



# Operating Instructions

## Laboratory Glassware Washer

### PLW 8617

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### Warnings

 Information which is important for safety is highlighted in a thick framed box with a warning symbol. This alerts you of potential danger of injury to people or damage to property. Read these warning notes carefully and observe the instructions and codes of practice described.

### Notes

Notes contain information that is particularly important to follow. They are highlighted by a thickly framed box.

### Additional information and comments

Additional information and comments are contained in a simple frame.

### Operating steps

Operating steps are indicated by a black square bullet point.

#### Example:

■ Select an option using the arrow buttons and save your choice with *OK*.

### Display

Certain functions are shown in display messages using the same font as used for the function itself in the display.

#### Example:

Menu Settings .

The PLW 8617 Laboratory Glassware Washer is designed to reprocess laboratory glassware, utensils, and similarly categorized components using water-based media.

### **Appropriate use**

Reprocessing encompasses the cleaning, rinsing, and – where necessary – thermal disinfection and drying of the following wash items:

- vessels such as beakers, flasks, cylinders, and test tubes
- measuring vessels such as measuring cylinders, volumetric flasks, and pipettes
- dishes such as petri dishes and watch glasses
- plates such as slides and sequencing plates
- small items such as lids, magnetic stirring rods, spatulas, and stoppers
- other items such as boxes, plastic flasks and containers, metal parts, pipe and hose pieces, and funnels

The Laboratory Glassware Washer is generally referred to as “the machine” in these operating instructions. The term “wash items” is used wherever the items to be reprocessed are not defined in any further detail. The term “wash water” is used for the mixture of water and process chemicals.

Reprocessing is carried out in conjunction with:

- process chemicals which are tailored to the result of the reprocessing
- load carriers which are tailored to the wash items

Observe the information issued by the manufacturer of the wash items.

### **Inappropriate use**

The PLW 8617 Laboratory Glassware Washer may not be used for any purposes other than the appropriate use described. This applies in particular to:

- the reprocessing of medical devices suitable for reprocessing
- use in the restaurant industry
- residential or household use

### User administration

Access to the machine is restricted to a certain group of people. Authorized users are entered in User management via the machine's web interface. User management is described in the programming manual.

A User ID and PIN are required for the user Login on the machine. User actions such as starting a reprocessing program are saved. User data is read out on the Reprocessing report, for example.

### User profiles

#### Day-to-day use

For day-to-day use, operators must be instructed on the basic functions and how to load the machine and must also be trained regularly. They must have a basic knowledge of machine reprocessing of laboratory glassware and utensils.

Day-to-day work is carried out using the following user levels:

- Without message
- Automatic
- Operator

#### Service work

Modifications to the machine, such as on-site conditions, require additional specific knowledge of the machine.

They are carried out using the following user levels:

- Technician
- Administrator

#### Administration

Changes to the reprocessing process and performance testing also require specialist knowledge about machine reprocessing of laboratory glassware and utensils, and about process technology.

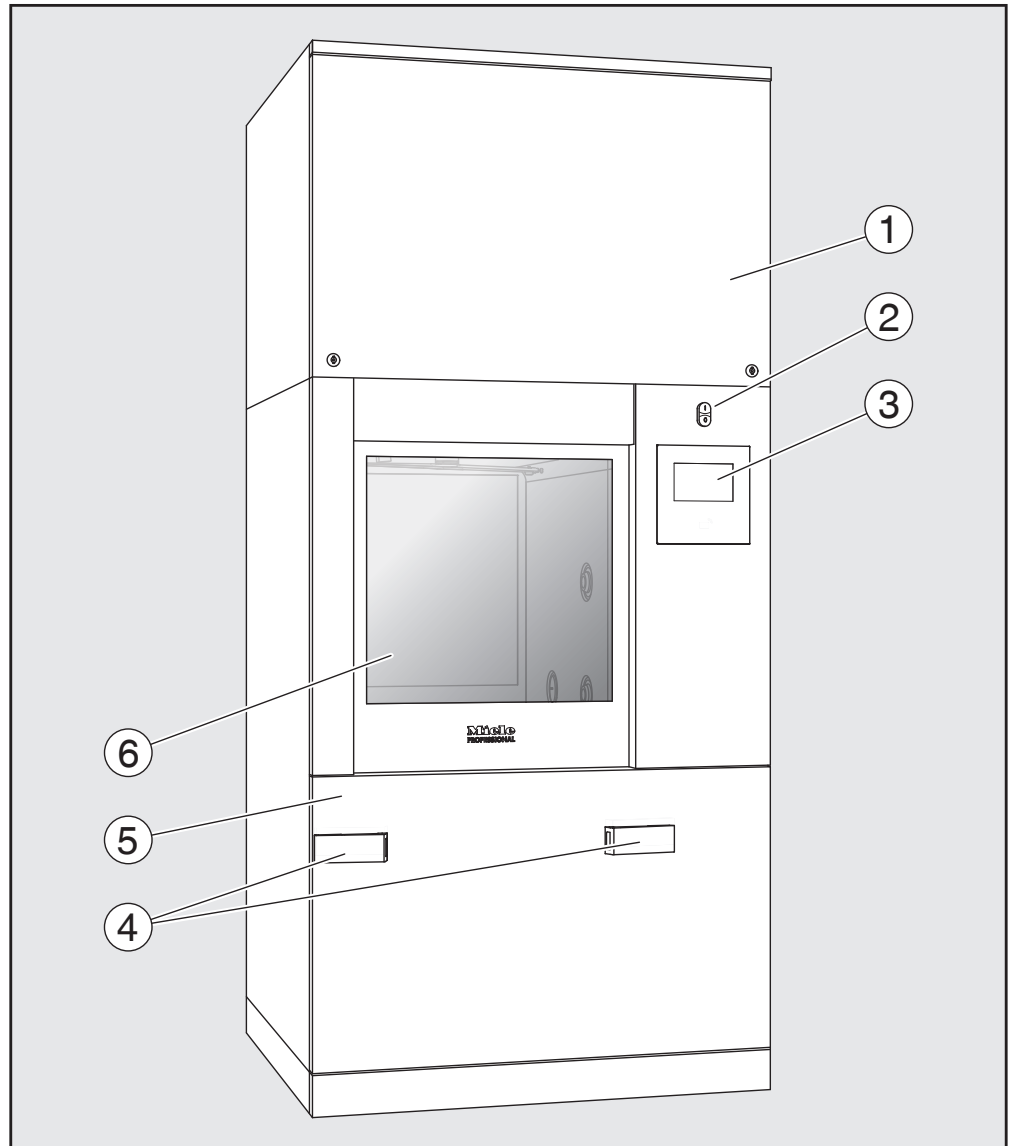
They are carried out using the following user level:

- Administrator



## Machine overview

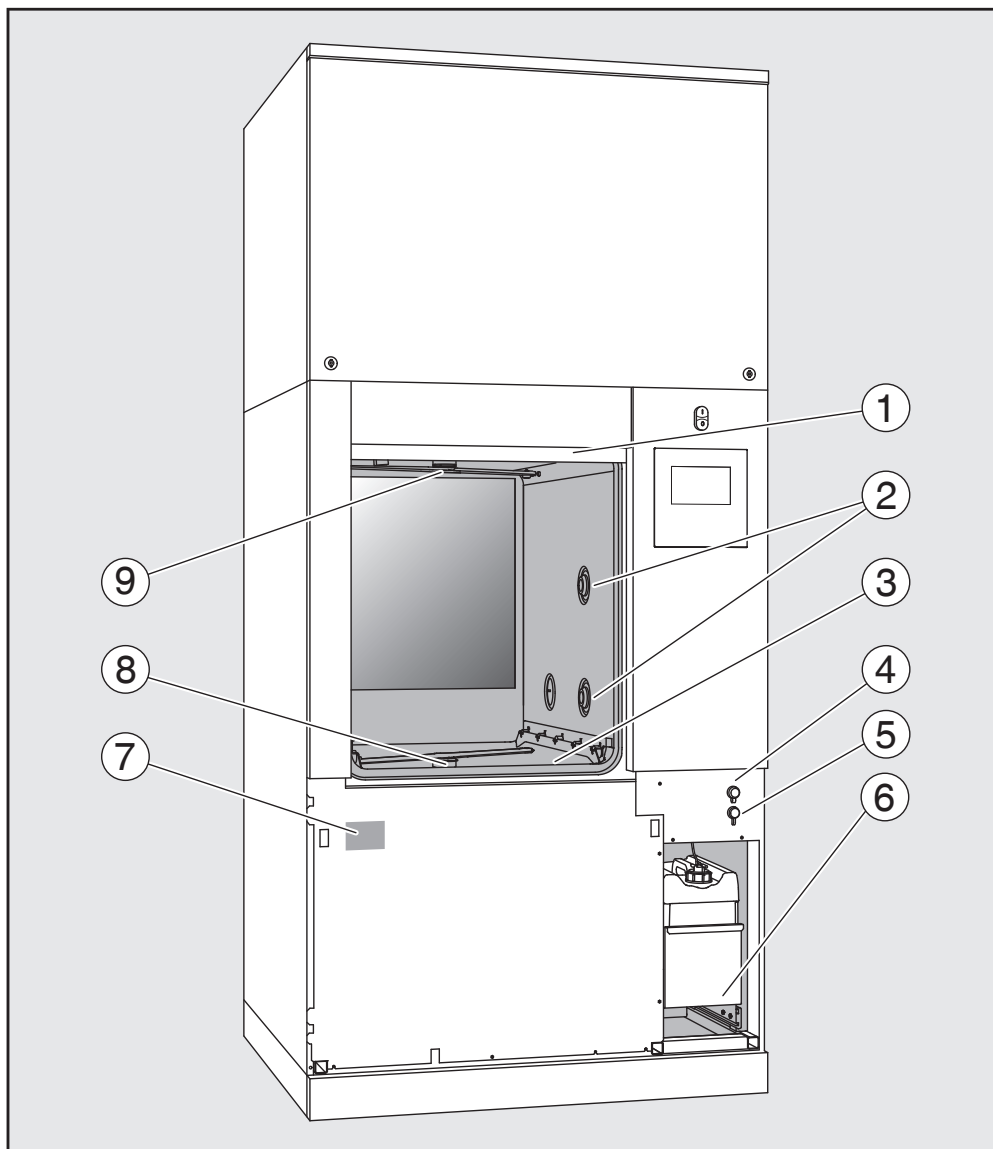
Infeed and out-  
feed side



- ① Service cover for Miele Technical Service
- ② **I/O** power switch
- ③ Display
- ④ Docking system for transfer trolleys,  
service cover lock
- ⑤ Service cover
- ⑥ Door closed

## Machine description

Infeed and out-feed side without service cover

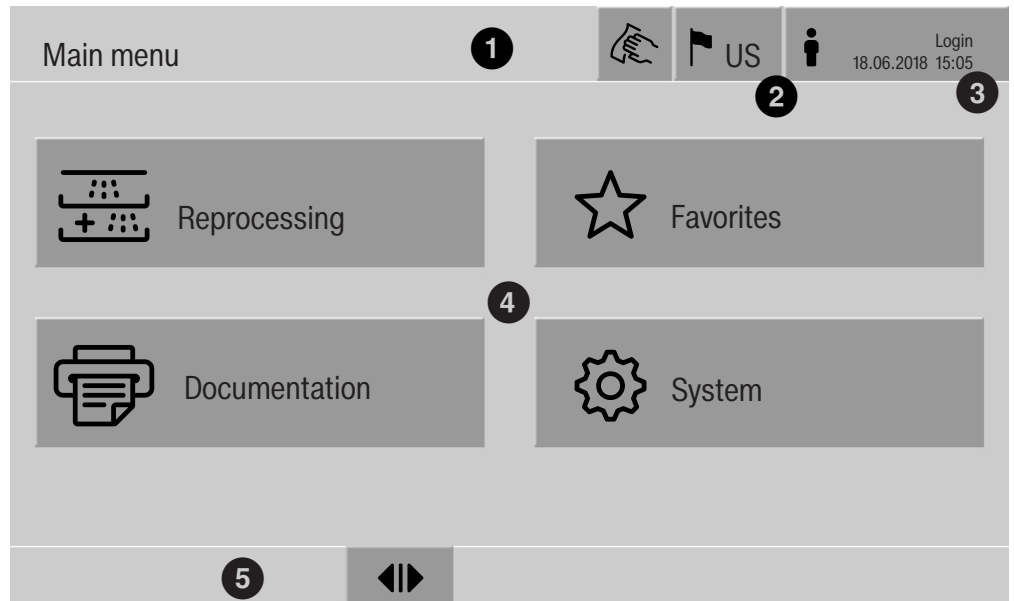


- ① Open door
- ② Water supply for load carriers
- ③ Filter combination
- ④ USB port
- ⑤ Connection for Miele Technical Service
- ⑥ Drawer with containers and connections for process chemicals
- ⑦ Data plate
- ⑧ Lower machine spray arm
- ⑨ Upper machine spray arm

## Control elements on the display

### Main menu

The machine display shows the control panel light on a black background. In these operating instructions, the display is shown as black on a light background in order to improve legibility.



- ① Header
- ② Display language selected
- ③ Current user
- ④ Buttons to call up sub-menus
- ⑤ Footer

Buttons for all enabled actions are displayed in the footer.







If a menu is split across several pages, a scroll bar will be displayed above the footer. Swipe the display or tap the scroll bar to scroll between the pages.

### Buttons in the main menu/header






Symbol	Description/function of the button
	Locks the display, e.g., for surface disinfection
	Opens the Select display language menu. The language currently set is indicated after the symbol, e.g., US
	Opens the login or logout dialog, e.g., to switch users

## Machine description


Symbols in the main menu

Symbol	Description/function of the button
 Reprocessing	Opens the list of reprocessing programs which are assigned to the load carrier
 Favorites	Opens the list of favorites
 Documentation	Opens the list of available wash reports
 System	Opens the configuration menu, e.g., for network settings or to change the PIN
	Information
	Please wait – screen is loading

Buttons in the main menu/footer

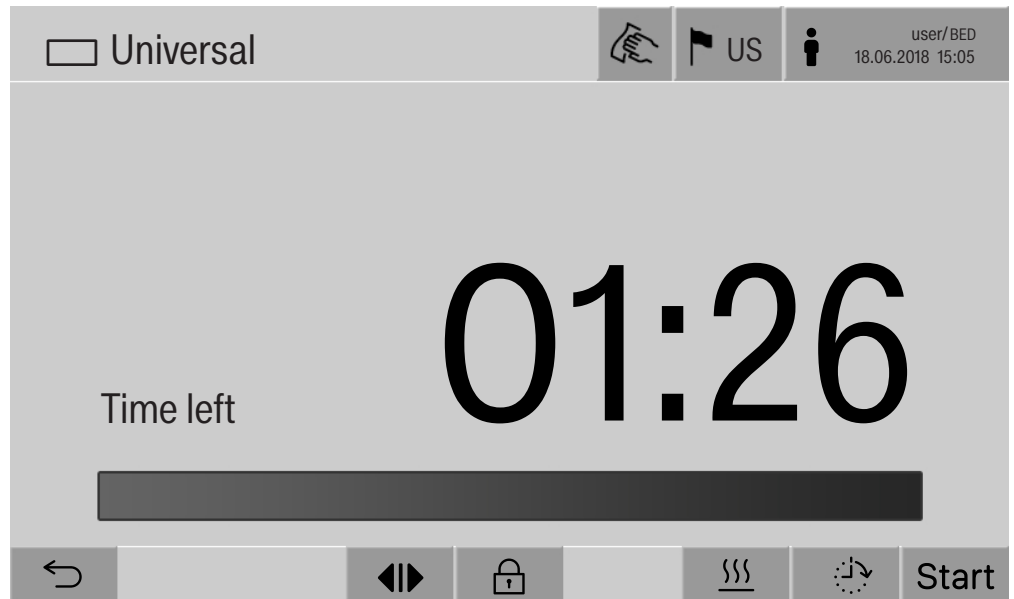
Symbol	Description/function of the button
	Warning present, opens the Messages list
	Fault present, opens the Messages list
	Opens the door
	Closes the door
	The door is locked

Buttons in the sub-menus/footer

Symbol	Description/function of the button
	Leaves menu, goes back to previous menu level, does not save entries
<b>OK</b>	Confirms entries

### Program start display

Once the A 500 load carrier, for example, has been selected in the Reprocessing menu and the associated Universal reprocessing program has been confirmed, the following is displayed:



The pictogram of the load carrier and the selected reprocessing program are displayed in the header.









