

# TopClean M

Type M2

Cleaning and disinfection appliance for respiratory protective equipment

## Operating instructions



For the types in the series: M002CDUC10M2-30-MA

EN



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

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# 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 type:

**TopClean M, Type M2** cleaning and disinfection machine

M002CDUC10M2-30-MA

## 1.2 Delivery contents

The delivery contents include:

- 1x TopClean M cleaning and disinfection machine
- Connection hoses for fresh water and waste water
- Documentation

**Optionally available:**

- Racks, as per rack range

## 1.3 Related documents

The following documents provide additional information to these instructions for use:

- Installation drawing
- Wiring diagram
- Installation instructions for optional components (e.g. GiO MODULE)

**External documents of the manufacturer of the respiratory protective equipment**

- Current washing instructions
- Current release

## 2 Liability and warranty

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

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

The delivered product corresponds to the state of technology and safety regulations valid at the time of production/delivery.

The information, data and notes specified in the operating instructions correspond to the latest version at the time of printing. No claims for already delivered systems may be asserted based on these statements, illustrations and descriptions.

Claims must be reported to the manufacturer immediately after determination of the defect or error. Liability claims for personal injury or material damage as well as for operational problems are excluded if they are due to one or more of the following causes:

- Unintended use.
- Improper installation, commissioning, operation and maintenance.
- Operation of the machine or system with defective safety devices or improperly attached or non-functioning safety and protective devices.
- Noncompliance with the notes in the operating instructions regarding transport, storage, mounting, commissioning, operation and maintenance.
- Unauthorised design changes or settings on the machine or system beyond the intended purpose.
- Improper monitoring of parts subject to wear.
- Use of wear and replacement parts that are not from the manufacturer.
- Improperly performed repairs, inspections or maintenance.
- Catastrophes due to human-induced events or force majeure.

## 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 Symbol explanation

#### 3.1.1 Notes in the instructions

##### Warnings

##### **Danger**

##### Short description of the danger:

The signal word **DANGER** designates an immediately threatening danger.  
Failure to observe this leads to very serious injuries or death

##### **Warning**

##### Short description of the danger:

The signal word **WARNING** designates a possible danger.  
Failure to observe this can lead to very serious injuries or death.

##### **Beware**

##### Short description of the danger:

The signal word **BEWARE** designates a possible danger.  
Failure to observe this can lead to minor to medium injuries.

##### Application information

##### **Caution**

##### Short description:

The signal word **Caution** designates a possible danger.  
Failure to observe this can lead to damage to the machine or system.



##### **Note**

The signal word **Note** designates further information on the machine / system or its application.

### 3.1.2 Safety symbols in the instructions

The following note and danger symbols are used both in the document and on the machine. Observe these symbols and signs on the machine to avoid personal injury and material damage!

The symbols have the following meanings:

Symbol	Meaning
	Warning of hazardous areas
	Warning of dangerous electric voltage
	Warning of the danger of hand injuries Caution, keep hands away from parts that bear this warning symbol. The danger exists that hands can be crushed, pulled in or otherwise injured.
	Warning of hot surfaces and liquids
	Warning of the machine falling over
	Warning of environmental damage
	Do not spray with water
	No drinking water
	Access prohibited for persons with pacemakers
	Eye protection must be used or protective glasses must be worn
	Hand protection must be worn
	Read the operating instructions
	Disconnect before servicing or repair
	Potential equalisation connection

## 3.2 Requirements for the personnel

- Make sure that only trained and experienced staff operate the washer-disinfector.
- Personnel who have not been briefed or trained may not handle the washer-disinfector.
- Make sure that staff learning to use the washer-disinfector are supervised by a trained and experienced operator at all times.
- Clearly define the staff's responsibilities.
- Confirm training in writing.

<b>Persons</b>			
<b>Activity</b>	<b>Experienced staff</b>	<b>Instructed in-house technician</b>	<b>Authorised in-house technicians/fitters (Medical Products Advisor)</b>
Installation/assembly			✓
Commissioning			✓
Operation, use	✓	✓	✓
Cleaning	✓	✓	✓
Checking safety devices		✓	✓
Troubleshooting		✓	✓
Troubleshooting, mechanical		✓	✓
Troubleshooting, electrical			✓
Maintenance			✓
Repairs			✓

### 3.3 Residual risks

Phase	Activity	Nature of the hazard	Avoidance measure
<b>Transport and assembly</b>	Loading and unloading with forklift truck	Crushing/impact	<ul style="list-style-type: none"> <li>Load-bearing capacity of the forklift truck must be adequate for the weight of the cleaning combination</li> <li>Please note the cleaning combination's centre of gravity</li> <li>Secure to prevent slipping</li> </ul>
	Deposit at the installation site		<ul style="list-style-type: none"> <li>Ensure that the ground beneath is capable of taking the load, level and horizontal</li> <li>Always apply the holding brake</li> <li>Only use the front handle of the cleaning combination for pushing or pulling, not for carrying</li> <li>Make sure that the cleaning combination cannot tip</li> </ul>
	Electrical connection Compressed air connection Waste water connection	Electric shock Slipping/tripping/falling	<ul style="list-style-type: none"> <li>Only skilled personnel may install, connect and dismantle the cleaning combination.</li> <li>Observe the dimension sheet with connection and consumption values</li> <li>Adhere to the accident prevention regulations</li> </ul>
	Install separate GiO MODULE (optional)	Tripping/falling/crushing	<ul style="list-style-type: none"> <li>Only operate GiO-MODULE in the cleaning combination</li> </ul>
<b>Commissioning</b>	Fill with detergent/rinse aid	Eye injury/health risks	<ul style="list-style-type: none"> <li>Wear safety eyewear/gloves</li> <li>Avoid contact with skin and eyes</li> </ul>
<b>Operation</b>	Cleaning programme running	Contact with hot water	<ul style="list-style-type: none"> <li>Do not open the wash chamber door during programme run</li> </ul>
	Loading and unloading the appliance	Trapping of hand	<ul style="list-style-type: none"> <li>To close the wash chamber door, use the handle designated for this purpose</li> </ul>
		Broken washware causing cuts/severing	<ul style="list-style-type: none"> <li>Clean the washware in the specially designed rack in the appliance</li> <li>Place small items in the appropriate rack inserts</li> <li>Washware must not come into contact with rotating parts of the appliance</li> </ul>
		Risk of snagging with loose clothing or items of jewellery	<ul style="list-style-type: none"> <li>Wear suitable work clothing and sturdy shoes</li> <li>Do not wear rings, necklaces or other pieces of jewellery</li> </ul>
		Slipping	<ul style="list-style-type: none"> <li>Use non-slip floor coverings</li> </ul>
		Contact with hot water and hot machine parts	<ul style="list-style-type: none"> <li>If necessary, allow washware to cool down</li> <li>If necessary, allow appliance parts to cool down before touching them</li> <li>Do not remove tank cover sieve while appliance is in operation</li> <li>Protective gloves recommended</li> </ul>
		Injury through standing or sitting on the open wash chamber door	<ul style="list-style-type: none"> <li>Make sure that nobody sits or stands on the wash chamber door</li> </ul>
	Other activities	Swallowing of water in the wash chamber	<ul style="list-style-type: none"> <li>Do not use the cleaning water for food preparation</li> <li>Do not drink the cleaning water</li> </ul>
	Independent changes to chemical dosing	Breathing difficulties/suffocation	<ul style="list-style-type: none"> <li>Only allow specialist personnel to adjust dosing, otherwise the manufacturer of</li> </ul>

Phase	Activity	Nature of the hazard	Avoidance measure
			the respiratory protective equipment's warranty will be void
	Refilling of detergent/disinfectant/rinse aid	Tripping/falling over open dosing cover	<ul style="list-style-type: none"> <li>Close dosing cover as soon as refilling is complete</li> </ul>
		Eye injury/health risks	<ul style="list-style-type: none"> <li>Wear safety eyewear/gloves</li> <li>Avoid contact with skin and eyes</li> </ul>
<b>Maintenance and cleaning</b>	Any maintenance work	Electric shock	<ul style="list-style-type: none"> <li>Before opening the covers, ensure the mains switch has been disconnected and secured so that it cannot be turned on again</li> <li>Only specialist personnel may carry out maintenance work</li> </ul>
	Cleaning or maintenance	Tripping/falling over open wash chamber door	<ul style="list-style-type: none"> <li>Always close wash chamber door after use</li> </ul>
		Contact with hot water and hot machine parts	<ul style="list-style-type: none"> <li>Allow appliance parts to cool down before touching them</li> <li>Wear protective gloves</li> </ul>
	Cleaning	Poisoning	<ul style="list-style-type: none"> <li>Do not use aggressive cleaning or scouring agents</li> <li>Only use descaling products suitable for commercial cleaning and disinfection machines</li> <li>Wear protective gloves</li> </ul>
	GiO MODULE: replace filter cartridge	Water escaping	<ul style="list-style-type: none"> <li>Provide suitable vessel (e.g. base drip tray)</li> </ul>
<b>Dismantling and disposal</b>	Dismantling	Eye injury/health risks	<ul style="list-style-type: none"> <li>Wear safety eyewear/gloves</li> <li>Avoid contact with skin and eyes</li> <li>If needed, clean hoses, dosing system and appliance parts with fresh water</li> </ul>
	Loading and unloading with forklift truck	Crushing/impact	<ul style="list-style-type: none"> <li>Load-bearing capacity of the forklift truck must be adequate for the weight of the cleaning combination</li> <li>Please note the cleaning combination's centre of gravity</li> <li>Secure to prevent slipping</li> </ul>

### 3.4 Intended use

The cleaning combination and the TopClean M cleaning and disinfection machine must only be used in accordance with its intended purpose and as per these operating instructions.

The TopClean M cleaning and disinfection machine must only be used in accordance with its intended purpose and as per these operating instructions.

The TopClean M cleaning and disinfection machine serves the cleaning and disinfecting of respiratory protective equipment. Provide operating instructions for the respective respiratory protective equipment.

The material compatibility of various respirator masks from Dräger Safety AG & Co. KGaA, MSA AUER GmbH and INTERSPIRO AB during cleaning and disinfecting in the TopClean M has been confirmed by a report issued by Dekra-EXAM GmbH, the specialist body for respiratory protection.

When treating personal protective equipment (PPE), the manufacturer's instructions must be strictly observed.

