Míele

Operating instructions
Washer-disinfector
PLW 8617 Safety

Always read the operating instructions before setting up, installing and commissioning the machine. This prevents both personal injury and damage to the machine.

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Notes about these instructions

Important warnings

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

Notes

> Information of particular importance that must be observed is highlighted in a thick 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 that used for the function itself in the display.

Example:

Settings ⚑ menu.

Definition of terms

Machine
In these operating instructions, the laboratory washer is referred to as "the machine".

Load items
The term "load items" is used wherever the items to be processed are not defined in any further detail.

Wash water
The term "wash water" is used for the mixture of water and process chemicals.

Process chemicals
All media dispensed during a programme sequence are generally referred to as process chemicals, e.g. cleaning agents.

General description

The machine is designed for use in professional, works and volunteer fire brigades for the purposes of reprocessing breathing apparatus.

How it works

The laboratory washer is designed for machine cleaning and disinfection of breathing apparatus and similarly categorised components and parts. For the purposes of cleaning and disinfection, heated wash water is sprayed onto the load items by spray arms. The cleaning and disinfection process is supported by suitable process chemicals. Integrated process monitoring ensures standardisation and reproducibility.

The use of suitable load carriers (mobile units, modules, inserts, etc.) is important to ensure adequate cleaning and protection of the load items.

Purpose

This Miele laboratory washer can be used to clean, rinse and chemically disinfect breathing apparatus for professional use that can be reprocessed by machine. Information issued by the manufacturers of the breathing apparatus must be heeded.

The laboratory washer may only be used with load carriers and other components that have been approved for the machine by the manufacturer and are designed for the breathing apparatus.

Loading

Breathing apparatus, e.g.:

- Air regulators

- Breathing masks

- Compressed air units

- Carrier frames for compressed air units

- Compressed air bottles

Intended user group

The machine may only be used by trained professionals who have the necessary level of specialist knowledge to reprocess breathing apparatus such as air regulators, breathing masks, compressed air units, carrier frames for compressed air units and compressed air bottles.

Frequency of use

Average use is 2 cycles per day.

Appropriate use

Use environment

Installation site

The installation site is a respiratory protection workshop or an enclosed space that is suitable for the intended use.

The machine should only be operated in locations in which the ambient conditions meet the following requirements:

Operation in accordance with IEC/EN 61010-1

Ambient temperature	5–40 °C
Relative humidity	
Minimum	10 %
Maximum for temperatures up to 31 °C	80 %
Linear decrease for temperatures up to 40 °C	50 %
Altitude above sea level	Up to 2000 m

Conditions of use

The machine may not be used with organic solvents or inflammable or foaming liquids.

The breathing apparatus must only be contaminated with the usual soiling from fire brigade operations or exercises. Manual pre-cleaning is required if the apparatus is heavily soiled with soot.

Soiling such as ash, sand, wax, lubricants or paint must not be introduced into the wash cabinet.

Some machine variants feature active drying. Depending on the application in question, complete (internal) drying of the load items must be ensured after reprocessing without active drying.

Foreseeable misuse

The machine may not be used for breathing apparatus that has not been approved for machine reprocessing by the manufacturer.

The machine may not be used for reprocessing any products other than breathing apparatus, especially medical devices.

Failure of the operator to comply with routine checks and regular service intervals.

Failure to observe the specified installation requirements.

User administration

Access to the machine is restricted to a certain group of people. Authorised 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 programme 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. In addition, operators must be trained in line with the national requirements for reprocessing personal protective equipment, such as air regulators and breathing masks.
Day-to-day work is carried out using the following user levels:

- Without login

- Automatic

- Operator

Service work

Adaptations of the machine, e.g. to 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 personal protective equipment, the process technology involved and applicable standards and legislation.
They are carried out using the following user level:

- Administrator

Product description

Appliance overview

Infeed and out-feed side
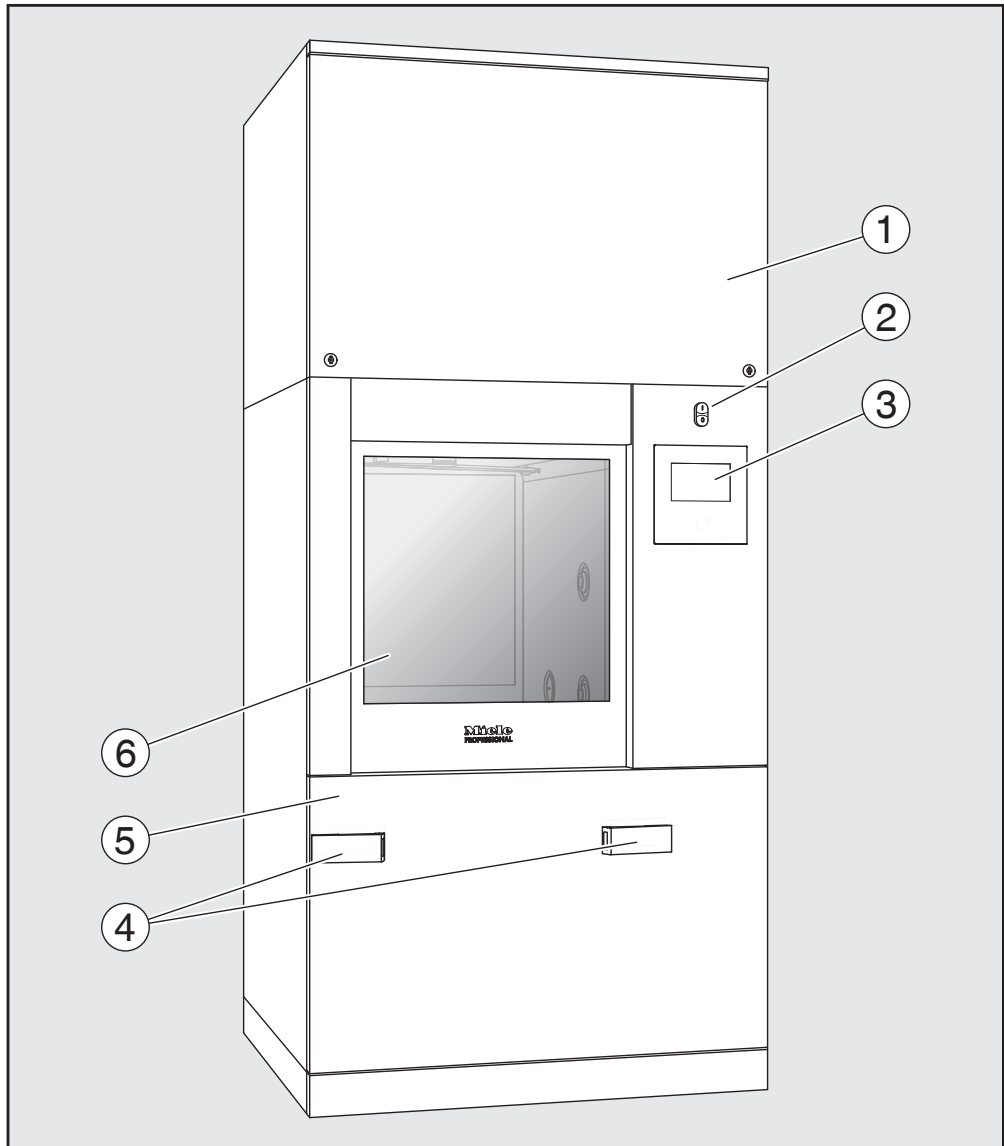
① Service panel for service staff

② **I/0** power switch

③ Display

④ Docking system for transfer trolley,
   service panel lock

⑤ Service panel

⑥ Door closed

10

Infeed and out-feed side without service panel
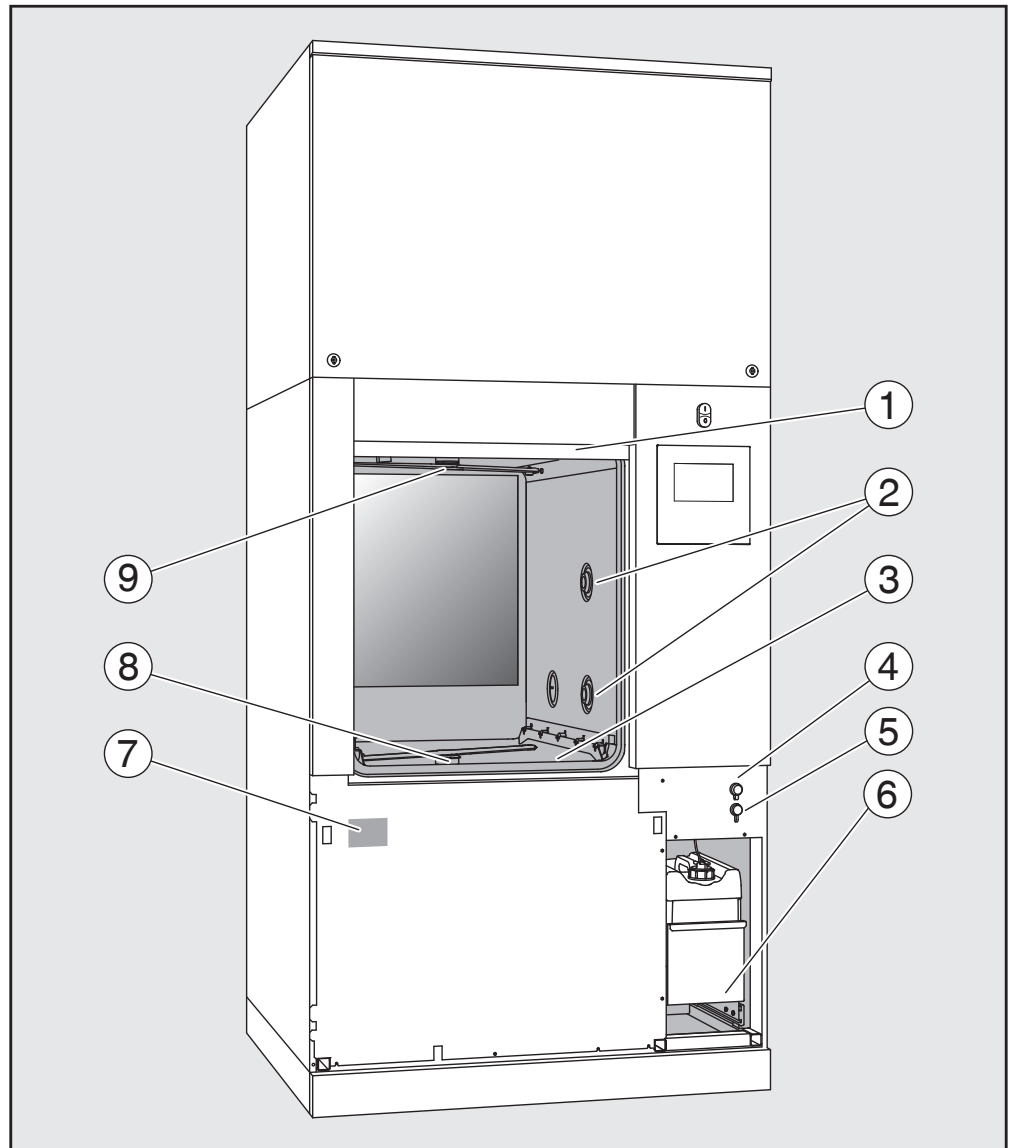
① The door is open

② Water supply for load carriers

③ Filter combination

④ USB port

⑤ Connection for Miele Customer Service Department

⑥ Drawer with containers and connections for process chemicals

⑦ Data plate

⑧ Lower machine spray arm

⑨ Upper machine spray arm

Product description

Control elements on the display

Main menu

The machine display shows the control elements light on a black background. In these operating instructions, the display is shown as black on a light background in order to improve legibility.
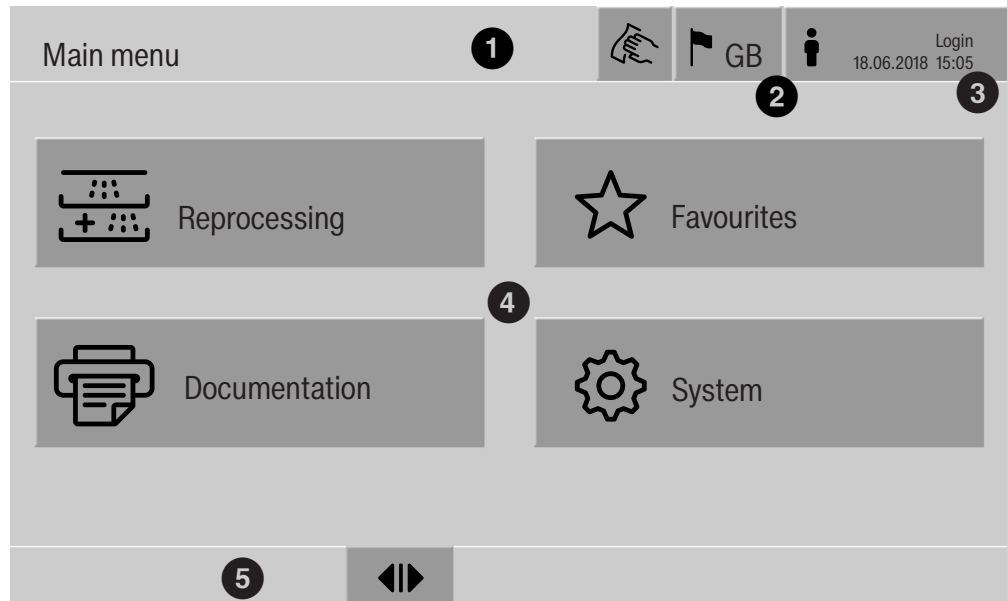
① Header

