

Operating instructions

WS 125 M / L / XL

Cart Washer



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 should obtain significant use from MEIKO products and that they should make your work easier.

If you follow the instructions in this document carefully, your dishwashing machine will always give you total satisfaction and will have a long service life.

The dishwashing machine has been assembled by us at the factory and has undergone a thorough inspection. This provides us with the certainty and you with the guarantee that you will receive a fully developed product.

We would therefore ask you to read these operating instructions carefully before using the installation.

These operating instructions inform users of this installation about the installation, the operating methods, its use, the safety instructions and Servicing.

In the event of any damage caused by non-observance of these operating instructions, any guarantee claims are invalid. We accept no liability for any consequential loss or damage arising as a result.

MEIKO is constantly working on the further development of all its models.

We would therefore ask you to understand that because of this, we must reserve the right to make modifications at any time to any items covered by the contract in terms of their shape, fittings and technical characteristics.

No claims may therefore be 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 not dealt with in great detail in the operating instructions should arise, you may contact the relevant MEIKO branch to obtain the information you require.

All MEIKO's obligations arise from the relevant purchase contract which also contains the entire and only valid guarantee provisions. These contractual guarantee rules shall be neither extended nor restricted as a result of any explanations given in the instructions.

The operating instructions must exist in the local language for each EU country. If this is not the case, the dish-washing machine must not be commissioned.

The original operating instructions in Germany, and all operating instructions in all languages for EU countries can be downloaded from the following address: <https://partner-net.meiko-global.com>

The complete technical documentation is issued to you free of charge. Additional copies will be charged at cost.

MEIKO very much hopes that you will enjoy our product and use it successfully.

1.1 Storage


Always store the operating instructions close to the installation!
The operating instructions must always be kept within easy reach!

1.2 Authorisation for service technicians of our service partners

MEIKO exclusively authorises authorised service partners for commissioning, inductions, repairs, maintenance, assembly and installation of the corresponding product groups within MEIKO devices.

1.3 Description of the type of equipment

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

Type:
SN:

These Information can be found on the plate in the electrical switch cabinet.	

2 Explanations of the safety symbols used

The following safety symbols will appear throughout these operating instructions. The purpose of these symbols is to draw the reader's attention to the text of the adjacent safety information.



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



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



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



Warning of dangerous electrical current!



Warning hand injury!



No splashing water: prohibits the use of a high pressure hose.



Read the operating instructions



Eye protection must be used or protective glasses must be worn



Hand protection must be worn

3 General description and intended use

3.1 General description

This machine involves a trolley washing machine as a continuous model. The trolley is moved manually or automatically into the machine on the inlet side. The trolley is cleaned and, if applicable, dried. On the other side of the machine, the discharge side, the trolley is removed automatically or manually.

3.2 Intended use

The washing machine must be used according to its purposes only.

This washing machine is only intended for washing tray transport trolleys, rack or shelf trolleys, Cook & Chill, cantilever trolleys as well as serving trolleys.

Other uses are prohibited.

The items to be washed must be suitable for industrial dishwashing.

Loose, inorganic soiling should not enter the wash chamber

Other objects must not be transported through the machine.

This washing machine is intended solely for use in a commercial environment.



4 EC-/EU-Declaration of Conformity

A Declaration of Incorporation is provided with the machine if it is not supplied in fully operational state, that is, as a partially completed machine pursuant to the Machine Directive.

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

5 General safety instructions

5.1 Operator's duty of care

The washing machine has been constructed based on a risk analysis and after careful selection of the applicable harmonized standards, as well as additional technical specifications. It is therefore state of the art and guaranteed to provide maximum safety.

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.



Measures to ensure the safe machine operation

The operator must ensure in particular that ...

... the washing machine 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 (cf. chapter "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 system was altered using parts other than original spare parts.

... only appropriately qualified and authorized personnel operate, maintain, and repair the installation.

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





... the washing machine is only operated in a perfect, operationally efficient condition and, in particular, that the safety systems and switch elements are checked on a regular basis for their operational efficiency.



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



... a functional test on all safety systems of the machine / installation is carried out during every regular maintenance.



... all doors and flaps must be closed!



... no one must remain inside the machine when the door is closed!



... the wash tank in the washing zone must remain closed while the machine is in operation.



... when the machine is in operation:

- the doors of tray-carrying trolleys must be open in the washing position and properly secured,
- there must be no trays, dishware or menu-card holders in or on the trolley.
- loose, inorganic soiling (e.g. rubber gloves, plastic cups, aprons, aluminium lids etc.) has been removed.



... to work with rubber gloves during the cleaning and the maintenance works.



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



... all the safety, warning and operating instructions provided are not removed and are legible.



... any necessary initial tests to parts supplied by sub-suppliers, such as heat pumps or other equipment, must be carried out. More detailed information, if required, can be found in the relevant operating instructions.



...with the use of demineralised, osmosis and desalinated water as preventative maintenance measures, the return spring in the final rinse must be replaced every 4-6 months.



