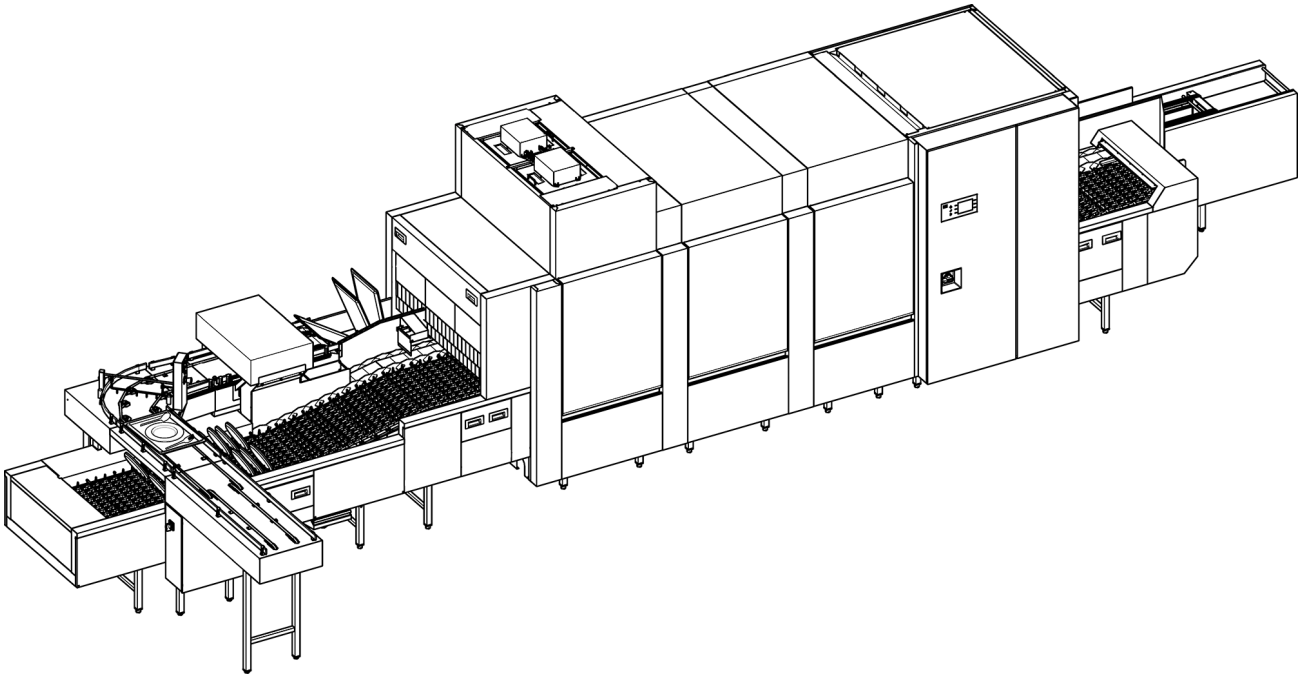
MEIKO M-iQ BlueFire

Semi-automatic dishwashing system

Original operating instructions



EN

Before using the machine, read carefully the operating instructions, the product description and the safety instructions.

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Contents

1 Notes on the operating instructions

The operating instructions as well as the applicable documents must be read before the first commissioning, kept for later use, and must be accessible to the operator at all times. Failure to observe the operating instructions may result in damage to persons and property.

These operating instructions can be downloaded via the following address: **www.meiko.info** or https://partnernet.meiko-global.com.

1.1 Product identification

These operating instructions apply to the following machine types:

- Semi-automatic dishwashing machine MEIKO M-iQ BlueFire

1.2 Delivery contents

The delivery contents include:

- Semi-automatic dishwashing machine MEIKO M-iQ BlueFire
- Documentation, for details see Related documents.

1.3 Related documents

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

Operator/operating company (included in delivery contents)	
EC/EU declaration of conformity	Spare parts list
Declaration of Incorporation	Assembly plan (in advance)
Short operating instructions	Operating instructions tray dispenser trolley
Quick cleaning instructions	Installation plan (depending on order)
Wiring diagram	
Authorised service technician	
Service instructions	

1.4 Presentation conventions

1.4.1 Warnings

DANGER – indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

WARNING – indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION – indicates a possible hazardous situation which, if not avoided, could result in minor or moderate injury or damage to property.

1.4.2 Notices on use

▶ **Note –** indicates useful and important information about the product or its use.

1.4.3 Award elements

Description of the markup elements used in this document:

- 🛠 Required tool for subsequent action instruction.
- ▶ Requirement to be met for subsequent action instruction.
- 1. Successive action steps.
- ↳ Interim result for individual action steps.
- ✓ Final result of an action instruction.
- • A bullet point designates a list.
- [ ] Terms in square brackets indicate keys.
- (1) Position numbers shown in parentheses in the text refer to position numbers in illustrations.

1.4.4 Symbols

	Read document		Potential equalisation connection
	Caution		Manufacturer

1.4.5 Illustrations

The illustrations contained in this document are not necessarily true to the original or to scale. The illustration 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 this EC Directive:

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

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
- 2014/35/EU Low Voltage Directive *(OJEU L96/357, 29/03/2014)*
- 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.

3 Safety

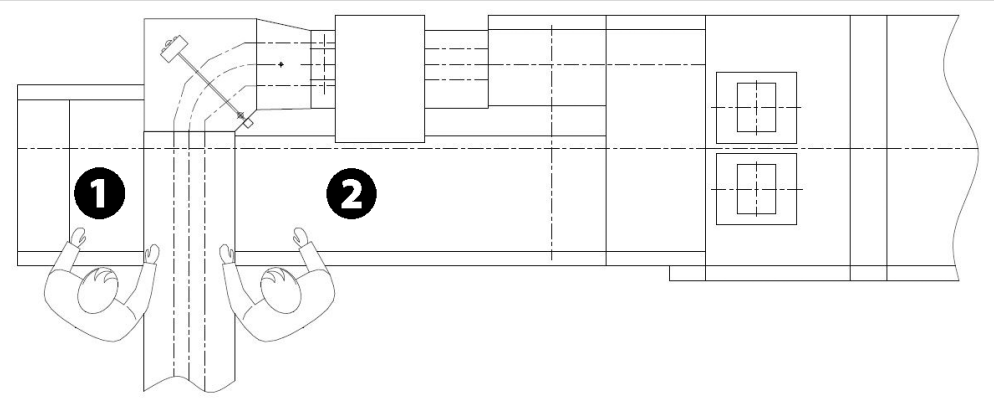
Read and observe all safety information, instructions and symbols attached on the product. Improper use may result in damage to the product or danger to the user.

3.1 Intended use

MEIKO does not accept any liability for damages resulting from improper use or incorrect operation. Any other use, conversions and modifications by means of non-approved conversion kits are not permitted and are dangerous.

Overall system

The system is intended exclusively for clearing and washing dishes, cutlery, trays, glasses, kitchen utensils, baking trays and containers in commercial use.



Due to the conveyor belt bridge, the height of the washware in the deposit area 1 is limited to 260 mm (Technical data, see page 30). Any higher washware has to be placed in the deposit area 2!

Cutlery lifting magnet

The cutlery lifting magnet is used to remove cutlery pieces from trays in appropriate quantities (1x knife, 1x fork, 1x spoon, 1x spoon small).

Tray dispenser trolley

The tray dispenser trolley is intended exclusively for the manual transport and provision of trays in communal catering and gastronomy. Machine-assisted transport is not permitted.

The tray dispenser trolley is set up for the trays to be stacked, details can be taken from the order confirmation.

3.2 Foreseeable misuse

Overall system

The system must not be used for:

- Washing washware outside the technical specification, see page 29.
- 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

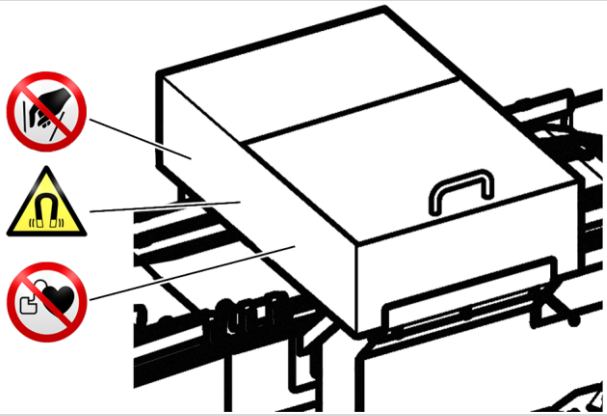
- Introducing service water into the local waste water system
- Standing or sitting on machine parts
- Washing parts made of wood
- Washing plastic parts that are not heat and alkali-stable
- Washing parts made of aluminium (such as pots, containers or trays only with a suitable detergent to avoid black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

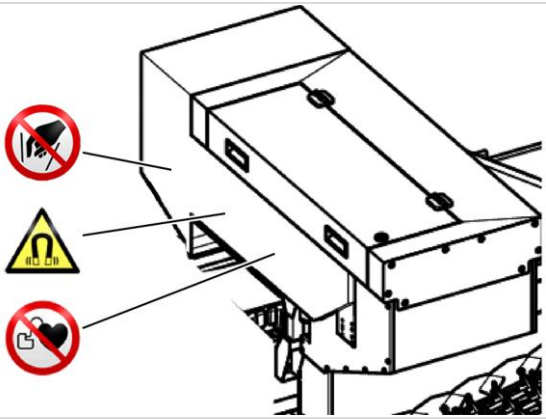
Tray dispenser trolley

- Press the stacking platform down manually, e.g. for cleaning (risk of injury)
- Block the travel paths of the trolley outriggers, e.g. for cleaning (risk of injury).
- Placing objects on the floor panel while driving
- Transport of people

3.3 Safety labels and signs

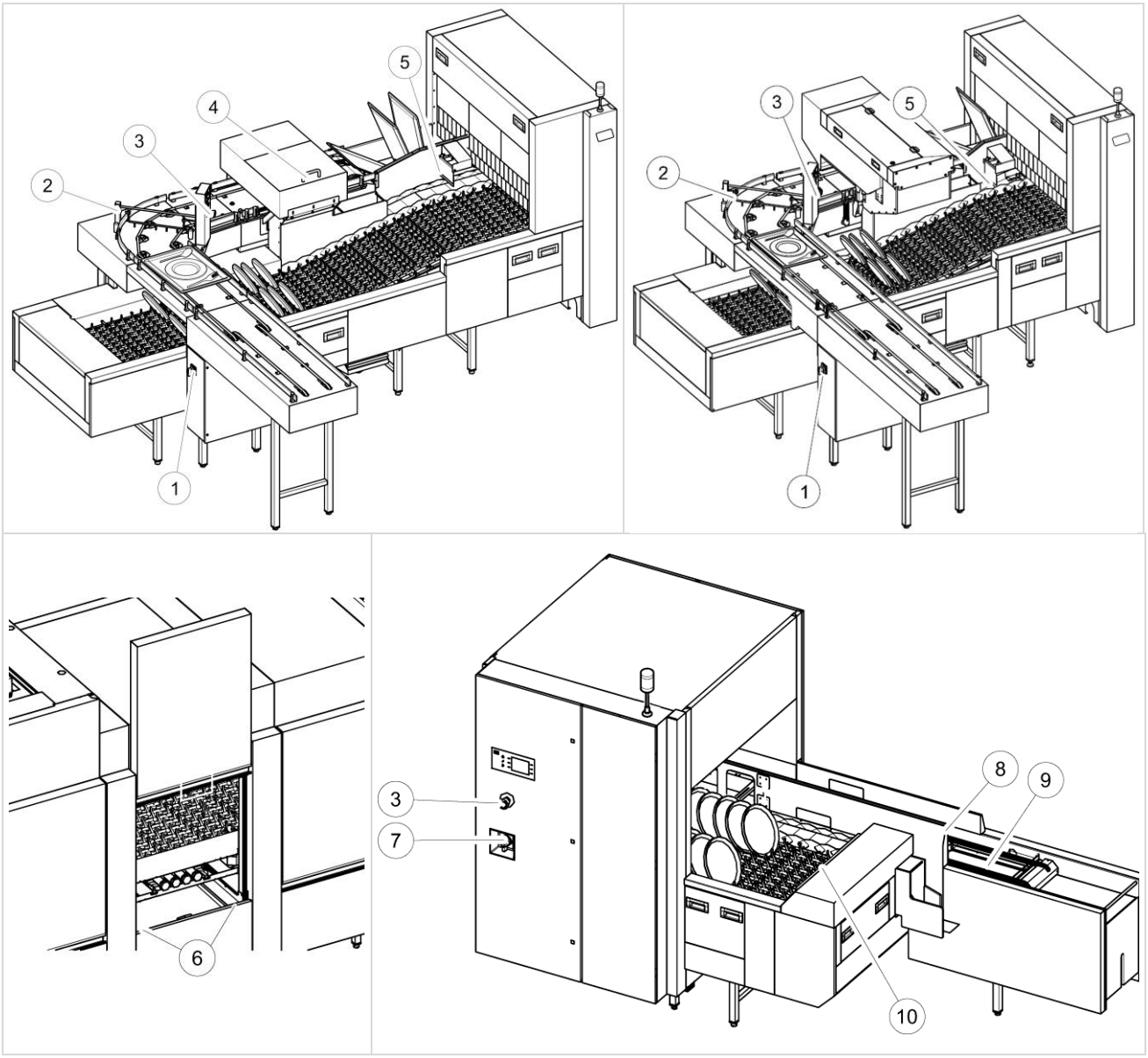
Cutlery lifting magnet





Warning of strong magnetic field	Access prohibited for persons with pace-makers
Do not touch	

3.4 Safety devices



No.	Designation	Effect on press/release
1	Main switch conveyor belt	Disconnect the conveyor belt from the power supply
2	Height limitation cutlery lifting magnet	Stop conveyor belt
3	Emergency stop button	Stop complete system, transport and pumps
4	Hood cutlery lifting magnet (only for long feeding section)	Stop complete system, transport and pumps with open hood
5	Height limitation cutlery belt	Stop dish track after 5 s, pump after 50 s + light signal
6	Door switch left/right	Stop complete system, transport and pumps with open door
7	Main switch M-iQ	Disconnect the entire system from the power supply
8	"Tray jammed" sensor	Stop tray track + light signal
9	"Tray belt occupied" sensor	Stop tray track + light signal
10	"dish track occupied" switch	Stop dish track, pumping after 50 s

3.5 Emergency stop function

When an emergency stop button is pressed or also when the hoodt of the cutlery lifting magnet or a door is opened, the display shows the message **Emergency stop function activated**, (see safety devices no. 3, 4 and 6). When the emergency stop function is activated, the entire system, the transport and the pumps stop. After eliminating the cause of the malfunction, the emergency stop button can be unlocked with a rotary movement, or the stop of the entire system is cancelled after closing the hood of the cutlery lifting magnet or door.

3.6 What to do in the event of an emergency

- In dangerous situations, disconnect from the power supply using the locally available mains isolator.

Only for machines with steam heating or heating with pump hot water:

If steam escapes strongly, there is a danger of scalding when approaching. Do not close the steam supply/pump hot water supply at the steam stop valve on the machine side, but close the stop valve on site.

3.7 Requirements for the personnel

Commissioning, instructions, repairs, maintenance, assembly and installation of or on MEIKO products may only be carried out/authorised by authorised service partners.

During operation it must be ensured that:

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

Qualified personnel as defined by this document are persons who:

- Over 14 years of age.
- Due to their training, experience and instruction are able to perform the required activities.
- Are authorised to perform the required activities by the person responsible for safety of the system.
- Have read and understood the operating instructions and corresponding safety information and will follow them.

The required qualifications for performing specific work at the machine are determined by MEIKO:

Personnel / Activity	Trained operating personnel	In-house technician authorised by MEIKO	Service technician authorised by MEIKO
Operation, use	✓	✓	✓
Cleaning	✓	✓	✓
Checking safety devices		✓	✓
Troubleshooting	✓	✓	✓
Error clearance, mechanical	✓	✓	✓
Error clearance, electrical		✓*	✓
Maintenance		✓	✓
Repairs		✓	✓

* with training as an electrician

Note
The instructions must be acknowledged in writing.

3.8 Safety information

General (concerns more than one phase of life)

Overall system

- Only operate the system when it is in perfect working order. All safety devices and housing parts must be mounted and especially the safety and switching devices must be checked regularly for proper functioning.
- Do not remove safety and warning notices on the installation and ensure they are legible. Replace any damaged safety and warning notices.
- Wear suitable work clothing, protective gloves and sturdy shoes.
- Do not wear rings, necklaces or other pieces of jewellery.
- Do not use hazardous substances (hazardous to health, especially toxic, highly flammable and explosive substances) in the system.
- Parts carrying electric current as well as moving or rotating parts can cause dangers to the user’s life and limb and material damage.
- Only use the system for its intended purpose, see page 6. Any other use may result in damage or danger for which we accept no liability.
- Transport, assembly/installation, commissioning, maintenance and repair of the system may only be carried out by persons who have been trained and instructed for the respective task, see page 9. The applicable accident prevention regulations must be observed.
- Do not operate the system in an explosive environment.
- Keep the work area clean and tidy. Disorder and unlit work areas can cause accidents.

Dishwashing machine

- The dishwasher does not specifically generate non-ionising radiation. For technical reasons, only the electrical appliances emit non-ionising radiation.
  In the immediate vicinity of the dishwashing machine, the influence of active implants (e.g. cardiac pacemakers, defibrillators) can be ruled out with a high degree of probability, with the exception of the area of 2 m radius at the cutlery lifting magnet (not available for machines with cutlery conveyor belt).

Only for machines with steam heating or heating with pump hot water:

- In the event of a small amount of water or steam escaping, shut down the system and inform the MEIKO-authorized service technician.

Cutlery lifting magnet

- Potentially fatal risk to persons with pacemakers, artificial limbs or implants. Keep a safety distance of 0.6 m around the magnet system.
- The internal magnet systems have a very strong magnetic field. Keep a safety distance of 1 m on all sides from the following parts:
  - Iron parts (tools/machine parts/building structures/shelves, etc.)
  - Other magnets or magnetic systems
  - Components at risk (magnetic cards/data storage devices/electronic devices/clocks or watches, etc.)
- Unsecured iron parts or tools can be unexpectedly and without warning picked up by the magnet system and thus cause the most serious injuries. Remove iron parts from the danger zone or secure them accordingly.
- Do not use magnets or magnet systems in potentially explosive area, sparking possible.
- Magnets are brittle and may burst into many parts with sharp edges as a result of an impact or mechanical load. Avoid collision of magnets / impact load. Wear safety glasses and protective gloves when handling exposed magnets. Prevent contact between foodstuffs and unprotected magnets.

Transport

Overall system

- During transport, it is essential to pay attention to the centre of gravity and thus to a secure position on the forks. To avoid damage, do not unpack the parts of the system until you reach the installation site.
- Do not work and walk under suspended loads.

