MEIKO
The clean solution

UPster K

Rack type dishwashing machine

Original operating instructions

Read the manual before using the product!

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List of tables

1 Notes on the manual

This manual is part of the operating instructions for this product. The related documents are also part of the operating instructions.

The operating instructions must be read before first use, kept for future reference and be accessible at all times. Failure to observe the operating instructions may result in damage to persons and property.

This manual can be downloaded at the following addresses: ➦ *www.meiko.com* or ➦ *https://partnernet.meiko-global.com.*

1.1 Scope of applicability

This manual applies to the following machine types:

UPster K

- K-S 160
- K-S 200-S
- K-S 200
- K-M 250-S
- K-M 280
- K-L 340

1.2 Related documents

In addition to this manual, there are other documents that are available depending on the authorisation.

Included in the scope of delivery for the operating company:

- EC/EU declaration of conformity
- Quick-start guide
- Wiring diagram
- Supplier documentation, if applicable

For MEIKO authorised service technicians:

- Dimension sheet
- Installation instructions for optional components
- Service manual

1.3 Illustration

1.3.1 Warning notices

Warning notices in this manual have a standardised structure and are differentiated according to the severity of the hazard.

⚠ DANGER

Type and source of danger

The warning notice draws attention to a hazard with a high degree of risk which, if ignored, will result in death or serious injury.

⚠ WARNING

Type and source of danger

The warning notice draws attention to a hazard with a medium degree of risk which, if ignored, can result in death or serious injury.

⚠ CAUTION

Type and source of danger

The warning notice draws attention to a hazard with a low degree of risk which, if ignored, can result in minor to moderate injuries.

NOTICE

Type and source of danger

A notice draws attention to a possible danger which, if ignored, can lead to material damage to the product or to equipment in the surrounding area.

1.3.2 Info

Info

This section draws attention to important or useful information about the product or its use.

1.3.3 Markup elements

The following markup elements are used in this manual for emphasis.

Symbol	Description
▶	Requirement to be met for a subsequent action instruction
1.	Numbered action steps of an action instruction
➡	■ Intermediate result of an action step ■ Result of an action instruction
■	A preceding square indicates a bullet point in a list
[ ]	Terms in square brackets indicate keys, soft keys and buttons on touchscreens
(1)	Round brackets in the text with a number refer to position numbers in an associated figure
Italic text	Texts shown on the display are labelled in italics in the manual. These include, for example: ■ Operator messages ■ Warning messages ■ Error messages ■ Status indicators

Tab. 1: Markup elements

1.3.4 Illustrations

The illustrations contained in this document are not necessarily true to the original or to scale. The illustration may be schematic in nature and may deviate from the original, e.g. due to modifications to the product, but without diminishing the facts or comprehensibility.

2 Declaration of conformity

This section reproduces the content of the EC/EU Declaration of Conformity for the product. The signed EC/EU Declaration of Conformity with serial number is enclosed with the product.

We hereby declare under our sole responsibility the conformity of the product with the essential requirements of the following EC Directive:

- 2006/42/EC, Machinery Directive, OJEU L157/24, 09/06/2006

Furthermore, we declare the conformity of the product with the following EU directives:

- 2014/30/EU, Directive on Electromagnetic Compatibility, OJEU L96/79, 29/03/2014
- 2011/65/EU, Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, OJEU L174/88, 01/07/2011
- The safety objectives set out in the Low Voltage Directive 2014/35/EU (OJEU L96/357, 29/03/2014) were met in accordance with Annex I, No. 1.5.1 of the Machinery Directive.
- 2014/53/EU Directive on the placing of radio equipment on the market

Responsible for documentation:

Jan Ernst, MEIKO Maschinenbau GmbH & Co. KG, Englerstraße 3, D-77652 Offenburg

Responsible person:

Christoph Homburger, Head of Production and Technical Department, CTO MEIKO Group

3 Safety

3.1 Intended use

This section describes the purposes for which and the conditions under which the product may be used in accordance with the manufacturer's specifications. These specifications must be adhered to in order to ensure safe operation and a long product service life.

The machine is intended exclusively for commercially washing dishes, cutlery, trays, glasses, kitchen utensils, baking trays and containers.

The machine is intended exclusively for the commercial washing of pots, kitchen utensils, baking trays, containers and beer mugs.

The washware must be suitable for use in commercial dishwashers and the associated stress caused by high temperatures and cleaning chemicals.

Suitable cleaning chemicals and their dosing must be agreed with the chemical supplier.

The machine may only be operated by trained personnel.

Only operate the machine when it is in perfect working order.

Only operate the machine within the limits specified in the ambient conditions.

Only use original spare parts from the manufacturer. This is the only way to guarantee perfect function and safety.

The machine is not authorised for operation in a potentially explosive environment.

Setup, installation, repair and connection of an external dosing system may only be carried out by authorised specialists or by the dosing system supplier. This must not impair the safety of the machine. Other changes or conversions are not permitted.

3.2 Foreseeable misuse

This section provides information on misuse that experience has shown can occur even though it does not correspond to the intended use. These specifications must be adhered to in order to avoid accidents, damage to the product and possible hazards to persons.

The following is a list of unauthorised uses of the machine:

- Washing electrical appliances
- Washing textiles

- Washing living creatures
- Washing or preparing food
- Washing items that must not come into contact with foodstuffs, such as ashtrays, candlesticks or similar
- Washing objects made of wood
- Washing ferrous objects that can corrode or cause corrosion, such as steel sponges, gratings and the like
- Washing parts made of aluminium. Aluminium may only be cleaned with a suitable detergent
- Washing objects that have come into contact with hazardous substances (health hazards, in particular toxic, highly or extremely flammable and explosive substances).
- Pre-cleaning the washware with hand dishwashing detergent
- Filling the machine from an external source
- Disposing of dirty water from cleaning buckets via the machine
- Standing or sitting on machine parts or using the machine as a climbing aid

3.3 Safety notices

The product has been manufactured in line with the state of the art and the established safety regulations and standards. Nevertheless, its use may result in functional hazards for the user or other persons. Therefore, read and observe the following safety notices before using the product.

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.

- Block off the danger zone and mark it for third parties.
- Remove unauthorised persons from the danger zone.
- Only qualified persons should perform work on and with the machine.
- Keep the working areas of the machine clear.
  ➦ *Chapter 4.8 ‘Workstations’ on page 43*

Unqualified personnel can cause serious injuries and considerable damage to property!

If unqualified personnel carry out work on the machine or are in the working area, hazards arise that can cause serious injuries and considerable damage to property.

- Make sure that only trained and experienced personnel operate the machine.
- Make sure that staff learning to use the machine are supervised by a trained and experienced operator at all times.
- Clearly define the staff's responsibilities.
- Observe the personnel qualifications specified in this manual.
- Confirm training in writing.

Wear suitable clothing!

Loose clothing increases the risk of being caught or wound up on rotating parts and the risk of getting caught on protruding parts. This can severely injure people.

- Wear fitted clothing.
- Take off rings, necklaces and other pieces of jewellery before starting work.
- If your hair is long, wear a hairnet.
- Wear sturdy shoes or safety footwear.

Wear personal protective equipment!

Missing or unsuitable personal protective equipment increases the risk of health effects and injury to people.

- Define and provide personal protective equipment for the respective application.
- Only use personal protective equipment that is in proper condition and provides effective protection.
- Adapt personal protective equipment to the person, e.g. size.

Personal protective equipment includes, for example:

- Protective gloves
- Safety shoes
- Safety glasses
- Protective clothing

Hot surfacesand hot wash water!

Tank heating and wash water become hot during operation. Contact with hot surfaces and hot wash water can cause scalding and burns.

- Allow the machine to cool down some minutes before working inside.
- Wear protective gloves when working in the interior of the machine.

Formation of germs during prolonged downtime!

If the machine is not used for a longer period of time, harmful germs can form in the water pipes.

- Wash the pipes thoroughly when recommissioning and after prolonged downtime to prevent the formation of germs.

Poisoning and chemical burns due to chemicals!

Contact with detergent, rinse aid and descaler can cause severe skin and eye irritation. Ingestion can lead to poisoning.

- Observe the safety data sheet and safety notices of the chemical manufacturer.
- Wear protective gloves and safety glasses when handling rinse aid and detergent.
- Do not confuse detergent and rinse aid.
- Do not drink the water from the machine or use it to prepare foodstuffs.
- Clean removed hoses and machine parts that come into contact with chemicals using fresh water.

Risk of slipping due to leakage of liquids!

Puddles may form on the floor due to liquid leaking. There is a risk of slipping!

- Be careful when there is an accumulation of liquids.
- Immediately remove any liquids on the floor.
- Always wear suitable safety shoes.

Keep safety devices in working order!

If safety devices are missing or damaged, people can be seriously injured or killed.

- Replace damaged safety devices immediately.
- If the safety devices are damaged, shut down the machine.
- Never tamper with, bypass or deactivate safety devices.
- Assemble dismantled safety devices and other parts before commissioning and move them into the protective position.

Make sure safety labels and signs remain legible!

Safety labels and signs on the machine provide warning of hazards at danger points and are important components of the machine's safety equipment. A lack of safety labels and signs increases the risk of serious and fatal injuries to people.

- Clean soiled safety labels and signs.
- Damaged and unrecognisable safety labels and signs must be replaced immediately.

Electric shock due to live parts!

Live parts are freely accessible when the housing parts are open. Touching live parts can lead to serious electric shocks and injure or kill people.

- Have work on the electrical system carried out by a MEIKO authorised service technician or a qualified specialist workshop.
- Before opening housing parts, always switch off the main switch and secure it against being switched back on.
- Have damaged insulation and components of the electrical system repaired immediately.
- Have damaged power cables replaced immediately.
- When connecting with a mains plug, the mains plug must always be freely accessible.

3.4 Safety devices

Emergency stop button

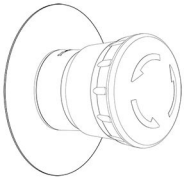


Fig. 1: Emergency stop button

Pressing the emergency stop button immediately interrupts the power supply to motors and units. After the cause of the fault is eliminated, unlock the emergency stop button by turning it. The emergency stop button must be easily accessible and free of obstacles at all times.

Door sensor

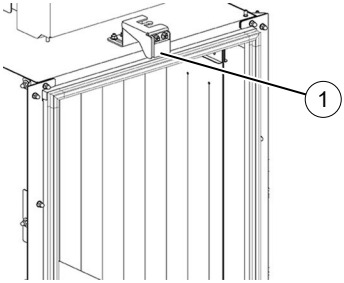


Fig. 2: Door sensor

The door sensor (1) is located on the upper door frame. The door sensor recognises whether the door is closed or open. Washing operation is paused when the door is open. When the door is closed, the washing operation must be restarted.

3.5 Safety labels and signs

3.5.1 Description of the safety labels

This section describes the safety symbols on the safety labels affixed to the product.

Symbol	Description
	Warning of electrical voltage
	Do not touch

3.5.2 Positions of the safety labels

This section shows the positions of the safety labels affixed to the product.

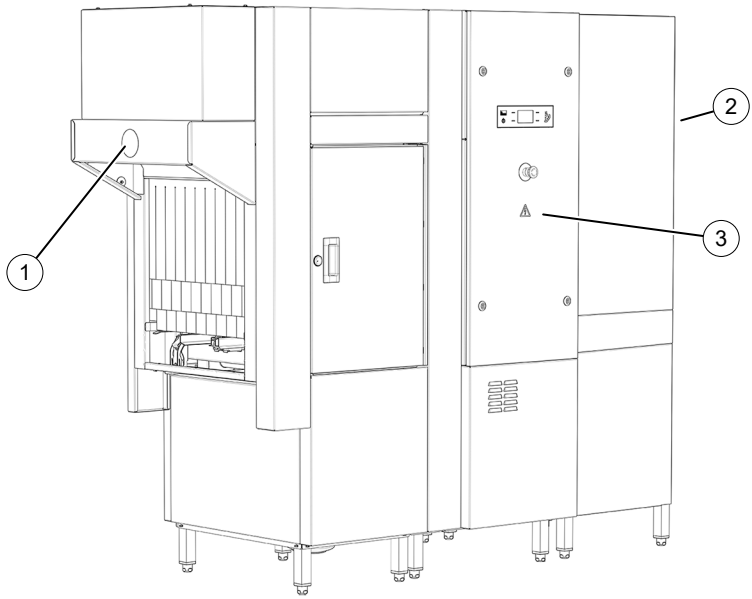


Fig. 3: UPster K safety labels

Item	Safety labels
1	
2	
3	

3.6 What to do in the event of an emergency

Press the emergency stop button in dangerous situations. Then disconnect from the mains using the main switch provided on site.

