TopClean M

Cleaning and disinfection appliance for respiratory protective equipment

Original 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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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.com** 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 operating instructions:

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

External documents of the manufacturer of the respiratory protective equipment

- Current instructions for cleaning personal protective equipment
- Current release

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
- 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 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.

Persons **Activity**	**Experienced staff**	**Instructed in-house technician**	**Authorised in-house technicians/fitters (Medical Products Advisor)**
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
Transport and assembly	Loading and unloading with forklift truck	Crushing/impact	• Load-bearing capacity of the forklift truck must be adequate for the weight of the appliance • Please note the appliance's centre of gravity • Secure to prevent slipping
	Deposit at the installation site		• Ensure that the ground beneath is capable of taking the load • Make sure that the appliance cannot tip
	Electrical connection Compressed air connection Waste water connection	Electric shock Slipping/tripping/falling	• Only skilled personnel may install, connect and dismantle the appliance. • Adhere to the accident prevention regulations
	Install separate GiO MODULE (optional)	Tripping/falling/crushing	• We recommend fastening the GiO MODULE to the wall/table/appliance • Mount freestanding module using solid base • If needed, run module at 90 degrees (lying)
Commissioning	Fill with detergent/rinse aid	Eye injury/health risks	• Wear safety eyewear/gloves • Avoid contact with skin and eyes
Operation	Cleaning programme running	Contact with hot water	• Do not open the wash chamber door during programme run
		Appliance catching fire due to overload or blockage of pump motors	• Always use a fine/coarse sieve when running the appliance to keep out foreign bodies • Pre-wash washware
	Loading and unloading the appliance	Trapping of hand	• To close the wash chamber door, use the handle designated for this purpose
		Broken washware causing cuts/severing	• Clean the washware in the specially designed rack in the appliance • Place small items in the appropriate rack inserts • Washware must not come into contact with rotating parts of the appliance
		Risk of snagging with loose clothing or items of jewellery	• Wear suitable work clothing and sturdy shoes • Do not wear rings, necklaces or other pieces of jewellery
		Slipping	• Use non-slip floor coverings
		Contact with hot water and hot machine parts	• If necessary, allow washware to cool down • If necessary, allow appliance parts to cool down before touching them • Do not remove tank cover sieve while appliance is in operation • Protective gloves recommended
	Other activities	Injury through standing or sitting on the open wash chamber door	• Make sure that nobody sits or stands on the wash chamber door
		Swallowing of water in the wash chamber	• Do not use the cleaning water for food preparation • Do not drink the cleaning water
	Independent changes to chemical dosing	Breathing difficulties/suffocation	• Only allow specialist personnel to adjust dosing, otherwise the manufacturer of

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	• Close dosing cover as soon as refilling is complete
		Eye injury/health risks	• Wear safety eyewear/gloves • Avoid contact with skin and eyes
Maintenance and cleaning	Any maintenance work	Electric shock	• Before opening the covers, ensure the mains switch has been disconnected and secured so that it cannot be turned on again • Only specialist personnel may carry out maintenance work
	Cleaning or maintenance	Tripping/falling over open wash chamber door	• Always close wash chamber door after use
		Contact with hot water and hot machine parts	• Allow appliance parts to cool down before touching them • Wear protective gloves
	Cleaning	Poisoning	• Do not use aggressive cleaning or scouring agents • Only use descaling products suitable for commercial cleaning and disinfection machines • Wear protective gloves
	GiO MODULE: replace filter cartridge	Water escaping	• Provide suitable vessel (e.g. base drip tray)
Dismantling and disposal	Dismantling	Eye injury/health risks	• Wear safety eyewear/gloves • Avoid contact with skin and eyes • If needed, clean hoses, dosing system and appliance parts with fresh water
	Loading and unloading with forklift truck	Crushing/impact	• Load-bearing capacity of the forklift truck must be adequate for the weight of the appliance • Please note the appliance's centre of gravity • Secure to prevent slipping

3.4 Intended use

The machine is to be used only for commercial cleaning and disinfection of respiratory protective equipment and personal protective equipment and associated equipment.