The TopClean M cleaning and disinfection machine must only be operated with a compressed air connection for respiratory protection devices (between 2 and max. 5 bar) in accordance with EN 12021.

The washware must be suitable for the chemo-thermal cleaning-disinfection process, up to max. 60°C.

### 3.5 Foreseeable misuse

The cleaning and disinfection appliance must not be used for:

- Unsuitable washware (cleaning and disinfection process chemo-thermal up to max. 60°C)
- Cleaning of parts with electrical components, made of iron or wood
- Cleaning plastic parts that are not heat and alkali-stable
- Cleaning living creatures
- Cleaning of foodstuff for consumption
- The preparation of foodstuffs
- Taking tank water to prepare food or for drinking
- Filling the machine from an external source (e.g. shower)
- Introducing service water into the local waste water system
- Standing or sitting on machine parts (e.g.: door)

### 3.6 Fundamental safety and accident prevention regulations



#### Note

The following safety instructions serve to protect the operating personnel, third parties and the cleaning and disinfection machine.

Observe the notes in these operating instructions and the information signs on the cleaning and disinfection machine.

Safety can only be guaranteed during operation if all necessary measures are taken.

The operator of the machine has an obligation of care to ensure that these measures are planned for and also to check that they are correctly implemented.

#### The operator must ensure in particular that:

- The cleaning and disinfection machine is only used for its intended purpose. In the event of the machine being used or operated contrary to this, damage or risks may arise.
- In order to guarantee functionality and safety, only original spare parts supplied by the manufacturers may be used.
- The safety of the cleaning and disinfection machine is not impaired by the subsequent installation of dosing technology.
- Only appropriately qualified and authorised employees use, maintain, and repair the cleaning and disinfection machine.
- No one sits or stands on the open door.
- Staff are regularly trained in all questions relating to occupational safety and environmental protection and are familiar with the operating instructions and, in particular, the safety information that they contain.
- The area around the machine is assessed with reference to the risk to other people, e.g. children, people with physical, sensory or mental impairments, people lacking in knowledge or experience. In case of doubt, special optional initiation functions other than conscious, intentional operation (i.e. operation from the screen) are to be deactivated.
- The cleaning and disinfection machine is only operated in perfect, functional condition; all protection devices and covers are installed.
- The safety and switching equipment is regularly tested to ensure it is functioning correctly.
- Cleaning and disinfection machines that are accessible from behind can only be operated with a rear wall cover.
- The required personal protective equipment is made available to and worn by maintenance and repair personnel.
- A functional test on all safety systems of the cleaning and disinfection machine is carried out during all regular maintenance.

- All safety and warning notices affixed to the cleaning and disinfection machine are not removed and are legible.
- Upkeep (maintenance and inspection) is carried out on optional vendor parts according to the requirements in the corresponding instructions.
- Following assembly, commissioning and handing over of the cleaning and disinfection machine to the customer/operator, no modifications are made (e.g. electrical or mechanical machine components).
- 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.

#### **Instructions for operating the cleaning and disinfection machine:**

- The cleaning and disinfection machine may only be operated under the supervision of trained personnel.
- Do not use the cleaning and disinfection machine if you are not sure how to use it.
- Always close all doors and flaps.
- After use, turn off the machine at the on-site mains isolator. This is located in the electricity supply pipe for the machine.
- Wear suitable work clothing.
- Wear suitable protective gloves when working on the cleaning and disinfection machine.
- Allow machine components and washware to cool down before touching.

#### **Information on the use of detergents/disinfectants and rinse aid:**

- Only use detergents/disinfectants and rinse aid that are suitable for the chemical cleaning disinfection process up to max. 60°C.
- Please contact the manufacturers of these products for information. Only use products authorised by the manufacturer of the respiratory protective equipment.

Detergents/disinfectants and rinse aid can be hazardous to health. The cleaning water used during operation contains chemicals.

- Never drink cleaning water.
- If cleaning water is swallowed, consult a doctor immediately.
- Pay attention to the manufacturer's hazard warnings on the original canisters and safety data sheets.
- When handling chemicals, wear appropriate protective gloves and safety eye-wear.
- Do not mix up detergent/disinfectant and rinse aid.
- Make sure that the suction connections of the cleaning and disinfection machine are correctly connected to the canisters.

#### **Information on the use of descaling agents**

Residue from descaling agents can cause damage to the plastic components and sealing materials in the machine.

- Please contact the manufacturers of these products for information.
- Please observe the manufacturer's hazard warnings.
- Thoroughly remove any residue after use.

#### **Information on cleaning the machine**

Foam leads to malfunctions and poor cleaning results in the cleaning and disinfection machine.

- Do not use a foaming hand dishwashing detergent for pre-cleaning or for cleaning the machine.
- Allow machine components and washware to cool down before touching.

### Information on cleaning the surrounding area

When cleaning the surrounding area, the machine can be damaged by aggressive external influences (steams, detergents) or the ingress of water.

- Do not use aggressive detergents (e.g. aggressive tile cleaner).
- If installed at ground level, never allow the surrounding area to flood.

### Notices on electrics and electronics

There is a danger to life if exposed parts and damaged supply lines under electrical voltage are touched.

- Please take note of the warning notices in these instructions and the signs on the cleaning and disinfection machine.
- Whenever you are working on electrical components in the machine, ensure that electrical connections are physically secure.
- Whenever you are working on electrical components in the machine, check wires and cables for any potential damage and replace, if necessary.

Incorrect cleaning can cause damage to the electronics.

- The cleaning and disinfection 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.

### Notice on non-ionising radiation



Non-ionising radiation is not produced intentionally but unfortunately comes about due to electrical operating equipment (e.g. electrical motors, high-voltage cables and magnetic coils). In addition, the machine has no strong permanent magnet.

## 3.7 What to do in the event of an emergency



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

## 4 Product description

### 4.1 Functional description

The TopClean M is a cleaning and disinfection machine with a square rack.

The cleaning and disinfection machine has a cleaning, disinfection and a final rinse cycle.

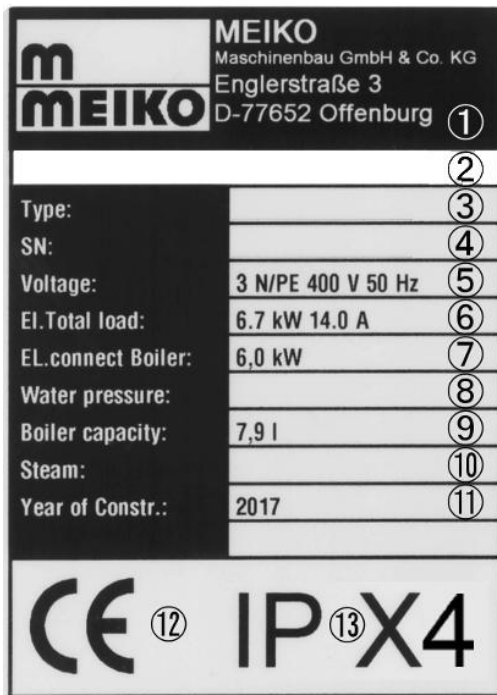
A temperature controller maintains the set cleaning and disinfection temperature of 60°C within one cycle. A rotary pump circulates the water from the cleaning tank into the cleaning nozzles. The water jets hit the washware from different directions. This ensures uniform cleaning results.

The cleaning cycle is followed by a fresh water final rinse. The washware is rinsed with 60°C fresh water via a separate nozzle system. This heats up the washware for the following drying process.

At the same time, the final rinse water is used to regenerate the wash water, which reduces the degree of soiling of the rinse water.

## 4.2 Type label

The rating plate is on the inside of the front panel. Additional rating plates are located on the switch cabinet behind the front panel, on the display and on the separate GiO module (if it is part of the cleaning and disinfection machine).



The rating plate includes the following information:

1 Manufacturer name and address

2 Machine type

3 Model name

4 Serial number

5 Current type

6 Electrical connection

7 Rated power of boiler

8 Water pressure

9 Boiler capacity

10 Steam connection

11 Year of manufacture

12 CE mark

13 IP protection rating

## 4.3 GiO MODULE

The module works according to the principle of reverse osmosis. Drinking water is pressed by a pump through a semi-permeable membrane. The membrane lets only water molecules through. The hardness components and salts (lime scale, etc.) contained in the water are held back. The clean water (permeate) is brought to the dish-washing machine; the materials held back (concentrate) are brought to the drain.

## 4.4 Blue operating concept



1 AktivPlus filter

The parts of the cleaning and disinfection machine that must be touched by the operator in operation and in daily use are blue. And so after a short briefing, operators know intuitively that they have to remove and clean the wash system, tank cover sieve and filter, for example.

## 4.5 Detergent and rinse aid



### ⚠ 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

- Only use products that are suitable and approved for commercial cleaning and disinfection appliances. Generally, the currently valid documentation of the PPE manufacturer must be followed when choosing the right cleaning chemicals. Deviations from this can lead to a loss of product liability.  
(Cf. EU 425/2016 - The PPE manufacturer is responsible for releasing the cleaning and disinfection process and its parameters)
- Do not mix different cleaning products.

The cleaning and disinfection machine is equipped by default with dosing units for dosing liquid detergent/disinfectant and rinse aid. Manual dosing with powder cleaner is not intended.

#### Approved products:

Rinse aid (depending on approval from the respective PPE manufacturer!)	<ul style="list-style-type: none"><li>• EtoI GT500</li></ul>
Chemical detergent/disinfectant (depending on approval from the respective PPE manufacturer!)	<ul style="list-style-type: none"><li>• Curacid PSA TC, PICO-Medical GmbH, Hamburg</li><li>• EW 80mat, EW 80 Systeme GmbH, Dortmund</li><li>• Sekumatic® FDR ECOLAB</li><li>• Neodisher Dekonta AF</li><li>• Diversey Suma Jade Eco Pur</li></ul>

### 4.5.1 Detergent

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

Change dosing quantity, see chapter "Dosing system level" on page 46.

### 4.5.2 Rinse aid

Rinse aids are acidic (pH value should be between 2 and 7) and accelerate the drying of the washware by reducing the surface tension of the water so that it can run off the washware quickly.