3.7 Personnel qualification

This manual specifies the qualifications of the persons listed below for the various tasks:

Carrier

The carrier may transport the machine / system. The carrier must be qualified for the safe transport of sensitive loads.

Kitchen management

The kitchen management is authorised to carry out all the same work as the operating personnel. In addition, the kitchen management is authorised to make adjustments to the machine / system. The kitchen management must have been trained by MEIKO or instructed by the operator, provided that this ensures the described qualification.

Operating personnel

The operating personnel may switch the machine / system on and off, operate it in automatic operation, clean it and, if necessary, carry out simple maintenance work as described in the manual. The operating personnel must have been trained by MEIKO or instructed by the operator, provided that this ensures the described qualification. The operating personnel must be older than 14 years.

Service technician

The service technician is authorised to set up, connect and commission the machine, rectify mechanical faults, carry out certain maintenance work and decommission the machine. The service technician must have completed relevant professional training that qualifies them to carry out the work.

The service technician must be qualified as an electrician to work on the electrical equipment. For the purposes of this definition, a qualified electrician is someone who, on the basis of their technical training, knowledge and experience as well as knowledge of the relevant regulations, is able to assess the work assigned to them, carry it out in accordance with the electrical regulations and recognise potential hazards.

4 Product description

4.1 Delivery contents

The delivery contents include:

- UPster K rack type dishwashing machine according to order
- Racks for washware according to order
- Key for washing system cover caps
- Documentation
- Wiring diagram in the control cabinet

4.2 Functional description

This machine is a rack type dishwashing machine for dishes, containers and common kitchen utensils. Tables or conveyors can be put on the feeding or discharge side of the machine for loading and unloading racks. The dishes to be cleaned are placed in racks and transported through the dishwashing machine. Depending on the version, the dishwashing machine consists of different zones through which the washware passes.

Blue operating concept

All elements that are blue or light up blue can be touched, operated or removed. Elements that can be removed by operating personnel for cleaning or service purposes, for example, have a blue handle or are made of blue plastic.

4.3 Structure

4.3.1 Overview

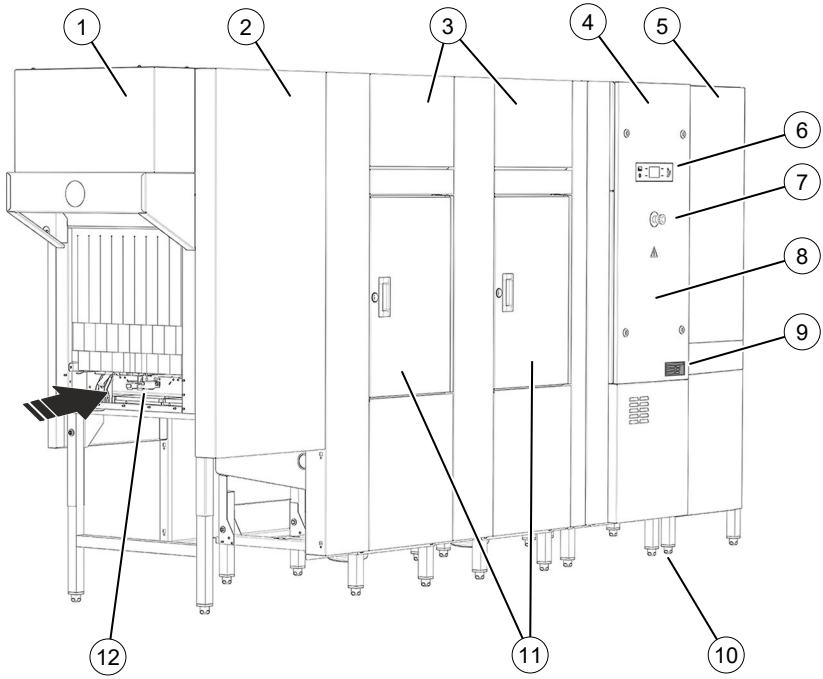


Fig. 4: Overview UPster K (illustration shows options and expansion variants)

1 Exhaust air heat recovery system (option)
2 Feeding zone, depending on machine type
3 Wash tanks, 1 or 2, depending on machine type
4 Discharge tunnel with final rinse
5 Drying (option)
6 Glass operating panel
7 Emergency stop button
8 Control box
9 Type plate position
10 Adjustable machine feet
11 Doors
12 Feeding section

4.3.2 Feeding zone

The washware enters the feeding tunnel via the feeding section. There, the washware is sprayed with water from the wash pipes of the mechanical pre-washing system and coarse food waste is removed. Depending on the machine type, there may be mechanical pre-washing in the feeding tunnel.

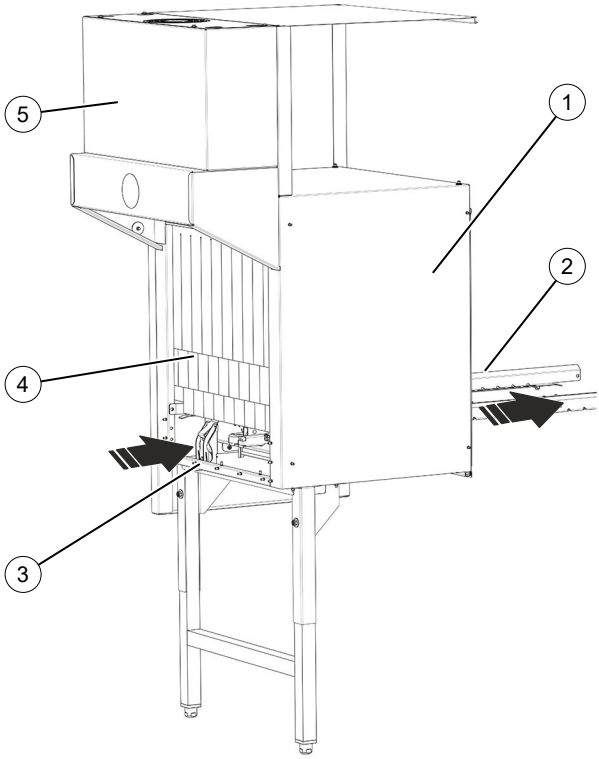


Fig. 5: Feeding zone

1 Feeding tunnel (depending on variant)
2 Rack transport system
3 Feeding section
4 Curtain
5 Heat recovery

4.3.3 Wash tank

The washware is washed in the wash tank. Depending on the model, the machine is equipped with one or two wash tanks.

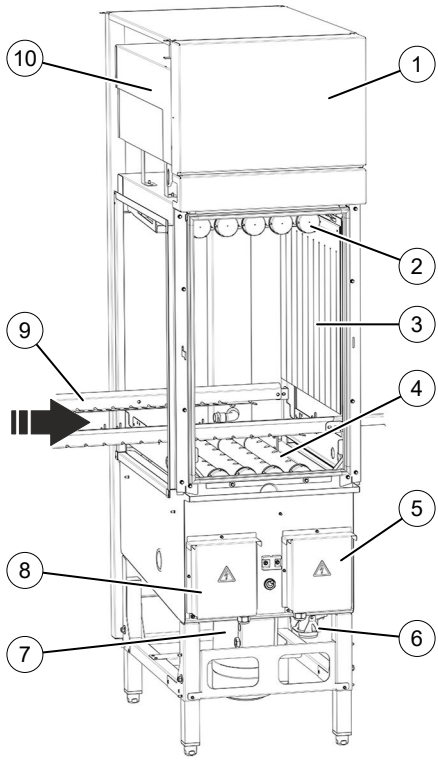


Fig. 6: Wash tank

1 Booster heater power electronics
2 Upper washing system with 5 wash pipes
3 Curtain
4 Lower washing system with 4 wash pipes
5 Additional tank heating (option)
6 Waste water connection
7 Wash tank
8 Tank heating
9 Guide rails
10 Power electronics of the tank heating

4.3.4 Discharge tunnel

The racks with the cleaned washware are transported out of the machine in the discharge tunnel. The fresh water final rinse removes any remaining detergent and promotes quick and stain-free drying. Depending on the version of the machine, there may also be a pump final rinse before the fresh water final rinse.

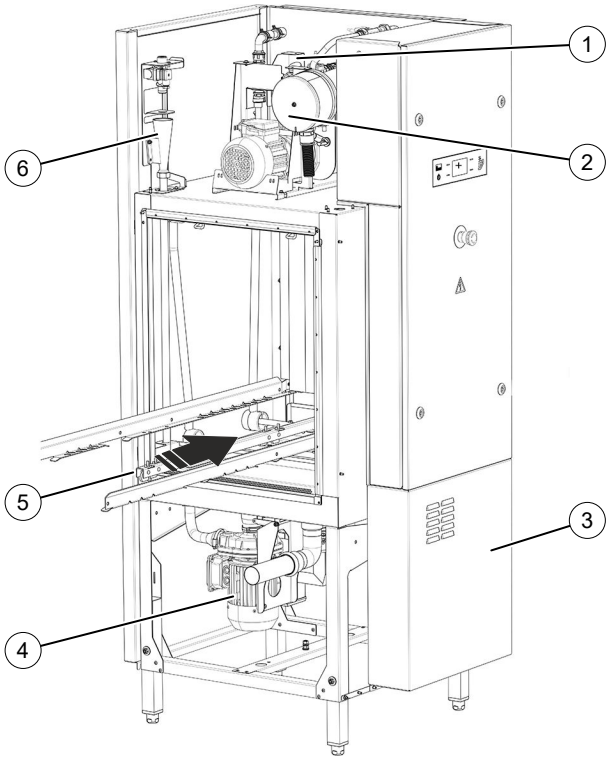


Fig. 7: Discharge tunnel

1 Backflow preventer
2 Booster heater
3 Housing
4 Pump final rinse
5 Rack transport carriage
6 Additional tank filling (option)

4.4 Connections

4.4.1 Fresh water connection

After it is switched on, the machine's wash tanks are filled via the fresh water connection and the fresh water final rinse. During operation, clean fresh water is supplied to the machine, which is used for the final rinse.

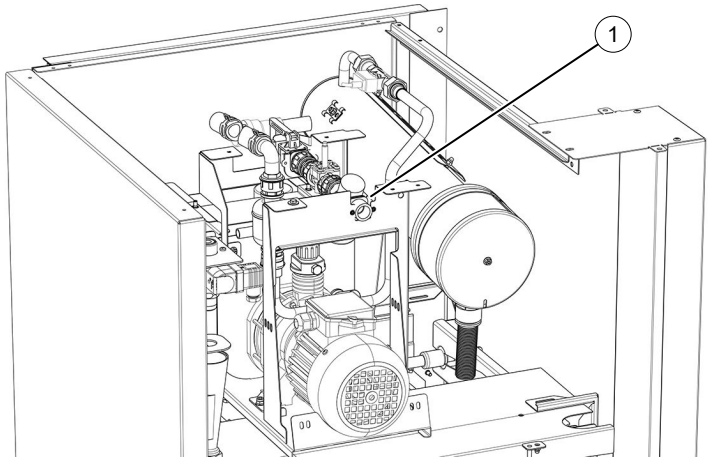


Fig. 8: Fresh water connection G¾

The fresh water connection (1) is located above the discharge tunnel.

4.4.2 Waste water connection

The machine disposes of dirty water via the waste water connection.

