**Miele**

# Operating instructions
# Laboratory Glassware Washer
# PG 8593

To avoid the risk of accidents or damage to the appliance, it is **essential** to read these instructions before it is installed and used for the first time.

en - CA

# Contents

# Contents

# Contents

# Contents

# Contents

7

# Notes about these instructions

### Warnings

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

### Notes

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

### Additional information and comments

Additional information and comments are contained in a box with 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

Information given via the display are shown in display messages using the same font as used in the display.

**Example:**

Menu Settings ⚑.

### Definition of terms

**Machine**  In these operating instructions, the washer-disinfector PG 8593 is referred to as "the machine".

**Wash items**  The term "wash items" is used wherever the items to be reprocessed are not defined in any further detail.

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

This Laboratory Glassware Washer is designed to reprocess laboratory glassware, utensils, and similarly categorized components using water-based media. These include:

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

Reprocessing encompasses the cleaning, rinsing, thermal disinfection (where necessary), and drying of the laboratory glassware, utensils, and components listed above.

Reprocessing is carried out in conjunction with:

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

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

The Laboratory Glassware Washer is designed for use in laboratories (e.g., chemical and biological laboratories in universities, research institutes, and industry) as well as laboratory-type applications in the industrial sector.

## Incorrect application

The Laboratory Glassware Washer may not be used for any purposes other than the correct application described. This applies in particular to:

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

## User profiles

**Daily operators**

Daily operators must be instructed in operating and loading the machine and trained regularly to guarantee safe daily use. They require knowledge of machine reprocessing of laboratory glassware and laboratory utensils.

Tasks for daily routine operation are located in the Settings ⚑ menu. This menu is freely accessible to all users.

**Administration**

More advanced tasks, e.g. interrupting or cancelling a program, require more detailed knowledge about the machine reprocessing of laboratory glassware and laboratory utensils.

Alterations or adaptations of the machine, e.g. accessories used or on-site conditions require additional specific knowledge of the machine.

Validation processes assume specialised knowledge of the machine reprocessing of laboratory glassware and utensils, of the processes involved and of applicable standards and legislation.

Administrative processes and settings are allocated to the Additional settings menu. This is protected from unauthorized access by a PIN code.

## Overview
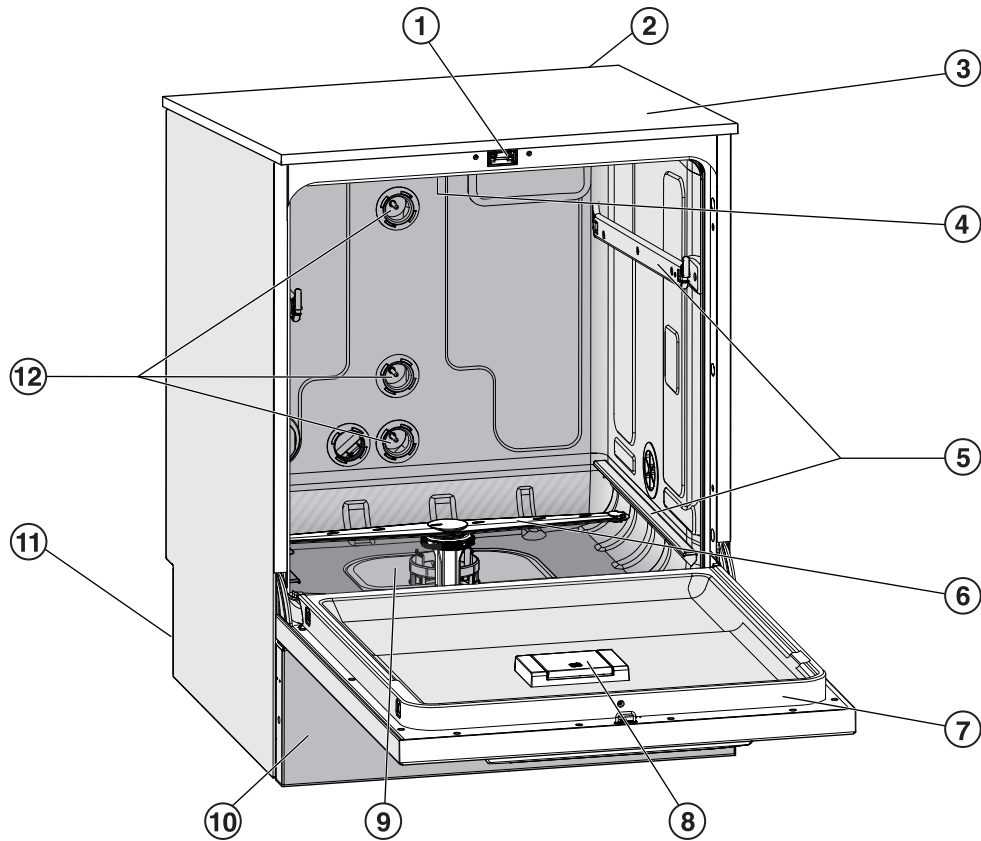


① Comfort door locking mechanism

② Module slot for a communication module (Back, top right)

③ Test point for performance checks (Top, front right; only visible with lid removed)

④ Upper machine spray arm

⑤ Rails for baskets and wash carts

⑥ Lower machine spray arm

⑦ Data plate

⑧ Reservoir for reactivation salt

⑨ Filter combination

⑩ Toe kick panel with service flap

⑪ On the back:
– Second data plate
– Electrical and plumbing connections
– Suction lance(s) for external supply containers
– Connections for external dispensing modules (optional DOS modules)

