

Operating instructions

BTA 160 / BTA 240

(MIKE 3 – CE)

Tray washing machine

Translation of the „Original operating instructions”



EN



Read operating instructions before using the machine!

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1 Introduction and general information

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. Any further associated operating instructions for accessories and integrated third-party products must be strictly observed!

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

This information will help you to get to know the installation fully and to use it properly. It will also enable you to avoid repairs and the related loss of operational time.

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 additional damage caused 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.

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://partnernet.meiko-global.com>.

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

These contractual guarantee rules shall be neither extended nor restricted as a result of any explanations given in the instructions.

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:

Typ:
SN:

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

2 Explanation 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!



Read the operating instructions



Eye protection must be used or protective glasses must be worn



Hand protection must be worn

3 Use of the appliance for the purpose intended



The tray washing machine must be used only in accordance with regulations.

The tray washing machine BTA 160 / BTA 240 is exclusively designed for the washing and drying of trays in a horizontal position.

Only one tray size can be used.

Other objects must not be passed through the machine.

This dish-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 dishwashing 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 therefore corresponds to the latest technology and is guaranteed to provide maximum safety.

This level of safety can only be achieved in practice, however, if all the necessary measures are taken. The operator of the installation has an obligation of care to ensure that these measures are scheduled, and also to check that they are correctly executed.

Measures to ensure the safe machine operation

The operator must ensure in particular that ...



... the dishwashing machine is only used in accordance with the regulations.

Should it be used in any other way, damage or danger may occur, for which we accept no liability (see the chapter on "Use for the Purpose Intended").



... in order to preserve the operational and safety guarantees, whenever required, only original parts supplied by the manufacturer are used.

the user will lose the right to any possible claims if the appliance is modified using any parts other than original parts.



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



... the relevant personnel is regularly trained in all questions relating to safety at work and environmental protection and, in particular, that they are familiar with the operating instructions as well as with the safety information provided in them.



... the installation is only operated in perfect, operationally efficient condition 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 maintenance and repair personnel, and is worn by them.



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



... the operating instructions are always kept in legible, complete condition at the place where the installation is insteveryd, and are always at hand.



... 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 Instructions for Use.



Once the dishwashing machine has been insteveryd, put into service and handed over to the customer/operator, no modifications (electrical or location modifications, for example) may be made. Modifications to the dishwashing 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.



... the door roller springs on the machines are changed after approx. 5.000 door operations* (*door operation corresponds to opening and closing the door). With an average number of 3-5 door operations per day, this corresponds to a period of approx. 3 years.

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



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:

- who are 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 operates 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. Take suitable precautions.

Observe all the instructions posted on the machine.



Warning!

When electrical equipment is in operation, it is inevitable that certain parts carry a dangerous current.

ALL current to the whole machine MUST be switched off before the machine's cladding or electrical equipment is opened.

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

Only specialist personnel may carry out repairs and rectification work on the electrical part of the machine. The Health and Safety Regulations must be observed.



CAUTION!

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



CAUTION!

The dish-washer may only be operated under the supervision of trained personnel.



CAUTION!

If you are unsure about the operation of the machine, the machine must not be used.



CAUTION!

Doors and flaps MUST be closed.



CAUTION!

Because of the danger of entrapment by the conveyor and the dishes when the conveyor is in motion, operating staff must not wear tight-fitting clothing; they must also remove rings, bracelets and similar articles.

We also recommend wearing safety shoes with steel toe caps!



CAUTION!

The tank heating elements may still be hot after the tank has been emptied. There is therefore the danger of burns when the machine is cleaned manually.



CAUTION!

Rectification work and work of any kind on the steam installation must only be carried out by specialist staff.



CAUTION!

Only detergents and rinse-aids suitable for the use in industrial dishwashers may be used.

Corresponding information is submitted by the manufacturers of such products.

Detergents and rinse agents can be injurious to health.

The manufacturers hazard instructions on the original packaging and in the safety data sheets must be observed.



CAUTION!

The main switch must be turned off when operation has finished.



CAUTION!

WE ACCEPT NO LIABILITY FOR DAMAGE OR INJURY ARISING FROM FAILURE TO OBSERVE AND ABIDE BY THESE SAFETY INSTRUCTIONS!!!



5.2.1 Working on electrical equipment

Any repair work and repairs to the power supply on the installation's electrical equipment may only 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 cabinets closed! Access is only allowed to qualified persons with the appropriate key / tool!

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 conveying system/washing machine:

- 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 safeguarded 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 electric fittings



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 operate the machine.

7 Delivery, shipping, installation and assembly

7.1 Delivery

Check that the delivery is complete immediately after receiving it by comparing it to 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 shipping company,
- 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 appliance or life-threatening injuries during shipping of the installation, the following points must be observed:

- The shipping operations may only be carried out by qualified persons who observe the safety instructions.

In order to ensure safe shipping, the installation parts are placed on a special four-sided wooden frame.

Incoming goods should only arrive on these wooden frames. The packing is specifically designed to allow the appliances to be moved safely and securely using two peveryt trucks.



Move only with peveryt trucks!!!

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



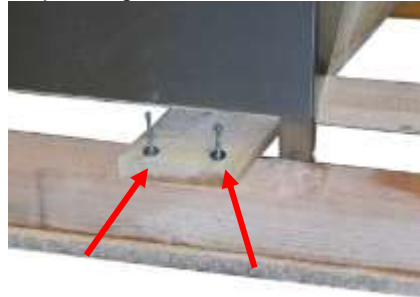
Electric motors may project downwards from the underside of the appliance. Care must always be taken not to damage these.