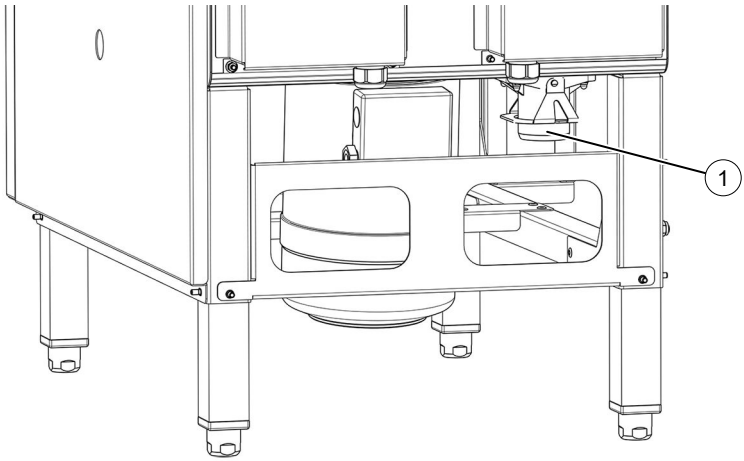


Fig. 9: Waste water connection DN 50

The waste water connection (1) is located on the underside of the first wash tank.

4.4.3 Electrical connection

The electrical connection is located in the control box. The power cable is fed into the control box from below. Refer to the wiring diagram for further information.

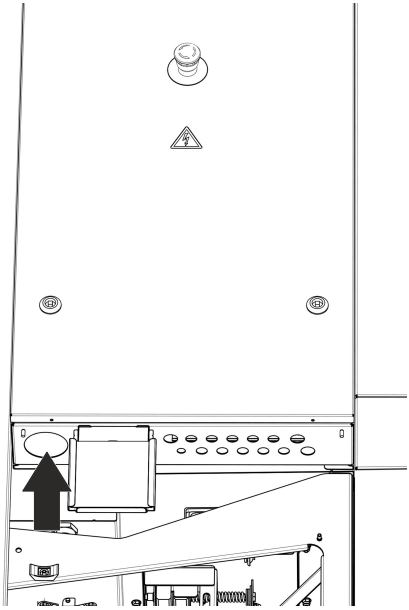


Fig. 10: Feed-through for electrical mains connection cable

4.4.4 Equipotential bonding

The equipotential bonding must be connected before commissioning.

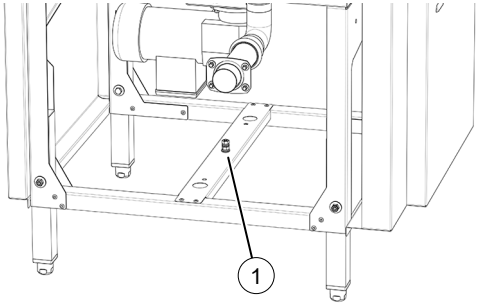


Fig. 11: Final rinse tank

The connection for equipotential bonding (1) is located under the discharge tunnel.

4.4.5 Steam supply connections (option)

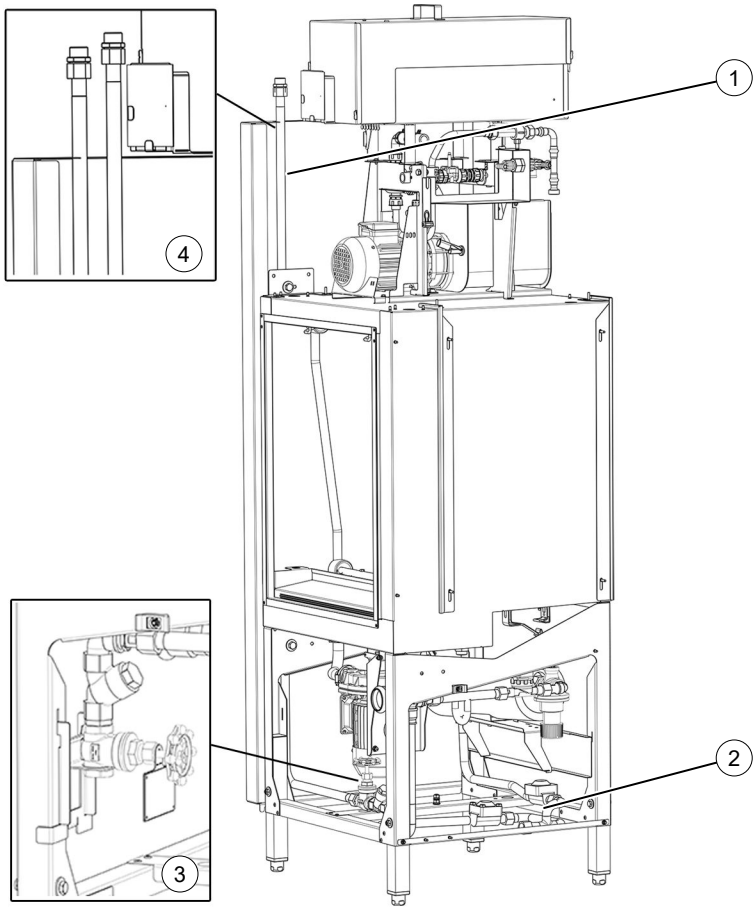


Fig. 12: Steam supply and condensate pipe in the discharge tunnel

1 Top steam supply variant, ¾ "
2 Bottom condensate pipe variant, ¾ "
3 Bottom steam supply variant, ¾ "
4 Top steam supply and condensate pipe variant, ¾ "

4.5 Glass operating panel

4.5.1 Display

The machine is operated via a glass operating panel with a touch-sensitive surface. The display in the centre of the glass operating panel shows the machine's operating status and functions that can be called up via function keys.

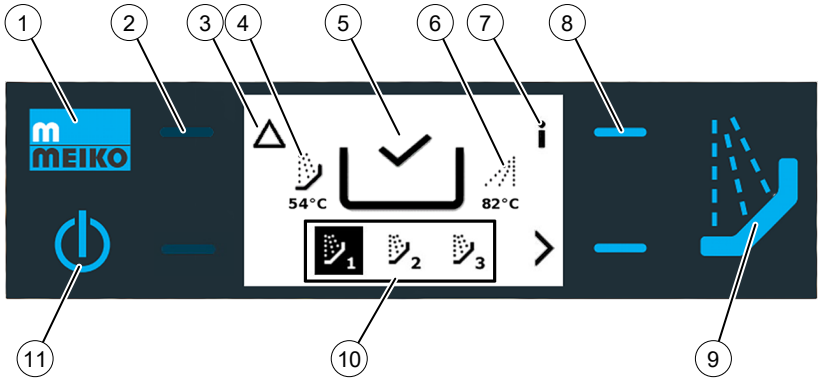


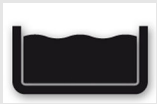
Fig. 13: Glass operating panel

Item	Name	Meaning
1	**[Service access]** key (**[MEIKO]** key)	■ Activate display (wake-up). ■ Call up service mode (approx. 3 s).
2	Function key	Dark: no function can be selected.
3	Messages	 ■ Indicates that one or more messages are pending. ■ The messages can be displayed using the function key.
4	Wash temperature	The current wash temperature is displayed.
5	Status indicator	The current operating status is displayed.
6	Final rinse temperature	The current final rinse temperature is displayed.
7	i-menu	 Call up the i-menu.
8	Function key	Bright: select the displayed function.
9	**[Start washing operation]** button	■ Illuminated blue: The machine is ready for operation. Washing operation can be started. ■ Flashing green: The wash tank is being filled and heated. ■ Illuminated green: Washing operation in progress.
10	Programme selection	 Programme 1, active here
		 Programme 2

Item	Name	Meaning
		 Programme 3
11	**[On/off]** key	■ Start *'FILLING/HEATING'*. ■ Switch off the machine.

Tab. 2: Indicators and buttons

4.5.2 Status symbols

Symbol	Status	Meaning
	*'MACHINE OFF'*	The machine has been switched off and the tanks are drained.
	*'MACHINE OFF'*	The machine is switched off, the tanks are full. The machine is not heating.
	*'FILLING'*	Tanks are being filled.
	*'FILLING/HEATING'*	■ Tanks are being filled. ■ The water is heated to operating temperature.
	*'HEATING'*	■ Tanks are filled. ■ The water is heated to operating temperature.
	*'READY FOR OPERATION'*	■ Minimum filling quantity and operating temperature have been reached. ■ Washing operation can be started.

Symbol	Status	Meaning
	*'MACHINE WASHES'*	Washing operation in progress.
	*'INFEED BREAK'*	If there is no rack in the machine during washing operation, the machine stops. The pumps are switched off. As soon as a rack with washware passes the rack detection, the washing operation starts again.

4.5.3 Navigation symbols

Display	Meaning
 	Navigate to the left or right in the selection.
 	Navigate up or down in the selection.
 	Increase or lower value by 1.
	Select next position.

Display	Meaning
	Confirm selection.
	Jump back one level without applying changes.
	Display start screen.

Tab. 3: Navigation symbols

4.5.4 i-menu

Display	Designation and meaning	Authorisation
	Select display language.	1
	Suction system	-
	Pre-washing Display of: ■ Temperatures ■ Water level ■ Heating status	-
	Wash tank 1/2 Display of: ■ Temperatures ■ Water level ■ Heating status	-

Display	Designation and meaning	Authorisation
	Final rinse Display of: ■ Temperatures ■ Flow rate ■ Heating status	-
	Drying 1/2 Display of: ■ Temperatures ■ Heating status	-
	Transportation Display of: ■ Limit switch status ■ Washware detection system status	-
	Operational times Display of: ■ Last maintenance ■ Next maintenance ■ Operational times since ■ Total time ■ Runtimes of pumps, heaters and fans	-
	Consumption Display of: ■ Total water consumption ■ Fresh water final rinse water consumption	-
	Operating log Display archived operational times and events.	-
	General Display software version, machine serial number and machine type.	-

Display	Designation and meaning	Authori-sation
	Global Change settings: ■ Bluetooth communication ■ Restricted operation	1
	Setup Change settings: ■ Units of measurement ■ Date/time ■ Weekly programme	1
	Network (option) Display of network information	-

Tab. 4: i-menu

4.6 Detergent and rinse aid

4.6.1 Detergent

Detergents are alkaline (pH value should be > 7) and are needed to dissolve soiling from the washware. The standard setting is 2 ml of detergent per litre of tank water. If necessary, the concentration can be adjusted depending on the water quality, washware and degree of soiling. The dosing is set during commissioning by a MEIKO authorised service technician or by the chemical supplier.

4.6.2 Rinse aid

Rinse aids are acidic (pH value should be between 2 and 7) and accelerate the drying of the washware by reducing the surface tension of the water so that it can run off the washware quickly. The correct dosage is achieved when the water drips evenly from the washware and depends on the available water quality on-site. The dosing is set during commissioning by a MEIKO authorised service technician or by the chemical supplier.

4.6.3 Dosing units

The components of the dosing units are subject to high demands and must therefore be regularly maintained and, if necessary, replaced in accordance with the maintenance specification. The service life of the dosing units and other components of the machine depends on the use of suitable chemical products.

MEIKO recommends MEIKO ACTIVE detergent and rinse aid. MEIKO ACTIVE products are optimally adapted to the machine.

4.6.4 Suction lances

Suction lances suck the liquid chemical product out of the canister in the set dosing quantity. The suction lance is inserted vertically into the canister. If the suction lance is equipped with a level monitor and the contents of the canister are almost empty, a message appears on the machine display.

4.7 Options

4.7.1 Drying system

The drying system is connected to the final rinse in the direction of transport. The rack with the washed dishes is transported through the drying system. In the drying system, a fan blows heated air over the washed dishes and accelerates the drying process. The rack with the washware is then discharged via the discharge section. The drying system is available in three discharge variants.

With the double drying system option, two drying systems are connected in series.