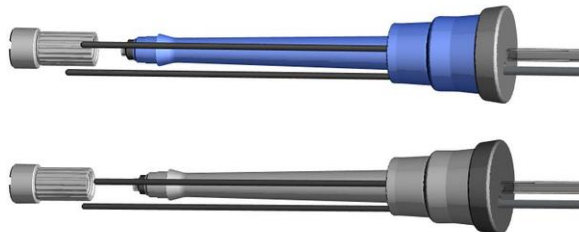
The correct dosage is achieved when the water drips evenly from the washware and depends on the available water quality on-site. This setting is made during commissioning by a service technician authorised by MEIKO or the chemical supplier.

Change dosing quantity, see chapter "Dosing system level" on page 46.

### 4.5.3 Dosing equipment

The components of the dosing units are subject to high demands and must therefore be regularly maintained and, if necessary, replaced in accordance with the maintenance specification.

### 4.5.4 Suction lances



Suction lances with level monitoring for rinse aid (blue) and detergent (grey)

Suction lances ensure that the liquid chemical product is sucked in correctly. Suction lances are inserted vertically into the canisters and are optionally equipped with level monitoring. When the canister is running low, a message will appear on the machine display.

### 4.5.5 Change of products

#### **⚠ Caution**

**When changing the detergent product (even to a product from the same manufacturer), crystallisation may occur, which can lead to failure of the dosing system.**

- When changing the detergent product, flush the dosing system with warm water.

#### **Procedure for changing the detergent product:**

1. Provide a suitable container with warm water and insert the suction lance.
2. Thoroughly flush the dosing system several times by **venting the lines**, see page 45.
3. Wipe the suction lance and put it into the canister with the other detergent product.
4. Refill the dosing system by **venting the lines**.

**In addition, observe the instructions of the manufacturer of the chemicals and the respiratory protective equipment. This applies in particular to the conversion from manual to mechanical processing.**

## 4.6 Chemo-thermal disinfection method



The tank temperature falls when the programme begins, depending on the washware. The set programme cycle time can be exceeded by the time it takes to reach the prescribed disinfection parameters. Due to the technical hysteresis, the temperature of the wash water can reach 62°C for a short time. This ensures that 60°C prevails continuously on the washware.

## 5 Technical data

MEIKO has created a dimensional drawing that shows machine dimensions as well as connection and consumption values.

Further data should be taken from the MEIKO dimensional drawing.

### Net weights

Versions		Weight approx.
UPster U 500 M2		73 kg
+	ActiveClean water softener	9 kg
+	GiO module reverse osmosis	23 kg

### Noise emission

Workplace noise level  $L_{pA} \leq 70$  dB (A).

### 5.1 EC/EU declaration of conformity

See separate EC-/EU-Declaration of Conformity.

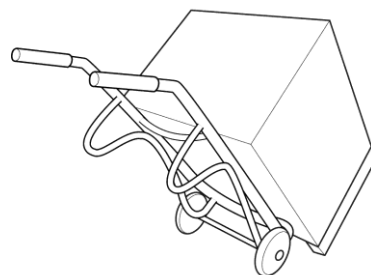
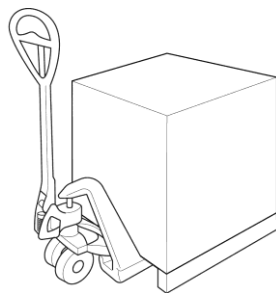
## 6 Transport

### 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 cleaning and disinfection machine is supported by a special square timber frame.



- Transport with care.
- Open packaging using a suitable tool.
- Only unpack the cleaning and disinfection machine after transportation.

## 7 Assembly



### Warning

#### **Danger of injury from entering a danger zone**

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

- Only permit qualified persons to perform work at the machine.
- Remove unauthorised persons from the danger zone.
- Cordon off danger zone and signpost it for third parties.
- Never remove or disable safety devices on the machine.
- Always wear cut-resistant protective gloves when removing housing parts and when working inside the machine!

### 7.1 Prerequisites for assembly

#### 7.1.1 Checking the condition at delivery

- Check that the delivery is complete immediately after receiving it by comparing it with MEIKO's order confirmation and/or the delivery note.
- If applicable, submit a claim for any missing parts immediately to the freight forwarder and notify MEIKO.
- Check the machine for transportation damage.



#### **Note**

If there is any suspicion of transportation damage, the shipping company and MEIKO must be informed immediately in writing. Photograph any damaged parts and send the pictures to MEIKO.

#### 7.1.2 Requirements for the installation area

The cleaning and disinfection appliance is only frost-proof in as-delivered state or if equipped with special features (option: frost drainage).

Installation of the cleaning and disinfection machine in an area where the ambient temperature is below 0° C can result in damage to the internal water circuit components (e.g. pump, solenoid valve, boiler, etc.).

- Make sure that the storage and installation site are always frost free.
- Make sure that the ground beneath is capable of taking the load, level and horizontal.

There is a danger of slipping in the working area due to the use of water.

- After assembly, put in place non-slip floor coverings in the working area based on the general/location-specific safety regulations.

#### 7.1.3 Requirements for the waste water connection

A waste water pump is integrated into the drain pump.

- Connect the drainage hose to the locally available waste water pipe.

##### **– For Australia only:**

The drain hose must be connected such that it is watertight with a drain fitting in accordance with AS 1589 AS 2887 and a sanitary waste water pipe or sanitary waste water fitting in accordance with AS / NZS 1260.

- Depending on the cleaning and disinfection machine application, a grease trap may be included, based on the general/location-specific regulations.
- For cleaning and disinfection machines with GiO MODULE, the maximum drain height must be considered (see dimensional drawing).

#### 7.1.4 Requirements for the compressed air connection

- On-site compressed air connection for respiratory protection devices (between 2 and max. 5 bar) in accordance with EN 12021.
- Specification of the authorised pressure range: operating pressure 2 to max. 5 bar.  
If loud noises occur that are not typical of operation, the malfunction must be repaired without delay. Comply with the general rules for working with compressed air (wear hearing protection, if necessary).

#### 7.1.5 Requirements for the fresh water connection

**Fresh water connections and their components must be carried out in accordance with local regulations, e.g. EN 1717/DIN 1988-100. The fresh water must be of the same quality as drinking water in microbiological terms. This also applies to processed water.**

The basic model of the washer-disinfector features an air gap (type AA or AB as per EN 1717 or EN 61770). In the case of SVGW (Switzerland) and other countries, a type EA safety device (at least) is also required in front of the connection hose, depending on the machine version. Installation components and materials must be suitable and permitted in accordance with local regulations. A solenoid valve is integrated into the cleaning and disinfection machine's fresh water pipe. This, together with the leakage detector in the base drip tray in the subframe, ensures that in the event of a leak within the machine, the fresh water inlet is shut off.

##### **Pressure range of the fresh water supply flow pressure upstream of the solenoid valve:**

- Machines with air gap or pressure booster pump:  
60 – 500 kPa (0.6 – 5 bar)
- Machines with a safety device to prevent backflow:  
250 – 500 kPa (2.5 – 5 bar)

##### **Maximum pressure**

- Do not exceed maximum pressure of 500 kPa (5 bar).

##### **Measures to ensure correct water pressure:**

- If the minimum flow pressure is too low, increase the pressure using a pressure booster pump.
- If the maximum pressure is exceeded, limit the pressure using a pressure regulator.

##### **Other measures:**

- Ensure that no foreign iron particles can enter the appliance via the fresh water connection. The same also applies for contamination by other metal particles (e.g. copper shavings). Corresponding instructions are contained in the assembly plan.
- A dirt trap must be fitted in the fresh water supply to protect the solenoid valve.
- After the washer-disinfector has been unused for longer periods of time, drain the connection pipe and clean it before placing the machine in operation again.
- When replacing an old machine with a new one, make sure that the existing feed hose is exchanged for the new feed hose supplied with the machine.

### 7.1.6 Requirements to the electrical connection



#### **Warning**

##### **Danger to life from electric shock**

Contact with live electrical parts can lead to serious injury or death.

- Work at or repairs to the electrical system must be conducted by a qualified electrician who complies with the electrotechnical rules.
- 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 can't be switched back on again.

#### **Note**

The wiring diagram is located behind the front panel of the cleaning and disinfection machine. This must remain in the cleaning and disinfection machine!

The rating plate with the electrical connected values is located inside the front panel.

#### **Other dangers**

Danger of death by electric shock: contact with live electrical parts can lead to serious injury or death.

#### **Who may connect it?**

The cleaning and disinfection machine must be connected by a (MEIKO authorised) electrician in accordance with the locally applicable norms and regulations.

#### **Local earth wire system**

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.

#### **Voltage and frequency**

The machine may only be operated with the data provided on the rating plate (see chapter on page 14).

#### **Power cable/fixed connection:**

##### **Recommended connection with protective equipotential bonding**

The machine and accessory appliances are intended for permanent connection to the locally available power supply and the locally available protective equipotential bonding and have been tested accordingly before being brought to market.

A 5-pole terminal strip (L1, L2, L3, N, PE) must be used for connection to a three-phase current.

Electricity supply without a neutral wire (N): When connecting to three-phase current, use a 4-pole clamping strip (L1, L2, L3, PE).

Wire colours: live wire L1 = black/1, L2 = brown/2, L3 = grey/3, neutral wire N = blue/4, protective earth conductor PE = green-yellow

##### **Alternative connection without protective equipotential bonding**

The operator can decide at his/her own discretion and under his/her own responsibility to connect the electrical supply using customer resources in collaboration with a professional electrician:

1. Fixed connection without protective equipotential bonding
2. Plug connection according to EN 60309 (CEE plug connection)



### Note

Where discharge currents exceed 10 mA, the use of an RCD/FI is not recommended. False alarms restrict machine availability.

MEIKO expressly excludes any liability for damages caused by improper connection of the machine.

This includes any work in connection with services due to said connection, e.g. processing complaints or claims due to:

- Triggered RCD/FI
- Automatic shut-down of the supply when consistency is lost in the protective earth conductor (EN 60204-1 Chap. 8.2.8.c)

### Local main switch

Install a main switch with all-pole disconnection from the mains in accordance with the installer's regulations in the permanently installed 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. Refer to the circuit diagram or the data sheet of the main switch for technical data such as torque and stripping length.