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 behind the symbol, e.g. GB
👤	Opens the login or logout dialog, e.g. to switch users

Symbols in the main menu

Symbol	Description/function of the button
⊞ Reprocessing	Opens the list of reprocessing pro-grammes which are assigned to the load carrier
☆ Favourites	Opens the list of favourites
🖶 Documentation	Opens the list of available reprocessing reports
⚙ System	Opens the configuration menu, e.g. for network settings or to change the PIN
i	Information
⋯	Please wait, the controls are busy

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
↩	Leave menu, go back to previous menu level, do not save entries
OK	Confirm entries

Product description

Programme start display

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

☐ Universal	👆	⚑ GB	🧍	user/USER 18.06.2018 15:05

Time left

01:26

| ↩ | | ◀▮▶ | 🔒 | | ♨ | ⟳ | Start |
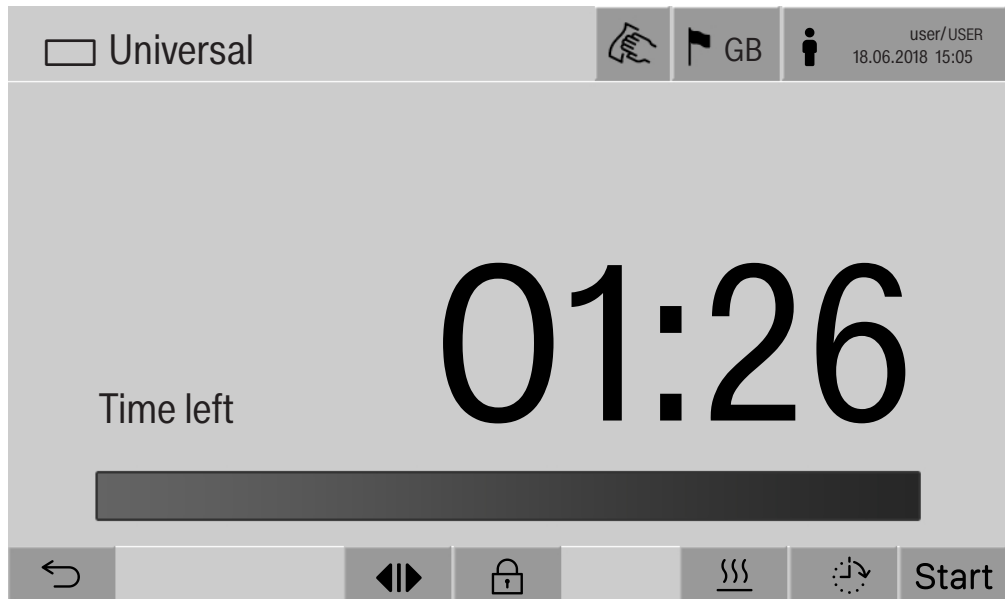
The pictogram of the load carrier and the selected reprocessing programme are displayed in the header.
The duration and a progress bar are shown on the display.

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

- Black for ready for use

- White for an ongoing reprocessing programme

- Green for a reprocessing programme that has been successfully completed

- Yellow for warnings

- Red for faults

Programme start/
programme se-
quence buttons/
symbols

Symbol	Description/function of the button
Start	Programme start
Stop	Programme cancellation
⌛	Opens the input screen for selecting the start time
🔒	Door locked
▸≡	Shows the programme sequence display in the default view
In/Out	Schematic programme sequence display, contains inform- ation for the Customer Service Department
⟋	Displays the programme sequence as a diagram
☴	Selects the steam heating method
⌇⌇⌇	Selects the electric heating method
⌇⌇⌇+☴	Selects the electric and steam heating method
– (next to the pro- gress bar)	Displays the current faults and warnings in the progress bar

Heat-up
context menu (op-
tional)

> 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 programme sequence. The selected setting is used for heating up the wash water and the demineralised water in the demineralised water tank.

> The selected setting is applied permanently in the machine controls.

Press the ⌇⌇⌇ button to open the context menu.

Product description

Example of a pro-
gramme sequence
display

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

▭ Universal   ☞ ⚑ GB   user/USER
18.06.2018 15:05

Programme block	Main wash 1
Temperature	**75 °C**

Duration   **UU.ZJ**

Stop   🔒   ⌂ ≔
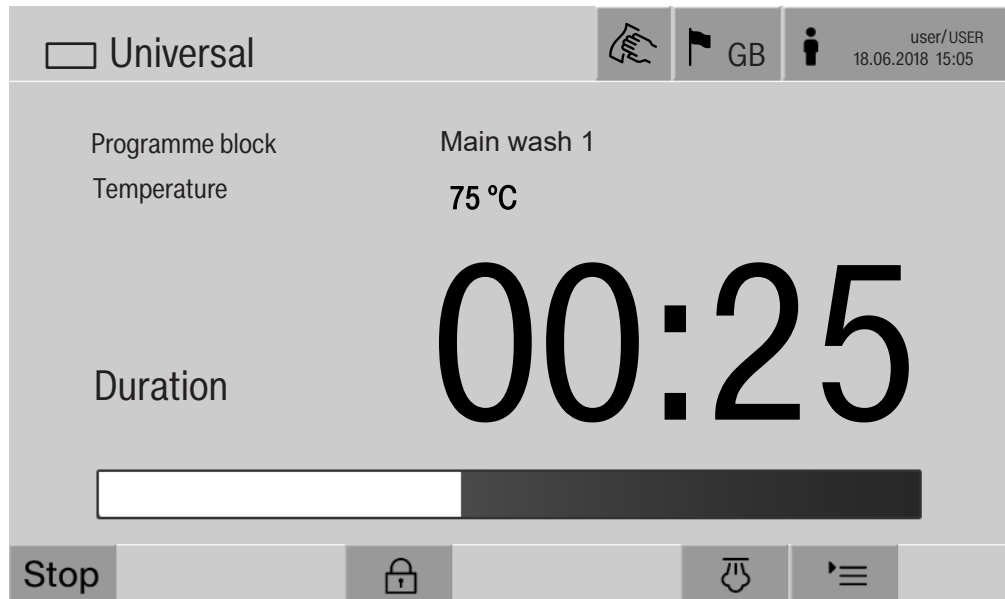
The current programme phase and the temperature reached are also shown on the display.
The progress bar indicates the ratio between the duration and the time left.

Programme se-
quence display
context menu

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

- Standard ≔
- Table ▦
- In/Out chart – In/Out
- Graphical |∿

▦ In/Out |∿

Stop   🔒   ⌂ ≔

Press the ≔ button to open the context menu.

Table programme sequence display	Once you have switched to the table display of the programme sequence using the ⊞ button, the following data is shown:

- Block name
- Time remaining in the programme phase
- Holding time
- Programme parameters with the associated expected and actual values and minimum/maximum values achieved

You can scroll to other pages using the scroll bar.

The maximum possible programme parameters are as follows:

- 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, measured values from sensors 1 and 2
- Temperature in the dispensing phases 1 to 3, measured values of sensors 1 and 2
- Temperature of the air during drying inside in phases 1 and 2
- Temperature of the air during drying outside in phases 1 and 2
- Water volumes in the programme step and the programme phase
- Dispensed quantities of the dispensing systems used
- A0 value
- Conductivity in the water intake and drainage
- Wash pressure for the inner wash water circuit and the PowerPulse-Cleaning
- Spray arm speeds

Product description

In/Out chart programme sequence display

The In/Out chart contains information about the input signals (page 1), the output signals (page 2) and specific sensor measurements:

- Wash water temperature
- Air temperature
- Circulation pump wash pressure
- Conductivity

This information is used by service staff and is not explained in these operating instructions.

Graphical programme sequence display

Once you have switched to the graphical view of the programme sequence using the ⌐ button, the following values are displayed as curves:

- Wash water temperature [W]
- Air/external-drying temperature [EA]
- Air/internal drying temperature [IA]
- Internal wash pressure [P]

> ⚠ 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 prevent both personal injury and damage to the machine.
>
> Keep the operating instructions in a safe place.

Correct application

▶ Use of the machine is only permitted for the applications expressly approved 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 air regulators, breathing masks, carrier frames and compressed air bottles for compressed air units which are designated as suitable for machine reprocessing by the manufacturer. The information provided by the manufacturer of the load items must be observed.

▶ Follow the warnings and instructions provided by the breathing apparatus manufacturer.

▶ This machine is intended for indoor use 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 lamps may only be fitted by the Miele Customer Service Department.

Risk of injury

Please pay attention to the following notes to avoid injury

▶ 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 it is correctly earthed. 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 mains immediately and call the Miele Service Department.

▶ Label machines which have been taken out of operation and secure them from being switched on again without authorisation. The machine may only be put back into operation once it has been successfully repaired by the Miele Customer Service Department.

Warnings and safety notes

▶ Personnel operating the machine should be trained regularly. Untrained personnel must not be allowed access to the machine or its controls.

▶ Take care when handling chemical agents. These may contain irritant, corrosive or toxic ingredients.
Please observe the chemical agent manufacturer's safety instructions and safety data sheets.
Wear protective gloves and goggles.

▶ The machine is designed for operation with water and recommended additive chemical agents only. Organic solvents and flammable liquid agents must not be used in it.
This could cause an explosion, damage rubber or plastic components in the machine and cause liquids to leak out of it.

▶ Any seals on the load items should be protected against prolonged contact with wash water. Therefore, always close unused connections with protective caps or blind covers.

▶ The water in the cabinet must not be used as drinking water.

▶ Be careful when sorting items with pointed ends. Position them in the machine so that you will not hurt yourself or create a danger for others.

▶ When using this machine in the higher temperature ranges, be especially careful not to scald or burn yourself or come into contact with irritant substances when opening the door. Where disinfecting agents are used there is a danger of inhaling toxic fumes.

▶ Where there is a risk of toxic or chemical substances occurring in or leaking into the suds solution (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 programme interruption carries particular risks in such circumstances.

▶ Should personnel accidentally come into contact with toxic vapours or chemical agents, follow the emergency instructions given in the manufacturer's safety data sheets.

▶ After using the hot air drying unit, open the door to allow the everything in the cabinet from the load itself to the mobile units, modules and inserts to cool down.

▶ Mobile units, modules, inserts and the load must be allowed to cool down before they are unloaded. Any water remaining in containers could still be very hot. Empty them into the wash cabinet before taking them out.

▶ If the compressed air indicator for the insert for reprocessing air regulators shows that the pressure is too low or medium-pressure hoses of the air regulators have disconnected from the quick-release couplings, the wash water can enter the air regulators. Particles may also get into the air regulators and impair their function.
Check the air regulators for moisture and particles in accordance with the information from the manufacturer.

▶ Steam heating is permissible up to a pressure of 1000 kPa. This corresponds to a water steam temperature of 180 °C.

▶ Never clean the machine or near vicinity with a water hose or a pressure washer.

▶ There may be a risk of slipping if liquid is spilt on the floor depending on the type of flooring and footwear being worn. 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 mains electricity 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 reprocessing breathing apparatus and to avoid damage to the loads being cleaned.

▶ If it is necessary to interrupt a programme in exceptional circumstances, this may only be done by authorised personnel.

▶ The standard of cleaning and disinfection must be routinely confirmed by the user. The process should be validated on a regular basis, and checked against documented control results.

▶ 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 aluminium items can be machine processed using special procedures only.
Items containing iron, and soiling containing residual rust must not be placed in the cabinet.

▶ Chemical agents can, in certain circumstances, cause damage to the machine. Always follow the recommendations of the chemical agent manufacturer.
In case of damage or doubt about compatibility, please contact Miele.

▶ Abrasive substances must not be placed in the machine as they could cause damage to the mechanical components of the water supply. Any residues of abrasive substances on items to be washed must be removed without trace before reprocessing in the machine.

Warnings and safety notes

▶ Pre-treatments with cleaning or disinfecting agents can create foam, as can certain types of soiling and chemical agents. Foam can have an adverse effect on the cleaning and disinfection 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.

▶ Even when a process chemical, e.g. cleaning agent, is recommended, the machine manufacturer takes no responsibility for the effect of such process chemicals on the load.
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 (e.g. oxyhydrogen explosion).

▶ Always follow the relevant manufacturer's instructions on storage and disposal of chemical agents.

▶ Particles ≥ 200 μm 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 chemical agents, water quality etc. are discussed with the Miele Application Technology specialists.

▶ Mobile units, modules and inserts should only be used for the purpose they are designed for.
Hollow instruments must be thoroughly cleaned, internally and externally.

▶ 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.

▶ 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 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 vented. If this is not done, components can be damaged.