The duration and a progress bar are shown on the display.

The color of the progress bar corresponds to the current machine status:

- Black for ready for operation
- White for an ongoing reprocessing program
- Green for a reprocessing program that has been successfully completed
- Yellow for warnings
- Red for faults

## Machine description

Program start/program sequence buttons/symbols

Symbol	Description/function of the button
Start	Program start
Stop	Program cancellation
	Opens the input screen for selecting the start time
	Door locked
	Shows the program sequence display in the default view
In/Out	Schematic program sequence display, contains information for Miele Technical Service
	Displays the program sequence as a diagram
	Selects the steam heating method
	Selects the electric heating method
	Selects the electric and steam heating method
 (next to the progress bar)	Displays the current faults and warnings in the progress bar

Heat-up context menu (optional)

This context menu is only available in machines where it is possible to switch the energy supply from electric to steam.

The energy source for heating can be changed before and during the program sequence. The selected setting is used for heating up the wash water and the DI water in the DI water tank.

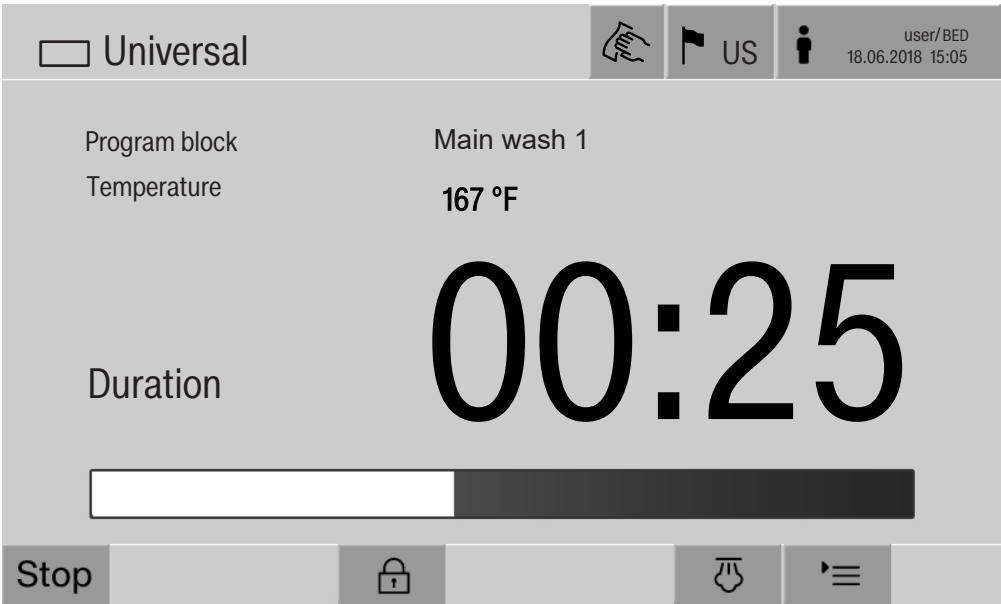
The selected setting is applied permanently in the machine controls.



Press the  button to open the context menu.

Example of a program sequence display



After the program has started, the following display is shown:



The current program phase and the temperature reached are also shown on the display.  
The progress bar indicates the ratio between the duration and the time left.

Program sequence display context menu

During the program sequence, you can choose between 4 views:

- Standard – ≡
- Table – 
- In/Out chart – In/Out
- Graphical – 




Press the '≡' button to open the context menu.

## Machine description

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Program cycle display – table view

Once you have switched to the table view using the  button, the following data is displayed:


- Block name
- Program phase countdown
- Holding time
- Program parameters with the associated target and actual values and the minimum and maximum values reached

It is possible to scroll to other pages using the scroll bar.


The maximum possible program parameters are:

- Material number and Date of manufacture of the mobile unit
- Cycle number
- User information: First name, Last name, User level
- Temperature of the wash water, sensor 1 and 2 measured values
- Temperature in the dispensing phases 1–3, sensor 1 and 2 measured values
- Temperature of the air during internal drying in phases 1 and 2
- Temperature of the air during external drying in phases 1 and 2
- Water volumes in the program step and the program phase
- Dispensing quantities of the used dispensing systems
- A0-Value
- Conductivity in the water intake and drainage
- Wash pressure for the internal wash water circuit and the Power-PulseCleaning
- Spray arm speeds



Program sequence display – In/Out chart	<p>The In/Out chart – In/Out contains information about the input signals (page 1), the output signals (page 2), and individual sensor measured values:</p> <ul style="list-style-type: none"><li>- Wash water temperature</li><li>- Air temperature</li><li>- Wash pressure at the circulation pump</li><li>- Conductivity</li></ul> <p>This information is used by Miele Technical Service and is not explained in these operating instructions.</p>
Graphical program sequence display	<p>Once you have switched to the graphical view of the program sequence using the  button, the following values are displayed as curves:</p> <ul style="list-style-type: none"><li>- Wash water temperature [W]</li><li>- External air/drying temperature [EA]</li><li>- Internal air/drying temperature [IA]</li><li>- Internal wash pressure [P]</li></ul>

## IMPORTANT SAFETY INSTRUCTIONS

 Risk to health and risk of damage if the operating instructions are not followed.

Failure to follow the operating instructions – and in particular the safety instructions and warnings they contain – may result in persons being seriously injured or property being seriously damaged. Read these operating instructions carefully before using the machine. This will help prevent the likelihood of both personal injury and damage to the machine.

Keep these operating instructions in a safe place.

### Proper use

► Use of the machine is only approved for the applications stated in the operating instructions. Conversions, modifications, and any other use are not permitted and could be dangerous.

The cleaning and disinfection processes are only designed for laboratory glassware and utensils which are designated as reprocessable by the manufacturer. The information provided by the manufacturer of the wash items must be observed.

► This machine is intended for indoor use in a stationary location only.

► The machine is equipped with a special bulb to cope with particular conditions (e.g., temperature, moisture, chemical resistance, abrasion resistance, and vibration). This special bulb must only be used for the purpose for which it is intended. It is not suitable for room lighting. Replacement bulbs may only be installed by Miele Technical Service.

### Risk of injury

**Please pay attention to the following notes to avoid injury.**

► This machine must be commissioned, serviced and repaired by a Miele authorized and trained service technician only. To ensure compliance with Good Laboratory Practice guidelines, Miele repair and maintenance contracts are recommended. Unauthorized repairs can pose considerable risks to the user.

► Do not install the machine in an area where there is any risk of explosion or of freezing conditions.

► The electrical safety of the machine can only be guaranteed when correctly grounded. It is essential that this standard safety requirement is observed and regularly tested. If in any doubt, please have the electrical installation inspected by a qualified electrician.

► A damaged or leaking machine could be dangerous and compromise your safety. Disconnect the machine from the electrical supply immediately and contact Miele Service.

## IMPORTANT SAFETY INSTRUCTIONS

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- ▶ Label machines which have been taken out of operation and lock them to prevent them being switched on again without authorization. The machine may only be put back into operation once it has been successfully repaired by Miele Technical Service.
- ▶ Personnel operating the machine should be trained regularly. Untrained personnel must not be allowed access to the machine or its controls.
- ▶ Use caution when handling process chemicals. These may contain irritant, corrosive or toxic ingredients. Please observe the process chemical manufacturer's safety instructions and safety data sheets. Wear protective gloves and goggles.
- ▶ The machine is designed for operation with water and recommended additive process chemicals only. Organic solvents and flammable liquid agents must not be used as this could cause an explosion, damage rubber or plastic components in the machine and cause liquids to leak out of it.
- ▶ The water in the wash cabinet is NOT safe to drink!
- ▶ Be careful when sorting wash items with sharp, pointed ends. Position them in the machine so that you will not hurt yourself or create a danger for others.
- ▶ Broken glass can result in serious injury when loading or unloading. Damaged glass wash items must not be processed in the machine.
- ▶ When operating the machine, beware of the high temperatures involved. If you bypass the electrical lock to open the door, there is a risk of scalding or chemical burns.
- ▶ Where there is a risk of toxic or chemical substances occurring in or leaking into the chamber wash water during cleaning (e.g., aldehyde in the disinfecting agent), it is essential to regularly check door seals and make sure that the steam condenser is functioning correctly.  
Opening the machine door during a program interruption carries particular risks in such circumstances.
- ▶ Should personnel accidentally come into contact with toxic vapors or process chemicals, follow the emergency instructions given in the manufacturer's safety data sheets.
- ▶ After drying with the drying unit, leave the door open at first to allow the wash items, mobile unit, modules, and inserts to cool down.
- ▶ Allow mobile units, modules, inserts, and the load to cool down before removing them. Any water remaining in containers should be emptied into the chamber before removing items.

## IMPORTANT SAFETY INSTRUCTIONS

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- ▶ Steam heating is permissible up to a pressure of 145 psi (1000 kPa). This corresponds to a water steam temperature of 355°F (180°C).
- ▶ Never clean the machine with a water hose or a pressure washer.
- ▶ Depending on the properties of the flooring and footwear worn on it, liquids can cause a slipping hazard. Keep the floor dry where possible and take care to clean up any liquid spills straight away. Take the necessary precautions when cleaning up hazardous substances and hot liquids.
- ▶ The machine must be disconnected from the electrical supply before any maintenance or repair work is carried out.

### Quality assurance

**The following points should be observed to assist in maintaining quality standards when processing laboratory glassware and utensils and avoid damage to the loads being cleaned.**

- ▶ If it is necessary to interrupt a program, as an exception only, this may only be done by authorized personnel.
- ▶ The cleaning standard must be routinely confirmed by the user. The process should be validated on a regular basis, and checked against documented control results.
- ▶ For thermal disinfection, use temperatures and temperature holding times to achieve the required infection prophylaxis in accordance with current health and safety regulations.
- ▶ Make sure items being washed are suitable for machine reprocessing and are in good condition. Plastic items must be thermally stable. Nickel plated items and aluminum items can be machine processed using special procedures only. Items containing iron, and soiling containing residual rust must not be placed in the cabinet.
- ▶ Process chemicals can, in certain circumstances, cause damage to the machine. Always follow the recommendations of the process chemical manufacturer. In case of damage or doubt about compatibility, please contact Miele.
- ▶ Cleaning detergents containing chlorine can damage the elastomers of the machine. If the use of process chemicals containing chlorine is required, a maximum temperature of 167°F (75°C) in the "Cleaning" program phases is recommended (see program chart). In machines equipped with special oil-resistant elastomers (from the factory) for oil and grease applications, cleaning detergents containing chlorine may not be used!

## IMPORTANT SAFETY INSTRUCTIONS

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- ▶ Pre-treatments with cleaning agents can create foam, as can certain types of soiling and process chemicals. Foam can have an adverse effect on the cleaning result.
- ▶ Processes must be set up such that foam cannot escape from the wash cabinet. It would hinder the correct functioning of the machine.
- ▶ The process used must be monitored on a regular basis by the supervisor to check foaming levels.
- ▶ To avoid the risk of damage to the machine and its accessories caused by process chemicals, soiling, and any reaction between the two, please read the notes in “Chemical processes and technology”.
- ▶ Even when a process chemical, e.g., detergent, is recommended, the machine manufacturer takes no responsibility for the effect of such chemicals on the wash items.  
Please note that changes in product formulation, storage conditions, etc., which are not announced by manufacturers of process chemicals may impair the quality of cleaning results.
- ▶ When using process chemicals, always consult the instructions issued by individual manufacturers. Process chemicals must only be used for the purpose they are designed for by the manufacturer to avoid any material damage or the occurrence of very strong chemical reactions, such as an oxyhydrogen explosion.
- ▶ Always follow the manufacturer's instructions on storage and disposal of process chemicals.
- ▶ Particles  $\geq 200\text{ }\mu\text{m}$  are removed by the filters in the wash chamber. Smaller particles may find their way into the circulation system.
- ▶ In critical applications where very stringent requirements have to be met, it is strongly recommended that all the relevant factors for the process, such as process chemicals, water quality, etc., are discussed with Miele.
- ▶ If the cleaning result is subject to particularly stringent requirements, e.g., in chemical analysis, regular quality control should be carried out by the operator to ensure that required standards of cleanliness are being achieved.
- ▶ The mobile units, modules, and inserts that hold the wash items must be used only as intended.  
The interior of lumened wash items must be thoroughly flushed through with wash water.
- ▶ Secure small and light items with cover nets or place in a mesh tray for small items, so that they do not block the spray arms.
- ▶ Empty any containers or utensils before loading them.

## IMPORTANT SAFETY INSTRUCTIONS

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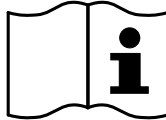
- ▶ The amount of residual solvents and acids on items going into the cabinet should be minimal.  
There should be no more than a trace of any solvents with a flash point of below 70°F (21°C).
- ▶ Chloride solutions, in particular hydrochloric acid, must not be placed in the cabinet.
- ▶ Ensure that solutions or steam containing chlorides or hydrochloric acid do not come into contact with the stainless steel outer casing of the machine in order to avoid any damage through corrosion.
- ▶ After any plumbing work, the water pipework to the machine will need to be primed. If this is not done, components can be damaged.
- ▶ Follow the installation instructions in the operating and installation instructions.

# IMPORTANT SAFETY INSTRUCTIONS

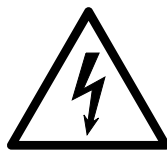
## Using components and accessories

- Only Miele accessories should be connected to this machine. They must be suitable for the application they are used for. Consult Miele for details on the type of accessories that can be used.
- Only use Miele Mobile Units, Modules, and Inserts. Using mobile units and inserts made by other manufacturers or making modifications to Miele accessories can result in unsatisfactory cleaning and disinfection results. Any resultant damage would not be covered by the warranty.
- Only use process chemicals which have been approved by their manufacturer for the relevant application. The manufacturer of the process chemicals is liable for any negative influences on the material of the wash items and the machine.

## Symbols on the machine



Attention:  
Observe the operating instructions!



Attention:  
Danger of electric shock!



Warning: Hot surfaces:  
It can be very hot inside the wash chamber  
when the door is opened!

## Disposal of your old machine

- Please note that, depending on the application, the machine may be contaminated with blood and other bodily fluids, pathogens, facultative pathogens, or genetically modified material, etc., and must be decontaminated before disposal.

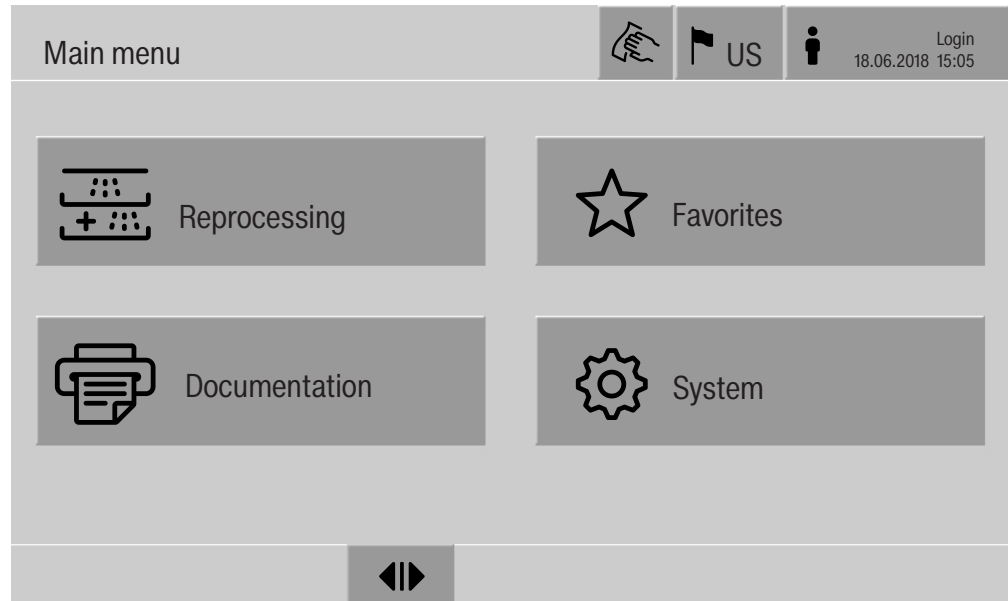
For environmental and safety reasons, dispose of all process chemical residues in accordance with safety regulations and the manufacturer's safety data sheets (wear safety goggles and gloves).