⑫ Connection point for wash carts and baskets

# Guide to the machine
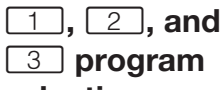
## Control panel
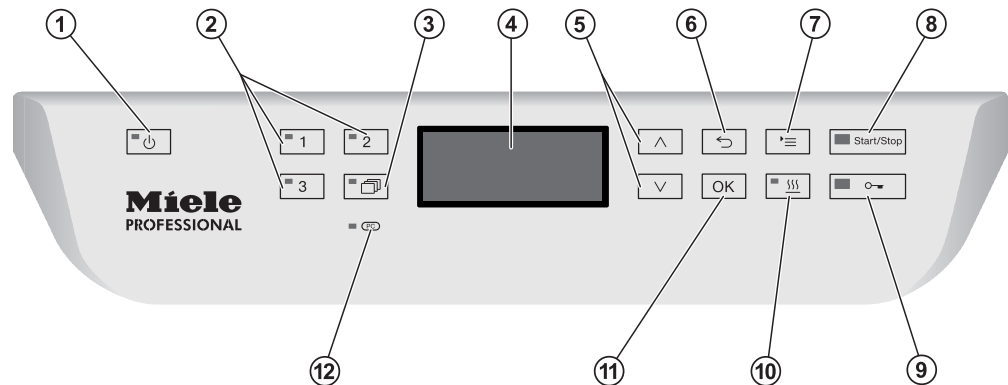


① ⏻ **On/off button**
For switching the machine on and off.

② ⬜1, ⬜2, **and** ⬜3 **buttons**
Program selection buttons.
The button assignment can be configured.

③ 🗗**Program list button**
For accessing the list of all programs for program selection.

④ **Display**
User interface and program cycle display.

⑤ ∧ **and** ∨ **arrow buttons**
For navigating in the user interface.

⑥ ↢ **Cancel button**
For cancelling a process in the user interface.
No program interruption.

⑦ ⌐≡ **Settings button**
For accessing the system settings menu.

⑧ *Start*/*Stop* **button**
For starting or cancelling a program.

⑨ ⊶ **Door release button**
For opening the door before or after a program.

⑩ ⧉ **Drying button**
For switching drying on and off.

⑪ *OK* **button**
For selecting or confirming entries in the user interface (acknowledge or save).

⑫ Ⓟ🄲 **Service interface**
Testing and transmission point for the Service department.

## LEDs in the buttons

The buttons on the control panel have LEDs. These indicate the status of the machine.

| Button | LED | Status |
| --- | --- | --- |
| ⏻ button | ON | The machine is switched on. |
| | FLASHES | The machine is ready for use. |
| | OFF | The machine is switched off. |
| ⎐1⎐, ⎐2⎐, and ⎐3⎐ program selection buttons | ON | The respective program has been selected. At the end of the program, the LED will remain lit until a different program is selected. |
| | OFF | The program is not selected or the program settings are being changed. |
| ▱ button | ON | A program has been selected from the program list. At the end of the program, the LED will remain lit until a different program is selected. |
| | OFF | No program has been selected from the list or the program settings are being changed. |
| ♨ button | ON | The additional "Drying" function has been activated for the selected program (not available for all programs, see "Program charts"). |
| | OFF | The additional "Drying" function has been deactivated. |
| *Start/Stop* button | ON | A program is running. |
| | FLASHES GREEN | A program has been selected, but not yet started. |
| | FLASHES RED | A fault has occurred (see "Problem solving guide"). |
| | OFF | A program has finished. |
| ⚷ button | ON | The door is closed (locked) and there is no program running. |
| | FLASHES | A program has finished and the door is closed (locked). |
| | OFF | A program is running or the door is open (unlocked). |

# Warning and Safety Instructions

> This machine complies with all statutory safety requirements.
> Inappropriate use can, however, lead to personal injury and
> material damage.
> Read these instructions carefully before using it for the first time to
> avoid the risk of accidents and damage to the machine.
> Keep these instructions in a safe place and make sure they are
> available at all times to any user of the machine.

## Correct application

▶ This machine is designed for use with the applications described in these operating instructions only. Alterations or conversions to the machine, or using it for purposes other than those for which it was designed, are not permitted and could be dangerous.
This machine must only be used for cleaning laboratory glassware and utensils if the manufacturer has stated that they are suitable for machine reprocessing. Manufacturer's cleaning and maintenance instructions must also be observed.

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

## Risk of injury

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

▶ The machine may only be installed, commissioned, repaired, and maintained by Miele Service or a suitably qualified service technician. A Miele service contract is recommended to ensure full compliance with the normative and regulatory provisions. Incorrect repairs can cause considerable danger to users.

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

▶ In order to reduce the risk of water damage, the area around the machine should be limited to furniture and fittings that are designed for use in commercial environments.

▶ Some metal parts pose a risk of injury/being cut. Wear cut-resistant protective gloves when transporting and setting up the machine.

▶ If the machine is built under, it must only be installed under a continuous worktop run which is firmly secured to adjacent units to improve stability.

▶ The electrical safety of this machine can only be guaranteed when it is correctly grounded. It is essential that this standard safety requirement is met. If in any doubt, please have the electrical installation tested by a qualified electrician. Miele cannot be held liable for the consequences of an inadequate earthing system (e.g. electric shock).

▶ A damaged or leaking machine is dangerous and poses a safety hazard. Immediately disconnect the machine at the power switch and contact the Miele Service Department.

▶ Label machines which have been taken out of operation and lock them to prevent them being switched on again without authorization. The machine may only be put back into operation once it has been successfully repaired by Miele Service or by an appropriately qualified specialist.

▶ Personnel operating the machine should be trained on a regular basis. Untrained personnel must not be allowed access to the machine or its controls.

▶ 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 items and the machine.

▶ Always exercise caution when handling the process chemicals for this machine. These products may contain irritant, corrosive or toxic ingredients.
Always comply with safety requirements and the manufacturer's safety instructions (see safety data sheets)!
Use protective eyewear and gloves!

▶ The machine is designed to operate with water and the recommended process chemicals only. Organic solvents or flammable liquid agents must not be used in it!
This could cause an explosion, property damage due to the destruction of rubber and plastic components, and the resulting leakage of liquids.