The washware must be suitable for use in commercial machines and the associated stress caused by high temperatures and cleaning chemicals up to 60 °C.

When treating the respiratory and personal protective equipment (PPE), the instructions and specifications in the manufacturer's operating instructions must be observed. 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.

Only operate the machine with a compressed air connection for SCBA sets (200-500 kPA) in accordance with EN 12021.

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

Only operate the machine in a respiratory protective equipment workshop.

The machine may only be operated by trained personnel.

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

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

If servicing is required, only use original spare parts from the manufacturer. This is the only way to guarantee perfect function and safety.

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

Assembly, installation and repair may only be carried out by authorised specialists. Changes or conversions are not permitted.

3.5 Foreseeable misuse

- Use of a compressed air source (test cylinder) other than the compressed air connection provided on the machine side
- Cleaning electrical appliances.
- Cleaning textiles.
- Cleaning living creatures.
- Cleaning / preparation of food
- Cleaning ferrous, non-corrosion-resistant objects (steel sponges, gratings, etc.)
- Only clean aluminium parts with a suitable cleaner.
- Cleaning wooden objects.
- Use hand dishwashing detergent for pre-cleaning.
- Filling the machine from an external source (e.g. with a shower)
- Disposing of dirty water via the machine (e.g. from a cleaning bucket)
- Standing or sitting on machine parts or using the machine as a climbing aid.

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

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 chemo-thermal 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 eyewear.
- 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.

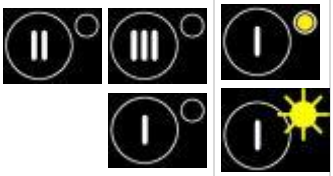
The cleaning and disinfection machine has a cleaning, disinfection and a final rinse cycle.

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 Membrane key pad

	Programme start key with light • Start programme cycle • Lights up: Programme cycle is running • Flashing: Self-cleaning programme / drain programme is running
	Programme keys 1-3 with light • Any key switches the machine on • Programme selection • Lights up: Machine ready for operation, programme selected • Flashes: Machine is made ready for operation.
	Off key • Programme interruption • Switch off the machine

Display

	• Temperature Cleaning/Disinfecting
	• Rinse temperature

4.3 Type label

The rating plate is on the outside of the front panel. Additional rating plates are located on the control box behind the front panel and on the separate GiO MODULE (if it is part of the cleaning and disinfection appliance).

4.4 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 machine; the materials held back (concentrate) are brought to the drain.

4.5 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.

4.6 Cleaning programmee

Key	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 assignment

The programme assignment varies depending on the machine type, electrical connection and water supply. 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				

4.7 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.

Note

Only use products that are suitable and approved for commercial dishwashers. 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)

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!)	• Etol GT500
Chemical detergent/disinfectant (depending on approval from the respective PPE manufacturer!)	• Curacid PSA TC, PICO-Medical GmbH, Hamburg • EW 80mat, EW 80 Systeme GmbH, Dortmund • Sekumatic® FDR ECOLAB • Neodisher Dekonta AF • Diversey Suma Jade Eco Pur

4.7.1 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 an service technician authorised by MEIKO or the chemical supplier.

Change dosing quantity, see page 46.

4.7.2 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 an service technician authorised by MEIKO or the chemical supplier.

Change dosing quantity, see page 46.

4.7.3 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.

4.7.4 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.

4.7.5 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.

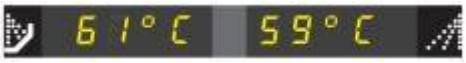
- When changing the detergent product, flush the dosing system with warm water.

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.

4.8 Chemo-thermal disinfection method



The tank temperature falls when the programme begins, depending on the items being cleaned. The set programme cycle time can be exceed 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.