▶ Follow the installation instructions in the operating and installation instructions.

Use of components and accessories

▶ Only Miele accessories should be connected to this machine. They must be suitable for the application they are required for. Consult Miele for details on the type of accessories that can be used.

▶ Only use Miele mobile units, baskets and inserts with this machine. Using mobile units and inserts made by other manufacturers, or making modifications to Miele accessories can cause unsatisfactory cleaning results, for which Miele cannot be held liable. Any resultant damage would not be covered by the guarantee.

▶ 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 load and the machine.

Warnings and safety notes

Symbols on the machine
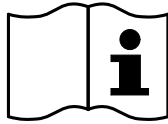
Warning:
Observe the operating instructions!
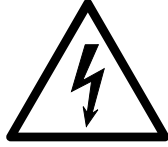
Warning:
Danger of electric shock!

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

Disposing of your old machine

▶ Please note that, depending on the application, the old 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, e.g. user names.

Main menu

| Main menu | ☞ | ⚑ GB | 👤 | Login 18.06.2018 15:05 |

| ▦ Reprocessing | ☆ Favourites |
| 🖨 Documentation | ⚙ System |

◀▮▶
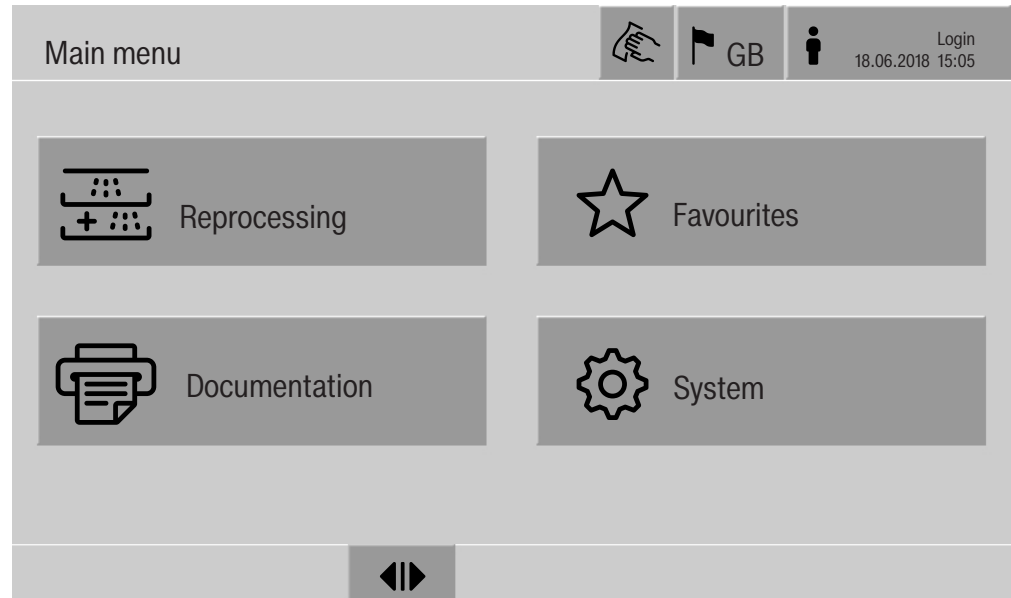
| **Actions in the Main menu** | The main menu of the machine is split into headers and footers and 4 menus. The following actions can be performed using the buttons: |

- Lock the display, e.g. for surface disinfection (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 error message (see "Error messages and instructions")

- Open the list of active messages (see "Error messages and instructions")

- Select and start a reprocessing programme depending on the settings in the Programme management menu in the web interface (see "Operation")

- Call up and start reprocessing programmes stored as Favourites depending on the settings in the System, Manage favourites 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 infeed door

- Open and close the outfeed door after the end of a programme depending on the Authentification - End of programme setting in the web interface

Main menu

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.

| | | ☞ | ⚑ | 👤 |
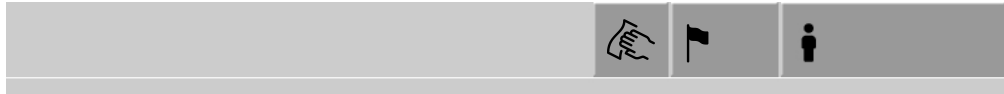
■ Press the ⚑ button in the header of the display.

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 in the web interface (see programming handbook, "User administration").

Manual login

| | | ☞ | ⚑ | 👤 |
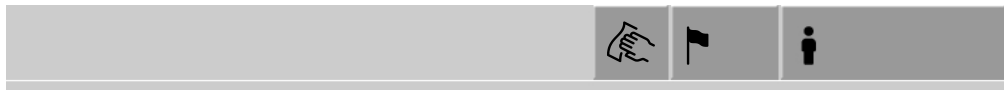
■ Press the 👤 button in the header to open the user login window.

■ 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 set a new PIN.
> If the PIN has expired, this prompt will be displayed for the user. The validity period of the PIN can be set in the web interface under "System, Identification".

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

- Press the ï 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 saved reprocessing reports exceeds 200, the oldest from the list is deleted.
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.

Printing 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.

Main menu

Downloading

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.

| ⏻ | | ◀▮▶ | | �ロ | OK |

■ 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 1GB minimum capacity 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 USB. This can take several minutes.

- Reprocessing reports copied successfully. Please remove 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. |

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.

Areas of application

General information

Transfer trolley

A TT 86 transfer trolley is used for transporting load carriers from preparation areas to the machine, and from there to checking and packing tables.
In order to use transfer trolleys of type MF 27/28-1, the machine must be fitted with the conversion kit RFMF 27/28.

Transfer trolleys are supplied with their own operating instructions.

Transfer trolleys of type MF-1 are not permitted for use.

Load carriers

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

Load items	Insert	Mobile unit
Air regulators	APLW 630	E 975/2
Breathing masks	APLW 631	E 975/2
Compressed air bottles	APLW 636	A 500
Carrier frames for compressed air units	APLW 636	A 500

To enable the E 975/2 mobile unit to be detected in the wash cabinet of the cleaning machine, it must be equipped with the A 857 conversion kit.

Inserts are supplied with their own operating instructions.

Preparing the load

⚠ Contaminated load items pose a health risk.

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

When working with contaminated load items, ensure that all necessary measures are taken to protect personnel, e.g. wearing protective gloves.

⚠ Hazard due to change in material.

Lasting contact with wash water can cause seal material to swell. This will result in the seals losing their function.

Therefore, always close unused connections with protective caps or blind covers.

⚠ Risk of corrosion damage.

Ferrous materials that can rust or corrode can cause corrosion on the machine and the load items.

Do not introduce ferrous materials that can rust or corrode into the wash cabinet as load items or soiling.

Only load 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. Breathing equipment filters and disposable items may not be reprocessed.

- Take apart any items which can be dismantled according to the manufacturer's instructions and process the individual parts separately from each other.

- Place small and light items in a small-part basket so that they do not block the spray arms.

- Arrange the load items so that wash water can access all surfaces. This ensures thorough and proper cleaning. Do not place load items inside one another, as this impedes the cleaning process.

- Lumened load items must be thoroughly cleaned, internally and externally, with the wash water.

- The spray arms must not be blocked by load items which are too tall or which hang down in their path.

- Nickel and chrome-plated load items and load items made of aluminium are not generally suitable for machine reprocessing. They require special processing conditions.

Areas of application

Preparing the load items

Follow the manufacturer's instructions regarding pre-cleaning and pre-treatment.

■ Remove any soot in line with the manufacturer's instructions.

■ Dismantle the load items in line with the manufacturer's instructions.

The individual parts are to be reprocessed separately. Information on loading the individual parts can be found on the following pages in these operating instructions.

Carry out a visual check before starting every programme:

- Are the load items correctly loaded and connected for cleaning?

- Was the recommended loading template followed?

- Have the pressure chambers for reprocessing air regulators been supplied with enough compressed air?

- Do the compressed air bottles contain a sufficient volume of compressed air in line with the manufacturer's specifications for reprocessing compressed air units or compressed air unit carrier frames?

- 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.

- Are all process chemical containers sufficiently filled?

The following must be checked at the end of every programme:

- Carry out a visual check of the load items for cleanliness.

> Also refer to the information in the operating instructions for the inserts for each load item.

> ⚠ Performing a functional check
> Before using the breathing apparatus again following reprocessing, carry out a functional check in line with the manufacturer's instructions.

Programme overview

For an overview of the programmes and their settings, please see the appendix. After commissioning, the reprocessing programmes are assigned to load carriers A 500 FB and E 975/2 FB.

The inserts for breathing apparatus can be combined in different ways in the mobile units:

Mobile unit	Load	Programmes
▭ A 500	- 1 APLW 636	Vario FB Special
▭ E 975/2	- 1–6 APLW 630	Vario FB Special Plus
	- 1–6 APLW 631	Vario FB Chem
		Vario FB Chem Plus
		Rinse FB
		Drying FB

Inserts APLW 630 and APLW 631 have the same footprint. They can be interchanged in a load.

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.

⚠ Risk of explosion
Compressed air may escape suddenly from the compressed air bottle.
Do not use reprocessing programmes with a temperature above 60 °C for compressed air bottles, see programme overviews in the appendix.

Areas of application

Reprocessing programmes

Programme	Application	Mobile unit
Vario FB Special	- Cleaning and drying of lightly soiled breathing apparatus, e.g. from training exercises - Cleaning and drying of breathing apparatus without contact with mucous membranes, e.g. carrier frame with base plate, compressed air bottle - Not suitable for breathing apparatus from hot fire training	A 500 E 975/2
Vario FB Special Plus	- Cleaning and drying of heavily soiled breathing apparatus - Cleaning and drying of breathing apparatus without contact with mucous membranes, e.g. carrier frame with base plate, compressed air bottle	A 500 E 975/2
Vario FB Chem	- Cleaning, disinfection and drying of lightly soiled breathing apparatus, e.g. from training exercises - Cleaning, disinfection and drying of breathing apparatus with contact with mucous membranes, e.g. breathing mask, air regulator - Not suitable for breathing apparatus from hot fire training	A 500 E 975/2
Vario FB Chem Plus	- Cleaning, disinfection and drying of heavily soiled breathing apparatus - Cleaning, disinfection and drying of breathing apparatus with contact with mucous membranes, e.g. breathing mask, air regulator	A 500 E 975/2

Additional programmes

Programme	Application	Mobile unit
Rinse FB	- For rinsing the load items with cold water, e.g. to remove: - Heavy soiling - Disinfectant residue or - To prevent soiling from drying and becoming encrusted on the load items before the start of a reprocessing programme	A 500 E 975/2
Drying FB	- For drying temperature-stable load items - Not suitable for heat-sensitive load items	A 500 E 975/2

⚠ Unsuitable process chemicals pose a health risk.
Using unsuitable process chemicals will generally cause an unsatisfactory reprocessing result and can pose a health risk or cause damage to property.
Only use process chemicals designed specifically for use in this machine and follow the manufacturer's instructions on their use. Please carefully observe 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 regulations 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 process chemicals as standard. Up to 4 additional internal dispensing systems can be installed.

The dispensing systems and suction lances must be colour-coded. Stickers are supplied in the following colours:

- Blue

- White

- Red

- Green

- Yellow

- Black

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

Dispensing system	Colour code	Process chemicals
1	Blue	
2		
3	Red	
4		
5		
6		

Dispensing liquid chemical agents

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 the Miele Customer Service Department or an authorised technician.

Containers for process chemicals

The drawer for containers with process chemicals is located behind the service panel. 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 siphon 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 container for dispensing system 1.
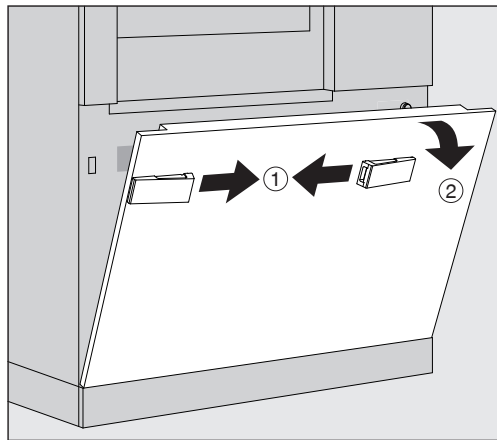
■ Unlock the service panel on the machine ①.

■ Tilt the service panel forwards ②, lift it up and lift it out of its lower brackets.
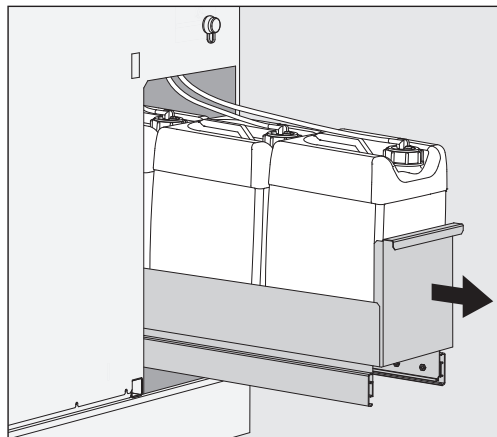
■ Pull out the drawer with the containers for liquid process chemicals.