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

▶ Do not lift the machine by protruding parts such as the control panel or the opened service flap as these could be damaged or torn off.

▶ Do not sit or lean on the opened door. This could cause the machine to tip or become damaged.

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

▶ Broken glass can result in serious injury when loading or unloading. Broken glass items must not be processed in the machine.

▶ When operating the machine, beware of the high temperatures involved. If you bypass the electrical lock to open the door, there is a danger of scalding and heat or chemical burns. If disinfectants have been used, there is also the danger of inhaling toxic vapour.

▶ Should personnel accidentally come into contact with toxic vapours or processing chemicals, consult the manufacturer's safety data sheets for emergency procedures.

▶ Always allow wash carts, baskets, modules, inserts, and loads to cool down before unloading. Any water remaining in concave items could still be very hot. Empty them into the wash cabinet before taking them out.

▶ Never clean the machine or surrounding area with a water hose or a pressure washer.

▶ The machine must be disconnected from the mains electricity supply before any maintenance or repair work is carried out.

▶ Depending on the properties of the flooring and footwear worn on it, liquids can cause a slipping hazard. Keep the floor dry where possible and take care to clean up any liquid spills straight away. Take the necessary precautions when cleaning up hazardous substances and hot liquids.

## Quality assurance

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

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

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

▶ For thermal disinfection, use temperatures and holding times to achieve the required infection prophylaxis in accordance with current health and safety regulations.

▶ Make sure items being washed are suitable for machine processing and are in good condition. Plastic items must be thermally stable. Nickel plated items and anodised aluminum items can be machine processed using special procedures only.
Items containing iron, and soiling containing residual rust must not be placed in the cabinet.

▶ Under certain circumstances process chemicals can cause damage to the machine. Always follow the recommendations of the process chemical manufacturers.
In case of damage or doubt about compatibility, please consult with Miele.

▶ Cleaning detergents containing chlorine can damage the elastomers of the machine.
If the use of cleaning detergents containing chlorine is required, a maximum temperature of 167°F (75°C) in the "Main wash" program phases is recommended (see program chart).
In machines equipped with special oil-resistant elastomers (from the factory) for oil and grease applications, cleaning detergents containing chlorine may not be used!

▶ 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.

▶ Pre-treating (e.g. with cleaning agents or disinfectants), some types of soiling and the interaction of certain process chemicals can cause foaming. Foam can have an adverse effect on the cleaning and disinfection results obtained.

▶ The process must be set so that no foam escapes the wash compartment. Escaping foam jeopardizes the safe operation of the machine.

▶ The process must be checked regularly in order to detect any foaming.

▶ To avoid the risk of damage to the machine and its accessories caused by process chemicals, soiling and any reaction between the two, please read the notes in "Chemical processes and technology".

▶ Even when a chemical additive (e.g. cleaning chemical) is recommended on technical application grounds, the machine manufacturer takes no responsibility for the effect of such chemicals on the material of the items being cleaned.
Note that formulation changes, storage conditions, etc., that are not disclosed by the chemical manufacturer may adversely affect the cleaning results obtained.

▶ When using process chemicals, always consult the instructions issued by individual manufacturers. Process chemicals must only be used for the purpose for which they are designed by the manufacturer to avoid any material damage or the occurrence of very strong chemical reactions.

▶ Always follow the relevant manufacturer's instructions on storage and disposal of process chemicals.

▶ For critical applications, where very stringent reprocessing requirements have to be met, it is strongly recommended that all process-related factors (processing chemicals, water quality, etc.) are discussed in advance with Miele.

# Warning and Safety Instructions

▶ If the cleaning result is subject to particularly stringent requirements, e.g., in chemical analysis, regular quality control should be carried out by the operator to ensure that required standards of cleanliness are being achieved.

▶ The carts, baskets, modules and inserts that hold the wash load must be used only as intended.
Hollow items 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 all containers and hollow utensils before loading them into the machine.

▶ 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 (70 °F).

▶ Chloride solutions, in particular hydrochloric acid, must not be placed in the cabinet.

▶ To avoid corrosive damage, make sure the stainless steel housing does not come into contact with solutions or steam containing hydrochloric acid.

▶ After any plumbing work the water pipework to the machine will need to be vented. If this is not done, components can be damaged.

▶ The gaps between a built-in machine and adjacent cabinetry must not be filled with silicone sealant as this could compromise the ventilation of the circulation pump.

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

## Safety with children

▶ Children must be supervised in the vicinity of the machine. Do not allow children to play with the machine. Among other hazards, they could get locked inside it.

▶ Children must not use the machine.

▶ Keep children away from process chemicals! These can cause burning in the mouth, nose and throat if swallowed, or inhibit breathing. Keep children away from the machine when the door is open. There could still be residual process chemicals in the cabinet. Observe the safety data sheets for the process chemicals and seek medical advise immediately if a child has swallowed process chemical or got it in the eyes.

## Using components and accessories

▶ Only Miele accessories should be connected to this machine for the appropriate application. Consult Miele for details on the type of equipment to use.

▶ Only use Miele wash carts, baskets, modules and inserts with this machine. Using wash carts, baskets 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 warranty.

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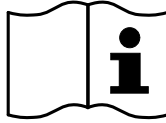
Attention:
Observe the operating instructions!
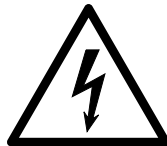
Attention:
Danger of electric shock!

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

Risk of being cut:
Wear cut-resistant protective gloves when transporting and setting up the machine!

## Disposing of your old appliance

▶ Please note that the machine may have contamination from blood, bodily fluids, pathogenic germs, facultative pathogenic germs, genetically modified material etc. in it and must be decontaminated before disposal.
For environmental and safety reasons ensure the machine is completely drained of any residual water, chemical residues and cleaning chemicals. Observe safety regulations and wear protective eyewear and gloves.
Remove or destroy the door latch to prevent children from locking themselves in. Then make appropriate arrangements for its safe disposal.

