

Operating instructions

TopClean M

Cleaning and disinfection machine for
respiratory protection equipment

Translation of the "Original operating instructions"



EN



**Read the instructions for use before using the cleaning and disinfection appliance for
breathing apparatus equipment!**

Contents

	<u>Page</u>
1 Introduction and general instructions	4
1.1 Safe keeping	5
1.2 Authorisation for service technicians of our service partners	5
1.3 Designation of machine type	5
1.4 Type label	5
2 Explanation of the safety symbols used	6
3 Intended use	6
4 General safety rules	7
4.1 Operator's duty of care	7
4.2 Basic safety measures	8
5 Delivery, transport, installation and assembly	10
5.1 Delivery	10
5.2 Transport, installation and assembly	10
5.3 Operating conditions	11
5.4 Requirements for the electrical connection	11
5.5 Requirements for the fresh water connection	12
5.6 Requirements for the waste water connection	12
5.7 Requirements for the compressed air connection	13
5.8 Emergency-off	13
5.9 Chemicals for the operating the machine	13
6 Settings for initial commissioning by the service engineer	14
6.1 Commissioning	14
7 Cleaning and disinfecting with the TopClean M	14
7.1 Operating panel	14
7.2 Preparing for cleaning and disinfecting	15
7.3 Automatic dosing	15
7.4 Operation	16
8 Shutting down the machine	22
9 Maintenance and care	22
9.1 Care, general	22
9.2 Filling with chemical disinfectant	23
9.3 Refilling with rinse aid	23
9.4 Cleaning	23
9.5 Care of stainless steel surfaces	23
9.6 De-scaling	24
10 Basic information about the machine	24
10.1 General description of the machine	24
10.2 Noise emission	25
10.3 Electrical and hydraulic equipment data	25
10.4 Dimensions, technical data, installation instructions	25
10.5 EC-/EU-Declaration of Conformity	25
11 Non-ionising radiation	25
12 Self-help in case of faults	26
13 Staff training	27
14 Authorised user of this documentation	27
15 Settings / modifications / on-site adaptation	28
15.1 Using the keyboard for programming	28
15.2 Code input	28
15.3 Service level	29
15.4 Parameter list	34
15.5 Assignment list	37

15.6	Cleaning and disinfection parameters	37
16	Operating errors	38
16.1	Information reporting and troubleshooting	38
16.2	Error messages and troubleshooting	39
17	Maintenance	41
17.1	Basic safety measures during normal operation	41
17.2	Dosing units	41
17.3	Maintenance plan	42
18	Dismantling and disposal	44
18.1	Disposal of packaging materials	44
18.2	Dismantling and disposal of the old device	44
19	Documentation	44

1 Introduction and general instructions

Dear customer,
we are very pleased about your confidence in our products.
MEIKO, we are sure that they make your work a great deal easier and are of great service to you.

If you follow these instructions exactly, your machine will always work to your entire satisfaction and have a long service life.

After assembly at our factory, this machine was put through a thorough inspection. This helps us make sure, and gives you the guarantee that you always receive a mature product.

We would therefore ask you to read these operating instructions carefully before using the installation. Any further related operating instructions for accessories and incorporated third-party products must be strictly observed!

These operating instructions are designed to familiarise the owner/operator of this system with its installation, modes of operation, use, safety instructions and servicing.

This information will help you to get to know the installation fully and to use it properly. It will also enable you to avoid repairs and the concomitant loss of productive work.
In the event of any damage caused by non-observance of these operating instructions, any guarantee claims are invalid. We accept no liability for any additional damage caused as a result.

MEIKO operates a policy of continuous development on all its appliances.

As a result of this, please understand that we thus reserve the right to make changes to the scope of supply concerning the design, equipment and technical features at any time.

No claims may therefore be based on the details, the images or the descriptions contained in these operating instructions.

Should any further information be required or special problems arise which are not described in detail in the operating instructions, please contact your local MEIKO representative.

All obligations of MEIKO result out of the resp. sales contract, which also contains the complete and only valid warranty regulation.

The operating instructions must exist in the local language for each EU country. If this is not the case, the washing machine must not be commissioned.

The original operating instructions in Germany, and all operating instructions in all languages for EU countries can be downloaded from the following address:
<https://partnernet.meiko.de>

The complete technical documentation is issued to you free of charge. Additional copies will be charged at cost.

These contractual guarantee rules shall be neither extended nor restricted as a result of any explanations given in the instructions.

The MEIKO Company very much hopes that you will enjoy our product and use it successfully.

1.1 Safe keeping


Always keep the operating instructions with the system!
Always keep these operating instructions accessible!

1.2 Authorisation for service technicians of our service partners

MEIKO exclusively authorises authorised service partners for commissioning, inductions, repairs, maintenance, assembly and installation of the corresponding product groups within MEIKO devices.

1.3 Designation of machine type

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

Model:	_____
SN:	_____
	_____
<u>This information can be found on the plate.</u>	

1.4 Type label

The type label of the TopClean M is on the inside of the front panel.

2 Explanation of the safety symbols used

The following safety symbols are used in these operating instructions. These symbols are designed to draw the reader's attention to the text next to the safety instructions.



This symbol means: danger for life and health of persons.



This symbol means: danger for installation, material or environment.



This symbol denotes information that helps you understand the operation of the system.



Warning against dangerous electric voltage!



Warning against hand injuries!



No splashing water: prohibits the use of a pressure cleaner.



Danger of explosion: indicates a potential explosion hazard.



Non-potable water: The water is not for drinking. Health can be endangered by drinking.



Danger of burning: indicates possible hazard due to hot surfaces or media.

3 Intended use



The TopClean M cleaning and disinfection machine is designed exclusively for its intended use, that is, cleaning and disinfecting respiratory protection devices. Include the instructions of the respective respiratory protection device.

The material compatibility of various respiratory protection masks by Dräger Safety AG & Co. KGaA, MSA AUER GmbH and INTERSPIRO AB for cleaning and disinfection in the TopClean M has been confirmed by an expert opinion by Dekra-EXAM GmbH, an authorised body for respiratory protection.

Always strictly observe the manufacturer's instructions when overhauling respiratory protection masks and regulators.

The TopClean M cleaning and disinfection machine must be exclusively operated with a compressed air connection for respiratory protection devices (medium pressure) as per EN 12021.

The machine must be deployed and operated only for its intended use only. Other uses are prohibited.

The items to be cleaned must be suitable for cleaning in a cleaning and disinfection machine.

This machine is intended solely for use in a commercial environment.

4 General safety rules

4.1 Operator's duty of care



The cleaning and disinfection machine was designed and built following risk analysis and after careful selection of the applicable harmonized standards, as well as additional technical specifications. It is therefore state of the art and guaranteed to provide maximum safety.

Safety can only be guaranteed during operation if all necessary measures are taken. The machine's operator has an obligation of care to ensure that these measures are scheduled, and also to check that they are correctly executed.

Measures to ensure the safe appliance operation:

The operator must especially make sure that...



... the cleaning and disinfection machine is exclusively put to its intended use.

In case of other use or operation, damage or risks may arise for which we accept no liability (cf. chapter "Intended use").



... in order to preserve the operational and safety guarantees, whenever required, only original parts supplied by the manufacturer are used.

The user loses all evtl. claims if the system was altered with others than original spare parts.



... only appropriately qualified and authorised employees use, maintain, and repair the machine.



... these employees are regularly trained in all questions relating to occupational safety and environmental protection and, in particular, that they are familiar with the operating instructions and in particular the safety information the operating instructions provide.



... the cleaning and disinfection machine is only operated if in perfect working order, all safety systems and cover panels are in place and, in particular, that functional checks of safety equipment and switch elements are performed on a regular basis.



... cleaning and disinfection machine accessible only from the rear may only be operated with rear panel cladding in place.



... the required necessary protective equipment for maintenance and repair personnel is available and worn.



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



... these operating instructions are always in a legible state, complete, and available at the machine's location of use.



.... any necessary regular checks on supply parts are carried out. More detailed information, if required, can be found in the pertinent operating instructions.



Once the machine has been installed, commissioned and handed over to the customer/operator, no modifications (electrical or location modifications, for example) may be made. Modifications to the machine, and in particular technical modifications carried out without the manufacturer's written authorisation, or any modifications carried out by unauthorised persons, will lead to the complete loss of any guarantee claims and will invalidate any liability for the product.



... equipment for optimising energy consumption must not be used to reduce essential operating temperatures, as set out in DIN 10511, 10512 and 10522. If you, the client, install equipment for optimising energy consumption, any possible reduction in the quality of the wash and hygiene is your responsibility.

4.2 Basic safety measures



Danger can arise from the improper use of the machine or if it is used for purposes for which it was not intended.