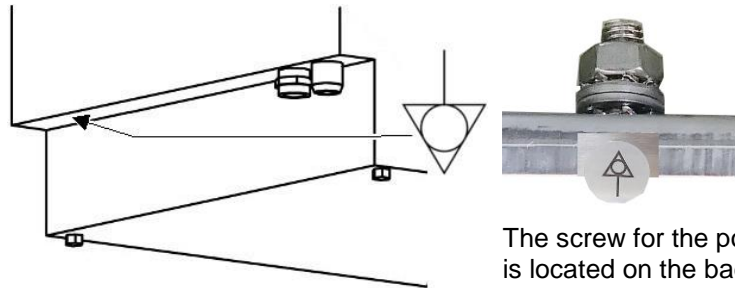
If an unearthed neutral conductor (N) is used with three-phase current, a power disconnection device with 4 poles (with alternating current 2 poles) must be used.

### Local fuse protection

Fuse the machine for the rated current shown on the rating plate. Fuse the electrical connection as a separately fused circuit (final circuit). Take note of the connection variants.

The requirements for limiting voltage changes, fluctuations and flicker in accordance with DIN EN 61000-3-11 for the TopClean 60 M2 cleaning and disinfection machine are fulfilled if the network has a current-carrying capacity of  $\geq 100$  A.

### Protective equipotential bonding



The screw for the potential equalisation is located on the back of the machine near the media connections.

The potential equalisation connection must be carried out in accordance with the requirements of the local electricity supply companies and all applicable local regulations (in Germany VDE 0100 Part 540). Incorporate the machine and any conductive substructures and table systems into the local potential equalisation system.

## 7.2 Perform assembly



### ⚠ Warning

#### **Danger of injury due to machine tipping**

If machine is freestanding and not secured, it could fall over and cause crushing.

- If machine is freestanding, it must be secured long term to prevent tipping.
- Wear protective gloves and safety shoes.

### Caution

#### **Material damage due to steam emission**

Small quantities of steam may escape through the cleaning and disinfection machine's door. It is possible that adjacent furniture may warp.

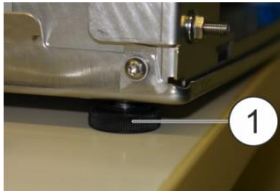
- Protect adjacent furniture from warping.
- If possible, avoid installing the machine in an area close to furniture susceptible to warping.



### Note

Assembly may be performed **only** by a licensed and authorised service technician!

Assembly must be carried out in accordance with the installation drawing.



- Ensure the machine is level in both directions by using a water level.
- Compensate for an uneven floor by adjusting the foot studs (1).
- Table joints must be sealed with detergent-resistant sealing compound (e.g. silicone).
- Check that the machine is stable.

**For disposal of packaging materials, see page 53!**

## 7.3 Connection

### ⚠ Beware

#### **Improper fresh water connection**

Backsiphonage of non drinking water into the water supply system

- Have the fresh water connected by a qualified professional and in accordance with local regulations.

### Caution

#### **Material damage due to ingress of pressurised media**

- Shut off the fresh water supply at the main valve prior to installation works.
- Check that all lines are securely connected.

## 8 Commissioning



### Warning

#### **Danger of injury from entering a danger zone**

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

- Only permit qualified persons to perform work at the machine.
- Remove unauthorised persons from the danger zone.
- Cordon off danger zone and signpost it for third parties.
- Never remove or disable safety devices on the machine.
- Always wear cut-resistant protective gloves when removing housing parts and when working inside the machine!

### 8.1 Check prerequisites for commissioning

#### **Caution**

#### **Material damage due to steam emission**

Small quantities of steam may escape through the cleaning and disinfection machine's door. It is possible that adjacent furniture may warp.

- Protect adjacent furniture from warping.
- If possible, avoid installing the machine in an area close to furniture susceptible to warping.

Prerequisites to be provided by the customer:

- Consistently frost free storage and installation area.
- Firm, level ground.
- Anti-slip floor coverings installed in the work area around the cleaning and disinfection appliance and/or cleaning combination.
- Electrical connection in accordance with the dimensional drawing.
- Fresh water connection in accordance with the dimensional drawing.
- Compressed air connection in accordance with the dimensional drawing.
- Waste water connection in accordance with the dimensional drawing.

### 8.2 Perform commissioning



#### **Note**

Instruction and initial commissioning may be performed **only** by an authorised service technician! The operator must not use the cleaning and disinfection appliance before completing training.

To avoid damage or dangerous injuries during commissioning, please note the following points:

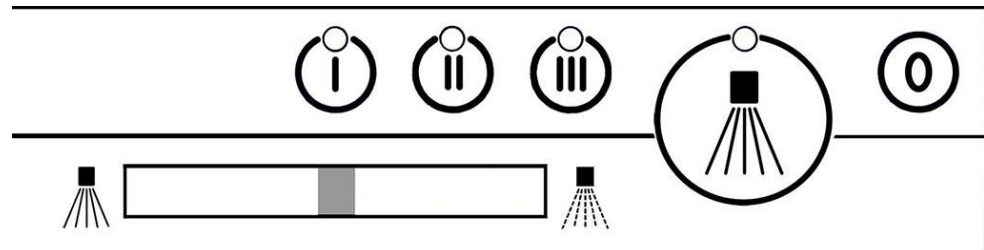
- Make sure that all tools and foreign parts are removed from the appliance.
- Make sure that any escaped fluids have been removed.
- For cleaning and disinfection appliances with GiO MODULE, attention must be paid to the "Commissioning certificate for GiO MODULES" and the instructions adhered to accordingly.

## 9 Operation/use

### 9.1 Membrane key pad

The cleaning and disinfection machine is equipped with a membrane key pad. A display reports the current temperatures of the clean and rinse water and displays information messages and error codes where applicable. Control lights at the keys indicate readiness for operation, the active cleaning programme and a running cleaning cycle.

The meaning of each of the keys and symbols is described below.



Key/symbol	Meaning
	<b>On/off key / programme termination</b>
	<b>Cleaning key with control light</b> Control light lit: cleaning programme is running Control light flashing: self-cleaning programme / drain programme is running
	<b>Cleaning programme keys 1 – 3 with control lights</b> Control light 1, 2 or 3 lights up: cleaning and disinfection machine ready for operation / cleaning programme 1, 2 or 3 selected Control light 1, 2 or 3 flashing: cleaning and disinfection machine is being made ready for operation
	<b>Current cleaning and disinfection temperature</b>
	<b>Current final rinse temperature</b>

### 9.1.1 Preparing the cleaning and disinfection machine



#### **Warning**

##### **Danger of injury from contact with chemicals**

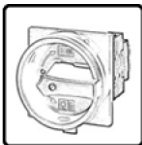
Detergent/disinfectant and rinse aid result in damage to health if in contact with skin or eyes or if swallowed.

- Use eye protection.
- Wear protective gloves.
- Contact a physician immediately if chemicals or water containing chemicals (clean water) are swallowed.

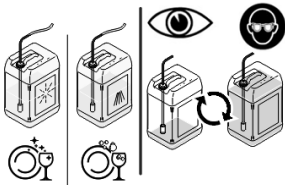
The cleaning and disinfection machine must not be used without precise knowledge of the operating instructions. Incorrect operation may result in personal injury or material damage.



1. Ensure the water supply is available.



2. Switch on at the local mains isolator.



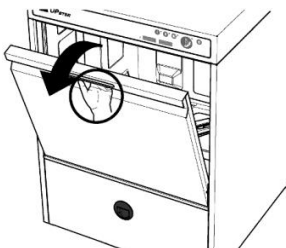
3. Check, and if necessary refill, detergent/disinfectant and rinse aid, see chapter "Fill consumables" on page 37.

4. Ensure that the suction lances are correctly fed into the canister.

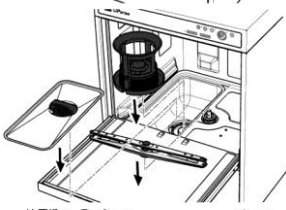


#### **Note**

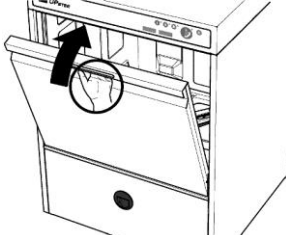
If there is air in the hoses, the automatic dosing will not function correctly. The relevant pipe must be vented, see chapter "Ventilating the pipes" on page 45.



5. Open door.



6. Insert filter, tank cover sieve and wash systems.



7. Close door.

## 9.2 Start up the machine

➡ The cleaning and disinfection machine is closed and does not contain a rack.

① 1. Press **On/Off button**.



The cleaning and disinfection machine is filled and heated. During this time, the control light above the selected cleaning programme key flashes. 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.



When the machine is ready to operate, the control light above the selected cleaning programme key is lit permanently.