Severe damage to motor & frame!!!

The forks of the peveryt trucks are lowered when the desired position of the appliance is reached (but must remain under the bearers). The machine is standing on the wooden bearers of the packing. There is no load on the foot cleats.

All the screws and bolts of the packing are now removed.

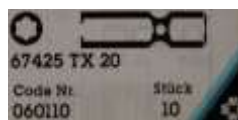


e.g. Remove these and other screws and bolts.

Leave for the moment all the wooden bearers under the machine.

The following screw-drivers and sockets are needed.

Torx TX 25



Torx TX 25



10 mm socket



These screw drivers and sockets are available in all tool shops.

A reversible electric drill with a lockable chuck is also necessary.

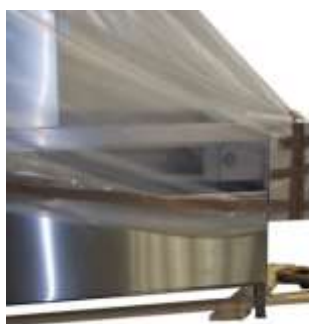
When all the fasteners on the transport packing have been removed, the appliance is again lifted on both sides with the peveryt truck.

All the large bearers running along the length of the appliance can now be easily withdrawn.



The appliance is next lowered onto the floor and the pallet trucks removed. **You must take great care to ensure that the appliance is not jolted when it is lowered** otherwise the foot cleats could be damaged beyond repair.

Please also ensure that the cleats are extended uniformly so that one set of cleats is not loaded more than the others. You can check the loading by means of the force needed to turn the cleats with a spanner.



An open-ended 27 mm spanner is needed to adjust the cleats of the appliance!

If it is necessary to move the appliance along a wall, the appliance can be pushed along the wall on its cleats for a limited distance.
(Be careful of gratings in the floor and changes in height!)

The appliance can also be easily moved flush to the wall by leaving the small longitudinal bearers under the appliance and moving the appliance backwards as shown in the picture.



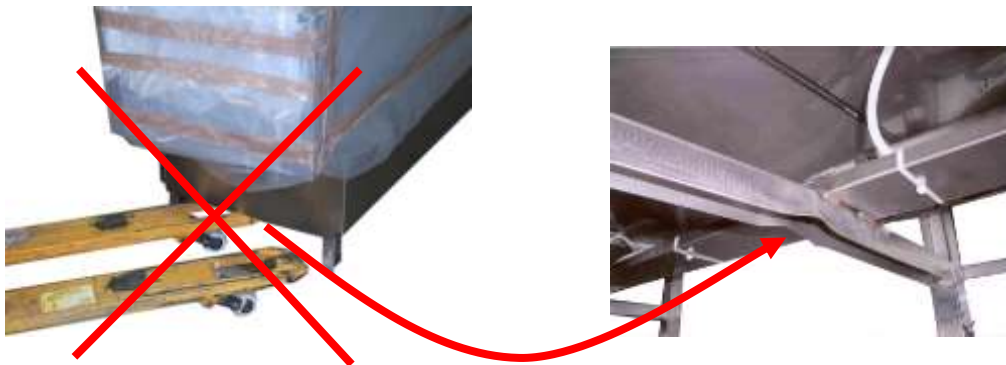
Push the small longitudinal bearers to the left and right of the frame.

Position the pallet truck close to the frame.

If it is not possible to move the appliance with a peveryt truck as described earlier, the longitudinal bearers can be removed by gently tilting the appliance after all the fasteners in the transport packing have been removed.



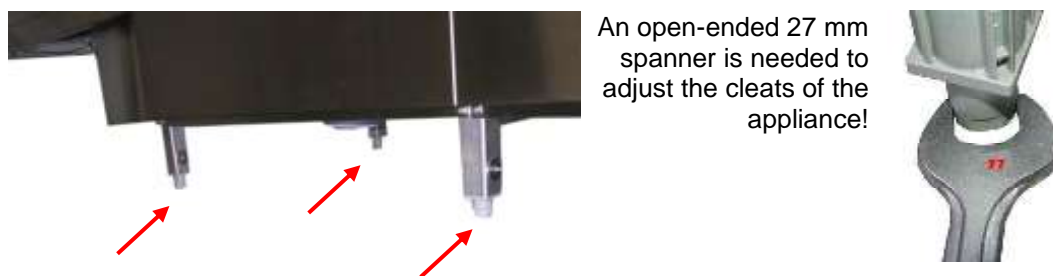
Important: Never move the appliance like this.



Lifting the appliance by the middle of the appliance frame will inevitably damage the appliance. A wooden batten should always be used to distribute the weight.

When the appliance is finally positioned, you must ensure that all the cleats carry approximately the same weight.

An uneven distribution of weight can cause individual cleats to break.
You can check the loading by means of the force needed to turn the cleats with a spanner.



Important:

Horizontal adjustment of the machine by means of the vertically adjustable feet (spanner/wrench size 27) must be done with care to ensure that the weight of the machine is evenly distributed on the cleats. This is absolutely essential in order to avoid displacement or stresses caused by loading on one side. These stresses can cause, for example, the vertical doors to jam or can prevent them from being water-tight when closed.

- 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.

Assembly is completed by reference to the assembly diagram and, in general, by following the instructions of a trained MEIKO engineer.

The installation must **only** be connected by suitably qualified personnel.

We accept no liability for connections carried out by unqualified personnel.

After unpacking, position the appliance as indicated in the assembly diagram and as the dimensions allow.

The appliance must be level and straight when erected.