4.9 Energy optimisation

Note

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

5 Technical data

Ambient conditions	
Operating temperature	5°C ... 40°C
Relative humidity	< 95%
Storage temperature	5°C ... 40°C
Maximum height of the installation site above sea level	2000 m

Net weights		
Variant/options		**Machine**
TopClean M		73 kg
+	GiO MODULE reverse osmosis	23 kg

Noise emission	
Emission sound pressure level at the workplace	≤70 dB (A)

Further data should be taken from the MEIKO dimension sheet.

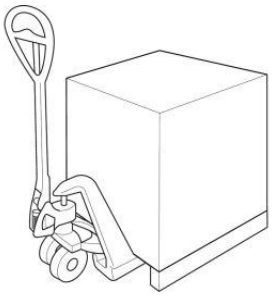
6 Transport

⚠ 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.

6.1 Disposal of packaging materials

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

- Square timber frame
- Plastic sheeting (PE film)
- Foam material
- Cardboard packaging (edge protection)
- Packaging strap (steel strip)
- Packaging strap (plastic (PP)
- If needed, transport safety bracket (stainless steel)

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

For Australia and New Zealand only:
All work carried out must be in accordance with AS/NZS 3500.1!

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

Note

The wiring diagram is located behind the front panel of the machine. This must remain in the machine!
The rating plate with the electrical connected loads is located inside the front panel.

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

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 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). Take note of the available connection variants.
- The requirements for limiting voltage changes, fluctuations and flicker in accordance with IEC 61000-3-11 are fulfilled for this machine if the network has a current-carrying capacity of ≥ 100 A.

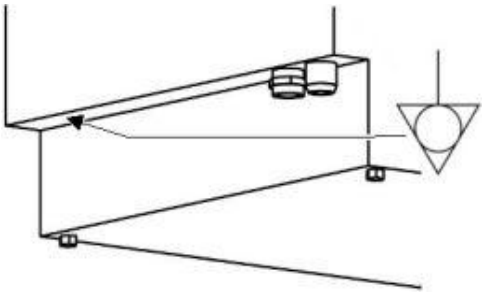
Main switch/mains connection cable

- 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.
- 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.
- Mains connection cables may only be replaced by persons trained by MEIKO.

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.
- Carry out the protective measures as well as the connection of the equipotential bonding in accordance with the regulations of the local power supply companies as well as the locally applicable regulations.
- As an alternative to equipotential bonding, the operator can, acting on its own responsibility, use a mains-side residual current device (RCM or RCD) for personal protection. A type “A” according to IEC 60755 is sufficient.

Position of the protective equipotential bonding



The screw for the equipotential bonding is located on the back of the machine near the media connections.

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

Caution

Material damage due to steam emission

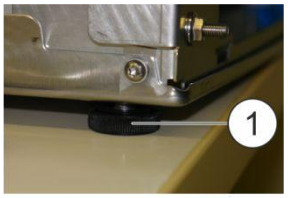
Small quantities of steam may escape through the cleaning and disinfection machine's door. It is possible that adjacent furniture may warp.

- 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 19!

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 only be performed by an authorised service technician! The operator must not use the product 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

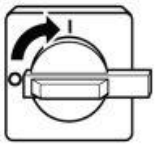
9.1.1 Preparing the cleaning and disinfection machine

Warning

Danger of injury from contact with chemicals

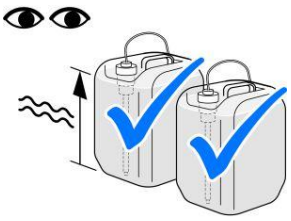
Detergent/disinfectant and rinse aid result in damage to health if in contact with skin or eyes or if swallowed.

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



1. Switch on the power.

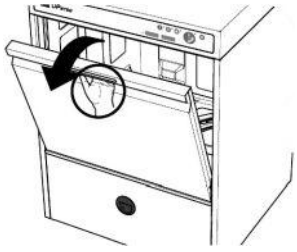
2. Turn on the tap.