Remove or disable the door so that children cannot become trapped inside. Then make appropriate arrangements for safe disposal of the machine.

For machines with a tank system, the water in the tank must be removed beforehand.

- Before disposal, all personal data saved in the machine must be deleted, such as user names.

## Main menu



### Actions in the Main menu

The main menu of the machine is split into headers and footers and 4 menus. The following actions can be performed using the buttons:

- Lock the display, e.g., for surface cleaning (see “Maintenance, locking machines”)
- Change the display language
- Log a user in and out
- Close popups with messages depending on the user level and the type of message, warning, or fault message (see “Fault messages and instructions”)
- Open the list of active messages (see “Fault messages and instructions”)
- Select and start a reprocessing program depending on the settings in the Program control menu in the web interface (see “Operation”)
- Call up and start reprocessing programs stored as Favorites depending on the settings in the System, Manage favorites menu (see “Operation”)
- Print out Reprocessing reports
- Open the System menu to adjust the machine settings depending on the User level (see “System settings”)
- Open and close the loading door
- Open and close the unloading door after the end of a program depending on the “Authentication - End of program” setting in the web interface



## Changing the display language 🚩

Changing the display language has no impact on the set system language. Reports and printouts are issued in the system language.



- Press the 🚩 button in the header of the display.

The Select display language menu is displayed.

- Press the button for the language you want.

The machine controls return to the previous menu; the selected language is set.

Press the ↩ button to exit the language selection menu if you do not want to change the set language.

## Login 👤

Access to the machine display is restricted to a certain group of users. Every user must be entered in the User management via the web interface (see programming manual, “User administration”).

## Manual login



- Press the 👤 button in the header to open the entry window for user login.
- Enter the user ID and press **OK** to confirm.
- Enter the PIN and press **OK** to confirm.

The functions on the machine display are enabled.

When a user logs in for the first time, they will be prompted to assign a new PIN.  
If the PIN has expired, this prompt will be displayed for the user. The validity of the PIN can be set in the web interface under “System, Identification”.

## Main menu

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### Logout

The logged-in user is automatically logged out after 24 hours if no button has been pressed on the display in that time, or if the machine carries out an automatic restart.

The automatic restart can be set in the web interface under “System, Automatic restart”.

### Deactivating automatic logout

Automatic logout can be deactivated in the web interface under “System, Identification, Logout”.

### Manual logout

A user who is logged in can log out manually, e.g., to protect the machine from access without authorization.



- Press the  button in the header to log out.

- Confirm the confirmation prompt with Yes.

The functions on the machine display are disabled.

### Documentation

The last 200 reprocessing reports saved in the machine controls are shown on the display. The most recent reprocessing report is the first on the list. When the number of reprocessing reports saved exceeds 200, the oldest report is deleted from the list.

If no external software for process documentation is connected to the machine, the reprocessing reports can either be printed out using an external printer connected via the network or downloaded to a USB stick.

### Print

Printing out individual reprocessing reports on an external printer:

- Press the  Documentation button.

A list of the reprocessing reports is displayed.

- Press the button in the Print column to activate the required reprocessing reports.

- Press the **OK** button in the footer to start printing.


- Press the button in the Print column again to deactivate the selection.

The reprocessing report is printed out on the external printer.

## Download

All available reprocessing reports can be downloaded to a USB stick. The USB port is located behind the service cover on the infeed side of the machine.

The USB stick must be FAT-32-formatted and have a minimum capacity of 1 GB.

- Press the  Documentation button.

A list of the reprocessing reports is displayed.



- Press the  button in the footer.

The following message appears on the display:

USB port is being activated. Please wait..

Once the USB port has been activated, the following message appears on the display:

Please insert a FAT32 formatted USB stick with a minimum capacity of 1GB into the USB port.

- Open and remove the service cover.
- Open the cover cap on the USB port.
- Plug the USB stick into the USB port and confirm the message with **OK**.

The following messages appear on the display one after the other:

- The USB stick is being tested. Please wait.
- Reprocessing reports are being copied onto the USB. This can take several minutes.
- Reprocessing reports copied successfully. Please remove the USB.

- Remove the USB stick from the USB port.
- Then confirm the message with **OK**.

The list of reprocessing reports is displayed again.

- Press  to exit the Documentation menu.

The Main menu is shown on the display.

- Place the cover cap on the USB port.
- Fit and close the service cover.

Press  to terminate copying.

## Main menu

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**Opening and closing the door** The status of the machine door is shown in the footer of the display.



- ↔ The door has been released and can be opened.
- ⇨⇩ The door is open and can be closed.
- 🔒 The door is locked.
- Press the button with the ↔ symbol to open the door.

The door will move up.

- Press the button with the ⇨⇩ symbol to close the door.

The door will move down.

### Risk of crushing

There is a risk of crushing at the bottom of the door when it is closing.

Do not put your hand inside the door when it is moving down to close.

### General information

#### Transfer trolley

A TT 86 transfer trolley is required for transporting load carriers from preparation areas to machines and from machines to checking and packing tables.

In order to use MF 27/28-1 transfer trolleys, the machine needs to be equipped with the conversion kit RFMF 27/28.

Transfer trolleys are supplied with their own operating instructions.

MF-1 transfer trolleys must not be used.

#### Load carriers

The machine can be fitted with a variety of load carriers, which can be combined with a variety of modules and inserts depending on the type and shape of items requiring cleaning.

Select load carriers and other equipment, such as rinsing fittings, that are appropriate for the application.

Information on the individual areas of application can be found on the following pages, as well as in the operating instructions for the load carriers.

Miele offers suitable load carriers for all areas of application defined in "Appropriate use", such as mobile units, modules, inserts, and special rinsing fittings. More information can be obtained from Miele.

#### E 9xx load carriers

Load carriers with the designation E 9xx can be used in the machine if they have a production date from 2007 onwards.

A 857 retrofit kits for the mobile units are available from Miele.

#### Pictograms for manual program selection

When you select a program manually on the machine, you must select the relevant mobile unit first. Pictograms representing the mobile units are shown on the display. The pictograms assigned to the mobile units in the A 5xx model range are listed in the operating instructions for the mobile units.

#### Mobile unit/module combinations from the A 5xx model range

The pictogram and name of the mobile unit can be found on a strut on the front of the mobile unit. The model shown is the mobile unit without modules inserted.

For different module combinations in the A 500 and A 503 mobile units, several pictograms can be displayed (see operating instructions for the mobile unit).

#### Fixed mobile units from the A 5xx model range

The pictogram and name of the mobile unit can be found on the front of the mobile unit.

### Arranging the wash items

Only items which have been declared by their manufacturer as suitable for machine reprocessing may be processed. The manufacturer's specific reprocessing instructions must be observed.

⚠ Contaminated items pose a health risk.

Contaminated items can result in various hazards to health, which can lead to infections, poisoning, injuries, and more depending on the type of contamination.

When working with contaminated items, ensure that all necessary measures are taken to protect personnel.

Wear protective gloves and use suitable aids.

- Arrange the wash items so that wash water can access all surfaces. This ensures that they get properly cleaned.
- Do not place wash items to be cleaned inside other pieces where they may be concealed.
- Do not place wash items so close together that cleaning is hampered.
- The interior of lumened wash items must be thoroughly flushed through with wash water. Depending on the wash item, special rinsing fittings may be required for this, such as nozzles, irrigation sleeves, or adapters.
- Ensure that wash items with long, narrow, hollow sections can be flushed through properly before placing them in inserts or connecting them to a rinsing fitting.
- Lumened instruments should be inverted and placed in the correct mobile units, modules, and inserts to ensure that wash water can flow in and out of them unrestricted.
- Deep-sided wash items should be placed at an angle to make sure the wash water runs off them freely.
- Tall, narrow lumened instruments should be placed in the center of the mobile units if they are not going to be sprayed directly. This ensures the insides of the lumened instruments are more easily accessed by the water jets.
- Take apart any wash items which can be dismantled according to the manufacturer's instructions and reprocess the individual parts separately from each other.
- Lightweight wash items should be secured with a cover net to prevent them from spinning around in the wash cabinet and blocking the spray arms.
- Only reprocess small items and micro components in special inserts, mesh trays with lids, or mesh inserts.
- The spray arms must not be blocked by wash items which are too tall or which hang down in their path.

- Broken glass can result in serious injury when loading or unloading. Damaged glass wash items must not be reprocessed in the machine.
- Nickel and chrome-plated wash items and wash items made of aluminum are not generally suitable for machine reprocessing. Special process conditions are required for these wash items.
- When cleaning items that are made entirely or partially out of plastic, the maximum thermal stability of the item must be considered. Select an appropriate program or adjust the temperature of the program accordingly.

### Preparing the wash items

 **Danger of explosion due to flammable gases.**

Flammable solvents with a flash point below 70°F (21°C) outgas and can generate a flammable mix of gases.

Only load the machine with wash items which have traces of solvents at most.

Start the reprocessing program as soon as the machine has been loaded with the wash items.

 **Risk of damage due to solvents.**

Solvents with a flash point above 70°F (21°C) can damage elastomers and plastics. The machine could leak as a result of this.

Only load the machine with wash items which have traces of solvents at most.

Start the reprocessing program as soon as the machine has been loaded with the wash items.

 **Risk of damage due to corrosion.**

Chloride solutions, particularly hydrochloric acid, and ferrous materials that can rust or corrode cause corrosion on the stainless steel of the machine and the load carrier.

Do not introduce any chloride solutions into the machine.

Do not introduce any ferrous materials that can rust or corrode into the machine.

 **Risk of infection.**

Microbiological material, pathogens, facultative pathogens, and genetically modified material can cause infections or environmental damage.

Before washing by machine, decide whether the wash items contaminated in this way need to be sterilized.

## Application technology

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- Empty all wash items before loading into the machine, paying particular attention to relevant regulations.
- Remove non-water soluble residues such as paint, adhesives, and polymer compounds using appropriate solvents.
- Rinse wash items which have been in contact with solvents, chloride solutions, or hydrochloric acid thoroughly with water and drain very well. Start the reprocessing program immediately after loading the machine.
- Scoop nutrient media (agar) out of petri dishes.
- Shake out any blood residues and remove any clots.
- If necessary, rinse the wash items briefly with water to prevent larger quantities of dirt from entering the machine.
- Remove all stoppers, corks, labels, sealing wax residue, etc.
- Sort small items such as stoppers and taps in suitable baskets for small parts in order to secure them.

Remove any aids and additives which are difficult to get rid of and contaminate the wash items in addition to the original soiling in advance. These include grease, paper labels, and other labels.



### Before starting a program

#### Carry out a visual check before starting every program:

- Is everything correctly loaded/connected for cleaning?
- Can the wash water consistently permeate wash items with 2 openings, such as pipettes and viscometers?
- Are the spray arms clean and do they rotate freely?
- Is the filter combination clean?  
Remove any coarse soiling and clean the filter combination if necessary.
- Is the mobile unit correctly connected to the water supply?
- Are the removable modules, nozzles, irrigation sleeves, and other rinsing fittings securely connected?
- Are all process chemical containers sufficiently filled?

### At the end of a program

#### The following must be checked at the end of every program:

- Are the nozzles and connectors securely held in position in the mobile unit, module, or insert?
- Are all lumened wash items still attached to the appropriate nozzles?
- Have any of the wash items on the load carriers moved during cleaning?

If any of the wash items move during cleaning, this can have a negative effect on the wash result.

Assess whether wash needs to be repeated: for example, if petri dishes have overturned or glass beakers have fallen over.

- Carry out a visual check of the wash items for cleanliness.
- Can wash water access the insides of wash items with 2 openings?
- If the machine is equipped with a drying unit, carry out a visual check of the wash items for dryness.

### Laboratory glassware and utensils

#### ...wide-neck

Wash items with wide necks, such as glass beakers, wide-neck Erlenmeyer flasks, and petri dishes, or cylindrical items such as test tubes, can be cleaned and rinsed inside and out using rotating spray arms.

To do this, the wash items are positioned in inserts and placed in an empty mobile unit with a spray arm.

#### ...narrow-neck

Wash items with narrow necks, such as narrow-neck Erlenmeyer flasks, round flasks, measuring cylinders, and pipettes, require special load carriers.

Load carriers are supplied with their own operating instructions.

#### When loading please note:

- Place petri dishes or similar items in the appropriate insert with the dirty side facing downward.
- Place pipettes with the pointed end facing downward.
- Arrange inserts at least 1" (3 cm) away from the edge of the load carrier.
- Position inserts for test tubes in the center above the spray arm to leave the corners of the load carrier free.
- Use a cover net to avoid breakages if required.

### Program overview

On delivery, the reprocessing programs are assigned to the A 503 mobile unit. The following modules can be used in various combinations:

Exceptions to this are the Vials and Pipettes programs (see table).

In order to use other mobile units, new load carriers must be set up in the web interface under “Load carrier management”. “Load carrier management” is described in the programming manual.

### Power levels

The mobile units in the modular loading concept can be fitted with modules in different ways. Depending on the type and number of modules used, different volumes of water and pump speeds are required to achieve a similar wash pressure. The individual reprocessing programs are therefore available with different power levels. The higher the power level of a reprocessing program, the higher the volume of water and the pump speed.

The program structure and the following parameters, which are relevant to performance, are identical in the different power levels:

- water quality
- temperature
- holding time
- dispensed process chemicals in %
- drying temperature
- drying duration

(see appendix: “Power levels/Mobile units/Module combinations” table)

The standard programs must be copied and adapted for the APLW 511 3-level mobile unit.

(see appendix: “Power levels of the programs/Mobile units/Module combinations for the APLW 511” table)

New programs with the “Max” power level for a load containing 7–9 modules are included in the appendix to the programming module as program overviews.

## Application technology

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### General program information

Program	Area of application	Mobile unit
Mini	<ul style="list-style-type: none"><li>- Very short program for barely soiled wash items and very low rinse requirements</li><li>- For a wide range of soiling</li><li>- Not suitable for denatured residues such as protein</li><li>- Not suitable for inorganic, acid-soluble residues such as metallic salts</li><li>- In 2 power levels</li></ul>	A 503
Standard	<ul style="list-style-type: none"><li>- Short program for lightly soiled wash items and low rinse requirements</li><li>- For a wide range of soiling</li><li>- Not suitable for denatured residues such as protein</li><li>- Not suitable for inorganic, acid-soluble residues such as metallic salts</li><li>- In 2 power levels</li></ul>	A 503
Universal	<ul style="list-style-type: none"><li>- Program for lightly soiled to moderately soiled wash items and moderate rinse requirements</li><li>- For removing organic residues</li><li>- Suitable to a limited extent for inorganic, acid-soluble residues, such as metallic salts</li><li>- In 2 power levels</li></ul>	A 503
Intensive	<ul style="list-style-type: none"><li>- Program for moderately soiled to heavily soiled wash items and moderate to high rinse requirements</li><li>- For removing organic residues</li><li>- Suitable to a limited extent for inorganic, acid-soluble residues, such as metallic salts</li><li>- In 2 power levels</li></ul>	A 503

### Programs for specific soiling

Program	Area of application	Mobile unit
Inorganic	<ul style="list-style-type: none"> <li>- Program for lightly soiled to moderately soiled wash items and moderate to high rinse requirements</li> <li>- For removing inorganic, acid-soluble residues such as metallic salts</li> <li>- In 2 power levels</li> </ul>	A 503
Organic	<ul style="list-style-type: none"> <li>- Program for moderately soiled to heavily soiled wash items and moderate rinse requirements</li> <li>- For removing concentrated organic residues, e.g., fats, waxes, and stubborn dried-on or thermally adhered organic residues</li> <li>- Not suitable for inorganic, acid-soluble residues such as metallic salts</li> <li>- In 2 power levels</li> </ul>	A 503
Oil	<ul style="list-style-type: none"> <li>- Program for heavily soiled wash items and moderate rinse requirements</li> <li>- For removing oils, greases, and in some cases waxes</li> <li>- Not suitable for inorganic, acid-soluble residues such as metallic salts</li> <li>- In 2 power levels</li> </ul>	A 503
Agar	<ul style="list-style-type: none"> <li>- Program for moderately soiled to heavily soiled wash items and moderate rinse requirements</li> <li>- For removing agar</li> <li>- In 2 power levels</li> </ul>	A 503

## Application technology

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### Programs for specific wash items