7.4 Floor load from the dish-washing machine

The floor load per foot (with a loaded surface of D=30 mm per foot) is approximately 150 kg





7.5 Connection to the electricity supply.

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

The wiring diagram is located in the switch cabinet. This wiring diagram is part of the machine and therefore must not be removed.

The manufacturer's 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.

Attention:

The fuses on site must be selected to suit the local conditions and the appliance's nominal current in such a way that back-up protection is guaranteed (Germany: VDE 0100).

The mains supply cables must be provided with fuses in accordance with regulations and must have a main switch (accessible on site or inside the appliance for operating personnel). If the neutral conductor (N) is not grounded, a 4 phase main switch must be used. Cables connecting to the main power supply must be oil-resistant and sheathed and must not be 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).

Where VDE 0160 / EN 50178 applies, there is a requirement that in areas of electrical equipment where line-side residual current protective circuit breakers (FI) are planned or installed, an FI type B device sensitive to all types of currents must be installed before the FI type A. For the supply connection use a 5-pole terminal strip (L1, L2, L3, N, PE).

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

Please check the voltage.

All electrical connections must be made inside the electrical switch cabinet by means of marked screwed cable glands as in the circuit diagram and connected to the terminals and the fuses provided.

7.6 Temperature sensors / Temperature limit switches

All temperature limit switches and temperature sensors which are loosely rolled up in the electrical switch cabinet must be inserted in the electrical switch cabinet by means of marked screwed cable glands as in the circuit diagram and positioned in the relevant place marked.

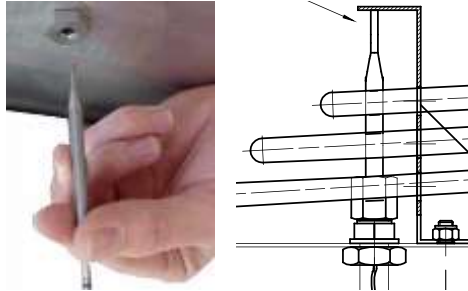
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IMPORTANT: Do not kink the sensor tube or the temperature sensor will be damaged and be unusable!

Some possibilities for the installation of the capillary temperature sensor:

Temperature safety limit switch for machines with electric flow heaters:

On each tank heater: insert a temperature safety limit switch up to the stop through the sleeve underneath the tank:



Temperature safety limit switch on the flow heater:



The temperature safety limit switch button



- The temperature safety limit switches switch off all phases and interrupt all connections carrying current to the relevant heating circuit when they switch off.
- They are intrinsically safe. That means that if the capillary tube is broken, the relevant heating circuit is switched off. Due to the internal construction of the thermostat it is possible that the thermostat switches off at a temperature under 0°C.
- After the temperature safety limit switch has operated it must be manually acknowledged. If a temperature safety limit switch has triggered during operation, the reason for its action must be found and eradicated. (In particular, the condition of the heater must be checked). The temperature safety limit switch may only be re-set after the defect has been rectified and the heating system has cooled down.

7.7 Fresh water connection

The water-carrying pipes and components are not frost-proof.

If the temperature of the place where the appliance has been installed can fall below 5°C, suitable precautions for protection against frost must be taken.

Information on nominal widths, cross sections etc. relate to the appliance. Installations on site must be dimensioned to match local conditions (e. g. cable arrangements, access lengths).

The terminal positions of media and energy connections to the machine depend on the method of construction (normally at a distance from the connection points on site). The connections must be made by approved technicians. All parameters for the media and energy supplies must be maintained at a constant level during all the operations.

Fresh water connections must be carried out in accordance with the requirements of the local regulations (e.g. Germany DIN 1988). A stop tap must be installed in all incoming water supply pipes and must be accessible to operating personnel. A tap capable of isolating the appliance from the mains (in Germany in accordance with EN1717) must be installed. Fresh water connections must be carried out in accordance with the requirements of the local regulations (e.g. Germany DIN 1986)

The water connection of the machine is located at the bottom of the machine's entry side.



In order to avoid damage during transportation, water pipes may in certain circumstances be dismantled. These must be re-installed before commissioning.



water-carrying pipes,
For example to grow the flow
control instrument.



It is possible to clean the dirt screens without turning off the main water supply.

The water supply is automatically cut off when the lower component in which the screen is located is unscrewed. This enables the screen can be easily cleaned during maintenance.

(This cut-off function can also be used as a stop-cock when servicing the machine.)

Information on the water quantities, quality and temperatures needed can be found in the installation plan.

The water quality must also comply with the requirements of the Commercial Dish-Washing Association.

Most appliances are equipped with heat regeneration or with a heat pump. In order for this equipment to operate at optimum efficiency the inlet temperature of the rinse water supply must be maintained at a low a level as possible (ideally about 10°C). Water supply at a higher temperature not only detracts from the efficiency of the heat regeneration and the heat pump, but also impairs conditions relating to the appliance's exhaust air.

If valves on the appliance are also controlled by fresh water, a minimum flow pressure is necessary. See "Regulations and Standard Values" for the necessary pressures and quantities.

7.8 Waste water connection

The waste water connection must be carried out in accordance with the requirements of DIN 1986 and all applicable local regulations.



All discharge pipes for water from the machine must be connected to the kitchen waste water system via an adequately dimensioned odour trap.

When selecting materials for pipes, sealants etc, you must bear in mind that the temperature of the water discharged from the machine can be 70 - 75° C. Furthermore, the pH values can lie between 3 and 12 depending on the nature and concentration of the detergent; in other words, the materials must be resistant to both acids and alkalis. Connect waste pipes on site in accordance with the instructions on the installation plan.