■ Take the corresponding container out of the drawer.

■ Unscrew and remove the suction lance.

■ Fill the process container with the required process chemical and replace it with a new container.

Observe the colour code of the dispensing system and the suction lance to ensure that the process chemicals do not get mixed up.

Dispensing liquid chemical agents
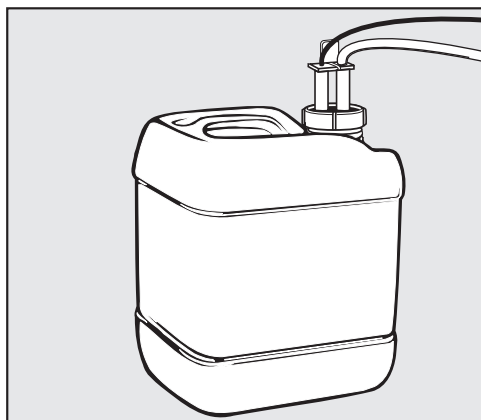
■ Push the suction lance into the neck of the container and screw it into place.

■ Place the container in the drawer.

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

■ Push the drawer into the machine.

■ Insert the service panel into the lower brackets of the machine and press on it.

■ Lock the service panel.

■ 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 is no load carrier 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 vented when there is no load carrier in the wash chamber.

■ 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/0** 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 **0** 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 chamber

The load carrier is pushed into the machine wash chamber from the infeed side.

■ Press the button ◀▮▶ to open the door on the infeed side.

■ Push the load carrier of the transfer trolley into the wash chamber of the machine.
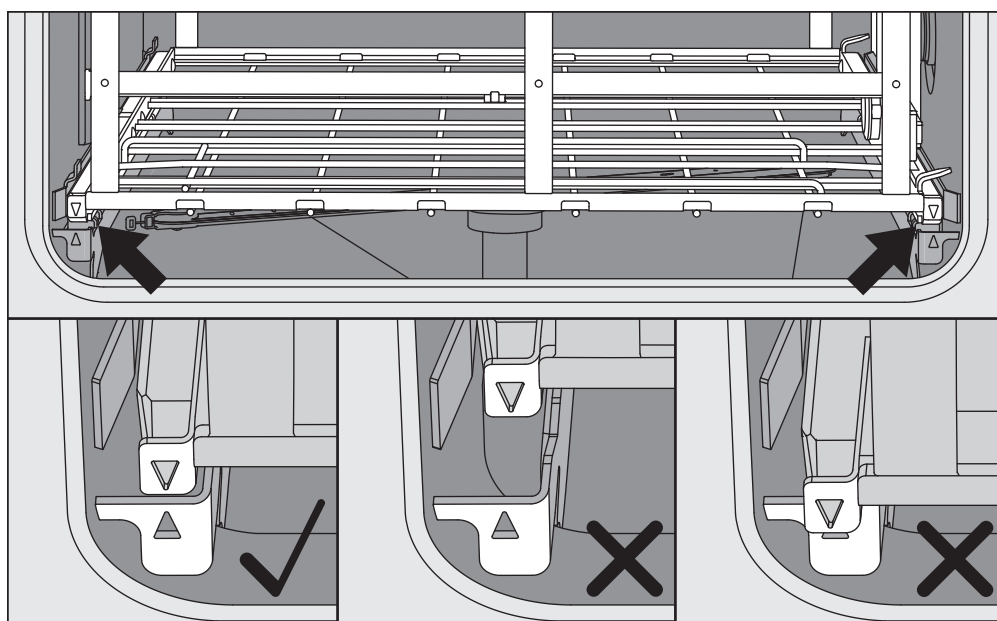
The markings on the load carrier ▼ and in the wash chamber ▲ must line up correctly.

■ Press the button ▶▮◀ to close the machine door.

Operation

Selecting a programme

The reprocessing programmes 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.

```
┌─────────────────────────────────────────────────────────────────┐
│                                         ✍   ⚑ GB   👤   user/USER    │
│  Select load carrier                                    11.03.2019 20:36│
│                                                                   │
│    ┌──────────────────────────────┐                              │
│    │   ▭▭▭    A 500 FB            │                              │
│    └──────────────────────────────┘                              │
│                                                                   │
│    ┌──────────────────────────────┐                              │
│    │   ▭▭▭    E 975/2 FB          │                              │
│    └──────────────────────────────┘                              │
│                                                                   │
│  ┌──────┐          ┌──────┐                                       │
│  │  ↩   │          │ ◀▮▶  │                                       │
│  └──────┘          └──────┘                                       │
└─────────────────────────────────────────────────────────────────┘
```
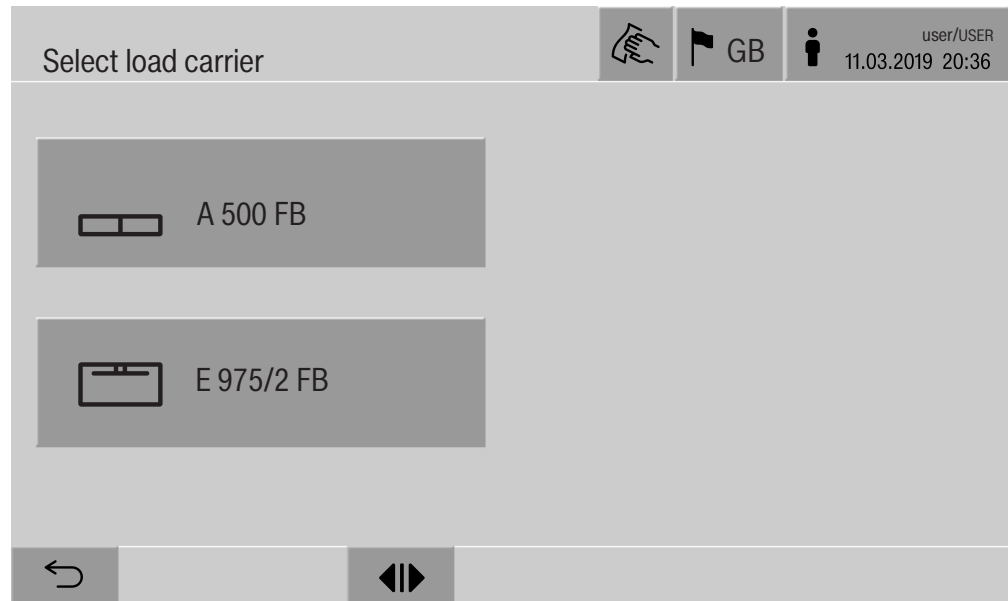
> If more than 4 load carriers are available, you will be able to scroll through several pages in the selection menu.

■ Press the button for the required load carrier, e.g. ▭▭ E 975/2.

The pictogram of the selected load carrier is displayed in the header, e.g. ▭▭ Reprocessing.
The reprocessing programmes which can be selected are listed.

■ Press the button for the required reprocessing programme.

The programme start screen is displayed.

Selecting programmes from Favourites

If reprocessing programmes have been defined in the ⚙ System, Manage favourites menu, the programme can be selected using the ☆ Favourites button.

∎ Press the ☆ Favourites button.

The Select load carrier menu is displayed.

∎ Press the button for the required load carrier, e.g. ▭ E 975/2.

The pictogram of the selected load carrier is displayed in the header, e.g. ▭ Favourites.
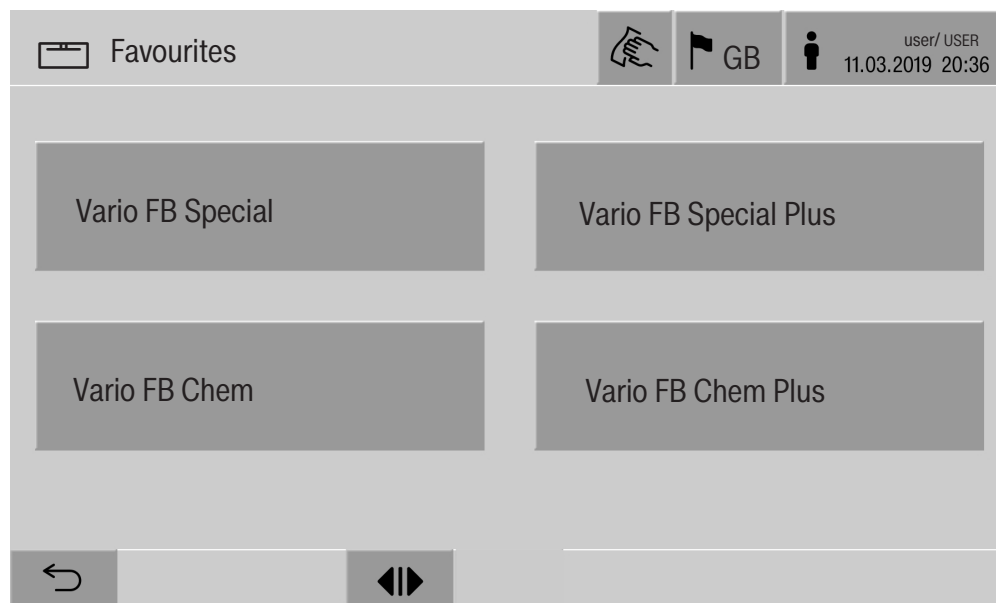
The reprocessing programmes defined as favourites are displayed.

∎ Press the button for the required reprocessing programme.

The programme start screen is displayed.

Starting the programme

> Check in the display header whether the right reprocessing programme is displayed for the load carrier.
> With the ↩ button, you can open the menu for selecting the reprocessing programmes if you wish to choose a different reprocessing programme.

☐ Universal	⟨☞	⚑ GB	⫯	user/USER 18.06.2018 15:05

Time left

01:06

| ↩ | | ◀▮▶ | | ♨ | ⟳ | **Start** |
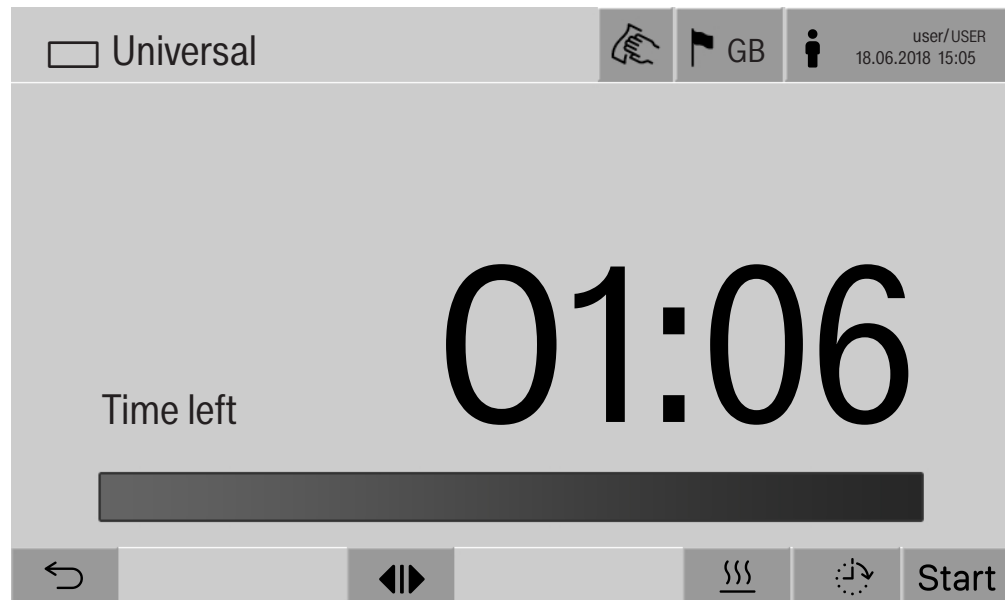
> After selecting a programme, the time left for the chosen reprocessing programme is displayed. If the Display time left parameter is not activated in the web interface, the display switches to the already elapsed Duration of the reprocessing programme after programme start.

■ Press the Start button.

The reprocessing programme runs.

> It is only possible to start a reprocessing programme 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").

Programme sequence

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

End of programme

After the programme has ended, the following is displayed:

- The Cycle number

- The time elapsed since the end of the programme

- The Result of the reprocessing process

- The message Programme finished

The progress bar changes from white to green.
The wash chamber lighting can be switched on automatically depending on the pre-setting.

Cancelling a programme

A reprocessing programme can be cancelled 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 programme?.

■ Confirm the confirmation prompt with Yes.

Once the water has finished draining, the following message will appear on the display:
Programme cancelled.
The progress bar is red and the following error message is displayed:
Programme aborted by user
Once the error message has been acknowledged, the programme can be restarted.

Delay start

The start of a programme can be delayed, for example, to benefit from economy rates of electricity at night. The delay start period can be set to the exact minute.

> If soiling is left to dry on the load for longer, the reprocessing result can be adversely affected. There is also a higher risk of corrosion for stainless-steel load items.

■ To configure a delay start, select the ⏲ button in the footer.

■ Enter the Start time with the on-screen keyboard and press **OK** to confirm.

The reprocessing programme starts automatically at the set time.

> The automatic programme start can be cancelled at any time. To do this, press the Stop button in the footer. A confirmation prompt is displayed: .Cancel delay start? Once the confirmation prompt has been confirmed, the reprocessing programme 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.