Cutlery lifting magnet

- Ensure suitable edge protection and appropriate load capacity of the lifting straps used. Do not remove the lifting straps until the cutlery lifting magnet has been attached to the tray conveyor belt.
- Magnets and magnetic systems must be shipped by air freight in specific conditions (field strength at a distance of 2.1 m < 0.159 A/m or < 0.002 Gauss). We are unable to perform the measurements required for this purpose. For this purpose, an authorized testing laboratory must be commissioned (observe IATA regulations).
- Keep at a safety distance of 1 m to the following parts from any angle:
  - Iron parts (tools/machine parts/building structures/shelves, etc.)
  - Other magnets or magnetic systems
  - Components at risk (magnetic cards/data storage devices/electronic devices/clocks or watches, etc.)

Operation (Washing)

Overall system

- Only operate the system when it is in perfect working order. All safety devices and housing parts must be mounted and especially the safety and switching devices must be checked regularly for proper functioning.
- Always close all doors and flaps.
- As there is a risk of becoming caught by the moving parts of the system and/or washware of the machine during transport, operating personnel must wear close-fitting clothes (possibly a hair net) and avoid wearing rings, bracelets or similar. We also recommend wearing safety shoes with steel toe caps.
- At the end of operation, turn off the system with the main switch.

Dishwashing machine

- Equipment for optimising energy consumption must not be used to lower the required operating temperatures, as set out in the standards DIN 10510, 10511 and 10512. If equipment for optimising energy consumption is nevertheless installed, MEIKO does not accept any responsibility for a possible reduction in the quality of the wash and hygiene.
- The dishwashing machine works with hot water! Avoid all contact with the wash water. Danger of scalding! As a result, the washware also still has increased temperatures when it leaves the dishwashing machine. Please observe appropriate safety precautions. Observe all the instruction panels on the dishwashing machine.
- Only use detergents and rinse aid suitable for commercial dishwashers. Please contact the manufacturers of these products for information. Detergent and rinse aid can contain hazardous substances. Observe the manufacturers' hazard statements on the original containers and safety data sheets.

Cutlery lifting magnet

- The guide roller is covered by the front cover plate and the upper hood during operation. Risk of injury due to the rotating guide roller. Crushing and cutting of fingers and hand. Pulling in, catching and winding up of hair or clothes possible.
- The belt conveyor is not covered or clad in the lower area in any operating state. Danger due to friction when touching the running belt conveyor. (Never place your fingers or hand between the conveyor belt and the support structure).
- The drive station (drum motor) is not covered or clad in the lower area in any operating state. Risk of injury due to the rotating drum motor. Crushing and cutting of fingers and hand, pulling in, catching and winding up of hair or clothes possible.

Tray dispenser trolley

- High forces are effective. Spring preload is up to approx. 700 N (70 kg).
- Never push the stacking platform down manually (e.g. for cleaning). There is a risk of injury when letting go.
- The device is intended for manual transport only. Machine-assisted transport is not permitted. Risk of injury and damage.
- The trays must always be placed fully on the stacking platform within the upstand.
- Do not place any parts on the floor plate during transport.

Cleaning

Overall system

- Before cleaning, turn off the system with the main switch.
- The system, control cabinets and other electrical components must not be cleaned with a hose or a high pressure cleaner!

Dishwashing machine

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

Tray dispenser trolley

- Do not block the travel paths of the trolley outriggers for cleaning.

Maintenance and repair (troubleshooting)

Overall system

- Observe the specified maintenance intervals.
- Only use original spare parts from the manufacturer.
- Carry out the maintenance of supplied parts in accordance with the specifications in the relevant instructions.
- Before removing housing parts of the system, ensure the mains switch has been disconnected and secured so that it cannot be turned on again.
- Live parts of the device and power connections must not be touched immediately because of possibly charged capacitors. Wait at least one minute after switching off the supply voltage.
- Block access for unauthorised persons to the operating area of the system before starting maintenance or repair work. Display a sign drawing attention to the maintenance or repair work.
- Provide necessary personal protective equipment for maintenance and repair personnel and ensure that it is worn.
- Allow parts of the system that are touched to cool down.
- Check tightness of any screw connections that have been loosened.
- A functional test on all safety systems of the machine/system is carried out during every regular maintenance.
- After performing maintenance or repair work, remove required materials, tools and other equipment from the work area of the system.
- Remove any liquids that may have leaked out. Environmentally hazardous lubricants, coolants or detergents must be disposed of correctly.

Dishwashing machine

Tray dispenser trolley

- Spring replacement is only permitted by instructed specialists.

Dismantling and disposal

Overall system

- During transport, it is essential to pay attention to the centre of gravity and thus to a secure position on the forks. To avoid damage, do not unpack the parts of the system until you reach the installation site.
- Do not work and walk under suspended loads.

Modifications

Overall system

- During transport, it is essential to pay attention to the centre of gravity and thus to a secure position on the forks. To avoid damage, do not unpack the parts of the system until you reach the installation site.
- Do not work and walk under suspended loads.

4 Product description

4.1 Functional description

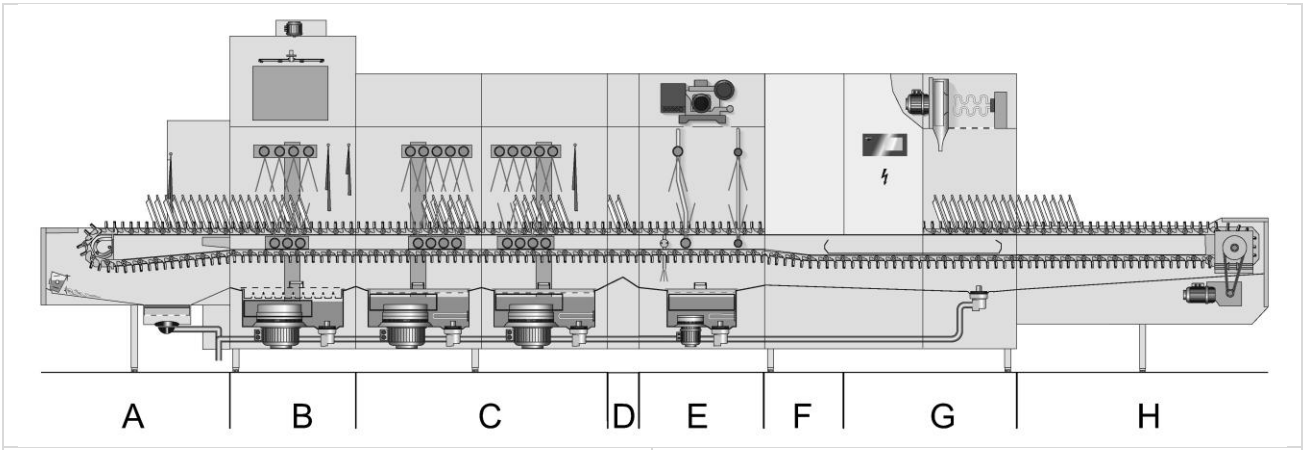
Feeding zone of the system

The trays are transported on the conveyor belt to the feeding section of the dishwashing machine, leared by the dishwashing staff with the exception of the cutlery pieces, see page 34.

The trays then pass under the cutlery lifting magnet, the cutlery pieces are magnetically lifted and fall onto the cutlery conveyor of the dishwashing machines. There, the cutlery pieces are immediately demagnetized.

Finally, the trays are placed on the tray track of the dishwashing machine in an upright position by the infeed.

Dishwashing machine



A feeding zone (dirty side)	B pre-wash zone
C main wash zone	D contact-plus zone
E final rinse zone	F contact-plus zone
G drying zone	H discharge zone(clean side)

The M-iQ B is a flight type dishwashing machine The washware is placed on the conveyor belt at the feeding zone (A) by staff or automatically and conveyed through the various zones (B-G) of the dishwashing machine, cleaned and dried. In the pre-wash zone (B), the dishes are cleaned of the coarsest dirt. In the main wash zone (C), the remaining dirt particles are removed before washing in the final rinse zone (E) with recirculated and fresh water. This is followed by drying (G) with hot air. The transitions between the zones are realised with curtains and contact-plus zones (D, F). This prevents water from being carried from one zone to the next.

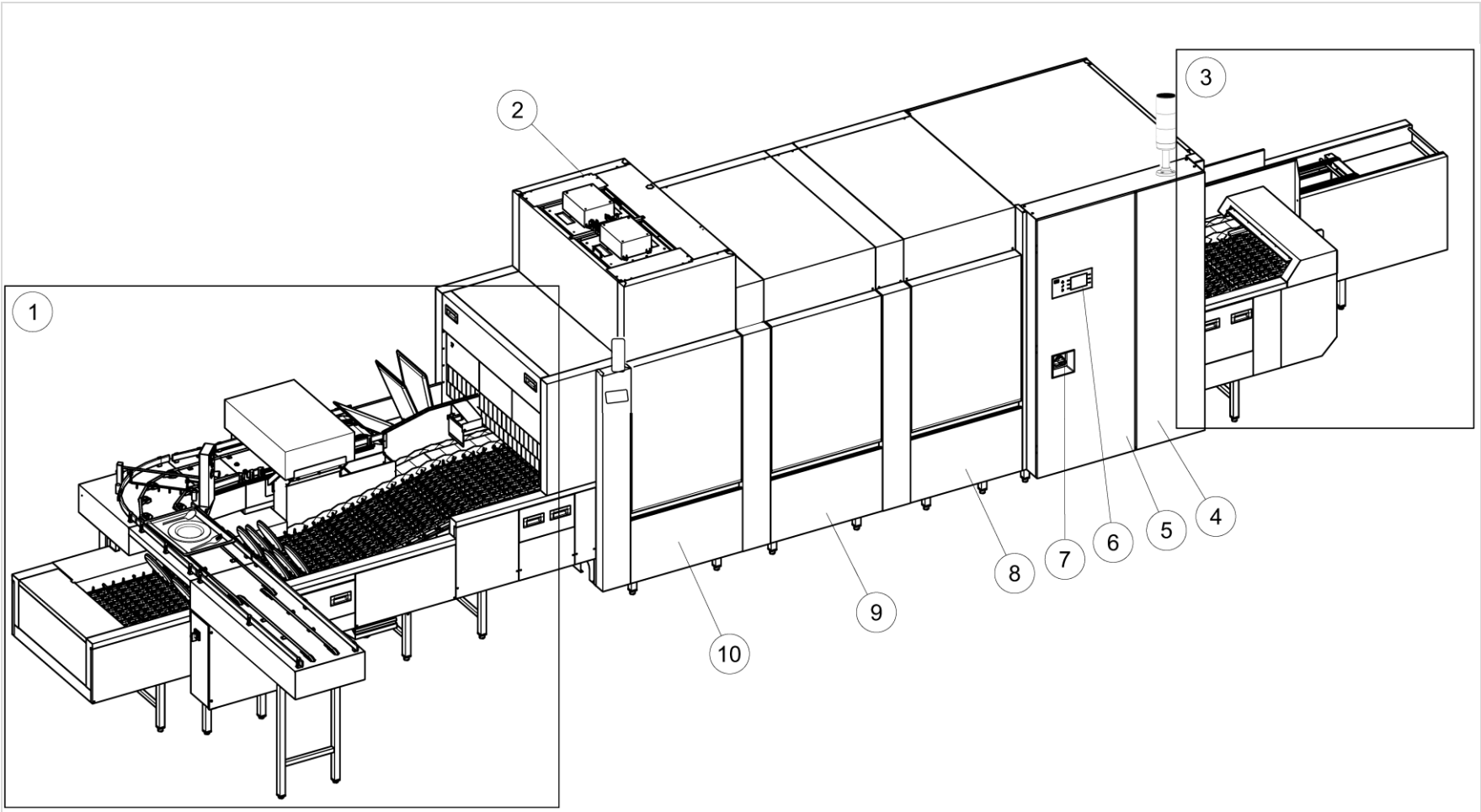
For certain applications, there are dishwashing machines with a thermo-disinfection zone; this is located behind the main wash zone (C), if available. The number of tanks varies depending on the application and transport speed of the dishwasher, more tanks are required for faster speeds.

Discharge zone of the system

The cleaned dishes are removed from the conveyor by the dishwashing staff. If a piece of crockery is not removed and reaches the limit switch, the transport is stopped until the piece of crockery is removed. Washed cutlery pieces fall down a cutlery chute into a container provided. The trays are placed on a tray dispenser trolley by a tray stacker. When it is full, a photoelectric barrier is activated and a control light signals the change of the tray dispenser trolley. In the meantime, approx. 5 further trays can be accommodated in a buffer store so that the transport is not interrupted.

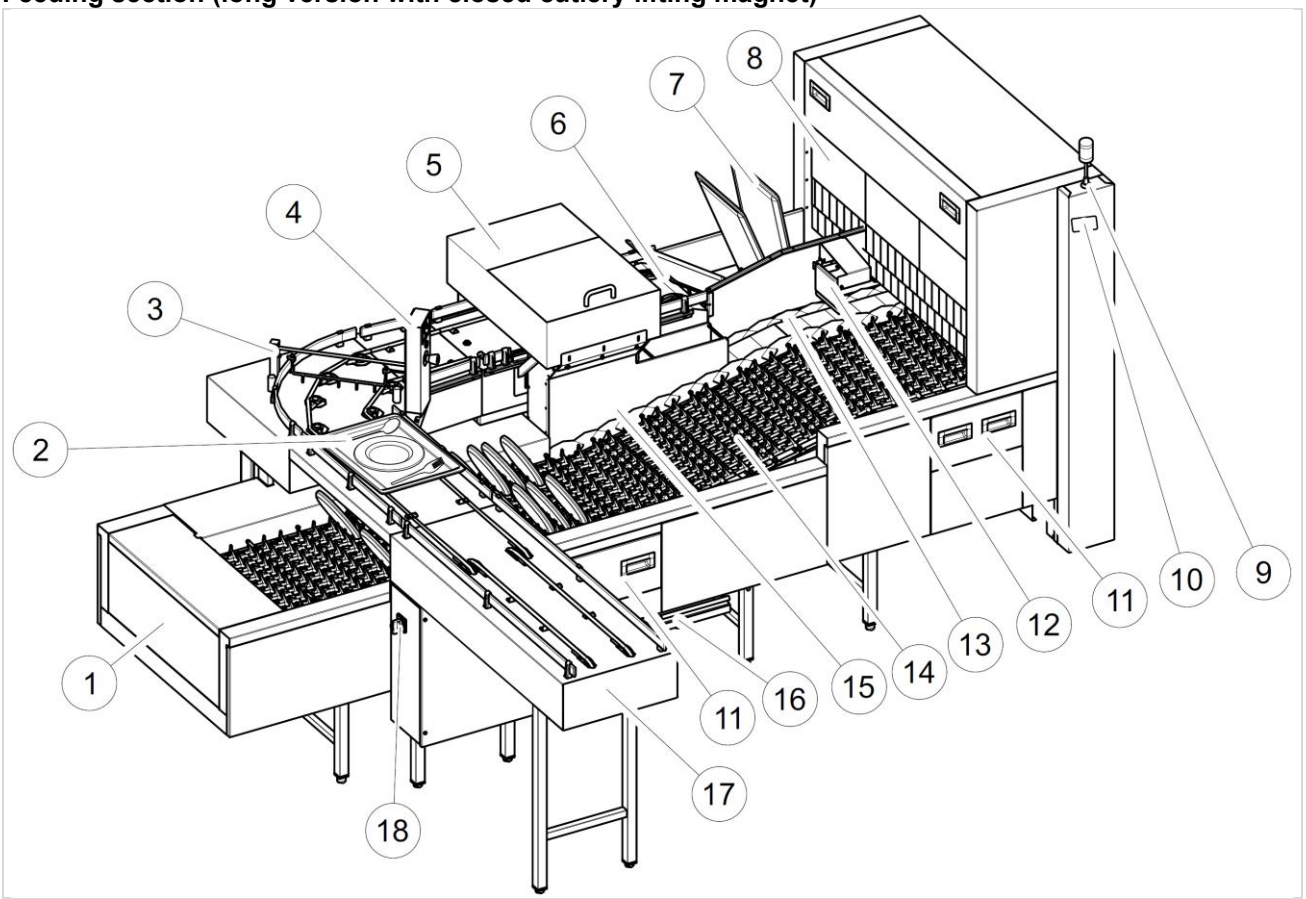
4.2 Overview illustration

General overview



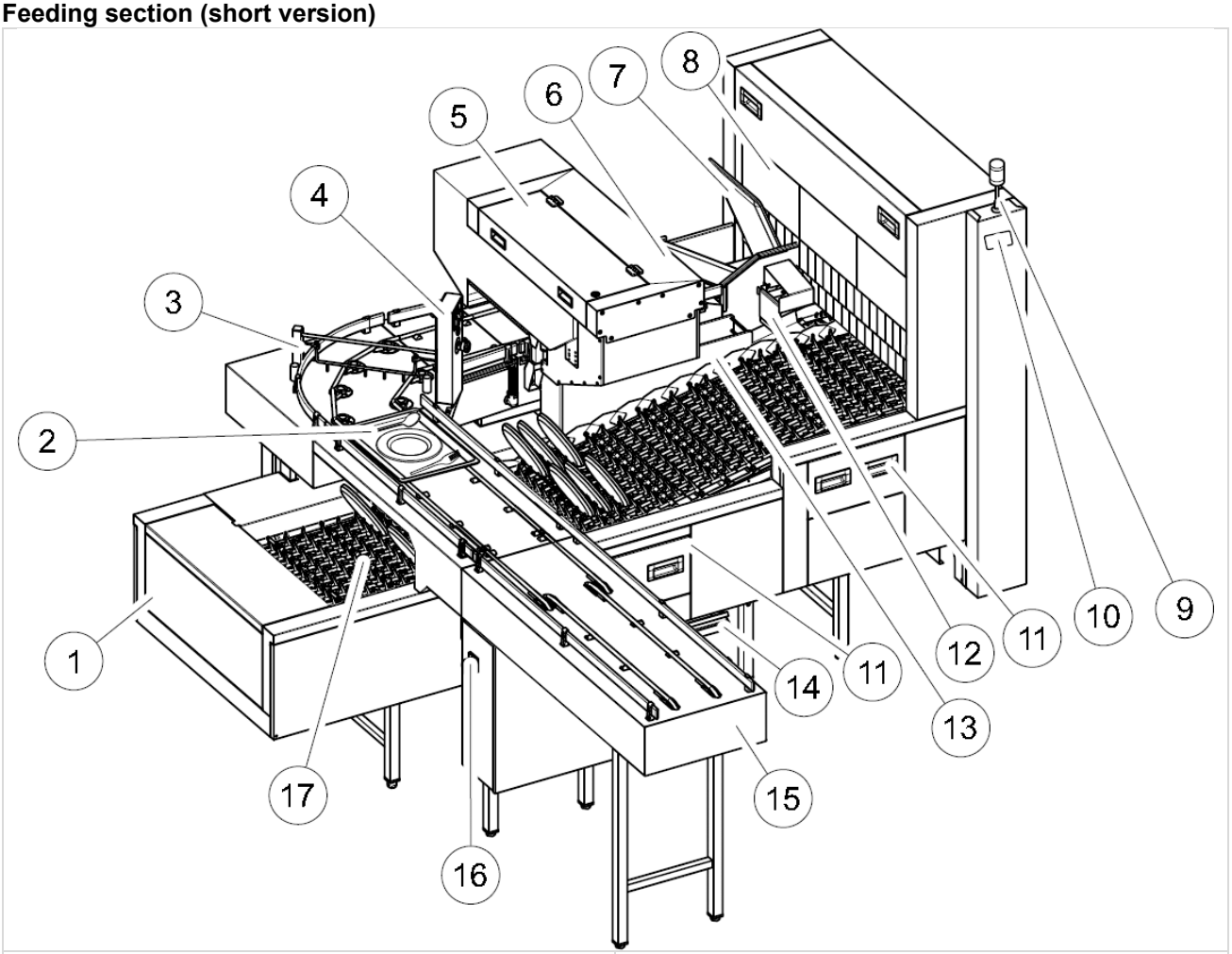
1 Feeding section -see page 17	2 Exhaust air heat recovery (heat recovery)
3 Discharge section - see page 19	4 Dryingg (TR)
5 Control cabinet	6 Glass operating panell, see page 30
7 Main switch	8 Pump final rinse(PKSP)
9 Wash tank(WT) see page 19	10 Wash tank pre-washing(WTV)