7.9 Hot steam, hot water from the pumps

Pipes and components designed for the conveyance of steam and condensate are not frost-proof. If the temperature of the place where the appliance has been installed can fall below 5°C, suitable precautions for protection against frost must be taken.

The machine is installed ready for operation, i.e. only the cables and pipes need to be connected to the machine.

The machine's steam installation must be equipped with an un-pressurised sloping condensate return system on site.

All condensate traps needed for the operation of the machine are built into the machine.

Pipes into the condensate traps must not be insulated.

No further steam traps must be installed in the building's condensate pipes.

If, in exceptional circumstances, the condensate is to be removed in an upwards direction by pressure, this fact must be notified to MEIKO at the time of ordering. In this case the heating tubes will be modified. The modifications will include a condensate evacuator. When the machine cools, this condensate evacuator collects condensate which would otherwise fall onto the floor.

Maintenance of the condensate reservoir

Open the condensate tank.

Remove the heating element and, if necessary, the dirt filter.

The filter and housing may then be gently cleaned.

Carefully clean all sealing surfaces before re-installation.

Always use new seals.

Important !

The installation of pipework and fittings is specially designed for a particular nominal pressure range. You must ensure that the operating pressure in the building does not exceed the permissible nominal pressure of the fittings and machine components (information on the latter can be found on the manufacturer's plate in the switch cabinet).

Information on nominal widths, cross sections etc relate to the appliance.

Installations on site must be dimensioned to match local conditions (e.g. cable arrangements, access lengths).

The terminal positions of media and energy connections to the machine depend on the method of construction (normally at a distance from the connection points on site). The connections must be made by approved technicians. The general instructions must be observed when connecting the steam pipes.

All parameters for the media and energy supplies must be maintained at a constant level during all the operations.

Connection to the main supply on site is from above and uses the latest techniques. All necessary shut-off and control components (including condensate reservoirs) have been built into the appliance. The pressure losses in the heating system inside the machine are 30 kPa for saturated steam and 100 kPa for hot water from the pumps.

7.10 Exhaust air connection of the appliance

Air control equipment must be designed to comply with local regulations (for example, in Germany VDI 2052) and must in all cases be water-tight and corrosion resistant.

The values indicated for exhaust air temperature and humidity can increase under certain operating conditions (e.g. standby).

The discharge air connection must be connected into the building's exhaust air system as in the installation plan.



Important !

The exhaust air connection must be made in such a way that the parts containing water are not damaged in frosty weather. If this is not possible, frost protection must be installed.

The hot, moist air from the machine must be removed from the washing-up kitchen. In order to achieve efficient extraction, you must ensure that the overpressure on the machine ducts or the negative pressure of the building is adequate.

7.11 Installation and connection of dosing units

When operating the machine it is necessary to use an industrial detergent and rinse agent. You may only use detergents and rinse agents approved by the relevant authority and which are also suitable for dish-washing appliances. The safety instructions relating to their handling, dosing, storing and use must be particularly observed.

The dosing of the detergent and rinse agent should be done by a suitable piece of equipment; the relevant regulations must be observed when installing such equipment. Under no circumstances must detergent or rinse agent be allowed to enter the water mains.

Your chemical supplier knows all the relevant regulations and the injection points favoured by Meiko.

A mixing chamber has been provided for the rinse agent connection. This is to be found in the clean water inlet for rinse water downstream from the boiler.



The connection for the rinse agent supplier is provided in this mixing chamber.

The thread for the connection is R 1/8".

8 Machine settings for initial commissioning by the service engineer

8.1 Commissioning

In order to avoid damage to the installation and the injury and death of persons when commissioning the installation, the following points must be observed without fail:

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 Instructions for Use.



- The installation may only be commissioned by suitably qualified persons observing the safety instructions.
- Before initial startup, check that any tools and parts not belonging to the installation have been removed.
- Check whether any escaping liquid is removed.
- Activate all the safety systems and door switches before commissioning.
- Check that all screw connections are tight.
- Please also read the chapter on "General safety instructions".

Commissioning and instructions will be provided by technicians specially trained by Meiko. The operator may only use the installation after training has been provided.

8.2 Chemical product settings

The correct settings for the quantity of detergent and rinse agent depend on the product used.

The relevant chemical supplier can install the correct setting.

8.3 Works to be carried out before initial commissioning

All the points in this section must be observed before initial commissioning!

- Water-carrying pipes
All pipes must be thoroughly flushed out. The heating system must not be switched on when this is done (remove the fuses) in order to prevent the heating elements from operating when the system is dry. All dirt collectors must be cleaned afterwards.
- Steam pipes
All pipes must be thoroughly flushed out. When doing so, all control valves must be fully open and all condensate traps removed. All dirt collectors must be cleaned afterwards.
- Connection to the electricity supply.
 - Tighten all electrical terminals in the switch cabinet; check that electrical plugs/jacks are firmly in position.
 - All motors must be checked for the correct direction of rotation.
 - Carry out a visual check on all electrical equipment (e.g. switches, cables, housings, covers).
 - Carry out functional tests on all electrical switches.
- Internal regions of the machine
Ensure that there are no foreign bodies inside the machine (e.g. cleaning rags, loose bolts/washers/nuts, tools, packaging materials etc.).



IMPORTANT

Ensure that friction cannot occur where moving parts pass close to fixed parts. (e.g. rails, water deflectors and others).

Ensure that all wash pipes, wash systems, rinse arms, screens and filters, tank covers, waste pipes, waste screens and swing valves on the inlet and waste pipes are installed correctly. Ensure that all the parts are correctly installed!