> The Customer Service Department must connect the network cable to the interface.

> ⚠ Unauthorised access poses a health risk.
> Settings in the machine, e.g. parameters for disinfection or the dispensing of process chemicals, may be changed as a result of unauthorised 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 the Customer Service Department. 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	Assigning dynamic IPv4 addresses	68/UDP
DHCPv6	Assigning dynamic IPv6 addresses	546/UDP
HTTPS	Web interface for configuring the machine	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 lead for the Ethernet interface may not be longer than 100 m

Please contact the machine manufacturer for further information on suitable printers and software.

System settings

System

The ⚙ System menu contains the following functions:

System	✍ ⚑ GB i user/USER 11.03.2019 20:36
Network connections	
Machine functions	
Restart	
Data plate	
Manage favourites	
↩ ◀▮▶	

The sub-menus are opened with the buttons. 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:

System	Network connections	✍ ⚑ GB i user/ADM 11.03.2019 20:36
Change PIN	
Pairing	
Network	
Printer	
Certificate presentation	
↩ ◀▮▶	
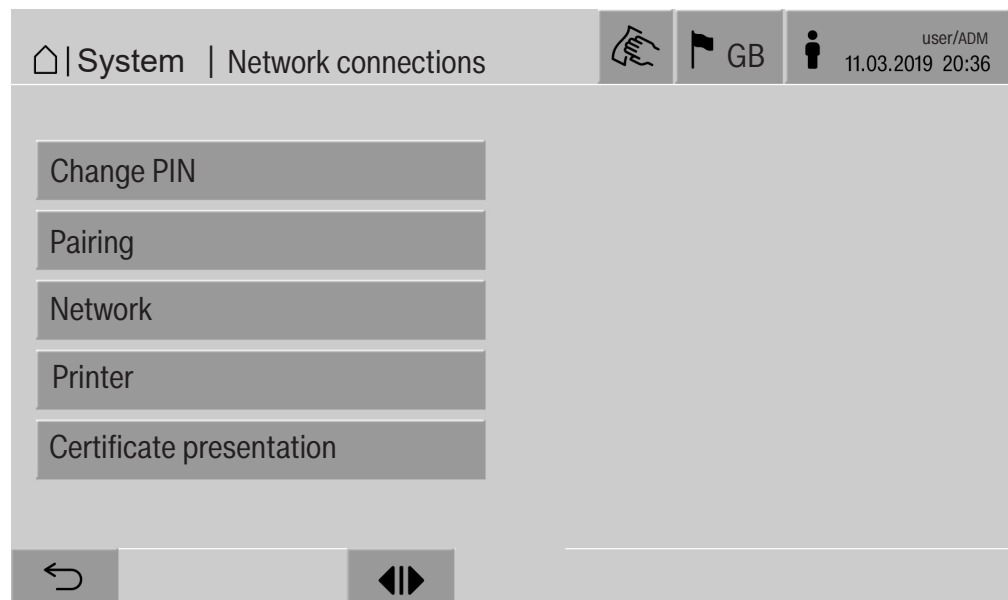
The sub-menus are opened with the buttons.

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 the Customer Service Department.

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 (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

Confirm pairing   A pairing request must be confirmed for an external application to make access to the machine possible. 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.

Assign write permissions If you need to download data or configure the machine settings using the web interface, the logged-in user must possess the appropriate write permissions. Once a user has requested write permissions, the following message is shown on the display:
ℹ Allow connection with write authorisation? ...
Date/Time

The request for write permissions can be granted by the Login on the machine or rejected with the ↰ button.

■ Press the Login button to assign write permissions.

The on-screen keyboard is displayed for login.
When the machine is being accessed externally with write permissions, the following message is shown on the display:
Connection with write authorisation active ...

The write permissions can be revoked. To do this, proceed as follows:

■ Press the ⇦ button.

The on-screen keyboard is displayed for login. The login removes all write permissions, and when you select the ↰ button, the write connection remains intact.

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

System settings

Setting the net-work

The Ethernet connection is configured in the Network menu. The network can be configured on the machine 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 handbook.

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

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

The bar in the button is displayed in white.

System settings

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:

⌂|System	Machine functions	✍	▶ GB	👤 user/ADM 11.03.2019 20:36

Self-disinfection	Adjust conductivity meter
Iterative programme	Programme test
Fill dispensing system	
Filter maintenance	
Set up dispensing system	

↩   ◀▮▶
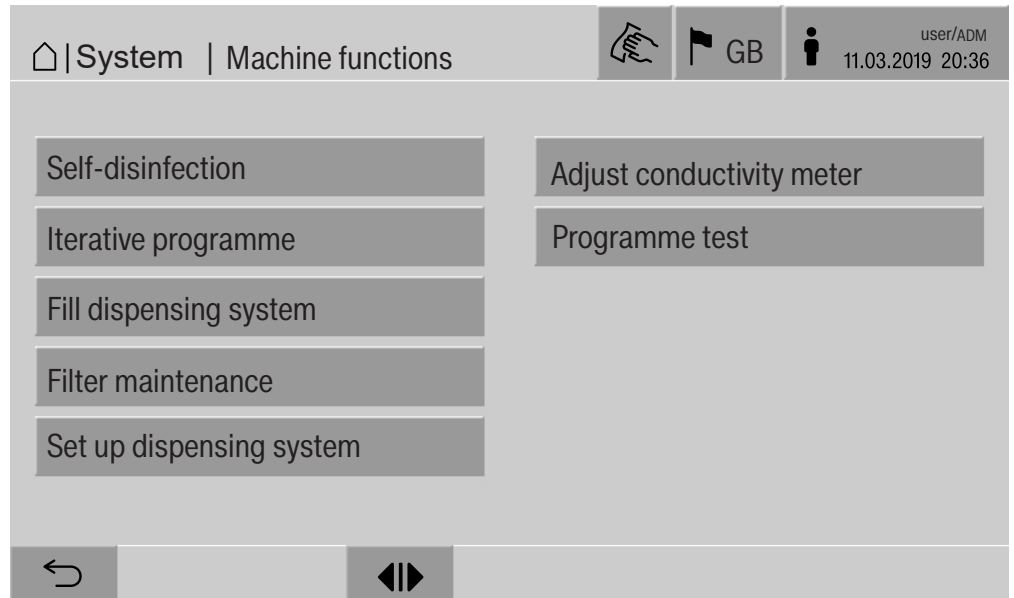
The individual functions are started with the buttons.

Automatic system test

During the automatic system test, the Self-disinfection of the built-in tanks (if fitted) is performed at a specified time.

For the automatic system test, the following conditions must be met:

- The machine is switched on
- The wash cabinet is empty
- The machine door is closed
- No continuous programme is active
- No write permissions have been assigned to enable access via the web interface

> The automatic system test can be turned off in the web interface (see "System, machine configuration, automatic system test" in the programming manual).

System settings

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 via Self-disinfection during the automatic system test.

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 the Miele Customer Service Department.

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

Self-disinfection can only be carried out if there is no load carrier 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 the self-disinfection is not repeated successfully, contact the Customer Service Department.

You can cancel self-disinfection with the Stop button in the footer. The Cancel self-disinfection? confirmation prompt is displayed. Self-disinfection is cancelled with Yes and continued with No.

Starting the continuous programme

A repeated programme start can be defined for a reprocessing programme in the Iterative programme 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 Iterative programme button.

The display shows the available load carriers.

■ Press the button for the required load carrier.

The available reprocessing programmes are displayed.

■ Press the button for the required reprocessing programme.

The parameters for defining the continuous programme 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 programme

Parameter	Definition
Programme cycles	Number of programme cycles for the continuous programme
Pause between programme cycles	Period between the end of the programme and the subsequent programme start
Door delay	Period between the end of the programme 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 programme run

■ Enter the required values for each parameter.

■ Press the Start button in the footer to start the continuous programme.

The message Iterative programme: Warning! Door opens and closes automatically. will appear on the display. Press **OK** to start the continuous programme and ↰ to cancel the procedure.
Once it has been started, the reprocessing programme is repeated until the set programme runs are reached.

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

System settings

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 is no load carrier in the wash chamber.

■ 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 the Customer Service Department.

Filter maintenance

If the machine is equipped with a drying unit, the coarse and fine filters inside the drying unit must be replaced by the Miele Customer Service Department at regular intervals.
You can read off the operating times and the times left for the individual filters in the Filter maintenance menu.

Dispensing system setup

The Set up dispensing system is used to adjust the dispensing systems. It must be performed if:

- The connected process chemical has been changed (different viscosity)

- A new dispenser pump or flow sensor has been fitted

- 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 energised for a defined number of impulses. At the same time, the controller counts the number of impulses picked up by the flow sensor. Once the measured volume has been entered into the controller, this calculates the conversion factors for the throughput of the dispenser pump in μl/imp. and the impulse rate of the flow sensor in μl/imp.

Setup

A dispensing system can only be set up when there is no load carrier in the wash cabinet.

In order to determine the exact throughput for the dispensing pump and the impulse rate of the flow sensor, 2 measuring cylinders are required:

- 1 x 1000 ml

- 1 x 100 ml

■ Place the suction lance of the dispensing system into a 500–1000 ml measuring cylinder.

■ Fill up the measuring cylinder with the process chemical to be dispensed.

■ Fill up the 100 ml measuring cylinder with the process chemical to be dispensed.

Before the dispensing system is set up, the dispensing systems must be vented.

■ 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 up the 500–1000 ml measuring cylinder with the process chemical to be dispensed from the 100 ml measuring cylinder and either mark or make a note of the fill level.

■ Fill up the 100 ml measuring cylinder all the way 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 will be displayed:
Starting setup for the dispensing system ... Preparing the dispensing system.

■ Confirm the message in the display with **OK**.

The dispensed quantity will then be measured.
The process steps will be displayed, e.g. Dispenser pump active.
When the measurement is complete, the on-screen keyboard opens.
The value set previously is shown.

■ Fill up the 500–1000 ml measuring cylinder up to the original fill level with the process chemical from the 100 ml measuring cylinder.

■ Take a reading of the volume needed to fill the cylinder up from the 100 ml measuring cylinder.

■ Enter this value into the on-screen keyboard and confirm with **OK**.

The measurement results for the conversion factors are displayed, e.g.:
Conversion factor DOS 1:
old ... µl/Imp new ... µl/Imp
Conversion factor flow sensor 1:
old ... µl/Imp new ... µl/Imp
Accept new values?

Select **OK** to apply the new conversion factors to the controller and ↰ to retain the old conversion factors. The Set up dispensing system menu will appear again in the display.

Contact the Customer Service Department for the Set up dispensing system if the machine's dispensing systems are not fitted with suction lances.

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 adjusted with the Adjust conductivity meter function. The measuring system is adjusted in the conductivity measuring range from demineralised water to cold water.

> Adjustment of the conductivity meter can only be carried out if there is no load carrier in the wash chamber.

> The wash chamber should be rinsed with demineralised water in order to avoid excessively high readings due to the transfer of alkaline solution.

■ Press the Adjust conductivity meter button.

The measurement for demineralised water is performed.
In the display, the message Please wait... and the current process step is shown, e.g. Measurement active.
Once the measurement is complete, the Demin. water conductivity: Actual is shown along with the input screen for the manually determined value.
The door of the infeed side is released for the manual measurement.

■ Open the door and perform the manual conductivity measurement.

■ Close the door.

■ Select the button next to the Demin. water conductivity: New parameter to open the on-screen keyboard.

■ Enter the measured value into the on-screen keyboard and confirm with **OK**.

> Readings with decimal places must be mathematically rounded.

■ Press the **OK** button.

The measurement is performed for cold water.

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

The input values for Conductivity ... new are applied in the control system.
The Machine functions is shown again in the display.

> Adjustment of the conductivity meter can be cancelled using the Stop button in the footer. The message Adjustment of conductivity meter unsuccessful. Please repeat. will appear on the display.

System settings

Carrying out a programme test

Newly created or modified reprocessing programmes can be checked with the Programme test. The programme can only be enabled with the Programme test parameter if a reprocessing programme has run through the Checked without any faults (see programming handbook, "Programme administration").