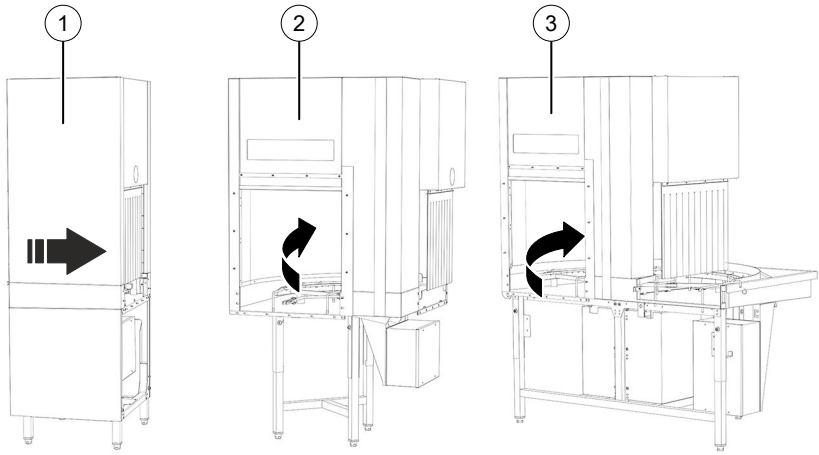


Fig. 14: Drying system variants

1 Straight drying system (TR600)
2 90° corner drying system (TR90)
3 180° corner drying system (TR180)

4.7.2 Exhaust air heat recovery

Heat recovery ensures a better indoor climate in the warewashing area and helps to save energy. The heat recovery system works with a heat exchanger that extracts energy from the warm exhaust air and uses it to heat the wash water. The exhaust air heat recovery is located above the feeding section.

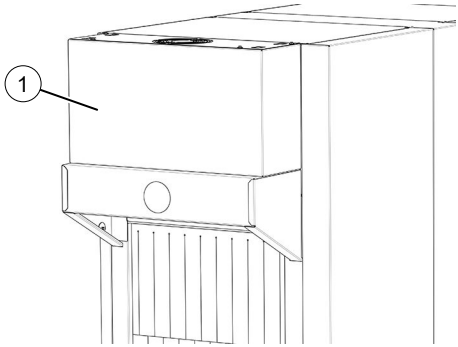


Fig. 15: Exhaust air heat recovery

The exhaust air heat recovery (1) is available in the following versions:

- Suction duct without fan for external connection of a suction system.
- Suction duct with fan.

- Exhaust air heat recovery with heat exchanger.
- Exhaust air heat recovery with heat exchanger and exhaust air connection (USA and Mexico only).

Heat recovery only with fresh water temperature < 25°C!

If the fresh water temperature exceeds 25°C, heat recovery with a heat exchanger will no longer work. Therefore, if the fresh water temperature is > 25°C, it is not possible to install a heat exchanger.

4.7.3 Dosing

The machine works with detergent and rinse aid. A suitable dosing system can be installed on the machine.

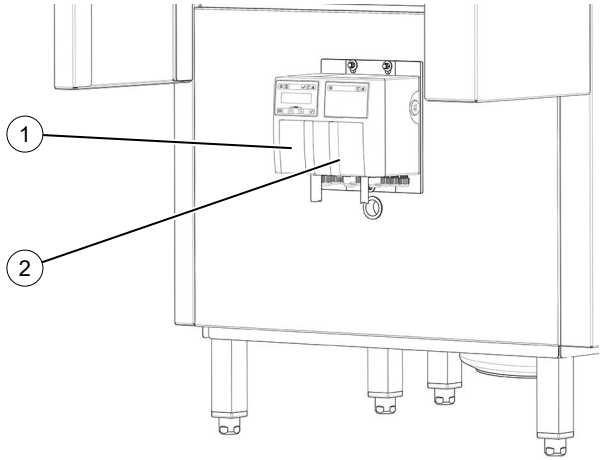


Fig. 16: Dosing system

The attachment points for installing the dosing system are located underneath the feeding section. The detergent dosing unit (1) and the rinse aid dosing unit (2) use suction lances to transport detergent and rinse aid from the respective canister. The canisters can be placed next to the machine under the table.

Installation of dosing technology!

The dosing technology must be installed by authorised, specialist personnel or by a qualified dosing system supplier.

4.7.4 Solid substance dosing

Dosing unit for dosing block-shaped solid detergents depending on the electrolytic conductivity.

The solid, block-shaped dishwasher detergent is fed from the storage tank through a hose line into the wash tank of the dishwashing machine. This is done by spraying the detergent block with hot water according to the conductivity setting of the dosing unit in the storage tank and feeding the rinsed-out regenerate into the wash tank.

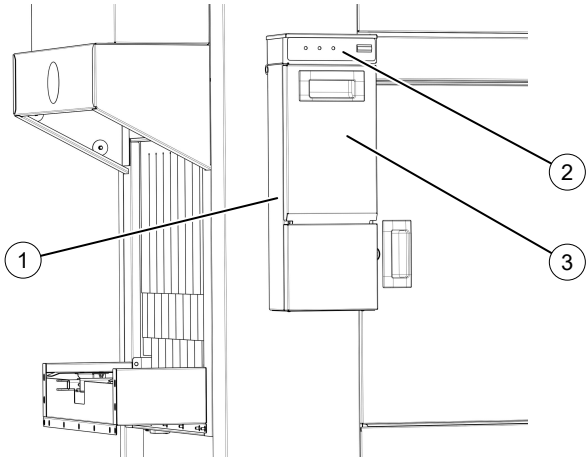


Fig. 17: Solid detergent dosing unit

1 Solid detergent dosing unit
2 Display elements
3 Flap with handle

Observe the supplier documentation!

The product contains components from suppliers for which the respective manufacturers have their own technical documents. These are part of the product documentation and must be observed in order to guarantee permanent and safe operation.

4.7.5 Additional tank filling

Additional tank filling with separate fresh water connection. This means that the tanks are filled directly with fresh water when the machine is filled, without having to go through the fresh water final rinse. The machine is ready for use more quickly. A solenoid valve switches off the fresh water supply when the required fill level is reached.

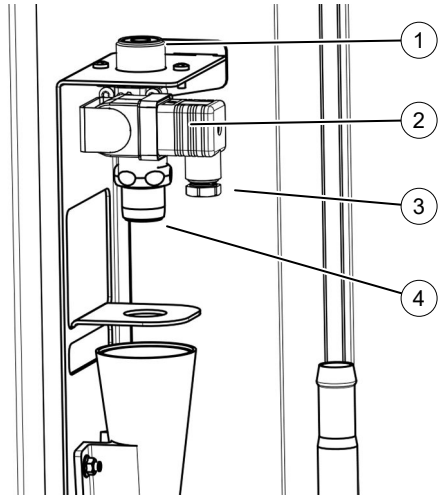


Fig. 18: Additional tank filling

1 Fresh water connection G¾
2 Solenoid valve
3 Signal cable connection
4 Air gap with perlator

4.7.6 Slide rails for glass racks

Slide rails for glass racks are additional slide rails (1) that support the transport of racks measuring 600 x 400 mm through the machine.

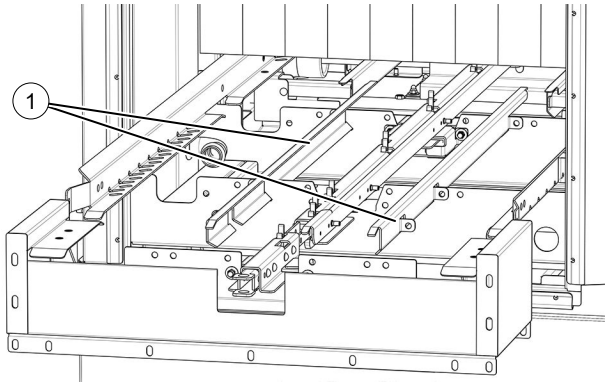


Fig. 19: Slide rails for glass racks

Slide rails for glass racks can only be combined with straight drying system TR600!

The use of glass racks measuring 600 x 400 mm cannot be combined with the TR90 and TR180 drying system variants.

4.7.7 Table limit switch

The spring-loaded table limit switch (1) is located at the end of the roller table. If the racks being transported out of the machine are not removed from the roller table, they are pushed to the end of the roller table by subsequent racks and activate the table limit switch there. The dishwashing machine transport stops. The current cycle is completed, then the pumps and fan are switched off. The dishwashing machine starts automatically as soon as the racks are removed and the table limit switch is released.

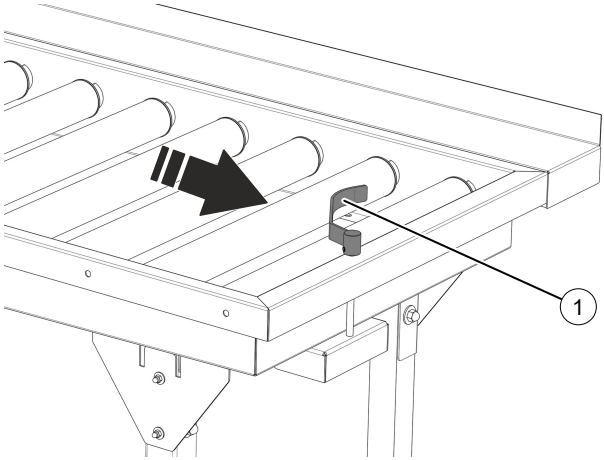


Fig. 20: Roller table with table limit switch

4.7.8 Steam heating

Instead of electric heating, the rinse water in the heat exchanger is heated via an on-site steam supply. The wash tank continues to be heated electrically. Depending on the variant, the connections for the steam supply and for the condensate pipe are located above or below the discharge tunnel. ➦ *Chapter 4.4.5 ‘Steam supply connections (option)’ on page 28*

4.7.9 Additional tank heating

An additional tank heating system heats the wash fluid in the wash tank up to 62°C. This gives the machine more performance to wash cold washware without losing temperature in the wash tank.

4.7.10 Performance optimisation system

The machine is optionally equipped with a connection for an on-site performance optimisation system.

Energy optimisation can switch off the heating of the boiler and tank as required. A connected, on-site performance optimisation system sends the control signals to the machine.

The energy optimisation function is set by an authorised service technician.

The following settings are available:

- Inactive
- Boiler only
- Boiler and tank

If the machine performs a teach-in run to adjust the boiler temperature control, active energy optimisation is briefly interrupted so that the full heating performance is available for the adjustment.

Use of a performance optimisation system provided on site

According to the EN 17735 hygiene standard, an uninterrupted energy supply is required for proper operation of a dishwashing machine. Use of an on-site performance optimisation system is not permitted in accordance with EN 17735, as switching off water heaters leads to temperature reductions and it cannot be guaranteed that the washing and hygiene result will be achieved.

4.7.11 Thermolabel

Thermolabel is a disinfection process using moist heat. The machine heats the wash water to 71 C to kill germs. An additional tank heater is installed for this purpose. The efficacy of the disinfection can be tested using a measurement strip, the Thermolabel.

Caution with regular washing at elevated temperatures!

Regular washing at elevated temperatures can lead to glass corrosion and premature detachment of decorations.

4.7.12 BlueVision

BlueVision is software for PCs or Macs that can be used to save and display the functions and operating sequences of dishwashing machines connected to a computer.

- BlueVision displays the recorded hygiene data and system-relevant data from the dishwashing machines on the computer.
- BlueVision shows functions and operating sequences of the dishwashing machine as an animated sequence.
- BlueVision analyses and diagnoses the operating states of the dishwashing machines.
- BlueVision records and archives all the details of the operating log required by DIN 10510.
- BlueVision can optionally analyse and display consumption costs.
- Organising weekly programmes.
- Connection to the computer possible via LAN cable and, depending on the machine version, via WLAN.