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



... equipment for optimising energy consumption must not be used to reduce essential operating temperatures, as set out in DIN 10510, 10511 and 10512. If you, the client, install equipment for optimising energy consumption, any possible reduction in the quality of the wash and hygiene is your responsibility.

5.2 Basic safety measures



Danger can arise from the improper use of the machine or if it is used for purposes for which it was not intended.



Parts carrying electric current as well as moving or rotating parts can cause

- dangers to the user's life and limb and
- material damage result.



The machine may only be operated by adequately qualified staff who have been trained by the operating company and who have been trained about the hazard and safety instructions.

Qualified staff, as defined by the Operating Instructions, are persons:

- over 14 years of age
- who have read and who observe the safety instructions,
- who have read and who observe the operating instructions (or the part applicable to the work to be carried out).



The machine is working with hot water. Avoid all contact with the rinse water.

Danger of scalding as a result, the dishes etc being washed are at high temperature.

Please observe appropriate protective measures.

Observe all the instructions posted on the machine.



Warning !

When electrical equipment is in operation, it is inevitable that some parts of this equipment are live with dangerous current.

The entire washing machine must be de-energised before opening washing machine cover panels or electrical equipment.

PLACE THE MAIN SWITCH IN THE "OFF" POSITION and install suitable security measures to prevent the switch from being switched on.

Work and troubleshooting on electrical parts of the washing machine must be performed by specialists only. Observe accident prevention regulations.

The operator must not restart the washing machine until **all cover panels** have been put back in place.



The machine, switch cabinets and other electrical components must NOT be sprayed with a hose or a high pressure cleaner.



The washing machine may only be operated under the supervision of trained personnel.



Do not use the washing machine if you are unsure about system operation.



Always keep doors and hatches closed!



As there is a risk of becoming caught by the transport belt and/or items during transport, operating personnel must wear close-fitting clothes and avoid wearing rings, bracelets or similar. We also recommend wearing safety shoes with steel toe caps!



The tank heating elements may still be hot after the tank has been emptied. As a result, there is a risk of burns or scalding when cleaning the machine manually!



All work and troubleshooting of the steam installation must be carried out qualified professionals.



Only use detergents and rinse aids suitable for commercial dishwashing machines.

Please contact the manufacturers of these products für information.

Detergent and rinse aid may contain hazardous substances.

Observe the manufacturers' hazard warnings on the original containers and safety data sheets.

Please turn off the main switch at end of operations.



WE DO NOT ACCEPT NO LIABILITY FOR DAMAGE OR INJURY ARISING FROM FAILURE TO OBSERVE AND ABIDE BY THESE SAFETY INSTRUCTIONS!!!!

5.3 Working on the electrical equipment



Any repair work and troubleshooting on the system's electrical equipment must be carried out by a qualified electrician!

Check the electrical equipment regularly! Tighten any loose connections! Replace any damaged leads/cables immediately!

Always keep the switch cabinet closed! Access is only allowed to authorized persons with key/tools!

6 Assembly instructions (for a partially completed machine)

These apply where the MEIKO product is a partially completed machine in the sense of the Machinery Directive (Directive 2006/42/EC).

Observe the following items when connecting MEIKO products to an existing installation:

- The components must be aligned with one another, connected in an appropriate manner, and fastened so that safe operation is assured. (Choose conditions and fasteners on site in line with this).
- Dangers (e.g. drawing in, crushing, shearing or cutting) that potentially arise due to the connection must be prevented appropriately.
- The electrical connection to the supply grid on site, and any necessary electrical connections must be implemented in line with the enclosed wiring diagram.
- During installation, make sure that you avoid damage, in particular to the electrical installation.
- After completing the works, check the system for damage.
- Safety and functional tests must be performed in the scope of testing the complete system at the latest.
- The system is supplied with slide rails to optimise the transition point where applicable.

Working on the electrical equipment



DANGER

Risk of injury due to electric shock

Work or repairs to the electrical equipment of the system must be conducted by a qualified electrician!

The wiring diagram for the partially completed machine delivered contains all necessary operational shut-offs known to the manufacturer MEIKO, as well as other known, necessary shut-offs and electrical connections. The connectors are clearly indicated in the wiring diagram. Always make sure that these connections are implemented prior to commissioning the machine, and that they work reliably.

If any unknown sources of danger that are not described by MEIKO arise due to connecting system parts, you must eliminate them; this may potentially mean that you must not operate the machine.

7 Delivery, transport, installation and assembly

7.1 Delivery

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

If necessary, complain about any missing parts immediately to the shipping company 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 forwarder,
- and MEIKO

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

7.2 Transport and installation

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



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

For safe transport, the machine parts are supported by a special square-timber frame.

The machine must only be transported on the supplied wooden frame. This is specifically designed to enable safe and secure transport using **two pallet trucks**.

