M-iQ

Rack type dishwashing machine

Original operating instructions



USA

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.

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.

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 Product identification

These operating instructions apply to rack conveyor dishwashers type M-iQ K.

1.2 Storage

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

1.3 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.

1.4 Related documents

In addition to these operating instructions, there are other documents that are available depending on the authorization:

Operator/operating company (included in delivery contents)	
• EC/EU declaration of conformity • Short operating instructions • Short cleaning instructions • Wiring diagram	• Spare parts list • Assembly plan (in advance) • Installation plan (depending on order)

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!
	Warning hand injury!
	**No splashing water:** prohibits the use of a high pressure hose.
	**Danger of explosion:** indicates a potential explosion hazard.
	**Non-potable water:** The water is not for drinking. Health can be endangered by drinking.
	**Danger of burning:** indicates possible hazard due to hot surfaces or media.
	**Do not use a hand dishwashing detergent for pre-cleaning.** (Sticker is enclosed with the machine. Apply to the feeding zone of the machine so that it is clearly visible.)
	**Caution!** Do not reach into the machine!
	Read the operating instructions
	Eye protection must be used or protective glasses must be worn
	Hand protection must be worn

3 General description and use for the Purpose Intended

3.1 General description

This machine is a basket pass-through ware washing machine for washing dishware and common kitchen utensils. The machine consists of a wash and rinse aid tank and can be expanded by one or more wash tanks and also a drying zone.

Tables or conveyors can be put on the feeding or discharge side of the machine for loading and unloading dishware baskets.

The dishware to be cleaned is put into baskets, preferably made of plastic, and is transported through the warewashing machine on a transport unit that moves back and forth.

The dishware is then cleaned in a heated cleaning agent circulation tank. The final rinse of the dishware involves fresh water sprayed through fine nozzles.



3.2 Intended use

The dishwashing machine is intended for commercial use only and is designed to wash dishes, cutlery, glasses, kitchen utensils, baking trays and containers. The washware must be suitable for commercial dishwashing machines.

Operation of the dishwashing machine in a potentially explosive atmosphere is not in accordance with its intended use!

MEIKO does not accept any liability for damages resulting from improper use or incorrect operation. Any other use, conversions and modifications are not permitted and are dangerous.

3.3 Foreseeable misuse

- Washing washware outside the technical specification
- Washing kitchen utensils with electronic components
- Cleaning textiles, oven cloths or steel sponges
- Washing utensils made of iron or utensils that must not come into contact with foodstuffs (e.g. ashtrays, candlesticks, etc.)
- Cleaning living creatures
- Washing food for subsequent consumption
- Preparing foodstuffs in the machine
- Taking wash water to prepare food or for drinking

- Washing support grids of cooking hobs/gas hobs
- Introducing service water into the local waste water system
- Standing or sitting on machine parts
- Washing parts made of wood
- Washing plastic parts that are not heat and alkali-stable
- Washing parts made of aluminium (such as pots, containers or trays only with a suitable detergent to avoid black discolouration)

4 General safety instructions



The following safety instructions are for your protection as well as the protection of others and the dishwasher. Compliance with them is therefore absolutely necessary.

4.1 Operator's obligation for 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.



…the safety of the dishwasher is not impaired by the subsequent installation of a dosage facility.



... 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 installed, 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 installed, 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 authorisation, 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. 10,000 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. 5 years.

4.2 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/burning!

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

Appropriate protective measures must be observed.

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.
The machine may be used again only after **all cladding panels** have been installed by the user of the machine.



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



The dish-washer may only be operated under the supervision of trained personnel.
If you are unsure about the operation of the machine, the machine must not be used.



Reaching into machines during operation is prohibited.



The water in the wash-up area is non-potable and can´t be used for food preparation!



The appliance must not be used to transfer waste water from other sources into the drain.



Doors and flaps MUST be 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 or bracelets. We also recommend wearing safety shoes with steel toe caps!



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.



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



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.



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

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

4.2.1 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!

4.2.2 Water installation work

Before performing maintenance and repairs on the water installation, shut off the main cock on the water supply line and secure 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 due to high water pressure.

5 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 arised 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.

6 Delivery, shipping, installation and assembly

6.1 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.
In cases of damage for the shipping, inform inmediatly to MEIKO in writing, and also send a photo of the damaged parts to MEIKO.

6.2 Transport and installation

In order to avoid damage to the machine or life-threatening injuries during shipping of the machine, always observe the following instructions:

CAUTION!

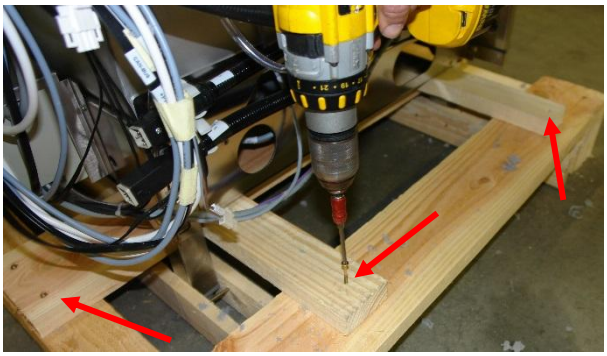
Loading, unloading and transportation tasks must be performed by qualified persons taking local occupational safety regulations and the following safety instructions into consideration.

For safe transport the machine parts are laid on a special square timber 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 a pallet truck.

The forks of the pallet 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 20 | 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.



All the glands of the transport packaging are unbound, the machine will be lifted on one side and all the great longitudinal beams can now be pulled out without any effort under the machine.



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

The appliance is next lowered onto the floor. **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.

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.

If it is not possible to move the appliance with a pallet 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.

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.



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



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 ".

6.3 Installation and assembly

CAUTION!

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.

If the machine is delivered divided in a number of parts, the joints must be thoroughly treated with P819 activator (fig. 1). Seal the cut-off points with sealing tape (fig. 2). Seal all joints of the sealing tape with silicon (Sista F 108 (fig. 3) or M 509 (fig. 4); Sikaflex 260 (fig. 5) in paint shops. Cut clear all drill holes underneath with a punch.

 Seal cut-off points on one side with sealing tape (always flush to the machine interior). Cut off excess sealing tape.	 Seal all joints of the sealing tape with silicon.	 Cut clear all drill holes with a punch.

Sealing a gap between two tanks:
Seal cut-off points on one side with a sealing tape (always flush to the machine interior). Attach the first strip of sealing tape on the door side flush on the interior. Adhere the second strip of sealing tape next to the first and cut flush.

Sealing a gap between the tank and neutral element:
Seal cut-off points on one side with a sealing tape (always flush to the machine interior). Attach only **one** strip of sealing tape to the door side flush on the interior.

Then assemble, align and screw together the machine parts.

For screwing parts we recommend:

- 1 x Hexagon head cap screw M5 x 12
- 2 x Front disc
- 1 x cap nut selflocking M5

(Fig. 1)  Sista P819 activator.	(Fig. 2)  Sealing strip MEIKO: Order no.:9 668 373	 (4)	Sista M 509 Special Silicon adhesive, order no. Order no.9518385
		 (Fig. 3) Sista F 108 Special Silicon adhesive Order no.:0 870 001	 (Fig. 5) Sikaflex – 260 strong adhesive Order no.: 0 870 030

6.4 Floor load from the dish-washing machine

The floor load per foot (with a loaded surface of D=30 mm per foot) is:
approximately 220 kg

6.5 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.

Only for USA / Canada:
The dishwasher must be / is installed in accordance with local codes, or in the absence of local codes, installed in accordance with the applicable requirements in the National Electrical Code, NFPA 70, Canadian Electrical Code (CEC), Part 1, CSA C22.1, and Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96.