4.8 Workstations

Depending on the machine version, the operating personnel perform various tasks on the machine:

- Push racks filled with dirty washware into the machine at the feeding section
- Start the programme on the glass operating panel
- Remove racks with cleaned washware at the discharge section
- Clean the machine and removable elements

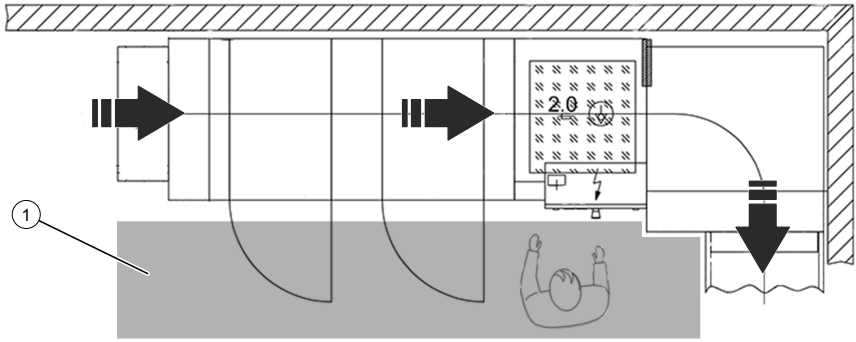


Fig. 21: Operating personnel workstation (e.g. UPster K-M 280 with 90° drying system)

The workstation for the operating personnel is located in front of the machine in the following areas:

- Feeding section
- Wash tank doors
- Control elements
- Discharge section

Keep work areas clear!

The work areas for personnel marked in the illustrations must be freely accessible at all times. No objects may be placed or stored in the work areas.

5 Technical data

5.1 Dimensions and weights

	K-S 160	K-S 200-S	K-S 200	K-M 250-S	K-M 250	K-M 280	K-L340
Length (mm), without drying	1300	1450	1550	1900	2050	2350	2850
Width (mm), with straight drying zone / TR90 / TR180	795/910/1540						
Working height (mm)	850/900						
Height (mm), depending on working height	1900/1950						
Weight (kg)	368	382	400	439	459	559	619
Maximum passing height (mm)	508						
Floor load (kg/cm²)	31						
Tank capacity (l)	80	90	90	90	90	170	170
Rinse water consumption (l/h)	160						
Degree of protection	IPX5						
Protection class	I						
Emission sound pressure level at the workplace LpA according to EN ISO 11204: 2010 (dB(A)) (measurement uncertainty = 2.5 dB)	71.6						

Tab. 5: Dimensions and weights

5.2 Rack capacity

Racks/h	K-S 160	K-S 200	K-S 200-S	K-M 250	K-M 250-S	K-M 280	K-L340
Programme 1	80	95	90	125	115	140	170
Programme 2	100	125	125	150	150	180	210
Programme 3	120	150	150	190	190	210	250

Tab. 6: Maximum washing performance of racks/h

5.3 Ambient conditions

Permissible ambient temperature	5 ... 40 C
Permissible storage temperature	5 ... 40 C
Relative humidity	< 95 %
Permissible height of the installation site above sea level	2000 m

Tab. 7: Ambient conditions

6 Transportation

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Carrier

For more information on the required qualifications, see ➦ *Chapter 3.7 'Personnel qualification' on page 19*.

6.1 Checking the delivery

Personnel: ■ Carrier

1. Check the delivery for completeness using the order confirmation from MEIKO or the delivery note.
2. If parts of the delivery are missing, complain immediately to the forwarding agent and notify MEIKO.
3. Check the delivery for transport damage.
4. If transport damage is visible:
   - Do not accept delivery or accept delivery subject to compensation.
   - Document the damage in the delivery documents, e.g. with photographs.
   - Report the damage in writing to MEIKO. Attach photographs.

   ➡ The delivery has been checked for completeness and transport damage.

6.2 Transport with the lift truck

The machine is securely fixed to a pallet ex works. Larger machines may be dismantled into smaller units and packed on separate pallets for safe transport.

⚠ CAUTION

Risk of crushing due to the machine tipping over!

- Transport work must be performed only by qualified persons.
- Please note safety instructions on the packaging.
- Always transport the machine only on the supplied wooden frame.
- Wear safety shoes.

Personnel: ■ Carrier

Protective equipment:
- Safety shoes

1. Ensure that all components on the pallet are secured against tipping over and falling off.
2. Carefully lift the pallet using the lift truck and transport it to its destination.
3. Set the pallet down at its destination.

➡ The machine was safely transported and can be unpacked.

6.3 Unpacking

For safe transport, the machines are wrapped in protective film ex works and secured to the pallet using packaging straps.

Tool:
- Cutter
- Wire cutter

1. Cut the protective film with the cutter and remove.
2. Cut and remove the straps securing the machine to the pallet with the side cutter.
3. Remove the machine from the pallet.
4. Recycle or dispose of packaging material in accordance with local regulations.
➥ *Chapter 6.4 'Disposal of the packaging material' on page 48*

➡ The machine is unpacked.

6.4 Disposal of the packaging material

All the packaging materials are recyclable. These should be recycled or disposed of in accordance with local regulations.

The following materials are used:

- Wood for pallets
- PE foil
- Foam material
- Cardboard packaging
- Steel strapping for packaging straps
- Polypropylene for packaging straps
- Stainless steel for transport locks

7 Assembly

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Service technician

For more information on the required qualifications, see ➦ *Chapter 3.7 'Personnel qualification' on page 19*.

7.1 On site requirements

This section contains information and specifications on the on-site requirements that must be observed to ensure safe operation of the machine throughout all phases of its life cycle.

7.1.1 Requirements for the fresh water connection

Requirements:

- Fresh water connections must comply with the locally applicable regulations (e.g. DIN EN 1717).
- For Australia/New Zealand: All work must be carried out in accordance with AS/NZS 3500.1!
- From a microbiological perspective, the fresh water must be of drinking water quality; this also applies to treated water.
- Install a shut-off valve locally in each fresh water supply line; the device must be easily accessible for the operating personnel. In addition, the dishwashing machine is equipped with a safety device (e.g. according to DIN EN 61770/DIN EN 1717).
- Keep the on-site shut-off valves of the water supply lines closed until commissioning.
- Flush the on-site pipes, shut-off valves and hoses before connecting them.

Specification	Value
Minimum pressure	250 kPa (2.5 bar)
Maximum pressure	600 kPa (6 bar)
Maximum pressure for Denmark, Norway, Sweden and Finland	1,000 kPa (10 bar)

Tab. 8: Fresh water pressure requirements

The water pressure specifications for the fresh water must be observed. If the minimum flow pressure is too low, increase the pressure using a pressure booster pump. If the pressure exceeds the maximum pressure, limit the pressure using a pressure regulator.

7.1.2 Requirements for the waste water connection

Requirements:

- Waste water connections must comply with the locally applicable regulations (e.g. DIN EN 12056).
- For Australia/New Zealand: The drain hose must be connected so that it is waterproof with a drain fitting in accordance with AS 1589 and AS 2887 and a sanitary waste water pipe or sanitary waste water fitting in accordance with AS/NZS 1260.

7.1.3 Requirements of the electrical system

Electrical connection: Electrical connection must be carried out in accordance with the locally applicable regulations (e.g. HD 60364-1/IEC 60364-1/VDE 0100-100) so the machine can be connected to the mains supply in accordance with the installer's regulations. The appliance is intended for permanent connection to the on-site power supply and the on-site protective equipotential bonding and has been tested accordingly before being brought to market.

For Australia/New Zealand: All work must be carried out in accordance with AS/NZS 3000!

For USA and Canada: The dishwashing machine must be installed in accordance with local regulations. In the absence of any such regulations, the dishwashing machine must be installed in accordance with the applicable requirements of The National Electrical Code, NFPA 70, Canadian Electrical Code (CEC), Part 1, CSA C22.1 and the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96.

Fuse protection and backup protection: Set up the machine according to the local conditions and according to the rated current (see rating plate) as a separately fused circuit (final circuit) so that backup protection is guaranteed. Take note of the available connection variants!

Main switch: If the machine does not have a main switch, install a main switch with all-pole disconnection from the mains in accordance with the installer's regulations in the permanently wired on-site installation. The main switch must be easily accessible for the operating personnel. The contact opening width must correspond to overvoltage category III in each pole.

Mains power cable: Mains power cables, unless part of the standard product scope of supply, must be oil-resistant, sheathed, flexible cables no lighter than a normal polychloroprene-sheathed cable (or other equivalent synthetic elastomer) with the marking 60245 IEC 57. Only use copper as the conductor material!

Electrical safety: The electrical safety of the system is only ensured if the system is connected to a properly installed protective conductor system. It is very important to verify this fundamental safety feature. If in doubt, have the local wiring checked by an electrician. The protective measures and the connection of the equipotential bonding of the system and all its components (tables, feed units, belts) must be carried out in accordance with the local regulations and the requirements of the local utility companies. Refer to the assembly plan for the connection point.

Residual current device: The operator can, acting on its own responsibility, use a mains-side residual current device (RCM or RCD) for personal protection.

- Recommended residual current circuit breaker (RCCB): Type B or Type B+
- To avoid undesired shut-down due to leakage currents, the total leakage currents must not exceed 30% of the rated residual current $I_{\Delta n}$ (DIN VDE 0100-530):2018-06. For this reason, MEIKO stipulates the use of equipotential bonding only.
- In addition to the equipotential bonding, an RCD with $I_{\Delta n}$ = 300 mA can be used for fire protection reasons.

7.1.4 Steam/pumped hot water

All valves, control units and condensate traps required for the connection to the on site steam pipe are installed in the machine.

Requirements:

- For steam pipes from above, provide a condensate trap on site at the lowest point.
- Drain the condensate via a suitable drainage system (e.g. floor drainage) to prevent pressure surges caused by accumulated condensate in the machine.

Factory-fitted discharge condensate trap

If the condensate is drained upwards, a discharge condensate trap (quick drain) is installed in the machine at the factory.

7.2 Aligning the machine

Once the machine has been assembled and set up, it must be aligned.

Personnel:
- Service technician

Tool:
- Flat spanner, 50 mm
- Spirit level

► The machine is assembled and is at its installation site.

1. Use the flat spanner to adjust the machine feet evenly until the machine is aligned in height according to the assembly plan and in the longitudinal and transverse directions. Ensure a flush transition to connected furniture or conveyor belts.
2. Use the spirit level to check the correct alignment and repeat step 1 if necessary.

   ➡ The machine is aligned.

8 Commissioning

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Service technician

For more information on the required qualifications, see ➦ *Chapter 3.7 'Personnel qualification' on page 19*.

8.1 Commissioning the machine

⚠ CAUTION

Risk of injury due to unqualified personnel!

- Only have the machine commissioned for the first time by an MEIKO authorised service technician.
- Only have instruction on the machine carried out by an MEIKO authorised service technician.
- Only use the machine after instruction.

1. Check supplier parts, such as external water handling devices, and proceed in accordance with the supplier documentation.
2. Check that all tools and foreign parts have been removed from the machine.
3. Check whether escaped liquids have been removed. Absorb liquids if necessary.
4. Activate all safety devices.
   ➦ *Chapter 3.4 'Safety devices' on page 17*
5. Observe the "Commissioning certificate for GiO MODULES".
6. Check that all screw connections are tight.

   ➡ The machine can be prepared for operation.

9 Operation/use

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Operating personnel

For more information on the required qualifications, see ➦ *Chapter 3.7 'Personnel qualification' on page 19*.

9.1 Prepare machine

⚠ WARNING

Risk of injury from contact with chemicals!

- Wear safety glasses.
- Wear protective gloves.
- Observe the safety data sheets and dosing recommendations of the chemical manufacturers.
- Do not mix different chemical products.

1. Check that all washing systems, curtains and strainers as well as the flaps at the feeding section and discharge section are correctly installed.
2. Open the water supply.
3. Turn on main switch on site.
4. Check detergent and rinse aid and top up, if required.
5. Check that the suction lances are correctly inserted in the canisters.

   ➡ Once preparation is complete, the machine can be switched on.

9.2 Switch on machine

► The machine is prepared.

1. If necessary, activate the display with the service access key.
2. Press the **[On/Off]** key.

   ➡ The machine is filling and heating up. When the process is complete, the display shows *'READY FOR OPERATION'* and the **[Start washing operation]** key lights up blue.

