals (wash water) are swallowed.

- Where appropriate, rinse machine components, containers, dosing units and hoses with fresh water to remove chemical residues. Wear suitable clothes (gloves, safety glasses) for this.

The device is marked with this symbol. Please observe the local regulations for proper disposal of your old device.

The components should be separated by material for recycling.



## 13 Maintenance

Maintenance work must only be conducted when the machine is shut down. Furthermore, the main switch belonging to the conveyor system must be switched off and locked.

### Existing safety systems must not be removed!

We recommend concluding a maintenance contract with our subsidiary in order to ensure a long service life.

<b><u>Maintenance work</u></b>	monthly	every three months	every six months	Measured values/note on completion
<b>1. Conveyor drives</b>				
Check the gear motor for proper operation and noise		◆		
Check bearings for noise and signs of wear		◆		
Check belt pulley for function and damage		◆		
<b>2. Transport</b>				
Check the belt for sufficient voltage	◆			
Check for damage and make sure everything is complete	◆			
Check the belt for an even run	◆			
Check tray guide completely		◆		
<b>3. Tray stop</b>				
Transport stop - Check drive		◆		
<b>4. Electrical installation</b>				
Tighten all fuses and connections			◆	
Check wiring			◆	
Check all of the sensors in terms of functionality, damage and attachment (secure the sensors e.g. with Loctite 454)		◆		
<b>5. Functional test of TST</b>				
Check TST for correct interaction of all functions, check single-break procedure (see chapter "Setting")		◆		



Note:  
 "Please exchange wear and tear parts from the spare parts list which are marked with 'V'."



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