The Programme test can be used to check the cleaning performance. During the programme test, the programme sequence stops after each programme 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 programme blocks, please be aware of the following sources of danger:
> – Risk of burning and scalding after high-temperature programme blocks
> – Risk of contact with corrosive substances after programme blocks that dispense process chemicals
> – Risk of inhaling toxic vapours after programme blocks that use disinfectants
> Steam that escapes from the machine after high-temperature phases can trigger a false alarm in smoke detectors.
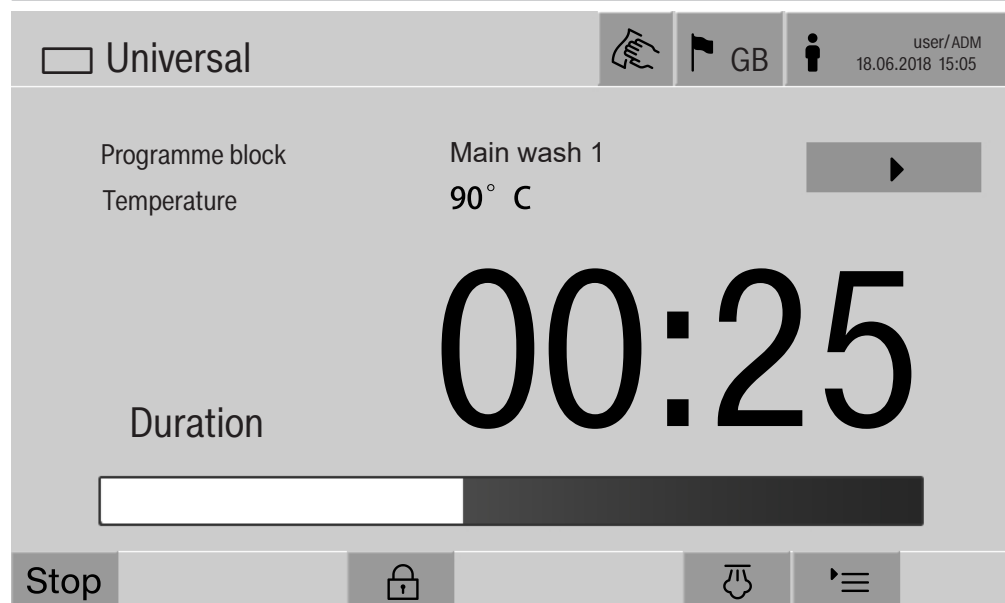
After the reprocessing programme has started, an additional ▶ button is displayed next to the programme block. The ▶ button has two functions:

- Continue the reprocessing programme without opening the door

- Skip the next programme block

Sampling example

■ Press the Programme test button.

The display shows the available load carrier options.

■ Press the button for the required load carrier.

The available reprocessing programmes are displayed.

■ Press the button for the required reprocessing programme.

The following message will appear on the display:
Programme test: Skip programme block with ▶. Door can be opened at end of each programme block..

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

The programme start screen is displayed.

■ Press the Start button.

The ▶ button is displayed – the start of the reprocessing programme is delayed.

Before the water intake, the relevant programme phases displayed can be skipped by pressing the ▶ button.

After each programme block, the following message will appear on the display before the wash water is drained:
Programme test: Door can be opened to take sample..

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

The ◀I▶ and ▶ buttons are enabled.

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

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

The following message will appear on the display:
Continue programme test? To continue, press OK. To open the door again, press ⤺..

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

The wash water is drained and the next programme block begins.

If a sample does not need to be taken after a programme block:

■ Press the ▶ button.

The wash water is drained and the next programme block begins.

You can skip each programme block when it begins by pressing the ▶ button.

System settings

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

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 error reports
- In data transferred to software for process documentation

Managing favourites

You can define your 4 most commonly used programmes as favourites in the Manage favourites menu.

If Automatic programme allocation is not activated:
After the ▦ Reprocessing button has been pressed, all reprocessing programmes assigned to the load carrier are displayed.

If you select the reprocessing programme via the ☆ Favourites button instead, only the 4 reprocessing programmes defined in the Manage favourites menu are displayed.
If none of the 4 favourites is assigned to the load carrier as a reprocessing programme, the following message will appear on the display:
No Favourites available for current load carrier.

To define favourites:

■ Press the Manage favourites button.

4 buttons are displayed for the favourites.

△ │ System	│ Manage favourites	✍ ⚑ GB	👤 user/ADM 11.03.2019 20:36
Favourite:1 Universal			
Favourite:2 Universal Plus			
Favourite:3 Pipettes 1			
Favourite:4 Agar Plus			
↩	◀▮▶		OK
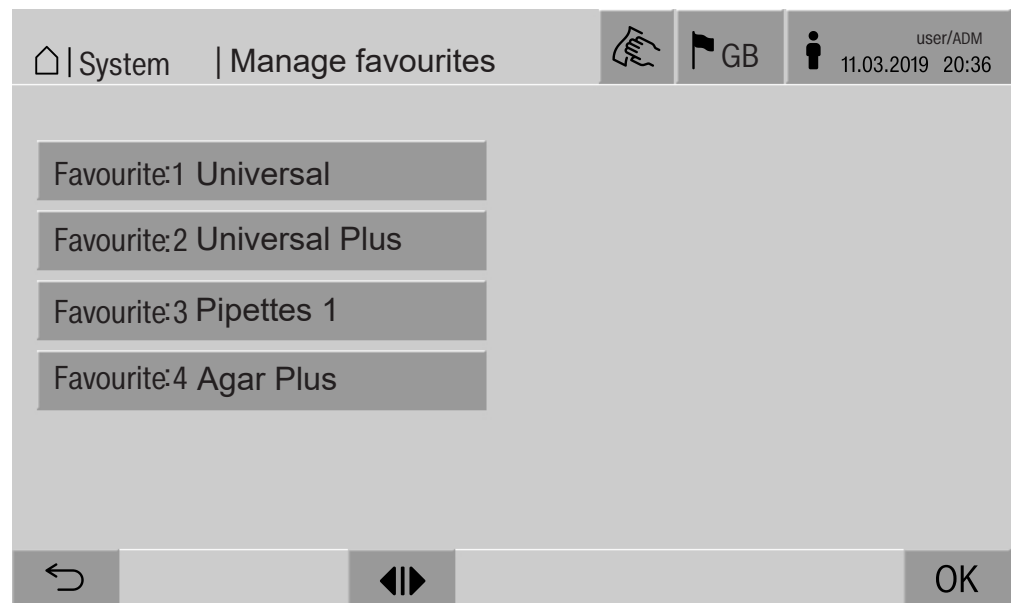
■ Press the Favourite 1 button.

The list of reprocessing programmes is displayed.

■ Press the button for the required reprocessing programme; Vario FB Special in this example.

The name of the reprocessing programme is displayed in the Favourite 1 button.
Define favourites 2–4 in the same way.

■ Press **OK** to exit the menu.

Maintenance

Periodic checks

This machine should be inspected in accordance with local and national safety regulations **after every 2000 operating hours, or every 12 months** by a Miele approved service technician.

Maintenance covers the following points and functional checks:

- Electrical safety check compliant with national rules and regulations (e.g. VDE 0701, VDE 0702 in Germany)
- 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
- Seals will be tested for water tightness
- Safety testing of all relevant measuring systems
- Safety features

and where applicable:

- Steam condenser
- Drying unit
- Conductivity monitoring
- Built-in printer

> External documentation software and the computer network will not be tested by the Miele Customer Service Department.

Routine checks

Before the start of each working day, the user must carry out a number of routine checks. A checklist is supplied with the machine for this purpose.

The following need to be inspected:

- All filters in the wash chamber
- The spray arms in the machine and in any mobile units, modules and baskets
- The wash chamber and the door seal
- The dispensing systems
- The 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 chamber prevent coarse soiling from coming into contact with the circulation system. Filters can become blocked by soiling. They therefore 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 programme if the filters are inserted.
Check that the filters are positioned correctly when you reinsert them after cleaning.

■ Remove large particles of soiling from the surface of the filter.
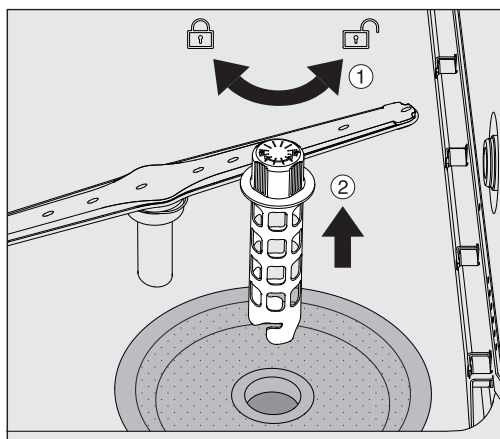
■ Turn the holder to the left to release it ① and remove it from the coarse filter ②.

■ Rinse the holder under running water, paying particular attention to the perforation at the top end.
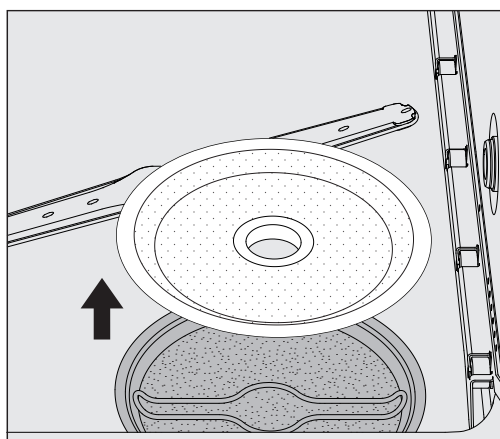
■ Remove the coarse filter and rinse under running water.
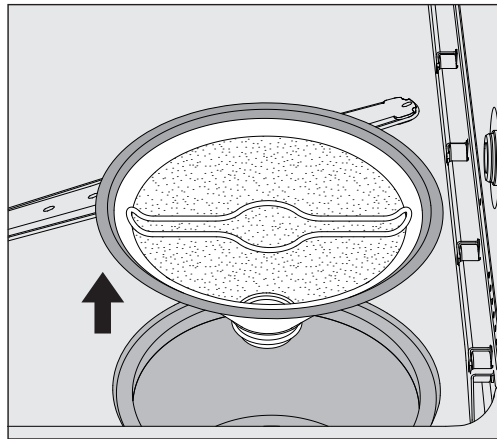
■ Remove the microfine screen filter.

■ 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 regularly.

The spray arms of the machine, some mobile units and modules are labelled 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

Remove the spray arms as follows:

Machine spray arms

■ Remove any mobile units from the wash chamber.
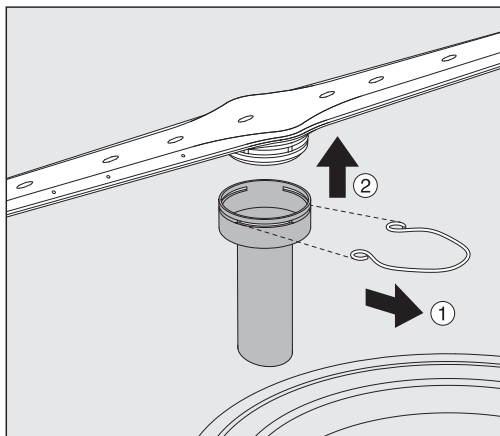
■ Loosen the securing clip on the spray arm connection and then pull the lower spray arm upwards and the upper spray arm downwards.

Spray arms on mobile units and modules

■ Loosen the securing clip on the spray arm connection and then pull the spray arm downwards.

> If there is considerable visible wear on the bearing on the spray arm, contact the Miele Customer Service Department as this can result in functional problems.

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

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

> ⚠ Insufficient 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 rotation speed.
> Remove any metallic objects which are stuck to the magnets, e.g. 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:

Press ↩ for 3 seconds to quit
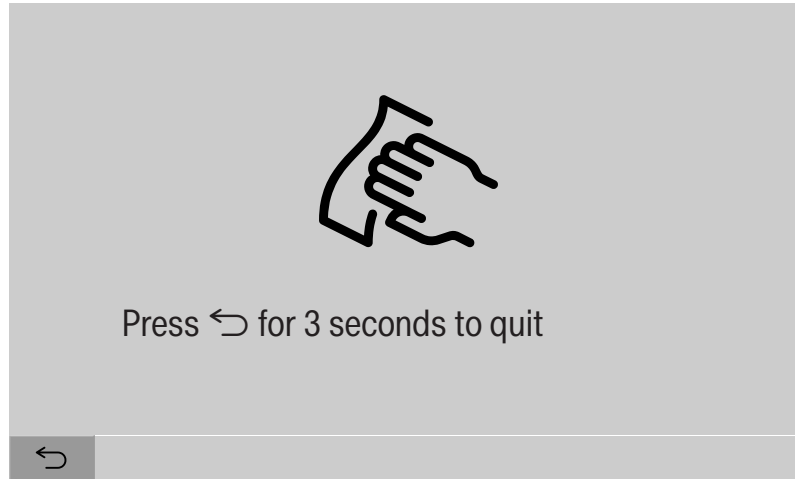
■ To unlock the machine display, hold the ↩ button for around 3 s.

Cleaning control elements and the glass door

■ The glass door and the display should only be cleaned with a damp cloth or a suitable cleaning agent designed for use on glass.

> Do not use abrasives or multi-purpose detergents!
> These can cause considerable damage to the glass due to their chemical composition.

> ⚠ Suitable cleaning agents and disinfectants must be used for surface cleaning and disinfection. National recommendations relating to surface disinfectant listings and approvals, for example, must be observed.

Maintenance

Cleaning the front of the appliance

■ 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 re-soiling (fingerprints, etc.), a suitable stainless-steel care product 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 in its vicinity with a water hose or a pressure washer.

Cleaning the wash chamber

The wash chamber is generally self-cleaning.

■ However, should a build-up of deposits occur in the cabinet please contact the Miele Customer Service Department for advice.

Cleaning the door seal

■ The door seal should be cleaned regularly with a damp cloth to remove any stains.

> Seals which are no longer tight or which have sustained damage must be replaced with new ones by the Miele Customer Service Department.