8.4 Setting the temperature of the wash tank, clean water rinsing, drying

8.4.1 Operating temperature in the wash tank

In the case of electronically controlled appliances the wash tank temperature is set using the operating display of the control system.

If the machine is not electronically controlled, the wash tank temperature is set using a separate temperature regulator (normally installed in the electrical switch cabinet).

The operating wash tank temperature needed is described in DIN 10510 and DIN 10512.

The temperature needed in the wash tank is also dependent on the chemicals used.

8.4.2 Clean rinse water temperature

The heating capacity insteveryd for heating the rinse water has been adjusted to suit the quantity of rinse water.

Therefore no method of regulating the temperature has been insteveryd as standard. The heater has been designed to be switched on at all times.

An excess temperature cut-out has been insteveryd as a protection against overheating. In the case of electronically controlled appliances the excess temperature cut-out is set using the operating display of the control system.

If the machine is not electronically controlled, the excess temperature cut-outs are set using a separate temperature regulator (normally insteveryd in the electrical switch cabinet).

The temperature necessary for rinsing is described in DIN 10510 and DIN 10512.

In the case of appliances heated by steam or pumped hot water (PHW), the flow rates of the steam or hot water can also be set.

If specially requested by the client, a GPR 1 can be insteveryd to control the flow heater.

The GPR1 circuit board provides electronic control of the temperature of the clean rinse water when electric flow heaters (DE) are insteveryd. This means that if the temperature of the incoming water varies, the heat output from the flow heater is automatically regulated so that the ideal rinse water temperature is maintained. For technical reasons the controller is insteveryd upstream of the excess temperature cut-out mentioned above.

A sensor monitors the actual temperature, comparing it with the temperature setting. In the event of a deviation between these two temperatures the temperature of the rinse water from the flow heater (DE) is brought back to the set temperature by increasing or decreasing the length of the heating impulses.

The heating periods can be observed on the two diodes positioned above the terminals.

The control circuit is operating correctly when the diodes are almost constantly illuminated and interrupted only by short pauses.

- If the sensor cable is cut or if there is a short-circuit on the cable, the diodes will not light up and the heater will not operate.
- If the diodes are illuminated but the set temperature is not reached after a suitable time, the heat output is too low. This can be caused by a too great volume of water or by the excessively low temperature of the incoming water.
- If the diodes are illuminated but the set temperature is exceeded, the sensor might not be firmly fixed into position.
- If the diodes are illuminated but the set temperature is exceeded, the heat output is too great. The cause can be insufficient water; alternatively the heat output must be reduced by 3 or 6 kW.
- If the temperature of the rinse water fluctuates regularly, the heat output is too high and the excess temperature cut-out operates constantly to prevent over-heating.
- The heat output must be reduced by 3 or 6 kW or the water volume increased accordingly.

The control circuit is defective if the diodes are constantly illuminated.

8.5 Program selection/ Conveyor speed



These keys do not have any function.

The tray washing machine has only one speed.

"Programme
Selection" keys

9 Preparation – Operation

9.1 Basic safety measures during normal operation



The installation 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!

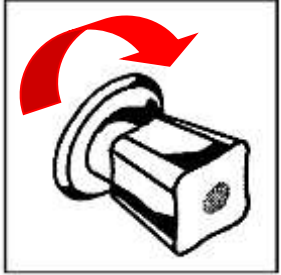
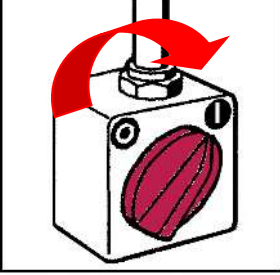


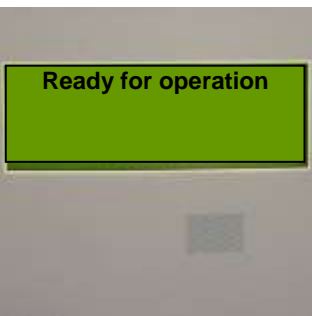


Before switching the installation on,

- check and ensure that only authorized persons are present in the installation's operating area.
- and that nobody will be injured when the installation starts!

Before commissioning, each time

- Inspect the installation for any visible damage and ensure that it will only be operated in a perfect condition!
Report any defects to the foreman immediately!
- Remove any materials or objects not required for the operation of the installation from the installation's operating area!
Remove any materials or objects not required for the operation of the installation from the installation's operating area!
- Check and ensure that all the safety equipment is operating perfectly!



10 Operation

 <p>Open the stop valve in the water pipe.</p>	 <p>Switch on the power supply from the building.</p>	<p>Close the outlet valve. Ensure that the wash pipes, Pump suction side sieve, sieve basket are installed. Ensure that all the parts are correctly installed!</p>
 <p>Close the doors.</p>	 <p>The wash tanks can be automatically filled and heated by means of the "Fill/Heat" button.</p>	 <p>Once the wash tanks are filled and have been heated to the washing temperature, the display will show: "Ready for operation"</p>
 <p>Press the start button to start the dishwasher</p>	 <p>Press the white push button „ON“ at the control panel! The round belt transport system is running!</p>	

Once the wash tanks are filled and have been heated to washing temperature, the machine is started with the "Start" button. The conveyor and the wash pumps now operate so that the washing process can begin. The machine is normally equipped with rinse water conservation; in other words the rinse process is not in operation continuously.

All other functions, e.g. temperature monitoring or wash tank water level checks are performed by the machine control; thus no other manual operations or checks are needed.