9.3 Putting in washware

Soak cutlery and kitchen utensils before washing them!

In order to ensure that strongly adhering food waste is removed during washing, cutlery and kitchen utensils should be soaked in water until washing.

1. Remove coarse food waste beforehand, e.g. with a hand spray.
2. Pour leftover drinks into the sink.
3. Place the washware in the racks, paying attention to the following points:
   - Hollow containers must always be loaded upside down, leaving a gap between the hollow containers.
   - If cutlery quivers are used, always insert the cutlery pieces with the handles down.
   - Mix spoons, knives and forks in each cutlery quiver as far as possible, as cutlery of the same type can lie close together.
   - Place trays and dishes into the rack at an angle. The inner surfaces face upwards.
   - Do not stack washware in the rack.

   ➡ The washware is loaded. The rack can be pushed into the machine for washing.

9.4 Reset emergency stop

► The emergency stop button has been pressed.

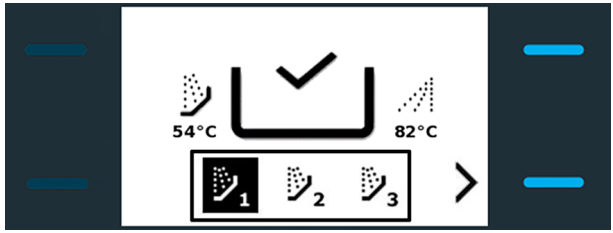
1. Eliminate the reason for the emergency stop.
2. Unlock the emergency stop button by turning it.
3. Check the safety devices for correct condition.

   ➡ The machine is ready for operation. Operation can be restarted.

9.5 Selecting the programme

► The machine is in *'READY FOR OPERATION'* status.

1.



Select the desired programme using the navigation buttons.

➡ The currently selected programme is displayed inverted.

2. Press **[Start washing operation]**.

➡ The programme is selected and washing operation is started. The programme can be changed during washing operation.

9.6 Start washing operation

⚠ CAUTION

Risk of crushing when reaching into a running machine!

- Do not reach into a running machine, neither on the feeding side nor on the discharge side.
- Push the rack only about a third of the way into a running machine until the transport mechanism catches the rack and pulls it in automatically.

► The machine is switched on, the display shows *'READY FOR OPERATION'*.

1. Press the **[Start washing operation]** key.

➡ Washing operation is started with the selected programme, the **[Start washing operation]** key lights up green.

2. Push the rack with washware into the feeding section until the transport mechanism grips the rack and automatically pulls it into the machine.

➡ Washing operation is in progress. The rack with washware is transported through the machine and passes through the various zones. At the discharge section, the rack with the clean washware is pushed out of the machine and can be emptied. Additional racks with dirty washware can be gradually pushed into the feeding section during the wash cycle.

9.7 Pausing washing operation

The current washing operation can be temporarily paused. This switches off the rack transport and the wash pump(s). The tank heating remains active and the machine remains ready for operation.

► Machine washing.

1. Press the **[On/Off]** key.
   ➡ Washing operation is interrupted, the display shows *'READY FOR OPERATION'*.
2. If washing operation is to be reactivated, press the **[Start washing operation]** key.
   ➡ The machine continues to wash, the **[Start washing operation]** key lights up green.

9.8 Filling consumables

9.8.1 Replacing the canister

⚠ WARNING

Risk of injury from contact with chemicals!

- Wear safety glasses.
- Wear protective gloves.
- Observe the safety data sheets and dosing recommendations of the chemical manufacturers.
- Do not mix different chemical products.

If the suction lance is equipped with a level monitor and the contents of the canister are almost empty, a message appears on the glass operating panel.

► A new canister is ready.

1. Remove the suction lance from the empty canister and insert it into the full canister.
2. Confirm the message on the glass operating panel.
   ➡ The canister has been replaced.

9.8.2 Changing detergent product

NOTICE

Failure of the dosing system due to crystallisation of the detergent!

If you switch to a different detergent product (even a different detergent product from the same manufacturer), the detergent in the dosing system may crystallise and the dosing system may fail.

- Always wash the dosing system with hot water before changing the detergent product.

Protective equipment:
- Safety glasses
- Protective gloves, chemical-resistant

Tool:
- 5 litre bucket
- Lint-free cloth

1. Run the machine in washing operation and remove the suction lance from the canister.

   ➡ The old detergent is sucked out of the hose. Duration approx. 1 minute.
2. Fill the container with hot water.
3. Place the suction lance in the container with hot water.

   ➡ The water is sucked into the hose. Duration approx. 1 minute.
4. Remove the suction lance from the container.

   ➡ The water is sucked out of the hose. Duration approx. 1 minute.
5. Wipe the suction lance with a lint-free cloth and insert it into the canister with the new detergent product.
6. Let the machine run for another minute until the detergent has been completely sucked in.

   ➡ The new detergent product can be used.

9.9 Switching off the machine

1. Wait until the last rack has been transported out of the machine and the status *'READY FOR OPERATION'* is displayed.
2. Press the **[On/Off]** key.

   ➡ The machine displays the status *'MACHINE OFF'*.
3. If the machine is switched off during washing operation, it initially shows the *'READY FOR OPERATION'* status. Then press the **[On/Off]** key once more.

   ➡ The machine is switched off. It shows the status *'MACHINE OFF'*.

9.10 Changing water

The wash fluid must be drained at the end of each working day before cleaning the machine. If the wash fluid is heavily soiled and the cleaning result can no longer be achieved, the water can be changed beforehand.

⚠ CAUTION

Danger of burns from tank heating and hot wash water!

The tank heating and wash water may still be hot even after the machine has been switched off.

- Wear protective gloves.
- Allow the machine to cool down some minutes before working inside.

1. Switch off the machine.
2. Open the door and remove the tank cover sieve.
3. Pull the stand pipe out of the tank.

   ➡ The water flows out of the tank.
4. Repeat steps 2 and 3 for other wash tanks.
5. If a pump final rinse is available, pull out the stand pipe of the pump final rinse through the door of the adjacent wash tank.
6. When all the water has drained from the tanks, clean the machine and then replace the stand pipes and strainers. ➦ *Chapter 10 'Cleaning' on page 71*
7. Once all stand pipes and strainers have been inserted, switch on the machine.

   ➡ The machine is filled with fresh water. The display shows *'FILLING/ HEATING'*. The water has been changed.

9.11 Modifying settings

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Kitchen management

For more information on the required qualifications, see ➥ *Chapter 3.7 'Personnel qualification' on page 19*.

9.11.1 Logging in with authorisation level

Depending on the authorisation level, settings can be displayed and changed. The authorisation level is selected via the service code.

Service code	Rights	Description
Without entry	Reading settings	User settings are displayed.
10001	Reading and modifying settings	Functions required for normal operation can be executed and settings can be changed.*

Tab. 9: Authorisation levels

* Some functions in the i-menu must be activated by the MEIKO authorised service technician.

1. Switch off the machine.
   ➥ *Chapter 9.9 'Switching off the machine' on page 59*
2. Press the service access key.
   ➡ The entry for the service code appears.
3. Enter the service code. Select a number with **[–]** and **[+]**, advance to the next position using **[>|]** and confirm the service code.
4. Confirm the message.
   ➡ The i-menu with extended functions is shown on the display.

9.11.2 Logging out

1. Switch off the machine.
   ➥ *Chapter 9.9 'Switching off the machine' on page 59*
2. Press and hold the service access key until a message appears.
3. Confirm the message.
   ➡ The i-menu and action menu are no longer shown on the display.

9.11.3 Changing display language

1. Log in with authorisation level 1.
   ➥ *Chapter 9.11.1 'Logging in with authorisation level' on page 60*
2. Open i-menu.
3. Open the *'Display language'* tab.
   ➡ The installed languages are displayed.
4. Press the **[Down]**/**[Up]** to select the display language and confirm the selection.
   ➡ Texts on the display are shown in the selected language.

9.11.4 Setting the date and time

1. Log in with authorisation level 1.
   ➥ *Chapter 9.11.1 'Logging in with authorisation level' on page 60*
2. Open i-menu.
3. Open the *'Settings'* tab.
4. Select *'Date'* entry.
5. Change the date. To do this, choose a number using **[+]** and **[-]**, go to the next point using **[>|]** and confirm the date.
6. Open the *'Time'* entry.
7. Change the time. To do this, choose a number using **[+]** and **[-]**, go to the next point using **[>|]** and confirm the time.
   ➡ The changed date and time are shown on the display when the machine is switched off.

9.11.5 Activating the timer

The *'Filling per timer'* function can be used to set a time at which the machine starts filling.

The 'Filling per timer' function must be activated by a MEIKO authorised service technician for authorisation level 1.

► The machine is in *'MACHINE OFF'* status.

1. Log in with authorisation level 1.
   ➦ *Chapter 9.11.1 'Logging in with authorisation level' on page 60*
   ➡ The display shows the symbol for the *'FILLING PER TIMER'* function and the last set time.
2. Press the *'FILLING PER TIMER'* key.
   ➡ The machine starts filling with the preset values (date/time). A direct start is possible at any time using the **[On/Off]** key.

9.11.6 Setting the timer

► The machine is in *'MACHINE OFF'* status.

1. Log in with authorisation level 1.
   ➦ *Chapter 9.11.1 'Logging in with authorisation level' on page 60*
   ➡ The display shows the symbol for the *'FILLING PER TIMER'* function and the last set time.
2. Press the *'FILLING PER TIMER'* key twice.
   ➡ The display changes to the *'FILLING TIME'* dialogue box. The tag is selected for editing.
3. Set date and time. To do this, select the respective value using **[+]** and **[-]**, go to the next point using **[>|]** and also select the respective value. Proceed in the same way for date and time.
4. Finally, confirm the input.
   ➡ The input is accepted and the display changes to the *'FILLING PER TIMER'* view.

Automatically suggested time

If no time is assigned for a day in the weekly programme, the date of the following day and the last time used for this function are always suggested. Otherwise, the input from the weekly programme found from the current time is displayed as a suggestion.

9.12 Assistance in case of malfunctions

The faults listed in the table can usually be rectified by the operating personnel.

If a message shown on the display is not described in the table below or its cause cannot be rectified, contact MEIKO Service.

Fault	Possible cause	Remedy
Machine not filling	No water present.	■ Open the water supply. ■ Check water connection. ■ Contact Service if necessary.
	Dirt trap clogged.	Clean the dirt collector.
Final rinse not spraying	No water present	■ Open the water supply. ■ Check water connection. ■ Contact Service if necessary.
	Dirt collector blocked	Clean the dirt collector.
Vapour escaping	Splash curtains are missing	Install curtains.
	Temperatures too high	Contact Service if necessary.
	Draught through open door	Close door.
	Wash arms, drying nozzles, air guide plates bent or not fitted correctly	■ Install wash arms correctly. ■ Check wash systems for damage.
Poor cleaning result	Water temperature too low	Contact Service if necessary.
	Detergent dosing quantity too low	Adjust the dosing quantity.
	Wrong detergent	Change the product.
	Washware not placed correctly in rack	Place the washware correctly in the rack so that it does not overlap.
	Clogged nozzles	Clean wash systems.
	Transport speed too high	Contact Service.

Fault	Possible cause	Remedy
	Dirt dried onto the washware	■ Wash washware promptly. ■ Soak dried-on dirt beforehand.
	Washware not suitable for machine warewashing	Only use suitable washware.
Stripes and smears on dishes	Mineral content of the wash water too high	Check water quality.
	Water pre-treatment unit defective	Check the water pre-treatment.
	Unsuitable rinse aid	Change the product.
	Incorrect dosing quantity	Adjust the dosing quantity.
	Incorrectly fitted or missing curtains	Check curtains and hang them correctly if necessary.
	Oversize containers previously washed. This causes detergent to be transferred to rear tanks.	
	Transport speed too high	Contact Service.
	Washware not suitable for machine warewashing	Only wash suitable washware.
Strong foam formation in wash tank	Hand dishwashing detergent used	Do not use a foaming hand dishwashing detergent for pre-cleaning or for cleaning the machine. The foam can cause machine malfunctions and a poor cleaning result.
	Foaming detergents for machine cleaning get into the machine.	Only use suitable detergents.