It is possible to negotiate gentle curves if the pallet trucks are not positioned completely under the wooden bearers

- Please also read the chapter on "General safety instructions".

7.3 Installation and assembly

MEIKO has prepared an assembly diagram showing the machine dimensions and the connected loads in detail.

The machine may only be installed by MEIKO technicians. Assembly is completed by reference to the installation drawings.

7.4 Electrical connection



CAUTION!

Work on the electrical part of the machine may only be undertaken by specialist personnel.

The corresponding electrical wiring diagram can be found in the switch cabinet. This wiring diagram is a part of the machine and must therefore not be removed!

The type plate with the connected electrical loads is located inside the switch cabinet.

General Electrical Regulations must be observed when connecting the machine to the power supply.

Caution:

The pre-fuse in the building must be chosen to meet local requirements and match the nominal machine current in order to provide back up- protection (VDE 0100 for Germany).

The mains supply cable must be provided with fuses in accordance with regulations and must have a main switch (accessible on site or on the appliance for operating personnel). If the neutral line (N) is not earthed, you must use a 4-pin master switch. Mains connecting leads must be oil-resistant, shielded cables no lighter than an H 07 RN-F cable.

The potential equalisation connection must be carried out in accordance with the requirements of the local electricity supply company and all applicable local regulations (in Germany VDE 0100 Part 540 must be observed).

VDE 0160/EN 50178 specifies that within electrical equipment featuring/planning residual current devices on the grid side to install AC/DC sensitive type B FC frequency converters upstream of the installed type A FC frequency converters- must be used.

A 5-pin terminal rail is provided for the mains connection (L1, L2, L3, N, PE).

The electrical connection data, voltage, type of current, output can be seen on the type plates on the machine.

Please check the voltage.

Route all electrical cable connections through the marked cable gland to the intended terminals and contactors in the electrical cabinet and connect to the intended terminals and contactors.

8 Adjustment of the machines effected by a service technician during the first setting in operation

8.1 Commissioning

To avoid damages or dangerous injuries during the setting in operation of the washing machine, please observe the following points:

Perform any required initial checks on supplied parts, such as heat pumps or other units. More detailed information, if required, can be found in the relevant operating instructions.



- The setting in operation must be executed by qualified personnel under consideration of the safety standards.
- Before the first start, check if all tools and foreign parts are removed out of the installation.
- Check any escaped fluids have been removed.
- Activate all the safety systems and door switches before commissioning.
- Check that all screw connections are tight.
- Please also read the chapter "General safety instructions".

Commissioning and training will be handled and provided by MEIKO-trained service engineers. The operator must not use the installation before completing training.

8.2 Chemical product settings

The correct settings for the quantity of detergent and rinse aid depend on the product used. The relevant chemical product supplier can install the correct setting.

8.3 Work prior to initial commissioning

It is paramount to comply with the instructions in this section prior to initial commissioning.

– Water-carrying pipes

All pipes must be thoroughly flushed. The heating system must be switched off when this is done (remove the fuses) in order to prevent the heating elements from operating when the system is dry. Subsequently clean all dirt traps.

– Steam pipes

All pipes must be thoroughly flushed. In this process, all control valves must be open and all condensation traps must have been removed. Subsequently clean all dirt traps.

– Electrical connection

- Retighten all electrical terminals in the switch cabinet; check that electrical plug-in connections are firmly seated.
- Check all motors for correct sense of direction.
- Carry out a visual check on all electrical equipment (e.g. switches, cables, housings, covers).
- Carry out functional tests on all electrical switches.

– Machine interior

Ensure that there are no foreign bodies inside the machine (e.g. cleaning rags, loose bolts/washers/nuts, tools, packaging materials etc.).



Caution

Safeguard smooth transitions in areas where moving parts move past fixed parts (e.g. hoses.)

Make sure that all wash pipes, wash systems, final rinse arms, sieves, tank covers and drain pipe as well as flaps have been connected to the input and output. Ensure that all the parts are correctly installed!

9 Washing with the trolley washing machine

Once all installation work on the machine is complete and all settings have been entered by **MEIKO installation engineers**, the machine can be commissioned.

10 Preparation for Operation

10.1 Basic safety measures during normal operation



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

Ensure the following before switching on the installation:

- only authorised and trained persons are present in the installation's operating area.
- nobody could be injured by setting the installation into operation.

Before commissioning, each time

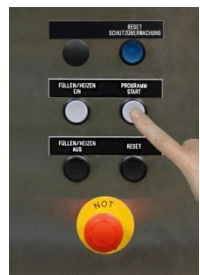
- inspect the washing machine for any visible damage and ensure that it is only operated in perfect working condition!
Report any defects to the foreman immediately!
Remove any materials and/or objects that are not required for operation from the operating area!
- check and ensure that all the safety equipment is operating perfectly!

10.2 Operation



FILLING/HEATING

When pressing the key "**Filling/Heating on**" the wash tanks are automatically filled and heated up. (This process may take some time depending on the water temperature, water pressure and heating power available.)