# Operation

## Control panel

The machine is operated exclusively by the buttons located on the stainless steel surfaces either side of the display. The display is not a touch screen.
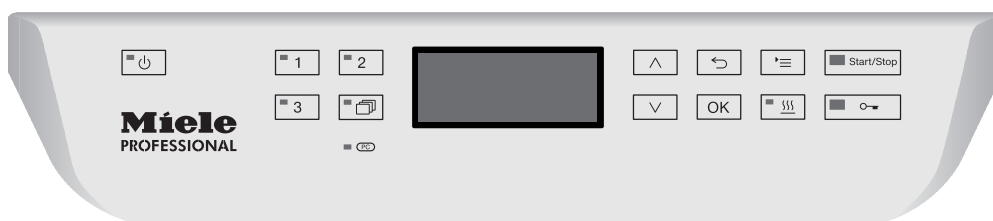
A light touch on the relevant button is sufficient to operate the functions. The buttons can also be pressed and held for approx. 20 seconds.

## Display illustrations

All display illustrations shown in these operating instructions are examples which can be different from the actual display screens shown.
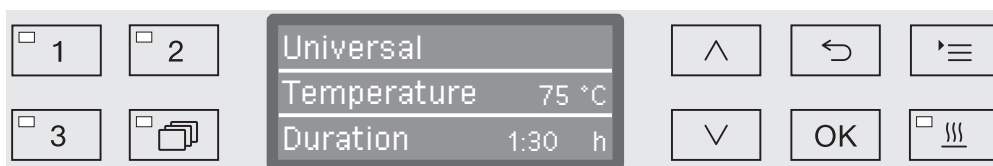
The control buttons are shown next to the display. The ⏻, ⚷ and *Start/Stop* buttons are not shown.

## Switching on

The machine must be connected to the electrical supply.

■ Press the ⏻ button until the button's LED lights up.

After that, the display will show the following:

| 1 | 2 | **Míele**<br>PROFESSIONAL<br>PG 8593 | ∧ | ↩ | ▸≡ |
|---|---|---|---|---|---|
| 3 | ▭ | | ∨ | OK | ▭ ≋ |

As soon as the machine is ready for operation, the display changes to show the last selected program, e.g.:

| 1 | 2 | Universal<br>Temperature 75 °C<br>Duration 1:30 h | ∧ | ↩ | ▸≡ |
|---|---|---|---|---|---|
| 3 | ▭ | | ∨ | OK | ▭ ≋ |
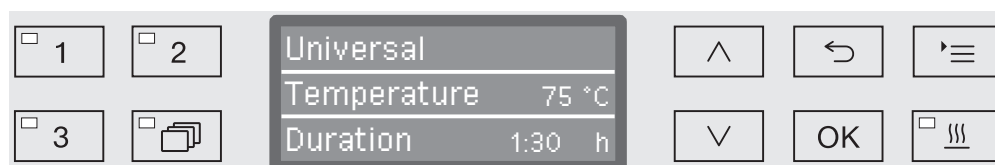
If the machine is being used for the first time, or if the factory default settings have been reinstated, some basic parameters, e.g. language, date, time, etc., must first be set. To enable this, the display automatically changes to the relevant screen.

## Switching off

■ Press the ⏻ button.

## Auto-off function

To save energy, the machine has an automatic switch-off function (Auto-off function). If the machine has not been used for a specific time period, it switches itself off automatically, see "Further settings/ Switch off after".

■ Use the ⏻ button to switch the machine on again.

## Standby

When it is on standby, the machine remains switched on, the ⏻ button flashes, and the time is shown on the display. Pressing any button reactivates the machine. Standby can be switched on and off as required, see "Further settings/Switch off after".

# Operation

### User interface in the display

The user interface of the machine is controlled by menus. The menus are displayed in a 3-line display on the control panel.

The name of the menu (top line) and up to two options are shown. The currently selected option is highlighted, e.g.

| □ 1 | □ 2 | Settings ⚑ | ∧ | ↩ | ▸≡ |
|-----|-----|------------|---|---|----|
| □ 3 | □ 🗗 | Language ⚑ | ∨ | OK | □ ⟨⟨⟨ |

Date

### Menu operation

▸≡                    **Settings button**

For accessing the system settings menus.

∧ and ∨              **Arrow buttons**

The arrow buttons are used to navigate up and down by row within a menu. Press and hold the button to automatically scroll through the list to the end of the menu. Press the button again to continue navigating.
Parameter values can also be altered in defined increments using the arrow buttons. Instructions for this can be found in the relevant sections.

OK                   **OK button**

The *OK* button is used for confirming (acknowledging) a selection or for saving input. The display then moves to the next menu or, when entering parameter values, to the next input position. Instructions for this can be found in the relevant sections.

↩                    **Cancel button**

Before the *OK* button has been pressed, a process can be cancelled at any time by pressing the ↩ button. The menu is then ended early and the display changes to the next menu level up. Any setting changes made will not be saved.

### Settings in the menu

All menu descriptions in these operating instructions are structured as follows:

**Input procedure**  The input procedure describes the complete sequence required to reach a particular menu level. The menu options shown must be selected individually using the arrow buttons and then confirmed with *OK*.

Example:  ˈ≡ button
  ▸Settings ⊫
    ▸Time of day
      ▸Time format

If a menu level is already displayed, the path does not need to be followed completely. If, for example, the Settings ⊫ menu is already displayed, you do not need to press the ˈ≡ button again. In this case, simply follow the sequence from Settings ⊫ onwards.