Feeding section (long version with closed cutlery lifting magnet)



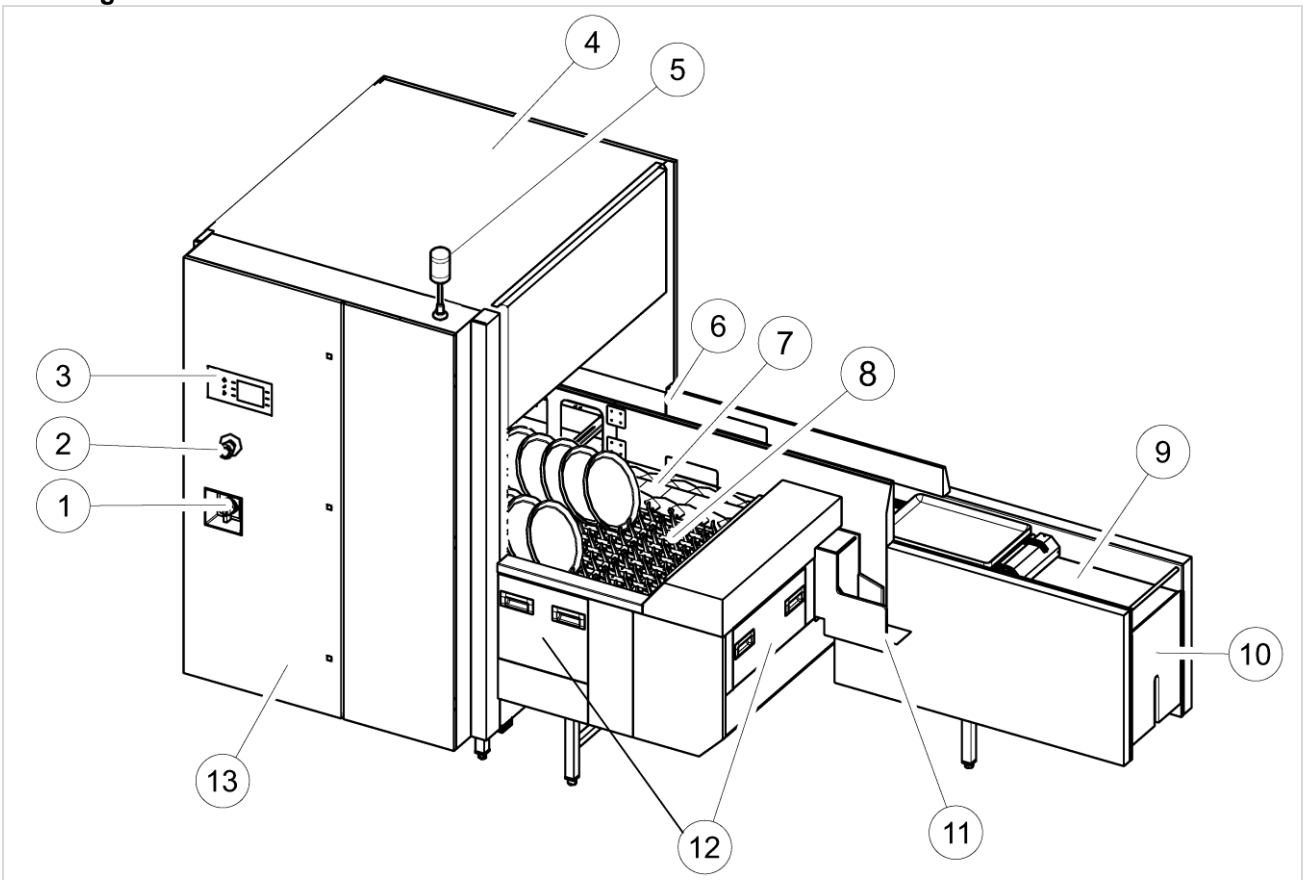
1 Cleaning flap front side	2 Tray with dishes and cutlery
3 Height limitation (cutlery lifting magnet)	4 Control system conveyor belt and emergency stop function
5 Cutlery lifting magnet	6 Tray infeed device TST 6
7 Tray on tray track	8 Curtain
9 Signal lamp, see page 22	10 Control system transport speed dishwashing machine
11 Cleaning flaps	12 Height limitation (cutlery belt)
13 Cutlery track	14 Dish track with plates
15 Demagnetization coil	16 Feeding sieve
17 Conveyor belt (to the feeding station)	18 Electrical box with main switch for conveyor belt

Feeding section (short version)



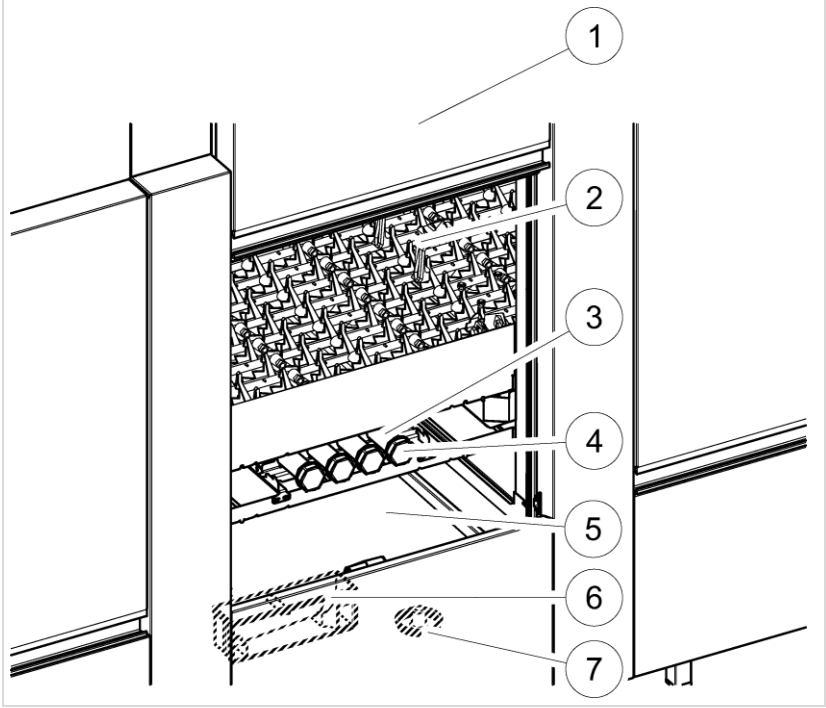
1 Cleaning flap front side	2 Tray with dishes and cutlery
3 Height limitation (cutlery lifting magnet)	4 Control system conveyor belt and emergency stop function
5 Cutlery lifting magnet	6 Tray infeed device TST 6
7 Tray on tray track	8 Curtain
9 Signal lamp, see page 22	10 Control system transport speed dishwashing machine
11 Cleaning flaps	12 Height limitation (cutlery belt)
13 Cutlery track	14 Feeding sieve
15 Conveyor belt (to the feeding station)	16 Electrical box with main switch for conveyor belt
17 Dish track with plates	

Discharge section



1 Main switch	2 Emergency stop function
3 Glass operating panel	4 Drying
5 Signal lamp (option)	6 Tray track
7 Cutlery track	8 Dish track
9 Tray stacker	10 Device for inserting the tray dispenser trolley
11 Cutlery discharge	
12 Cleaning flaps	13 Control cabinet

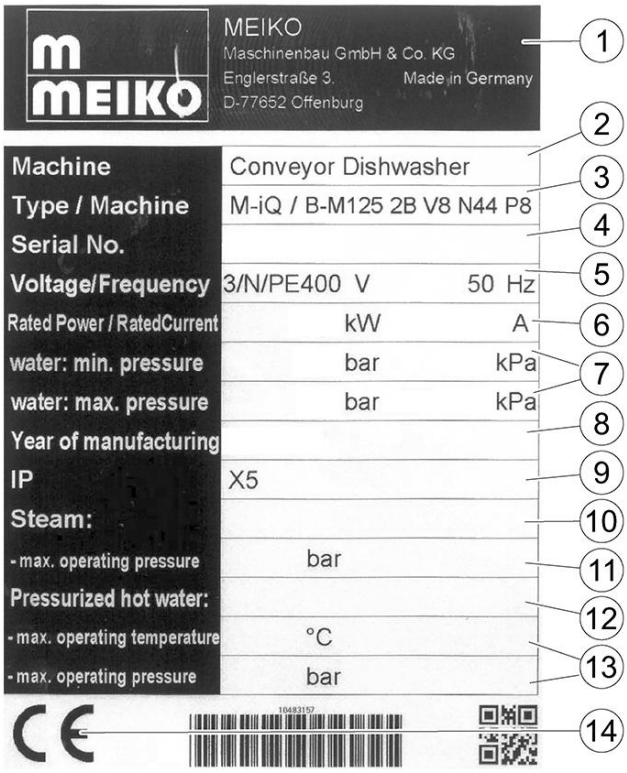
Interior view wash tank(for display reasons, the returning belt is missing)



1	Door
2	Dish track
3	Washing system bottom
4	Cleaning cap
5	Tank cover sieve
6	Strainer basket
7	Tank drain filter

4.3 Type label

The rating plate is located in the lower area on the control cabinet door. Another rating plate can be found on the inside of the control cabinet door. The rating plate includes the following information:



1	Name and address of manufacturer
2	Machine type
3	Type key
4	Serial number
5	Electrical connection
6	Rated power/rated current
7	Water pressure on site min./max.
8	Year of manufacture
9	IP protection rating
10	Steam connection
11	Steam pressure on site max.
12	Pump hot water connection
13	Pump hot water temperature/pressure
14	CE mark

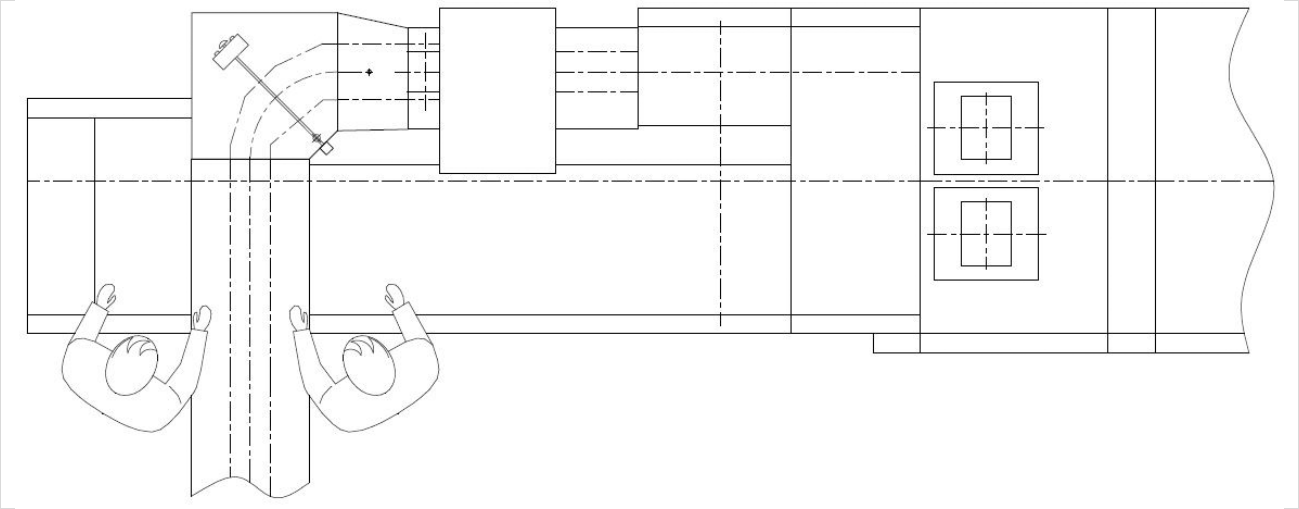
4.4 Workstations

When determining the workplace organisation, the general/local principles of ergonomics must be observed.

Thermal load:

At installation site, ensure that the room is suitably ventilated in accordance with the applicable standards and regulations.

Feeding section with 2 persons

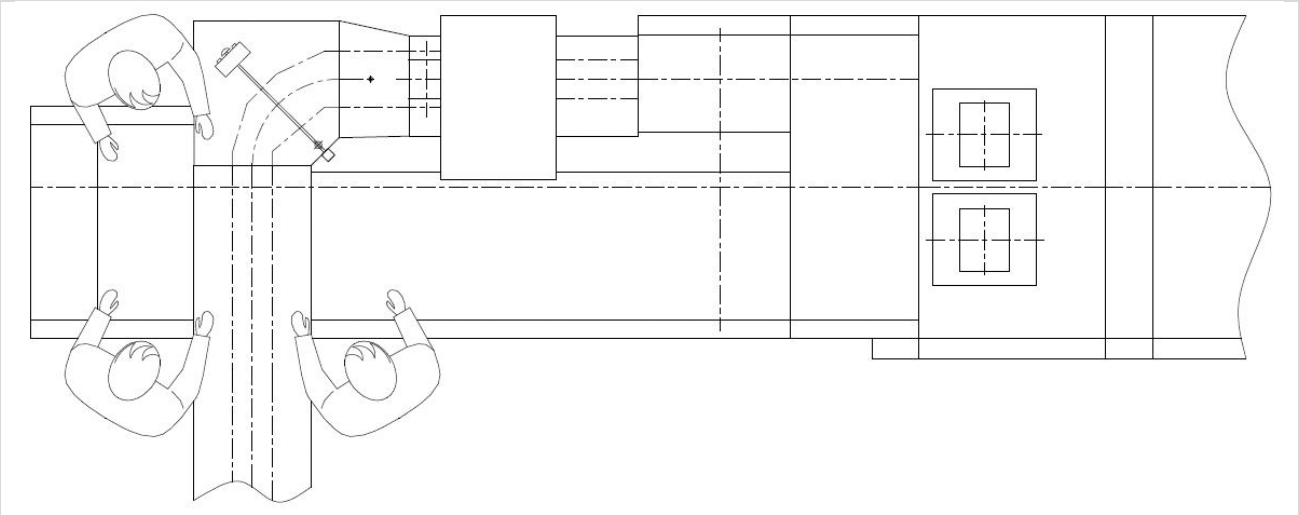


Tasks at the feeding section with 2 persons:

- Dispose of food waste and inorganic waste
- Remove dishes from the trays and place them on the dishwashing machine belt

Depending on the place setting, certain pieces of tableware can be assigned to individual persons and placed in a track. This facilitates the removal of the cleaned dishes at the discharge section (reduction of walking distances and movements).

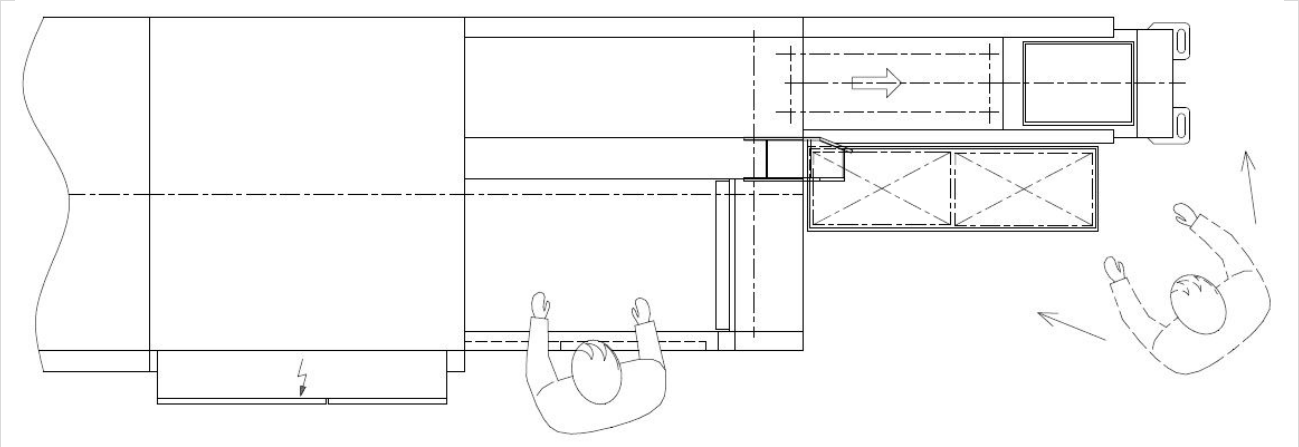
Feeding section with 3 persons



The tasks at the feeding section with 3 persons are identical to those at the feeding section with 2 persons.

The third workstation has better access to the height limitation and should take on dishes that are easy to put away because of the accessibility to the dishwasher belt.

Discharge section with one person (including jumper)

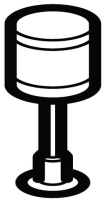


Tasks at the discharge section with one person (including jumper):

- Remove dishes from dishwasher belt and sort into stacker
- Jumper: Change cutlery tray and tray stacking device

Walking distances and movements for person(s) at the discharge section should be kept to a minimum in order to make the removal of the cleaned dishes at the discharge section efficient.

4.5 Signal lamp

	**Signal lamp at the feeding section** Orange = accumulation of cutlery pieces on the cutlery belt (height limitation).
	Signal light at the discharge section Orange = Tray dispenser trolley is full, must be replaced.

4.6 Dosing

⚠ **CAUTION – Reduced durability of dosing units and other dishwashing machine components**

The use of inappropriate detergent and rinse aid can corrode the dosing units and other machine components.

- If necessary, consult with MEIKO and the detergent supplier.

Basically, enough detergent must be added to the wash tank or wash tanks so that all dishes leave the dishwashing machine in a clean state.

Quantities cannot be given here, as the dosing quantity depends on a number of factors:

- the dosing system (liquid, powder, block, spraying system; ...)
- the degree of soiling
- the drying time
- from the preheating of the washware (e.g. plates)
- the quantity of starch present
- the water quality
- the type of detergent used (e.g. a disinfecting detergent)

The washing result can also be influenced by the transport speed of the dishwashing machine. In addition, there may be differences between different chemical suppliers. MEIKO therefore recommends that the quantity settings be made by the chemical supplier.

4.7 Options

4.7.1 GiO-TECH

GiO-TECH is a water treatment technology that uses reverse osmosis. Hardness formers and salts, which can leave residues on the washware, are filtered out with GiO-TECH.