PROGR. START

After displaying "OPERATING MODE" in the touch panel, the machine is put into operation with the "**PROGRAM START**" button.

Make sure before that all doors are closed.

The machine takes control of all other functions (such as monitoring the wash tank, rinsing and drying temperature, loss of water in the wash tank, etc.), thereby eliminating the need for further control or operation.



RESET

Washing can be temporarily interrupted with the **"RESET"** button; i.e. the wash pumps and transport are switched off.

However, the tank heating elements are not switched off with the result that the machine remains ready for operation and washing can recommence when the button **"OPERATION"** is pressed.



FILLING/HEATING OFF

With the key „**FILLING/HEATING OFF**“ the machine is completely set out of operation.

(Note! "Cleaning the machine")



EMERGENCY STOP

EMERGENCY STOP

The machine has one or more emergency off switches. This enables the entire machine to be shut down. Restarting the machine requires unlocking the emergency off switch and is only possible in the switch cabinet.

The machine must be restarted only once it has been established that the hazardous situation triggering the emergency stop has been rectified and restarting the machine will not cause any danger.



**EMERGENCY STOP
safety pull wire**

EMERGENCY STOP safety pull wire

On the window side of each chamber on the inside of the machine, the machine is equipped with an EMERGENCY STOP safety pull wire. The pull wire operates identically to an EMERGENCY STOP switch.

It allows to shut down the entire machine. Restarting the machine requires unlocking the blue emergency off switch and is possible in the installation room only, at the machine input and output.

The machine must be restarted only once it has been established that the hazardous situation triggering the emergency stop has been rectified and restarting the machine will not cause any danger.



Function message lamp

The following functions can be recognized:

<u>Red lamp:</u>	In the event of a collective malfunction, the red lamp flashes, and lights up permanently if the EMERGENCY STOP switch is pressed.
<u>White lamp:</u>	Program executing
<u>Green lamp:</u>	Program end

10.3 Commissioning the system

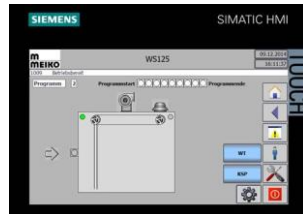
Make sure that all wash pipes, wash systems, final rinse arms, sieves, tank covers and drain pipe as well as flaps have been connected to the input and output. Ensure that all the parts are correctly installed!

1. Press the "FILLING/HEATING" button.
2. After displaying "OPERATING MODE" in the touch panel, the items to be washed can be put into the machine.
3. Close all doors.
4. Press the "PROGRAMM START" button.
5. Automatic doors close automatically (optional)

11 Switching on the washing machine



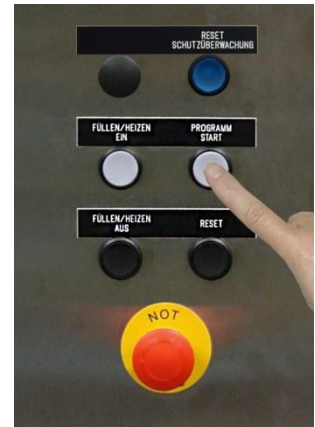
Press the button „**FILLING/HEATING ON**“



The machine fills and heats up to operational temperature
Wait for the "ready for operation" signal



Press the "**RESET DOOR SURVEILLANCE**" button after having loaded the installation with wash ware and closed the doors.



Press the "**PROGRAM START**" button.



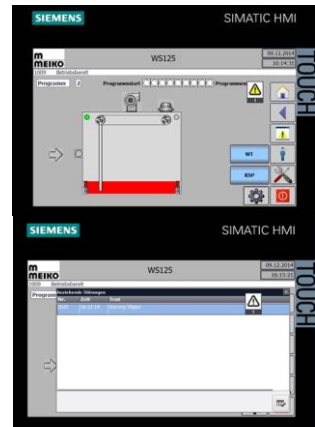
In case of interruption, press the "**RESET**" button.
The machine remains ready for operation



Press the "**PROGRAM START**" button.



To switch off machine:
Press the "**FILLING/HEATING OFF**" button.



Inform the house engineer when an error message appears on the control panel!

12 Switching off the washing machine and cleaning



Press button „**Filling/Heating OFF**“



Switch off the main switch.

DO NOT FORGET TO CLEAN THE WASHING MACHINE!!!
(see chapter „Cleaning“)

The cleaning of the installation is effected without using foaming cleaning agents!

1. Open the drain of the tank.
2. Remove the sieve basket of the wash tank and clean it.
3. Remove the tank cover plate and clean the under-side.
4. Remove the screen boxes from the chamber and clean them.
5. Eventually nozzles of wash system are to be removed for cleaning.
6. Rinse food residues off the washing chamber.
7. Tank cleaning: coarse food residues or other items are to be manually removed before start rinsing. Rinse out tank so there are no residues.
8. Perform any necessary surface care
(Recommendation: MEIKOLIT, order no. 0 805 009).
9. Check visually the interior of the machine for completeness and correct insertion of parts which have eventually been removed for cleaning purposes and check that no other objects like tools or cleaning appliances remain in the machine.