## 9.3 Cleaning

### 9.3.1 Rack range



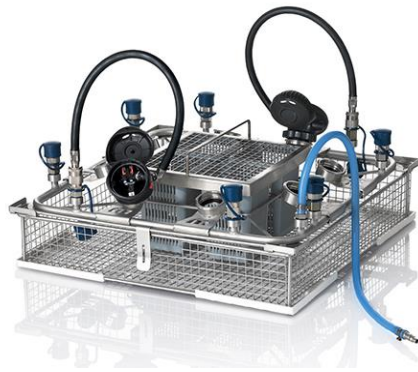
Base rack



Rack insert



Small parts rack for individual parts of respirator mask and regulator



Regulator rack with compressed air connection



Combination rack  
For 4 respirators and 4 regulators at the same time



Harness attachment with base rack for 1 harness



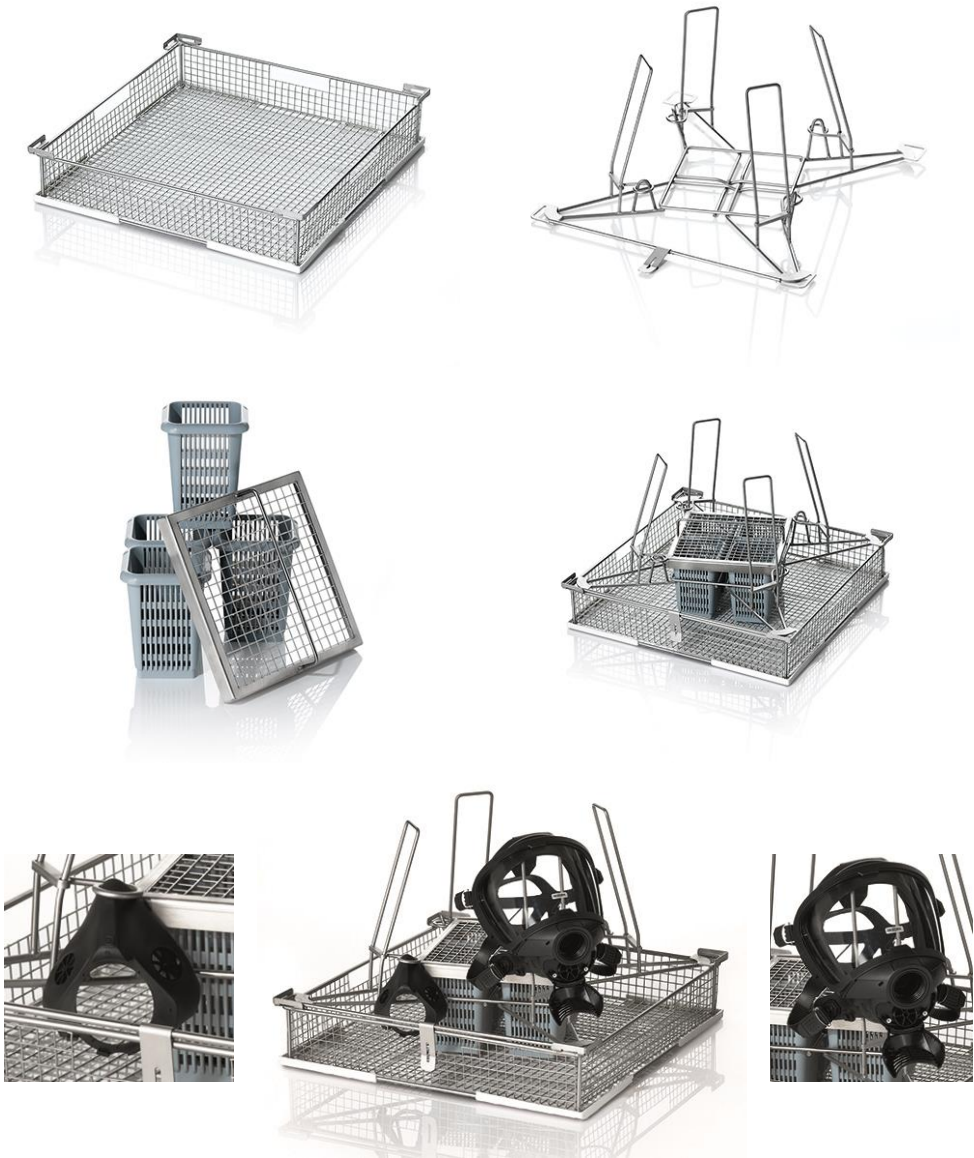
Rack insert for compressed air bottles

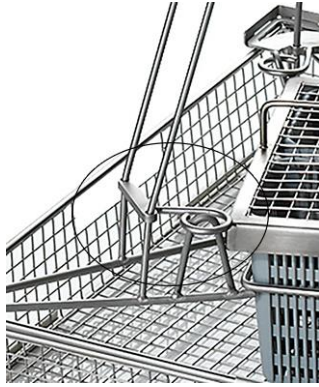
9.3.2 Accessories adapter



Adapter for M45x3" v-thread

9.3.3 Placement of respirator masks





Lift safety device, place inner mask on bracket and secure.



Small parts rack with mask utensils.



Hang the mask on the upper sealing edge on a bracket.

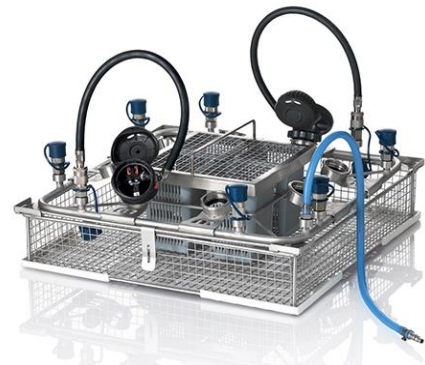
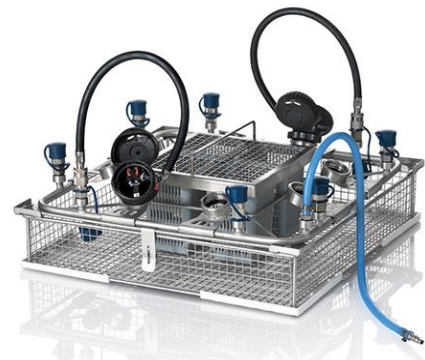


Partially loaded rack.



Place lid on small parts rack

### 9.3.4 Placement of regulators



Dismantle the regulator in accordance with the manufacturer's instructions.

Place individual parts in the small parts rack and close the lid.



Unscrew the regulator, align and connect the compressed air pipe.



Unused couplings must be closed with the protective cap before each cleaning cycle.

### 9.3.5 Use of the adapter (optional)



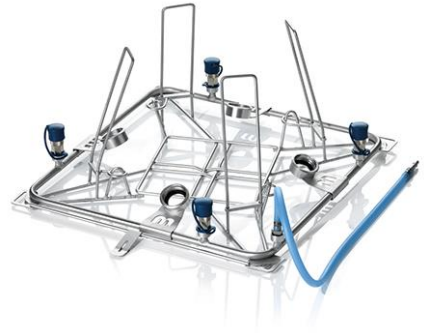
Standard suitable for 40x1/7" round thread detergent dosing unit and ESA plug connection.

Option: adapter for M 45x3" v-thread and industrial plug connection.

Additional adapters available upon request (e.g. D40-27 for MSA plug connections or oval adapters for e.g. Interspiro).

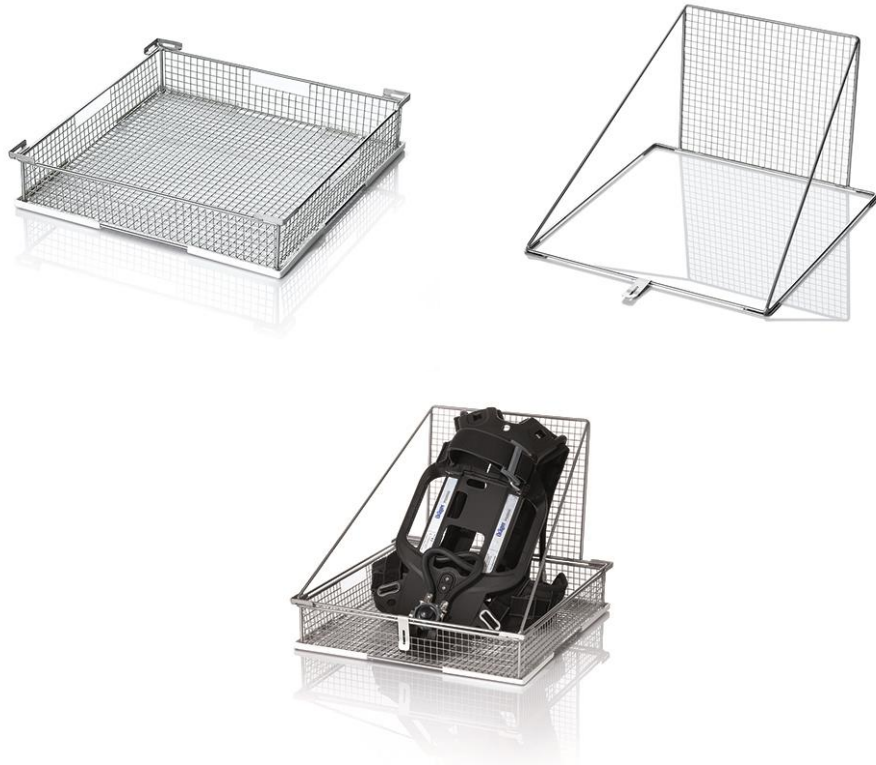
### 9.3.6 Placement of combi-rack

For up to 4 masks and 4 regulators at the same time.



Note: Again, if the couplings are not used, close them with the protective cap.

### 9.3.7 Placement of harness



### 9.3.8 Fitting of compressed air bottles



Base rack with rack insert for compressed air bottles

### 9.3.9 Connection of regulator and/or combi-rack to the compressed air pipe




Push the compressed air hose connection into the coupling.

### 9.3.10 Selecting the cleaning programme

1. Press the desired cleaning programme key.

During the programme run, the wash chamber door is locked.

The control light of the selected cleaning programme key lights up.

Cleaning programme	Meaning	Washware
	Short programme - Cleaning programme I	Exercise mask
	Normal programme - Cleaning programme II	Deployment mask
	Water change programme - Cleaning Programme III	Deployment mask very dirty

#### Programme configuration

Depending on the machine type, the electrical connection and water supply, the programme configuration can vary. The programme configuration is shown in the following table.

#### Programme table

No.	Setpoint boiler temperature	Setpoint tank temperature	Setpoint cleaning time	
			Cleaning	Total
	[°C]	[°C]	[s]	[s]
1	59 (54)*	61 (56)*	335	360
2	59 (54)*	61 (56)*	515	540
3 (WW)	59 (54)*	61 (56)*	695	720

WW = Water change programme (option)

\*) only in combination with Dr. Weigert neodisher Dekonta AF

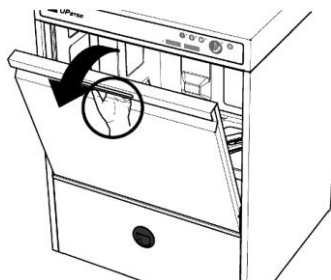
#### Note

The concentration of the rinse aid in the water remains constant: if the rinse time is changed, the dosage amount of the rinse aid changes correspondingly.

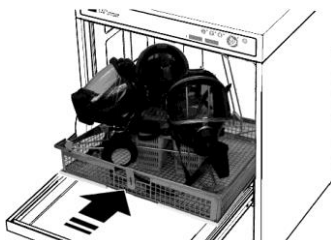
### 9.3.11 Starting the cleaning process



1. Preclean washware that is very dirty (coarse dirt residues, etc.) and insert into the rack.
2. Put the washware into the rack.