On site requirements for the operation of a GiO-TECH system:

Characteristic	Value
Conductivity	max. 1000 µS/cm
Water hardness	max. 3°°dH
Feed water temperature	min. 1 °C to max. 25 °C
Particle size	< 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
Flow pressure	see assembly plan

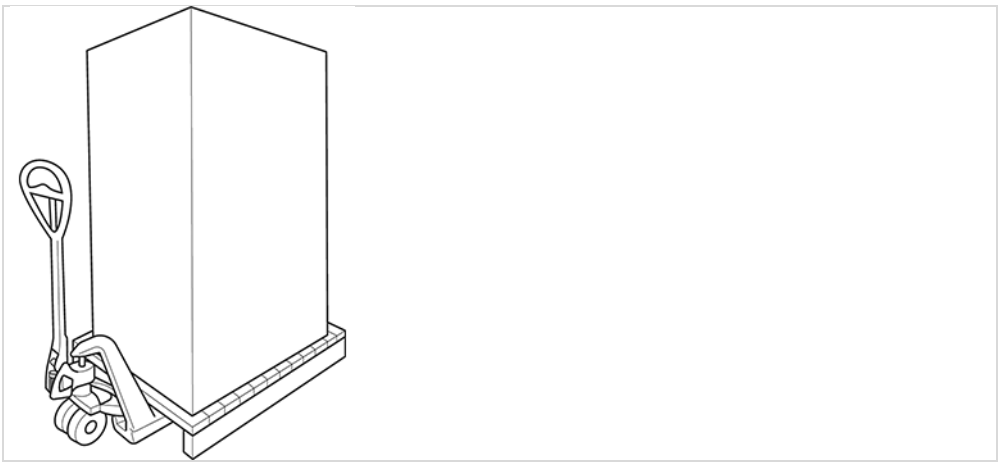
Note

The filter cartridge of the pre-filter in the GiO-TECH, must be replaced at least every 6 months by an MEIKO-authorised service technician or in-house craftsman!

5 Transport

⚠ WARNING – danger of injury due to machine tipping

- Only qualified personnel may carry out transport works.
- Please note safety notices on the packaging.
- Always transport the machine on a wooden frame only.
- Wear protective gloves and safety shoes.



The packaging is specifically designed to allow the appliances to be moved safely and securely using a pallet jack or a sack truck. For safe transport, the installation is supported by a special square timber frame.

- Execute transport carefully.
- Always transport the dishwashing machine on the supplied wooden frame.
- Observe transport instructions on the packaging.
- Do not unpack the machine until it has been transported.

5.1 Unload machine at destination

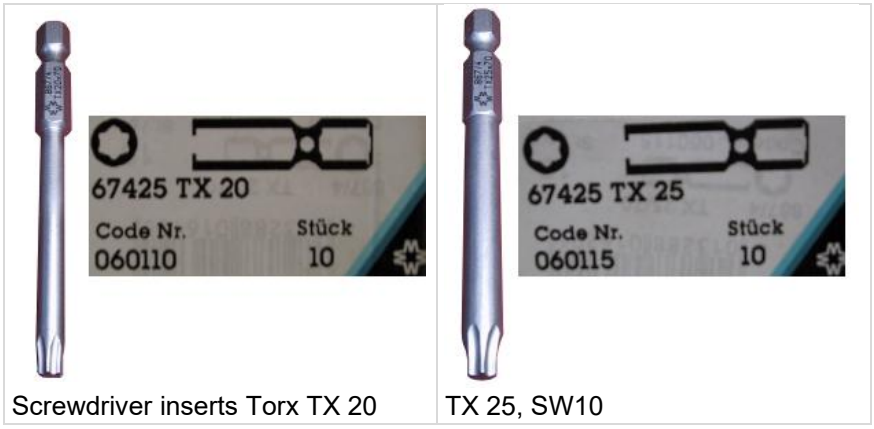
⚠ CAUTION - Destruction of the machine feet due to jerky setting down and uneven loading

- Ensure gentle lowering.
- Turn the machine feet out evenly to avoid one-sided loading.

⚠ CAUTION – Damage to the machine due to lifting in the middle of the machine frame

- Always lift with wooden beams to ensure even weight distribution.

Required tools



Screwdriver inserts Torx TX 20 TX 25, SW10

The following tools are required for loosening the fastening screws:

- Screwdriver bit Torx TX 20 and TX 25
- Screwdriver bit SW10
- Drill or screwdriver / with lockable drill chuck

Remove packaging

The machine is at its destination.

1. Remove the fixing screws. Leave the packing bars under the machine.

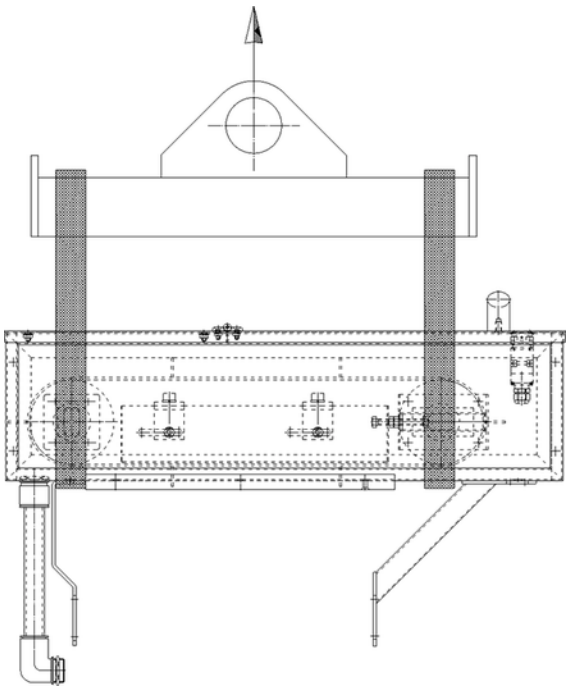
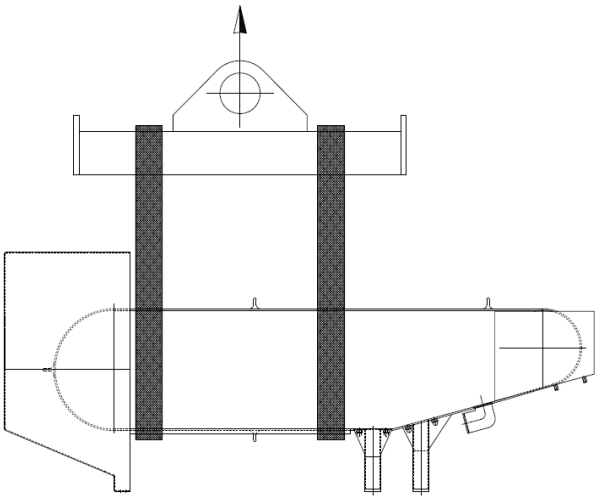
2. Lift the machine on one side and pull out all the large longitudinal beams from under the machine.

3. Remove all fixing screws and wooden parts.

The machine can be lowered to the ground. If the machine still has to be pushed against the wall, leave the small longitudinal beams under the machine.

Cutlery lifting magnet: Lifting Instructions

The lifting straps must be attached as shown.

	
Cutlery Conveyor Magnet (closed version)	Cutlery Conveyor Magnet (open version)
Transport weight including packaging approx. 100 kg	Transport weight including packaging approx. 190 kg

Cutlery Conveyor Magnet: Transport Instructions

- The Cutlery Conveyor Magnet is delivered fully assembled unless otherwise agreed in the order confirmation.
- The cutlery conveyor magnet is transported on a pallet made for the conveyor type. The main corners are fitted with protective caps and the entire conveyor is shrink-wrapped with foil. Transport the Cutlery Conveyor Magnet with forklifts or hand pallet trucks.
- After unpacking, the Cutlery Conveyor Magnet can be transported to its place of use with the aid of lifting straps or round slings. Make sure that the lifting straps used have suitable edge protection and an appropriate load capacity.

6 On site requirements

6.1 Requirements for the installation location

- Consistently frost free storage and installation site
- Install anti-slip floor coverings in the work area

6.2 Requirements for the fresh water connection

- Fresh water connections must comply with the locally applicable regulations (e.g. DIN EN 1717). Install a shut-off valve locally in each fresh water supply line; the device must be easily accessible for the operating personnel. This dishwashing machine is installed as a fully functional unit and only needs to be connected to the local power and water supply.
- In the case of water softeners or demineralisation cartridges, the customer must also provide a shut-off valve, fine filter, backflow preventer and pipe aerator.
- From a biological perspective, the fresh water must be of drinking water quality. This also applies to treated water.

- In addition, the dishwashing machine is equipped with a safety device (e.g. according to DIN EN 61770/DIN EN 1717).
- Flush the local piping/shut-off valves and hoses before connecting the system.
- The water-carrying ducts and components are not frost-proof. If the temperature at the installation site of the machine falls below 5 °C, take suitable frost protection measures.
- If the minimum flow pressure is too low, increase the pressure using a pressure booster pump.
- If the maximum flow pressure is exceeded, limit the pressure using a pressure regulator.

Fresh water connection	
Minimum flow pressure	250 kPa / 2.5 bar upstream of the solenoid valve
Maximum flow pressure	600 kPa / 6.0 bar upstream of the solenoid valve (1000 kPa / 10.0 bar in DK, SV, NO, FI)
Max. incoming water temperature with heat recovery	12°C
Pressure range for valve control via fresh water	350 kPa / 3.5 bar - 800 kPa / 8.0 bar No pressure surges
Special national conditions	Higher maximum pressure in Denmark, Sweden, Norway, Finland (see above)

General requirements for water quality	
Total hardness	Up to 3 dH
Chloride content	Max. 50 mg/l water To prevent pitting corrosion with low-alloy cutlery steel
Heavy metals Iron Manganese Copper	 0.1 mg/l water 0.05 mg/l water 0.05 mg/l water (above this value discolouration of the washware and the machine may occur)
Total salt content Porcelain/opal glass Glass Stainless steel	(measured via conductivity) Max. 400 µS/cm Max. 100 µS/cm Max. 80 µS/cm

Fresh water limit when operating a reverse osmosis system	
Designation	**Value**
Conductivity	70 – 1000 µS/cm
Water hardness	0 – 3 dH
Feed water temperature	Min. 1°C to max. 25°C (cold water connection)
Minimum flow pressure	See assembly plan
Maximum pressure	See assembly plan
Free from particles	> 10 µm
Iron	< 0.1 mg/l
Manganese	< 0.04 mg/l
Chlorine (free chlorine)	< 0.1 mg/l
Potassium permanganate	< 10 mg/l
Silicic acid	< 10 mg/l

6.3 Requirements for the waste water connection

- Waste water connections must comply with DIN EN 1256 and the locally applicable regulations.
- At the installation location, an odour seal is provided (further information in the installation drawing).
- Depending on the intended use of the dishwashing machine, a grease trap may be included, based on the general/location-specific regulations.
- For dishwashing machines with GiO-TECH, refer to the additional requirements in the documentation enclosed with GiO-TECH.
- Materials for on site pipes, sealants, etc. must be temperature-resistant up to 75 °C and resistant to acids and alkalis (pH value between 3 and 12).

6.4 Requirements for the building ventilation system

- The dishwashing machine is equipped with a heat recovery system (AirConcept), which usually makes a machine exhaust air connection to the on site ventilation system superfluous. However, if the fresh water supplied is not cold enough (> 12 °C), it may make sense to install an exhaust air connection.
- The building ventilation system must comply with the locally applicable regulations (e.g. EN 16282), and must always be watertight and corrosion-resistant.
- The exhaust air may contain small amounts of aerosols, therefore discharge exhaust air through suitable exhaust air zones or exhaust air hoods near the discharge opening.
- Exhaust air temperature and exhaust air humidity can change depending on the operating status, e.g. in standby mode. The data for heat load (temperature/ relative humidity) from the order-related documents refer to uninterrupted washing cycle.
- If the exhaust air is discharged into the surrounding room, adjust the discharged volumetric air flow.

6.5 Requirements for the steam connection/pump hot water connection

- The on site operating pressure must not exceed the permissible nominal pressure of the taps of the dishwashing machine (see type plate).
- The connection to the on site steam pipe is always made from above, all necessary valves, control units and condensate traps are installed in the machine.
- 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. If the condensate is drained upwards, a discharge condensate trap (quick drain) is installed in the machine at the factory.
- Unpressurised condensate return line installed with a downward slope.
- Pipes upstream of the dishwasher's condensate not insulated.
- Use steam-resistant seals on the connections to the machine.
- Pressure and temperature of the supplied media (steam / hot water) are constant.
- Frost-free installation site or suitable frost protection measures at temperatures < 5 °C.

6.6 Requirements to the 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. However, national installer's regulations may differ. The machine and accessory appliances are intended for permanent connection to the on-site power supply and the on-site protective equipotential bonding and have been tested accordingly before being brought to market.

Fuse 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/mains connection cable

- 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 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.
- Refer to the circuit diagram for technical data for the main switch such as torque and stripping length.

Electrical safety

- The electrical safety of this machine is only ensured if it is connected to a properly installed protective conductor system. It is very important to verify this fundamental safety feature. If in doubt, have the building 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.

7 Assembly and commissioning

The plant is erected and commissioned exclusively by MEIKO, therefore the chapters on assembly and commissioning are omitted.

8 Technical data

Environmental conditions

Plant without cutlery lifting magnet and plate demagnetiser	
Characteristic	**Value**
Temperature range	max. 40° C
Pressure range fresh water	350–800 kPa (3,5–8 bar)
Water temperature for optimum operation of an exhaust air heat recovery system	max. 12° C

Cutlery lifting magnet and plate demagnetiser	
Characteristic	**Value**
Ambient temperature	20–40 °C
Transport goods	Magnetically detectable cutlery pieces
Dimensions (standard canteen cutlery)	Length < 210 mm average knife handle width > 12 mm knife handle thickness <6 mm knife weight < 70 g
Quantity	approx. 50 cutlery pieces per minute
Temperature of the transported goods	ca. 20–30°C
Transport weight incl. packaging	approx. 100 kg (closed version)
Transport weight incl. packaging	approx. 190 kg (open version)

Washware

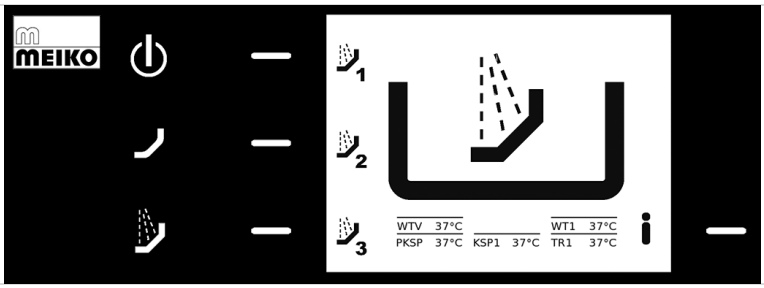
Characteristic	Value
Max. diameter plate (= height of washware)	260 mm

Each system is dimensioned specifically for the customer, therefore no values are given here for most properties. These are available in the order-specific assembly plan. Data on the connection can also be found on the rating plate see page 20.The following features, among others, can be found in the assembly plan:

Mains connection		
Mains connection	V/Hz	See rating plate
Current consumption	A	
Rated power	kW	
Noise emission		
Emission sound pressure level at the workplace LpA	dB(A)	≤80
Miscellaneous		
Floor load per foot (Ø30 mm)	kg	Max. 220

9 Operation/use

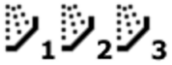
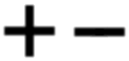
9.1 Glass control panel



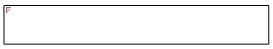
Keys

Key	Meaning	Key	Meaning
	On/Off key Filling/heating on or machine off		**Service access key (MEIKO key)**
	Confirmation keys • Meaning/function is shown on the display next to the relevant key • Illuminated blue: function selectable • Illuminated green: function active		**Washing operation on** • flashing green: filling/heating active • illuminated blue: ready for operation • illuminated green: washing operation
	Washing interruption Short interruption of the washing operation		

Functions of the confirmation keys

Symbol	Meaning	Symbol	Meaning
	Conveyor speed 1 / 2 / 3, not adjustable on all models		Horizontal menu selection
	Machine status and settings (i-menu)		Vertical menu selection
	Main menu		Next digit in entry field
	Menu Self-cleaning/Draining		Change value
	Filling per time		Back without change
	Extended notes to a message		Confirm the selection

Status displays

Status display	Meaning	
	• Ready for operation • Machine washing • Filling • Filling/heating	• Heating • Machine off • Infeed break • Dishes jam
Tank temperatures 	WTV: Wash tank pre-washing PKSP: Pump final rinse FKSP: Fresh water final rinse	WT: Wash tank TR: Drying

9.2 Before switching on the machine

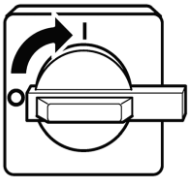
⚠ WARNING – Risk of injury from contact with chemicals

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

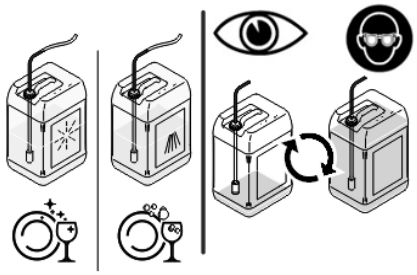
⚠ CAUTION – risk of injury when closing the machine doors

- To close the machine doors, use the handle designated for this purpose.

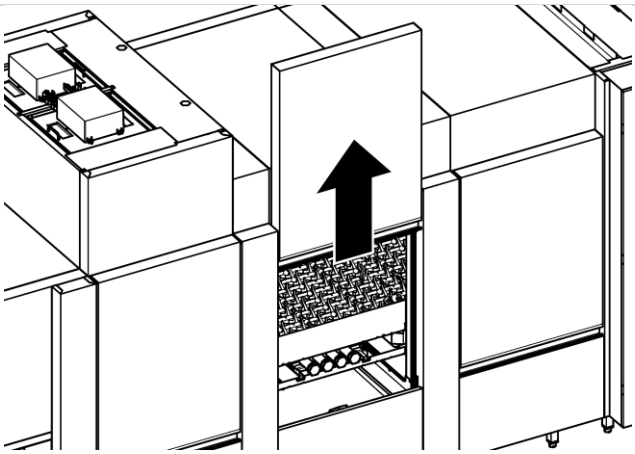
1. Ensure the water supply is available.



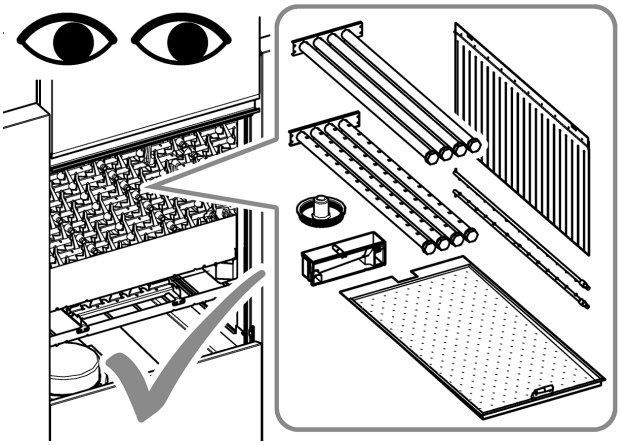
2. Turn on main switch.