Important:
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). Connect the machines to the on-site potential equalization. The machine-side connection is located very close to the machine's central switch cabinet / unit sheet on the undercarriage in the form of a screw and is marked accordingly. 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/instead 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.

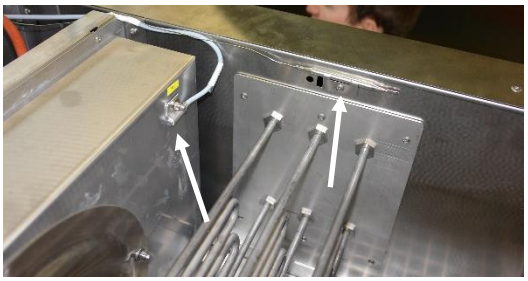
All electrical connections must be made inside the electrical switch cabinet by means of marked screwed cable glands as in the circuit diagram and connected to the terminals and the fuses provided.

6.6 Temperature sensors / Temperature limit switches

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

IMPORTANT: do not kink the sensor tube or the temperature sensor will be damaged and be unusable.

Here the proper location



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. 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.

- 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 must only be exchanged after the defect has been rectified and the heating system has cooled down.

6.7 Fresh water connection

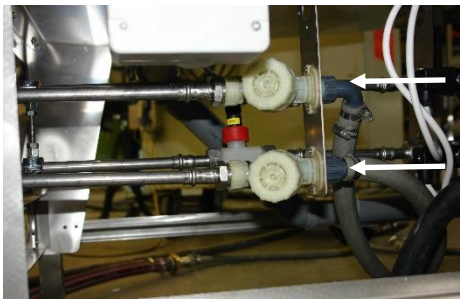
The water-carrying pipes and components are not frost-proof. If the temperature of the place where the appliance has been installed can fall below 5°C, suitable precautions for protection against frost must be taken.

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 ingoing 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) installed.
Fresh water connections must be carried out in accordance with the requirements of the local regulations (e.g. Germany DIN 1986). A shut-off device, fine filter, backflow prevention device and pipe ventilator must be available on-site for the use of water softeners or partial or total demineralization units.

Unless stated to the contrary, a minimum flow pressure of 250 kPa (2.5 bar) on site and a maximum pressure of 600 kPa (6 bar) must be guaranteed.

Special national conditions: Do not exceed a maximum pressure of 1,000 kPa (10 bar) for Denmark, Norway, Sweden and Finland.



The water supply to the appliance is normally to be found under the discharge.







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. (http://www.vgg-online.de.)

To ensure optimum functionality of the heat recovery system the inlet temperature of the water line, which supplies the clear flushing unit, is to be kept as low as possible (max. 12°C).
Warmer inlet water affects the exhaust air conditions.

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.

6.8 Hot steam, pump hot water

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. **Please use therefore seals which are appropriate for steam installations.**

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 trap
Open the condensate trap.
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.

Attention!

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.
See the installation drawing for details.

Installations on site must be dimensioned to match local conditions (e.g. pipe, hose, cable routing, 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). These connections must be made by authorised experts. 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.

Integration with the building-side main line must always be affected from the top and in line with the current state-of-art. All necessary shut-off and control components (including condensate reservoirs) have been built into the appliance. The pressure drops for the heating system in the machine is 30 kPa for saturated steam and 100 kPa for hot water pump.

CAUTION!

… switch off the dishwashing machine using the main machine switch in hazardous situations or in the event of accidents involving the heating system. This will cut the power supply to the machine.

CAUTION!

… risk of scalding or suffocation when approaching large amounts of steam escaping from the machine. In this case, do not close the steam inlet on the machine's steam shut-off valve, close the locally available shut-off valve.

CAUTION!

Switch off the machine to shut it down and contact the authorised MEIKO service technician in the event that small amounts of steam or water escape from the machine.

6.9 Waste water connection

Connect the waste water line to the building's sewage system in compliance with local waste disposal regulations. Use only approved wash additives!

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.

6.10 Exhaust air connection of the appliance

The following must be observed only if a machine exhaust connection is required:

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 machine exhaust may contain slight amounts of aerosol and may need to be conducted away by taking appropriate measures near the outlet.

When letting exhaust air into the room, particular attention must be paid to ensure that the specifications for the temperature and relative humidity and thus the volume load are valid for uninterrupted washing. Otherwise a temporary increase of blowing temperature, relative humidity or volume load is possible, depending on the operating state.

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

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.

6.11 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.

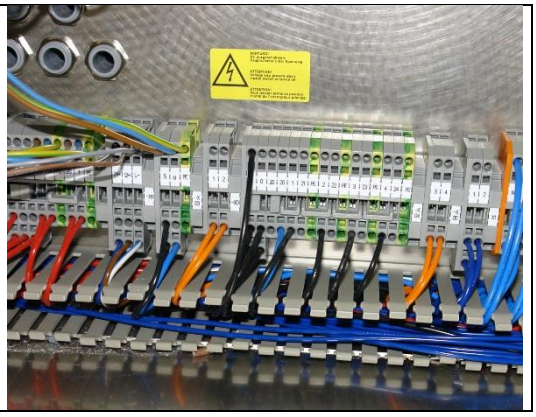
The dosing of the detergent and rinse agent should be done by a suitable piece of equipment; the relevant regulations must be observed when installing such equipment. Under no circumstances must detergent or rinse agent be allowed to enter the water mains.

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

The terminal “XD” supplies the detergent dosing components with electrical power. (More detailed information can be obtained from the appliance’s circuit diagram.)

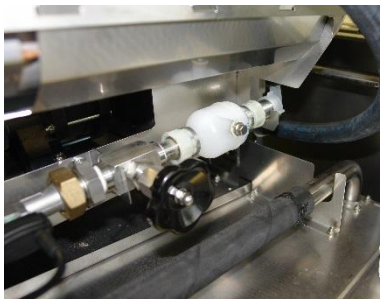
Other connections must not be used.

Dosing units or other equipment must not be installed in the electrical switch cabinet.



As there is a very large range of dosing equipment available in the market, it is impossible for us to give here detailed instructions on their installation. Your detergent supplier knows the ideal installation method for his product.

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”.

6.12 Detergent spraying system

If a direct detergent spray system is used such as is offered by a number of chemical suppliers, special safety precautions must be taken because of the aggressive nature of the highly concentrated detergent.

It is particularly important to take precautions to prevent the detergent spray from escaping when the dish-washers vertical doors are opened!

As these systems are installed by chemical suppliers, Meiko can accept no liability for any damage to machines or injury to persons which might arise.

7 Machine settings for initial commissioning by the service engineer

7.1 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.

7.2 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.

7.3 Works to be carried out <u>before</u> 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 check 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.).

Attention!
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. Ensure that all the parts are correctly installed!

7.4 Connectivity

The machine is equipped with a communication interface and can be integrated into the operator's network by the MEIKO service via LAN or WiFi.

8 Washing dishes with the dish-washer

Once all installation work on the machine is complete (Electric, water, waste water, hot steam, air) **and all settings have been entered by trained specialists (see above) the machine can be commissioned.**

8.1 Basic safety measures during normal operation

CAUTION!

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!



CAUTION!
Do not use a foaming hand dishwashing detergent for pre-cleaning close to the dishwasher! Foam can cause malfunctions in the dishwasher and a poor washing result.