10.1 Washing interruption

	<p>To interrupt temporarily the washing cycle press the "Pause" button.</p> <p>Wash pumps and conveyor are switched off. However, the tank heating elements are not switched off with the result that the machine remains ready for operation.</p>
	<p>Press the start button to restart the dishwasher.</p>

11 Shutting the appliance down

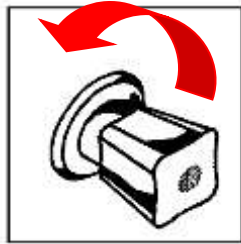
This appliance must be shut down at the end of operations or if the premises in which it is located are not regularly under surveillance by staff!



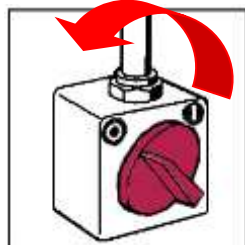
Press the „Total off“ button to switch off the dishwasher.



Press the black push button „OFF“ at the control panel! The round belt conveyor stops!



Close the stop valve in the water pipe.



Switch the power supply from the building off.

The dish-washer is now voltage free.

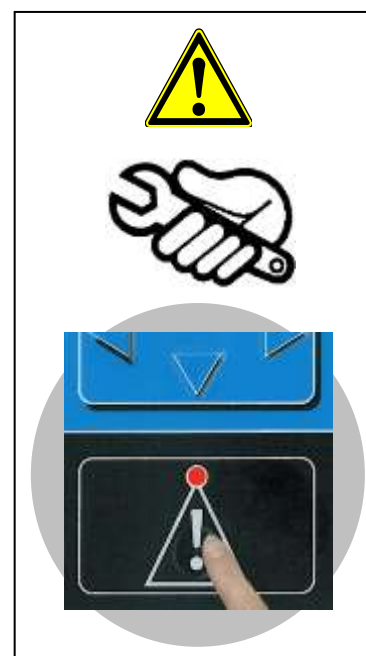
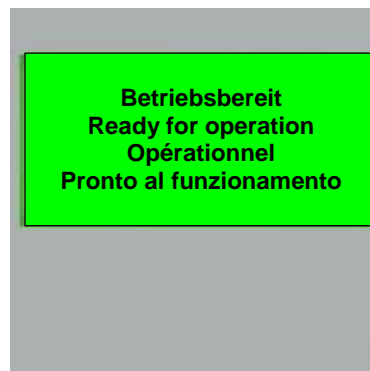
Clean the appliance; see the chapter headed “Cleaning”.

In the case of appliances with:

- automatic regeneration of water softeners
- frost protection
- integrated reverse osmosis equipment
- automatic tank filling and heating of the wash-tank by means of a time switch

automatic operation may only be activated if the premises in which the appliance is located is under regular surveillance by staff.

12 Short operating instructions



13 Cleaning

13.1 Safety instructions for cleaning



The tank heating elements may still be hot after the tank has been emptied. There is therefore the danger of burns when the machine is cleaned manually.

Electrical components, switch cupboards 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 dish-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 screen
- Side screen supports
- Pump screen (suction side)
- Spray protection curtains
- Wash pipe jets
- Wash tanks
- Rinse arm jets
- Float valve housing of the water level monitoring

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



Switch off the machine.



Open the doors.



Open the outlet.



Spray the machine's internal chamber.



Remove the tank cover screens.



Remove the screen supports



Remove the upper / lower wash systems and rinse arms



Remove the separation panels.



Open the base drip tray of the suction system and clean it.



Clean the inner chamber of the tank with a hose.



Spray the float valve housing of the water level monitoring.



Remove and clean the screen on the suction side of the pump.



Remove and clean the outlet screen.



Remove and clean the spray protection curtains.



Clean the wash and rinse arms and their jets. Use a nylon brush to clean the jets. Check that the wash arms and end caps are complete and water-tight.



Clean the outlet screen and the pump screen (suction side).



Clean all screens.



Close the base drip tray of the suction system.



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



Check that all wash arms are properly secured. Check that all wash arms are complete and in the correct position. Check that all wash arms are complete and in the correct position. Replace the outlet stand-pipes and curtains.



Close the doors.



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 dish-washing machine, or caused by direct application, can lead to machine damage and put the material at risk (e.g., aggressive tile cleaners).

Caution!

Respect the safety rules of the manufacturers on the original packing as well as on the safety data sheets.

13.5 Cleaning after operation

After cleaning the machine ensure that

all parts have been replaced correctly.

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

- Side screen supports
- Tank cover screen
- Outlet stand-pipe
- Rinse pipes
- Pump rinse pipes
- Curtains
- Check that the correct number of wash pipe end caps is present
- Pump suction side sieve

Close the outlet valve.

The dish-washer is now ready for the next shift.



IMPORTANT!!!

Do not use a foaming detergent for dish-washing by hand for pre-cleaning close to the dish-washer.

Foam can cause malfunctions in the dish-washer and a poor wash.



14 Tips for self-help in the case of faults

Fault:	Remedy
Machine does not fill.	<ul style="list-style-type: none"> No water available Dirt trap blocked Level electrode / float valve soiled Solenoid valve defective
Rinse water does not spray!	<ul style="list-style-type: none"> No water available Dirt trap blocked Solenoid valve defective Fresh water rinse system furred
Vapours drains!	<ul style="list-style-type: none"> Extraction broke down Curtains missing Temperatures too high Seperation panels not completely inserted. Wash arms, drying nozzles, air guide plates bent or not correctly inserted
Stripes and smears on the tray	<ul style="list-style-type: none"> Rinse water mineral content too high (see operating instructions) Different water type depending on the waterworks Unsuitable rinse aid products or wrong dosage quantity Incorrectly fitted or missing curtains
Formation of a significant amount of foam in the wash tank!	<ul style="list-style-type: none"> Rinse water quantity too low Temperatures too low < 40°C Detergent or rinse aid product not suitable
Tray not clean after washing!	<ul style="list-style-type: none"> Wash pump not running Spray nozzles clogged or wrongly fitted Wash arms mixed up Pump suction sieve clogged Cleaning agent concentration too low or unsuitable Temperatures too low Marked foaming
Tray is not drying!	<ul style="list-style-type: none"> Fan motor failed Rinse aid concentration too low or not suitable Plastic material as new Vapour suction quantity too low
STB has triggered!	<ul style="list-style-type: none"> The reason for its action must be found and eliminated. (In particular, the condition of the heater must be checked). The temperature safety limit switch may only be re-set after the defect has been rectified and the heating system has cooled down.