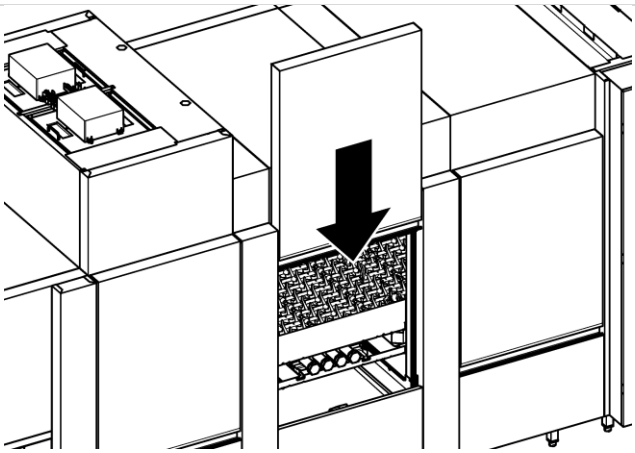
3. Check detergent and rinse aid, replace if necessary according to manufacturer's instructions.



4. Open machine doors.

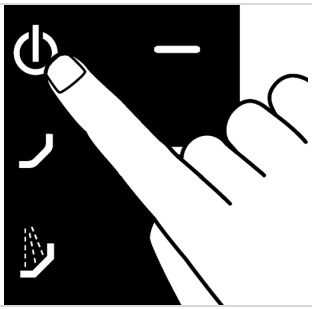


5. Make sure that all parts (strainers, plugs, etc.) that were removed for cleaning are correctly reinserted.



6. Close machine doors.

9.3 Start up the machine

			
1. Press on/off key.	**FILLING**	**FILLING / HEATING**	**READY FOR OPERATION**

Note

The time required for the machine to be ready to operate depends on the temperature of the water supply and the installed boiler or tank heating capacity.

9.4 Washing

⚠ CAUTION – Risk of injury from reaching into the running conveyor belt of the dishwashing machine

- Do not reach into the running conveyor belt.
- For troubleshooting, switch off the transport (emergency stop function).
- Wear suitable clothing (tight-fitting).

⚠ CAUTION - Risk of injury from rotating drum motor, belt and guide roller of the cutlery lifting magnet

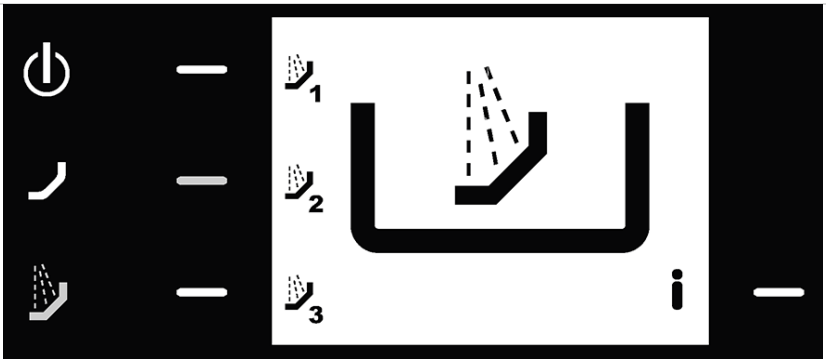
- When operating the cutlery lifting magnet, crushing and cutting of fingers and hand, pulling in, catching and winding up of hair or clothes is possible.
- Do not reach into the cutlery lifting magnet.
- Wear suitable clothing (hair net if necessary).
- Before troubleshooting, operate the emergency stop function.

⚠ CAUTION - Risk of injury by using plates that are too large

When using plates with a diameter > 26 cm, the gap between the belt bridge and the plate edge is very small. There is a risk of injury to the hands (crushing).

- Only use plates with a diameter < 26 cm.

1. Press the **Washing operation on** key.

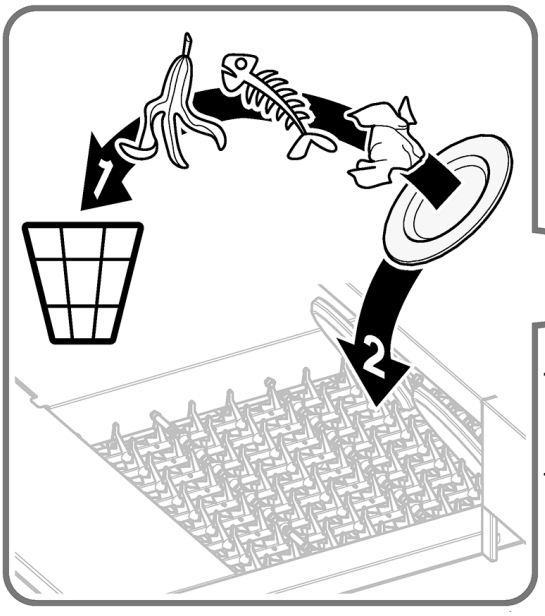


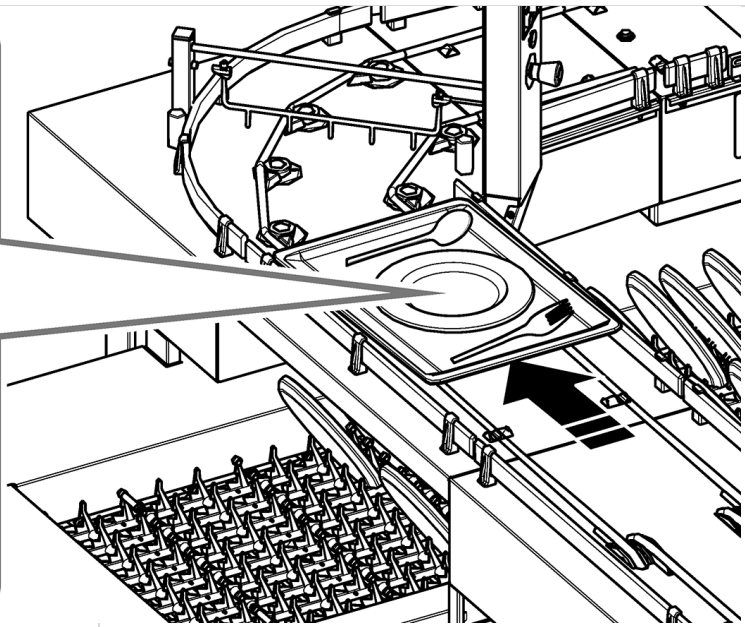
The **Washing cycle on** button lights up green and the display shows the ongoing washing cycle.

When loading the machine, please note:

- All hollow containers must always be loaded upside down. Otherwise the water will not be drained from the washware and brilliant drying will not be possible.
- Always place plates and food platters at an angle between the belt fingers. The inner surfaces face upwards.
- When using cutlery, make sure that there are not too many cutlery pieces on the trays. If the cutlery piles on the cutlery belt are too large, the height limitation is activated and the machine is stopped.
- Do not place dishes on top of each other on the belt. Direct contact with the wash water would be made more difficult and the belt speed would have to be set unnecessarily slow. Sort the dishes into the tracks as evenly and without gaps as possible. For machines with Green-Eye washware detection (option), make sure that not all tracks of the dishwashing machine are used when there is a low volume of washware.

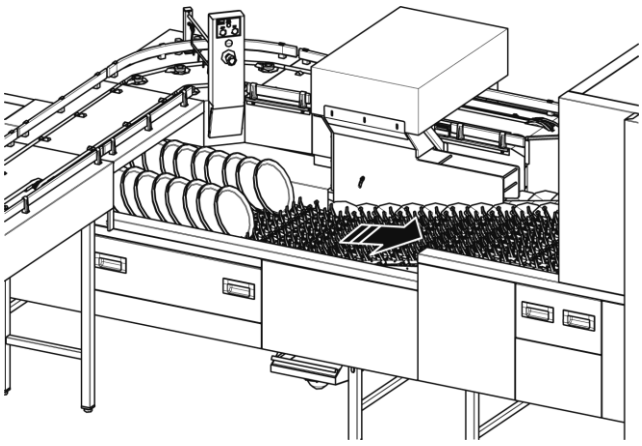
Activities at feeding section



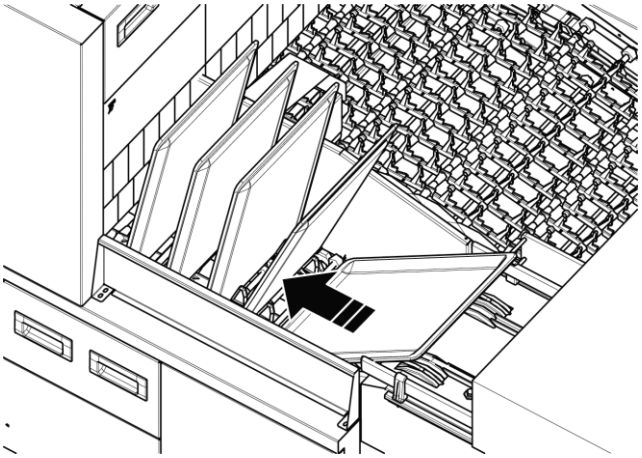


When the machine is switched on, the dish track with the cutlery track and the tray track start up. The tray conveyor belt with the cutlery lifting magnet must be switched on separately. The tray conveyor belt transports the used trays from the restaurant to the dishwashing machine.

1. Clear everything but the cutlery off the tray. Place plates, hollow ware, bowls on the dish track. Clear napkins/waste and food waste and sort accordingly.



The cutlery lifting magnet magnetically lifts the cutlery pieces remaining on the tray and drops them on the cutlery track. There, the cutlery pieces are demagnetized.

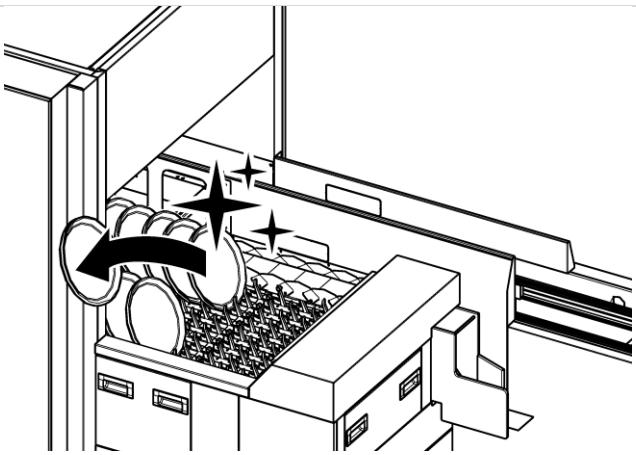


The trays are then automatically placed on the tray track of the dishwashing machine.
Dishes/cutlery and trays are transported through the dishwasher and washed.

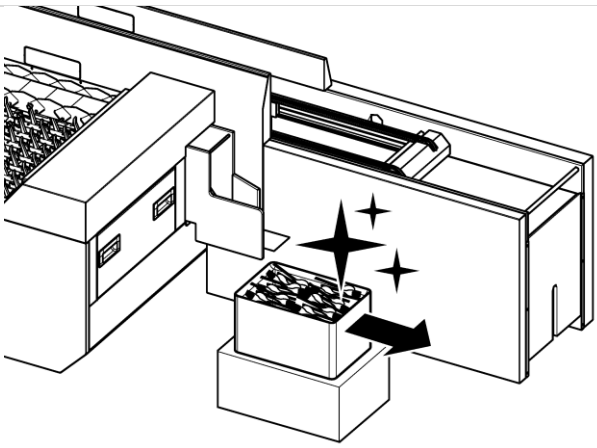
⚠ CAUTION – Danger of burns and scalding due to hot wash water, washware and machine parts

- Wear protective gloves if necessary.
- Let the machine cool down before touching machine parts, if necessary.
- Never open the doors during washing cycle.
- Only use the handles provided for opening or closing.

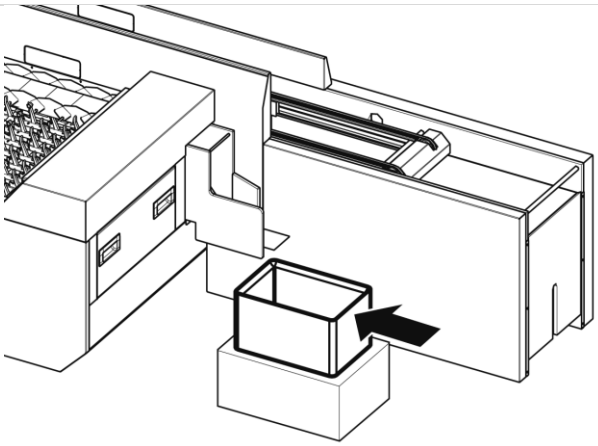
Activities at discharge section



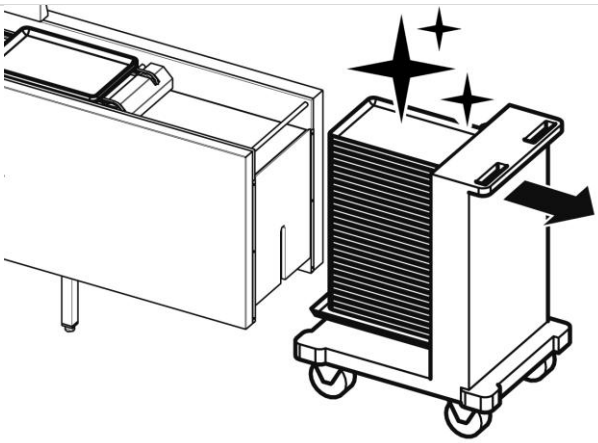
1. Remove the washed dishes from the conveyor and put them away accordingly.



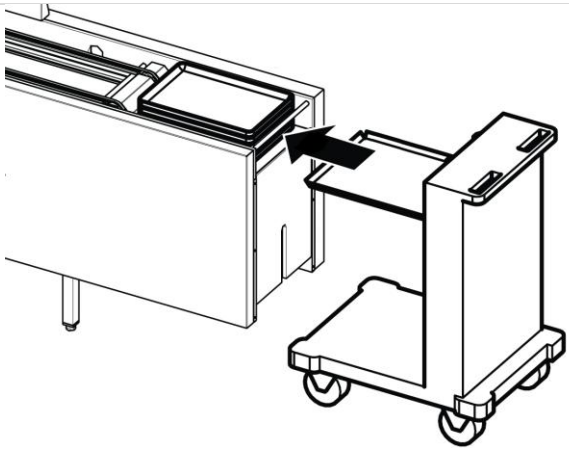
2. Replace full container of washed cutlery.



3. Provide containers for washed cutlery under the cutlery tray.



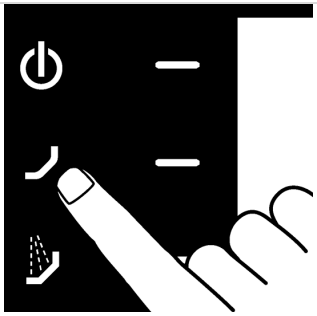
4. Move full tray dispenser trolley away from tray stacker.



5. Lift the trays that have accumulated in the meantime from the buffer onto the tray dispenser trolley. Move the tray dispenser trolley into the tray stacker.

9.4.1 Washing interruption

The dishwashing machine is running and the display shows the ongoing dishwashing operation with **OPERATION**.



1. Press the **Washing off** key.

The machine changes to the status **READY FOR OPERATION.** The wash key is flashing blue. Wash pumps and conveyor belts are switched off, tank heatings remain in operation to ensure a quick continuation of the process.

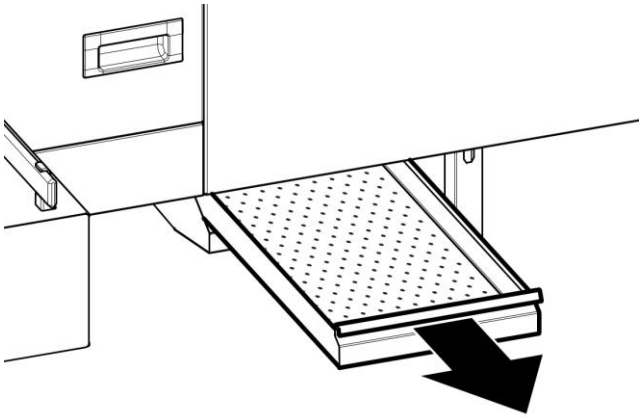
2. To continue the washing operation, press the key **Washing on.**

9.5 Washing during ongoing washing cycle

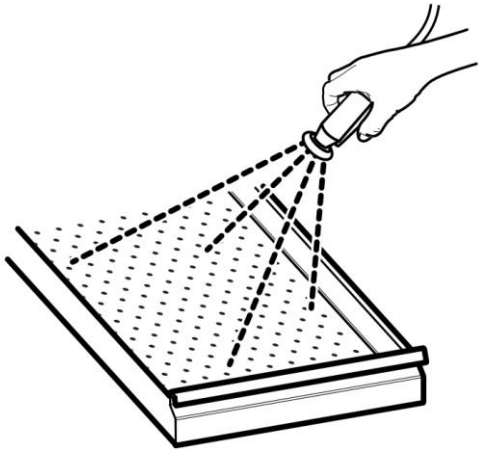
⚠ CAUTION - risk of injury after removing the feeding sieve

- Do not reach into the opening in the machine.

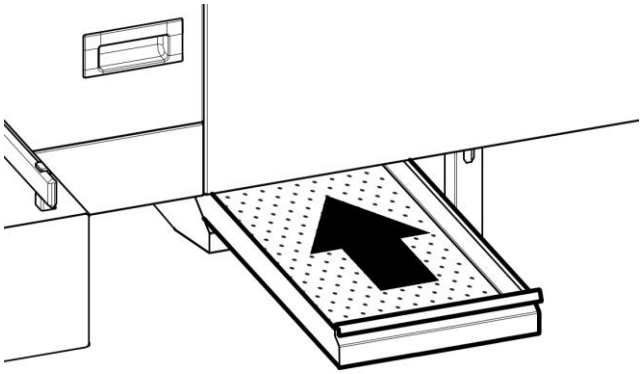
It is possible to clean the feeding sieve during ongoing washing cycle, e.g. in the event of heavy dirt ingress. For all other washing cycles, the machine must be turned off and drained see page 48.



1. Pull out the feeding sieve completely.

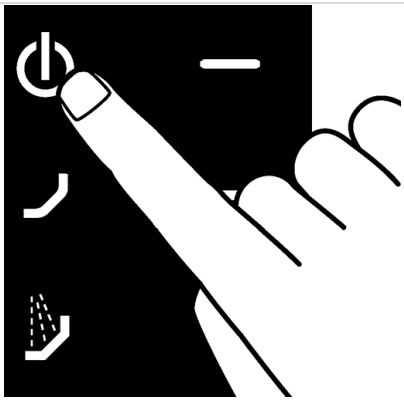


2. Empty and clean the feeding sieve.

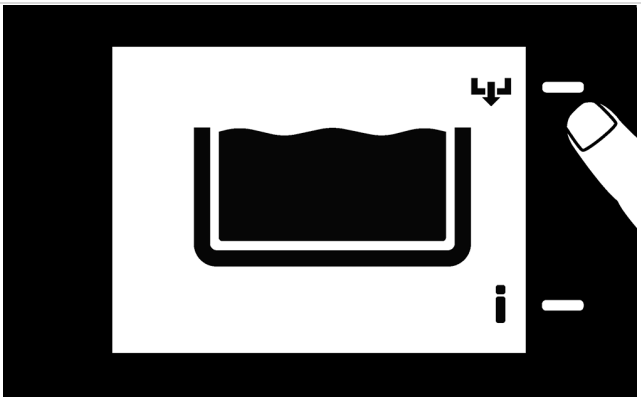


3. Push the feeding sieve back in.

9.6 Switch off the machine



1. To switch off the washing operation, press the on/off key.



2. Switch to the **Self-cleaning/Draining** menu.

✓ 3. Select **Self-cleaning** or **Draining** (see below).