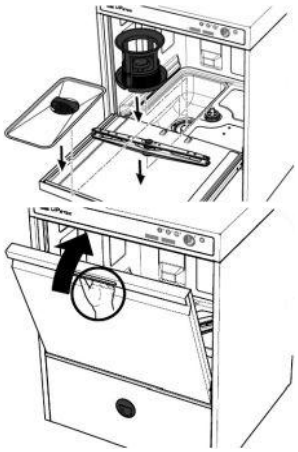
3. Check the canister fill level.

Note

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



4. Open door.



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

6. Close door.

9.2 Start up the machine

➡ The washer-disinfector is closed and does not contain a rack.

1. Press **the programme key I, II or III**.

The washer-disinfector is filled and heated. During this time, the control light above the selected 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 programme key is permanently on.

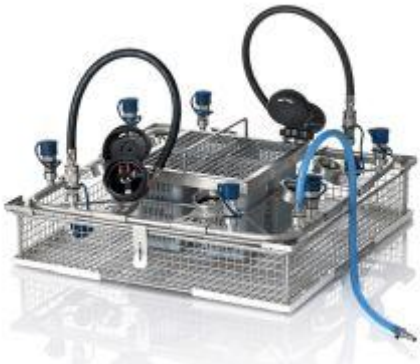
9.3 Cleaning

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

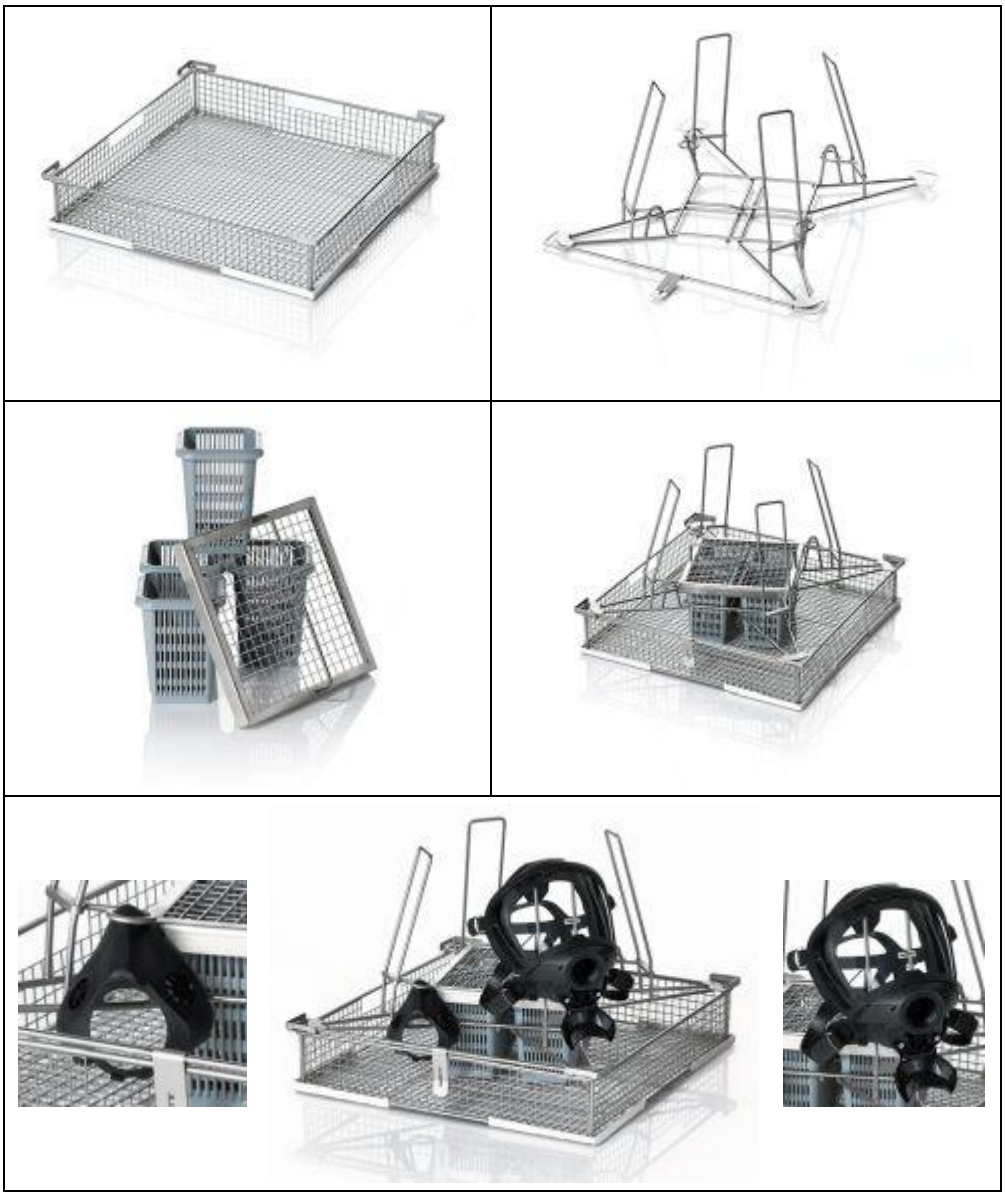
Harness attachment with base rack for 1 harness