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 cleaning 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 counter nuts for the guide rails tightened securely?

- Are the 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?

If compressed air containers are present:

- Are the seals in the quick-release couplings intact?

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".

Maintenance

Built-in printer (optional)
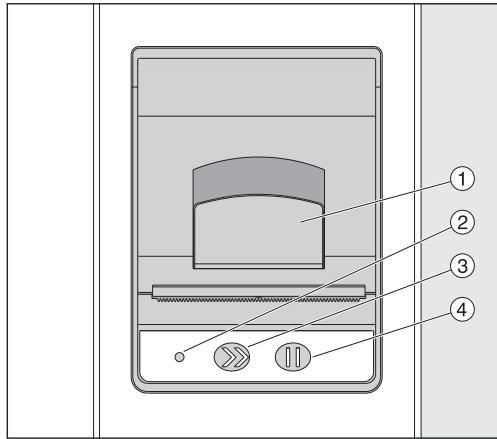
① Lever for opening the flap

② LED

③ Paper feed

④ Acknowledgement button

LED status	Printer status
Off	Power supply fault
On	Ready for operation
Flashing x1	Not ready for operation
Flashing x2	Fault on the printer head
Flashing x3	Paper jam/paper roll empty
Flashing x4	Temperature fault

Replacing the paper roll

The paper roll for the built-in printer may not be replaced while a programme 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 60 mm and an external diameter of approx. 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:

- Avoid direct light

- Constant room temperature between 18 °C and 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 40 °C

- Storage in a damp or wet environment over a long period

- Contact with plasticisers, which are found, for example, in PVC films

- Contact with oils, fats or alcohol

- Contact with aggressive chemicals

- Direct sunlight

> Unfavourable 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.

Error messages and instructions

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

> ⚠ Repairs may only be performed by the Miele Customer Service Department or an authorised technician.
> Unauthorised 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 main menu
While the main menu is shown in the display, messages are shown in a pop-up window:

Main menu		👉 ⚑ GB 👤	Login 11.03.2020 20:36

⚠ Warning 2750

System test not carried out

OK

⚠   ◀▮▶
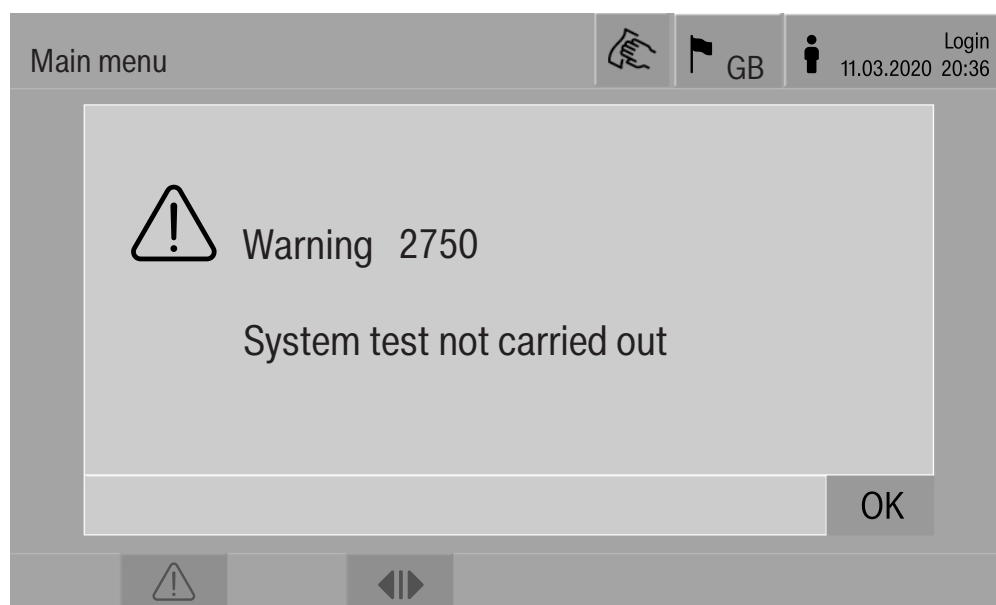
If there are messages for multiple errors and warnings, a pop-up window is shown accordingly.
The pop-up windows are closed by selecting **OK**. The messages remain in the list of active messages.

> It may be that an error occurs more than once. If, for example, the system test cannot be carried out for 3 days, 3 pop-up windows are shown with the corresponding message. The pop-up window must be closed 3 times by selecting **OK**.

In the programme sequence
The current message is displayed on the programme sequence display in addition to the progress bar. The colour 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			GB	ⓘ	user/USER 18.06.2018 15:05
⊗	2650 Seal door gasket timeout	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 Demineralised water tank	28.01.2019	09:09		OK
⊗	2651 Release door gasket timeout	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.

Error messages and instructions

Troubleshooting

Fault	2841	✍	⚑ GB	👤	user/USER 18.06.2018 15:05

Description   Confirm message with OK.
Check user administration.
If fault persists, call Service.

Machine type   PLW 8617

Fabrication number   00 / 123456789

↩   ◀▮▶   OK

After a warning or fault button has been pressed in the message list, the message with information on rectifying the fault is indicated 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	Cause and remedy
The machine display is dark.	The machine display is not showing any information. This can be as a result of the following: – The display is faulty – The connecting cable between the display and the controls is faulty – The plug connection is faulty ■ Call the Customer Service Department.
	The machine is not switched on. ■ Press the **I** power switch.
	An external residual current device (RCD) has switched. ■ Inform building services.
	An external emergency off switch was activated. ■ Inform building services.

After sales service

⚠ Repairs may only be carried out by the Miele Customer Service Department or an authorised technician.
Unauthorised 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 an error message first appears.

Error messages appear on the machine display.

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

The Customer Service Department 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 suitably qualified electrician in accordance with local and national safety regulations.

- The electrical installation must comply with current local and national safety regulations (e.g. DIN VDE 0100 in Germany).

- The connection to the power supply must be via a suitably rated plug and socket and must comply with national regulations. The socket must be accessible after the machine has been installed. An electrical safety test must be carried out after installation and after any maintenance work.

- If the machine is hard-wired to the power supply, a power switch with all-pole isolation must be installed. The power switch must be designed to operate at the rated current for the machine, must ensure a 3 mm gap between all open contacts, and must be able to be locked in the off position.

- Equipotential bonding should be carried out if required.

- The rated loads are specified on the data plate and in the circuit diagram supplied with the machine.

- Check that the phase rotation is correct when connecting the machine. Failure to do so could have an adverse effect on the circulation pump and impair the wash quality.

- For added safety, the 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 test marks is located behind the service panel on the infeed side of the machine.

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

Electrical connection

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 and other similar environments which are connected to the mains power 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 withstand a relative humidity level of 30 % to minimise 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 % (UK: -6/+10 %) of its nominal value.

> ⚠ Health risk and risk of damage due to contaminated incoming water.
> The quality of the incoming water must correspond to the drinking water specification of the country in which the machine is being operated.
> Please refer to the installation diagram supplied with the machine.

- If the water supply has a high iron content, there is a danger that corrosion may occur on load items and the machine itself.

- If the chloride content of the water exceeds 100 mg/l, the risk of corrosion to items being cleaned in the machine will be increased further.

- In certain regions, the water composition may cause precipitates to form, requiring the use of softened water in the steam condenser.

Technical data

Height	2495 mm
Width	1150 mm
Depth	990 mm
Useable cabinet dimensions:	
Height	675 mm
Width	650 mm
Depth	800 mm
Net weight including plinth and top-box panelling	477 kg
Net weight including EL/S, DU, SC, CT *	667 kg
Operating weight	902 kg
Distributed load (max. load-bearing capacity)	7.8 kN/m^2
Voltage, rated load, fuse rating	See data plate
Compressed air connection:	
Technical to ISO 8673-1: Class 4	600-800 kPa
Steam connection (optional):	
Quality	Dry industrial steam
Steam pressure	250-1000 kPa
Water temperature of water connection:	
Cold water/steam condenser	5–20 °C
Hot water/DI water	5–65 °C
Water connection pressure	200–1000 kPa
Operating conditions:	
Ambient temperature	5–40 °C
Relative humidity	
Minimum	10 %
Maximum for temperatures up to 31 °C	80 %
Linear decreasing for temperatures up to 40 °C	50 %
Storage and transportation conditions:	
Ambient temperature	-20 to +60 °C
Relative humidity	10–85 %
Air pressure	500–1060 hPa
Max. altitude above sea level	2000 m**
Protection category (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
Test certifications	VDE, radio and television suppressed
CE marking	2006/42/EC Machinery Directive
Manufacturer address	Miele & Cie. KG, Carl-Miele-Str. 29, 33332 Gütersloh, Germany

* See the installation plan for optional extras

*** If installed above 1500 m, the boiling point of the wash water will be lower. In this case, the disinfection temperature and the holding time might need to be adjusted.

Disposing of the packaging material

The packaging material is used for handling and protects the appliance from transport damage. The packaging material used is selected from materials which are environmentally friendly for disposal and can generally be recycled.

Recycling the packaging material reduces the use of raw materials. Use material-specific collection points for valuable materials and take advantage of return options. Your Miele dealer will take the packaging material away.

Disposing of your old appliance

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.
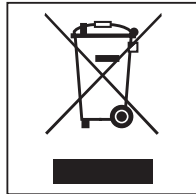
Instead, please make use of officially designated collection and disposal points to dispose of and recycle electrical and electronic appliances in your local community, with your dealer, with Miele or with the manufacturer. By law, you are solely responsible for deleting any personal data from the appliance prior to disposal. You are legally obliged to remove any old batteries which are not securely enclosed by the appliance and to remove any lamps without destroying them, where this is possible. These must be taken to a suitable collection point where they can be handed in free of charge. Please ensure that your old appliance poses no risk to children while being stored prior to disposal.

Appendix

Appendix

User rights in the Main menu

Action	Without login	Automatic	Operator	Technician	Administrator
Open and close the loading door	●	●	●	●	●
Open and close the unloading door after the end of a programme depending on the Authentification - End of programme 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 error message	●	●	●	●	●
Change the screen view in the current programme (see "Machine description")	●	●	●	●	●
Select and start programme (see "Operation") depending on the settings in the web interface under programme administration		●	●	●	●
Cancel the programme (see "Operation")	●	●	●	●	●
Print out process documentation			●	●	●

User rights in the System menu

Main menu/System		Without login	Automatic	Operator	Technician	Administrator
Network connections	Change PIN		●	●	●	●
	Pairing				●	●
	Network				●	●
	Printer				●	●
	Certificate presentation				●	●
Machine functions	Self-disinfection			●	●	●
	Iterative programme					●
	Fill dispensing system			●	●	●
	Filter maintenance				●	●
	Set up dispensing system				●	●
	Adjust conductivity meter				●	●
	Programme test					●
Restart				●	●	●
Data plate					●	●
Manage favourites						●

Vario FB Special

Programme name	Vario FB Special	Material number	12 378 360	Programme number	
Mobile unit	A 500		E 975/2		

Creation		Checking		General settings	
Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety		Checked		Drainage after disinfection	Off
Created on		Checked on		Interlock	Off
Created by		Checked by		PowerPulseCleaning	Off
Last name		Last name		PowerPulseCleaning connection	Off
First name		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		Limit temperatures [°C]	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	40/85

Flushing water		Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water
[l]		0	0	0	0	0

Parameters		Block name	Main wash 1	Final rinse
	Block type		Main wash	Normal
	Block number		1	2
Water intake	Water intake		Cold	Cold demineralised water
	+/- water [l]		+5	-3
	Temperature [°C]			
	Temperature-regulated, cold/hot			
	Mixed water 1/2			
	Proportion of mixed water 1 [%]			
	Recycling water replacement			
Internal water circuit	Circulation pump speed [rpm]		2500	2300
	Wash pressure monitoring		Off	Off
	Min. wash pressure </> 86 °C [hPa]			
	Max. wash pressure [hPa]			
Dispensing phase 1	Dispensing temperature [°C]		40	
	Exposure time [s]			
	Dispensing pump A/B [DOS 1–10]		DOS 1	
	Dispensing concentration A/B [%]		1	

		Value 1	Value 2
Dispensing phase 2	Dispensing temperature [°C]		
	Exposure time [s]		
	Dispensing pump A/B [DOS 1–10]		
	Dispensing concentration A/B [%]		
Dispensing phase 3	Dispensing temperature [°C]		
	Exposure time [s]		
	Dispensing pump A/B [DOS 1–10]		
	Dispensing concentration A/B [%]		
	Temperature [°C]	55	55
	Holding time [s]	600	180
	A0 value		
	Spray arm monitoring	Warning	Warning
	PowerPulseCleaning	Off	Off
Conductivity	Conductivity monitoring	Off	Off
	Water intake repetitions/limit value [µS/cm]		
	Drainage repetitions/limit value [µS/cm]		
Cool-down	Water intake		
	Volume of water [l]		
Drainage	Recycling	Off	Off
	Empty recycling tank	Off	Off
	External circulation pump	Off	Off
	Internal circulation pump	Off	Off
	External drainage contact	Off	Off
Pause	With water intake		
	Volume of water [l]		
	Duration [s]	Off	Off
	With drying		