Program	Area of application	Mobile unit
Plastics	<ul style="list-style-type: none"><li>- Program for lightly soiled to moderately soiled plastics and moderate rinse requirements</li><li>- For heat-sensitive laboratory equipment, e.g., plastic bottles that are resistant to temperatures of up to 130°F (55°C)</li><li>- In 2 power levels</li></ul>	A 503
Vials	<ul style="list-style-type: none"><li>- Program for lightly soiled to moderately soiled small wash items and moderate to high rinse requirements</li><li>- For vials, centrifuge tubes, and test tubes</li><li>- In 2 power levels</li></ul>	A 503 + A 605
Pipettes	<ul style="list-style-type: none"><li>- Program for lightly soiled to moderately soiled pipettes and moderate to high rinse requirements</li><li>- For measuring and volumetric pipettes</li><li>- In 3 power levels</li></ul>	A 503 + A 613

## Additional programs

Program	Area of application	Mobile unit
Laboratory Special	<ul style="list-style-type: none"> <li>- Program for cleaning and thermal disinfection at 199°F (93°C) and 10 min holding time in the first program phase; wash water is only pumped out after the disinfection process</li> <li>- In 2 power levels</li> </ul>	A 503
Rinse cold water	<ul style="list-style-type: none"> <li>- Program for rinsing wash items with cold water, e.g., to remove:</li> <li>- Heavy soiling</li> <li>- Disinfectant residue</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>- To prevent soiling from drying and becoming encrusted on wash items before the start of a reprocessing program</li> </ul>	A 503
Rinse DI water	<ul style="list-style-type: none"> <li>- Program for rinsing wash items with DI water, e.g., to remove:</li> <li>- Heavy soiling</li> <li>- Disinfectant residue</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>- To prevent soiling from drying and becoming encrusted on wash items before the start of a reprocessing program</li> </ul>	A 503
Drying	<ul style="list-style-type: none"> <li>- Program for drying temperature-stable wash items</li> <li>- Not suitable for heat-sensitive wash items</li> </ul>	A 503

## Service program

Program	Area of application	Mobile unit
Tank emptying	Program for emptying the tank, e.g., for long downtimes; the wash cabinet must be empty <sup>1)</sup>	Zero
Manual disinfection	Program to drain the wash cabinet when the wash water needs to be decontaminated by adding disinfecting agent in the event of a program cancellation (see "Operation, program cancellation")	A 503

1) Depending on the configuration of the Standby parameter in the web interface under Water intake/DI water tank, the tank is automatically replenished at the end of the program (see the programming manual, "System, appliance configuration, water intake").

## Chemical processes and technology

In this section you will find a description of the causes of common issues which can occur between different types of soiling, process chemicals and the components of the machine, along with their solutions as necessary.

This section is intended as a guide. If unforeseen interactions occur during reprocessing, or if you have any questions on this subject, please contact Miele.

General information	
Problem	Solution
If elastomers (seals and hoses) and plastic components in the machine are damaged, this can lead to, for example, swelling, shrinking, hardening or brittleness of materials, causing tears and cracks to develop. Components cannot function correctly and this generally leads to leaks.	<ul style="list-style-type: none"><li>- Determine and remedy the cause of the damage.</li></ul> See information regarding “Associated process chemicals”, “Soiling”, and “Reaction between process chemicals and soiling” in this section.
A heavy build-up of foam during the program sequence will impair the cleaning and rinsing effect on the wash items. Foam escaping from the wash cabinet can cause damage to the machine. When foam develops, the cleaning process is not standardized or validated in principle.	<ul style="list-style-type: none"><li>- Determine and remedy the cause of the foam build-up.</li><li>- Check the process used regularly to monitor foaming levels.</li></ul> See information regarding “Associated process chemicals”, “Soiling”, and “Reaction between process chemicals and soiling” in this section.
Corrosion to stainless steel in the wash cabinet and to accessories can give them a different appearance: <ul style="list-style-type: none"><li>- rust (red marks/discoloration)</li><li>- black marks/discoloration</li><li>- white marks/discoloration (etched surface)</li></ul> Corrosive pitting can lead to the machine not being water-tight. Depending on the application, corrosion can affect cleaning and rinsing results (laboratory analysis) or cause corrosion to stainless steel wash items.	<ul style="list-style-type: none"><li>- Determine and remedy the cause of corrosion.</li></ul> See information regarding “Associated process chemicals”, “Soiling”, and “Reaction between process chemicals and soiling” in this section.



Associated process chemicals	
Problem	Solution
The ingredients in process chemicals have a significant impact on the longevity and functionality (throughput) of dispensing systems.	<ul style="list-style-type: none"> <li>- Follow the process chemical manufacturer's instructions and recommendations.</li> <li>- Carry out regular visual inspections of the dispensing system to check for signs of damage.</li> <li>- Check the throughput of the dispensing system regularly.</li> <li>- Ensure that the regular cycle of maintenance is observed.</li> <li>- Contact Miele for advice.</li> </ul>
Process chemicals can damage elastomers and plastics in the machine and accessories.	<ul style="list-style-type: none"> <li>- Follow the process chemical manufacturer's instructions and recommendations.</li> <li>- Carry out a regular visual check of any accessible elastomers and plastics for damage.</li> </ul>
Hydrogen peroxide can release large amounts of oxygen.	<ul style="list-style-type: none"> <li>- Only use validated processes.</li> <li>- The wash temperature must be lower than 158°F (70°C) when using hydrogen peroxide.</li> <li>- Contact Miele for advice.</li> </ul>
<p>The following process chemicals can cause large amounts of foam to build up:</p> <ul style="list-style-type: none"> <li>- Cleaning agents and rinsing agents containing surfactants</li> </ul> <p>Foam can occur:</p> <ul style="list-style-type: none"> <li>- in the program phase in which the process chemical is dispensed</li> <li>- in the subsequent program phase if it has been spilt</li> <li>- in the subsequent program if rinsing agent has been spilt during dispensing</li> </ul>	<ul style="list-style-type: none"> <li>- Process parameters in the wash program, such as dispensing temperature and dosage concentration, must be set to ensure the whole process is foam-free or very low-foaming.</li> <li>- Please observe the process chemical manufacturer's instructions.</li> </ul>

## Chemical processes and technology

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Associated process chemicals	
<p>De-foaming agents, especially silicone-based ones, can cause the following:</p> <ul style="list-style-type: none"><li>- a build-up of deposits in the wash cabinet</li><li>- a build-up of deposits on the wash items</li><li>- damage to elastomers and plastics in the machine</li><li>- damage to certain plastics, e.g., polycarbonate and plexiglass, in the wash items being processed</li></ul>	<ul style="list-style-type: none"><li>- De-foaming agents should be used as an exception only; for instance, when they are essential for the process.</li><li>- Clean the wash cabinet and accessories periodically without any wash items and without de-foaming agent using the Organic program</li><li>- Contact Miele for advice.</li></ul>

Soiling	
Problem	Solution
<p>The following substances can damage the elastomers in hoses and seals, as well as the plastics in the machine:</p> <ul style="list-style-type: none"> <li>- oil, wax, aromatic and unsaturated hydrocarbons</li> <li>- emollients</li> <li>- cosmetics, hygiene and skincare products such as creams</li> </ul>	<ul style="list-style-type: none"> <li>- Depending on usage, wipe the lower door seal on the machine periodically with a lint-free cloth or sponge.</li> <li>- Clean the wash cabinet and accessories without any wash items using the <b>Organic</b> program.</li> <li>- Use the <b>Oil</b> program or a special program that dispenses pH-neutral emulsifiers containing surfactants in the pre-rinse.</li> </ul>
<p>The following substances can lead to a heavy build-up of foam during washing and rinsing:</p> <ul style="list-style-type: none"> <li>- some disinfection agents, dishwashing cleaning agents, etc.</li> <li>- reagents for analysis, e.g., for microtiter plates</li> <li>- cosmetics, hygiene and skincare products such as shampoos and creams</li> <li>- active foaming agents such as surfactants</li> </ul>	<ul style="list-style-type: none"> <li>- Thoroughly rinse wash items in water beforehand.</li> <li>- Select a cleaning program with at least one short pre-rinse in cold or hot water.</li> <li>- Depending on the application, use de-foaming agents that do not contain silicone oils.</li> </ul>
<p>The following substances may cause corrosion to stainless steel in the wash cabinet and on accessories:</p> <ul style="list-style-type: none"> <li>- hydrochloric acid</li> <li>- other substances containing chlorides, such as sodium chloride</li> <li>- concentrated sulfuric acid</li> <li>- chromic acid</li> <li>- particles of iron and shavings</li> </ul>	<ul style="list-style-type: none"> <li>- Thoroughly rinse wash items in water beforehand.</li> <li>- Put the drip-dry wash items into mobile units, modules, and inserts and place these in the wash cabinet.</li> <li>- Start a program as soon as possible after placing them in the machine.</li> </ul>

## Chemical processes and technology

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Reaction between process chemicals and soiling	
Problem	Solution
Natural oils and fats can be emulsified with alkaline process chemicals. This can lead to a heavy build-up of foam.	<ul style="list-style-type: none"><li>- Use the Oil program.</li><li>- Use a special program that dispenses pH-neutral emulsifiers containing surfactants in the pre-rinse.</li><li>- Depending on the application, use de-foaming agents that do not contain silicone oils.</li></ul>
Soiling containing high protein levels can cause a heavy build-up of foam when processed with alkaline process chemicals.	<ul style="list-style-type: none"><li>- Select a cleaning program with at least one short pre-rinse in cold water.</li></ul>
Non-precious metals such as aluminum, magnesium, and zinc can release hydrogen when processed with very acidic or alkaline process chemicals (oxyhydrogen reaction).	<ul style="list-style-type: none"><li>- Please observe the process chemical manufacturer's instructions.</li></ul>

⚠ Unsuitable process chemicals pose a health risk.

Using unsuitable process chemicals will generally cause an unsatisfactory wash result and can pose a health risk or cause damage to property.

Only use process chemicals designed specifically for use in laboratory glassware washers and follow the manufacturer's instructions on how to use them.

Please follow any instructions relating to non-toxic residues.

⚠ Process chemicals pose a health risk.

Some process chemicals may be corrosive and irritant.

Observe the relevant safety codes and safety data sheets issued by the process chemical manufacturers when handling process chemicals.

Take all protective measures required by the process chemical manufacturer, e.g., wear protective goggles and protective gloves.

### Dispensing systems

The machine is fitted with 2 dispensing systems for liquid detergent and neutralizing agent as standard. Up to 4 additional internal dispensing systems can be installed.

The dispensing systems and suction wands must be color-coded. Stickers are supplied in the following colors:

- blue
- white
- red
- green
- yellow
- black

Enter the process chemicals used and the relevant color in the table below if an additional dispensing system has been installed. When containers with process chemicals are connected, the color coding makes it easier to assign the relevant suction wand.

Dispensing system	Color code	Process chemical
1	blue	
2		
3	red	
4		
5		
6		

## Dispensing liquid process chemicals

4 external dispensing systems can be connected instead of the 4 optional internal dispensing systems.

If a dispensing system is to dispense different process chemicals, the chemicals must be changed by Miele Technical Service or an authorized technician.

### Containers for process chemicals

The drawer for containers with process chemicals is located behind the service cover. There is enough space in the drawer for 4 containers with a 10 l capacity.

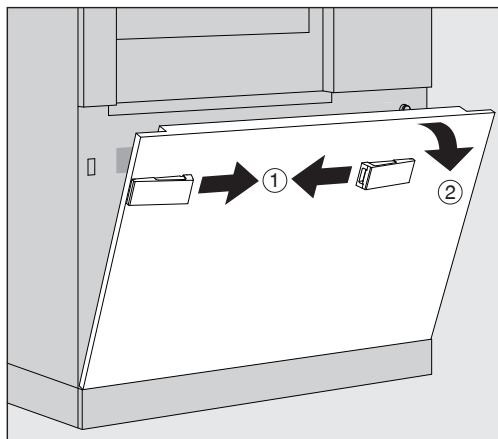
Additional containers must be placed outside the machine.

The drawer is equipped with supports. The supports ensure that the containers are slightly inclined. The containers must sit on the supports in such a way that the suction wand is located on the lower side.

Always place the 4 containers in the drawer, even if fewer process chemicals are required. This will prevent the containers from falling over when the drawer is opened or closed.

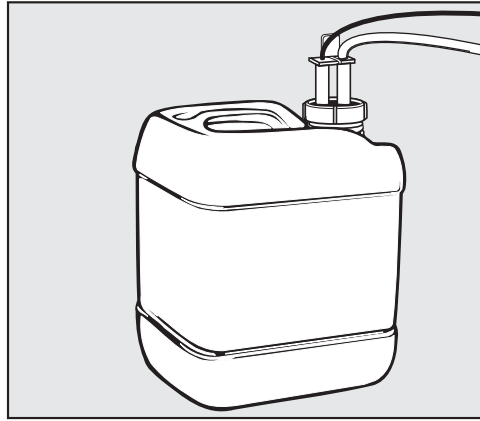
### Filling containers with process chemicals

Fill the containers for process chemicals or replace them with a full container if a corresponding message is displayed, e.g., Fill supply container Dispensing system 1.



- Unlock the service cover on the machine ①.
- Tilt the service cover forward ②, lift it up, and lift it out of its lower brackets.
- Pull out the drawer with the containers for liquid process chemicals.
- Take the corresponding container out of the drawer.
- Unscrew and remove the suction wand.
- Fill the process container with the required process chemical or replace it with a new container.

Observe the color coding for the dispensing system and the suction wand to ensure that the process chemicals do not get mixed up.



- Push the suction wand into the neck of the container and screw it into place.
- Place the container in the drawer.

The suction wand must be located on the lower side of the support.

- Push the drawer into the machine.
- Insert the service cover into the lower brackets of the machine and press on it.
- Lock the service cover.
- Acknowledge the message Fill container for dispensing system "x" with the **OK** button.

Each time a container is filled or replaced, the Fill dispensing system function must be carried out to remove any air from the dispensing system.

The function can only be carried out if there are no load carriers in the wash cabinet.

### Filling the dispensing system

A dispensing system must be filled when:

- The corresponding container has been filled or replaced with a new one.
- The process chemicals have been changed.

A dispensing system can only be primed if there are no load carriers in the wash cabinet.

- Open the System menu.
- Open the Machine functions option.
- Open the Fill dispensing system option.
- Press the button for the corresponding dispensing system, e.g., DOS 1.

The dispensing system will be filled.

### Switching the machine on and off

The **I/O** power switch disconnects the machine from the power supply. The switch is located above the display.

- Press the **I** power switch to switch the machine on.

Once the boot process has finished, the machine is ready for operation.

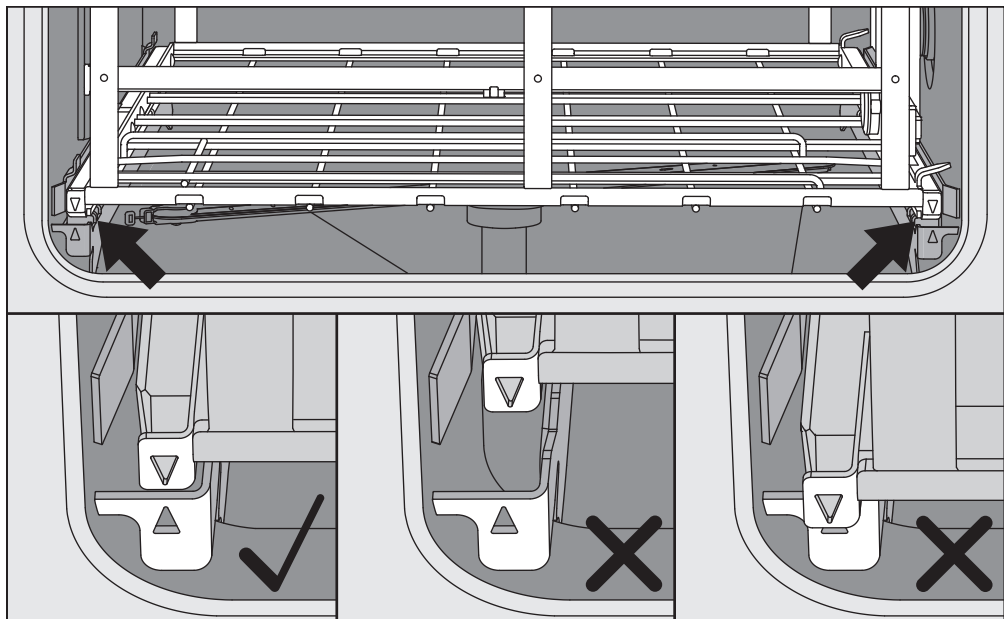
- Press the **O** power switch to switch the machine off.