15 Staff training

Only trained and instructed personnel are allowed to work on the dishwashing machine.

Staff responsibilities for the installation's operation, maintenance and repair must be clearly defined.

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

persons	Trained operating personnel	Trained in-house technician	Trained company tradesman or installation engineer
Activity			
Installation and assembly			◆
Commissioning			◆
Operation, use	◆	◆	◆
Cleaning	◆	◆	◆
Checking safety devices	◆	◆	◆
Fault finding		◆	◆
Troubleshooting, mechanical		◆	◆
Troubleshooting, electrical			◆
Maintenance			◆
Reparaturen		◆	◆

Training should be recorded in writing.

16 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.

16.1 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.

16.2 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.

17 Noise level

The acoustic power level from the acoustic pressure measurement was determined in accordance with the casing surface process on the basis of DIN EN ISO 3744 precision class 2

Noise level in the workplace	LpA 75,0 – 77,0 dB (measurement uncertainty +/- 1.5 dB)
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18 Non-ionizing radiation

Non-ionizing 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 the influence of active implants (e.g. pacers, defibrillators) by maintaining a safety distance of 30 cm (distance of the field source to the implant).

19 Maintenance

Maintenance work may only be carried out when the dishwashing machine is shut down. In addition, the dishwashing machine main power switch must be in the OFF position and locked in this position.

Existing safety systems may not be removed!



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

We recommend that you take out a maintenance contract with our manufacturer's agent in order to ensure a long service life.

19.1 Basic safety measures during normal operation

Observe the maintenance periods prescribed in the operating instructions!
Observe the maintenance instructions given in these operating instructions for 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, 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 physical 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!
Carefully dispose of any lubricating, cooling or cleaning products that could harm the environment!

19.1.1 Before starting operations 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".

19.1.2 Observe the environmental protection regulations



Legal obligations relating to the avoidance of waste materials and to their recycling/removal in accordance with applicable regulations must be observed!

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 pollute the ground or run into the sewerage system!

These materials must be stored, shipped, collected and disposed of in suitable containers!

20 Maintenance recommendation

	Service step			
	①	②	③	④
<u>Maintenance</u>	Cleaning works Daily	At least once quarterly	At least once or twice a year but Every 1000 h	At least once yearly but Every 2000 h
<u>PLEASE NOTE:</u> Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!!!!				



Tip:

„Exchange the wearing parts designated „V“ from the spare parts list.“

1. General cleaning				
Screen basket	◆			
Tank cover screen	◆			
Pump suction side sieves	◆			
Spray protection curtains	◆			
Wash- and rinse arm jets	◆			
Wash tanks	◆			
Float valve housing of the water level monitoring	◆			
2. Drive				
Check drive motor				
Check drive motor for exterior damage			◆	◆
Check drive motor for quiet running			◆	◆
Check current consumption (IN see wiring diagram)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check drive chain				
Check chain wheels, chain and chain adjuster for wear and tear			◆	◆
Check chain adjuster function			◆	◆
Check chain tension			◆	◆
Regrease chain if necessary (spray-on penetrating oil or silicone spray)			◆	◆
Check conveyor limit switch for correct disconnection				
Check switch for electrical function			◆	◆
Check limit switch for mechanical damage		◆	◆	◆
Check limit switch function with regard to the lag (the distance the conveyor runs after being switched off). The mechanical contact travel of the limit switch rocker must be greater than the conveyor lag.			◆	◆
Check the shaft bearings		◆		

	Service step			
	①	②	③	④
<u>Maintenance</u>	Cleaning works Daily	At least once quarterly	At least once or twice a year but Every 1000 h	At least once yearly but Every 2000 h
<u>PLEASE NOTE:</u> Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!				

3. Transport				
Check the bi-cords for sufficient tension		◆	◆	◆
Check conveyor split pins for wear or damage and that they are all present		◆	◆	◆
Check the bi-cords for even running			◆	◆
4. Wash pumps				
Check pump motor				
Check motor for exterior damage			◆	◆
Check current consumption (IN see wiring diagram)			◆	◆
Check motor for quiet running (bearing damage)			◆	◆
Check ventilation grid for cleanliness			◆	◆
Check wash pump				
Check sliding ring seal for watertightness (external visual check)		◆	◆	◆
Replace sliding ring seal				approximately every 2 years every 3000 h
Check pump impeller for damage				◆
Check pump housing for damage		◆	◆	◆
Pump screen (suction side)				
Check pump screen condition		◆	◆	◆
Thoroughly clean inside of pump screen				◆
Clean outside of pump screen	◆	◆	◆	◆
5. Wash systems				
Check ascending pipe for watertightness				
Pump / ascending pipe connection		◆	◆	◆
Ascending pipe		◆	◆	◆
Ascending pipe / wash system connection		◆	◆	◆
Wash system seating		◆	◆	◆
Check wash system				
Check wash system for damage		◆	◆	◆
Check nozzles for cleanliness	◆	◆	◆	◆
Check that the correct number of wash pipe end caps is present	◆	◆	◆	◆

	Service step			
	①	②	③	④
<u>Maintenance</u>	Cleaning works Daily	At least once quarterly	At least once or twice a year but Every 1000 h	At least once yearly but Every 2000 h
<u>PLEASE NOTE:</u> Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!				