➡ The machine is drained and ready for manual cleaning, see page 48.

Self-cleaning/Draining menu

Menu entry	Meaning
Self-cleaning feature	Draining of the wash tank pre-washing, then the individual tanks are re-pumped, cleaned and drained until the entire machine is empty. The heat recovery system is cleaned. No refilling with fresh water but preparation for manual cleaning of the machine.
Draining	All tanks are drained at the same time. The heat recovery system is cleaned automatically. No refilling!
PKSP refilling	Change the water in the pump rinse tank.
WT refilling	Change water in all wash tanks.
WTV refilling	Change water in wash tank pre-washing.
All tanks refilling	Change water in all wash tanks and final rinse tanks.

9.7 Assistance in case of malfunctions

If the described malfunctions occur several times, their cause must be identified in any case.

More frequent disturbances

Malfunction	Possible cause	Remedy
Transport stops	Dishes/trays not removed at the discharge section	Remove dishes or change tray dispenser trolley
	Door or cleaning flap open	Close the door or cleaning flap
	Belt blocked, safety shutdown	Remove blockage, allow belt to reverse if necessary, see page 40.
	Accumulation of cutlery pieces on cutlery belt triggers stop (height limitation)	Distribute cutlery on belt
	Emergency stop function actuated, hood of cutlery lifting magnet opened	Release emergency stop function/ close hood

Occasional malfunctions

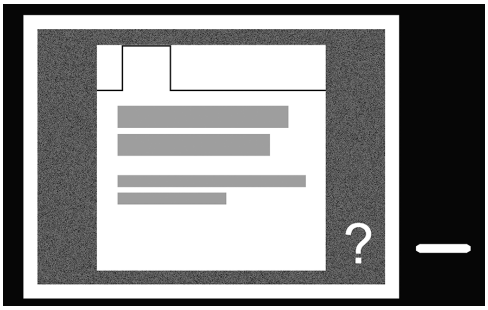
Malfunction	Possible cause	Remedy
Dishwashing machine doesn't fill up	Shutt-off valve closed	Open the shut-off valve
	Dirt trap in water supply blocked	Clean the dirt trap
	Level electrode / float soiled	Clean air gap/float
	Doors open	Close doors
Final rinse does not spray	Shutt-off valve closed	Open the shut-off valve
	Dirt trap in water supply blocked	Clean the dirt trap
Vapour escaping	Incorrectly fitted or missing curtains	Check and insert curtains correctly
	Temperatures too high	Check temperatures and have adjusted by service technician if necessary
	Wash and rinse systems, drying nozzles, air guide plates bent or not fitted correctly	Check, align if necessary / insert correctly.
Streaks/smears on the washware	Unsuitable rinse aid	Change product
	Incorrect dosing quantity	Adjust dosing quantity
	Detergent got into the final rinse zone when washing containers that were too large	Refill pump final rinse, see page 41.
	Mineral content of the rinse water too high	Water pre-treatment may be necessary
	Water pre-treatment defective or regeneration not carried out	Check water pre-treatment, carry out regeneration if necessary
	Different quality of fresh water at different installation sites	Select water pre-treatment based on water quality
	Incorrectly fitted or missing curtains	Check and insert curtains correctly
	Conveyor speed too high	Reduce conveyor speed
Strong foam formation in the wash tank	Dirt level too high	Pre-wash the washware more thoroughly / change the tank water more often, see page 41.

Malfunction	Possible cause	Remedy
	Hand dishwashing detergent or foaming detergents are used for precleaning or for cleaning machine parts	Do not use foaming dishwashing detergents
	Unsuitable detergent or rinse aid	Change product
	Temperature too low (< 40 °C)	Check temperatures and have them adjusted if necessary

9.7.1 Reverse conveyor belt

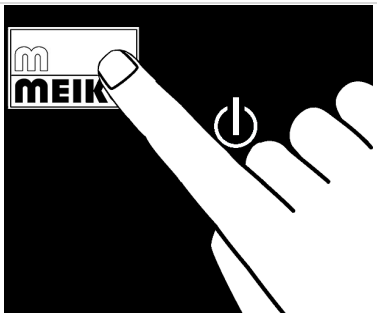
⚠ CAUTION - risk of injury when reversing the conveyor belt / overload cut-off of the conveyor belt not in operation

- Ensure that nobody reaches into the machine when reversing.
- Ensure that only instructed personnel carry out the function of **reversing the conveyor belt**.



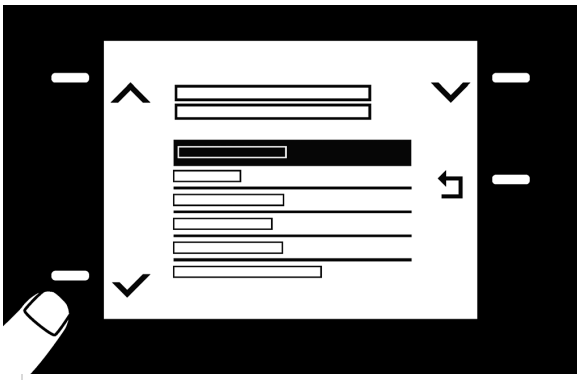
An object is jammed in the machine. The display shows the red message **TRANSPORT error 80**, **error 85, error 90** for drive 1, 2 or 3.

✓ • Confirm message.



1. Switch to setting level 1, see page 44.

i 2. In the i-menu switch to the **TRANSPORT** tab.



3. Use the direction arrows to select and confirm the entry **Reverse Conveyor**.

The submenu **REVERSE CONVEYOR** appears. The menu entry **Reverse Conveyor** is already selected.

✓ 4. Confirm the selection to let the conveyor belt move backwards for approx. 1.5 s. If necessary, repeat the procedure until the fault can be eliminated. Note: If there are several drives, they are always controlled simultaneously.

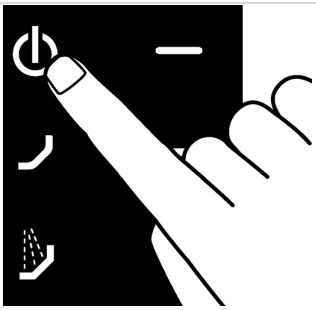
⌂ 5. When programming is complete, press the Home key to return to the main screen.

✓ 6. Press the service access key (MEIKO) and confirm with Yes to exit the setting level.

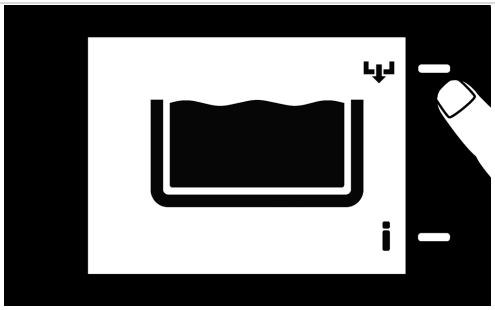
9.7.2 Changing water

Note

If the wash water is heavily soiled, it is advisable to replace the water in the tanks of the dishwashing machine during operation.



1. To switch off the washing operation, press the on/off key.



2. Switch to the **Self-cleaning/Draining** menu (see below).

✓ 3. Make the desired selection and confirm.

➡ The water is renewed.

Self-cleaning/Draining menu

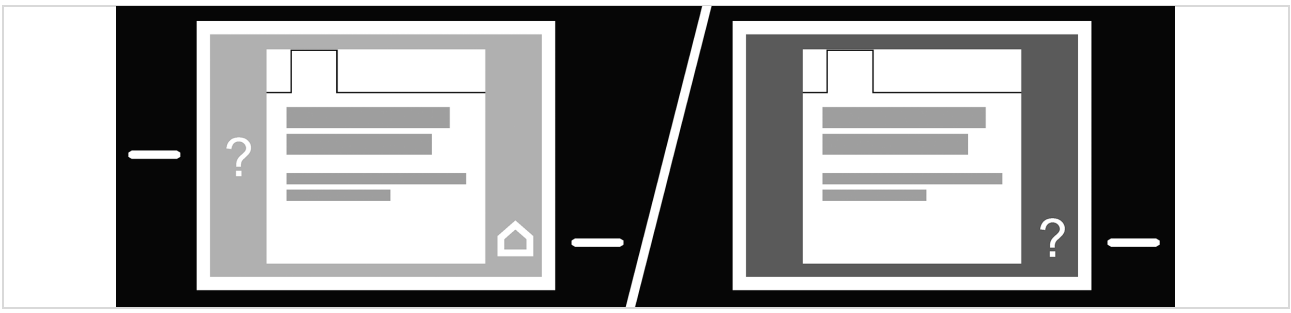
Menu entry	Meaning
Self-cleaning feature	Draining of the wash tank pre-washing, then the individual tanks are re-pumped, cleaned and drained until the entire machine is empty. The heat recovery system is cleaned. No refilling with fresh water but preparation for manual cleaning of the machine.
Draining	All tanks are drained at the same time. The heat recovery system is cleaned automatically. No refilling!
PKSP refilling	Change the water in the pump rinse tank.
WT refilling	Change water in all wash tanks.
WTV refilling	Change water in wash tank pre-washing.
All tanks refilling	Change water in all wash tanks and final rinse tanks.

9.7.3 Bypass operation of the water treatment plant

If the reverse osmosis system GiO-TECH produces too little water, the **message 710: Mains disconnection MIN undershot** is displayed. After a period of 15 s, the system switches to bypass mode and the **message 790: Water treatment inactive** appears on the display. **Caution: Operation without demineralized water!**

If no acknowledgement option in the form of a checkmark is shown on the display, this means that no water is available on site, or that the on-site shut-off valve is closed. As soon as the on-site water supply is available, and the minimum level is raised above the bypass line, the messages 706/710 disappear. The reverse osmosis system can then be reactivated again with the checkmark. If this is still not the case, please inform the responsible service representative.

9.8 Messages



When a malfunction occurs, a grey or red message is shown on the display depending on the nature of the malfunction.

- Grey messages can be acknowledged using the relevant confirmation key.
- Red messages usually require the deployment of an authorised service technician.
- If these messages occur, further work is not possible:
  - 5, 6, 8, 30–31, 34–39, 48–56, 58–59, 82–83, 87–88, 92–93, 105–110, 155–160, 205–210, 255–260, 405–410, 455–460, 505–510, 119–130,169–180, 219–230, 269–280, 419–430, 469–480, 519–530, 132–135, 142–145, 183–185, 233–235, 283–285, 433–435, 483–485, 533–535, 490–495, 540–545, 600–603, 612–614, 622–624, 632–634, 644–648, 656–660, 668–672, 680–684, 692–696, 700–717, 730–747, 760–777, 719–728, 749–758, 779–788, 791–792, 794–795, 797–798, 900–993

    Switch off on-site power supply
  - Close on-site water supply
  - Call an in-house technician/service technician!

Abbreviations in combination with message number indicate the fault location, see also product overview:

Abbreviation	Meaning	Abbreviation	Meaning
TRSP	Transport	LC	Liquid cooler
PKSP	Pump final rinse	TR	Drying
WT	Wash tank	FR	Final rinse
WTV	Wash tank pre-washing	GiO	Reverse osmosis
TD	Thermal disinfection		

Messages

No.	Display text	Measures/remedial action
1	Emergency stop activated	Eliminate cause and unlock emergency stop button.
3	Perform maintenance	Call a service technician!
7	Replace reverse osmosis pre-filter	
9	Restricted operation activated	If this message reoccurs, call a service technician
10–18	Status messages for the daily protocol	Information for the operator, can be acknowledged.
20	Check external final rinse unit	Replace rinse aid canister.
21	Check detergent dosage unit	Replace canister for detergent.
22	Check gas module	See gas module description
23	Check water treatment	See water treatment description
24	Check external transport unit	See description in wiring diagram
25	Check dosing system	See dosing system description
26	On-site compressed air supply	Check on-site compressed air supply

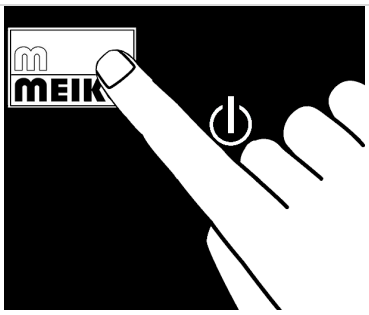
No.	Display text	Measures/remedial action
27	Switch off via external unit	See description in wiring diagram
32	Programme suggestion is present	If necessary, change programme, since utilization has been reduced/increased.
33	Programme suggestion cancelled	No intervention is necessary.
44–46	Messages concerning increased on-site steam pressure	Call an in-house technician/service technician.
57	Automatic refill of hot water circuit is running	No intervention is necessary.
60/70	Flap open	Close all flaps. If this message reoccurs, call a service technician
61–62/ 71–72	Flap switch signals not identical	Further work possible with restrictions Call service technician!
80/85/90	Conveyor overload (mechanical)	Remove jamming (reverse belt if necessary).
81/86/91	Conveyor overload (motor current)	
84/89/94	Height limitation	Eliminate cause
100/150/200/250/400/450/500	First fill error	Check the drain filter, clean seal and seal seat, if necessary. Check the dirt trap in the supply pipe and clean if necessary.
101/151/201/251/401/451/501	Refill error	
102/152/202/252/402/452/502	Door open	Close door. If this message reoccurs (door malfunction), call a service technician.
103,104/153,154/203,204/253,254/403,404/453,454/503,504	Door switch signals not identical	Further work possible with restrictions Call service technician!
111/161//211/261/411/461/511	M-filter pump thermal contact	Check washing systems: correctly inserted, missing caps. Check drain filter. Remove dirt. If this error message reoccurs, call a service technician.
112/162/212/262/412/462/512	Filter box missing	Insert filter box correctly
113/163/213/263/413/463/513	Drain filter missing	Insert drain filter correctly. If this error message reoccurs, call a service technician.
115/165/215/265/415/465/515	Refill amount unusually high	Check washing systems: correctly inserted, missing caps. Check drain filter. Remove dirt. If this error message reoccurs, call a service technician.
117/167/217/267/417/467/517	M-filter pump run time exceeded	
118/168/218/268/418/468/518	Washing pressure critical	
131/181/231//281/431/481/531	Minimum level not reached -> transport stop	Check washing systems: correctly inserted, missing caps. Check drain filter. Remove dirt. If this error message reoccurs, call a service technician.
610–630	Low pressure switch triggered	See FrigorTec operating instructions, if necessary contact FrigorTec
611–631	High pressure switch tripped	
640/652/664/676/688	Door open	Close door. If this message reoccurs (door malfunction), call a service technician.

No.	Display text	Measures/remedial action
641,642/653, 654/665,666/ 677,678/689, 690	Door switch signals not identical	Further work possible with restrictions Call service technician!
718/748/778	Check final rinse unit	Check rinse aid fill level
790/793/796	Water treatment inactive	Change pre-filter if necessary. If this message reoccurs, call a service technician
791/794/797	Check on-site water supply	Check on-site water supply

9.9 Modifying settings

Note

To view the machine status and the current settings, the settings level does not have to be changed (level 0)!



1. Hold service access key for approx. 3 seconds

2. Enter the service code of the required setting level.

Level 0: Machine status (no code entry)

Level 1: Advanced settings (code 10001)

The unlocked setting level is displayed.

3. Confirm message

Settings can now be changed in the i-menu, see page 45.

i-menu

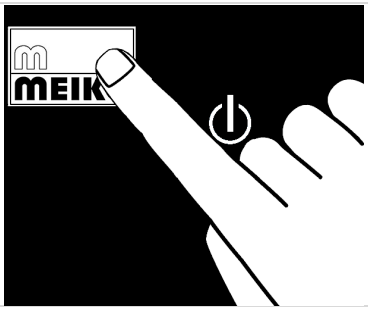
	Sym-bol	Level	Description
Language		0/1	Set display language
Feeding section		0/1	View flap switch status
Extraction		0/1	View fan status
Wash tank V pre-washing		0/1	View temperatures, water level, status of heater and door switch
Wash tank		0/1	
Thermal disinfection (option)		0/1	
Pump final rinse		0/1	
Final rinse		0/1	View temperatures, flow rate, status of heaters and liquid cooler (option)
Drying		0/1	View temperatures, door switch and heater status
Heat exchanger (option)		0/1	View temperature/pressure of hot water circuit
Discharge section		0/1	View flap switch status
Transport		0/1	View status of limit switch and dish detection (option) Allow belt to reverse
Global (Machine)		1	Set parameters of self-cleaning feature, Bluetooth communication, restricted operation
Operational times		0/1	View maintenance intervals, GiO filter change interval (option), operational times
Consumption		0/1	View water consumption
Daily protocol		0/1	View archived operational times, events, etc.
General		0/1	View software version, machine serial number, machine type
Setup		1	Display settings (units/display) Set date/time Set weekly programme (times)

9.9.1 Setting the language

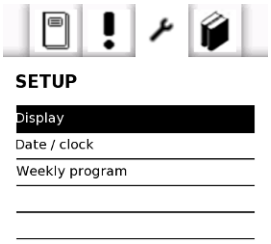
1. Open the i-menu.

2. In the **LANGUAGE** tab, the desired language can be selected with the arrow keys and confirmed with the checkmark.

9.9.2 Set date and time



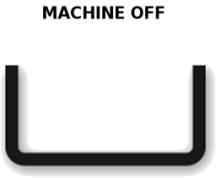
3. Switch to setting level 1, see page 44.



4. In the i-menu switch to the **SETUP** tab.

5. Use the direction arrows to select and confirm the **DATE/TIME** entry.

6. Use +, - and the arrow key to set the date and time. At the end confirm with the checkmark & save.



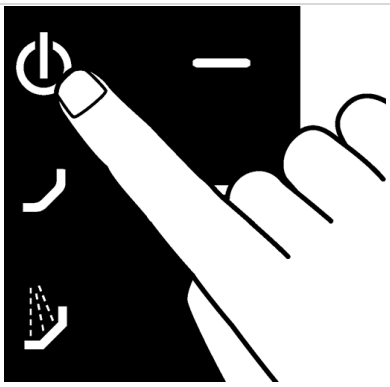
7. When programming is complete, press the Home key to return to the main screen.