Parts carrying electric current as well as moving or rotating parts can cause

- Risk of injury, and fatal injury
- Material damage.



The machine may only be operated by adequately qualified staff who have been trained by the operating company and who have been trained about the Hazard and Safety Instructions.

Qualified persons as defined in these Operating Instructions are persons:

- who are over 14 years of age,
- who have read and who observe the safety instructions,
- who have read and who observe the operating instructions (or the part applicable to the work to be carried out).



The machine uses hot water and a chemical disinfectant. (Temperature of wash water = 60°C). Do not reach into the hot wash-water. The washed items as well as the components in contact with the wash-water have the same temperature. Contact with the hot washed items can result in skin irritation. Please wear gloves if you have sensitive hands.

Observe the instruction plates on the cleaning and disinfection machine.



Warning !

When electrical equipment is in operation, it is inevitable that certain parts carry a dangerous current.

Before opening the machine's cover plates or any electrical devices, it is imperative the entire machine is fully de-energised via the on-site circuit breaker and that it is locked against switching back on using appropriate measures.

Only specialist personnel may carry out repairs and rectification work on the electrical part of the machine. Observe accident prevention rules.

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



The machine must **not** be sprayed using a water hose or pressure cleaner.



The machine must only be operated under the supervision of properly instructed staff.



The water in the wash-up area is non-potable and must not be used for food preparation!



If you are unsure about operating the machine, do not use the machine.



Do not place any solvents or other easily flammable substances in the cleaning chamber, as there is a risk of explosion in this case.



Steel scrub pads must not be used for pre-cleaning or cleaning the items to be washed. Do not wash any metal items in the machine which are not made of stainless chromium-nickel steel.

The operator must reliably prevent metal parts (especially iron, tinplate, copper) entering the machine.

The machine must not be used to transfer waste water from other sources into the waste water network (warning: risk of corrosion and blockage).

Only use suitable products for cleaning the stainless steel surfaces. They must not attack the material, form any deposits, or cause any discolouration.



Door and flaps **MUST** be closed.

Never open the door during the programme cycle, as otherwise wash-water could splash out.



The tank heating element may still be hot after the tank has been emptied. There is thus a risk of burns when cleaning the machine manually.



Only use detergents/disinfection agents and rinse aids approved for cleaning and disinfection machines.

Ask the product vendors for details, if in doubt. Detergents/disinfectants and rinse aids can present health hazards.

Observe the manufacturers' safety rules on the original packing and safety data sheets.



On completing operation, switch off the machine completely using the local circuit breaker.

Observe third party operating instructions accessories such as water treatment installations.



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

4.2.1 Working on the electric fittings



Any repair work and repairs to the power supply on the machine's electrical equipment must be carried out by a qualified electrician!

Electric fittings must be regularly checked! Fix loose connections! Damaged lines/cables must be immediately replaced!

5 Delivery, transport, installation and assembly

5.1 Delivery

Check that the delivery is complete immediately after receiving it by comparing it to MEIKO's contract confirmation and/or the delivery note.

If necessary, complain about any missing parts immediately to the shipping company and notify MEIKO.

Examine the appliance for possible transit damage.



In the event of any transport damage, please inform MEIKO immediately in writing, and also send a photo of the damaged parts to us.



Damaged machines must not be commissioned under any circumstances.

5.2 Transport, installation and assembly

In order to avoid damage or life-threatening injuries during shipping of the installation, the following points must be observed:



- Transportation work must be performed by qualified persons observing the safety instructions.
- Observe transport instructions on the packing.
- Handle with care.
- Unpack the machine.

For safe transport, the machine parts are supported by a special square-timber frame.

The machine must only be transported on the supplied wooden frame. The packing is specifically designed to allow the appliances to be moved safely and securely using a pallet truck.

The enclosed standard drawing states the connected load and consumption specifications of the machine.



Small quantities of steam may escape through the machine's door. For this reason, furniture and equipment situated near the door must be protected.

For Australia only:

The equipment must be installed in accordance to AS/NZ 3500.1.



On request, an engineer from your local MEIKO representative is available to install the machine. This includes setting up the machine at the location of use and connecting the tables as necessary.

Machine installation steps:

- The complete unit must be levelled in both directions using a water level.
- Compensate for an uneven floor by adjusting the feet.
- Table joints must be sealed with detergent-resistant sealing compound (e.g. silicone).

5.3 Operating conditions

It is assumed that the planning of the system, as well as installation, setting in operation and maintenance works are executed by sufficiently instructed staff and that these works are checked by responsible specialists. The details on the machine's type plate must match those of the standard drawing and the local connection conditions.

Conditions to be provided by the customer:

- Frost free storage and installation area
- Electrical connection in accordance with the technical sheet
- Fresh water connection in accordance with the technical sheet
- Waste water connection in accordance with the technical sheet
- Compressed air connection as per standard drawing
- Anti-slip floor coverings must be provided in the machine's work area.

5.3.1 Requirements for the installation area

- Ensure that the storage and installation area is permanently frost free.

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

If the machine is installed in an area where the surrounding temperatures are below 0° C, water freezing inside the machine damage the internal water circuit components (pump, solenoid valve, boiler, etc.).



5.4 Requirements for the electrical connection

Work on the electrical part of the machine may only be performed by qualified expert staff.

The customer must guarantee the following points relating to the connection:

- The correct voltage and type of current must be available
- Safeguard the power supply cable according to regulations and provide it with a power disconnection device in the fixed electrical installation.
- The machine must be connected to a potential equalisation system!
- If an unearthed neutral (N) is used with alternating current, the power disconnection device must have 4-poles (with alternating current 2--poles).
- For connection to three-phase current a 5-pole terminal strip (L1, L2, L3, N, PE) must be used.
- Electricity supply without neutral conductor (N): when connecting to three-phase current, use a 4-pole clamping strip (L1, L2, L3, PE).
- Conductor colours: live conductor L1 = black/1, L2 = brown/2, L3 = gray/3, neutral conductor N = blue/4, ground wire conductor PE = green-yellow.



Current applicable standards and requirements of local utility companies are to be adhered to with regard to protective measures and connection of the potential compensation system.

The products are intended for permanent connection to the on-site power supply and have been tested for the market accordingly. Any other form of electrical connection is to be established by a licensed electrician.

Do not connect any additional consumers to the fuse protecting the machine.

- Re-tighten all terminal fixing screws before the setting in operation.

The wiring diagram is behind the machine's front panel. The enclosed wiring diagram must remain in the machine.



Note to customers

Dishwashing machines, bedpan rinsing units and systems are intended for fixed, electrical power supply installation as well as connection to the locally available equipotential bonding and have been equipped with a corresponding connection option.

Operators may decide at their own discretion and responsibility to implement personal protection in locally available services in collaboration with a specialist electrician registered at the corresponding energy supplier using the following:

- AC/DC sensitive fault current protection switch with at max. 30mA EN 62423

or

- Automatic shutdown of the supply in the event of loss of protective earth conductor conductivity (EN 60204-1, Section 8.2.8.c)

5.5 Requirements for the fresh water connection

The machine is DVGW-complaint test symbol and does not require an extra safety valve in the water supply.

- The fresh water connection must be effected as per EN 1717 or local regulations.

The machine is equipped with an open discharge section (group A, model A as per DIN EN 1717).

- The requirements of the clean water supply in the accompanying GiO module operating and service manual must be observed for machines equipped with the GiO module.



The minimum flow pressure of the fresh water supply upstream of the solenoid valve must be 0.6 bar, and 1 bar on machines with a GiO module. The maximum pressure must not exceed 5 bar.

- If the minimum flow pressure is not reached, increase the flow pressure with a booster pump; if the maximum pressure is exceeded, limit it with a pressure reducer.
- A water stop is integrated into the machine's fresh water line. This, together with the leak water switch in the floor pan of the base, ensures that the fresh water supply is shut off in the event of a leak
- Suitable protective measures must be taken to ensure that no iron particles can enter the appliance via the mains water supply. Similarly, precautions must be taken to prevent the entry of other metal particles, for example copper turnings. Corresponding instructions are contained in the installation drawing. Appropriate measures must be taken.
- A dirt trap must be fitted into the fresh water supply to protect the solenoid valve.

5.6 Requirements for the waste water connection

- A waste water pump is integrated in the waste water line. A siphon must be provided by the client on site (further information about this is in the technical sheet).
- The drain hose must be connected to the waste water pipe in the building.

For Australia only:

The drain hose needs to have a water tight connection to a waste fitting complying to AS 1589 AS 2887, a sanitary plumbing pipe or fitting complying with AS/NZS 1260

- The requirements of the waste water supply in the accompanying GiO module operating and service manual must be observed for machines equipped with a GiO module.