Rack insert for compressed air bottles

9.3.2 Accessories adapter

	
Adapter for M45x3" v-thread	Interspiro oval adapter

9.3.3 Placement of respirator masks




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

Small parts rack with mask utensils.

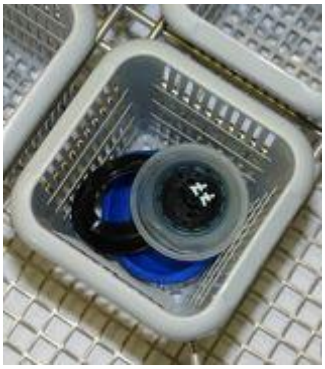


Hang the mask on the upper sealing edge on a bracket.

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 adapters for Interspiro oval).

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.

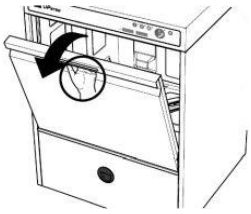
9.3.10 Selecting the cleaning programme

1. Press the required programme key.
   During the programme run, the wash chamber door is locked.

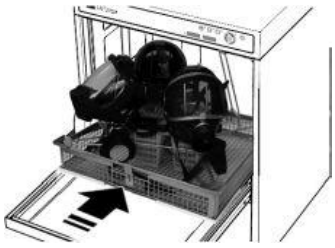
The control light of the selected programme key is on.

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.

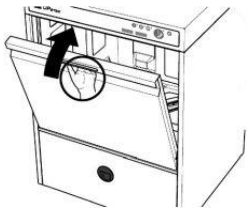


3. Open door.



4. Insert the rack into the washer-disinfector.

5. Ensure that the correct programme has been selected, see page 35.



6. Close door.

7. Press the **programme start key**.

The control light above the programme start key lights up. The washer-disinfector cleans and disinfects automatically and switches off the wash programme after completion.

The cleaning and disinfection time may differ from the set programme runtime if the programme runtime 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 washer-disinfector runs until the required temperatures are reached, but max. 5 minutes.

The cleaning and disinfection programme starts and automatically runs through to the end of programme.
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

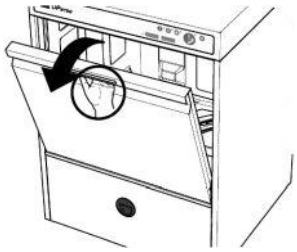
⚠ Caution

Danger of burns and scalding due to hot clean water, washware and machine parts

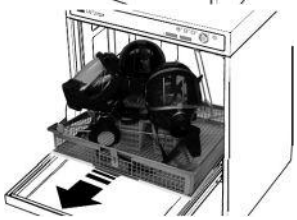
Contact with hot clean water, washware and machine parts can result in burns/scalding of the skin.

- 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 end of programme, the control light above the programme start key turns off and an acoustic signal sounds.