**Display view**  When selecting a menu, the last menu used is generally pre-selected.

Example:

| 1 | 2 | **Time format** | | ∧ | ↰ | ˈ≡ |
|---|---|---|---|---|---|---|
| 3 | ⧉ | 12 h<br>24 h | | ∨ | OK | ⧗ |

**Extras**  All available menu options are listed together with a short description.

Example:  - 12 h

    Time of day display in 12-hour format (am/pm).

  - 24 h

    Time of day display in 24-hour format.

**Method**  Then further instructions are given.

Example:  ■ Select an option using the ∧ and ∨ arrow buttons.

  ■ Press *OK* to save the setting.

## Symbols in the display

✦ **Navigation arrows**

If a menu consists of more than two options, two navigation arrows are shown at the side of the menu options.



Use the ∧ and ∨ arrow buttons on the control panel to navigate through the menu.

- - - - - - **Dotted line**

If a menu contains more than two options, the end of the option list is marked by a dotted line. The last entry appears above the line, the first entry below it.

✓ **Check**

If there are several options available, the current setting is marked with a check ✓.
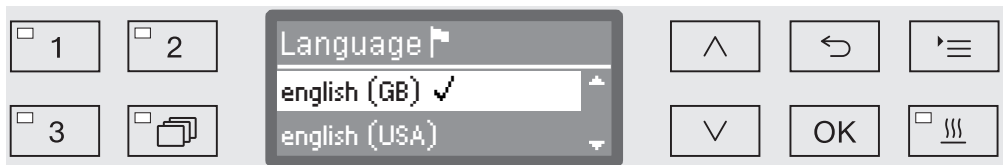


ℹ **System messages**

The ℹ symbol denotes system messages. These give information, such as a notification of an excessively low level in the supply containers or a reminder for the next service.
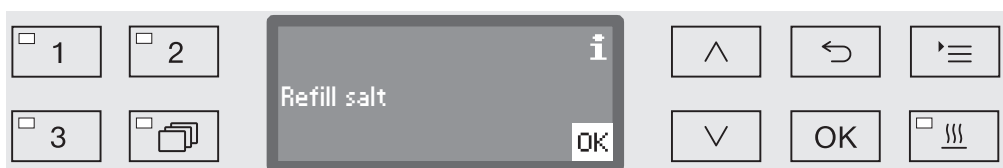


System messages are displayed at the start and end of a program and have to be confirmed (acknowledged) individually with *OK* or all together at the end of the program by opening the door. If the ℹ symbol is shown on the display, the system messages can be opened by pressing the OK button.

⚠ **Fault messages**

In the event of a fault, a warning triangle is shown in place of the ℹ symbol. See "Problem solving guide" and "After sales service" for more information.

## Installation and connection

Before commissioning the machine must be securely installed, and the water inlet and drain hoses and the mains cable correctly connected. See "Installation", "Plumbing connections" and "Electrical connection" and the installation plan supplied.

## Procedure

During commissioning a set procedure is followed which must not be interrupted. The display will automatically guide you through the process.

All settings, except for selecting plumbing connections, can be retrospectively altered via the Settings ⚑ and Additional settings menus.

> The settings made during the commissioning process are only adopted after a complete program has been run.
> If the program is interrupted or if no program is started or the machine is switched off, the commissioning process must be carried out again.

**Switching on**

■ Press the ⏻ button until the LED on the keypad lights up.

**Select language**

The commissioning process starts with selecting the language. For Canada select "English (CA)" or "Français (CA)".
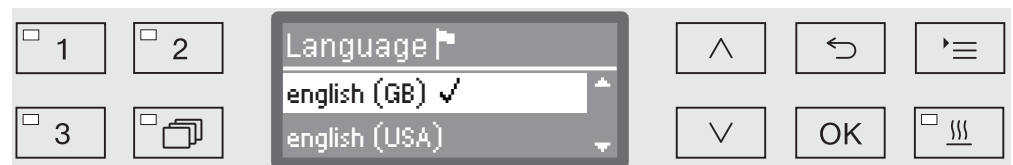


■ Use the ∧ and ∨ arrow buttons to select the language you want and touch *OK* to save.

**Select temperature unit**

The menu for selecting the temperature unit will then appear.
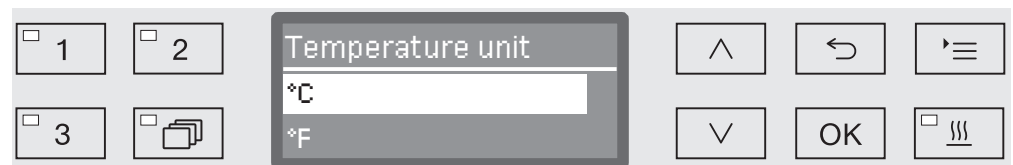


■ Use the ∧ and ∨ arrow buttons to select the temperature unit you want and touch *OK* to save.

# Commissioning

**Selecting the date format**

The menu for selecting the date format will then appear.

| 1 | 2 | Date format<br>DD:MM:YY<br>MM:DD:YY | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ▱ | | ∨ | OK | ⧦ |
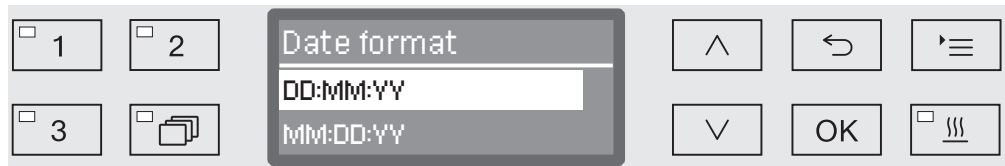
- DD = Day

- MM = Month, and

- YY = Year.

■ Use the ∧ and ∨ arrow buttons to select the date format you want and touch *OK* to save.