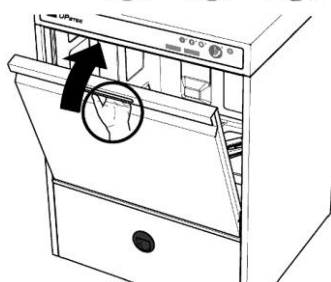
3. Open door.



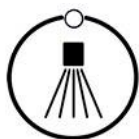
4. Insert the rack into the cleaning and disinfection machine.



5. Ensure that the correct programme has been selected, see chapter "Selecting the cleaning programme" on page 34.

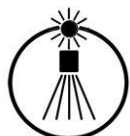


6. Close door.



7. Press the **cleaning key**.

The control light above the cleaning key lights up. The cleaning and disinfection machine cleans and disinfects automatically and switches off the wash programme after completion.



The cleaning and disinfection time may differ from the set programme cycle time if the programme cycle time is not sufficient to heat up the boiler and tank water to the preset temperature. In this case, the cleaning cycle time is automatically extended. This means that the cleaning and disinfection machine runs until the required temperatures are reached, but max. 5 minutes.

**The cleaning and disinfection programme starts and automatically runs through to the program end.  
During the programme run, the wash chamber door is locked.**

### 9.3.12 Removal of regulator or combi-rack from the compressed air pipe



Press the locking button to disconnect the compressed air pipe.

Press the locking button again and pull the compressed air hose out of the coupling.

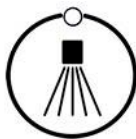
### 9.3.13 Removing the washware

#### **Caution**

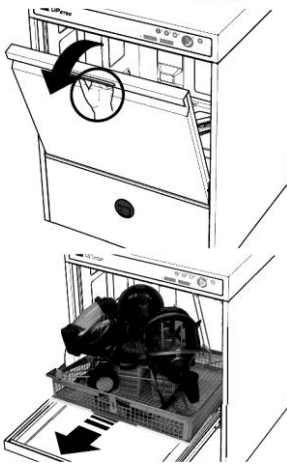
##### **Danger from hot wash water, washware and machine parts**

Contact with hot clean water, washware and machine parts can result in burns/scalding of the skin.

- Wear protective gloves if necessary.
- Let the washware cool down before emptying, if necessary.
- Let the machine cool down before touching machine parts, if necessary.
- Never open the machine door or hood during a wash cycle.
- Only open and close the hood/door using the designated handle(s).



After the programme ends, the control light above the cleaning key turns off and an acoustic signal sounds.

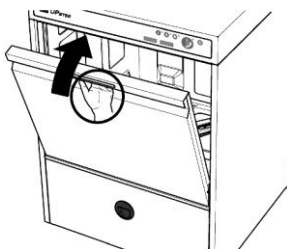


1. Open door.

2. Carefully remove rack.

Check dismantled individual parts of the personal protective equipment (PPE) for: cleanliness, changes, wear (according to the respective manufacturer's operating instructions).

**When treating personal protective equipment (PPE), the instructions in the manufacturer's operating manual must be strictly observed!**



3. Close door.

## 9.4 Decommissioning the cleaning and disinfection machine

➡ The cleaning and disinfection machine is closed and does not contain a rack.



Press the **Off button**. All control lights turn off.

The self-cleaning programme with subsequent forced draining is started.



The control light on the cleaning key flashes. The cleaning water is pumped out and the tank is sprayed with hot fresh water. After the operation has finished, the machine automatically switches into OFF mode.



After the end of the process, clean the machine, see chapter “Daily cleaning” on page 50.

## 9.5 Fill consumables



### ⚠ Warning

#### Danger of injury from contact with chemicals

Detergent/disinfectant and rinse aid result in damage to health if in contact with skin or eyes or if swallowed.

- Use eye protection.
- Wear protective gloves.
- Contact a physician immediately if chemicals or water containing chemicals (clean water) are swallowed.

### 9.5.1 Replace canister



Lack of rinse aid



Lack of detergent/disinfectant



#### Note

The canisters for detergent and rinse aid are located in the immediate vicinity of the cleaning and disinfection machine.

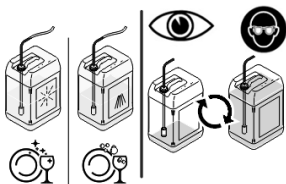


#### Note

When using a suction lance which detects whether a canister is empty, a shortage of detergent/disinfectant or rinse aid will be indicated on the display.



A canister is empty.



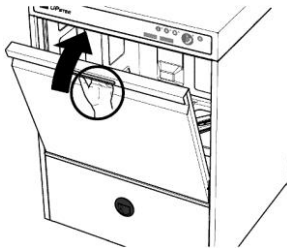
1. Remove the suction lance from the empty canister and insert it into a full canister.
2. If necessary, ventilate the pipelines, see page 45.

## 9.6 Water change programme (option)

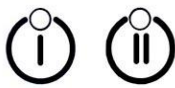
A water change programme can be assigned to the cleaning programme keys. In the standard setting, the water change programme is stored at the cleaning programme key III.

The cleaning and disinfection machine cleans normally and empties the tank. The fresh water final rinse follows. The water from the fresh water final rinse is already used for refilling the wash tank. The control light above the cleaning key goes out.

The following options are now available:



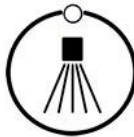
- Open door, remove rack, close door.



- Press cleaning programme key I or II if the following programme is to be implemented without a complete water change.



Machine is made ready for operation.



- Open door, remove rack, close door and press cleaning key.



Machine is made ready for operation and the cleaning programme is started directly after that.



- Press the Off key.



The self-cleaning programme with subsequent emptying of the tank and boiler is started in order to decommission the cleaning and disinfection machine.

## 9.7 Malfunctions

Despite careful construction, minor malfunctions may occur, which are usually easy to fix. Possible errors and troubleshooting measures for the operator are described in the following.

If the described operational problems occur repeatedly, the cause must be identified.

### Common malfunctions

Malfunction	Possible cause	Remedy
Cleaning and disinfection machine does not fill	No water present	Open the shut-off valve
	Dirt trap clogged	Clean the dirt trap
	Open door/hood	Close door/hood
Final rinse does not spray	No water present	Open the shut-off valve
	Dirt trap clogged	Clean the dirt trap
Streaks/smears on the washware	Unsuitable rinse aid	Change product
	Incorrect dosing quantity	Adjust dosing quantity
	Water pre-treatment defective	Check water pre-treatment
Strong formation of foam in the wash tank	Dirt level too high	Prepare the washware more thoroughly/change tank water more frequently
	Manual dishwashing detergent used	Do not use a foaming manual dishwashing detergent for precleaning or for cleaning the machine. In the cleaning and disinfection machine, foam can cause unit malfunctions and a poor cleaning result.
	Unsuitable detergent	Change product
	Unsuitable rinse aid	Change product

As a rule, faults that are not described here require assistance from an authorised service technician. Please contact your subsidiary or authorised dealer.

### 9.7.1 Messages



When a malfunction occurs, an information or error message (**INFO/ERR**) is displayed.


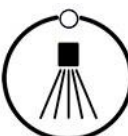


- Information messages (**INFO**) can be acknowledged with the wash key. If the cause has been remedied (see table), operation can be continued.
- Error messages (**ERR**) usually require the deployment of an authorised service technician!


INFO	Description	Possible cause	Measures/remedial action
120	Emergency programme active	<ul style="list-style-type: none"> <li>• No boiler/tank heating</li> <li>• No fresh water supply</li> </ul>	<ul style="list-style-type: none"> <li>• Possible to continue work at limited capacity</li> <li>• Call a service technician!</li> </ul>
121	Door/hood not closed	<ul style="list-style-type: none"> <li>• Door/hood open</li> <li>• I/O circuit board defective</li> <li>• Microswitch defective</li> <li>• Microswitch not correctly set</li> </ul>	<ul style="list-style-type: none"> <li>• Close door/hood</li> <li>• Call a service technician!</li> </ul>
122	Incorrect password/no authorisation	<ul style="list-style-type: none"> <li>• Code incorrectly entered</li> </ul>	<ul style="list-style-type: none"> <li>• Enter code again</li> </ul>
123	Factory setting parameter list	<ul style="list-style-type: none"> <li>• Switch supply voltage on/off</li> </ul>	<ul style="list-style-type: none"> <li>• No intervention by the operator is necessary</li> <li>• Message disappears after 5 min.</li> </ul>
126	Maintenance necessary	<ul style="list-style-type: none"> <li>• The set operating hours (P 122) or batch number (P 123) has been reached</li> </ul>	<ul style="list-style-type: none"> <li>• Possible to continue working</li> <li>• Call a service technician!</li> </ul>
420	Lack of rinse aid (with integrated fill-level detection)	<ul style="list-style-type: none"> <li>• Canister empty</li> <li>• Suction lance not correctly introduced</li> </ul>	<ul style="list-style-type: none"> <li>• Replace empty canister</li> <li>• Check suction lance</li> <li>• Where appropriate, ventilate pipes</li> </ul>
520	Lack of detergent/disinfectant (with integrated empty-tank detection)		