5.7 Requirements for the compressed air connection

- Local compressed air connection for respiratory protection devices (medium pressure) as per EN 12021.
- Specification of the authorised pressure range: operating pressure 3-5 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).

5.8 Emergency-off

- Switch the machine off completely via the on-site circuit breaker.

5.9 Chemicals for the operating the machine



Only use dosing agents for cleaning, disinfection, water softening or final rinsing that have been approved in writing by MEIKO for use in MEIKO cleaning and disinfection appliances.

Also observe the following applicable documents:

Operating instructions, safety data sheet of disinfection chemicals

Operating instructions of the full-face mask and regulator

Approved products:

Rinse aid:	- Etol GT500
Chemical disinfectant and cleaning agent	- Curacid PSA TC, PICO-Medical GmbH, Hamburg - EW 80mat, EW 80 Systeme GmbH, Dortmund - Sekumatic® FDR Ecolab

Using unsuitable products can considerably reduce the service life of the dosing units. Observe the manufacturers' dosing instructions.

Disinfectants, cleaning agents and rinse-aids can present a health hazard if they are not correctly used. Please observe the manufacturers' instructions on the original packing and on the safety data sheets.

Items for cleaning are tribologically influenced in particular by chemicals and increased temperatures during the process, as well as mechanical stresses caused by handling and transporting.

If a descaling agent is used, please strictly observe the manufacturer's handling and safety instructions. After such an agent has been used, the product must be completely removed from the machine, as even small residues are capable of destroying plastic parts and sealing materials.

Chemical product settings

The correct settings for the quantity of chemical disinfectant and rinse agent depend on the product used. The appropriate chemicals supplier, or MEIKO service engineer, can configure the correct setting.

6 Settings for initial commissioning by the service engineer

6.1 Commissioning

In order to avoid damage to the installation and the injury and death of persons when commissioning the machine, the following points must be observed without fail:

Any necessary initial tests on supply parts must be carried out. More detailed information, if required, can be found in the pertinent operating instructions.



- The machine may only be commissioned by suitably qualified persons observing the safety instructions.
- Before initial startup, check that any tools and parts not belonging to the machine have been removed.
- Make sure that any liquid spills have been removed.
- Activate all the safety systems and door switches before commissioning.
- Check that all screw connections are tight.
- Read the chapter "General safety instructions".
- Commissioning and training will be handled and provided by MEIKO-trained service engineers. The operator must not use the machine before completing training.
- The "Commissioning certificate for GiO modules" must be observed for machines equipped with a GiO module and the instructions adhered to accordingly.

7 Cleaning and disinfecting with the TopClean M

The machine must not be used without a thorough knowledge of the operating instructions. Incorrect operation could result in injuries to staff or damage to the machine.



7.1 Operating panel

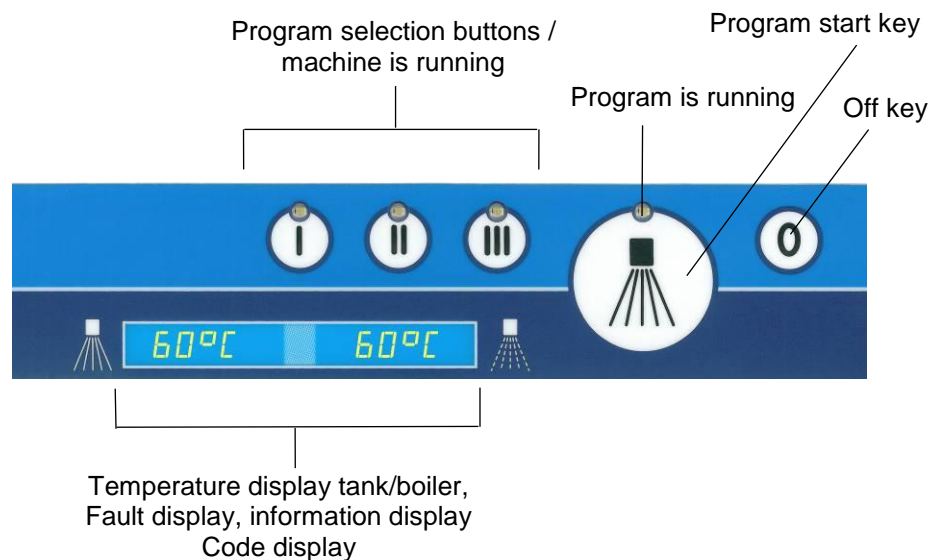


Figure 1; Operating panel








Key/display	Meaning
	Short program - Cleaning program I ○ Training mask
	Normal program - Cleaning program II ○ Operation mask
	Water change program – Cleaning program III ○ Operation mask heavily soiled
	Cleaning and disinfection temperature
	Final rinse temperature
	Program start Drain tank Self-cleaning cycle
	Switch off machine/Interrupt program

Table 1; Program key/wash item mappings

7.2 Preparing for cleaning and disinfecting

The preparatory work described below must be carried out before each operation.



- Open the door.
- Insert the sieves. Insert the sieves.
- Close the door.



Caution! Danger of crushing.

Close the door with both hands.

- Switch on the appliance by pressing one of the program preselection keys.



During the program sequence, the wash chamber is locked.

During the filling and heating phase, the light above the preselection key will flash. When the light remains constantly lit, the machine is ready for operation.

The time required to reach operation readiness depends on supply water temperature and the installed boiler or tank heating capacity.

In the case of cold water supply, this takes about 18 minutes.

7.3 Automatic dosing

The required chemical disinfectant and rinse aid is fed from the storage tanks into the tank or boiler by electronically controlled dosing units. Dosing occurs automatically to reflect the requirements of the cleaning and disinfecting process.



Use of unsuitable products will significantly impact the service life of the dosing equipment.



7.4 Operation

The following fundamental principles must be observed when placing the wash items in the baskets:

- Special baskets are provided for respiratory protection masks.
- Place the respiratory protection masks in the baskets in the intended positions.
- Use the basket insert for small items from masks.
- Strictly observe the operating instructions of the full-face mask and regulator manufacturers.

7.4.1 Basket program

- Basic basket



- Respiratory protection mask insert

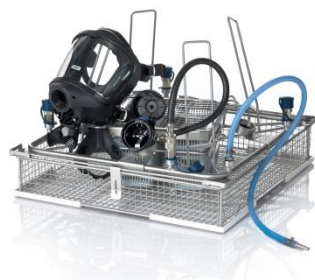


- Small parts basket for individual parts of the respiratory protection mask and regulator



- Regulator basket with compressed air connection





- Combination basket
For 4 respirator masks and 4 regulators at the same time



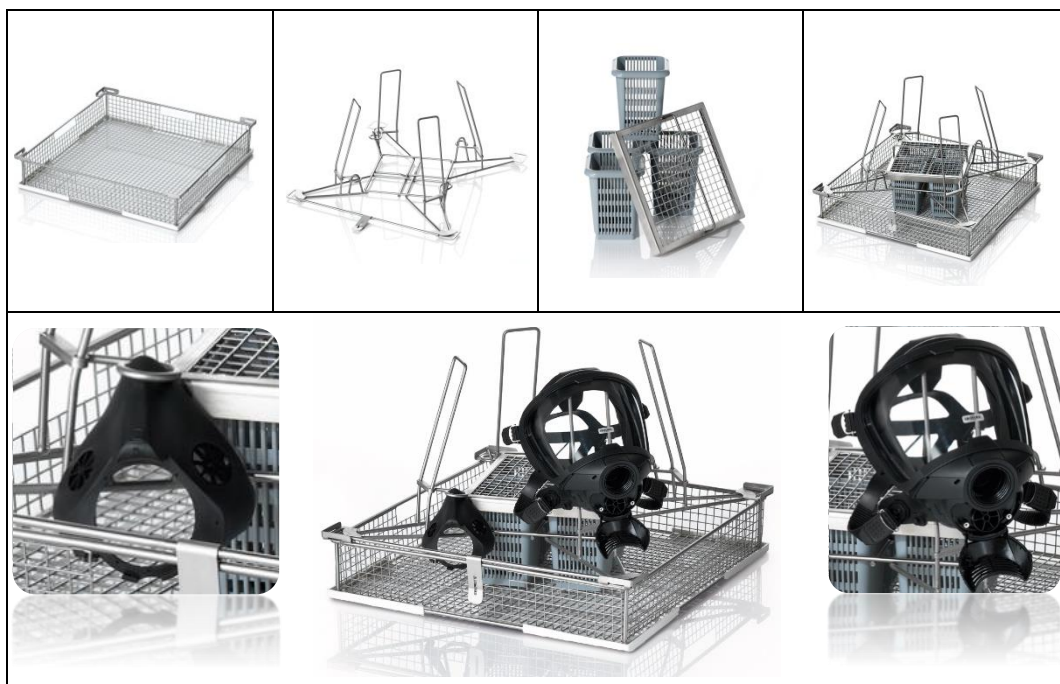
- Carrier frame mount with basic basket for 1 carrier frame

7.4.2 Accessories adapters



- Adapter for v-thread

7.4.3 Filling with respiratory protection masks





Lift the safeguard, place the inner mask on the holder and secure.