**Setting the date**

The menu for setting the date will then appear.

| 1 | 2 | Date<br>17 . 10 . 2016 | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ▱ | | ∨ | OK | ⧦ |
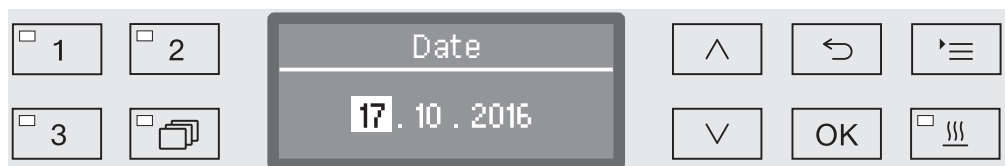
■ Use the ∧ and ∨ arrow buttons to set the day, month and year and touch *OK* to save each one.

**Select Clock display**

The menu for selecting the clock format will then appear.

| 1 | 2 | Time format<br>12 h<br>24 h | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ▱ | | ∨ | OK | ⧦ |
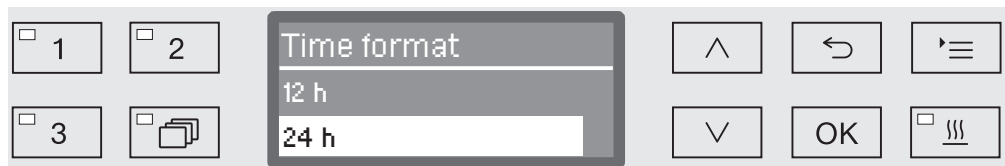
■ Use the ∧ and ∨ arrow buttons to select the format you want and touch *OK* to save.

**Setting the time of day**

The menu for setting the time of day will then appear.

| 1 | 2 | Time of day<br>12 : 00 | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ▱ | | ∨ | OK | ⧦ |
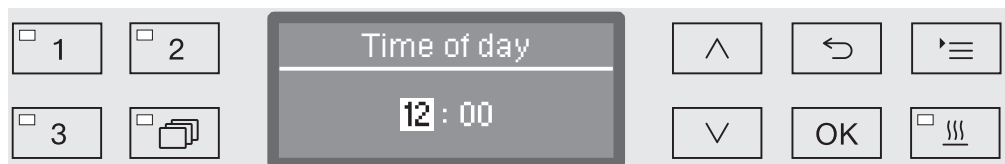
■ Use the ∧ and ∨ arrow buttons to select the hours and minutes and touch *OK* to save each one.

**Setting the water hardness level**

The menu for setting the water hardness will then appear.

| 1 | 2 | **Water hardness** | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | **19** gr/gal<br>(0 - 70 gr/gal) | ∨ | OK | ☰ |
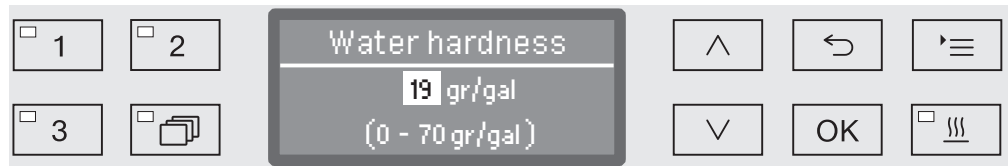
The possible range is shown in the bottom line of the display. Water hardness setting values can be found in the "Water softener/Settings" chart.

Your local water authority can give you information about the exact water hardness in your area.

With varying water hardness, always set the highest level. If the water hardness fluctuates between, for instance, 1.4 and 3.1 mmol/l (8 and 17 gr/gal), the water hardness must be set to 3.1 mmol/l (17 gr/gal).

■ Set the water hardness using the arrow buttons ∧ (higher) and ∨ (lower) and press *OK* to save.

■ Write down the water hardness as described in "Water softener/ Water hardness."

**Select plumbing connections**

The menu for setting plumbing connections will then appear.

Unused plumbing connections, e.g. if there is only one connection, can be deactivated here.

> Following commissioning the plumbing connections can be reinstated by Miele Service.

| 1 | 2 | **Plumbing connections** | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | Accept<br>☑ Cold water | ∨ | OK | ☰ |
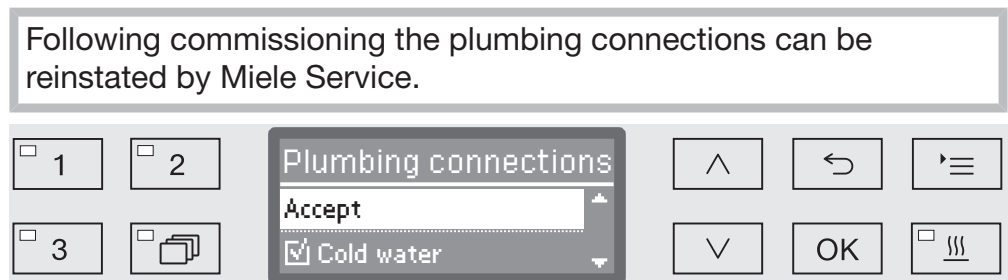
The plumbing connection is set via multiple choice. A box ☐ is shown in the display next to all plumbing connections. If the connection is activated, a tick ☑ can be seen in it. Select to activate or deactivate the plumbing connections.

■ Use the ∧ and ∨ arrow buttons to select the plumbing connection you want. Plumbing connections are activated or deactivated by touching *OK*.

■ To save the selection, select the Accept option at the end of the list and confirm with *OK*.

# Commissioning

**Commissioning completed**

Commissioning is completed when the following message is displayed.



■ Confirm the message with *OK*.

The machine is now ready for use.
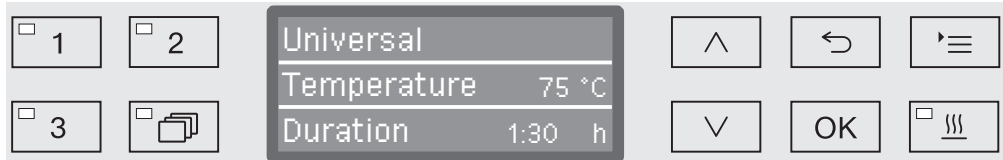


The settings made during the commissioning process are only adopted after a complete program has been run.