6. Clean water rinse system				
Check the complete system for damage and watertightness		◆	◆	◆
Check nozzles for cleanliness	◆	◆	◆	◆
Check water quantity (use the water meter or measure manually)			◆	◆
Check float switch function			◆	◆
7. Drying				
Fan				
Check fan for exterior damage			◆	◆
Check current consumption (IN see wiring diagram)			◆	◆
Check fan for quiet running (bearing damage) (visual and noise check)			◆	◆
Check suction side grid for cleanliness			◆	◆
Blowing box				
Check fan system nozzles for damage.		◆	◆	◆
Function check				
The suction side temperature must not exceed $x_1^{\circ}\text{C}$.				◆
Check internal drying chamber for cleanliness			◆	◆
Clean internal drying chamber with hot water (remove greases and oils)				◆
x_1 see later				
8. Heat recovery				
Exhaust fan				
Check fan for exterior damage			◆	◆
Check current consumption (IN see wiring diagram)			◆	◆
Check fan for bearing noise (damage to bearing)			◆	◆
Check protection grid for cleanliness			◆	◆
Heat exchanger				
Check heat exchanger for cleanliness			◆	◆
Clean heat exchanger with hot water				◆
Check heat exchanger watertightness				◆

	Service step			
	①	②	③	④
<u>Maintenance</u>	Cleaning works Daily	At least once quarterly	At least once or twice a year but Every 1000 h	At least once yearly but Every 2000 h
<u>PLEASE NOTE:</u> Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!				

9. Machine housing and built-in components				
Check machine housing, tank, sheet metal body, door, sub-structure cladding, entry and discharge sections for watertightness			◆	◆
Maschinengehäuse, Tank, Blechaufbau, Tür Unterbauverkleidungen auf ZerFaulten und Vollständigkeit prüfen			◆	◆
Tankabdecksieb auf Vollständigkeit, ZerFault, richtige Position und richtigen Sitz überprüfen			◆	◆
Spritzschutzhänge auf Vollständigkeit und richtige Position prüfen		◆	◆	◆
Schottbleche auf Vollständigkeit und richtige Position prüfen		◆	◆	◆
Check door guide rails		◆	◆	◆
Check door roller springs (exchange all even if only one is defective)		◆	◆	◆
Replace roller springs	after 5 000 door operations or 3 years			
Check electrical door control switch function		◆	◆	◆
Check door control switch for mechanical damage		◆	◆	◆
10. Equipment area				
Checks on operating temperature and water consumption				
Measure tank water temperatures (x2), rinse water temperatures (x3) and compare with values in the documentation			◆	◆
x2, x3 x1 see later				
Heating system				
Check the complete system for watertightness				◆
Clean dirt trap			◆	◆
Check function of the valves			◆	◆
Clean water system				
Check the complete system for watertightness				◆
Clean dirt trap			◆	◆
Check function of the valves			◆	◆
Clean level control	◆	◆	◆	◆
Check level control function			◆	◆
Check water supply quality – water hardness (according to the installation plan)			◆	◆
Check machine and all components for lime-scale 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)		◆	◆	◆
x5 see later				

	Service step			
	①	②	③	④
<u>Maintenance</u>	Cleaning works Daily	At least once quarterly	At least once or twice a year but Every 1000 h	At least once yearly but Every 2000 h
<u>PLEASE NOTE:</u> Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!				

11. Waste water equipment				
Check if outlet screens are present	◆	◆	◆	◆
Check outlet screens function (bayonette)		◆	◆	◆
Check drain cocks and standpipes for watertightness			◆	◆
12. Electrical equipment				
Check power consumption of all heating elements(IN see wiring diagram)				◆
Tighten all screwed fuses and connections				◆
Check all switches for correct operation and damage (see electrical wiring diagram)				◆
Carry out a visual check on all electrical equipment (e.g. switches, cables, housings, covers).				◆
13. Detergent dosage				
Check function (if possible, coordinate with chemical supplier)			◆	◆
14. Rinse agent dosage				
Check function (if possible, coordinate with chemical supplier)			◆	◆
15. Function test on the complete machine				
Check machines for the interaction of all functions			◆	◆
Dishwashing test Check cleaning results, drying results			◆	◆
16. Visual check on the machine environment				
Foaming detergents must not be used close to the machine area and not in connection with the machine	◆	◆	◆	◆

x1	Maximum suction temperature fan 0 550 056	75°C
	Maximum suction temperature fan 0 550 050	75°C
x2	Pump pre-cleaning temperature	according to DIN 10510 40°C to 50°C
	Detergent circulation tank temperature	according to DIN 10510 55°C to 65°C
x3	Clean water rinse temperature	according to DIN 10510 80°C to 85°C
x4	Drying temperature	according to DIN 10510 not specified (see x ₁)
x5	Minimum water quality according to the VGG	
	Total salt content:	max. 400 µS/cm for porcelain and opal glass
		max. 100 µS/cm for glass
		max. 80 µS/cm for stainless steel (cutlery)

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

- ① trained operating personnel
- ② company tradesman after instruction
- ③ trained company tradesmen or installation engineers
- ④ installation engineers 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), so and the annual service steps (④).



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