Small items basket with mask utensils



Hang the mask on the holder via the upper sealing edge.

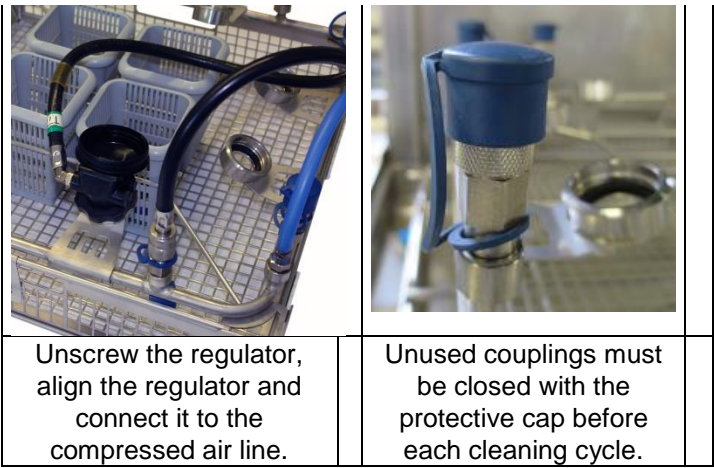
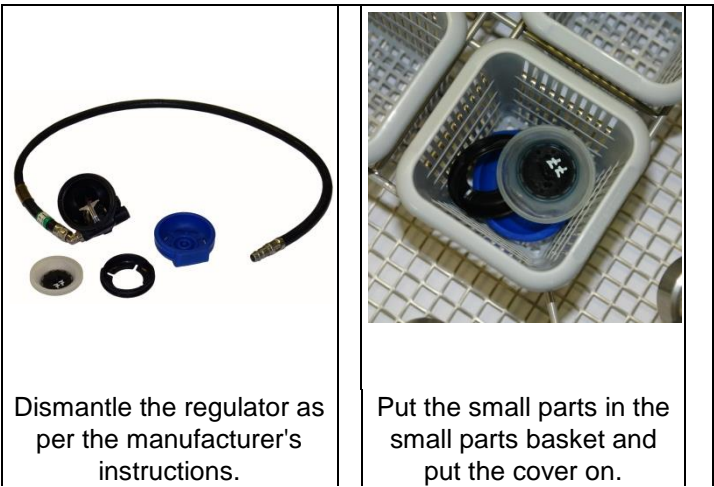
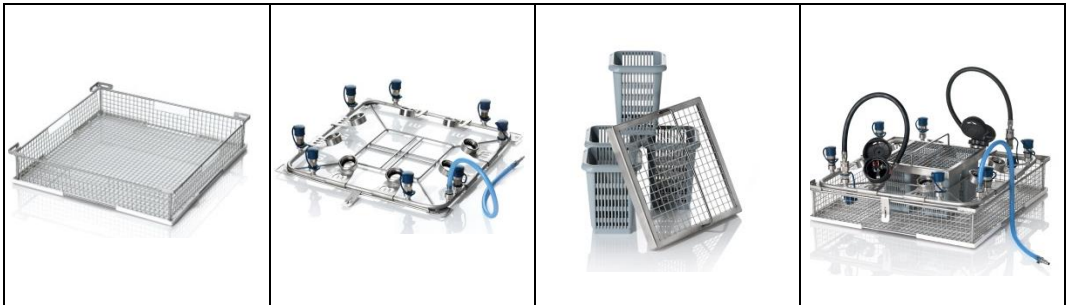


Partially filled basket.



Put the cover on the small parts basket

7.4.4 Filling with regulators



7.4.5 Use of adapters (option)

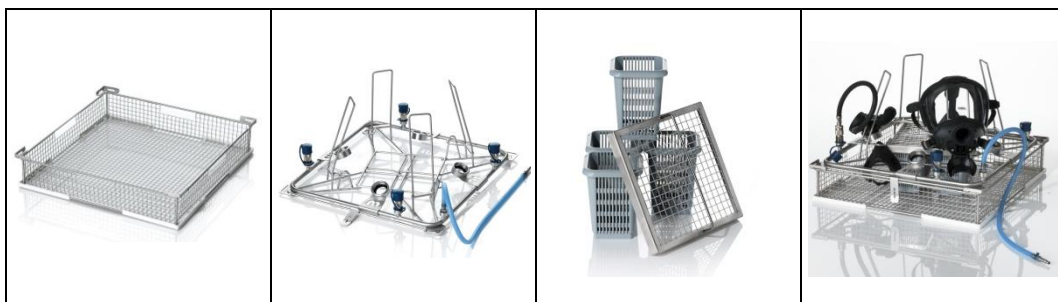


Standard suitable for round thread RD 40x1/7" and ESA plug connector.

Option: Adapter for v-thread M 45x3 and industrial plug connector.

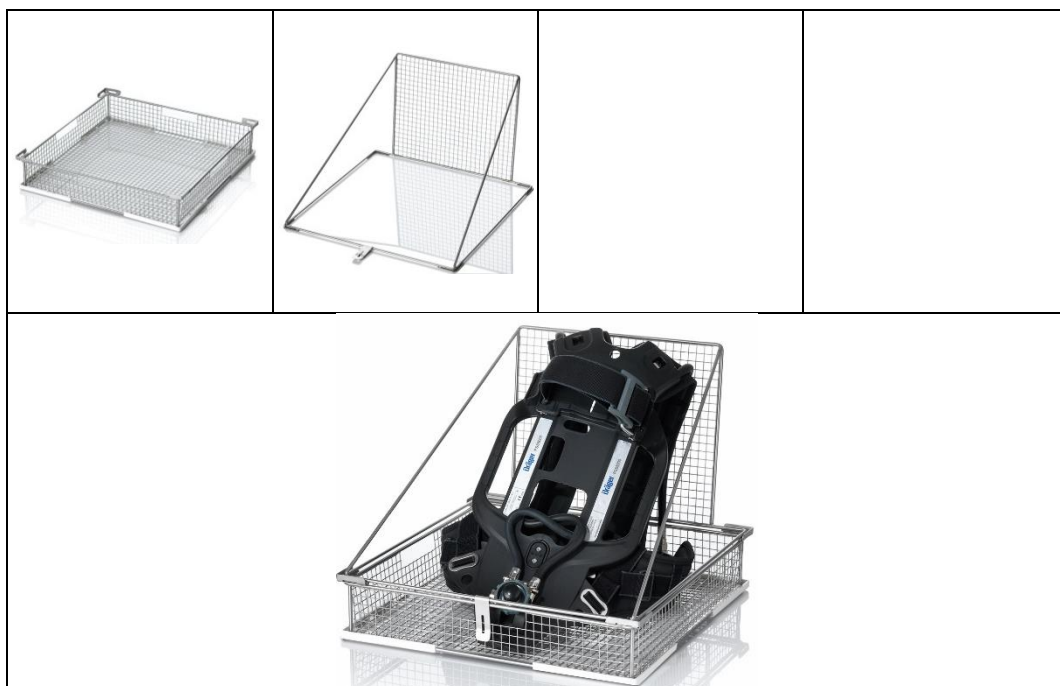
7.4.6 Filling the combi-basket

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

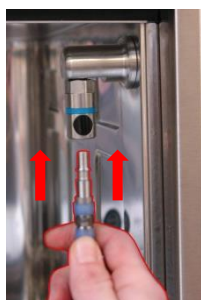


Note: Again, if the couplings are not used, close them with the protective cap.

7.4.7 Filling the carrying frame



7.4.8 Connect the regulators or the combi-basket to the compressed air line



- Push the compressed air connection into the coupling.

7.4.9 Program start

Program start key



- Preclean the wash items if heavily soiled (coarse dirt, etc.) and then place them in the basket.
- Place the basket in machine, ensuring that it is correctly centred in the basket holder.
- Close the door.
- Press the program start key.

The machine cleans and disinfects automatically and switches off the wash program after completion. The program cycle is indicated by a light on the program start key.



The cleaning and disinfection time can differ from the set program time if the boiler or tank heating capacity is not sufficient to heat up the fresh water flowing into the boiler, or the tank water, to the required temperature during the program time. Chemical/thermal disinfection process at 60 °C with an impact time of at least 5 minutes.