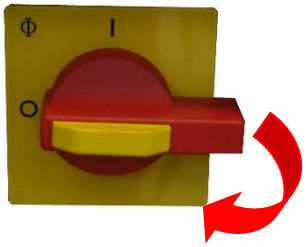
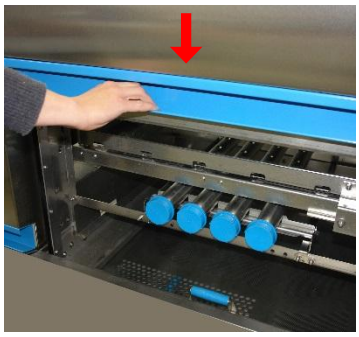
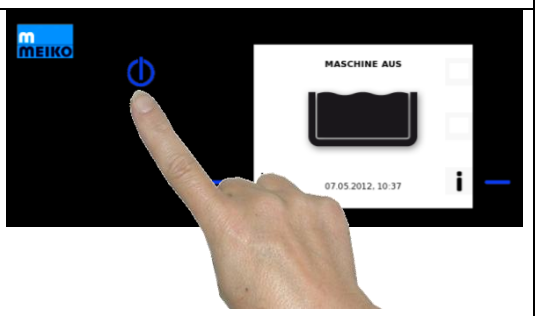
Before switching the installation on, check and ensure that

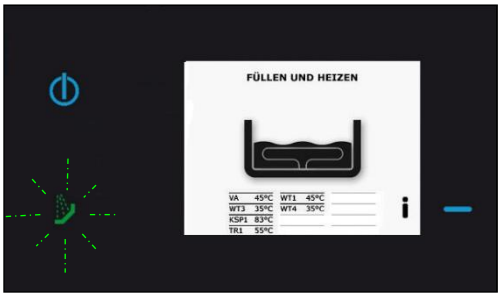
- Only authorized persons are present in the installation’s operating area.
- Nobody will be injured when the installation starts!

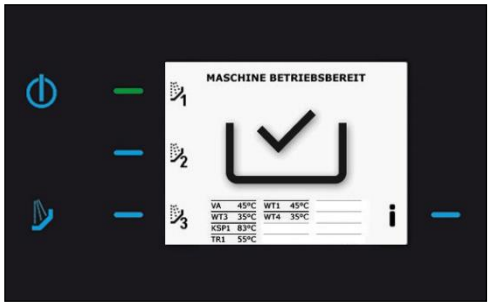
Before commissioning, each time

- 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!

8.2 Operation

<table>
<tr>
<td>
Open the stop valve in the water pipe.</td>
<td>
Switch on the power supply from the building.</td>
</tr>
<tr>
<td colspan="2">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. Ensure that all the parts are correctly installed!</td>
</tr>
<tr>
<td>
Close the doors.</td>
<td>

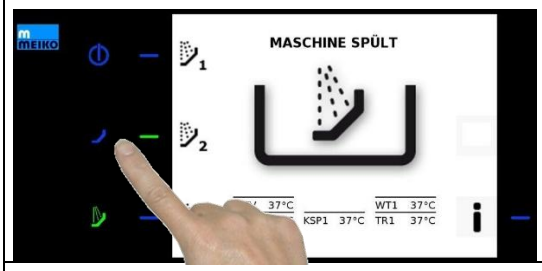
Press the button - „ON/OFF“.</td>
</tr>
<tr>
<td>

The green LED flashes. The wash tanks can be automatically filled and heated by means of the ”Fill/Heat“ button.</td>
<td>

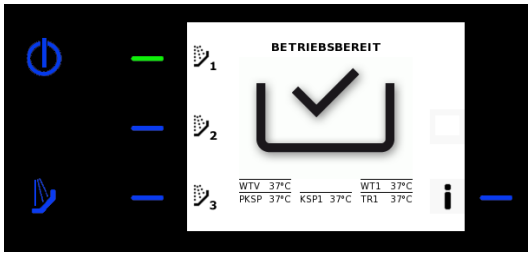
Once the wash tanks are filled and have been heated to the washing temperature, the display will show.
Ready for operation</td>
</tr>
<tr>
<td>

Press the blue button "dishwasher on" to start the dishwasher.</td>
<td>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.</td>
</tr>
</table>

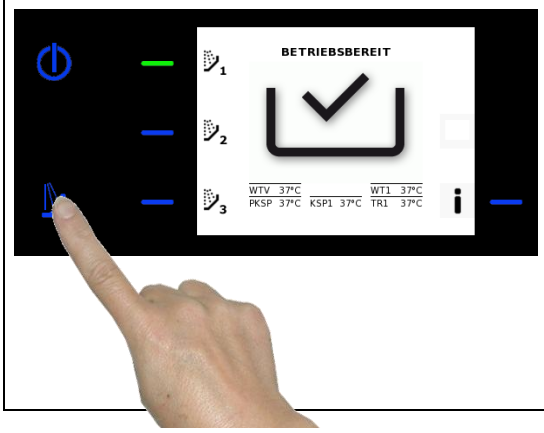
8.3 Washing interruption



To interrupt temporarily the washing cycle, press the blue button "washing cycle OFF"



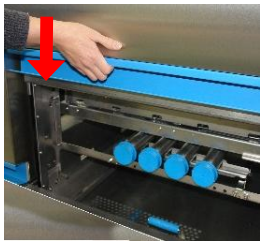
Wash pumps and conveyor are switched off. The tank heating elements continue to run so that
the "ready for operation" remains how in the display is possible to read.

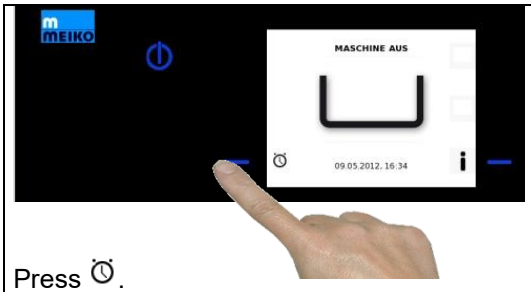


Press the blue button "dishwasher on" to start the dishwasher.

8.4 Timer-controlled autofill

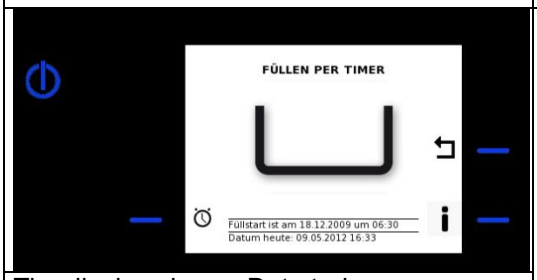
The precondition for timer-driven filling is that all doors and covers are closed and the machine is switched off! (Machine OFF)



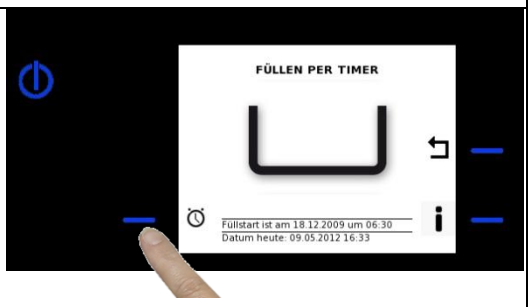


Press ⏲.

The owner/operator must ensure that automatic operations can only be activated subject to the condition of monitored operations for dishwashers with automatic tank filling and washing tank heating via "Timer-driven filling"!
The main switch may only be switched o in monitored operations!



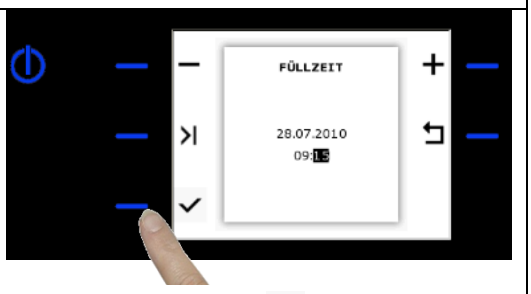
The display shows: Date today: .....
The system always suggests the next day as the next start of filling.
If the time is OK, you can leave the dishwasher in this state.