The thoroughly and daily cleaning of the installation is absolutely necessary for an irreproachable and hygienical operation of the machine.

12. Close tank drain.
13. Insert the sieve basket.
14. Unlock main switch for setting in operation.

13 Cleaning

13.1 Safety rules for cleaning



The tank heating elements may still be hot after the tank has been emptied. As a result, there is a risk of burns or scalding when cleaning the machine manually!



Machine, switch cabinet and other electrical components may not be sprayed with a water hose or high-pressure cleaner.

13.2 Cleaning after operation

It is recommended that you maintain the machine in good condition not only for reasons of hygiene but also to keep your washing machine in full working order and to be able to recognise damage more easily. Observe the following points after operation!

Clean and check that the machine is in working order:

- tank cover
- sieve baskets, sieve box
- wash pipe jets
- wash tank, machine interior
- rinse arm jets

Any cladding panels removed to undertake this work must be replaced in their original position after completion of the work. Ensure that all the parts are correctly installed!

13.3 Cleaning instructions – daily

CAUTION!!! THE MAIN SWITCH MUST BE SWITCHED OFF BEFORE STARTING THE CLEANING PROCESS!

DO NOT USE A HIGH PRESSURE CLEANER!!!

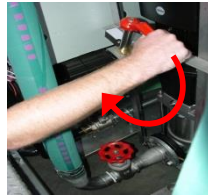
THE ROOM IN WHICH THE MACHINE IS INSTALLED MAY ONLY BE ENTERED BY TRAINED PERSONNEL FOR THE PURPOSE OF OPENING THE DRAIN VALVES AND CLEANING THE FINE SCREEN IN THE WASH TANK.



Switch off the machine.



Open the installation switch cabinet.



Open the drain valve of the wash tank.



Open the drain valve of the wash tray.



Remove the covering at the wash tank.



Remove the tank sieve.



Clean the tank sieve.



Remove the upper covering sheet.



Clean the upper covering sheet.



Remove the condensation separator.



Clean the condensation separator.



Clean the guide rail of the wash system.



Clean all nozzles with a nylon brush.



Remove the lateral sieve basket.



Clean the lateral sieve basket.



Clean the tread plates with a hose.



Remove the tread plates from the wash chamber.



Clean the wash chamber inside with a hose.



Check the intake opening for foreign bodies.



Reinsert the tread plates.



When you have cleaned the machine, replace all the parts and check that you have replaced them all and that they are in the correct position.



After you have installed the parts, close the open drain valves.



Close the installation space.



The machine, switch cabinets and other electrical components must NOT be sprayed with a hose or a high pressure cleaner.

13.4 Care of stainless steel surfaces

We recommend cleaning the stainless steel surfaces only when needed with cleaner and care products suitable for stainless steel.

Lightly soiled parts can be wiped with a (possibly damp) cloth or sponge.

Be sure to wipe dry after cleaning to avoid traces of scale. Use demineralised water if possible.

Do not use aggressive cleaning or scouring agents.

The care products must not attack the stainless steel, form deposits, or cause discoloration. Never use cleaning agents that contain hydrochloric acid or bleaches based on chlorine.

Never use cleaning equipment that you have used previously by non-stainless steel to avoid external corrosion.

Aggressive external influences due to cleaning and care products that evaporate in the vicinity of the dishwashing machine, or caused by direct application, can lead to machine damage and put the material at risk (e.g., aggressive tile cleaners).

Caution!

Observe the manufacturers' hazard warnings on the original containers and safety data sheets.

13.5 Check list after cleaning

After cleaning the trolley washing machine ensure that

all parts have been replaced correctly.

Check that the following parts are **present and in the correct position**:

- sieve baskets
- covering sheets
- sieve basket in wash water tank
- nozzles of wash system
- nozzles of final rinse
- wash pipe slits

Close the outlet valve.

The washing machine is now ready for the next shift.

14 Description of execution

Machine output 15 trolleys/hour (other outputs available as an option)
Tray transport container dimensions – as in the trolley drawing

Customer provisions for system operation

Soft water, hot 0 - 3° dH (as in the VGG [German Commercial Dishwasher Association] requirements for filling the tanks)
Soft water, cold 0 - 3° dH (as in the VGG [German Commercial Dishwasher Association] requirements for fresh water rinsing)
Steam 3 bar overpressure
Compressed air
Condensate connection (drained into the floor)

Technical data sheet

Height above pit:	2,800 mm
Width of machine:	2,900 mm
Depth of machine	2,700 mm

15 Functional description

General

The machine is based on the single chamber system.