7.4.10 Disconnecting the regulators or the combi-basket from the compressed air line



- Press the latch button to disconnect the compressed air line.
- Press the latch button again and pull the compressed air hose out of the coupling.

7.4.11 Removing the wash items

- When the light goes out, open the door and remove the basket.
- Check the dismantled respiratory protection mask and regulator components for cleanliness, changes, wear (observe the manufacturer's operating instructions in each case).



Always strictly observe the manufacturer's operating instructions when overhauling respiratory protection masks and regulators.

8 Shutting down the machine

Off key



Program start key



- Press the "0" key (Off key). The machine is switched off when all the lights are out.
- Press the program start key to drain the tank.
- The tank interior is sprayed with clean hot water after the tank water has been drained. The door must remain closed. The waste water pump switches off automatically.

9 Maintenance and care

9.1 Care, general

The machine has been designed to keep the need for cleaning, care and maintenance to a minimum.



However, for reliable, safe and long-term function of the machine, and in the interest of hygiene and cleanliness, correct care and maintenance is necessary. To facilitate this overhead, a maintenance contract can be concluded with the manufacturer or representative.



Incorrectly performed intervention, the use of unauthorised parts, and repairs by unqualified persons endanger both the operators and the machine, and will void your warranty.

9.2 Filling with chemical disinfectant

External storage container

The container is located in the immediate vicinity of the machine.

- Check the filling level of the container and if necessary, replace it with a full one.

Use only non-foaming disinfectants, see Chapter "Chemicals for operating the machine", that are approved and released by the individual manufacturer for disinfection machines and respiratory protection devices.

If you suspect a malfunction, check the integrated disinfectant and cleaning agent dosing unit. Visual inspection!



9.3 Refilling with rinse aid

External container

The container is located in the immediate vicinity of the machine.

- Check the level and, if necessary, replace the container by a full one.

Use only non-foaming acidic rinse aids (pH < 7), see Chapter "Chemicals for operating the machine", that are approved for disinfection machines.

If you suspect a malfunction, check the final rinse dosing unit. Visual inspection!



9.4 Cleaning

After the tank has been drained, proceed as follows:

- Do not use a foaming detergent for pre-cleaning in the vicinity of the machine. Foam can cause machine malfunctions and a poor wash.
- Residues sticking to the tank, tank heating element and sieves must be removed with a brush.
- Dismantle the wash arms and rinse them under running water.
- Clean the cleaning nozzles daily.
- The cleanliness of final rinse nozzles must be checked weekly and if necessary clean under running water.

9.4.1 Safety rules for cleaning

The tank heating element may still be hot after the tank has been emptied. There is thus a risk of burns when cleaning the machine manually.



Never spray the machine, switch cabinet and other electrical components with a hose or pressure cleaner.

9.5 Care of stainless steel surfaces

We recommend cleaning the stainless steel surfaces only when needed with cleaner and care products suitable for stainless steel.

Lightly soiled parts can be wiped with a (possibly damp) cloth or sponge.

Be sure to wipe dry after cleaning to avoid traces of scale. Use demineralised water if possible.

Do not use aggressive cleaning or scouring agents.

The care products must not attack the stainless steel, form deposits, or cause discoloration.

Never use cleaning agents that contain hydrochloric acid or bleaches based on chlorine.

Never use cleaning equipment that you have used previously by non-stainless steel to avoid external corrosion.

Aggressive external influences due to cleaning and care products that evaporate in the vicinity of the washing machine, or caused by direct application, can lead to machine damage and put the material at risk (e.g., aggressive tile cleaners).

Caution!

Respect the safety rules of the manufacturers on the original packing as well as on the safety data sheets.

9.6 De-scaling

If the machine has been operated with hard water, the boiler and wash tank could have lime scale deposits. De-scaling of the tank interior, boiler housing, tank heating, boiler heating and cleaning and final rinse system then becomes necessary

For de-scaling the machine use only products suitable for industrial washing machines. Please observe the product manufacturers' instructions.

After de-scaling the appliance:

- completely flush the de-scaling agent out of the machine. Perform 1 or 2 rinse cycles with fresh water to do so.

Even small residues of de-scaling agents can be sufficient to destroy plastic parts and sealing materials! If the appliance is heavily scaled, you should ask a service engineer from your local MEIKO representative to de-scale the boiler.



10 Basic information about the machine

Each machine is manufactured in line with the state of the art.

Dangers can arise from this machine, if it is not operated correctly, operated by untrained staff, or not used for its intended purpose.



Liability

We accept no responsibility for damage to the machine and other objects caused by operating faults, and/or failure to observe the operating instructions. Any modifications to the machine - especially technical modifications on the inside - undertaken by unauthorised persons without the written permission of the manufacturer will void your warranty.

10.1 General description of the machine

10.1.1 Design

Square basket appliance with stationary basket

10.1.2 Cleaning principle

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

The temperature regulator keeps the preset cleaning temperature of approx. 60°C. A rotary pump circulates the water from the cleaning tank into the cleaning nozzles. The water jets hit the wash items from different directions. This ensures uniform washing results.

The cleaning cycle is followed by a fresh water final rinse. The items are rinsed with hot fresh water at approx. 60° C via a separate nozzle system. This heats up the wash items for the following drying process. At the same time, the final rinse water is used to regenerate the wash water; this reduces the soiling level of the wash water.

10.1.3 Chemical-thermal disinfection process



The tank temperature falls when the program begins, depending on the wash items. The time needed to reach the set disinfection parameters can exceed the set program time. Due to the technically-driven hysteresis, the wash-water temperature can reach 62° C for short periods. This ensure that a temperature of 60° C exists for the wash items.

10.1.4 Water change program

A water change program can be assigned to the program pre-selection keys. In the standard setting this is only assigned to button III.

After completing the cleaning and disinfection program, all the water is pumped out of the tank. Flushing with fresh water then follows. The program then ends and the program start button is unlit.

The following options now exist:

1. Press the "0" key (Off key), and the machine stays off.
2. Open door, remove tray, close door; the machine is then ready for operation (tank filling, heating)
3. Switch to program 1 or 2; the machine is then ready for operation (tank filling, heating)
4. Press the Start key, the machine is then ready for operation (tank filling, heating); the cleaning and disinfection program starts directly after this.

10.1.5 Dosing of disinfectant and cleaning agent

The disinfection and cleaning agent dosing unit is designed for automatic admixing of liquid chemical disinfectant with the wash-water.

The disinfectant and cleaning agent is pumped from the storage tank through a hose into the cleaning tank. The dosing unit is self-priming. Dosing occurs during each filling cycle and at the beginning of each program cycle via timer control.



Please observe the dosing instructions for chemicals and the operating instructions for the respiratory protection equipment.

10.1.6 Dosing of rinse aid

The rinse aid dosing unit is designed to automatically admix liquid final rinse aid into the fresh water.

The rinse aid is pumped out of the storage container into the fresh water supply line through a hose. The dosing unit is self-priming. Dosing takes place during each filling cycle.



We recommend rinse aid dosing of 0.25 ml/l.

The correct dosing results in a smooth, even water film.

In case of overdosing, there are bubble and stripe formations - reduce dosing.

In case of under-dosing, water drops remain on the washed items - increase dosing.

10.2 Noise emission

Work place noise level $L_{pA} \leq 70$ dB

10.3 Electrical and hydraulic equipment data

See attached technical sheet

10.4 Dimensions, technical data, installation instructions

See enclosed documentation

10.5 EC-/EU-Declaration of Conformity

See separate EC-/EU-Declaration of Conformity

11 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 magnets. There is a high possibility of eliminating any influence on active implants (e.g. pacers, defibrillators) by maintaining a safety distance of 30 cm (distance of the field source to the implant).

12 Self-help in case of faults

Faults:	Cause
Machine does not fill.	<ul style="list-style-type: none"> • No water present • Dirt trap clogged • Level switch defective • Solenoid valve faulty • Door fastener defective
Final rinse not dosing.	<ul style="list-style-type: none"> • No water present • Dirt trap clogged • Solenoid valve faulty • Booster pump has failed • Final rinse system is scaled
Streaks and striae on the wash items.	<ul style="list-style-type: none"> • Rinse water mineral content too high • Water pre-treatment defective or not carried out • Different water type depending on the waterworks • Unsuitable rinse aid products or wrong dosage quantity
Significant foaming in the wash tank	<ul style="list-style-type: none"> • Manual washing detergent enters the wash tank on pre-cleaned parts • Daily cleaning is carried out with foaming cleansing agents which then enter the machine. • Improve pre-wash, as too much soiling is entering the tank. Use a water change program as an alternative. • Rinse water quantity too low • Unsuitable disinfectant and cleaning agent or rinse aid • Temperatures too low < 40°C
Power failure, door is locked	<ul style="list-style-type: none"> • Restore power • Re-start the program. • The door unlocks at the end of the program.