The machine controls are shut down and the machine is disconnected from the power supply.

### Loading the wash cabinet

The load carrier is pushed into the machine wash cabinet from the in-feed side.

- Press the **◀▶** button to open the door on the infeed side.
- Push the load carrier from the transfer trolley into the machine wash cabinet.



The markings on the load carrier ▼ and in the wash cabinet ▲ need to be flush with one another.

- Press the **▶◀** button to close the machine door.



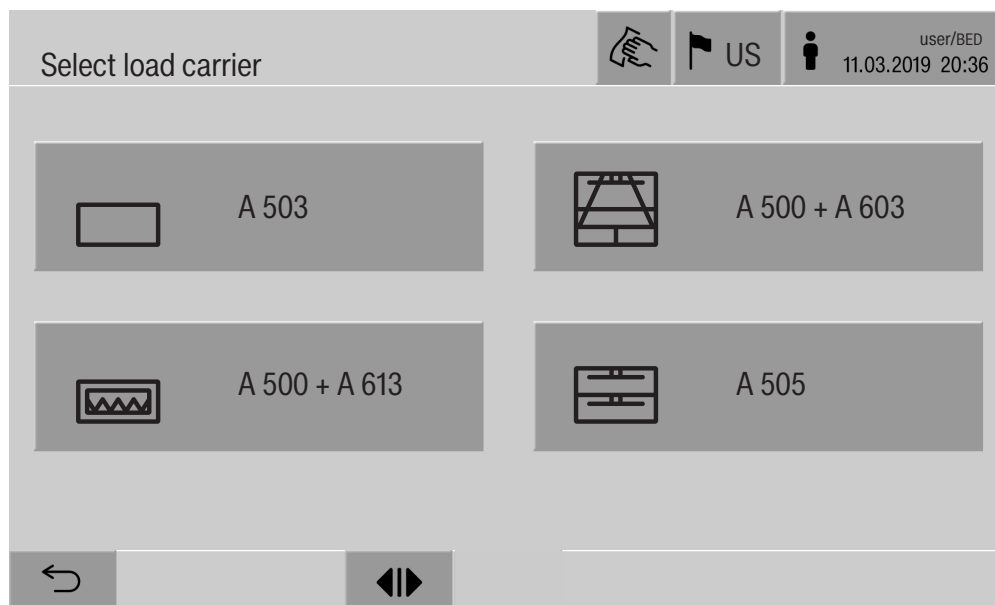
## Selecting a program

The reprocessing programs are assigned to certain load carriers. Therefore, a load carrier must be selected first with the help of a pictogram.

### Selecting a load carrier


- Press the  Reprocessing button.

The menu for selecting the load carrier via a pictogram is displayed.



If more than 4 load carriers are available, you will be able to scroll through several pages in the selection menu.

- Press the button for the required load carrier, e.g.,  A 503.

The pictogram of the selected load carrier is displayed in the header, e.g.,  Reprocessing.



The reprocessing programs which can be selected are listed.

- Press the button for the required reprocessing program.

The program start screen is displayed.

## Operation


### Selecting programs from Favorites

If reprocessing programs have been defined in the  System, Manage favorites menu, the program can be selected using the  Favorites button.

- Press the  Favorites button.

The Select load carrier menu is displayed.

- Press the button for the required load carrier, e.g.,  A 503.

The pictogram of the selected load carrier is displayed in the header, e.g.,  Favorites.



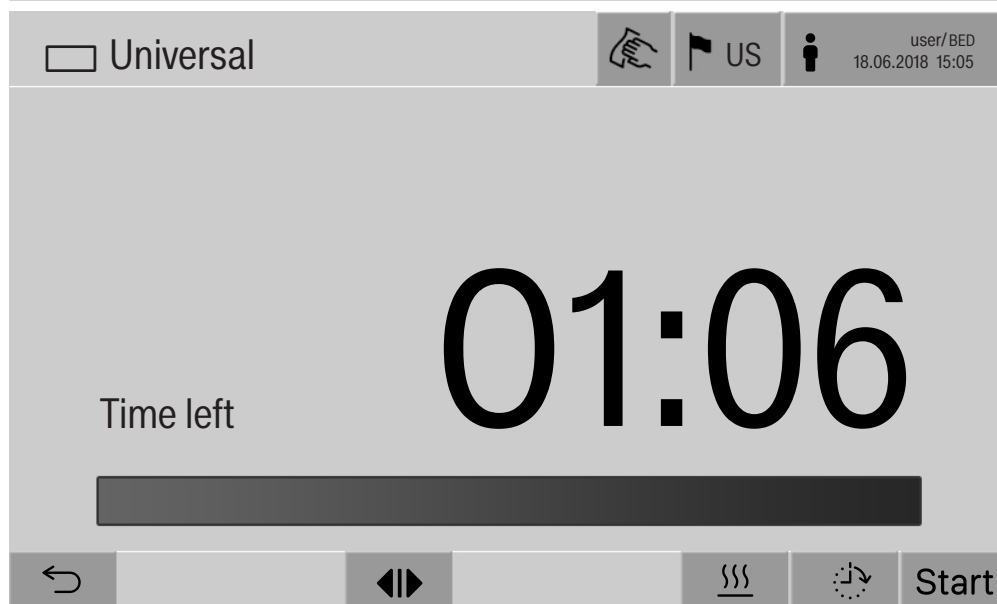
The reprocessing program defined as a favorite is displayed; Universal in this example.

- Press the button for the required reprocessing program.

The program start screen is displayed.

## Starting a program

Check whether the right reprocessing program for the load carrier is displayed in the header.  
With the ↶ button, you can open the menu for selecting the reprocessing programs if you wish to choose a different reprocessing program.



After selecting a program, the time left for the selected reprocessing program is displayed. If the Display time remaining parameter is not activated in the web interface, the display switches to the already elapsed Duration of the reprocessing program after program start.

- Press the Start button.

The reprocessing program starts.

It is only possible to start a reprocessing program when the machine doors are closed and there are no fault messages.

If the ⊗ symbol is displayed in the footer, you must work through the list of active messages first (see “Fault messages and instructions”).

## Program sequence

The program will run automatically once it has been started. You can find detailed information about the program sequence and the program parameters on the machine display (see “Machine description”, “Control panel on the display”).

### End of program

After the program has ended, the following is displayed:

- Cycle number
- time elapsed since the end of the program
- Result of the wash process
- Program finished message

The progress bar changes from white to green.

The wash cabinet lighting can be switched on automatically depending on the pre-setting.

### Canceling a program

A reprocessing program can be canceled at any time. The wash water is drained, then the door on the infeed side is released.

- Press the **Stop** button.

A confirmation prompt is displayed:

Cancel program?.

- Confirm the confirmation prompt with **Yes**.

Once the water has finished draining, the following message will appear on the display:

Program cancelled.

The progress bar is red and the following fault message is displayed:

Program aborted by user.

Once the fault message has been acknowledged, the program can be restarted.

### Program cancellation with manual disinfection

For programs with the Drainage after disinfection parameter activated, additional steps may be necessary for program cancellation. If there has been no thermal disinfection, the wash water must be decontaminated manually.

#### Manual program cancellation

During the first program phase:

- Press the **Stop** button and confirm the confirmation prompt **Cancel program?** with **Yes**.

The fault message **Program aborted by user** is displayed.

There is wash water in the wash cabinet; it is not drained.

#### Program cancellation due to fault

If the program is canceled due to a fault during the initial program phase, the wash water is not drained. The required steps are described under "Manual disinfection".

Manual disinfection ■ Press **OK** to acknowledge the fault message in the list.

- Press **OK** to acknowledge the program cancellation.

The message **Please unload** appears in the program sequence display.

- Open the door on the infeed side.
- Decontaminate the wash water by adding disinfecting agent.
- Close the infeed side door.
- Select the load carrier.
- Select and start the **Manual disinfection** program from the list of programs assigned to the load carrier.

The wash water is drained; another fault message is displayed.


- Press **OK** to acknowledge the fault message in the list.

The infeed side door can be opened.

### Delay start

The start of a program can be delayed. The delay start period can be set to the exact minute.

If soiling is left to dry on the wash items for a long time, the reprocessing result can be adversely affected. There is also a risk of corrosion for stainless steel wash items.

- To set the delay start, press the  button in the footer.
- Enter the **Start time** with the on-screen keyboard and press **OK** to confirm.

The reprocessing program starts automatically at the set time.

The automatic program start can be canceled at any time. To do this, press the **stop** button in the footer. A confirmation prompt is displayed: **Stop delay start?**. Once the confirmation prompt has been confirmed, the reprocessing program can be started manually.

### Network connection

The machine can be integrated into an internal network via an Ethernet interface. Only the systems required for machine access via a web interface and for the documentation of reprocessing results (e.g., a PC on which the documentation software is installed) may be operated on this network. A standard network cable – CAT5 Ethernet cable or higher – is required for the connection.

Miele Technical Service must connect the network cable to the interface.

 Unauthorized access poses a health risk.

Settings in the machine, e.g., parameters for disinfection or dispensing process chemicals, may be changed as a result of unauthorized access via the network.

Under no circumstances should it be possible to access the machine via the Internet or other public or unsecured networks, either directly or indirectly (e.g., using port forwarding)!

The IP addresses from 192.168.10.1 to 192.168.10.255 are reserved for Miele Technical Service. They must never be set in the internal network.

1. The machine should be operated only in a separate network segment which meets one of the following requirements:
  - It is physically separated from other network segments
  - Access to the segment is restricted by a firewall or a router which has been configured accordingly
2. Limit access to this separate network segment to persons requiring access in the course of their work.
3. Use strong passwords to protect access to systems that are connected to the machine.
4. Configure the Ethernet interface.

### Network protocols

The machine supports communication via the following network protocols:

Network protocols	Description	Port
DHCPv4	Assignment of dynamic IPv4 addresses	68/UDP
DHCPv6	Assignment of dynamic IPv6 addresses	546/UDP
HTTPS	Web interface for configuring the machine parameters	443/TCP

The ICMPv4 and ICMPv6 protocols are also supported.

### Process documentation

The reprocessing processes in the machine can be documented via external process documentation software or an internal or external printer.

#### **Please note the following when connecting a printer or PC:**

- Only PCs or printers which are certified in accordance with EN/IEC 60950 may be used.
- The size of the printer or PC must be taken into account when installing the machine.
- An extension cord for the Ethernet interface must not be longer than 328 ft (100 m).

Please contact the machine manufacturer for more information on suitable printers and software.
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# System settings

## System

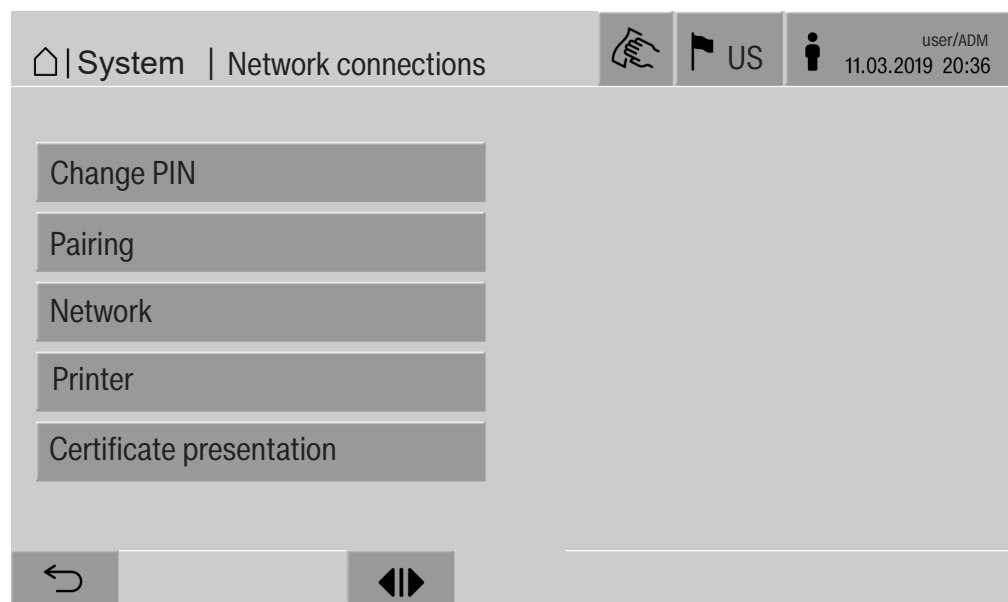
The  System menu contains the following functions:



Press the buttons to open the sub-menus. The functions in the sub-menus are described on the following pages.

## Network connections

The Network connections menu contains network configuration and user login functions. Once the Network connections menu has been opened, the following menu will appear on the display:



Press the buttons to open the sub-menus.



**Changing the PIN** A user can change their PIN at any time.

The minimum length of the PIN depends on the user level:

- Operator 4 digits
- Technician 8 digits
- Administrator 10 digits

The PIN must contain numbers as well as uppercase and lowercase letters. A–Z, a–z, 0–9, hyphens “-”, and underscores “\_” can be used.

It is not permitted to use:

- the same character more than three times in succession, e.g., 11112345
- numbers at the end of a password, e.g., User\_123
- one of the last ten passwords again

■ Press the Change PIN button.

Entry prompts are given to change the PIN. The buttons next to the parameters open the on-screen keyboard.

■ Enter the old PIN and then the new PIN twice and press **OK** to confirm.

The new PIN is applied in the User management in the web interface. It is not visible there. If a user has forgotten their PIN, they can reset it in the User management.

The PIN for the Administrator user level can only be reset by Miele Technical Service.

## System settings

### Pairing

If the machine is connected to a network, external applications can access the machine controls, e.g., software for Process documentation or the Web interface. When the machine is connected for the first time, Pairing must be carried out between the machine and the external application.

A maximum of 9 external applications can be connected to the machine at the same time. An old connection must be disconnected before another new pairing request can be confirmed.

- Press the **Pairing** button.

A menu is displayed which lists active connections and open requests with the date and time. Symbols are used to indicate the status of a pairing request:

Symbol	Function
✓	Pairing confirmed
↔	Disconnect pairing
⌂	Pairing requested

### Confirming pairing

The pairing request must be confirmed before the external application can access the machine. A 6 to 10-digit Pairing PIN is assigned for this.

- Press the **⌂** button.

The on-screen keyboard is displayed for entering the Pairing PIN.

- Enter the Pairing PIN and press **OK** to confirm.

This Pairing PIN must be entered in the external application to complete the pairing process.

### Disconnecting or rejecting pairing


An existing pairing connection can be disconnected and a pairing request can be rejected at any time.

- Press the **↔** button next to the corresponding application.

The pairing connection is disconnected and the line for the corresponding application is deleted from the menu.

### Granting write permissions

If data needs to be downloaded via the web interface or machine settings need to be changed, the logged-in user requires write permissions. As soon as a user has requested write permissions, the following message appears in the display:

 Allow connection with write authorization? ...  
Date/Time

The request for write permissions can be confirmed by a Login on the machine or rejected by pressing the ↵ button.

- Press the Login button to grant write permissions.

The on-screen keyboard is displayed for login.

During external access to the machine with write permissions, the following message appears in the :

Connection with write authorization active ...

The write permissions can be revoked by doing the following:

- Press the ↵ button.

The on-screen keyboard is displayed for login. Write permissions are canceled with the login; the writing connection remains established by pressing the ↵ button.

Write permissions can be deleted by the logged-in user in the web interface. In this case, logging in to the machine display is not necessary.

## System settings

### Configuring the network

The Ethernet connection is configured in the **Network** menu. The network can be configured on the machine's display or using the web interface. Before the machine is connected for the first time, e.g., to a network printer, the network must be configured on the machine display. To set the printer up in the web interface, see the programming manual.

You will receive the information required for configuring the network from your network administrator.

- Press the **Network** button.

The network configuration parameters are displayed. The buttons next to the parameters open the on-screen keyboard.

- Enter the required values for each parameter and press **OK** to confirm.

Use the IP Address or the Host name to address the machine in the network.