ERR	Description	Possible cause	Measures/remedial action
001	EEPROM error	<ul style="list-style-type: none"> <li>• EEPROM <ul style="list-style-type: none"> <li>– Not present/defective</li> <li>– Installed incorrectly</li> <li>– Incorrect data/empty</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>
111	Floor pan leakage	<ul style="list-style-type: none"> <li>• There is a leak</li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>
117	Door not locked	<ul style="list-style-type: none"> <li>• The pin of the lifting magnet is not correctly in the locking device</li> <li>• The magnetic coil of the lifting magnet is damaged</li> <li>• Door locking query is not correct</li> </ul>	
201	Boiler level not reached during first filling (with integrated pressure booster pump)	<ul style="list-style-type: none"> <li>• Fresh water inlet insufficient (water tap closed)</li> <li>• Feed hose kinked/disconnected/leaks</li> </ul>	<ul style="list-style-type: none"> <li>• Check water supply</li> <li>• Check feed hose</li> <li>• Check pre-filter/sieve and clean, if necessary</li> <li>• Where appropriate, call a service technician!</li> </ul>
202	Boiler level not reached on time during filling (with integrated pressure booster pump)	<ul style="list-style-type: none"> <li>• Inlet filter soiled</li> <li>• Solenoid valve defective</li> <li>• Boiler switch defective</li> </ul>	
203	No change detected by the boiler level switch when emptying (with integrated pressure booster pump)	<ul style="list-style-type: none"> <li>• Pressure booster pump defective</li> <li>• Plug connections disconnected (e.g. pressure booster pump)</li> <li>• Start capacitor defective</li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>
204	No change yet detected at the boiler level switch (with integrated pressure booster pump installed) after the rinse time expired	<ul style="list-style-type: none"> <li>• Boiler level switch defective</li> <li>• No signal to or from pressure booster pump and I/O circuit board</li> <li>• No signal boiler full - from I/O circuit board</li> </ul>	
205	Boiler temperature not reached after max. heat time (P310)	<ul style="list-style-type: none"> <li>• Boiler heating defective/melting beads, heating element</li> <li>• Temperature sensor defective, incorrect installation position</li> <li>• Boiler protection defective, output switch triggered</li> <li>• No signal from I/O circuit board</li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>
206	Wash time increase	<ul style="list-style-type: none"> <li>• Boiler not ready for final rinse on time (temperature or level not reached)</li> <li>• Boiler heating defective (melting beads)</li> <li>• Temperature sensor defective</li> <li>• Boiler protection defective, output switch triggered</li> <li>• No signal from I/O circuit board</li> </ul>	<ul style="list-style-type: none"> <li>• Acknowledge message, continued work possible</li> <li>• Let programme run without intervention by the operator</li> <li>• If it occurs frequently, call a service technician!</li> </ul>
210	Boiler temperature sensor short-circuit	<ul style="list-style-type: none"> <li>• Sensor defective</li> <li>• Sensor position not correct</li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>
211	Boiler temperature sensor interruption	<ul style="list-style-type: none"> <li>• Plug contact not connected properly</li> </ul>	
212	"Actual" boiler temperature too high (>95°C)	<ul style="list-style-type: none"> <li>• Contactor sticking</li> <li>• Incorrect sensor/defective sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Not possible to continue working</li> <li>• Call a service technician!</li> </ul>

ERR	Description	Possible cause	Measures/remedial action
301	Number of circulatory pumping cycles for tank filling exceeded Tank level analysis disrupted	<ul style="list-style-type: none"> <li>Feeding water pressure too low</li> <li>Inlet filter soiled</li> <li>Rinse nozzles dirty</li> <li>Air trap dirty</li> <li>Condensate in level pipe</li> <li>Feed hose kinked/disconnected/leaks</li> </ul>	<ul style="list-style-type: none"> <li>Check water supply</li> <li>Check feed hose</li> <li>Clean inlet filter</li> <li>Clean rinse nozzles</li> <li>Call a service technician!</li> </ul>
302	While drain pumping during the cleaning programme, tank level 1 is not fallen below on time (with integrated drain pump)	<ul style="list-style-type: none"> <li>Drain pump output too low</li> <li>Drain pump dirty/defective</li> <li>Impeller loose</li> <li>Drain pump plug connection open</li> <li>Start capacitor defective</li> <li>Tank level analysis disrupted</li> <li>Aquastop does not close correctly</li> <li>No signal from I/O circuit board</li> </ul>	<ul style="list-style-type: none"> <li>Not possible to continue working</li> <li>Call a service technician!</li> </ul>
303	While drain pumping during the cleaning programme, tank level 3 is not fallen below on time (with integrated drain pump)		
304	Tank temperature not reached after max. heat duration (P.314)	<ul style="list-style-type: none"> <li>Tank heating defective/melting beads, heating element</li> <li>Temperature sensor defective, incorrect installation position</li> <li>Tank protection defective, output switch triggered</li> </ul>	<ul style="list-style-type: none"> <li>Not possible to continue working</li> <li>Call a service technician!</li> </ul>
305	Number of boiler fills insufficient for rinsing. Tank level 2 not reached	<ul style="list-style-type: none"> <li>Feeding water pressure too low</li> <li>Inlet filter soiled</li> <li>Rinse nozzles dirty</li> <li>Air trap dirty</li> <li>Condensate in level pipe</li> <li>Feed hose kinked/disconnected/leaks</li> <li>Level sensor defective</li> <li>Plug contact not connected properly</li> </ul>	<ul style="list-style-type: none"> <li>Check water supply</li> <li>Check feed hose</li> <li>Clean inlet filter</li> <li>Clean rinse nozzles</li> <li>Call a service technician!</li> </ul>
306	Max. tank level exceeded Tank level analysis disrupted	<ul style="list-style-type: none"> <li>Air trap dirty</li> <li>Condensate in level pipe</li> <li>Level sensor defective</li> <li>Plug contact not connected properly</li> </ul>	<ul style="list-style-type: none"> <li>Empty cleaning and disinfection machine and refill</li> <li>Call a service technician!</li> </ul>
307	Tank level sensor defective	<ul style="list-style-type: none"> <li>Connection plug loosened</li> <li>Sensor or I/O circuit board defective</li> </ul>	<ul style="list-style-type: none"> <li>Call a service technician!</li> </ul>
310	Temperature sensor short-circuit	<ul style="list-style-type: none"> <li>Sensor defective</li> <li>Sensor position not correct</li> <li>Plug contact not connected properly</li> </ul>	<ul style="list-style-type: none"> <li>Not possible to continue working</li> <li>Call a service technician!</li> </ul>
311	Temperature sensor interruption		
312	Actual tank temperature too high (>85°C)	<ul style="list-style-type: none"> <li>Contacting sticking</li> <li>Incorrect sensor/defective sensor</li> </ul>	<ul style="list-style-type: none"> <li>Not possible to continue working</li> <li>Call a service technician!</li> </ul>
502	Lack of disinfectant	<ul style="list-style-type: none"> <li>If the device is ready for operation, a lack of disinfectant will be signaled</li> </ul>	<ul style="list-style-type: none"> <li>Replace empty canister</li> </ul>

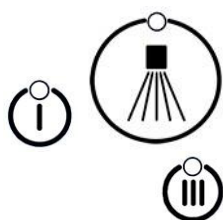
## 9.8 Change authorisation level

Key/symbol	Meaning
	<b>On/Off key</b> Start programming
	<b>Cleaning key</b> Confirm entry and jump to next position in the code
	<b>Cleaning programme key 1</b> Increase value by one
	<b>Cleaning programme key 3</b> Decrease value by one

-  1. Press and hold the On/Off key for about three seconds.







2. Enter the service code for the required authorisation level.





After entry of the correct code, the desired authorisation level (1, 4) is displayed in the left field in the first digital position. If the entry is incorrect, the message **Info 122** appears.

### Authorisation level 1 – Service level

Read service data (**service code: 10000**)

The operator can view the service data.

Read/modify service data (**service code 10001**)

The operator can carry out all functions required for normal operation and configure the settings.

### Authorisation level 4 – Dosing equipment level





Read settings (**service code: 40000**)

The operator can view the data for the dosing technology.

Read/modify settings (**service code 40044**)

The operator can view/edit all the relevant parameters for the dosing technology.

## 9.9 Service level

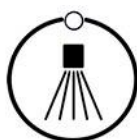
Code display	Meaning
	View parameter, see page 44.
	Vent rinse pipe, see page 45.
	Vent detergent/disinfectant pipe, see page 45.
	Reset the counter for replacing the partial desalination cartridge, see page 45.

### 9.9.1 View parameters

1. Switch to authorisation level 1 **Service level (10000)**, see chapter “Change authorisation level” on page 43.



2. Select the entry 1–1.



3. Confirm the selection.



The first parameter is displayed.

4. Scroll through and view the parameters using the cleaning programme keys.



The service level can be exited with the **On/Off key**.

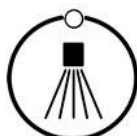
### 9.9.2 Ventilating the pipes

The ventilation of the detergent/disinfectant or rinse pipes must be performed if air is sucked in from the dosing units. This occurs if a canister is completely emptied during operation, or if one of the suction lances is not threaded through to the base of the canister.

1. Switch to authorisation level 1 **Service level (10001)**, see page 43.



2. Select entry 1-3 for venting the detergent/disinfectant line, and entry 1-2 for the rinse pipe.



3. Confirm the selection.



The respective pipes are being ventilated, and the remaining time in seconds is displayed. If necessary, repeat ventilation.



- 0 Ventilation can be cancelled with the **on/off key**.

### 9.9.3 Replace counter for partial desalination cartridge (optional)

For dishwashers with a partial desalination cartridge and activated end-of-service indicator, the counter must be reset after changing the partial desalination cartridge.

1. Switch to authorisation level 1 **Service level (10001)**, see page 43.



2. To reset the counter, select entry 1-5.



3. Confirm the selection to reset the value.



- The setting level can be departed with the **on/off key**.

## 9.10 Dosing system level

1. Switch to authorisation level 4, Dosing technology level (40000 or 40044), see chapter "Change authorisation level" on page 43.



The parameters relevant for the dosing technology are displayed and can be changed.

Code display	Meaning	Adjusting range
P104	Rinse aid dosing quantity	0.10 - 1.00 ml/L
P105	Detergent/disinfectant dosing quantity	0.10 - 20.0 ml/L
P218	Lack of rinse aid	1/0 = Display on/off
P219	Lack of detergent/disinfectant	1/0 = Display on/off
P224	Rinse aid dosing unit activation method	0 = Do not activate 1 = Activate through calculated running time 2 = Activate as per pressure booster pump 3 = Activate as per wash pump
P225	Detergent/disinfectant dosing pump activation method	0 = Do not activate 1 = Activate through calculated running time 2 = Activate as per pressure booster pump 3 = Activate as per wash pump
P321	Rinse aid dosing unit output	0.10 - 10 L/h
P322	Wash pump output	0.10 - 20 L/h
P326	Rinse pipe ventilation time	0 - 255 s
P327	Detergent/disinfectant pipe ventilation time	0 - 100 s

## 10 Maintenance and cleaning



### ⚠ Warning

#### **Danger to life from electric shock**

Contact with live electrical parts can lead to serious injury or death.

- Work at or repairs to the electrical system must be conducted by a qualified electrician who complies with the electrotechnical rules.
- 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 can't be switched back on again.



### ⚠ Warning

#### **Danger to life from electric shock if cover panels are open**

If the machine is operated without cover panels, 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 cover panels. To do this, turn the local mains switch to **OFF** and ensure that it cannot be switched back on again.
- Attach all cover panels before placing the machine back in operation.