■ Select any program, e.g.: Drain.

■ Press the *Start/Stop* button to start the program.

> After commissioning every program starts with reactivation of the water softener.

**Fault 420**

If the program is canceled using Fault 420, all the plumbing connections are deactivated.

■ Confirm the error message with *OK*.

■ Switch the machine off using the ⏻ button.

■ Wait approximately 10 seconds before switching the machine on again with the ⏻ button.

The commissioning procedure starts again.

■ Perform commissioning and activate at least one plumbing connection; e.g. for cold water.

## Electronic door locking

The machine is equipped with a Comfort door lock. When the door is closed, the Comfort door lock automatically pulls the door into the correct position, electronically locking the door.

## Opening the door

An electronically locked door can only be opened if:

- the machine is connected to the electrical supply and is switched on (the LED for the ⏻ button is lit up),

- there is no program running,

- the temperature in the wash cabinet is less than 60 °C and

- the ⌐⊶ LED is lit up.

■ Press the ⌐⊶ button to open the door.

The Comfort door lock opens the door slightly. The LED goes out as soon as the door is unlocked.

The control panel of the machine is also a door handle.
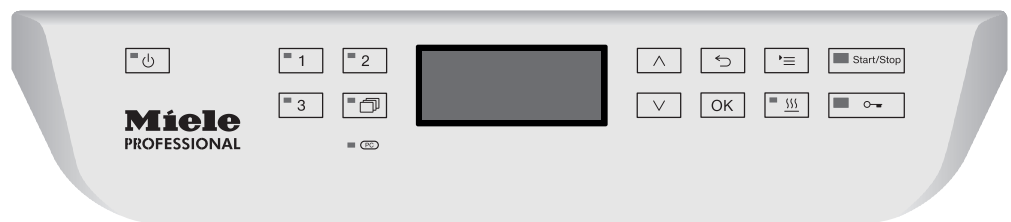


■ Grasp the handle underneath the control panel and lower the door to open it.

## Closing the door

■ Ensure that there are no objects or items in the load obstructing the door.

> ⚠ Do not put your hand inside the door as it is closing.
> Danger of injury.

■ Lift the door until it engages with the door lock. The door is automatically pulled into the correct position by the Comfort door lock.

# Opening and closing the door

## Opening the door using the emergency release

The emergency release may only be used when it is no longer possible to open the door normally, e.g. in the event of a power cut.

⚠ If the emergency release is operated during a program cycle, hot water and process chemicals can escape.
Risk of scalding, burning and chemical burns.

■ Push against the door so that less force is needed to operate the emergency release.
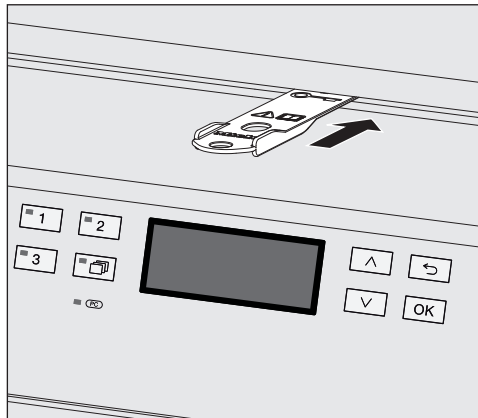


■ Push the tool supplied in the accessory pack horizontally into the gap between the door and the lid or worktop. The right-hand edge of the tool must align with the outer right-hand edge of the display.

■ Press against the unlocking mechanism with the tool until you hear the door unlock. The door can now be opened.

If the machine is switched on, the activation of the emergency release will be recorded in the optional process documentation and the following message will appear in the display:



The message remains in the display until the door is closed. It is not recorded if the machine is switched off.

## Water hardness

In order to achieve good cleaning results, the machine needs to operate with soft (low in calcium) water. Hard water results in the build-up of calcium deposits on the load and the machine.

Mains water with a water hardness of .7 mmol/l (4 gr/gal) must be softened. This occurs automatically in the built-in water softener. The water softener must be set to the exact hardness of the mains water (see "Water softener/Setting the water hardness").

Your local water authority can give you information about the exact water hardness in your area.
It is useful to know your water hardness so that you can provide the service technician with this information in the event of any subsequent service calls. For this reason, record the hardness of the mains water here:


_____mmol/l or gr/gal

The water softener must be reactivated at regular intervals. This requires special reactivation salt (see "Water softener/Filling the salt reservoir"). Reactivation is carried out automatically during a program sequence.

If the hardness level of your water is constantly less than .7 mmol/l (= 4 gr/gal), salt is not required for the water softener. The water hardness level must, however, still be set.

# Water softener

## Setting the water hardness level

Water hardness can be set between 0 - 70 gr/gal.

■ Open the menu as follows:

Button ⌐≡

 ▶ Additional settings

  ▶ Water hardness
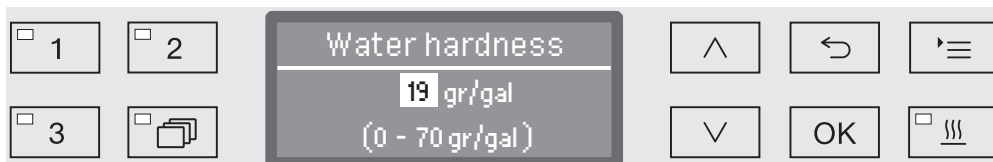


The bottom line of the display shows the possible input range. Water hardness input values can be found in the chart on the next page.

Where the water hardness fluctuates, e.g. between 8 - 17 gr/gal, always program the machine to the higher value, 17 gr/gal in this example.

■ Set the water hardness level using the arrow buttons (∧ = higher and ∨ = lower).

■ Press OK to save the setting.