#### Manual entry

Parameter	Report version IPv4	Report version IPv6
Active	Active	Active
DHCP	Inactive	Inactive
IP Address	Input field	Input field
Subnet Mask	Input field	–
Prefix length	–	Input field
Host name	Input field	Input field
Standard gateway	Input field	Input field

#### Automatic assignment

Parameter	Report version IPv4	Report version IPv6
Active	–	–
DHCP	Active	Active
IP Address	–	–
Subnet Mask	–	–
Prefix length	–	–
Host name	Input field	Input field
Standard gateway	–	–

### Configuring the printer

A connected printer can be set up using the display or the web interface. To set the printer up in the web interface, see the programming manual.

- Press the **Printer** button.
- Press the button next to the **Type** parameter.

The display shows a menu with the available printer options.  
Please note:

- Activate the required printer with the button next to the model designation.

The bar in the button of the activated printer is displayed in white.

- Exit the menu by pressing the **↶** button.

You must enter the corresponding IP address of the selected network printer.

- Press the button next to the **IP Address** parameter.

The on-screen keyboard is displayed for entering the IP address.

- Enter the IP address and press **OK** to confirm.

The **Direct print** parameter determines whether a reprocessing report is to be transferred to the connected printer and printed out immediately at the end of the program. In addition to being printed out directly, the wash report is also saved in the machine controls. You can print out additional copies of a wash report using the **Documentation** button in the **Main** menu.

- Press the button next to the **Direct print** parameter to activate the option to print out directly.

The bar in the button is displayed in white.

## System settings

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### Certificate presentation

The machine has a self-signed TLS certificate in the x.509 standard. The certificate is used whenever you access the machine via the network with a web browser. It is also used to authenticate secure communication with the machine, e.g., in conjunction with software for process documentation.

In some cases, a security notification will be displayed in the web browser due to a self-signed TLS certificate not being recognized.

### Comparing certificates

The fingerprint and the validity period of the certificate can be displayed on the machine. The data can be compared with the data sent to the web browser.

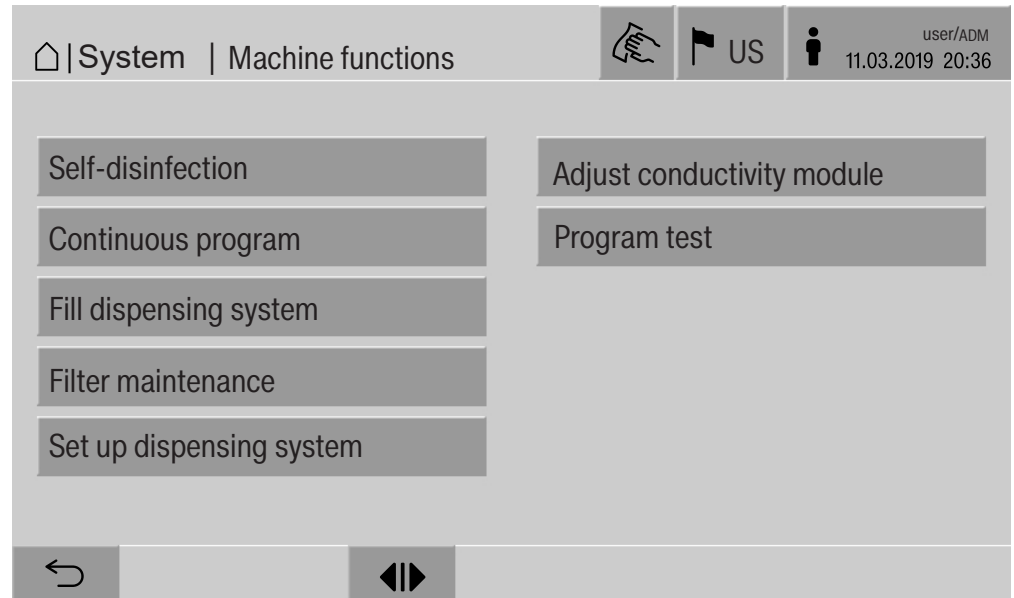
■ Press the Certificate presentation button.

The following data is displayed.

- Certificate SHA1
- Certificate SHA256
- Valid from
- Valid until

## Machine functions

The Machine functions menu contains service functions, e.g., for dispensing systems and for built-in tanks. Once the Machine functions menu has been opened, the following menu will appear on the display:



Use the buttons to start individual functions.

### Automatic system test

During the automatic system test, the Self-disinfection function for the installed tanks (if present) is performed for a fixed period of time.

Prerequisites for the automatic system test are:

- The machine is switched on.
- The wash cabinet is empty.
- The machine door is closed.
- No continuous program is active.
- No write permissions have been granted for access via the web interface.

The automatic system test can be switched off via the web interface (see the programming manual, "System, appliance configuration, automatic system test").

## System settings

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### Carrying out self-disinfection (optional)

This button is only displayed when the machine is fitted with an internal tank. The machine's internal tanks are disinfected during the automatic system test by the Self-disinfection function.

Every self-disinfection carried out is assigned a cycle number and a reprocessing report for documentation purposes.

If documentation is not required, the function can be deactivated by Miele Technical Service.

If the automatic self-disinfection of the internal tank was not completed without faults, this function can be started manually.

Self-disinfection can only be carried out if there are no load carriers in the wash cabinet.

- Press the Self-disinfection button.

The steps required for self-disinfection run automatically. Once self-disinfection has finished, a message will appear on the display:

Self-disinfection completed

or

Self-disinfection failed

- Press **OK** to confirm the message.

If self-disinfection is not repeated successfully, contact Miele Technical Service.

You can cancel self-disinfection with the stop button in the footer. The Cancel self-disinfection? confirmation prompt is displayed. Press Yes to cancel self-disinfection and press No to continue with self-disinfection.



### Starting the continuous program

A repeated program start can be defined for a reprocessing program in the Continuous program menu. This function can be used for wash-related trials, e.g., material tests, or for periodic decontamination in the event of long downtimes.

- Press the Continuous program button.

The display shows the available load carrier options.

- Press the button for the required load carrier.

The available reprocessing programs are displayed.

- Press the button for the required reprocessing program.

The parameters for defining the continuous program are displayed. The buttons next to the parameters open the on-screen keyboard. The limits for the selected parameters are displayed in the header of the on-screen keyboard.

#### Parameters for the continuous program

Parameter	Definition
Program cycles	Number of program runs for the continuous program
Pause between program cycles	Period between the end of the program and the subsequent program start
Door delay	Period between the end of the program and the opening of the machine door
Open door for	Period between the opening and closing of the machine door
Door selection	Choice of machine door which is opened after a program run

- Enter the required values for each parameter.
- Press the Start button in the footer to start the continuous program.

The message Continuous program: Warning! Door opens and closes automatically. will appear on the display. Press **OK** to start the continuous program and ↵ to cancel the procedure.

Once it has been started, the reprocessing program is repeated until the set program runs are reached.

You can cancel the continuous program at any time with the Stop button.

## System settings

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### Filling the dispensing system

The Fill dispensing system function is used to prime the relevant dispensing system. The function must be carried out after a container for process chemicals is filled or replaced with a full container.

The function can only be carried out if there are no load carriers in the wash cabinet.

- Press the Fill dispensing system button.
- Press the button for the required dispensing system, e.g., DOS 1.

The individual steps are shown on the display during the process. Once the process has finished, a message will appear on the display: Dispensing system DOS 1 filled.

or

Dispensing system DOS 1 not filled. Repeat Fill dispensing system.

- Press **OK** to confirm the message.

If the process of filling a dispensing system is not repeated successfully, contact Miele Technical Service.

### Filter maintenance

If the machine is equipped with a drying unit, the coarse and fine filters in the drying unit must be replaced by Miele Technical Service on a regular basis.

You can read off the operating times and the times left for the individual filters in the Filter maintenance menu.

### Dispensing system setup

Set up dispensing system is used to calibrate the dispensing systems. This must be performed if:

- The connected process chemical has been changed (different viscosity).
- A new dispenser pump or a new flow sensor has been installed
- The dispensing system needs to be checked, e.g., in the event of qualification, requalification, or a periodic check.

During setup, the dispenser pump is activated for a defined number of pulses. In parallel to this, the control module counts the pulses emitted by the flow sensor. After the measured volume has been entered into the control module, the module calculates the conversion factors for the throughput of the dispenser pump in  $\mu\text{l}/\text{Imp}$  and the pulse rate of the flow sensor in  $\mu\text{l}/\text{Imp}$ .

### Carrying out setup

Setup for a dispensing system can only be performed when there are no load carriers in the wash cabinet.

To determine the precise throughput of the dispenser pump and the pulse rate of the flow sensor, 2 measuring cylinders are required:

- 1 x 1,000 ml
- 1 x 100 ml

- Put the dispensing system suction wand in a 500–1,000 ml measuring cylinder.
- Fill the measuring cylinder with the process chemical to be dispensed.
- Fill the 100 ml measuring cylinder with the process chemical to be dispensed.

Before dispensing system setup is performed, the dispensing systems need to be primed.

- Press the Fill dispensing system button.
- Press the button for the required dispensing system, e.g., DOS 1.

Once the process has finished:

- Press **OK** to confirm the message.
- Fill the 500–1,000 ml measuring cylinder with the process chemical to be dispensed from the 100 ml measuring cylinder and mark or note the fill level.
- Completely fill the 100 ml measuring cylinder with the process chemical to be dispensed.
- Press the Set up dispensing system button.
- Press the button for the required dispensing system, e.g., DOS 1.

The following message appears in the display:

DOS setup for dispensing system ... starting. Prepare dispensing system.

- Press **OK** to confirm the message in the display.

The dispensing quantity measurement is carried out.

The process steps appear in the display, e.g., Dispenser pump active.

Once the measurement is complete, the on-screen keyboard opens.

The previously set value is displayed.

- Fill the 500–1,000 ml measuring cylinder up to the original fill level with the process chemical from the 100 ml measuring cylinder.
- Read off the required filling volume on the 100 ml measuring cylinder.
- Enter this value using the on-screen keyboard and confirm with **OK**.

The measurement results for the conversion factors are displayed, e.g.,:

Conversion factor DOS 1:

## System settings

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old ...  $\mu\text{l}/\text{Imp}$  new ...  $\mu\text{l}/\text{Imp}$   
Conversion factor flow sensor 1:  
old ...  $\mu\text{l}/\text{Imp}$  new ...  $\mu\text{l}/\text{Imp}$   
Accept new values?

The new conversion factors are taken over by the control module with **OK**; pressing  $\hookleftarrow$  retains the old conversion factors. The Set up dispensing system menu reappears in the display.

Contact Miele Technical Service to carry out Set up dispensing system if the machine dispensing systems are not equipped with suction wands.

### Calibrating the conductivity meter

When particularly high demands are placed on the cleaning and final rinse result, e.g., in chemical analysis, the conductivity meter can be calibrated with the Adjust conductivity module function. The measuring system is calibrated from DI water to cold water in the conductivity measuring range.

Conductivity meter calibration can only be carried out if there are no load carriers in the wash cabinet.

The wash cabinet should be rinsed with DI water to prevent high measured values due to lye splitting.

- Press the Adjust conductivity module button.

The DI water measurement is carried out.

The message Please wait... and the current process step appear in the display, e.g., Measurement active.

At the end of the measurement, the DI water conductivity: Actual is displayed together with the input screen for the manually measured value.

The infeed side door is released for the manual measurement.

- Open the door and perform the manual conductivity measurement.
- Close the door.
- Press the button next to the DI water conductivity: New parameter to open the on-screen keyboard.
- Enter the measured value using the on-screen keyboard and confirm with **OK**.

Measured values with decimal places need to be mathematically rounded.

- Press the **OK** button.

The cold water measurement is carried out.

- Perform the same work steps as for DI water if the message Cold water conductivity: Actual is displayed.

The values entered for Conductivity ... New are taken over by the control module.

The Machine functions reappear in the display.

You can cancel the conductivity meter calibration using the stop button in the footer. The message Adjustment of conductivity module unsuccessful. Please repeat. will appear on the display.

## System settings

### Carrying out a program test

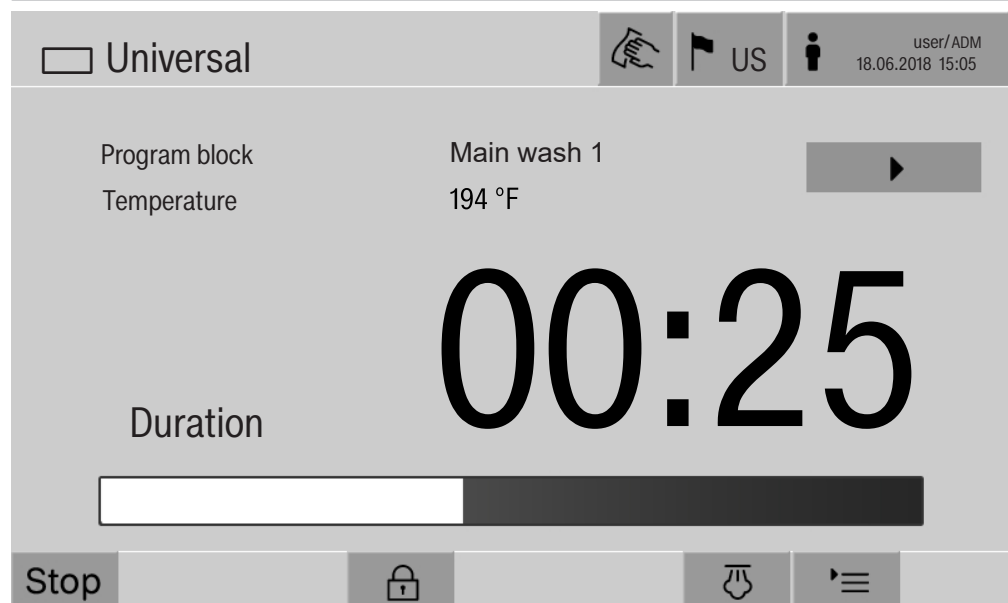
Newly created or modified reprocessing programs can be checked with the Program test. A program can only be enabled with the Checked parameter if a reprocessing program has run through the Program test without any faults (see programming manual, “Program administration”).

The Program test can be used to check the cleaning performance. During the program test, the program sequence stops after each program phase and the door on the infeed side can be opened so that a sample can be taken.

When you open the door between 2 program phases, please be aware of the following sources of danger:

- risk of burning and scalding after high-temperature program phases
- risk of contact with corrosive substances after program phases that dispense process chemicals
- risk of inhaling toxic vapors after program phases that use disinfectants

Steam that escapes from the machine after high-temperature phases can trigger a false alarm in smoke detectors.



After the reprocessing program has started, an additional ► button is displayed next to the program phase. The ► button has two functions:

- Continue the reprocessing program without opening the door.
- Skip the next program phase.

### Sampling example

- Press the Program test button.

The display shows the available load carrier options.

- Press the button for the required load carrier.

The available reprocessing programs are displayed.

- Press the button for the required reprocessing program.

The following message appears on the display:

Program test: Skip program block with ►. Door can be opened at end of each program block.

- Press **OK** to confirm the message.

The program start screen is displayed.

- Press the Start button.

The ► button is displayed – the start of the reprocessing program is delayed.

Before the water intake, the relevant program phases displayed can be skipped by pressing the ► button.

After each program phase, the following message will appear on the display before the wash water is drained:

Program test: Door can be opened to take sample..

- Press **OK** to confirm the message.

The ◀▶ and ► buttons are enabled.

- To take a sample, press the ◀▶ buttons to open the door.

- Once you have taken the sample, press the ▶◀ button to close the door.

The following message will appear on the display:

Continue program test? To continue, press OK. To open door, press ◀.

- Press **OK** to confirm the message.

The wash water is drained and the next program phase begins.

If a sample does not need to be taken after a program phase:

- Press the ► button.

The wash water is drained and the next program phase begins.

You can skip each program phase when it begins by pressing the ► button.

### Restarting

The Restart function shuts down the machine controls and then re-boots them. This Restart can be used, for example, when you get the prompt Switch machine off and on when you are troubleshooting.

- Press the Restart button.

The Restart? confirmation prompt is displayed. Press **OK** to restart or ↵ to cancel the process.

### Opening the data plate Menu

The following information is listed in the Data plate menu:

- Machine type
- Machine name
- Commissioning date
- Fabrication number
- Fabrication index
- Machine type
- Material number
- Software version

In addition to the Machine name parameter, an individual name can be entered for the machine.