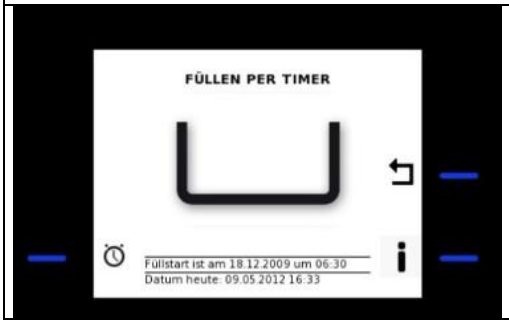
If the time is not OK, press ⏲.



Enter the required date and time. Press the +/- button to change the value in the selected field. Then press ⏭ to move to the next field. For example: 28.07.2010, 9:15 hrs



Now press the button ✓.

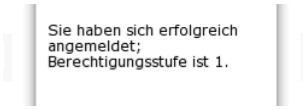


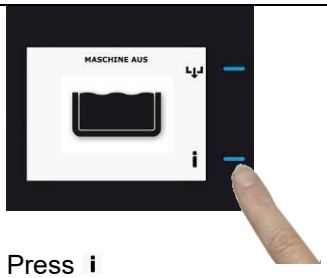
You can read the time for the "Timer-driven filling" start point in the display.
If the time is OK, you can leave the dishwasher in this state.

8.5 Weekly program *(weekly programming for automatic filling)*

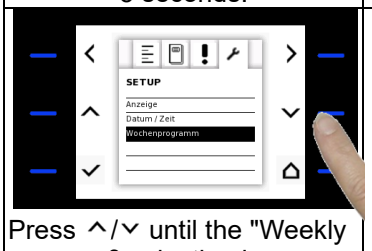
You can program up to 3 times for each weekday.
Only the activated times are taken into consideration when you enable "Timer-based autofill". When you select "Timer-based autofill", the next time is determined and output as a suggestion. This can be a time later on the same day, or a time the day after tomorrow because the next day is left out. If no time has been enabled or released, the suggested time is the next day, and the last time to be selected.
You can always modify the suggested value. The status is kept on Power Off/On.

You need to login with user level 1 for the "Weekly program" settings (see the section "Reversing the belt"):

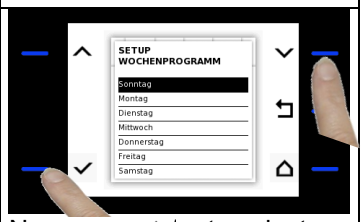
<table>
<tr>
<td>After entering the code, the following appears in the display:


The following appears after 5 seconds:</td>
<td>

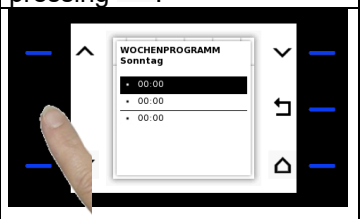
Press i</td>
<td>

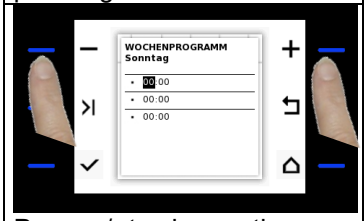
Press ‹/› until the "SETUP" item is displayed.</td>
</tr>
<tr>
<td>

Press ^/v until the "Weekly program§ selection is highlighted.</td>
<td>

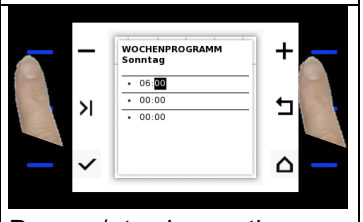
Confirm by pressing ✓.</td>
<td>

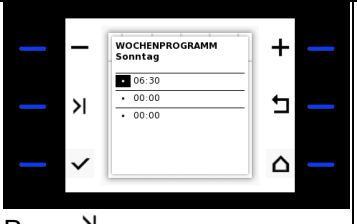
Now press ^/v to select the desired day. Confirm by pressing ✓.</td>
</tr>
<tr>
<td>

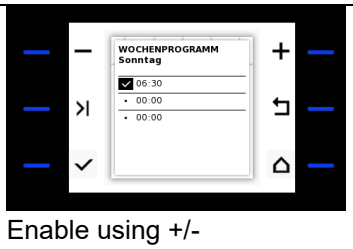
Pressing ^/v enables the desired time. Confirm by pressing the ✓ button.</td>
<td><u>Always:</u>
›| Moves the cursor by 1 position.
Key +/- change value
✓Key: Make a selection/Confirm/Apply</td>
<td>

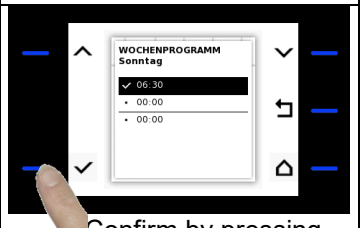
Press ›|</td>
</tr>
<tr>
<td>

Press +/- to change the hour.</td>
<td>

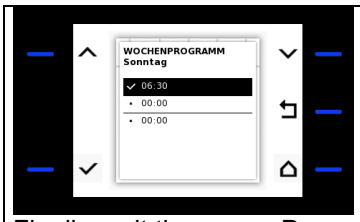
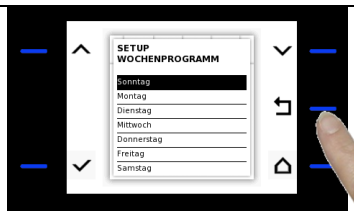
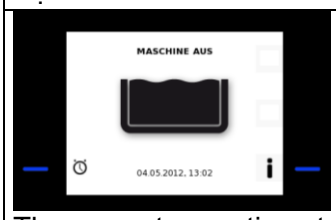
Press ›|</td>
<td>

Press +/- to change the minute.</td>
</tr>
<tr>
<td>

Press ›|</td>
<td>

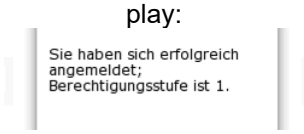
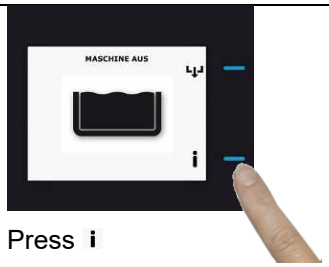
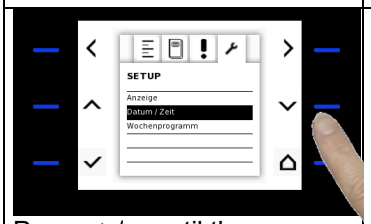
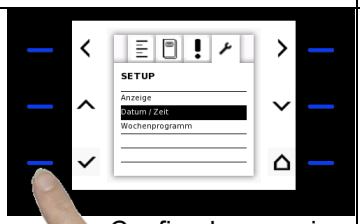
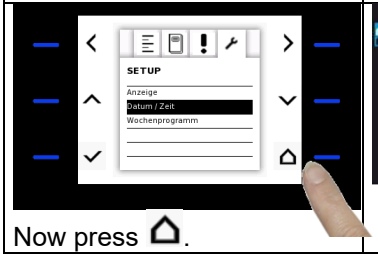
Enable using +/-</td>
<td>

Confirm by pressing .</td>
</tr>
<tr>
<td colspan="3">The confirmed time is now active. You can now set the next time.</td>
</tr>
</table>

 Finally, quit the menu. Press ↩.	 Press ↩	 Press ⌂
 The current operating status appears in the display.		

8.6 Date and time

You need to login with user level 1 for the "Date/Time" settings (see the section "Reversing the belt"):

After entering the code, the following appears in the display:  The following appears after 5 seconds:	 Press i	 Press ‹/› until the "SETUP" item is displayed.
 Press ^/v until the "Date/Time" selection is highlighted.	 Confirm by pressing ✓.	 Press the ›I key to move the cursor to the next position. Pressing the +/- lets you increase or decrease the value. After implementing the changes, press ✓. This stores the new date/time.
 Now press ⌂.		