13 Staff training

Only trained and instructed personnel are allowed to work on the machine. Staff responsibilities must be clearly defined in terms of operation, maintenance and repairs. Trainees are only allowed to work on the machine under the supervision of an experienced person.

Persons Activity	Trained operating personnel	Trained person	Trained person or fitter
Installation and assembly			◆
Commissioning			◆
Operation, use	◆	◆	◆
Cleaning/disinfection	◆	◆	◆
Check safety fittings	◆	◆	◆
Troubleshooting		◆	◆
Troubleshooting, mechanical		◆	◆
Troubleshooting, electrical			◆
Maintenance			◆
Repair works		◆	◆

The instructions should be acknowledged in writing.

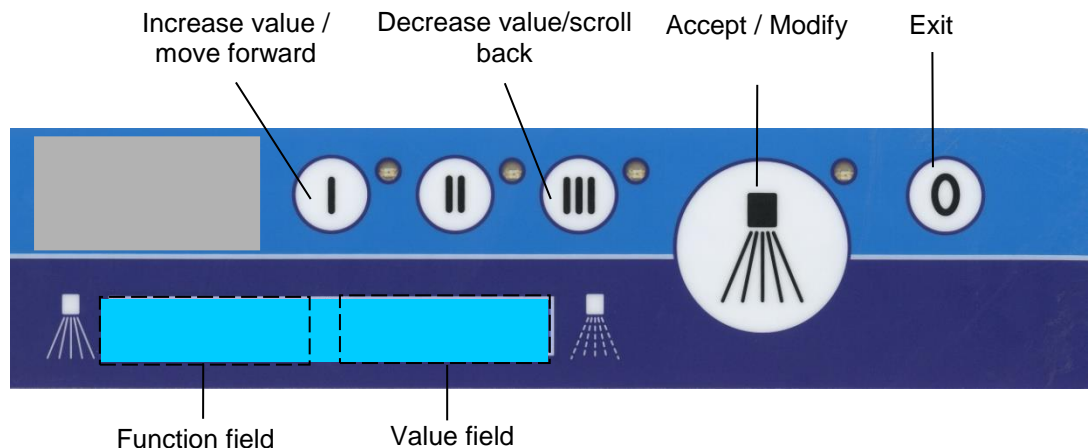
14 Authorised user of this documentation



The works described in this booklet (chapter 15 - 19) may only be carried out by specialists of the manufacturer, the responsible agency or an authorised dealer.

15 Settings / modifications / on-site adaptation

15.1 Using the keyboard for programming



Access codes for various user-levels have been defined. When the complete code has been entered, it is compared to an internal code table. The corresponding user level is then granted depending on the code that has been entered.

2 access codes are available for each user level; the first is for restricted access, i.e. no modification of parameters is possible (viewing mode), and the second gives access to the entire range of functions (viewing and modification).

This is described briefly in the short programming instructions that accompany every machine.

For control programming, the power supply must be available but the machine must be completely switched off (no LED must be illuminated).

Code input:

View service data:	CODE 10000
Modify service data:	CODE 10001
View configuration data:	CODE 20000
View dosing technology data:	CODE 40000
Modify dosing technology data:	CODE 40044

The code numbers for the further levels can be found in the Service Manual.

15.2 Code input

To access code input mode, hold down the "0" key (for about 3 seconds) until you see



in the display.

Pressing the "0" key again lets you quit programming at any time.

The digit to be modified will flash.

Press the "I" key to increase the value/code indicated on the display unit, or press the "III" key to decrease it, or press the "accept" key to save it. The next value will then flash and will be the only one visible.



If your entry is incorrect code input is cancelled, and an information code of 122 is displayed.



If you enter all the digits correctly you will arrive at the chosen level, either service, configuration or machine data.

15.3 Service level

The list of service parameters can be found on this level (parameter numbers 1xx). You can view or modify the parameters here, or you can access the rinse aid and cleaner hose ventilation feature.



is first shown at service level.

This is equivalent to view/modify parameters (see 15.3.1)



This is equivalent to Ventilate rinse aid inlet (see 15.3.2)



This is equivalent to Ventilate detergent supply (see 15.3.3)

Press the “I” key to move forwards or the “III” key to move backwards or the “accept” key to make a selection. You are now at the selected level.

You can leave this level by pressing the “0” key.

15.3.1 View/modify parameters

Confirm the



display by pressing "Accept".

Now, the first parameter is displayed with a value.



Press the "I" key to go forwards and the "III" key to go backwards, until the parameter you require is displayed.

Confirm the parameter to be modified by pressing the "accept" key, the value will flash. Press the "I" key to increase the value, the "III" key to decrease the value, and the "accept" to save the value.

You can leave this level by pressing the "0" key.

See 15.4 for list of parameters

15.3.2 Ventilating the rinse aid inlet



Press the "Accept" button to confirm.

This actuates dosing pump; the remaining running time is indicated.



You can leave this level by pressing the "0" key. Ventilation is cancelled.

15.3.3 Ventilating the disinfection and cleaning agent line



Press the "Accept" button to confirm.

This actuates dosing pump; the remaining running time is indicated.



You can leave this level by pressing the "0" key. Ventilation is cancelled.

Should the ventilation process be insufficient, repeat the process.

15.3.4 Configuration level

You will find a list of configuration parameters at this level (parameter numbers 2xx). You can view and modify the parameters. You can also access the input and output states, or set outputs for testing.



is first shown at service level.

This is equivalent to View/modify parameters (see 15.3.5)



This is equivalent to View input states. (see 15.3.6)



This is equivalent to View and set output states. (see 15.3.7)

Press the “I” key to move forwards or the “III” key to move backwards or the “Accept” key to make a selection. You are now at the current level.

You can leave this level by pressing the “0” key.

15.3.5 Viewing/modifying parameters: (depending on the code entered)

Confirm the



display by pressing "Accept".

The first parameter is now displayed with a value.



Press the “I” key to move forwards or press the “III” key to move backwards, until the parameter you require is displayed.

Confirm the parameter to be modified by pressing the “accept” key, the value will flash. Press the “I” key to increase the value, the “III” key to decrease the value, and the “accept” to save the value.

You can leave this level by pressing the “0” key.

See 15.4 for list of parameters

15.3.6 Viewing input status:

Confirm the



display by pressing "Accept".

The first input is shown with a status of



Press the "I" key to move forwards and the "III" key to move backwards, until you reach the input you require.

Display: input set



Display: input not set



You can leave this level by pressing the "0" key.

Input assignments are given in the assignment list for each machine. (see 15.5)

15.3.7 Viewing/modifying output status (depending on code input)

Confirm the



display by pressing "Accept".

Viewing:

Now, the first output is shown with its status.



Press the "I" key to move forwards and the "III" key to move backwards, until you reach the output you require.

Modifying:

Press the "Accept" key to confirm the modification of the output; the value flashes. Press the "I" key to modify the value and press the "Accept" key to save it.

The output is now set.



You can leave this level by pressing the "0" key.

Output assignments are given in the assignment list for each machine. (see 15.5)

15.3.8 Viewing/modifying the dosing technology level

Entering a code of 40000 (read only) or 40044 (read/write) gives the user access to the new 4th parameter level which groups all the dosing technology parameters:

P104, P105, P218, P219, P224, P225, P321, P322, P326, P327.

See 15.4 for list of parameters

15.4 Parameter list

Par. no.	Configuration options	Use as	Value range	Unit	Factory setting	Note
101	Cleaning and disinfection program Key 1	Parameters	1 .. 50	-	1	Map cleaning program no. to key 1; Configurable assignment
102	Cleaning and disinfection program Key 2	Parameters	1 .. 50	-	2	Map cleaning program no. to key 2; Assignment adjustable
103	Cleaning and disinfection program Key 3	Parameters	1 .. 50	-	3	Map cleaning program no. to key 3; Assignment adjustable
104	Rinse agent dosing quantity	Parameters	0.10 .. 1.00	ml/litre water	0.2	The value can be read from the rinse aid container label (depends on the water quality)
105	Disinfectant and cleaning agent dosing quantity	Parameters	0.1...20.0	ml/litre water	10.0	Value can be read from the disinfectant and cleaning agent container label (depends on the degree of hardness)
108	Mode "Clear" display	Parameters	0/1	-		Empty indicator 0: via INFO 420, 520 1: display of special characters
111	Total Operation time indication	Display	5-digit	h		Operating time, query only
112	Total program cycle counter	Display	5-digit	-		Program cycles/loads, query only
113	Total number of program cycles since last reset	Display	5-digit	-		Program cycles/loads, reset possible
114	Serial number	Display	8-digit	-		Option for querying factory parameters
119	IR communication	Parameters	0/1	-	1	It is possible to shut off communication via IR interfaces. (0)
120	Total number of wash cycles Indication	Parameters	0/1	-	0	Effective only upon power supply reset ON/OFF Caution! All changes to service parameters will be reversed. Power supply reset must be carried out within 5 minutes, otherwise factory settings will not be loaded. Without power supply reset, the information 123 will be displayed.
201	Machine type	Parameters	1 - 9	-	1	1: TopClean M Caution! Only changes the assignment list and machine sequences – not the parameters