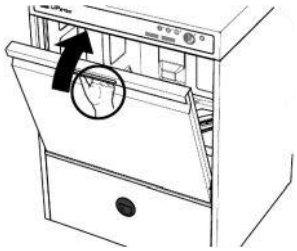
1. Open door.



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 instructions must be strictly observed!



3. Close door.

9.4 Decommissioning the cleaning and disinfection machine

➡ The washer-disinfector is closed and does not contain a rack.

Press the Off button. All control lights turn off.

The self-cleaning programme with subsequent emptying is started.

The control light on the programme start 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 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 Replacing the canister

Lack of rinse aid

Lack of detergent/disinfectant

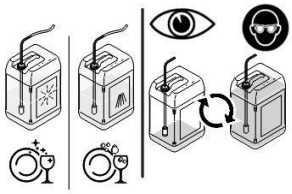
▶ **Note**

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.

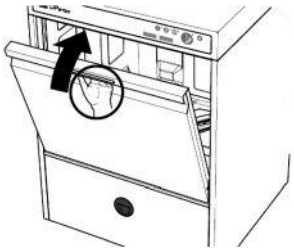
9.6 Water change programme (option)

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:

1.



- Open door, remove rack, close door.

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

➡ Machine is made ready for operation.

2.

- Open the door, remove the rack, close the door and press the programme start key.

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

- Press the Off button.

- Press the programme start 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

Fault	Possible cause	Remedy
Machine does not fill	No water present	Open shut-off valve
	Dirt collector blocked	Clean dirt collector
	Open door/hood	Close door/hood
Final rinse not spraying	No water present	Open shut-off valve
	Dirt collector blocked	Clean dirt collector
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 foam formation in wash tank	Dirt level too high	Pre-wash the washware more thoroughly/change tank water more frequently
	Hand dishwashing detergent used	Do not use a foaming hand dishwashing detergent for pre-cleaning or for cleaning the machine. Foam can cause machine malfunctions and a poor cleaning result. Consistently reliable and safe cleaning results are achieved with mechanical pre-cleaning in the MEIKO TopClean D. Thanks to the automatic dosing of the detergent and disinfectant via suction lances, technicians for respiratory equipment do not come into contact with the chemicals and always use exactly the right amount.
	Unsuitable detergent	Change product
	Unsuitable rinse aid	Change product

As a rule, malfunctions 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	• No boiler/tank heating • No fresh water supply	• Possible to continue work at limited capacity • Call a service technician!
121	Door/hood not closed	• Door/hood open • I/O circuit board defective • Microswitch defective • Microswitch not correctly set	• Close door/hood • Call a service technician!
122	Incorrect password/no authorisation	• Code incorrectly entered	• Enter code again
123	Factory setting parameter list	• Switch supply voltage on/off	• No intervention by the operator is necessary • Message disappears after 5 min.
126	Maintenance necessary	• The set operating hours (P 122) or batch number (P 123) has been reached	• Possible to continue working • Call a service technician!
420	Lack of rinse aid (with integrated fill-level detection)	• Canister empty • Suction lance not correctly introduced	• Replace empty canister • Check suction lance • Where appropriate, ventilate pipes
520	Lack of detergent/disinfectant (with integrated empty-tank detection)		