9 Option GiO-TECH

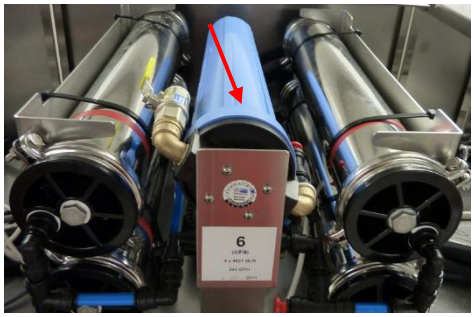
9.1 Building requirements

- Conductivity max. 1000µS/cm
- Water hardness max. 3 °dH
- Inlet temperature min. 1 °C ... max. 25 °C
- Free of particles > 10 µm
- Iron < 0.1 mg/l
- Manganese < 0.04 mg/l
- Chlorine < 0.1 mg/l
- Potassium permanganate < 10 mg/l
- Silicic acid < 10 mg/l
- For flow pressure refer to the installation plan

9.2 Pre-filter replacement

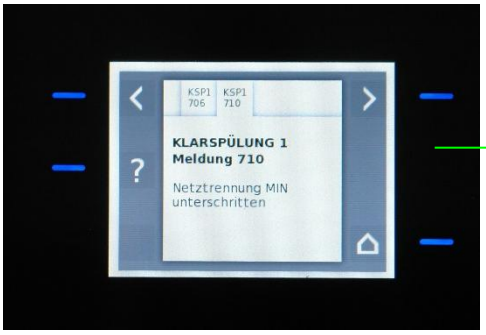
The pre-filter cartridge should only be replaced by an authorised service partner or an experienced technician.

The pre-filter cartridge used for the pre-filter in the GiO-TECH module must be **replaced** every 6 months at the very latest!



9.3 Troubleshooting / Maintenance

If the water treatment plant does not produce enough water, this will be indicated via info message 790 in the display.



If the message is in effect for 15 seconds, the system will switch to bypass operation.



Water treatment inactive. Caution! Operation without osmosis water.



If an acknowledgment option is not available in the form of a checkmark on the display, it means that no water is available on-site or that the on-site water supply is blocked by a closed stop cock. When the on-site water supply is available again, the water treatment plant can be reactivated (see image to the left). If this is not the case, please inform the appropriate service representative.

If the minimum level is raised above the bypass line (error 706/710 no longer present), then the GiO-Tech can be started up again. Acknowledge the error.

9.4 Maintenance

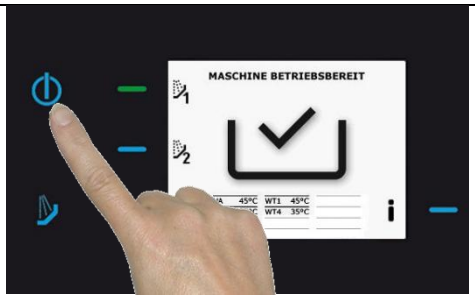
The GIO TECH water treatment plant is maintained in line with an annual maintenance procedure and/or when the maintenance indicator is displayed after 1000 operating hours.

9.5 Downtime

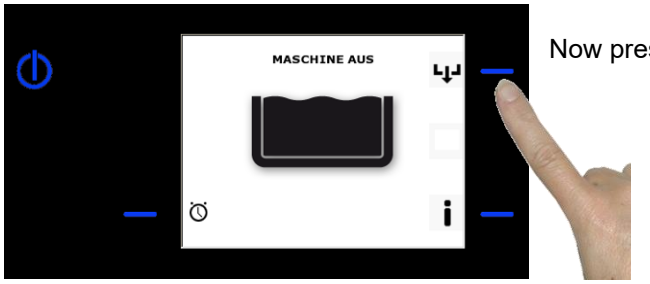
Downtime:	activity	
0-6 weeks	No action necessary	**Membranes are defined as a "wear part"!**
6-12 weeks	Controlled commissioning after downtime by an authorised service partner	
> 12 weeks	Professional removal and conservation of the membranes by an authorised service partner. Controlled commissioning after downtime by an authorised service partner	

10 Shutting down the appliance

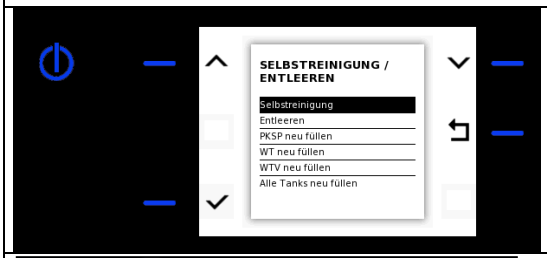
This appliance must be shut down at the end of operations or if the premises in which it is located are not regularly under surveillance by staff!



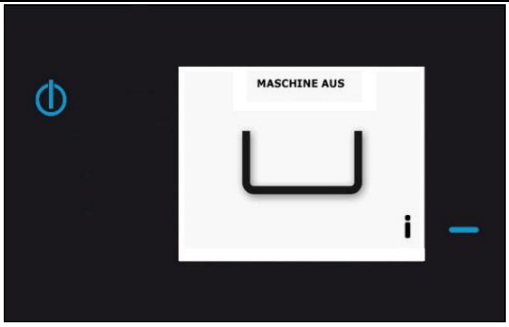
Press the "on-off “ button to switch off the dishwasher.



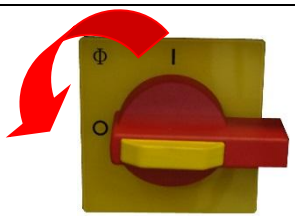
Now press ↵.



Select and confirm the desired option.



Following the drain "MACHINE OFF" appears on the display.

 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.

11 Cleaning

11.1 Safety instructions for cleaning

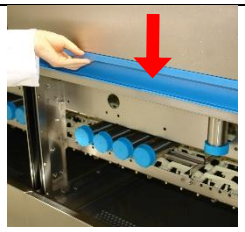
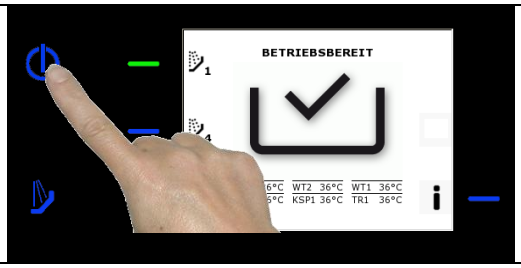


The tank heating elements may still be hot after the tank has been emptied. There is therefore the danger of burns when the machine is cleaned manually.