- Press the button next to the Machine name parameter.

The on-screen keyboard is displayed for entering the machine name.

- Enter the name for the machine and press **OK** to confirm.

The assigned machine name is used:


- in the web interface
- in reprocessing reports
- in fault reports
- in data transferred to software for process documentation



## Managing favorites

You can define your 4 most commonly used programs as favorites in the Manage favorites menu.

If Automatic program allocation is not activated:

After the  Reprocessing button has been pressed, all reprocessing programs assigned to the load carrier are displayed.

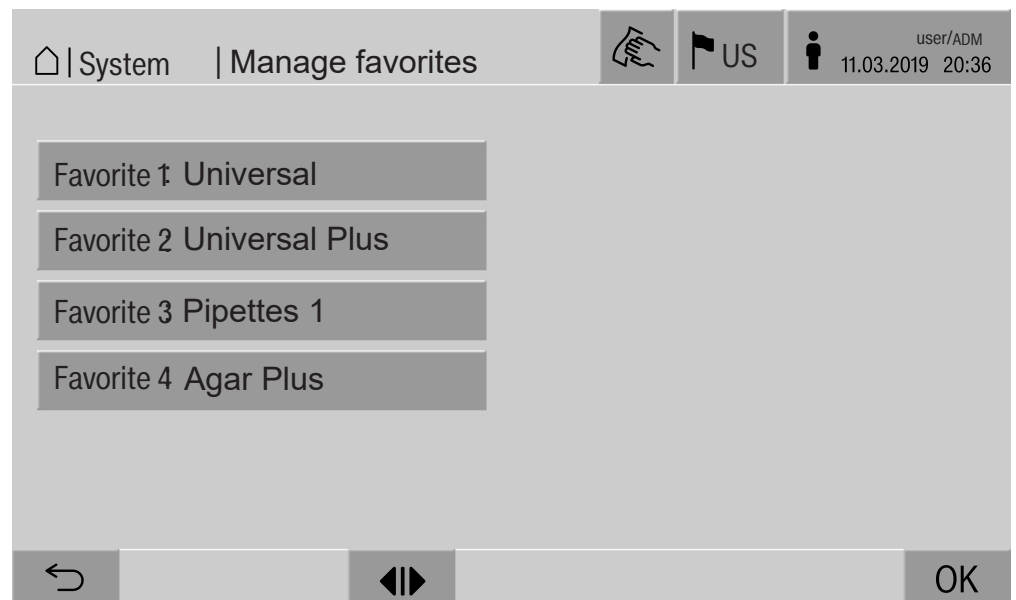
If you select the reprocessing program via the ☆ Favorites button instead, only the 4 reprocessing programs defined in the Manage favorites menu are displayed.

If none of the 4 favorites is assigned to the load carrier as a reprocessing program, the following message will appear on the display:  
No Favorites available for current load carrier.

To define favorites:

- Press the Manage favorites button.

4 buttons are displayed for the favorites.



- Press the Favorite 1 button.

The list of reprocessing programs is displayed.

- Press the button for the required reprocessing program; Universal in this example.

The name of the reprocessing program is displayed in the Favorite 1 button.

Define favorites 2–4 in the same way.

- Press **OK** to exit the menu.

## Maintenance measures

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### Maintenance

The machine should be serviced **every 2,000 hours of operation, or at least once a year**, by Miele Technical Service.

Maintenance covers the following points and functional checks:

- electrical safety check compliant with national rules and regulations (e.g., VDE 0701, VDE 0702)
- door mechanism and door seal
- any screw connections and connectors inside the wash cabinet
- water inlet and drainage
- internal and external dispensing systems
- spray arms
- filter combination
- sump including drain pump and drain valve
- wash mechanism/wash pressure
- all mobile units, modules, and inserts (charged separately)
- visual inspection and functional check of components
- a thermo-electric check
- leak test on seals
- safety testing of all relevant measuring systems
- safety features

Where applicable:

- Steam condenser
- Drying unit
- conductivity monitoring
- built-in printer

External documentation software and computer networks are not tested by Miele Service.

### **Routine checks**

Before the start of each working day, the operator must conduct a series of routine checks. A routine checklist is supplied with the machine.

The following items must be checked:

- all filters in the wash cabinet
- spray arms in the machine and in any mobile units, modules, or baskets
- the wash cabinet and the door seal
- dispensing systems
- mobile units, baskets, modules, and inserts
- the filters in the load carriers

### Cleaning the filters in the wash cabinet

The filters in the floor of the wash cabinet prevent coarse soiling from coming into contact with the circulation system. Filters can become blocked by soiling, so they need to be checked every day and cleaned as necessary.

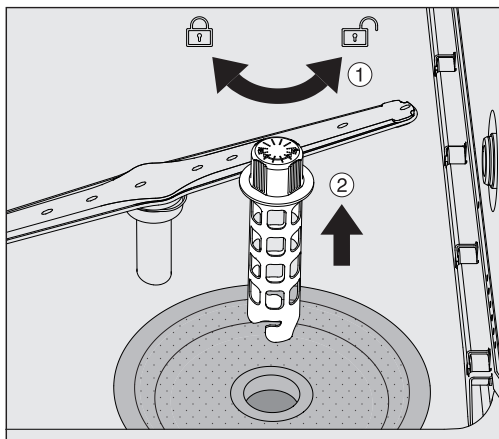
⚠ Risk of damage due to blocked waterways.

If the filters are not inserted, dirt particles will end up in the machine water circuit. The dirt particles may block the nozzles and valves.

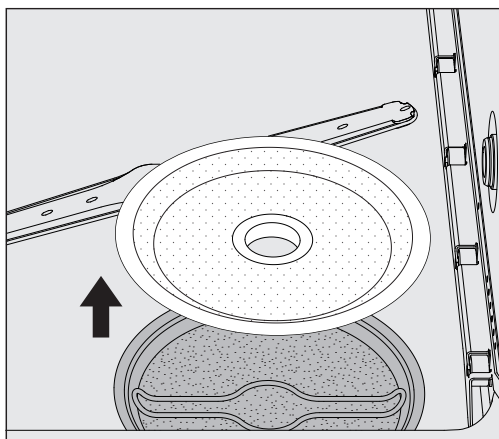
Only start a program if the filters are inserted.

Check that the filters are positioned correctly when you reinsert them after cleaning.

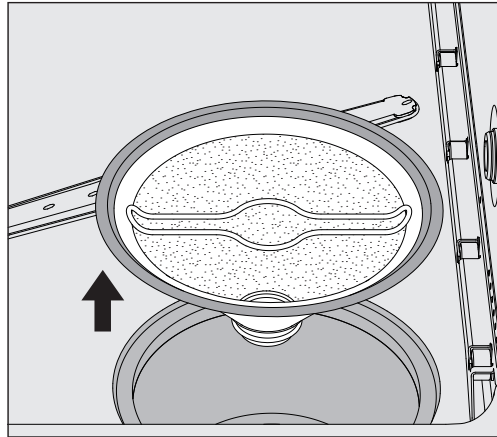
- Remove large bits of soiling from the surface of the filter.



- Turn the holder to the left to release it ① and remove it from the coarse filter ②.
- Rinse the holder under running water, paying particular attention to the perforation at the top end.



- Remove the coarse filter and rinse under running water.



- Remove the microfine screen filter.
- Remove deposits and soiling with running water, using a brush if necessary.
- Blast the microfine screen filter with compressed air against the direction of flow of the wash water.
- Insert the microfine screen filter back into the sump.
- Place the coarse filter on the microfine screen filter.
- Push the holder through the opening in the coarse filter and turn it to the right.

### Cleaning the spray arms

Waste particles can lodge in the spray arm nozzles. It is therefore important to inspect the spray arms daily.

The spray arms of the machine, some mobile units, and modules are labeled as follows:

- M1 = Bottom machine spray arm
- M2 = Top machine spray arm
- A1 = A 501, A 504 mobile unit spray arms
- A2 = A 603 module spray arm

Note the label on the spray arms when you reinsert these into the machine, mobile units, and modules.

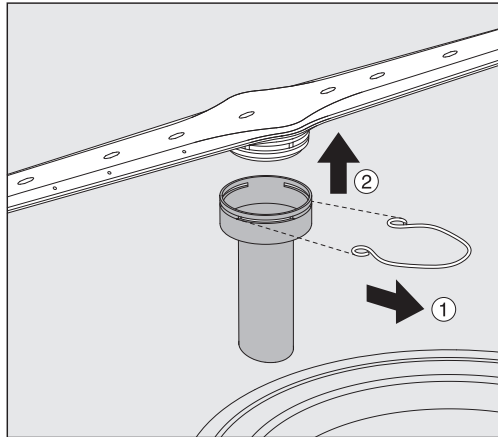
- Use a sharp pointed object to push visible particles into the spray arm nozzles and rinse well under running water.

## Maintenance measures

### Remove the spray arms as follows:

#### Machine spray arms

- Remove any mobile units from the wash cabinet.



- Loosen the securing clip on the spray arm connection, then pull the lower spray arm upward and the upper spray arm downward.

#### Spray arms on mobile units and modules

- Loosen the securing clip on the spray arm connection and then pull the spray arm downward.

If there is considerable visible wear on the spray arm bearings, contact Miele Technical Service as this can result in functional problems.

- Reinsert the spray arms after cleaning, then secure them with the securing clips. Ensure that the securing clips are seated correctly.

After replacing the spray arms, check that they rotate freely.

⚠ Unsatisfactory cleaning results due to an incorrectly measured spray arm speed.  
There are powerful magnets at the end of the spray arms. If metallic objects get stuck on these magnets, this can cause a false reading of the spray arm speed.  
Remove any metallic objects which are stuck to the magnets, such as instrument parts.

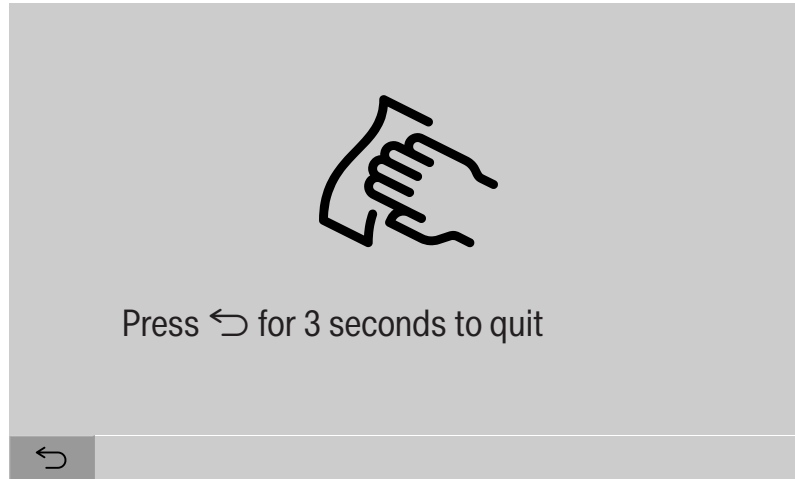
### Cleaning the machine

#### Locking the display

The machine display can be locked for cleaning and surface disinfection.

- Press the  button in the header.

The following will appear on the display:



- To unlock the machine display, hold the ↵ button for around 3 s.
- The glass door and the display should only be cleaned with a damp cloth or a suitable cleaning agent designed for use on glass.

#### Cleaning control elements and the glass door

Do not use any abrasive materials or general-purpose cleaners. These can cause considerable damage to the glass due to their chemical composition.

## Maintenance measures

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### Cleaning the front of the machine

- The stainless steel front should only be cleaned with a damp cloth and a cleaning and disinfecting agent or with a non-abrasive stainless steel cleaner.
- To help prevent resoiling (fingerprints, etc.), a suitable stainless steel conditioner can be used after cleaning.

Do not use cleaning agents containing ammonia or thinners!  
These agents can damage the surface material.

⚠ Risk of fire due to ingress of water.  
The pressure of a water jet can cause water to get into the machine.  
Never clean the machine or near vicinity with a water hose or a pressure washer.

### Cleaning the wash cabinet

The wash cabinet is mostly self-cleaning.

- However, if you notice a build-up of deposits, please contact Miele Technical Service for advice.

### Cleaning the door seal

- The door seal should be cleaned regularly with a damp cloth to remove any soiling.

Seals which are no longer tight or which have suffered damage must be replaced with new ones by Miele Technical Service.



### Checking mobile units, modules, and inserts

Mobile units, modules, and inserts should be checked daily to make sure they are functioning correctly. A checklist is supplied with the machine.

The following points must be checked:

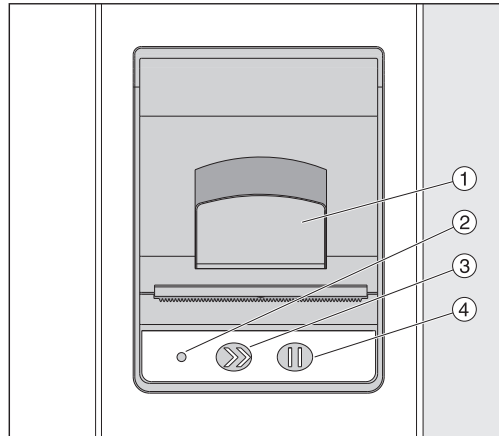
- Are the guide rails in good condition, and are they securely attached to their mobile units?
- Are the lock nuts for the guide rails tightened securely?
- Are the locking caps in the module connectors of the modular system mobile units working properly?
- Are all injector nozzles, irrigation sleeves, and hose adapters securely attached to mobile units or inserts?
- Are all injector nozzles, irrigation sleeves, and hose adapters clear so that wash water can flow through unhindered?
- Are all caps and fasteners securely attached to the irrigation sleeves?

If spray arms are present:

- Do the spray arms rotate freely?
- Are the spray arm nozzles free from blockages (see “Maintenance” – “Cleaning the spray arms”)?
- Are the magnets present at the end of the spray arms?
- Are the magnets at the end of the spray arms free from metallic objects?

Mobile units, modules, and inserts must be inspected periodically together with the machine after 2000 operating hours or at least once per year, see “Maintenance” – “Periodic checks”.
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### Built-in printer (optional)



- ① Lever for opening the flap
- ② LED
- ③ Paper feed
- ④ Acknowledgement button

LED status	Printer status
Off	Power supply fault
On	Ready for operation
1 x flash	Not ready for operation
2 x flash	Fault on the printer head
3 x flash	Paper jam/paper roll empty
4 x flash	Temperature fault

### Replacing the paper roll

The paper roll for the built-in printer must not be replaced while a program is running.

When the LED ② flashes three times, this indicates that the paper roll has run out. To replace the paper roll, proceed as follows:

- Pull the lever ① on the printer flap and lift the flap upwards.
- Take the empty paper roll out of the printer compartment and insert the new paper roll.

The end of the paper roll is on the bottom side of the compartment.

- Pull a bit of the end of the paper out of the compartment and close the printer flap.
- Cut off the protruding strip of paper.
- Press the acknowledgement button ④.

The printing process will continue.

### Thermal paper

Replacement rolls of thermal paper with a width of 2 3/8" (60 mm) and an external diameter of approximately 2" (50 mm) can be obtained from the machine manufacturer.

When this is stored under the following conditions, the text will remain legible for at least 7 years:

- no direct light
- constant room temperature between 64°F (18°C) and 77°F (25°C)
- relative humidity of max. 40–60%

The durability of the thermal printout is reduced by:

- a faulty printer head in the thermal printer
- the thermal printer being set incorrectly; the printout appears faded
- prolonged exposure to temperatures above 105°F (40°C)
- storage in a damp or wet environment over a long period
- contact with emollients, which are found in PVC films, for example
- contact with oils, fats, or alcohol
- contact with aggressive chemicals
- direct sunlight

Unfavorable conditions will cause the text on the printout to fade. The printout will not be legible and the data to be documented will therefore be lost.

Avoid all influences which will impair the durability of the thermal printout.

Prepare a backup copy on thermostable paper if necessary.