ERR	Description	Possible cause	Measures/remedial action
001	EEPROM error	• EEPROM – Not present/defective – Installed incorrectly – Incorrect data/empty	• Not possible to continue working • Call a service technician!
111	Floor pan leakage	• There is a leak	• Not possible to continue working • Call a service technician!
117	Door not locked	• The pin of the lifting magnet is not correctly in the locking device • The magnetic coil of the lifting magnet is damaged • Door locking query is not correct	
201	Boiler level not reached during first filling (with integrated pressure booster pump)	• Fresh water inlet insufficient (water tap closed) • Feed hose kinked/disconnected/leaks • Inlet filter soiled • Solenoid valve defective • Boiler switch defective	• Check water supply • Check feed hose • Check pre-filter/sieve and clean, if necessary • Where appropriate, call a service technician!
202	Boiler level not reached on time during filling (with integrated pressure booster pump)		
203	No change detected by the boiler level switch when emptying (with integrated pressure booster pump)	• Pressure booster pump defective • Plug connections disconnected (e.g. pressure booster pump) • Start capacitor defective • Boiler level switch defective • No signal to or from pressure booster pump and I/O circuit board • No signal boiler full - from I/O circuit board	• Not possible to continue working • Call a service technician!
204	No change yet detected at the boiler level switch (with integrated pressure booster pump installed) after the rinse time expired		
205	Boiler temperature not reached after max. heat time (P310)	• Boiler heating defective/melting beads, heating element • Temperature sensor defective, incorrect installation position • Boiler protection defective, output switch triggered • No signal from I/O circuit board	• Not possible to continue working • Call a service technician!
206	Wash time increase	• Boiler not ready for final rinse on time (temperature or level not reached) • Boiler heating defective (melting beads) • Temperature sensor defective • Boiler protection defective, output switch triggered • No signal from I/O circuit board	• Acknowledge message, continued work possible • Let programme run without intervention by the operator • If it occurs frequently, call a service technician!
210	Boiler temperature sensor short-circuit	• Sensor defective • Sensor position not correct • Plug contact not connected properly	• Not possible to continue working • Call a service technician!
211	Boiler temperature sensor interruption		
212	“Actual” boiler temperature too high (>95°C)	• Contactor sticking • Incorrect sensor/defective sensor	• Not possible to continue working • Call a service technician!

ERR	Description	Possible cause	Measures/remedial action
301	Number of circulatory pumping cycles for tank filling exceeded Tank level analysis disrupted	• Feeding water pressure too low • Inlet filter soiled • Rinse nozzles dirty • Air trap dirty • Condensate in level pipe • Feed hose kinked/disconnected/leaks	• Check water supply • Check feed hose • Clean inlet filter • Clean rinse nozzles • Call a service technician!
302	While drain pumping during the cleaning programme, tank level 1 is not fallen below on time (with integrated drain pump)	• Drain pump output too low • Drain pump dirty/defective • Impeller loose • Drain pump plug connection open • Start capacitor defective • Tank level analysis disrupted • Aquastop does not close correctly • No signal from I/O circuit board	• Not possible to continue working • Call a service technician!
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)	• Tank heating defective/melting beads, heating element • Temperature sensor defective, incorrect installation position • Tank protection defective, output switch triggered	• Not possible to continue working • Call a service technician!
305	Number of boiler fills insufficient for rinsing. Tank level 2 not reached	• Feeding water pressure too low • Inlet filter soiled • Rinse nozzles dirty • Air trap dirty • Condensate in level pipe • Feed hose kinked/disconnected/leaks • Level sensor defective • Plug contact not connected properly	• Check water supply • Check feed hose • Clean inlet filter • Clean rinse nozzles • Call a service technician!
306	Max. tank level exceeded Tank level analysis disrupted	• Air trap dirty • Condensate in level pipe • Level sensor defective • Plug contact not connected properly	• Empty cleaning and disinfection machine and refill • Call a service technician!
307	Tank level sensor defective	• Connection plug loosened • Sensor or I/O circuit board defective	• Call a service technician!
310	Temperature sensor short-circuit	• Sensor defective • Sensor position not correct • Plug contact not connected properly	• Not possible to continue working • Call a service technician!
311	Temperature sensor interruption		
312	Actual tank temperature too high (>85°C)	• Contactor sticking • Incorrect sensor/defective sensor	• Not possible to continue working • Call a service technician!
502	Lack of disinfectant	• If the device is ready for operation, a lack of disinfectant will be signaled	• Replace empty canister

9.8 Change authorisation level

Key/symbol	Meaning
	**Off key** Start programming
	**Programme start key** Confirm entry and jump to next position in the code
	**Programme key 1** Increase value by one
	**Programme key 3** Decrease value by one

1. Press and hold the Off key for approx. 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 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 page 43.	 2. Select the entry 1–1.
 3. Confirm the selection.	 The first parameter is displayed.
 4. Use the programme keys to scroll through and view the parameters.	 Level 1 can be exited with the **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.