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

11.2 Self cleaning/Draining the dishwasher

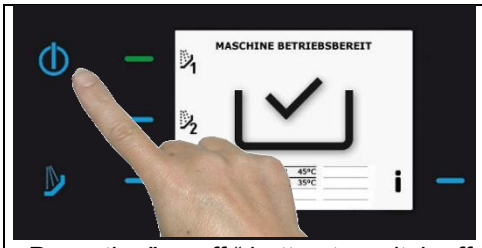
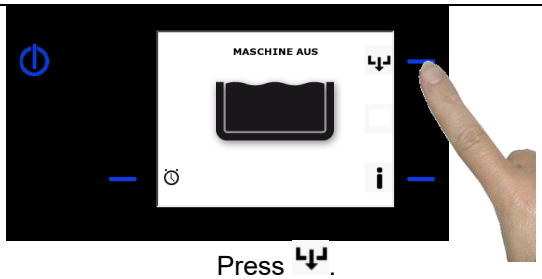
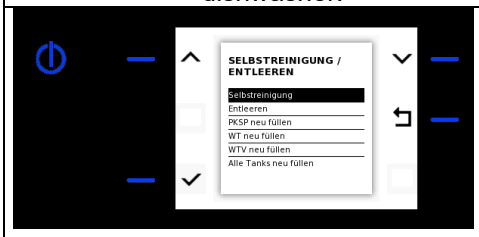
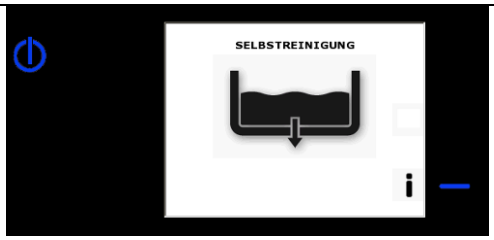
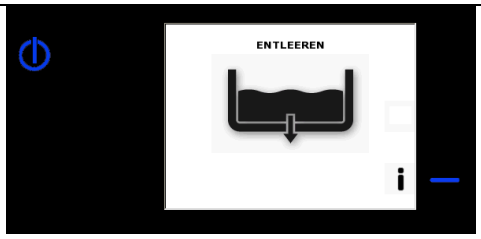
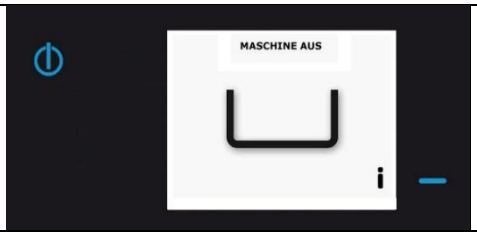
The precondition for draining / self cleaning of the dishwasher is,
that all doors and covers are closed and the machine is switched off!

 Close all the doors and flaps.	 Switch off the machine.

Self cleaning program
First of all, the pre-clearing tank is drained. Then the content of the individual tanks is transferred, the tanks are cleaned and drained, until the whole machine has been drained.

Draining
Pressing the "Draining" button drains all the tanks.
For best possible efficiency, the heat recovery system is regularly and automatically cleaned at the same time.

Always follow this approach:

 Press the "on-off " button to switch off the dishwasher.	 Press ↵.
 When "Self cleaning" appears, press ✓.	 Self-cleaning is then performed.
..... or.....	
 Press the blue arrow key till you reach "Draining" and then press ✓.	 All the tanks are emptied.
..... or.....	
	After the self cleaning or draining procedure has been completed, the display shows "MACHINE OFF.

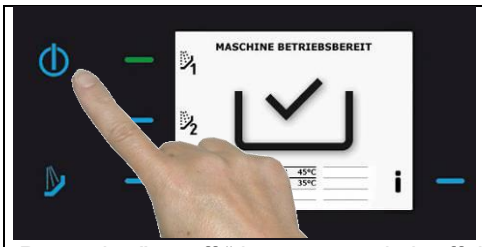
The following options are supported for interim, partial or complete fast draining with automatic refilling of all the tanks:

PAR (Pumped auxil. rinse) refilling
If the dishwasher is heavily soiled, you can drain and refill the pump rinse agent during a break between cleaning.
A single filling of pump rinsing agent will completely clear the soiling.

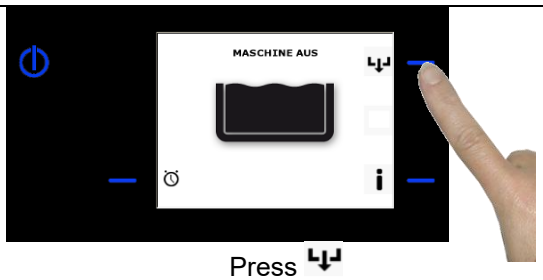
Refill WT
This drains and refills all wash tanks.

Refill WTV
This drains the pre-clearing tank and refills all tanks.

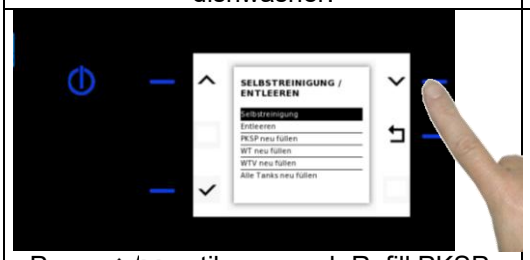
Refill all tanks
This drains all the tanks on the dishwasher, pre-clearing tank, washing tanks and pump rinse tank, and refills all tanks.



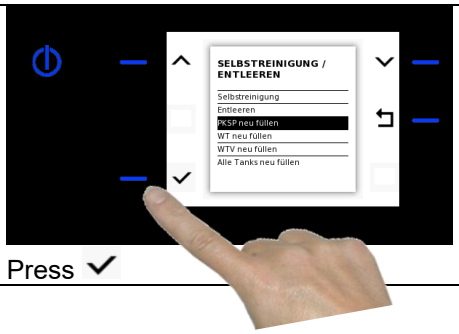
Press the "on-off “ button to switch off the dishwasher.



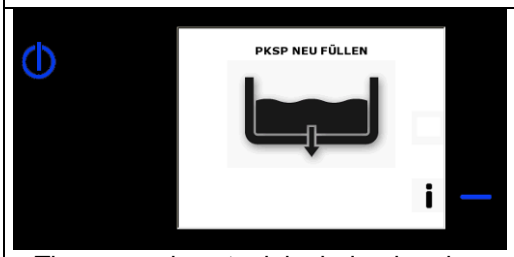
Press ↳↲



Press ^/v until you reach Refill PKSP.



Press ✓

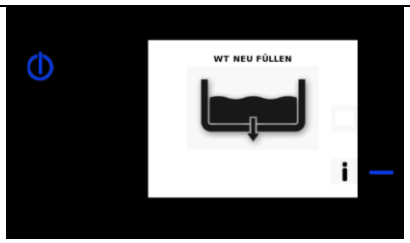


The pump rinse tank is drained and re-filled.

.....or.....



Press ^/v until you reach "Refill WT", and then press ✓.

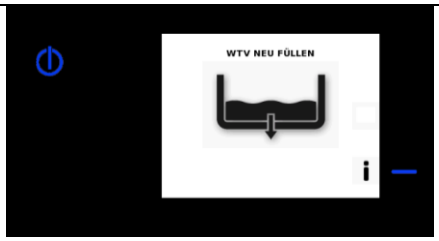


This drains and refills all the wash tanks.

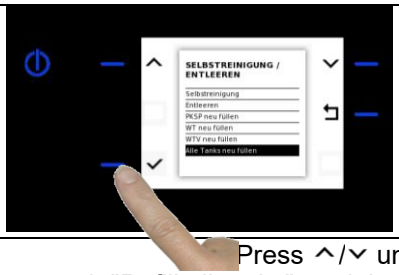
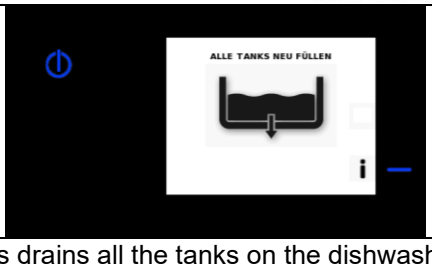
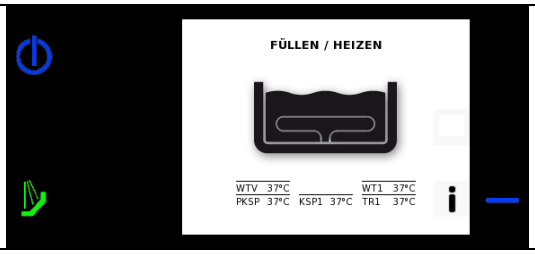
.....or.....



Press ^/v until you reach "Refill WTV", and then press ✓.