## Fault messages and instructions

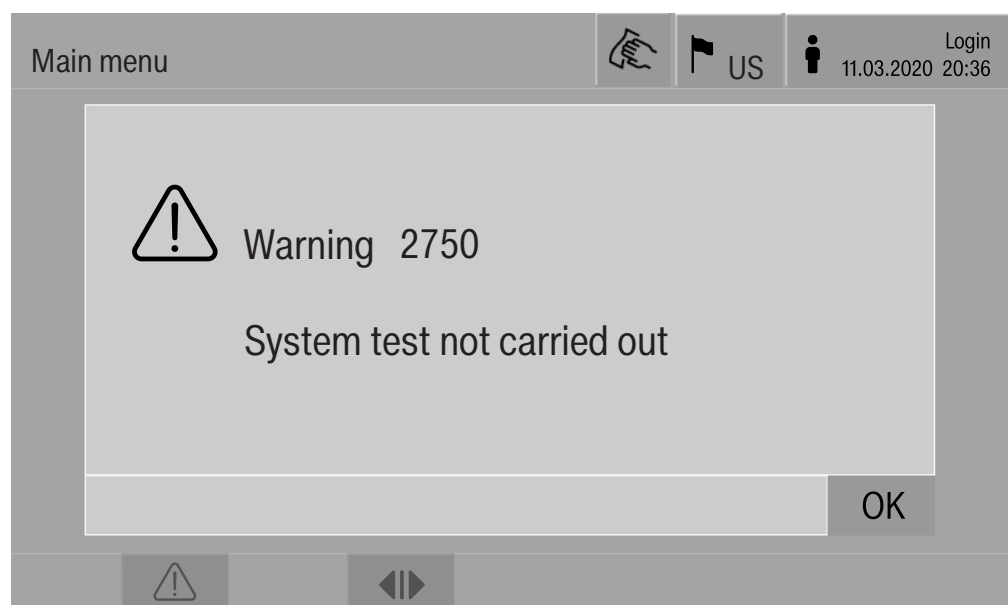
The fault messages on the machine display are designed to help you find the cause of the malfunction and to resolve it. However, please note the following:

⚠ Repairs should only be performed by Miele Technical Service or an authorized technician.  
Unauthorized repairs can expose the user to considerable risk.

### Representation of faults on the display

Machine warnings ⚠ and faults ⊗ are shown in the footer of the display. The symbol is used as a button to open the list with all messages.

**In the main menu** While the main menu is shown in the display, messages appear in a pop-up:



If messages are present for multiple faults and warnings, a pop-up appears for each one

The pop-ups are closed by pressing **OK**; the messages remain in the list of active messages.

It may be the case that a fault has occurred multiple times. If, for example, the system test could not be performed for 3 days, 3 pop-ups appear with the relevant message. The pop-up must be closed 3 times by pressing **OK**.

**In the program sequence**

The current message is displayed on the program sequence display in addition to the progress bar. The color of the progress bar changes depending on the type of message:

- Yellow for warnings ⚠
- Red for faults ⊗

## Technical faults on the machine

### List with active messages

Messages

 US

 user/BED  
18.06.2018 15:05

 2650 Timeout door gaskets inflation

28.01.2019

11:09

OK

 2478 Contact fault  
Load carrier in chamber

28.01.2019

10:32

OK

 2841 User ID unknown

28.01.2019

10:11

OK

 2750 System test not carried out

28.01.2019

10:06

OK

 2687 Peak-load cut-out DI water tank

28.01.2019

09:09

OK

 2651 Timeout door gaskets release

28.01.2019

09:09

OK





After a warning or fault symbol has been pressed in the main menu, the list containing all active messages is shown on the display. If the list contains more than 6 entries, a scroll bar will appear above the footer.

Moving the scroll bar opens the next page of the list.


The date and time of the occurrence are shown in addition to the fault number.

In the right-hand column, the warnings and faults can be acknowledged with **OK**. The buttons are only active when acknowledgement is possible.

Press the button with the message in the left-hand column to open the description of the fault number with information on rectifying the fault.

## Fault messages and instructions

### Troubleshooting

Fault	2841		 US	 user/BED 18.06.2018 15:05
Description	Confirm message with OK. Check user administration. If fault persists, contact Service.			
Machine type	PLW 8617			
Fabrication number	00 / 123456789			
<hr/>				
				OK

After a warning or fault button has been pressed in the message list, a message with information on rectifying the fault appears on the display.

Press **OK** to acknowledge the message and exit the menu.

Press ↶ to exit the menu without acknowledging the message.


The message list is shown again on the display.

### Technical faults without fault number

Problem	Possible cause and solution
<b>The machine display is dark.</b>	The machine display is not showing any information. This can be as a result of the following: <ul style="list-style-type: none"> <li>– The display is faulty.</li> <li>– The connecting cable between the display and the controls is faulty.</li> <li>– The plug connection is faulty.</li> </ul> <b>■ Contact Miele Technical Service.</b>
	The machine is not switched on. <b>■ Press the I power switch.</b>
	An external residual current device (RCD) has switched. <b>■ Inform building services.</b>
	An external emergency off switch was activated. <b>■ Inform building services.</b>
<b>The wash water in the machine wash cabinet is not drained after a program cancellation.</b>	In the program head of the reprocessing program, the Drainage after disinfection parameter is active. <b>■ Manually disinfect wash water and use the Manual disinfection program to remove it from the wash cabinet (see “Operation, program cancellation, program cancellation with manual disinfection”).</b>

## After sales service

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 Repairs should only be carried out by Miele Technical Service or an authorized technician.  
Unauthorized repairs can expose the user to considerable risk.

To avoid unnecessary service visits, check that the fault has not been caused by incorrect operation when a fault message first appears.

Fault messages appear on the machine display.

Notify Miele Technical Service if you are still not able to resolve the problem after following the advice on the machine display.

Miele Technical Service will need to know the model and serial number of the machine. These can be found on the data plate (see “Electrical connection”).



⚠ All electrical work must be carried out by a qualified electrician in accordance with local and national safety regulations.

- The electrical installation must be in compliance with current local and national safety regulations (DIN VDE 0100 in Germany).
- The connection to the power supply must comply with national regulations. The power outlet must be accessible after the machine has been installed. An electrical safety test must be carried out after installation and after any servicing work.
- If the machine is hard-wired to the power supply, a power switch capable of disconnecting the machine at all poles must be installed. This power switch must be designed to operate at the rated current, have a contact gap of at least 1" (3 mm), and also be lockable in the off position.
- If necessary, equipotential bonding must be carried out.
- The rated loads are specified on the data plate and in the circuit diagram supplied with the machine.
- The rotational direction of motorized power units depends on the electrical connection of the machine. Machine phases must be connected in the correct sequence (clockwise rotating field).
- For added safety, the cleaning machine should be protected by a type B residual current device with a trip current of 30 mA (DIN VDE 0664).

You can find more information on electrical connection in the installation diagram supplied with the machine.

The machine must only be operated with the voltage, frequency, and fuse rating shown on the **data plate**.

The **data plate** showing relevant certification marks is located behind the service cover on the infeed side of the machine.

The **wiring diagram** is supplied with the machine.


### **Electromagnetic compatibility (EMC)**

The machine has been tested for electromagnetic compatibility (EMC) in accordance with EN 61326-1 and is suitable for operation in commercial environments, such as hospitals, medical practices, and laboratories plus other similar environments which are connected to the domestic electrical supply.

The machine's high frequency (HF) energy emissions are very low and are therefore unlikely to interfere with other electronic machines in the vicinity.

Flooring in the installation area must be wood, concrete, or tiled. Synthetic flooring must be able to withstand a relative humidity level of at least 30% to minimize the risk of electrostatic discharges.

The quality of the power supply should comply with that found in a typical commercial or hospital environment. Check that the power supply voltage is within a range of +/-10% of its nominal value.

 Health risk and risk of damage due to contaminated incoming water.

Machine must be connected to a potable tap water supply.

Please refer to the installation diagram supplied with the machine.

- If the water supply has a high iron content, there is a risk of corrosion occurring on wash items and the machine itself.
- If the chloride content of the water exceeds 100 mg/l, the risk of corrosion on wash items being cleaned in the machine will be further increased.
- In certain regions, the water composition may cause precipitates to form, requiring the use of softened water in the steam condenser.

## Technical details

Height	98 1/4"	2495 mm
Width	45 1/4"	1150 mm
Depth	39"	990 mm
Wash cabinet dimensions: Height Width Depth	26 9/16" 35 7/16" 39"	675 mm 900 mm 990 mm
Net weight incl. stand and top-box paneling	1052 lb	477 kg
Net weight plus EL/S, DU, SC, CT *	1470 lb	667 kg
Operating weight	1989 lb	902 kg
Distributed load (max. load-bearing capacity)	7.8 kN/m <sup>2</sup>	7.8 kN/m <sup>2</sup>
Voltage, rated load, fuse rating	See data plate	See data plate
Compressed air connection technical	87–116 psi	600–800 kPa
Steam connection (optional)	36–145 psi	250–1,000 kPa
Water connection water temperature: Cold water/steam condenser Hot water/DI water	41–68°F 41–149°F	5–20°C 5–65°C
Water connection pressure	29–145 psi	200–1,000 kPa
Operating conditions: Ambient temperature Relative humidity: Minimum Maximum for temperatures up to 201°F (31°C) Decreasing linearly for temperatures up to 104°F (40°C)	41–104°F  10% 80% 50%	5–40°C  10% 80% 50%
Storage and transportation conditions: Ambient temperature Relative humidity Air pressure	-4 to +140°F 10–85% 72–153 psi	-20 to +60°C 10–85% 500–1,060 kPa
Altitude above sea level	6,561 ft*	2,000 m*
Type of protection (according to IEC 60529)	IP 20	
Degree of soiling (according to IEC/ EN 61010-1)	P2	
Overvoltage category (according to IEC 60664)	II	
Sound pressure level LpA during cleaning and drying	<65 dB(A) re 20 µPa	

## Technical details

Certification marks	UL 61010-1:2012-05 CA/CSA C22.2 No. 61010-1-12, UL 61010-2:0-40 CA/CSA C22.2 No. 61010-2-16
CE mark	Machinery Directive 2006/42/EC
Manufacturer's address	Miele & Cie. KG, Carl-Miele-Str. 29, 33332 Gütersloh, Germany

\* If installed above 4,921 ft (1,500 m), the boiling point of the wash water will be lower. Therefore, the disinfection temperature and the holding time might need to be adjusted.

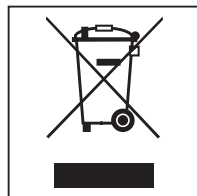
### Disposal of the packing material

The cardboard box and packing materials protect the appliance during shipping. They have been designed to be biodegradable and recyclable.

Ensure that any plastic wrappings, bags, etc. are disposed of safely and kept out of the reach of children. Danger of suffocation!

### Disposing of your old machine

Electronic and electrical appliances contain many valuable materials. They also contain certain materials, compounds, and components which were essential for their correct functioning and safety. These could be hazardous to your health and to the environment if disposed of with general waste or if handled incorrectly. Please do not, therefore, dispose of your old appliance with general waste.



Instead, please make use of officially designated collection and disposal points to dispose of and recycle electrical and electronic appliances in your local community, with your dealer, with Miele, or with the manufacturer. By law, you are solely responsible for deleting any personal data from the appliance prior to disposal. Please ensure that your old appliance poses no risk to children while being stored for disposal.

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## Appendix

## Appendix

### User rights in the Main menu

Action	Without message	Automatic	Operator	Technician	Administrator
Open and close the loading door	●	●	●	●	●
Open and close the unloading door after the end of a program depending on the Authentication - End of program setting in the web interface	●	●	●	●	●
Select the electric or steam heating method (see “Machine description”)	●	●	●	●	●
Change the display language	●	●	●	●	●
Close popups with messages depending on the type of message, warning, or fault message	●	●	●	●	●
Change the screen view in the current program (see “Machine description”)	●	●	●	●	●
Select and start program (see “Operation”) depending on the program administration settings in the web interface		●	●	●	●
Cancel the program (see “Operation”)	●	●	●	●	●
Print out process documentation			●	●	●



## User rights in the System menu

Main menu/System		Without message	Automatic	Operator	Technician	Administrator
Network connections	Change PIN		●	●	●	●
	Pairing				●	●
	Network				●	●
	Printer				●	●
	Certificate presentation				●	●
Machine functions	Self-disinfection			●	●	●
	Continuous program					●
	Fill dispensing system			●	●	●
	Filter maintenance				●	●
	Set up dispensing system				●	●
	Adjust conductivity module				●	●
	Program test					●
Restart				●	●	●
Data plate					●	●
Manage favorites						●

## Appendix

### Power levels of the programs/Mobile units/Module combinations

Mobile unit	Modules	Programs/Power levels
A 500	- A 603	Mini Standard Universal Intensive Organic Inorganic Oil Agar Plastics Laboratory Special
A 501		Mini Plus Standard Plus Universal Plus Intensive Plus Organic Plus Inorganic Plus Oil Plus Agar Plus Plastics Plus Laboratory Special Plus
A 503	- 1–3 x A 605 A 605 modules can be replaced with A 620 modules, for example	Vials
A 503	- 4–6 x A 605 A 605 modules can be replaced with A 620 modules, for example	Vials Plus
A 503	- 1 x A 613 plus a maximum of 4 other modules, e.g., A 620	Pipettes 1
A 503	- 2 x A 613 plus a maximum of 2 other modules, e.g., A 620	Pipettes 2
A 503	- 3 x A 613 No extra modules can be added	Pipettes 3

Mobile unit	Modules	Programs/Power levels
A 503	1–3 modules: - A 606 - A 612 - A 620 - A 621 - A 622 - A 623	Mini Standard Universal Intensive Organic Inorganic Oil Agar Plastics Laboratory Special
A 503	4–6 modules: - A 606 - A 612 - A 620 - A 621 - A 622 - A 623	Mini Plus Standard Plus Universal Plus Intensive Plus Organic Plus Inorganic Plus Oil Plus Agar Plus Plastics Plus Laboratory Special Plus
A 503	1–6 modules	Drying
A 505 A 506 A 508 E 900-4/2 E 900-5/2 E 935/2 E 940 E 950/1 E 957 E 975/2		Mini Plus Standard Plus Universal Plus Intensive Plus Organic Plus Inorganic Plus Oil Plus Agar Plus Plastics Plus Laboratory Special Plus

## Appendix


Mobile unit	Modules	Programs/Power levels
E 941	<ul style="list-style-type: none"> <li>- 1–4 E 943/2</li> <li>- 1–4 E 944/2</li> <li>- 1–2 E 945/2 + 2 extra modules: E 943/2 or E 944/3</li> </ul>	Mini Plus Standard Plus Universal Plus Intensive Plus Organic Plus Inorganic Plus Oil Plus Agar Plus Plastics Plus Laboratory Special Plus
E 941	- 1–4 E 947/2	Vials Plus

If the E 942/3 modules are to be used for pipettes, please contact Miele.

### Service programs

Mobile unit	Modules	Power levels/ program
Zero	- Without modules	Tank emptying
All mobile units	- Without restriction	Manual disinfection

## Power levels of the programs/Mobile units/Module combinations for the APLW 511

Programs with “Max” power level must be entered manually in the web interface as Customer program in the  Program control. To do this, copy the corresponding program from the Plus power level and adjust the program parameters.

Programs with the other two power levels must be adjusted in line with the water consumption of the APLW 511. To do this, copy the corresponding program and increase the volume of water by 1–2 l/Block with the +/- Water program parameter.

Mobile unit	Modules	Programs/Power levels
APLW 511	1–3 modules: - A 620 - A 621 - A 622	Mini Standard Universal Intensive Organic Inorganic Oil Agar Plastics Laboratory Special
APLW 511	4–6 modules: - A 620 - A 621 - A 622	Mini Plus Standard Plus Universal Plus Intensive Plus Organic Plus Inorganic Plus Oil Plus Agar Plus Plastics Plus Laboratory Special Plus
APLW 511	7–9 modules: - A 620 - A 621 - A 622	Mini Max Standard Max Universal Max Intensive Max Organic Max Inorganic Max Oil Max Agar Max Plastics Max Laboratory Special Max

### Optional extras

Equipment	Standard	Option
Drain valve (DV)	X	
Electric heating (EL)	X	
Conductivity monitoring (CS)	X	
Spray arm monitoring (RS)	X	
Option to switch between steam/electric heating for wash cabinet and DI tank (if present) (EL/S)		X
Recycling tank (RT)		X
DI tank (TH)		X

### Additional options:

1–4 additional internal dispensing systems (DS)
Drain pump (DP)
Steam condenser (SC)*
Built-in printer for process documentation (PR)
Drying unit (DU)

\* Only in combination with a drying unit





**Please have the model and serial number  
of your machine available when  
contacting Technical Service.**

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