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

9.9.3 Replace counter for partial desalination cartridge (optional)

For machines with a partial desalination cartridge or GiO MODULE 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)**, .

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 **Off key**.

9.10 Dosing system level

1. Switch to authorisation level 4, Dosing technology level (40000 or 40044), see 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 of burns and scalding due to hot clean 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 plan

Note

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

Maintenance work Visual check	**Checked**	**Cleaned**	**Reconditioned**	**Maintenance requirements**
1. Pumps				
Check pumps for leaks and any visible damage				Annually
Check pumps for running noise and correct operation				Annually
3. Wash tank, wash and final rinse system				
Perform functional and visual check of wash and rinse arms				Annually
Replace sealing rings on wash arms				Annually
Check air gap of 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
4. Casing				
Check casing, tank and cladding for damage and correct operation				Annually
5. Fresh water installation				
Check valves, clean dirt trap				Annually
Check that boiler level control/air gap does not leak				Annually
Check that boiler, hoses, clamps and plastic parts do not leak				Annually
Check that boiler drainage system does not leak				Annually
Check air gap for cleanliness and tightness of the connections (visual check)				Annually

Maintenance work Visual check					**Checked**	**Cleaned**	**Reconditioned**	**Maintenance requirements**
6. Waste water installation								
Replace flap on ventilation valve								Annually
Check operation of drain pump during drainage								Annually
Check pumps, hoses for leaks								Annually
7. Disinfectant and detergent dosing								
Replace peristaltic hose and seals on nozzles								Annually
Check that detergent/disinfectant dosing system is working and not leaking								Annually
8. Rinse aid dosing								
Replace peristaltic hose and seals on nozzles								Annually
Check that rinse aid dosing system is working and not leaking								Annually
9. Compressed air connection								
Check the hose couplings! Replace if damaged.								Annually
10. Test run with a functional test of whole machine								
Check filling and heating until readiness for operation stage								Annually
Visually check whole machine for leaks								Annually
Check sample rinsing and washing results								Annually
Brief training for new personnel								Annually
11. Options								
Integrated reverse osmosis system (if available)								
Visually check entire system for leaks								Annually
Replace pre-filter								Every six months
Check fine sieve insert and choke in concentrate line								Annually
Check that concentrate drain is working correctly and check for deposits								Annually
Fill in separate log, “Certificate of Commissioning GiO”								Annually
Partial demineralisation (PD) / Full demineralisation (FD) (if available)								
Perform functional test								Annually
12. Water quality, temperature								
Drinking water	°C	°dH	°KH	µS/cm				Annually
Water quality after water treatment (if available)		°C	°dH	µS/cm				Annually
13. Electrical safety check (certificate is optional)								
Perform visual check								Annually
Perform protective earth conductor check								Annually
Perform insulation resistance measurement								Annually
Perform protective conductor current measurement								Annually

10.3 Daily cleaning

Caution

Material damage due to water ingress

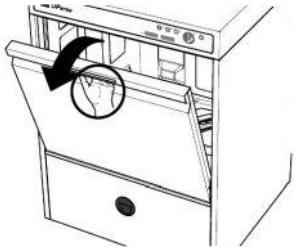
Electrical cables and electronic components can be damaged if they come into contact with water.

- 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 hand dishwashing detergent for pre-cleaning or cleaning the cleaning and disinfection appliance. Foam can cause appliance malfunctions and a poor cleaning result.
Consistently reliable and safe cleaning results are achieved with mechanical pre-cleaning in the MEIKO TopClean D. Thanks to the automatic dosing of the detergent and disinfectant via suction lances, technicians for respiratory equipment do not come into contact with the chemicals and always use exactly the right amount.

➡ The machine is emptied, see 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 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 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 page 15.)

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 down-times 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 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.

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

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14 Notes

The clean solution

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