This drains the pre-clearing tank and refills all tanks.

.....or.....	
	
Press ^/v until you reach "Refill all tanks", and then press ✓.	This drains all the tanks on the dishwasher, (pre-clearing tank, washing tanks and pump rinse tank), and refills all the tanks.
After complete draining of the selected tank, the machine starts automatically via:	

11.3 Cleaning instructions – daily



Switch off the machine.



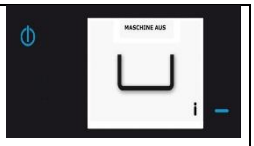
Press



Confirm the self cleaning option



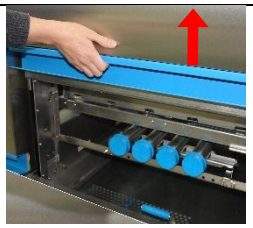
The tanks are emptied.



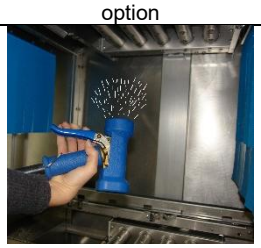
The machine is emptied and switched off.



Lightly spray off the opening of the heat recovery in order not to bend the blades.



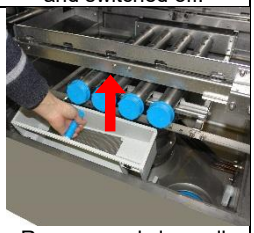
Open the doors.



Spray the machine's internal chamber.



Remove the tank cover screens.



Remove and clean all screen baskets.



Clean all screen baskets.



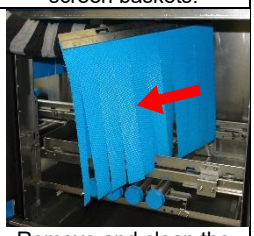
Clean the inner chamber.



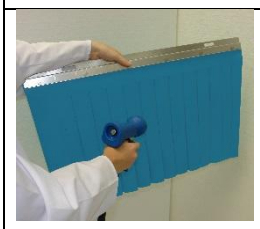
Remove all the tank outlet valve.



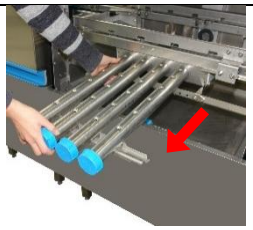
Clean all the tank outlet valve.



Remove and clean the spray protection curtains.



Remove and clean the spray protection curtains.



Remove all wash systems an rinse arms.

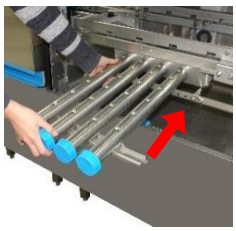


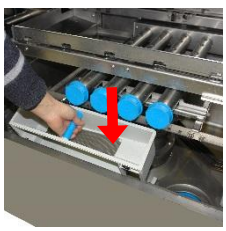
Remove and rinse arms and nozzles. Use a nylon brush to clean the jets. Check that the wash arms and end caps are complete and water-tight.



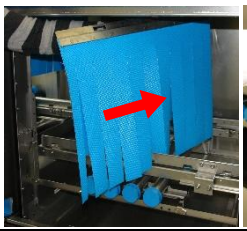
Clean all tank cover screens.

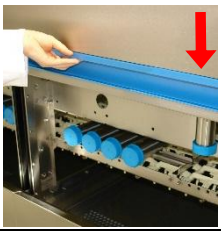












When you have cleaned the machine, replace all the parts; check that you have replaced them all and that they are in the correct position.
Check that all parts are **present and in the correct** position!tank cover screens.

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



IMPORTANT!!!

Ensure that all wash arms end caps sit properly fixed after the inserting of the washing system! Check that all end caps are water-tight.

11.4 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.

11.5 Check list after cleaning

After cleaning the machine ensure that all parts have been replaced correctly.
Check that the following parts are present and in the correct position:

- Tank cover screens
- Screen baskets
- Rinse pipes
- Pump rinse pipes
- Curtains
- Check that the correct number of wash pipe end caps is present

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

11.6 Dosing of the detergent/rinse agent

The quantity of detergent needed to be added into the wash tank or wash tanks is the quantity of detergent that ensures that all dishes etc leave the dish-washer in a clean condition.

It is impossible to give information on quantities here as the quantity depends on:

- the dosing system (liquid, powder, block, spray; etc.)
- the amount of soiling
- the drying time
- the preheating (of the dishes, for example)
- the quantity of starch present
- the water quality
- the type of detergent used (a disinfecting detergent or otherwise, etc.)

There can also be differences between one chemical supplier and another.

The quality of the finished dishes can also be influenced by the speed of the machine's conveyor.
We recommend that you ask your chemical supplier to regulate the quantity settings on the machine.

11.7 Descaling the machine

Rinsing with very hard water (for example caused by seasonal variations in water hardness or by improper maintenance) can cause ugly scale deposits in the machine which, apart from the unattractive appearance of the rough, white deposits, have almost no influence on the wash quality.

However, the lime-scale deposits on the wash tank heating elements and in the rinse water flow heater are much more serious. An excessively thick layer on the heating element acts as a thermal insulator and so prevents the transfer of heat from the heating element into the water. As a result the heating element overheats and burns out.

Lime-scale deposits can be removed with special scale removal products (ask your chemical supplier). However, these products contain acid and are very aggressive. They should therefore not be used too frequently and must on no account be used in a too high concentration as they can attack and destroy not just the lime-scale deposits but also other parts of the machine.

When carrying out this work the Instructions for Use and the Hazard Warnings for the lime-scale remover must be strictly observed.

After removing lime-scale, the machine MUST be thoroughly flushed out and emptied to ensure that all residues from the lime-scale remover have been neutralised. The machine should then be refilled and allowed to run for at least 15 minutes.

12 Tips for self-help in the case of faults

Fault:	Remedy
Machine does not fill.	• No water available • Dirt trap blocked • Level electrode / float valve soiled • Solenoid valve defective
Rinse water does not spray!	• No water available • Dirt trap blocked • Solenoid valve defective • If the appliance has automatic water conservation, the conservation grid switch / timing switch is defective • Pump for pumping water from the machine cistern broken down • Fresh water rinse system furred • Built-in reverse osmosis installation broke down
Vapours drains!	• Extraction broke down • Curtains missing • Temperatures too high • Wash arms, drying nozzles, air guide plates bent or not correctly inserted
Stripes and smears on the dishes!	• Rinse water mineral content too high (see operating instructions) • If this is observed only at particular times, check water softener for regeneration. This must not carried out during the dishwashing operation. • Water pre-treatment defective or not carried out • Different water type depending on the waterworks • Unsuitable rinse aid products or wrong dosage quantity • Incorrectly fitted or missing curtains • Oversize containers previously washed. Oversize containers previously washed causing detergent to be transferred into following tanks. • Too fast conveyor speed
Formation of a significant amount of foam in the wash tank!	• Detergent for dish-washing by hand enters the wash tank because of pre-cleaning the dishes • Daily cleaning of the machine is carried out with foaming cleansing agents which afterwards enter the machine. • Improve pre-wash, as too much food residue is entering the tanks Alternatively, empty wash tanks between uses. Alternatively, empty wash tanks between uses. • Rinse water quantity too low • Detergent or rinse aid product not suitable • Temperatures too low < 40°C

13 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 **Activity**	Trained operating personnel	Authorised company tradesman	Authorised service technician
Installation and assembly			◆
Commissioning			◆
Operation, use	◆	◆	◆
Cleaning	◆	◆	◆
Check safety devices		◆	◆
Troubleshooting		◆	◆
Troubleshooting, mechanical		◆	◆
Troubleshooting, electrical		◆*	◆
Maintenance		◆	◆
Repairs		◆	◆

*trained electrician.