Washing, rinsing

When the trolley washing stage is complete, the fresh water rinsing automatically commences. In this process hot water at 85° C is sprayed over the trolley. The spray system works with a heated reserve tank. A wetting agent is dosed to the fresh water (dosing system at customer). If the trolley has finished the fresh water rinsing agent, it switches off again automatically, so that no unnecessary fresh water consumption occurs.

Technical description

The trolleys are tilted slightly to one side (angle of inclination 5°) while they are being washed. The purpose is to allow water to drain from the trolley. When the trolley has been placed in position, the door is closed and the washing process commences.

Wash temperatures

Wash temperature: 55° - 65°C
Fresh water rinse temperature: 80° - 85°C

Fresh water final rinse

The trolleys are sprayed with hot water at a temperature of about 85°C from all sides. The tilt of the trolleys allows the rinse water to drain from the trolley.

Water consumption

(can be adjusted manually): up to 25 litres per trolley.
The fresh water system in the machine complies with DVGW (the German Gas and Water Association) guide-lines.

The heating system of the machine

Heating medium: steam with 2.5 bar overpressure.

Tank heating

The tank is heated by stainless steel heating coils.

Optional drying

Drying begins after finishing the fresh water rinsing and the dripping phase. In this process, heated fresh air as well as air drawn from the room is blown directly onto the trolley. This removes the majority of the water.

Machine design

The machine casing, tanks and cladding are made from 1.4301 grade (type 304) stainless steel.

Double-wall insulation

The machine's chambers have double walls with intermediate insulation to reduce the noise level and the amount of heat which is radiated from the machine. The cavity is 40 mm wide in the region of the chambers.

Voltage data

See electrical wiring diagram

The machine is installed ready for connection to the power supply and operation. The individual circuits are protected against short-circuits, over-load and single-phase operation. The operating state is identified by pilot lamps or the touch panel.

The machine control is via a programmable logic controller (PLC control).

16 Help yourself in case of faults

Malfunction:	Remedy
Machine does not fill!	<ul style="list-style-type: none">• No water present• Dirt trap clogged• Level electrode / float valve soiled• Solenoid valve faulty• Suction or pressure pump defective
Malfunction:	Remedy
Final rinse does not spray!	<ul style="list-style-type: none">• No water present• Dirt trap clogged• Solenoid valve faulty• Pump for pumping water from the machine cistern broken down• Final rinse system is scaled
Malfunction:	Remedy
Vapours drain!	<ul style="list-style-type: none">• Suction system has failed• Temperatures too high• Wash arms, drying nozzles, air guide plates bent or not correctly inserted

Malfunction:	Remedy
Stripes and smears on the items to be treated!	<ul style="list-style-type: none"> • Rinse water mineral content too high (see operating instructions) • If only found at certain times, check water softening unit with a view to regeneration. This, however, must not be done during the washing time. • Water pre-treatment defective or not carried out • Different water type depending on the waterworks • Unsuitable rinse agent or wrong dispensed quantity.

Malfunction:	Remedy
Strong formation of foam in the wash tank!	<ul style="list-style-type: none"> • Detergent for dish-washing by hand enters the wash tank because of pre-cleaning • Daily cleaning of the machine is carried out with foaming cleaning agents which afterwards enter the machine. • Improve pre-wash, as too much food residue is entering the tanks. Alternatively, empty wash tanks between uses. • Final rinse water quantity too low • Detergent or rinse aid product not suitable • Temperatures too low < 40°C

17 Staff training

Only trained and instructed personnel are allowed to work at the washing machine. Staff responsibilities for operation, maintenance and repairs must be clearly defined. Any personnel undergoing training are only allowed to work at the washing machine under the supervision of an experienced person.

Persons	Trained operating personnel	Trained company tradesman	Trained company tradesman or installation engineer	MEIKO service engineer
Activity				
Installation and assembly				◆
Commissioning				◆
Operation, use	◆	◆	◆	
Cleaning	◆	◆	◆	
Check safety devices	◆	◆	◆	
Troubleshooting		◆	◆	
Troubleshooting, mechanical		◆	◆	
Troubleshooting, electrical			◆	
Maintenance			◆	
Repairs		◆	◆	

The instructions should be acknowledged in writing.

18 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.

18.1 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.

18.2 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.

19 Noise emission

Noise level in the workplace 75 dB.

20 Non-ionising radiation

Non-ionising radiation is not produced intentionally but unfortunately comes about due to electrical operating equipment (e.g. electrical motors, high-voltage cables and magnetic coils). In addition the machine has no strong permanent magnet. There is a high possibility of eliminating any influence on active implants (e.g. pacers, defibrillators) by maintaining a safety distance of 30 cm (distance of the field source to the implant).

21 Maintenance

Maintenance work must only be conducted when the machine is shut down. Additionally, the main switch of the washing machine must be switched off and locked.

Existing safety systems must not be removed!

A functional test on all safety systems of the machine / installation is carried out during every regular maintenance

We recommend you conclude a maintenance contract with our agency to guarantee a long service life of the washing machine.

21.1 Basic safety measures during normal operation

Observe the maintenance intervals prescribed in the operating instructions!