Fault	Possible cause	Remedy
	Final rinse water quantity too low	Contact Service.
	Unsuitable detergent or rinse aid	Change the product.
	Temperature < 40°C	Contact Service.
Poor drying result (with drying available)	Transport speed too high	Contact Service.
	Wash tank temperatures too low	Contact Service.
	Rinse aid product not adapted to washware material (porcelain/plastic).	Change the product.
	Plastic washware	Only wash suitable washware.
Machine stops with the message *'Transport overload (motor current)'*.	Jammed object in the transport system	■ Remove the object. ■ If necessary, dismantle the transport rail.
LED for lack of detergent in the solids dosing unit (option) flashes.	Nozzle blocked, clogged.	Clean the nozzle and descale if necessary.
	Flap is not properly closed.	Close flap correctly.
	Water pressure too low.	Contact Service.
	Water is cold.	Dosing unit must be connected to hot water.
	No water present.	Open the on-site shut-off valve.
	Detergent block is not installed correctly into the storage container.	Install the detergent block correctly.
LED for lack of detergent in the solids dosing unit (option) flashes, acoustic signal sounds.	Flap is not properly closed.	Close flap correctly.
	Detergent concentration is too low.	Contact Service.

Fault	Possible cause	Remedy
LED for lack of detergent in the solids dosing unit (option) lights up, acoustic signal sounds.	Detergent block has been used up.	Install a new detergent block.
	Detergent block is not inserted correctly into the casing.	Install the detergent block correctly.
LED for lack of detergent and LED detergent OK of the solids dosing unit (option) flash.	There is a dosing error.	Contact Service.

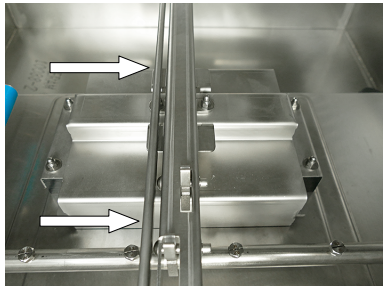
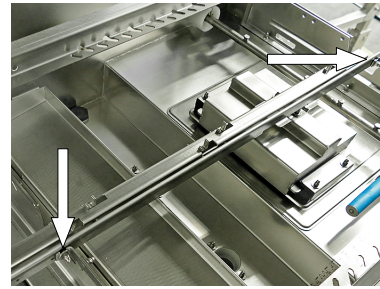
9.12.1 Release blockage in the transport system

If objects become jammed in the transport system, the overload switch may trip. If the object cannot be removed easily, the transport carriage must be released.

Personnel:
- Service technician

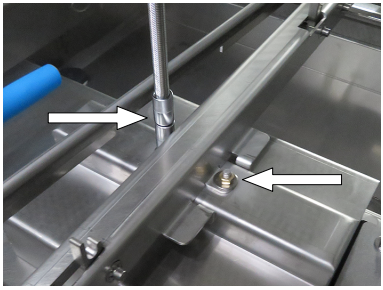
Tool:
- Flat spanner, 8 mm

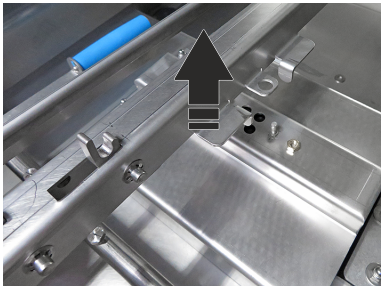
► An object is blocking the transport system and has tripped the overload switch.

1. Switch off the machine at the glass operating panel.
2. Turn the local main switch off and ensure that it cannot be switched back on again.
3. Remove racks and washware from the area of the transport system.
4. Remove curtains for better accessibility.
5.  

   Loosen all nuts on the slide rail (illustration on the left shows the position of the slide rail).

6.





Loosen 2 nuts on the transport carriage (illustration on the left) and lift off the transport carriage.

7. Remove the jammed object.
8. Assemble the transport carriage and slide rail in reverse order.

   ➡ Once the blockage has been removed, the main switch and the machine provided on site can be switched on again.

9.13 Alarm and information messages

If a message shown on the display is not described in the table below or its cause cannot be rectified, contact MEIKO Service.

Faults are shown on the display as a grey or red message. An additional help text can be called up via the question mark. Confirmed faults are retained until their causes have been eliminated and can be called up again using the **[Messages]** function key.

- Grey: The message can be confirmed on the display with **[Back]** or it disappears automatically once the cause has been rectified.
- Red: In most cases, the fault can only be rectified by MEIKO Service.

No.	Display text	Meaning / measure
1	Emergency stop active	■ Eliminate the reason for the emergency stop. ■ Unlock the emergency stop function.
3	Carry out maintenance	■ Possible to continue working. ■ Contact service.
4	Code entry wrong!	■ Enter the code correctly.
80	Transport overload (mechanical)	■ Eliminate any jams. ■ Check the function of the roller lever switch. ■ Contact service.
81	Transport overload (motor current)	■ Eliminate any jams. ■ Contact service.
84	Height limitation	■ Permissible height exceeded, eliminate cause.
100 150 200 400	First fill error	Possible causes: ■ Target level in tank not reached in time. ■ Drain filter not closing (correctly). ■ On-site water supply inadequate. ■ Filling valve does not open properly. ■ Cable breakage ■ Level detection defective. Remedy: ■ Check the drain filter, clean seal and seal seat, if necessary. ■ Check the dirt trap in the supply pipe and clean if necessary. ■ Check the air gap, hoses and level sensor. ■ Contact service if required.
101 151 201 401	Refill error	Possible causes: ■ Minimum level in the tanks not reached in time during operation. ■ Washing system not positioned correctly. ■ End cap on the wash system missing or not tight.

No.	Display text	Meaning / measure
		■ Unsuitable washware or incorrect use. ■ On-site water supply inadequate. ■ Filling valve does not open properly. ■ Cable breakage on valve inlet. ■ Level detection defective. Remedy: ■ Check the drain filter, clean seal and seal seat, if necessary. ■ Check the dirt trap in the supply pipe and clean if necessary. ■ Check the air gap, hoses and level sensor. ■ Contact service if required.
102 152 202 402	Door open	■ Close door. ■ Check magnetic switches and magnets, and replace if necessary. ■ Contact service if required.
115 165 215 415	Refill amount unusually high	Possible causes: ■ Washing system not positioned correctly. ■ End cap on the wash system missing or not tight. ■ Drain filter not closing correctly. ■ Water carryover as a result of incorrect washware. ■ Foam formation Remedy: ■ Check the drain strainer, clean the seal and seal seat if necessary. ■ Check the dirt trap in the supply pipe and clean if necessary. ■ Check the air gap, hoses and level sensor. ■ Contact service if required.
706	Insufficient water	■ Clean dirt traps in the water pathway. ■ Contact service if required.

No.	Display text	Meaning / measure
710	MIN supply disconnection fallen below	■ Clean dirt traps in the water pathway. ■ Contact service if required.
962	Ethernet access error	■ Check LAN connection. ■ If necessary, restart the system.
963	Bluetooth access error	■ Restart system if Bluetooth communication is mandatory.
966	Factory parameters activated	All parameters have been reset to the factory settings.
973	SD card missing (CPU module)	■ Insert the SD card into the SD card slot. ■ Check that the SD card is inserted correctly in the SD card slot.
974	SD card with write protection (CPU module)	■ Check SD card write protection, and deactivate if necessary. ■ Replace the SD card if necessary.

Tab. 10: Alarm and information messages

10 Cleaning

This section is intended for the following group of people, unless otherwise stated:

Personnel:

- Operating personnel

For more information on the required qualifications, see ➦ *Chapter 3.7 'Personnel qualification' on page 19*.

⚠ CAUTION

Danger of burns from tank heating and hot wash water!

The tank heating and wash water may still be hot even after the machine has been switched off.

- Wear protective gloves.
- Allow the machine to cool down some minutes before working inside.

⚠ CAUTION

Danger of slipping due to wet floor!

Puddles may form during operation.

- Remove accumulations of liquids regularly.
- Wear safety shoes.

NOTICE

Malfunction and poor washing result due to foaming hand dishwashing detergents!

- Do not use hand dishwashing detergents for pre-cleaning the washware or cleaning the machine.

Observe the sequence of the cleaning process

The following section describe the cleaning process for the machine and should be carried out in the order provided.

10.1 Cleaning removable parts

Feeding zone

Depending on the machine type and configuration, the feeding zone is equipped with a pre-washing function. If there is no pre-washing in the feeding zone, only the curtain can be removed for detergent.

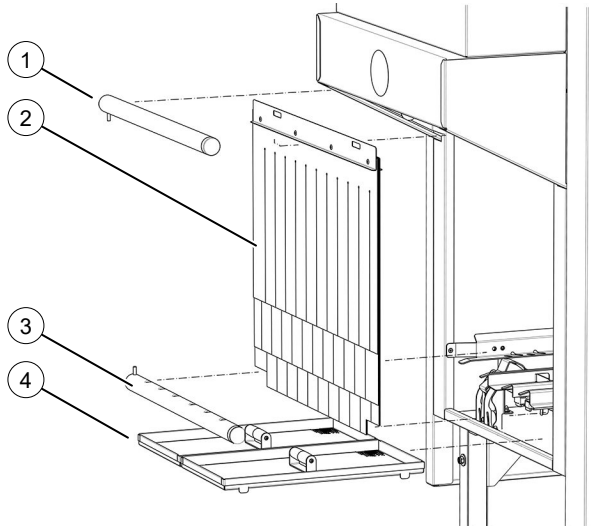


Fig. 22: Feeding zone removable parts

Protective equipment: ■ Protective gloves, chemical-resistant

Tool: ■ Brush

► The machine is switched off.

1. Remove the curtain (2).
2. Remove the wash pipes (1) and (4) from the pre-washing.
3. Remove the sieves (4).
4. Rinse the parts outside the machine using clear water and clean with a nylon brush if necessary.
5. Insert the cleaned parts in reverse order, ensuring that the wash arms are correctly positioned and locked in place.

   ➡ The removable parts of the feeding zone are cleaned.

Wash tank

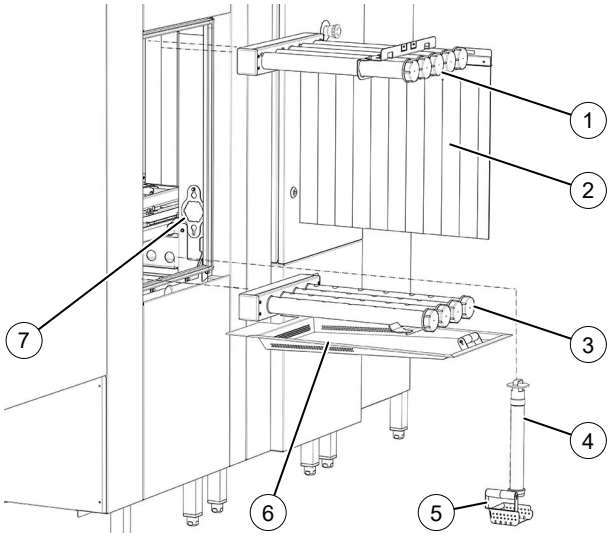


Fig. 23: Removable parts of wash tank

Protective equipment: ■ Protective gloves, chemical-resistant

Tool: ■ Brush

1. Remove the upper (1) and lower (3) washing system.
2. Remove the curtain (2).
3. Remove the tank cover sieve (6).
4. Remove the stand pipe (4) and strainer (5) from the tank.

   ➡ The water flows out of the tank.
5. Rinse the parts outside the machine using clear water and, if necessary, carefully clean the nozzles with a nylon brush.
6. Unscrew the end caps of the washing systems using the auxiliary tool (7) and rinse out the washing systems.
7. Screw the end caps back on, making sure they are fitted correctly.
8. Insert the cleaned parts in reverse order, ensuring that the washing systems and stand pipe are correctly positioned and locked in place.