The instructions must be acknowledged in writing.

14 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.

14.1 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.

14.2 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.

When disposing of the old appliance, the battery contained in the control system must be removed and disposed of separately.

15 Noise level

See „Regulations and Standard Values“ for noise levels in the workplace.

16 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).

17 Regulations and Standard Values

Standards referred to, important standards, regulations and Institutions:

DIN 10510	Commercial Dish-Washing With Multi-Tank Conveyor Dish-Washing Machines
DIIN 10512	Commercial Dish-Washing With Single Tank Dish-Washing Machines
DIN 1988	Technical Rules For Drinking Water Installations
DIN 1717	Protection Of Drinking Water Against Contamination – Safety Equipment
DIN 2052	Technical Equipment For Kitchen Atmospheres
DVGW	German Gas and Water Industry Association http://www.dvgw.de

VGG The Industrial Dish-Washing Association http:// www.vgg-online.de)

Water quality limits as determined by the Industrial Dish-washing Association
Total hardness: up to 3 °dH

Chloride content	Max. 50 mg/l water (to avoid pitting corrosion in low alloy cutlery steels)
Heavy metals	0.1 mg iron and 0.05 mg manganese per litre of water should be regarded as the maximum. As little as 0.05 mg copper per litre of water can lead to discolouration of the dishes and the dish-washer.
Total salt content	Max. 400 µS/cm (related to porcelain and opal glass) Max. 100 µS/cm (related to glass) Max. 80 µS/cm (related to stainless steel) (measured by conductivity).

Machine temperatures set out in DIN 10510 and DIN 10512

	Without disinfectants	With disinfectants
Pre-wash	40°C - 50°C	
Detergent circulation tank	60°C - 65°C	55°C - 65°C
Pumped water rinsing	60°C - 70°C	
Clean water rinsing	80°C - 85°C	

Control media for valves:

Pressures	Min. 350 kPa (3.5 bar), max. 600 kPa (6 bar) (no pressure surges)
Usage of one control valve per switching operation	Approx. 0.01 litres at 300 kPa (3 bar)

Noise level:
The determination of the sound power level from the sound pressure measurement took place in accordance with the enveloping measurement surface method on the basis of DIN EN ISO 3744, accuracy class 2, with a measurement uncertainty of +/- 1.5 dB.

Workplace related sound pressure level

LpA ≤ 80dB

18 Maintenance

Regular maintenance is a prerequisite for the long-term reliable and safe operation of a warewashing machine. Maintenance which is neglected or improperly carried out increases the residual risk of unforeseen damage to property and persons, for which no liability will then be assumed.
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.

18.1 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!

18.1.1 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".

18.1.2 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!

19 Maintenance manual

The clean solution

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Customer

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Machine's serial number: **Current hours of operation:**

PLEASE NOTE: Maintenance work should **only** be conducted by authorised MEIKO personnel.
Whenever any electrical components are disconnected and reconnected, replaced or repaired, a safety test must be conducted, at least on these components!!!

Maintenance work	CHECKED	CLEANED	REPLACED	**Maintenance requirement**
1. Error memory				
Check error memory for unusual events				at least once a year
2. Wash pumps and pump rinse system				
Visual inspection of motor and air vents				at least once a year
Replace the slide ring seal in the following tank modules (cross out those which are not applicable) WTPZ / PR / WT3 / WT 2 / WT 1 / TD 1 / TD 2				every 5000 hours or 2 years
3. Wash tanks, washing systems and pump rinse system				
Functional and visual inspection of the washing systems and fixtures				at least once a year
Visual inspection of rubber seal for ascending pipe - washing systems				at least once a year
Replace rubber seal for ascending pipe - pump rinse system				at least once a year
Clean air trap insert				at least once a year
Visual inspection of drain filter, rubber seal				at least once a year
Visual inspection of filters, M-filters				at least once a year
Visual inspection of door guides, roller springs				at least once a year
Replace roller springs				After 10,000 door operations or 5 years
4. Drying				
Visual inspection of motor and air vents				at least once a year
Clean the installation space of the heating element, fan wheel and fan wheel housing				at least once a year
Clean the heat exchanger for steam heating				at least once a year
Clean the air nozzles and intake vents				at least once a year
5. Heat recovery / air duct				
Clean the exhaust fan and heat exchanger				at least once a year
6. Clean water rinse system				
Visual inspection of nozzles, spray arms, spray arm locks				at least once a year
Replace rubber seal for ascending pipe - fresh water final rinse system				at least once a year
Fresh water final rinse module				
Visual inspection of network separation pump, ventilation grilles and leak tightness				at least once a year
Check the Min and Max float switches in the network separation tank				at least once a year
Check the float valves in the network separation tank				at least once a year
Clean the dirt trap on the fresh water final rinse module				at least once a year
Visual inspection of the rinse aid dosing unit inside the machine for leaks				at least once a year
7. Equipment area				
Clean the dirt trap on the water inlet				at least once a year
Visual inspection of leak tightness				at least once a year
8. Transport				
Visual inspection of drive motor and air vents				at least once a year
Visual inspection of transport links for completeness and operational smoothness				at least once a year
9. M-Filter				
Visual inspection of leak tightness and suction				at least once a year
10. Bypass line from PR to WTPZ / wastewater				

Maintenance work	CHECKED	CLEANED	REPLACED	**Maintenance requirement**
Check the hose coupling and connections for leaks				at least once a year
11. Functional inspection of the overall machine				
Check filling and heating processes up to operational readiness				at least once a year
15 min test run with M-Commander, check I/O record				at least once a year
Check limit stop for dishes				at least once a year
Visual inspection of the overall machine for leaks				at least once a year
Visual inspection of cables under the machine				at least once a year
Check power consumption of all electric heating elements (see elect. circuit diagr.)				at least once a year
Switch cabinet fan (functional inspection)				at least once a year
Check fan equalisation openings (e.g. top of machine not covered)				at least once a year
Check the functionality of the fan in the electric cabinet of the fresh water final rinse module				at least once a year
Check the functionality of the exhaust air motor				at least once a year
Check the functionality of the bypass line solenoid valve				at least once a year
Check the functionality of the rinse arm in the heat recovery unit				at least once a year
12. Transport system				
Check the functionality of the conveyor belt or basket transport system for trouble-free operation				at least once a year
Test mechanical overload cut-off				at least once a year
13. Options				
Integrated reverse osmosis system (if present)				
Visual inspection of the entire system for leak tightness				at least once a year
Change pre-filters and complete a separate test report				at least once every 6 months
Steam/hot water pump installation (if present)				
Check the primary pressure in the equalising tank when the system is cold				at least once a year
Replace the slide ring seal on the hot water pump				every 3000 h
Check the installation for leaks				at least once a year
Check system pressure according to specifications (manometer plate)				at least once a year
Air Cool (if present)				
Visual inspection of leak tightness for water circulation and plate heat exchanger				at least once a year
Check hose pump for air dosage of level control system				at least once a year
14. Water quality, temperature				
Filling: ____ °C ____ [°dH] ____ µS /cm ____				at least once a year
PR: .....°C / WT3: .....°C / WT2: .....°C / WT1: .....°C / TD 1: .....°C / TD 2: ….°C				
KSP 1: ____ °C ____ [°dH] ____ µS /cm ____ L/h				at least once a year
KSP 2: ____ °C ____ [°dH] ____ µS /cm ____ L/h				at least once a year
15. Electrical safety check (certificate is optional)				
Carry out the visual inspection				at least once a year
Check the protective earth conductor				at least once a year
Insulation resistance measurement				at least once a year
Measure current on protective earth conductor				at least once a year

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Place, date: Authorised technician:

The clean solution

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