Observe the maintenance instructions for the individual components!

Danger of injury from entering a danger zone

Unauthorised persons might be in or enter the danger zone during transport, assembly, commissioning, maintenance and repair work. This can lead to injuries.

- Only permit qualified persons to perform work at the machine.
- Remove unauthorised persons from the danger zone.
- Cordon off danger zone and signpost it for third parties.
- Never remove or disable safety devices on the machine.
- Always wear cut-resistant protective gloves when removing housing parts and when working inside the machine!
- Before carrying out any maintenance and repair work, ensure that all the parts of the machine that may be touched have cooled down to room temperature!

Before carrying out any maintenance and repair work, switch off the electrical power at the main electrical power switch 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 can result in severe injury or damage to property.

Before carrying out any maintenance and repair work, ensure that all the parts of the machine that may be touched have cooled down to room temperature!
Environmentally hazardous lubricants, cooling or cleaning agents must be disposed of correctly!

21.2 Before putting back into operation following maintenance or repair work

Before starting operations following maintenance or repair work, all initial tests must be carried out as described in "Machine Settings for Initial Commissioning by the Service Engineer".

21.3 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
- Coolant
- Cleaning fluids containing solvents

must not be allowed to pollute the substrate or enter the sewerage system! These materials must be stored, shipped, collected and disposed of in suitable containers!



22 Maintenance recommendation

	Service step			
	①	②	③	④
<u>Maintenance work</u>	cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs



Note:

Note: "Please exchange in the spare parts list parts subject to wear which are marked with "V".

1. Recirculating pump

Check pump motor				
Check the motor for external damage			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check the motor for bearing noise (check for bearing damage)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check wash pump				
Check for leakage at the sliding seal (external visual check)		◆	◆	◆
Change the sliding seal when necessary				
Check the pump wheel for damage				◆
Check the pump housing for damage		◆	◆	◆

2. Wash pump

Check pump motor				
Check the motor for external damage			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check the motor for bearing noise (check for bearing damage)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check wash pump				
Check for leakage at the sliding seal (external visual check)		◆	◆	◆
Change the sliding seal when necessary				
Check the pump wheel for damage				◆
Check the pump housing for damage		◆	◆	◆
Pump suction sieve (if present)				
Check pump screen condition		◆	◆	◆
Thoroughly clean the internal pump screen				◆
Clean outside of pump screen	◆	◆	◆	◆

	Service step			
	①	②	③	④
<u>Maintenance work</u>	Cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs

3. Wash system

Check wash system for leaks				
- Pump / ascending pipe connection / Hose		◆	◆	◆
- Hose		◆	◆	◆
- Distribution pipe		◆	◆	◆
- Hose		◆	◆	◆
- Ascending hose / wash system connection		◆	◆	◆
Check wash system				
Check wash system for damage		◆	◆	◆
Check nozzles for cleanliness	◆	◆	◆	◆
Check rapid emptying function operation	◆	◆	◆	◆
Check the spray pattern		◆	◆	◆
System				
Check the entire system for damage and leaks		◆	◆	◆
Check water quantity	◆	◆	◆	◆
Check the function of the float switch	◆	◆	◆	◆
Clean removable fine screen internally and externally	◆	◆	◆	◆
Clean removable coarse screens	◆	◆	◆	◆
Check wash system drive				
Check the motor for external damage			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check the motor for bearing noise (check for bearing damage)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check drive chain				
Check chain wheels and chains for wear and tear		◆	◆	◆
Check chain tension		◆	◆	◆
Check sliding clutch		◆	◆	◆
Lubricate the drive chain outside the wash chamber if required (spray-on penetrating oil or silicone spray).		◆	◆	◆

	Service step			
	①	②	③	④
<u>Maintenance work</u>	Cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs

4. Fresh water final rinse

Check pump motor				
Check the motor for external damage			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check the motor for bearing noise (check for bearing damage)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check wash pump				
Check for leakage at the sliding seal (external visual check)		◆	◆	◆
Change the sliding seal when necessary				
Check the pump wheel for damage				◆
Check the pump housing for damage		◆	◆	◆
Pump suction sieve (if present)				
Check pump screen condition		◆	◆	◆
Thoroughly clean the internal pump screen				◆
Clean outside of pump screen	◆	◆	◆	◆
Check Clean water rinse system for watertightness				
- Pump / ascending pipe connection / Hose		◆	◆	◆
- Hose		◆	◆	◆
- Distribution pipe		◆	◆	◆
- Hose		◆	◆	◆
- Ascending hose / wash system connection		◆	◆	◆
Check Clean water rinse system				
Check wash system for damage		◆	◆	◆
Check nozzles for cleanliness	◆	◆	◆	◆
Check the function of the non-return valve (If water is used that has been demineralised, desalinated or treated by osmosis, we recommend replacement of the return springs every 4-6 months as a preventive maintenance measure)	◆	◆	◆	◆
Check the spray pattern		◆	◆	◆
System				
Check the entire system for damage and leaks		◆	◆	◆
Check water quantity	◆	◆	◆	◆
Check the function of the float switch	◆	◆	◆	◆