   ➡ The removable parts of the wash tank are cleaned. Repeat the steps for several wash tanks.

Discharge zone

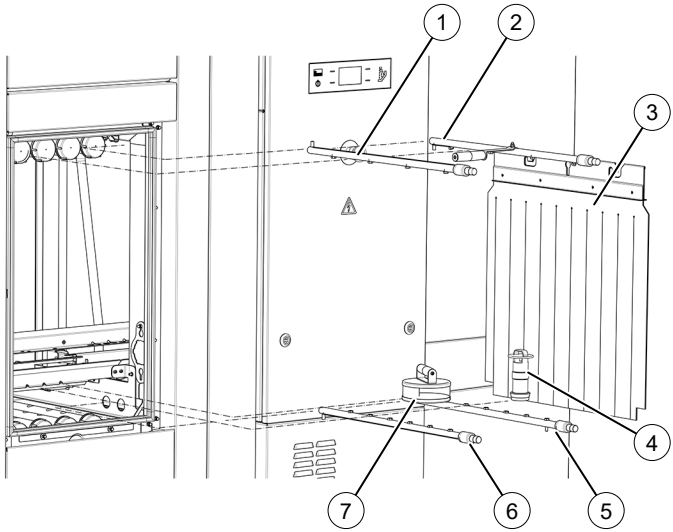


Fig. 24: Removable parts of discharge zone

The parts of the discharge zone to be cleaned are removed through the wash tank.

Protective equipment: ■ Protective gloves, chemical-resistant

Tool: ■ Brush

► The curtain of the wash tank is removed.

1. Remove the curtain (3).
2. Remove the pump final rinse wash pipes (1) and (6) (not for UPster K 160).
3. Remove the stand pipe (4) and strainer (7) from the pump final rinse (not for UPster K 160).

   ➡ The water flows out of the pump rinse tank.
4. Remove the fresh water final rinse wash pipes (2) and (5).
5. Rinse the parts outside the machine using clear water and clean with a nylon brush if necessary.
6. Insert the cleaned parts in reverse order, ensuring that the wash arms are correctly positioned and locked in place.

   ➡ The removable parts of the discharge zone are cleaned.

10.2 Cleaning the interior

NOTICE

Damage to the electrical system due to water ingress!

- Never use high pressure cleaners or steam cleaners for cleaning.
- Ensure that no water can accidentally enter the control cabinet or other electronic components.
- If installed at ground level, never flood the surrounding room.

NOTICE

Malfunction and poor cleaning results due to foaming detergents!

- Do not use foaming detergents for pre-cleaning or machine cleaning.
- Do not use hand dishwashing detergents.

Tool: ■ Hand spray

► The machine is switched off.

1. Turn the local main switch off and ensure that it cannot be switched back on again.
2. Rinse the inside of the machine with a hand spray and wash dirt residues into the sieves.
3. Remove the sieves and other removable parts for cleaning.
   ➦ *Chapter 10.1 ‘Cleaning removable parts’ on page 72*
4. Replace the removable parts after cleaning.
5. Change the water.
   ➦ *Chapter 9.10 ‘Changing water’ on page 59*

   ➡ The interior is cleaned and the machine can be switched on.

10.3 Descaling

Water containing limescale can cause limescale build-up inside the machine. Limescale build-up on the radiators in the wash tank and in the booster heater can lead to overheating and burn-out of the radiators. This causes the machine to malfunction.

- Regular descaling extends the service life of the machine.
- Limescale build-up in the interior of the machine has no influence on the washing result.

⚠ CAUTION

Danger of injury from contact with acids!

Contact with acid may cause skin irritation and burns.

- Wear safety glasses.
- Wear protective gloves.
- Observe the safety data sheet.

NOTICE

Material damage due to descaler!

Residues of descaler can damage parts of the machine.

- Remove descaler residues from all parts of the machine without leaving any residue.

Protective equipment:
- Protective gloves, chemical-resistant
- Safety glasses

Material:
- Descaler

1. Clean the inside of the machine before descaling.
   ➥ *Chapter 10.2 'Cleaning the interior' on page 75*
2. Remove limescale build-up in the machine with a descaling agent. Follow the manufacturer's instructions.
3. Rinse the inside of the machine thoroughly with the hand spray.
4. Switch on the machine and then run it empty in washing mode for at least 15 minutes before loading it with dishes again for the first time.

➡ The machine is descaled.

10.4 Cleaning the glass operating panel

Tool:
- Lint-free cloth

Material:
- Glass cleaner

Clean the glass operating panel using a lint-free, damp cloth. Use glass cleaner if necessary.

➡ The glass operating panel is cleaned.

10.5 Cleaning the stainless steel surfaces

NOTICE

Damage to stainless steel due to improper cleaning!

Cleaning of parts made of stainless steel with unsuitable detergents, care products and cleaning utensils leads to damage, deposits or discolourations on the material.

- Never use aggressive detergents or scouring agents.
- Never use detergents that contain hydrochlorid acid or bleaches based on chlorine.

  Do not use cleaning utensils previously used to clean non-stainless steel.

Tool:
- Lint-free cloth

Material:
- Stainless steel cleaner

1. Clean lightly soiled surfaces using a soft, lint-free cloth.

   Moisten the cloth if necessary.
2. Clean heavily soiled surfaces using stainless steel cleaner.
3. Remove the stainless steel cleaner from the surface with a damp cloth.
4. After cleaning, rub all damp surfaces thoroughly dry.

   ➡ The stainless steel surfaces are cleaned.

11 Maintenance

⚠ WARNING

Danger to life from electric shock!

- Work on the electrical system may only be carried out by a qualified electrician.
- Before working on the electrical system, disconnect the machine from the power supply and secure it against being switched back on.

⚠ WARNING

Danger of burns from hot machine and system parts on steam-heated machines!

Non-insulated machine and installation parts behind tightly screwed covers and steam pipes can become very hot due to hot steam.

- Wear protective gloves.
- Before carrying out service work on a steam-heated machine where covers are removed from non-insulated machine or installation parts, the gate valves on the steam supply line and condensate pipe must be closed.
- Allow the system parts of the steam circuit and the condensate side in the machine to cool down to room temperature before service work.
- Replace all covers immediately after carrying out the service work.

⚠ CAUTION

Danger of burns from tank heating and hot wash water!

The tank heating and wash water may still be hot even after the machine has been switched off.

- Wear protective gloves.
- Allow the machine to cool down some minutes before working inside.

11.1 Maintenance plan

11.1.1 Electrical safety test

Interval	Maintenance work	Personnel
Annually	Perform insulation resistance measurement.	Service technician

Interval	Maintenance work	Personnel
Annually	Perform protective conductor check.	Service technician
	Perform protective conductor current measurement.	Service technician
	Perform visual check.	Service technician

11.1.2 Pumps

Interval	Maintenance work	Personnel
Annually	Visual check of the motor and ventilation grid.	Service technician
Every 1000 h or 2 years	Replace the slide ring sealing in the tank modules WT 1, WT 2, PKSP (delete if not present).	Service technician

11.1.3 Wash tank, wash and rinse system

Interval	Maintenance work	Personnel
Annually	Functional and visual inspection of the wash systems and brackets.	Service technician
	Visual inspection of ascending pipe, wash systems.	Service technician
	Check air gap of tank insert and clean if necessary.	Service technician
	Visual check of stand pipe seal.	Service technician
	Visual inspection of the sieves.	Service technician
	Visual inspection of door hinges, door locking, door seals.	Service technician

11.1.4 Heat recovery

Interval	Maintenance work	Personnel
Annually	Check exhaust air fan and heat exchanger.	Service technician

Interval	Maintenance work	Personnel
Annually	Clean exhaust air blower and heat exchanger.	Service technician

11.1.5 Fresh water rinse system

Interval	Maintenance work	Personnel
Annually	Clean the air trap insert.	Service technician
	Replace the rubber seal on the ascending pipe.	Service technician
	Visual inspection of the air-gap pump, ventilation grilles and check for leaks.	Service technician
	Check minimum float switch in air-gap tank.	Service technician
	Check float valve in air-gap tank.	Service technician
	Clean the dirt collector in the fresh water final rinse pathway.	Service technician
	Visual inspection for leaks on the rinse aid dosing within the machine.	Service technician

11.1.6 Installation area

Interval	Maintenance work	Personnel
Annually	Check that lines and connections are securely connected and there are no leaks.	Service technician
	Clean dirt trap in fill path.	Service technician
	Perform a visual check for tightness.	Service technician

11.1.7 Transport system

Interval	Maintenance work	Personnel
Annually	Visual inspection of the gear motor and ventilation grid.	Service technician

Interval	Maintenance work	Personnel
Annually	Check that the transport catches are complete and move freely.	Service technician
	Check rack transport for fault-free operation.	Service technician
	Check mechanical overload cut-off.	Service technician
	Check the transport system on the feeding table (option).	Service technician
	Check the roller conveyor (option) at the discharge section.	Service technician

11.1.8 Complete machine

Interval	Maintenance work	Personnel
Annually	Check safety labels and signs.	Service technician
	Check filling and heating until READY FOR OPERATION.	Service technician
	Check washware final switch-off.	Service technician
	Check the entire machine for leaks.	Service technician
	Visual check of the cable routing under the machine.	Service technician
	Check power consumption of all heating elements (see wiring diagram).	Service technician

11.1.9 Drying system

Interval	Maintenance work	Personnel
Annually	Perform a visual check of the motor and ventilation grid.	Service technician
	Clean installation space of the heating register, blower wheel and blower wheel housing.	Service technician
	Clean air nozzles and suction grid.	Service technician

11.2 Maintenance activities

11.2.1 Check safety labels and signs

Safety labels and signs on the product must always be clearly legible.

Personnel: ■ Service technician

1. Check all safety labels and signs for legibility.

   ➦ *Chapter 3.5.2 'Positions of the safety labels' on page 18*

2. Replace damaged or illegible safety labels and signs. These can be reordered at MEIKO.

   ➡ The safety levels and signs have been checked.

12 Decommissioning

⚠ CAUTION

Danger of burns from tank heating and hot wash water!

The tank heating and wash water may still be hot even after the machine has been switched off.

- Wear protective gloves.
- Allow the machine to cool down some minutes before working inside.

Personnel:
- Service technician

Protective equipment:
- Safety glasses
- Protective gloves, chemical-resistant
- Safety shoes

► There is no rack or washware in the machine.

1. Switch off the machine.
2. Switch off the on-site main switch.
3. Remove removable elements.
4. Drain the water from the tanks.
5. Clean the inside of the machine and clean the removable elements.
   ➦ *Chapter 10.2 ‘Cleaning the interior’ on page 75*
   ➦ *Chapter 10.1 ‘Cleaning removable parts’ on page 72*
6. Close the on-site shut-off valve for the fresh water supply.

   ➡ The machine has been decommissioned.

13 Dismantling and disposal

13.1 Removal

Depending on the configuration and size, the machine must be separated into smaller units for disposal. The separation points are marked on the assembly plan.

Personnel:
- Service technician

Protective equipment:
- Safety glasses
- Protective gloves, mechanical hazard
- Safety shoes
- Protective work clothing

► The machine has been decommissioned.

1. Disconnect the electrical connection.
2. Disconnect the fresh water connection.
3. Disconnect the waste water connection.
4. Disconnect the protective equipotential bonding.
5. If necessary, disconnect the connections for steam/pumped hot water.
6. Separate the machine at its separation points according to the assembly plan and secure the individual elements on pallets for transport.

   ➡ The machine is prepared for further disassembly.

13.2 Disposal

Symbol	Description
	The product is marked with this symbol. Apply the local regulations for proper disposal of the old appliance. This includes separate collection and subsequent recycling in order to reutilise raw materials. The batteries installed in the control system must be removed and disposed of separately. Commission a specialised company for environmentally friendly disposal and reuse.

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