8. Press the service access key (MEIKO) and confirm with Yes to exit the setting level.

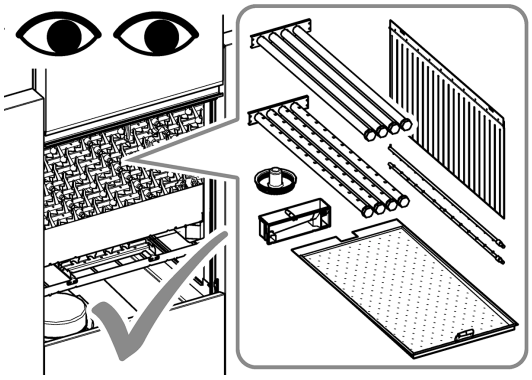
9.9.3 Set filling per timer

FILLING PER TIMER is only possible when the main switch is switched on. It requires the presence of personnel at the set time! **FILLING PER TIMER** must be activated once by the service technician (MEIKO-authorized).

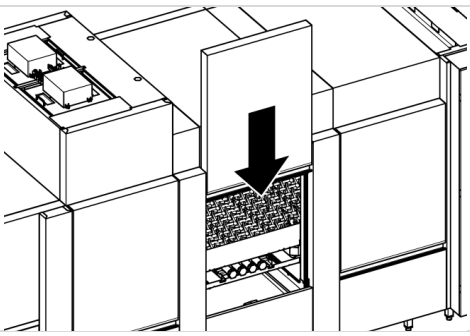
Activating filling per timer



1. If necessary, press the on/off key to set the machine to the **MACHINE OFF** status.



2. Make sure that all parts (strainers, plugs, etc.) that were removed for cleaning are correctly reinserted.



3. Close doors.

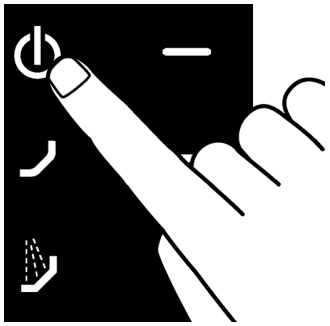
4. Select clock.
   The **FILLING PER TIMER** dialogue box appears. The set filling time is displayed. By default, the next day is preset with the last selected time. If this setting is correct, leave the machine in this state. Times programmed via the weekly programme are suggested here.

Changing the filling time

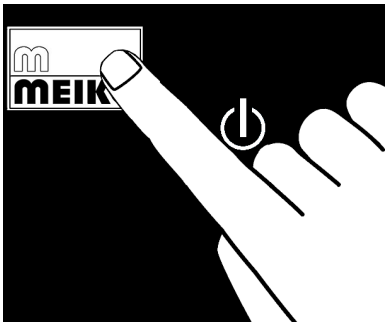
To change the filling time, select the clock again. Set the desired value with + and - and save and close with the checkmark.

9.9.4 Set weekly program for FILLING PER TIMER

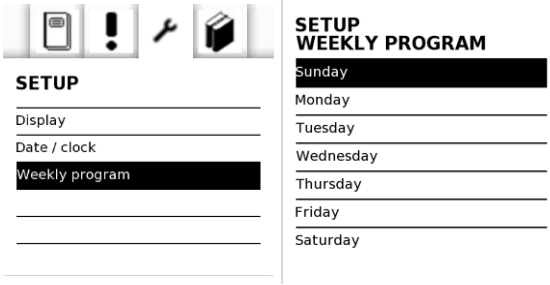
You can programme up to three times per weekday. These are available as a time suggestion when **FILLING PER TIMER**. The programming is retained after the machine is switched off.



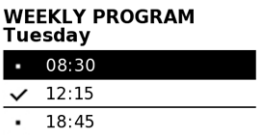
1. If necessary, press the on/off key to set the machine to the **MACHINE OFF** status.



2.Switch to setting level 1, see page 44.



3. In the i-menu, switch to the **SETUP** tab. Select **WEEKLY PROGRAMME** with direction arrows.



4. You can programme three times per day with + and - for quick selection. The active time is marked with a checkmark.

5. When programming is complete, press the Home button to return to the main screen.

6. Press the service access key (MEIKO) and confirm with Yes to exit the setting level.

10 Cleaning

⚠ CAUTION - Danger of burns from hot machine parts

- Let the machine cool down before cleaning
- Wear protective gloves if necessary.
- Only use the handles provided for opening or closing.

⚠ CAUTION – Material damage to electrics due to water ingress

- The machine, control cabinets and other electrical components must never be sprayed with a hose or high pressure cleaner.
- Make sure that no water can enter the machine unintentionally.
- If installed at ground level, never flood the surrounding room.

⚠ CAUTION – Material damage to stainless steel due to incorrect cleaning

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

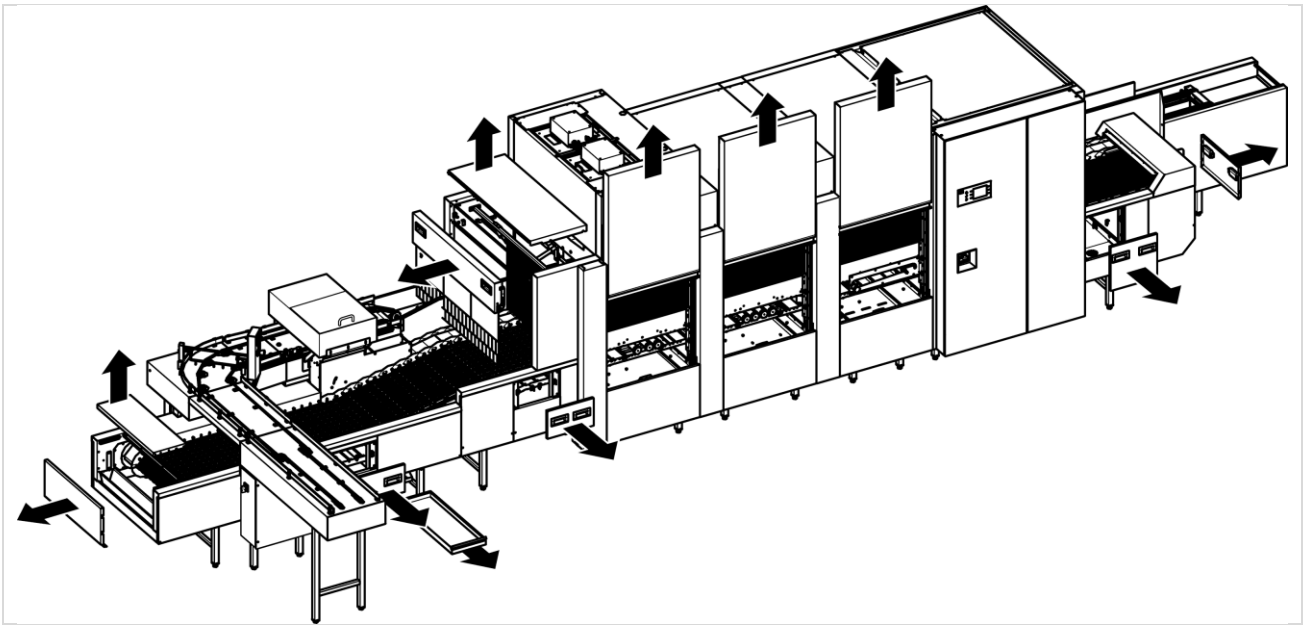
- Never use aggressive detergents or scouring agents.
- Never use detergents that contain hydrochlorid acid or bleaches based on chlorine.
- Do not use cleaning utensils previously used to clean non-stainless steel.

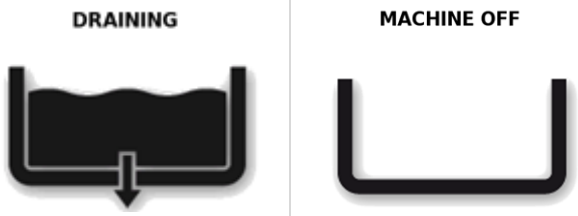
⚠ CAUTION - Evaporation of aggressive detergents

The use of aggressive detergents and care products near the machine can cause damage to the machine due to their fumes.

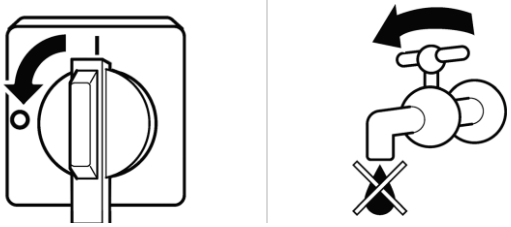
- Make sure that the detergents and care products cannot have direct contact with the machine.
- Do not use aggressive detergents (e.g. aggressive tile cleaner) to clean the surrounding area.
- Please observe the notes on the product packaging.
- In case of uncertainty, request information from the suppliers of these products.

Doors and housing parts to be opened for cleaning

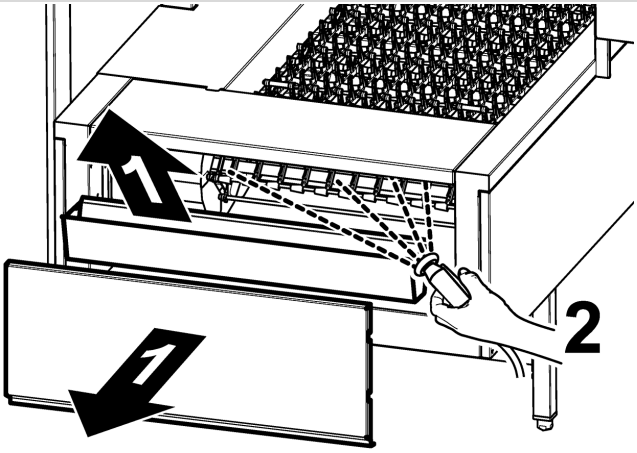




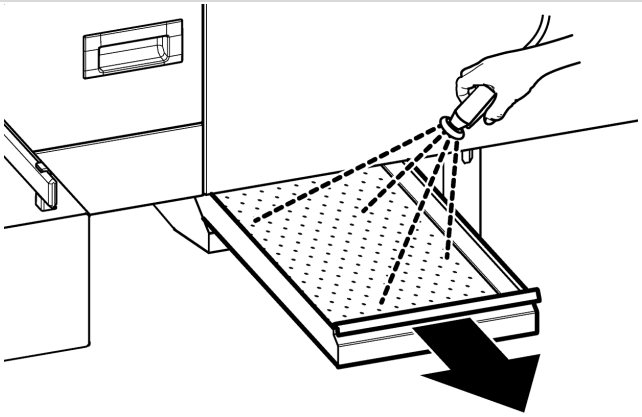
Before manual cleaning, carry out self-cleaning so that the machine is emptied and in the **MACHINE OFF** status, see page 38.



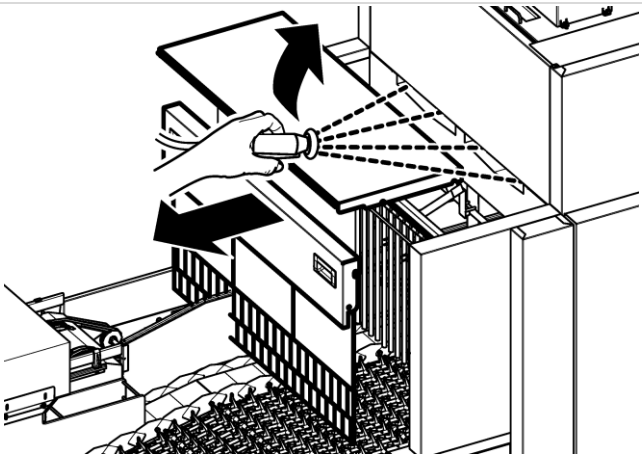
1. Turn off the main switch and close the shutt-off valve.



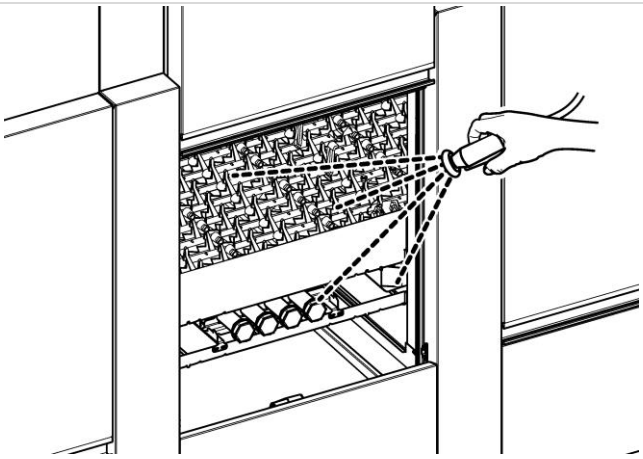
2.Remove the cleaning flap, remove and clean the tilting trough in the feeding , spray out the feeding section.



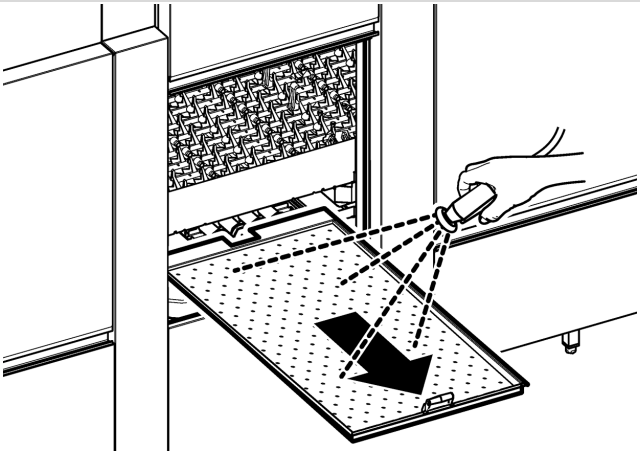
3. Pull out and clean the feeding sieve.



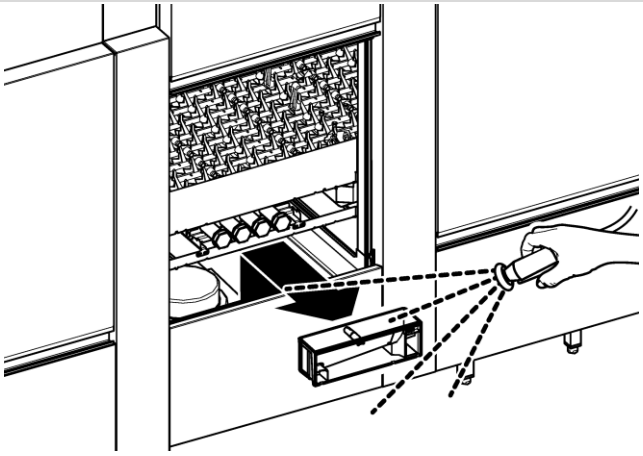
4. Clean heat exchanger (option).



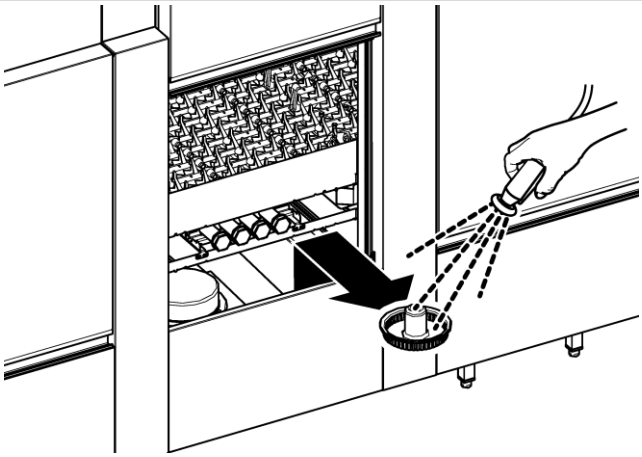
5. Spray out the chamber of the tank.



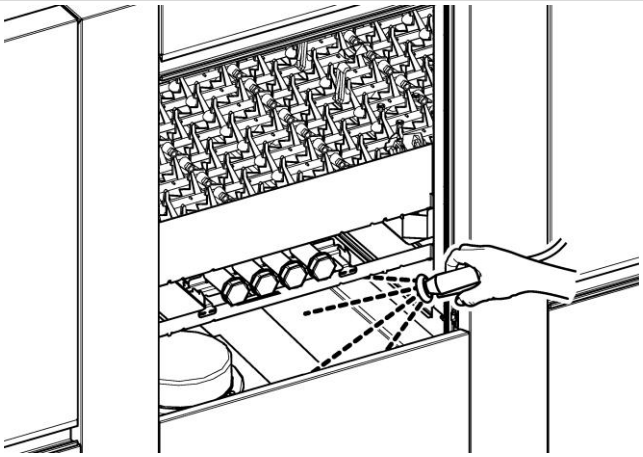
6. Remove and clean the tank cover sieves.



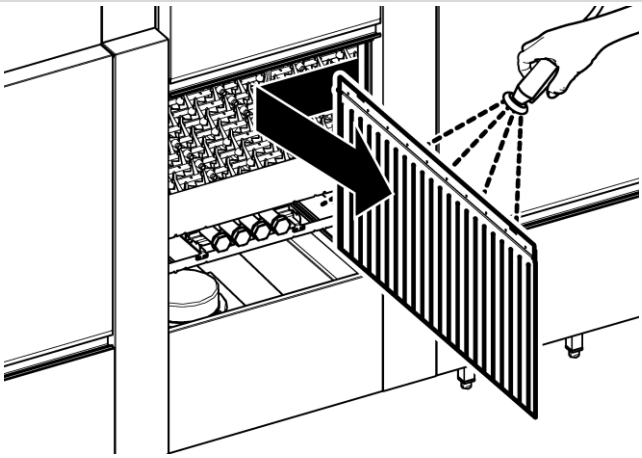
7. Remove and clean the strainer baskets.



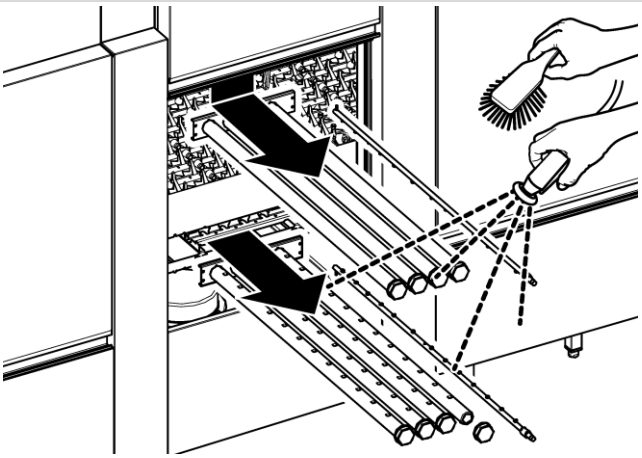
8. Remove and clean the tank drain valves.



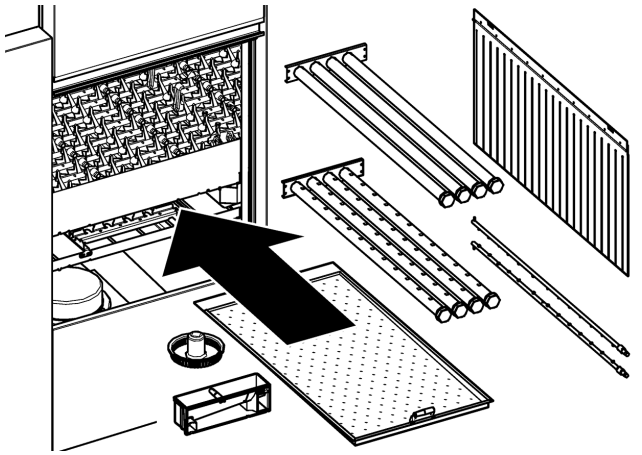
9. Spray out the tank bottom.