	Service step			
	①	②	③	④
<u>Maintenance work</u>	Cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs

5. Drying

Fan				
Check the blower fan for exterior damage			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check fan for quiet running (bearing damage) (visual and noise check)			◆	◆
Check suction side grid for cleanliness			◆	◆
Heating register (steam or hot water)				
Check the heating register for cleanliness			◆	◆
Clean damper register with hot water				◆
Check the heating register for leaks (heating media)				◆
Blowing box				
Check nozzles for damage.		◆	◆	◆
Extraction				
Check extraction fan for exterior damage			◆	◆
Check the motor for bearing noise (check for bearing damage)			◆	◆

6. Rocker

Check the linear drive				
Check the linear drive motor for external damage			◆	◆
Check the linear drive motor for bearing noises			◆	◆
Check current consumption (see electric wiring diagram)			◆	◆
Check drive chain				
Check the chain, sprocket wheel and fixings for wear			◆	◆
Check chain tension			◆	◆
Check the locking bolt			◆	◆
Sealing for the leaf door				
Check sealing pad for function		◆	◆	◆
Check springs for tensioning force		◆	◆	◆

	Service step			
	①	②	③	④
<u>Maintenance work</u>	Cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs

7. Machine housing and component parts				
Check machine housing, sheet metal body, doors, claddings, entry and discharge sections for watertightness			◆	◆
Check machine housing, sheet metal body, doors, claddings, entry and discharge sections as well as flaps for damage and for correct position. Check that all are complete and in place.	◆	◆	◆	◆
Check electrical door control as well as door lock switch function		◆	◆	◆
Check door control as well as door lock switch for mechanical damage		◆	◆	◆
Rolling door (optional)				
Check rolling door for leaks		◆	◆	◆
Check rolling door for function		◆	◆	◆
Rolling-door and gasket profiles to be checked for damage		◆	◆	◆
Rolling-door gaskets, aerosolise with silicone oil	◆			

8. Installation				
Temperature and consumption				
Measure the temperature of the tank water and the fresh water rinsing water and compare with the values in the documentation.			◆	◆
Heating system				
Check the complete system for leaks				◆
Clean dirt trap			◆	◆
Check function of the valves			◆	◆
Fresh water system				
Check the complete system for leaks				◆
Clean dirt trap			◆	◆
Check function of the valves			◆	◆
Clean the level control	◆	◆	◆	◆
Check the function of the level control			◆	◆
Check water supply quality – water hardness (according to the installation plan)			◆	◆
Check the machine and all components for lime deposits. Descale if necessary			◆	◆
Check water supply quality – conductivity x5 for demineralised water or reverse osmosis water			◆	◆
Check water supply quality – temperatures (according to the installation plan)		◆	◆	◆

9. Waste water installation				
Check the drain cocks for leaks			◆	

	Service step			
	①	②	③	④
<u>Maintenance work</u>	Cleaning / Maintenance work Daily	at least once every quarter	at least once every six months but every 1000 hrs	at least once every year but every 2000 hrs

10. Electrical installation

Check power consumption of all heating elements (In see wiring diagram)				◆
Tighten all connections				◆
Check all switches for function and damages (see electrical wiring diagram)				◆
Carry out a visual check on all electrical equipment (e.g. switches / cables / housings / covers).				◆
Check the switch cabinet ventilator entry and discharge filters			◆	◆

11. Detergent dosing

Check the function (if possible, coordinate with chemicals supplier)			◆	◆
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12. Rinse agent dosage

Check the function (if possible, coordinate with chemicals supplier)			◆	◆
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13. Check the function of the total machine

Check machine for correct interaction of all functions			◆	◆
Dishwashing test. Check cleaning results, drying results			◆	◆
Air compressors (if present) Observe the manufacturer's operating instructions in all cases				
Check the oil level		◆	◆	◆
Remove the condensation water from the boiler	◆	◆	◆	◆

14. Visual inspection of the machine environment

Foaming detergents must not be used close to the machine area and not in connection with the machine	◆	◆	◆	◆
Water treatment system (if present) Observe the manufacturer's operating instructions in all cases				
Reverse osmosis installation (visual check); inform customers on the necessity of installation maintenance			◆	◆
Demineralisation installation (visual check); inform customers on the necessity of installation maintenance.			◆	◆

Detergent circulation tank temperature

55°C to 65°C

Clean water rinse temperature

80°C to 85°C

The service steps ①-④ must be carried out by personnel trained for this purpose.

- ① trained operating personnel
- ② instructed company tradesmen
- ③ trained company tradesmen or installation engineer
- ④ installation engineer trained by MEIKO

You can document the completed maintenance work on the following pages. MEIKO recommends that you enter the half-yearly service steps (③), and the annual service steps (④).



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