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]
	15	75	15	60	

Vario FB Special Plus

Programme name	Vario FB Special Plus	Material number	12 378 370	Programme number	
Mobile unit	A 500	E 975/2			

Creation		Checking		General settings	
Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety		Checked		Drainage after disinfection	Off
Created on		Checked on		Interlock	Off
Created by		Checked by		PowerPulseCleaning	Off
Last name		Last name		PowerPulseCleaning connection	Off
First name		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		Limit temperatures [°C]	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	40/85

Flushing water	Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water
[l]	0	0	0	0	0

		Block name	Pre-rinse 1	Main wash 1	Main wash 2	Rinse 1	Final rinse
	Parameters						
	Block type		Normal	Main wash	Main wash	Normal	Normal
	Block number		1	2	3	4	5
Water intake	Water intake		Cold	Cold	Cold	Cold	Cold demineralised water
	+/– water [l]		-3	+5	+5	0	-3
	Temperature [°C]						
	Temperature-regulated, cold/hot						
	Mixed water 1/						
	Proportion of mixed water 1 [%]						
	Recycling water replacement						
Internal water circuit	Circulation pump speed [rpm]		2300	2500	2500	2300	2300
	Wash pressure monitoring		Off	Off	Off	Off	Off
	Min. wash pressure </> 86 °C [hPa]						
	Max. wash pressure [hPa]						
Dispensing phase 1	Dispensing temperature [°C]			40	40		
	Exposure time [s]						
	Dispensing pump A/B [DOS 1–10]			DOS 1	DOS 1		
	Dispensing concentration A/B [%]			1	1		

		C1	C2	C3	C4	C5
Dispensing phase 2	Dispensing temperature [°C]					
	Exposure time [s]					
	Dispensing pump A/B [DOS 1–10]					
	Dispensing concentration A/B [%]					
Dispensing phase 3	Dispensing temperature [°C]					
	Exposure time [s]					
	Dispensing pump A/B [DOS 1–10]					
	Dispensing concentration A/B [%]					
	Temperature [°C]	55	55	55		55
	Holding time [s]	120	600	720	120	180
	A0 value					
	Spray arm monitoring	Warning	Warning	Warning		Warning
	PowerPulseCleaning	Off	Off	Off		Off
Conductivity	Conductivity monitoring	Off	Off	Off		Off
	Water intake repetitions/limit value [µS/cm]					
	Drainage repetitions/limit value [µS/cm]					
Cool-down	Water intake					
	Volume of water [l]					
Drainage	Recycling	Off	Off	Off		Off
	Empty recycling tank	Off	Off	Off		Off
	External circulation pump	Off	Off	Off		Off
	Internal circulation pump	Off	Off	Off		Off
	External drainage contact	Off	Off	Off		Off
Pause	With water intake					
	Volume of water [l]					
	Duration [s]	Off	Off	Off		Off
	With drying	Off	Off	Off		Off

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]
	15	75	15	60	

Vario FB Chem

Programme name	Vario FB Chem	Material number	12 378 380	Programme number	
Mobile unit	A 500		E 975/2		

Creation		Checking		General settings	
Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety		Checked		Drainage after disinfection	Off
Created on		Checked on		Interlock	Off
Created by		Checked by		PowerPulseCleaning	Off
Last name		Last name		PowerPulseCleaning connection	Off
First name		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		Limit temperatures [°C]	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	40/85

Flushing water	Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water
[l]	0	0	0	0	0

Parameters		Block name	Main wash 1	Interim rinse	Final rinse
		Block type	Main wash	Normal	Normal
		Block number	1	2	3
Water intake	Water intake		Cold	Cold	Cold demineralised water
	+/- water [l]		+5	-5	0
	Temperature [°C]				
	Temperature-regulated, cold/hot				
	Mixed water 1/2				
	Proportion of mixed water 1 [%]				
	Recycling water replacement				
Internal water circuit	Circulation pump speed [rpm]		2500	2300	2300
	Wash pressure monitoring		Off	Off	Off
	Min. wash pressure </> 86 °C [hPa]				
	Max. wash pressure [hPa]				
Dispensing phase 1	Dispensing temperature [°C]		40		
	Exposure time [s]				
	Dispensing pump A/B [DOS 1–10]		DOS 3		
	Dispensing concentration A/B [%]		1		

Dispensing phase 2	Dispensing temperature [°C]			
	Exposure time [s]			
	Dispensing pump A/B [DOS 1–10]			
	Dispensing concentration A/B [%]			
Dispensing phase 3	Dispensing temperature [°C]			
	Exposure time [s]			
	Dispensing pump A/B [DOS 1–10]			
	Dispensing concentration A/B [%]			
	Temperature [°C]	50		55
	Holding time [s]	600	60	180
	A0 value			
	Spray arm monitoring	Warning		Warning
	PowerPulseCleaning	Off		Off
Conductivity	Conductivity monitoring	Off		Off
	Water intake repetitions/ limit value [µS/cm]			
	Drainage repetitions/ limit value [µS/cm]			
Cool-down	Water intake			
	Volume of water [l]			
Drainage	Recycling	Off		Off
	Empty recycling tank	Off		Off
	External circulation pump	Off		Off
	Internal circulation pump	Off		Off
	External drainage contact	Off		Off
Pause	With water intake			
	Volume of water [l]			
	Duration [s]	Off		Off
	With drying			

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]
	15	75	15	60	

Vario FB Chem Plus

Programme name	Vario FB Chem Plus	Material number	12 378 390	Programme number	
Mobile unit	A 500	E 975/2			

Creation		Checking		General settings	
Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety		Checked		Drainage after disinfection	Off
Created on		Checked on		Interlock	Off
Created by		Checked by		PowerPulseCleaning	Off
Last name		Last name		PowerPulseCleaning connection	Off
First name		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		Limit temperatures [°C]	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	40/85

Flushing water					Recycling water	
	Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water	
[l]	0	0	0	0	0	0

	Block name	Pre-rinse 1	Main wash 1	Rinse 1	Main wash 2	Rinse 2	Final rinse
Parameters							
	Block type	Normal	Main wash	Normal	Disinfection	Normal	Normal
	Block number	1	2	3	4	5	6
Water intake	Water intake	Cold	Cold	Cold	Cold	Cold	Cold demineralised water
	+/- water [l]	-3	+5	0	+5	-5	0
	Temperature [°C]						
	Temperature-regulated, cold/hot						
	Mixed water 1/						
	Proportion of mixed water 1 [%]						
	Recycling water replacement						
Internal water circuit	Circulation pump speed [rpm]	2300	2500	2300	2500	2300	2300
	Wash pressure monitoring	Off	Off	Off	Off	Off	Off
	Min. wash pressure </> 86 °C [hPa]						
	Max. wash pressure [hPa]						
Dispensing phase 1	Dispensing temperature [°C]		40		40		
	Exposure time [s]						
	Dispensing pump A/B [DOS 1–10]		DOS 1		DOS 3		
	Dispensing concentration A/B [%]		1		1		

Group	Parameter					
Dispensing phase 2	Dispensing temperature [°C]					
Dispensing phase 2	Exposure time [s]					
Dispensing phase 2	Dispensing pump A/B [DOS 1–10]					
Dispensing phase 2	Dispensing concentration A/B [%]					
Dispensing phase 3	Dispensing temperature [°C]					
Dispensing phase 3	Exposure time [s]					
Dispensing phase 3	Dispensing pump A/B [DOS 1–10]					
Dispensing phase 3	Dispensing concentration A/B [%]					
	Temperature [°C]	55		50	55	
	Holding time [s]	180	60	300	720	120
	A0 value					
	Spray arm monitoring	Warning	Warning	Warning	Warning	
	PowerPulseCleaning	Off	Off	Off	Off	
Conductivity	Conductivity monitoring	Off	Off	Off	Off	
Conductivity	Water intake repetitions/limit value [µS/cm]					
Conductivity	Drainage repetitions/limit value [µS/cm]					
Cool-down	Water intake					
Cool-down	Volume of water [l]					
Drainage	Recycling	Off	Off	Off	Off	
Drainage	Empty recycling tank	Off	Off	Off	Off	
Drainage	External circulation pump	Off	Off	Off	Off	
Drainage	Internal circulation pump	Off	Off	Off	Off	
Drainage	External drainage contact	Off	Off	Off	Off	
Pause	With water intake					
Pause	Volume of water [l]					
Pause	Duration [s]					
Pause	With drying	Off	Off	Off	Off	

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]
	15	75	15	60	

Rinse FB

Programme name	Rinse FB	Material number	E 975/2	Programme number	
Mobile unit	A 500				
Creation		**Checking**		**General settings**	
Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety		Checked		Drainage after disinfection	Off
Created on		Checked on		Interlock	Off
Created by		Checked by		PowerPulseCleaning	Off
Last name		Last name		PowerPulseCleaning connection	Off
First name		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		**Limit temperatures [°C]**	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	98/125

Flushing	Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water
[l]	0	0	0	0	0

Parameters		**Block name**	Pre-wash 1
Block type			Normal
Block number			1
Water intake	Water intake		Cold
	+/- water [l]		+5
	Temperature [°C]		
	Temperature-regulated, cold/hot		
	Mixed water 1/2		
	Proportion of mixed water 1 [%]		
	Recycling water replacement		
Internal water circuit	Circulation pump speed [rpm]		2300
	Wash pressure monitoring		Off
	Min. wash pressure </> 86 °C [hPa]		
	Max. wash pressure [hPa]		
Dispensing phase 1	Dispensing temperature [°C]		
	Exposure time [s]		
	Dispensing pump A/B [DOS 1–10]		
	Dispensing concentration A/B [%]		

Group	Parameter	Value
Dispensing phase 2	Dispensing temperature [°C]	
	Exposure time [s]	
	Dispensing pump A/B [DOS 1–10]	
	Dispensing concentration A/B [%]	
Dispensing phase 3	Dispensing temperature [°C]	
	Exposure time [s]	
	Dispensing pump A/B [DOS 1–10]	
	Dispensing concentration A/B [%]	
	Temperature [°C]	
	Holding time [s]	
	A0 value	
	Spray arm monitoring	Off
	PowerPulseCleaning	Off
Conductivity	Conductivity monitoring	Off
	Water intake repetitions/limit value [µS/cm]	
	Drainage repetitions/limit value [µS/cm]	
Cool-down	Water intake	
	Volume of water [l]	
Drainage	Recycling	Off
	Empty recycling tank	Off
	External circulation pump	Off
	Internal circulation pump	Off
	External drainage contact	Off
Pause	With water intake	
	Volume of water [l]	
	Duration [s]	
	With drying	Off

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]

Drying FB

Programme name	Drying FB	Material number	12 378 510	Programme number	
Mobile unit	A 500	E 975/2			

Machine model: PLW 8615 Safety/PLW 8616 Safety/PLW 8617 Safety

Creation		Checking		General settings	
Created on		Checked		Drainage after disinfection	Off
Created by		Checked on		Interlock	Off
Last name		Checked by		PowerPulseCleaning	Off
First name		Last name		PowerPulseCleaning connection	Off
		First name		Prime [1–6]/Dispensing pump [A–B]	Off
Minimum level to start programme	Operator	Serial number		**Limit temperatures [°C]**	
Minimum level to change programme	Administrator	Programme version		First water intake/Drying	40/80

Flushing water	Cold	Hot	Cold demineralised water	Hot demineralised water	Recycling water
[l]	0	0	0	0	0

Block name	
Block type	
Block number	

Parameters

Category	Parameter
Water intake	Water intake
	+/- water [l]
	Temperature [°C]
	Temperature-regulated, cold/hot
	Mixed water 1/2
	Proportion of mixed water 1 [%]
	Recycling water replacement
Internal water circuit	Circulation pump speed [rpm]
	Wash pressure monitoring
	Min. wash pressure </> 86 °C [hPa]
	Max. wash pressure [hPa]
Dispensing phase 1	Dispensing temperature [°C]
	Exposure time [s]
	Dispensing pump A/B [DOS 1–10]
	Dispensing concentration A/B [%]

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Dispensing phase 2	Dispensing temperature [°C]			
	Exposure time [s]			
	Dispensing pump A/B [DOS 1–10]			
	Dispensing concentration A/B [%]			
Dispensing phase 3	Dispensing temperature [°C]			
	Exposure time [s]			
	Dispensing pump A/B [DOS 1–10]			
	Dispensing concentration A/B [%]			
	Temperature [°C]			
	Holding time [s]			
	A0 value			
	Spray arm monitoring			
	PowerPulseCleaning			
Conductivity	Conductivity monitoring			
	Water intake repetitions/ limit value [µS/cm]			
	Drainage repetitions/ limit value [µS/cm]			
Cool-down	Water intake			
	Volume of water [l]			
Drainage	Recycling			
	Empty recycling tank			
	External circulation pump			
	Internal circulation pump			
	External drainage contact			
Pause	With water intake			
	Volume of water [l]			
	Duration [s]			
	With drying			

Drying	Duration 1 [min]	Temperature 1 [°C]	Duration 2 [min]	Temperature 2 [°C]	Cooldown [min]
	15	75	15	60	

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