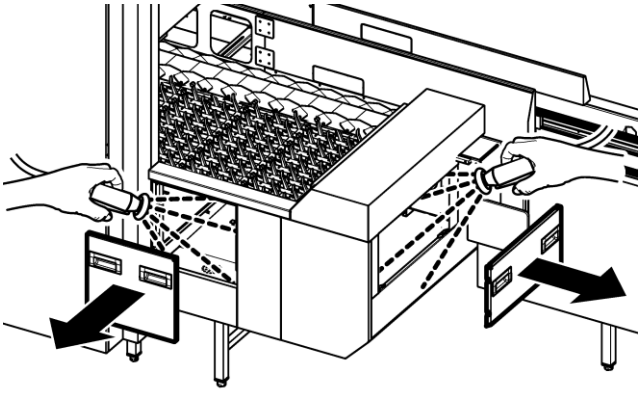
10. Unhook and clean the spray protection curtains.



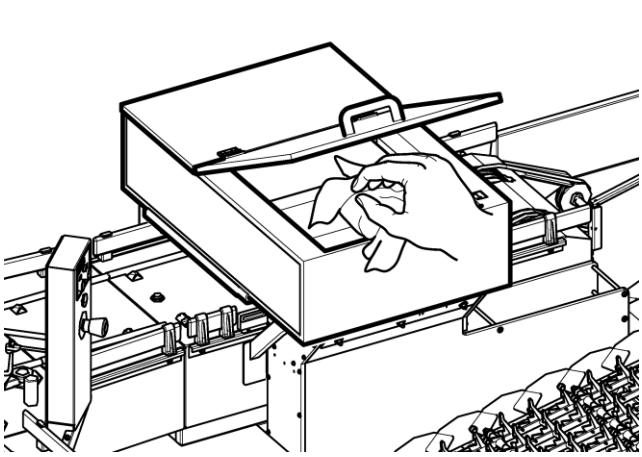
11. Remove and clean washing systems and rinse arms. The caps on the individual arms can be removed for this purpose.

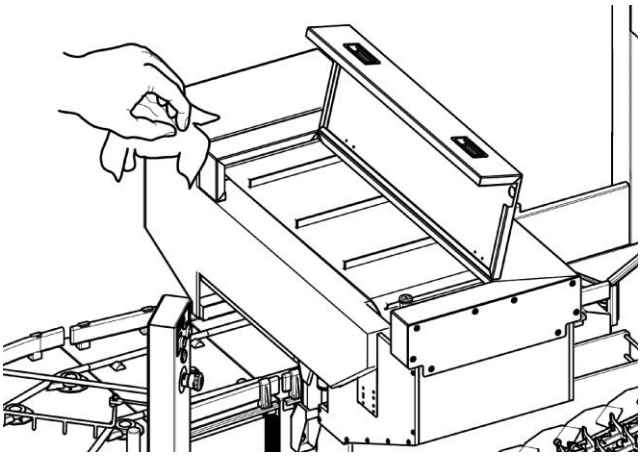


12. Reinstall all removed parts.

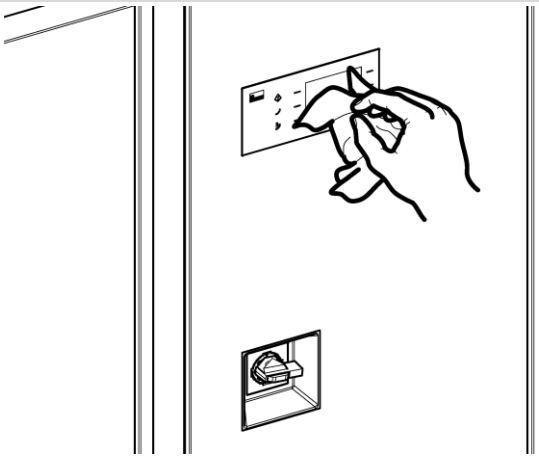


13. Remove the flaps on the discharge section and spray out the interior.

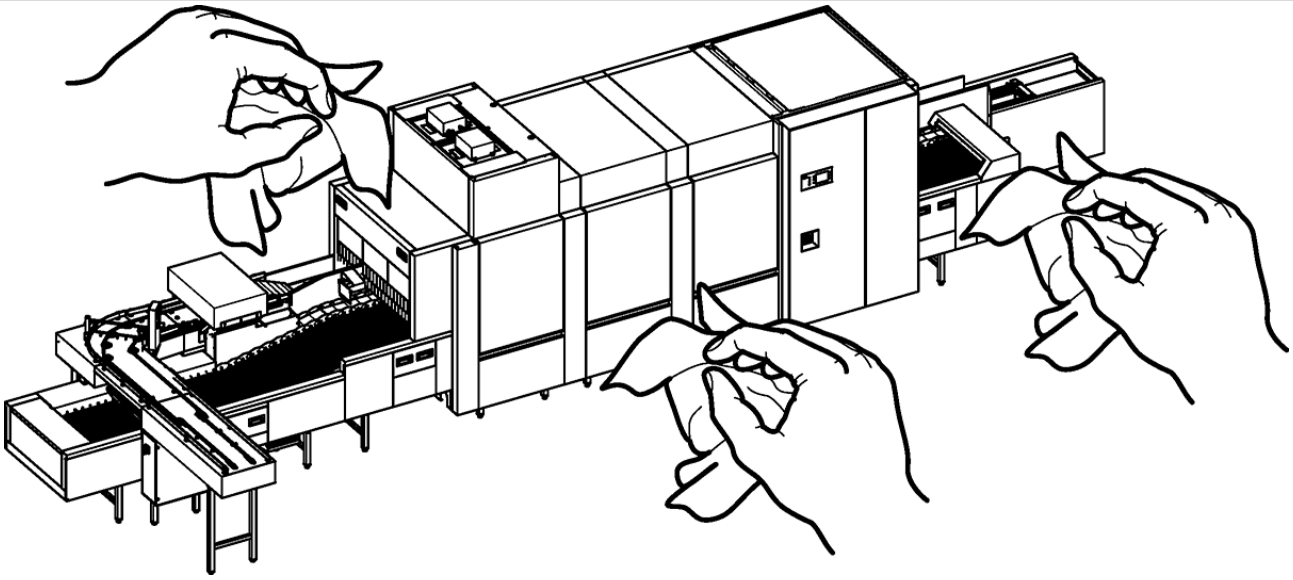




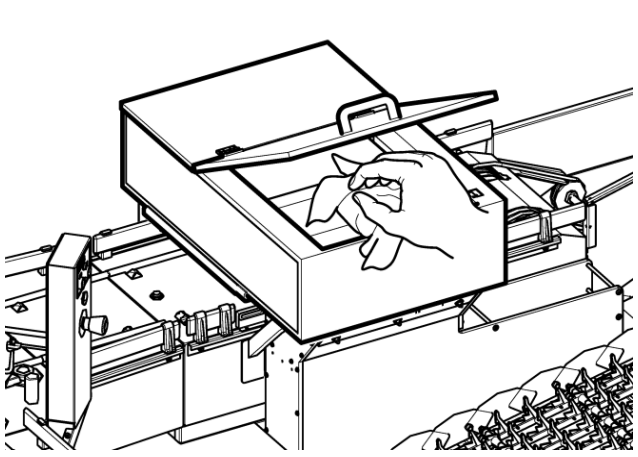
14. Clean the belt sliding surface and belt of the cutlery lifting magnet with a cleaning cloth and light alkaline cleaner.

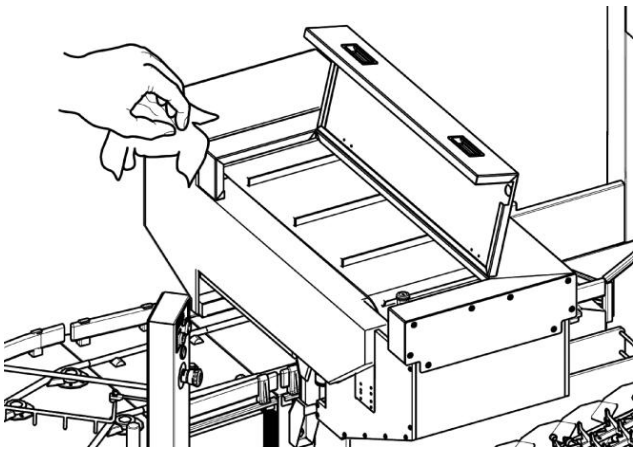


15. Wipe the display with a cleaning cloth.

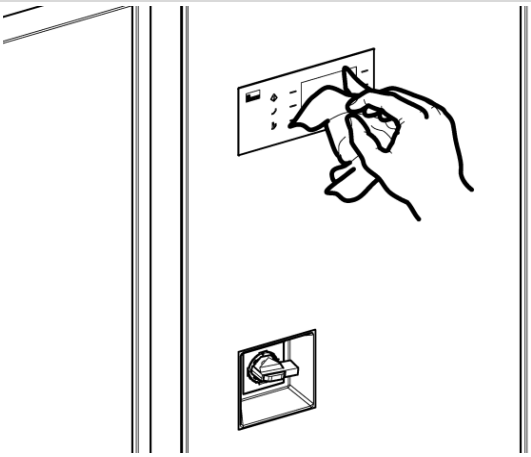


16. Wipe stainless steel surfaces with a damp cleaning cloth and a suitable cleaner. After cleaning, wipe dry thoroughly to prevent limescale. Tip: For best results, use only demineralized water.

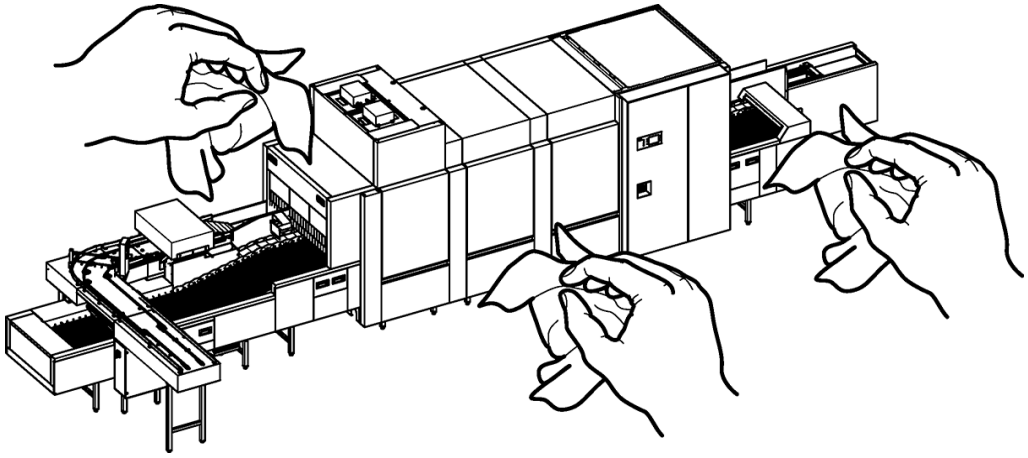




17. Clean the belt sliding surface and belt of the cutlery lifting magnet with a cleaning cloth and light alkaline cleaner.



18.Wipe the display with a cleaning cloth.



19.Wipe stainless steel surfaces with a damp cleaning cloth and a suitable cleaner. After cleaning, wipe dry thoroughly to prevent limescale. Tip: For best results, use only demineralised water.

Tray dispenser trolley

- Do not scratch the surface with sharp-edged objects. Do not use a sponge with a scratchy surface, steel wool or steel brush.
- Do not use abrasive or aggressive detergents, such as oven spray.
- Do not use detergents containing sand, soda, acid, chloride or solvents.
- Do not use any commercially available detergents. Do not make your own detergent.
- Avoid prolonged exposure to liquids with a high salt content, as this can lead to discoloration of the surface or rusting through.
- For stainless steel, avoid direct prolonged contact with rusting iron parts such as steel kitchen sponges.

10.1 Descaling

Water containing limescale can cause limescale build-up inside the machine.

Limescale build-up on the heating rods in the wash tank and in the booster heater can lead to overheating and burn-out of the heating rods. 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.

Descaling procedure:

1. Remove limescale build-up in the machine with a descaling agent. Follow the manufacturer's instructions.
2. After descaling, rinse the inside of the machine thoroughly and perform the emptying procedure to remove all residues of the descaling agent.
3. Then fill the machine with fresh water and run it empty for at least 15 minutes before loading it with dishes again for the first time.

✓ The machine is descaled.

11 Maintenance

⚠ WARNING – Danger to life from electric shock

- Work on the electrical system may only be carried out by a qualified electrician.
- Disconnect the machine from the power supply before working on the electrical system. To do this, turn the local mains switch to OFF and ensure that it cannot be switched back on again.

⚠ WARNING – Danger to life due to electric shock if housing parts are opened

If the machine is operated without housing parts, electrified parts are freely accessible. Contact with these parts can lead to serious injury or death.

- Disconnect the machine from the power supply before opening the housing parts. To do this, turn the local mains switch to OFF and ensure that it cannot be switched back on again.
- Attach all housing parts before placing the machine back in operation.

⚠ WARNING – Danger of injury due to entry into 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 qualified persons should perform work at and with the machine.
- Remove unauthorised persons from the danger zone.
- Block off danger area and mark 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!

⚠ CAUTION – Danger of burns and scalding due to hot wash water, washware and machine parts

- Wear protective gloves if necessary.
- Let the machine cool down before touching machine parts, if necessary.
- Only use the handles provided for opening or closing doors/flaps.

⚠ CAUTION – Environmental damage due to improper disposal of liquids.

Environmentally hazardous liquids (e.g. grease and oils, hydraulic oils, coolants, detergents containing solvents etc.) may be used during work on and with the machine.

- Always capture, store and transport liquids in suitable containers.
- Never mix liquids.
- Dispose of liquids properly in accordance with local requirements.

Maintenance work	Checked	Cleaned	Reconditioned	Maintenance requirement (minimum)
1. Error memory				
Check error memory for unusual events				annually
2. Pumps				
Check pumps for leaks and any visible damage				annually
Check pumps for running noise and function				annually
Replace slide ring sealing (delete as appropriate): WTV, WT 1, WT 2, WT 3, PKSP, TD1, TD2				After 5000 h or every 2 years
3. Wash tank, wash and rinse system				
Functional and visual inspection of the wash systems and brackets				annually
Visual check of rubber seal for ascending pipe of washing systems, replace if necessary (yellow added)				annually
Replace the rubber seal in the ascending pipe of the pump final rinse				annually
Air gap, insert (what is this?) Check tank and clean if necessary (supplemented if necessary)				annually
Visual check of drain filter, rubber seal (O-ring)?				annually
Visual check of sieves, M-filter sieves				annually
Visual check of door guides, roller springs				annually
Replace roller springs				After 10,000 door movements or 5 years
Check water level in tank				annually
4. Drying				
Visual check of the motor and ventilation grid				annually
Clean installation space of the heating register, blower wheel and blower wheel housing				annually
For steam heating: clean heat exchanger				annually
Clean air nozzles and suction grid				annually
5. Heat recovery / air duct				
Clean exhaust air blower and heat exchanger				annually
6. Fresh water rinse system				
Clean exhaust air blower and heat exchanger				annually
Visual inspection of nozzles, spray arms, spray arm locking devices				annually
Replace rubber seal riser of fresh water flushing system				annually
Module fresh water rinse system				
Clean exhaust air blower and heat exchanger				annually
Visual check for tightness of the air-gap pump, ventilation grilles and leak tightness				annually

Check the minimum and maximum position of the float switch in the system separation tank				annually
Check float valve in air-gap tank				annually
Cleaning the dirt trap on the fresh water rinse system module				annually
Visual check for leaks of the rinse aid dosing within the machine				annually
7. Installation				
Clean dirt trap on water supply				annually
Visual check for tightness				annually
8. Transport				
Visual inspection of the gear motor and ventilation grid				annually
Visual check of drive chain for sufficient grease				annually
Check the belt tension				annually
Visual check of deflection pulleys and adjusting rings				annually
9. M-filter				
Visual check for tightness / check suction				annually
10.Waste water pipe from pump final rinse to wash tank pre-washing (bypass)				
Check hose connection and connections for tightness				annually
11.Checking the function of the overall system				
Check filling and heating until it is ready for operation				annually
15 minutes test run with M-Commander, check I/O recording				annually
Check dishes' final switch-off				annually
Visual check of the entire machine for leaks				annually
Visual inspection of the cable routing under the machine				annually
Check current consumption of all electrical heaters (see circuit diagram)				annually
Functional test switch cabinet ventilator				annually
Check fan at equalisation openings (e.g.: machine roof - not covered)				annually
Functional test of the fan in the electrical box of the fresh water final rinse module				annually
Check function of exhaust air motor				annually
Check function of bypass line solenoid valve				annually
Check function of flushing arm in heat recovery system				annually
12.Conveyor system				
Check conveyor belt or rack transport for trouble-free operation				annually
Check mechanical overload cut-off				annually
13.Options				
Integrated reverse osmosis system				
Visual check of the entire system for leaks				annually
Change pre-filter and fill out separate test report				Every six months
Steam installation and pump hot water installation (if available)				
Check admission pressure in expansion tank when cold				annually
Replace slide ring sealing of hot water pump				after 3000 h

Check installation for leaks									annually
Check system pressure according to specification (manometer plate)									annually
Exhaust air heat recovery (if applicable)									
Visual check of water cycle and plate heat exchanger for tightness									annually
Check hose pump for air dosage of level control system									annually
14.Water quality and temperatures (in °C)									
Filling:	°C		°dH		µS/cm				annually
PKSP:	WT3:		WT2:	WT1:	TD1:	TD2:			
Rinse zone 1:	°C		°dH		µS/cm				annually
Rinse zone 2:	°C		°dH		µS/cm				annually
15.Bi-cord conveyor with tray infeed device, tray destacking and cutlery lifting magnet or cutlery conveyor belt									
Conveyor drive									
Check gear motor and drive chains									
Check belt pulleys									
Transport									
Check belt tension									
Visual check of round belts									
Check the belt for an even run									
Check lateral tray guides									
Tray stop									
Check transport stop switch									
Check transport interlock of bi-cord conveyor with M-iQ machine									
Electrical installation									
Visual check of all electrical components									
Tray infeed device									
Check transfer of conveyor belt to machine									
Tray stacking									
Check transfer M-iQ to tray stacker and tray stacking trolley									
Cutlery lifting magnet									
Visual check of belt and belt body									
Check belt tracking									
Check cutlery chute at feeding and discharge section of M-iQ machine									
Check cutlery monitoring switch									
Check magnet system									

12 Dismantling and disposal

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

12.1 Dismantling and disposal of the old device

⚠ WARNING – Risk of injury from contact with chemicals

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

If applicable, wash machine components, containers, dosing units and hoses with fresh water to remove chemical residues. Wear suitable clothes (gloves, safety glasses) for this.

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

The components should be separated by material for recycling.

13 Index

T

U

W

14 Notes

The clean solution

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