### **Warning**

#### **Danger of injury from entering a danger zone**

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

- Only permit qualified persons to perform work at the machine.
- Remove unauthorised persons from the danger zone.
- Cordon off danger zone and signpost it for third parties.
- Never remove or disable safety devices on the machine.
- Always wear cut-resistant protective gloves when removing housing parts and when working inside the machine!



### **Caution**

#### **Danger from hot wash water, washware and machine parts**

Contact with hot clean water, washware and machine parts can result in burns/scalding of the skin.

- Wear protective gloves if necessary.
- Let the washware cool down before emptying, if necessary.
- Let the machine cool down before touching machine parts, if necessary.
- Never open the machine door or hood during a cleaning cycle.
- Only open and close the hood/door using the designated handle(s).



### **Caution**

#### **Environmental damage due to improper disposal of liquids**

Environmentally hazardous liquids (e.g. grease and oils, hydraulic oils, coolants, cleaning agents containing solvents etc.) may be used during work on and with the machine. Improper disposal of these liquids can damage the environment.

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



## 10.1 Maintenance



### **Note**

MEIKO recommends having the machine serviced by an authorised service technician at least once a year. As part of the maintenance, an electrical safety inspection is also carried out in accordance with DIN VDE 0701-0702 / DGUV Regulation 3. Wear parts are checked and replaced, if necessary, and the machine tested. Cleaning work and changing pre-filters in machines with GiO MODULE must be carried out by trained operators.

Neglected or improper maintenance increases the residual risk of unforeseen damage to property and persons, for which no liability will be assumed.

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

- Comply with the maintenance intervals prescribed in these operating instructions.
- Please note the maintenance instructions for the individual components in these operating instructions.
- Carefully dispose of any detergents that could harm the environment.

## 10.2 Maintenance table



### Note

Maintenance work must **only** be carried out by MEIKO authorised staff!

Maintenance work	Checked	Cleaned	Reconditioned	Maintenance requirement
Visual check				
<b>1. Electrical installation</b>				
Re-tighten all screw connections (e.g. heating contactors, control fuse), check plug/terminal connections				Annually
Carry out a visual check on all electrical equipment (e.g. switches, cables, plugs, etc.)				Annually
Check tank and boiler heating				Annually
<b>2. Pumps</b>				
Check pumps for leaks and any visible damage				Annually
Check pumps for pump rotor noise and function				Annually
<b>3. Wash tank, wash and final rinse system</b>				
Functional and visual check of washing and rinse arms				Annually
Replace sealing rings on wash arms				Annually
Check air trap of the tank and clean if necessary				Annually
Check tank level control for leaks				Annually
Check sieves and filters				Annually
Check wash and rinse systems for leaks				Annually
Check water level in tank				Annually
<b>4. Casing</b>				
Check casing, tank and cladding for damage and function				Annually
<b>5. Fresh water installation</b>				
Check valves, clean dirt trap				Annually
Check that the boiler level control/air trap are not leaking				Annually
Check boiler, hoses, clamps and plastic parts do not leak				Annually
Check boiler drainage system does not leak				Annually
<b>6. Waste water installation</b>				
Replace flap on ventilation valve				Annually
Check operation of drain pump during drainage				Annually
Check that pumps, hoses are not leaking				Annually

					Checked	Cleaned	Reconditioned	Maintenance requirement
<b>Maintenance work</b>								
Visual check								
<b>7. Disinfectant and detergent dosing</b>								
Replace peristaltic tube and seals on the nozzles								Annually
Check the detergent/disinfectant dosing system is working and not leaking								Annually
<b>8. Rinse aid dosing</b>								
Replace peristaltic tube and seals on the nozzles								Annually
Check the rinse aid dosing system is working and not leaking								Annually
<b>9. Compressed air connection</b>								
Check the hose couplings! Replace them if damaged.								Annually
<b>10. Test run with a function test on the whole machine</b>								
Check filling and heating until it is ready for operation								Annually
Visual inspection of the entire machine for leaks								Annually
Check sample rinsing and rinsing results								Annually
Brief training for new personnel								Annually
<b>11. Options</b>								
<b>Integrated reverse osmosis system (if available)</b>								
Visually check whole system for leaks								Annually
Replace pre-filter								Every six months
Check fine sieve insert and choke in concentrate pipeline								Annually
Check correct function of concentrate drain and check for deposits								Annually
Fill in separate log, "Certificate of Commissioning GiO"								Annually
<b>Partial demineralisation (PD) / Full demineralisation (FD) (if available)</b>								
Functional test								Annually
<b>12. Water quality, temperature</b>								
Drinking water	°C	°dH	°KH	µS/cm				Annually
Water quality after water treatment (if available)		°C	°dH	µS/cm				Annually
<b>13. Electrical safety check (certificate is optional)</b>								
Perform visual check								Annually
Check earth wire								Annually
Insulation resistance measurement								Annually
Measure current on protective earth conductor								Annually

## 10.3 Daily cleaning

### Caution

#### Material damage due to water ingress

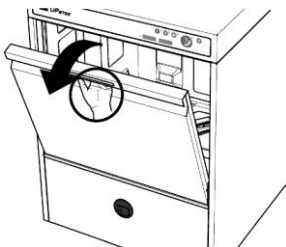
Electrical cables and electronic components can be damaged if they come into contact with water.

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

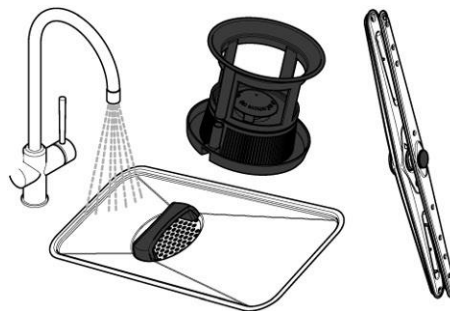
#### Note

Do not use a foaming detergent for dish-washing by hand for pre-cleaning or cleaning the cleaning and disinfection machine. Foam can cause unit malfunctions and a poor wash.

The machine is emptied, see chapter "Decommissioning the cleaning and disinfection machine" on page 37.



1. Open door.



2. Remove tank cover sieve, filter, wash systems top and bottom. All parts to be cleaned are blue or have a blue handle.
3. All residues sticking to the tank, tank heating element and sieves must be removed with a brush.
4. Remove the wash and rinse arms and rinse thoroughly under running water. When doing this, pay particular attention to the nozzles!
5. Clean filter under running water.
6. Reinstall all parts in reverse sequence.

## 10.4 Cleaning the stainless steel surfaces

### Caution

#### Material damage due to incorrect cleaning

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

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

### Caution

#### Material damage due to aggressive cleaning products

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

- Make sure that the cleaning and care products cannot have direct contact with the machine.
- Do not use aggressive cleaning agents (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.

We recommend that, when required, the stainless steel surfaces are cleaned exclusively using cleaning and care products that are suitable for stainless steel.

- Lightly soiled parts can be cleaned with a soft and possibly damp cloth or sponge. For moistening we recommend only using demineralised water.
- In order to prevent limescale, we recommend wiping the surfaces thoroughly dry after cleaning.

## 10.5 Descaling



### Warning

#### Danger of injury from contact with acids

Descaling agents can cause damage to health if they come into contact with skin or eyes or are swallowed.

- Use eye protection.
- Wear protective gloves.
- Contact a physician immediately if chemicals or water containing chemicals (clean water) are swallowed.
- Please take note of the manufacturer's safety instructions.

### Caution

#### Destruction of plastic parts and seals from residues of de-scaling agent

Completely flush the de-scaling agent out of the cleaning and disinfection machine.

Operating the cleaning and disinfection machine with hard water can result in the build up of lime scale deposits in the boiler and the tank interior. If this occurs, it is necessary to de-scale the tank interior, boiler housing, tank heating, boiler heating and the washing and rinsing systems.

Notes on conducting descaling:

- Only use products suitable for cleaning and disinfection machines (for the chemo-thermal cleaning disinfection process) for descaling. Follow the manufacturer's instructions.
- Completely flush the de-scaling agent out of the cleaning and disinfection machine. To do so, perform 1 or 2 rinse cycles with fresh water.
- Where necessary, assign Customer Service the task of descaling the boiler.

## 10.6 Spare parts

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

Type: .....

SN: .....



.....

(This information can be found on the type plate, see chapter on page 14.)

## 11 Non-use for several days

### 11.1 Break in operation (e.g. seasonal operation)

- Run self-cleaning programme and clean the machine, see page 50.
- Close the on-site shut-off valve.
- Switch off on-site mains isolator.
- Manually open a gap in the front door or hood to prevent germ formation and odours.
- Frost protection: If necessary, have the machine frost-proofed by the authorised service technician. Dishwashing machines of the M-iClean U series without GiO MODULE can be frost-proofed by yourself.

### 11.2 Commissioning after break in operation

- Set up the machine for 24 h at 25°C if it is not frost-free. Have an authorised service technician commission the machine again.
- Have reverse osmosis (GiO MODULE) (option) disinfected in the case of downtimes of more than 6 months.
- Open the on-site shut-off valve and switch on the main switch.
- Put machine into operation, see page 26.

## 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 Disposal of packaging materials

All the packaging materials are recyclable. The following materials are used:

- Square timber frame
- Plastic sheeting (PE film)
- Cardboard packaging (for protecting edges)
- Packaging strap (steel strip)
- Packaging strap (plastic (PP))



### Note

The square timber frame consists of untreated raw pine / spruce. In order to guard against pests, country-specific import regulations may also stipulate the use of treated wood.

## 12.2 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.
- 
- Where appropriate, rinse machine components, containers, dosing units and hoses with fresh water to remove chemical residues. Wear suitable clothes (gloves, safety glasses) for this.

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

The components should be separated by material for recycling.

## 13 Abbreviations

Abbreviation	Meaning
GiO	GiO module, integrated reverse-osmosis system
pH	The pH value denotes the acidity of liquids
LpA	LpA denotes the emission sound pressure levels at the workplace
dB	Decibel, unit of sound pressure level.

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**MEIKO Maschinenbau GmbH & Co. KG**

Englerstraße 3

77652 Offenburg

Germany

[www.meiko-global.com](http://www.meiko-global.com)

[info@meiko-global.com](mailto:info@meiko-global.com)

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