Par. no.	Configuration options	Use as	Value range	Unit	Factory setting	Note
202	Setpoint tank temperature	Parameters	10 ... 80 (50 .. 176)	°C/°F	61	Standardised for all cleaning and disinfection programs for a machine. Output dependent on definition
204	Rinse time	Parameters	4 ... 30	Sec.	9	5: TopClean M Energizing duration for the booster pump (running time limited by P306!)
205	Operation indicator	Parameters	0 .. 8	-	1	Definition of the information which is to be switched via the potential-free contact 0 – no information 1 – filling/Heating, ready for cleaning/disinfection, draining 2 – filling/heating, cleaning/disinfection 3 – filling / Heating 4 – cleaning 5 – disinfection 6 – draining 7 – error 8 – no status machine OFF and draining 9 – reserve 10 – no machine OFF
211	Fine adjustment rinse time	Parameters	0.0..0.9	Sec.	0.7	0.7: TopClean M Figures after decimal point in P204
218	Shortage of rinse aid	Parameters	0/1		0	Monitoring Display
219	Lack of disinfectant and cleaning agent	Parameters	0 .. 2		2	Monitoring and display 0 - none 1 - via Info 520 2 - via error 502
224	Actuation mode final rinse pump	Parameters	0 .. 4	-	1	Definition: Energizing rinse aid pump: 0 – no signal 1 – energizing according to calculated running time 2 – activate as per booster pump 3 – activate as per wash pump 4 – free
225	Activation mode disinfectant and cleaning agent pump	Parameters	0 .. 4		1	Definition activation of disinfectant and cleaning agent pump 0 – do not activate 1 – activate as per computed running time 2 – activate as per booster pump 3 – activate as per wash pump

Par. no.	Configuration options	Use as	Value range	Unit	Factory setting	Note
240	Load factory settings for configuration data	Parameters	0/1	-	0	Effective only upon power supply reset ON/OFF Caution! All changes to service parameters are reset. Power supply reset must be carried out within 5 minutes, otherwise factory settings are not loaded. Without power supply reset, the information 123 will be displayed.
321	Rinse agent pump output	Parameters	0.1 ...10	l/h	1.3	Rinse aid dosing pump Definition of rinse aid pump output
322	Detergent pump output	Parameters	0.1 ...20	l/h	10.0	Detergent dosing pump Definition of pump output
326	Rinse agent vent time	Parameters	0 ... 255	Sec.	200	Activate rinse agent pump temporarily to remove air from pipe.
327	Detergent vent time	Parameters	0 ... 100	Sec.	0	Activate dosing pump for disinfectant and cleaning agent temporarily to remove air from supply hose

15.5 Assignment list

View inputs/control outputs

Display		Input/output/other	Conditions
Left	Right		
In 1	0/1	Door closed	none
In 2	0/1	Boiler level	none
In 3	0/1	Leak water switch floor	none
In 4	0/1	Not relevant	none
In 5	0/1	Not relevant	none
In 6	0/1	Not relevant	none
In 7	0/1	Not relevant	none
In 8	0/1	Not relevant	none
In 9	0/1	Not relevant	none
In 10	0/1	Not relevant	none
In 12	0/1	Not relevant	none
In 13	0/1	Threshold tank level. 1	none
In 14	0/1	Threshold tank level. 2	none
In 15	0/1	Threshold tank level. 3	none
In 16	0/1	Tank level. 4 (Option)	none
In 17	0 .. 255	Without function	none
In 18	0 .. 255	Without function	none
In 19	xxx	Boiler temperature in °C or °F	none
In 20	xxx	Tank temperature in °C or °F	none
In 21	xxx	Tank level (1 mm unit)	none
In 22	0 .. 255	Without function	none
Ou 1	0/1	Wash pump	No leak water
Ou 2	0/1	Booster Pump	No leak water
Ou 3	0/1	Drain pump	No leak water
Ou 4	0/1	Rinse aid dosing pump	No leak water
Ou 5	0/1	Detergent – dosage pump / valve from ADT	No leak water
Ou 6	0/1	Operation indicator	No leak water
Ou 7	0/1	Filling valve	No leak water
Ou 8	0/1	SASm soft starter system	No leak water
Ou 9	0/1	Boiler heating	No leak water
Ou 10	0/1	Tank heating	No leak water
Ou 11	0/1	Not relevant	none
Ou 12	0/1	Not relevant	none

Leak water switch condition: Leak water switch must not have operated.

15.6 Cleaning and disinfection parameters

Cleaning program no.:	Boiler temperature set value	Cleaning time set value	
		Cleaning	Total
1	55	335	360
2	55	515	540
3 (WW)	55	695	720

WW = Water change program



The dosage times will be adapted to the rinse time, so that the correct concentration remains if the rinse time is modified.

16 Operating errors

Despite being expertly designed, the machine may develop minor faults which are usually easy to eliminate. This section explains a number of possible problems and how you can deal with them yourself.



Before carrying out work on the open machine, it **MUST** be de-energised. Switch the machine off completely via the on-site circuit breaker.

Should any of the operational faults described arise repeatedly, their cause must be established in each case.



Faults not described here can generally only be resolved by a technician or electrician. Please contact your factory representative or authorised dealer.

16.1 Information reporting and troubleshooting

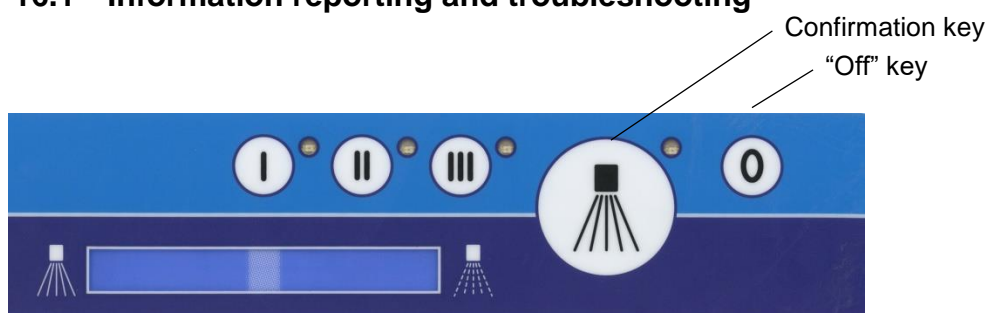


Figure 2: Information display

Information displays can be cleared by pressing the confirmation key.

Provided that the machine function is restored, the next program sequence will begin. The information display can also be deleted by pressing the "Off" key.

Information indicator (extract)

Info No.	Description	Possible cause
120	Emergency program active Cleaning and disinfecting possible - restrictions apply	No boiler / tank heating No fresh water supply Check system
121	Door not closed	Check connection S1 Change microswitch Check microswitch adjustment Replacing a defective I/O circuit board
122	Incorrect password / no authorisation	Enter code once again
123	Factory setting parameter list	Switch the power supply on/off within 5 minutes to reset parameters to factory settings. After this, the reset is rejected and the current parameters are kept. Information 123 will disappear
126	Maintenance required	The set operating hours (P122) or batch number (P123) has been reached. Inform the service department and perform maintenance. Reset the maintenance counter (P124)
420	Shortage of rinse aid	Shortage of rinse aid is reported for a machine that is ready for operation
520	Lack of disinfectant	Shortage of disinfectant is reported for a machine that is ready for operation

Table 2: Information displays

16.2 Error messages and troubleshooting

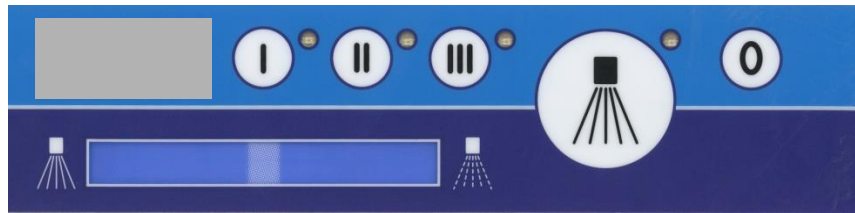


Figure 3: Error messages

Error messages will disappear automatically when the fault has been rectified.

Error messages (extract)

ERR.-No.	Description	Possible cause
001	EEPROM plug-in fault.	EEPROM not available / incorrectly plugged in / defective Empty or incorrect EEPROM Replace EEPROM with correct parameter set
111	Floor pan leakage	Leak inside the machine Pump sump / motor /etc. Defective leak water switch Repair fault, remove water
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 Signal of door locking is not correct
201	Level not reached during 1st filling	Fresh water inlet insufficient (water faucet closed) Aquastop hose kinked Inlet filter soiled Aquastop defective Boiler switch defective
202	Level not reached early enough during filling	See 201
203	No change detected by the level switch during emptying	Boost pump defective Plug connector loosened Start capacitor defective Boiler level switch defective No boost pump signal to - from input/output circuit boards Check boost pump DSP / S2 using manual control
204	No change detected at the level switch at the end of the rinse time	See 203
205	Temperature increase not reached	Boiler heating defective Heating element thermal fuse defective Temperature sensor defective Incorrect installation position Boiler contactor defective Tank protection defective, circuit breaker tripped No signal from I/O board

ERR.-No.	Description	Possible cause
206	Program runtime extension	Boiler not ready for rinsing in time (boiler level/ boiler temperature) Boiler heating defective Heating element thermal fuse defective Temperature sensor defective Boiler contactor defective Tank protection defective, circuit breaker tripped No signal from I/O board
210	Temperature sensor short circuit	Check sensor cable (plug contacts) Replace sensor Install sensor correctly
211	Temperature sensor interruption	See 210
212	Actual boiler temperature too high	Contactor sticking Incorrect sensor/defective sensor Check sensor/cable (plug-in contact MIKE II XA5)
301	Number of circulatory pumping cycles exceeded. Tank level analysis disrupted	Booster pump yield too low Rinse jets soiled Air trap soiled Booster pump rotor defective Condensate in level pipe Hose kinked / loose / not watertight
302	Level does not drop below level 1 while draining in the cleaning and disinfection program.	Drain pump output insufficient Drain pump soiled/defective Impeller loose Drain pump plug connector loose Start capacitor defective Tank level sensor malfunction AquaStop system not closing completely No signal from I/O board
303	Level does not drop below level 3 after time (drain pump ON)	See 302
304	Temperature increase not reached	Tank heating defective / thermal fuse Radiator Temperature sensor defective, incorrect installation position Tank protection defective, performance switch loose
305	Number of boiler contents insufficient for rinsing. Level 2 not reached	See 301 Level switch defective Plug connector loosened
306	Max. level value exceeded Tank level sensor malfunction	Ventilation valve soiled Check tank level Level sensor air catch / check hose
307	Tank level sensor defective	Connection plug loosened Sensor defective Replace I/O circuit board
310	See 210	See 210
311	See 211	See 211
312	See 212	See 212
502	Lack of disinfectant	Shortage of disinfectant is reported for a machine that is ready for operation

Table 3: Error messages

Should information or fault numbers not shown in the tables be indicated, or should the suggested measure not lead to the elimination of the fault, please notify a customer service technician.

17 Maintenance

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

Maintenance work must only be conducted after the machine has been switched off completely via the on-site circuit breaker.

Existing safety systems must not be removed!



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

We recommend that you take out a maintenance contract with a MEIKO representative in order to ensure safe working and a long service life of your machine.

17.1 Basic safety measures during normal operation

Observe the maintenance intervals stated in the operating instructions!

Observe the maintenance instructions for the individual components in these operating instructions!



Cordon off access to the working area for unauthorised persons before starting maintenance or repair work. Display a sign drawing the attention to the maintenance or repair work!



Before implementing any maintenance or repair work the machine must be switched off completely via the on-site power disconnection device and secured against reactivation by using appropriate measures (e.g. via a padlock whose key is in the possession of the person conducting the maintenance or repair work)!

Failure to observe these precautions can result in severe injury or damage to property.



Before carrying out any maintenance and repair work, ensure that all the parts of the machine that can be touched have cooled down to room temperature!

Carefully dispose of any cleaning agents and disinfectants that could harm the environment!

17.1.1 Before setting in operation - after maintenance and repair works



Before starting operations following maintenance or repair work, all initial tests must be carried out as described in "Machine Settings for Initial Commissioning by the Service Engineer".

17.1.2 Observe environmental protection regulations



For all work on or with the machine, observe legal requirements relating to the avoidance of waste materials and to their recycling/removal!

In particular, during installation, repair and maintenance work, materials that could pollute water such as: Grease and oils, Cleaning fluids containing solvents, must not pollute the ground or run into the sewerage system! These materials must be stored, shipped, collected and disposed of in suitable containers!

17.2 Dosing units

The dosing units themselves are maintenance free in principle but the working life is largely dependent on the chemical used.

17.2.1 Change of products

Change of product means that one rinse aid or disinfectant is replaced by another. The parallel use of different products can result in failures.

- Always flush hoses and dosing units with warm water.

17.3 Maintenance plan



NOTE

Maintenance work should only be conducted by authorised MEIKO personnel.

Maintenance procedures	FV 28G / FV28GIO EcoStar 430 F EcoStar 530 F-M	FV 40.2 / FV 40.2 G /FV 60.2 / FV 70.2 D TopClean 60	TopClean M	GK 60	EcoStar 545D / DV 80.2 / DV 120.2 / DV 125.2 / DV 200.2 / DV 200.2 PW	FV 130.2 – FV 250.2 / DV 270.2	Component OK	Component faulty	Component
1. Pumps									
Check pumps for leak tightness, pump rotor noise, rotation direction and function									
Check pump suction									
Check the seat/function of the pump sieves									
Check sliding seal/counter rotation ring									
2. Wash system									
Check water level in tank									
Check the wash water line for leak tightness									
Check that the washing system is complete and produces the correct spray pattern									
Check wash arm hubs									
3. Fresh water final rinse									
Check flow water pressure									
Check that the final rinse system is complete and produces the correct spray pattern									
Check that system is watertight									
4. Housing and mounting parts									
Check housing, tank, sheet metal cover, hood, doors and covering of machine base for damage and correct operation									
Check the tank cover sieves									
Check the boiler, hoses, clamps, plastic parts and seals									
Check operation of raising-and lowering equipment									
5. Fresh water installation									
Check level regulation									
Check valves, clean dirt trap									
Check that all fittings (incl. hand spray) are watertight									
For built-in water softener: Check settings									
For partial water softener: Check operation									
For the GiO module: Change the pre-filter (every 6 months at the latest)									
Check water hardness									
6. Waste water installation									
Check for leak tightness									
Check pressure hose position and operation of drain pump									

Maintenance procedures	FV 28 G / FV28GIO EcoStar 430 F EcoStar 530 F-M	FV 40.2 / FV 40.2 G /FV 60.2 / FV 70.2 D TopClean 60	TopClean M	GK 60	EcoStar 545D / DV 80.2 / DV 120.2 / DV 125.2 / DV 200.2 / DV 200.2 PW	FV 130.2 – FV 250.2 / DV 270.2	Component OK	Component faulty	Component
7. Electrical installation									
Check all fuses									
Tighten all electrical connections									
Check tank and boiler heating									
Check thermostat and stop switch									
8. Electrical safety check (certificate is optional)									
Visual inspection							at least once a year		
Protective conductor check							at least once a year		
Measure insulation resistance							at least once a year		
Protection conductor current measurement							at least once a year		
9. Disinfectant and cleaning agent dosing									
Check dosage, adjust if necessary									
10. Rinse aid dosing									
Check dosage, adjust if necessary									
11. Compressed air connection									
Check the hose couplings! Replace them if damaged.									
12. Functional inspection of entire machine									
Check machine for correct interaction of all functions									
13. Test run									
Check results of test wash and cleaning results									
Brief instruction for new personnel									

18 Dismantling and disposal

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

Please do not dispose of your old device in residual waste. Instead, contact your dealer or the collection points set up in your community for information regarding the disposal of your old device.

18.1 Disposal of packaging materials

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

- Square timber frame
- Plastic sheeting (PE film)
- Cardboard packaging (edge protection)
- Packaging strap (steel strip)
- Packaging strap (plastic (PP))



Note

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

18.2 Dismantling and disposal of the old device

Warning



Risk of injury from contact with chemicals

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

- Use eye protection.
 - Wear protective gloves.
 - Contact a physician immediately if chemicals or water containing chemicals (wash water) are swallowed.
-
- Where appropriate, rinse machine components, containers, dosing units and hoses with fresh water to remove chemical residues. Wear suitable clothes (gloves, safety glasses) for this.



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

The components should be separated by material for recycling.

19 Documentation

Installation drawing/standard drawing

Technical data sheet

Wiring diagram/programming instructions

Installation regulations - general information



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