## Settings table

| gr/gal | ppm CaCO$_3$ | mmol/l | Display | gr/gal | ppm CaCO$_3$ | mmol/l | Display |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 36 | 650 | 6.5 | 36 |
| 1 | 20 | 0.2 | 1 | 37 | 670 | 6.7 | 37 |
| 2 | 40 | 0.4 | 2 | 38 | 680 | 6.8 | 38 |
| 3 | 50 | 0.5 | 3 | 39 | 700 | 7.0 | 39 |
| 4 | 70 | 0.7 | 4 | 40 | 720 | 7.2 | 40 |
| 5 | 90 | 0.9 | 5 | 41 | 740 | 7.4 | 41 |
| 6 | 110 | 1.1 | 6 | 42 | 760 | 7.6 | 42 |
| 7 | 130 | 1.3 | 7 | 43 | 770 | 7.7 | 43 |
| 8 | 140 | 1.4 | 8 | 44 | 790 | 7.9 | 44 |
| 9 | 160 | 1.6 | 9 | 45 | 810 | 8.1 | 45 |
| 10 | 180 | 1.8 | 10 | 46 | 830 | 8.3 | 46 |
| 11 | 200 | 2.0 | 11 | 47 | 850 | 8.5 | 47 |
| 12 | 220 | 2.2 | 12 | 48 | 860 | 8.6 | 48 |
| 13 | 230 | 2.3 | 13 | 49 | 880 | 8.8 | 49 |
| 14 | 250 | 2.5 | 14 | 50 | 900 | 9.0 | 50 |
| 15 | 270 | 2.7 | 15 | 51 | 920 | 9.2 | 51 |
| 16 | 290 | 2.9 | 16 | 52 | 940 | 9.4 | 52 |
| 17 | 310 | 3.1 | 17 | 53 | 950 | 9.5 | 53 |
| 18 | 320 | 3.2 | 18 | 54 | 970 | 9.7 | 54 |
| **19** | 340 | **3.4** | **19 *)** | 55 | 990 | 9.9 | 55 |
| 20 | 360 | 3.6 | 20 | 56 | 1000 | 10.0 | 56 |
| 21 | 380 | 3.8 | 21 | 57 | 1020 | 10.2 | 57 |
| 22 | 400 | 4.0 | 22 | 58 | 1040 | 10.4 | 58 |
| 23 | 410 | 4.1 | 23 | 59 | 1060 | 10.6 | 59 |
| 24 | 430 | 4.3 | 24 | 60 | 1070 | 10.7 | 60 |
| 25 | 450 | 4.5 | 25 | 61 | 1090 | 10.9 | 61 |
| 26 | 470 | 4.7 | 26 | 62 | 1110 | 11.1 | 62 |
| 27 | 490 | 4.9 | 27 | 63 | 1130 | 11.3 | 63 |
| 28 | 500 | 5.0 | 28 | 64 | 1150 | 11.5 | 64 |
| 29 | 520 | 5.2 | 29 | 65 | 1160 | 11.6 | 65 |
| 30 | 540 | 5.4 | 30 | 66 | 1180 | 11.8 | 66 |
| 31 | 560 | 5.6 | 31 | 67 | 1200 | 12.0 | 67 |
| 32 | 580 | 5.8 | 32 | 68 | 1220 | 12.2 | 68 |
| 33 | 590 | 5.9 | 33 | 69 | 1240 | 12.4 | 69 |
| 34 | 610 | 6.1 | 34 | 70 | 1250 | 12.5 | 70 |
| 35 | 630 | 6.3 | 35 | | | | |

*) Factory default setting

## Filling the salt reservoir

Use only special, coarse-grained reactivation salt with a granule size of approx. 1 - 4 mm. Suitable water softener salt is available from Miele.

Do not under any circumstances use other types of salt such as table salt, agricultural or gritting salt. These may contain insoluble additives which can impair the functioning of the water softener.

⚠ Inadvertently filling the salt reservoir with cleaning detergent will cause serious damage to the water softener.

Before filling the salt reservoir make sure that you have picked up the right package of reactivation salt.
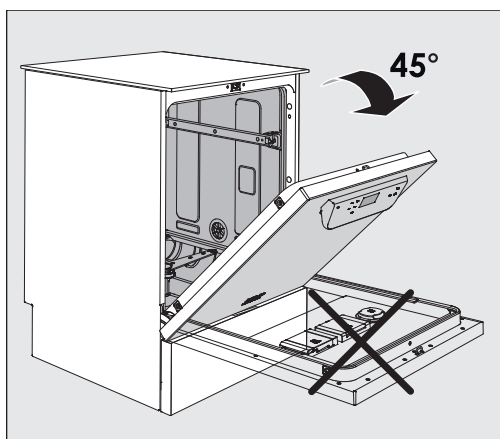


■ Open the door to an angle of around 45°. This ensures that the salt flows into the salt reservoir more easily.
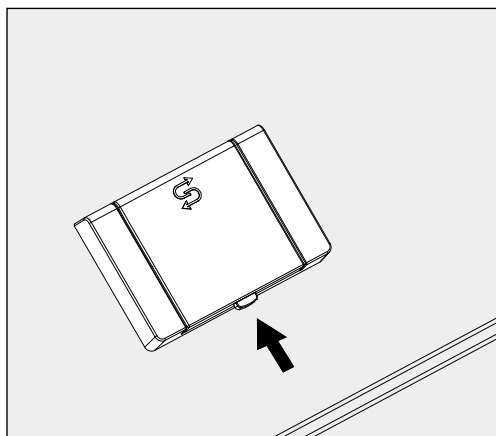


■ Press the yellow button with the ⮂ symbol on the salt reservoir in the direction of the arrow. The flap will spring open.

■ Open the funnel.

The reservoir takes approx. 1.4–2 kg of salt, depending on the type of salt and the remaining fill level.
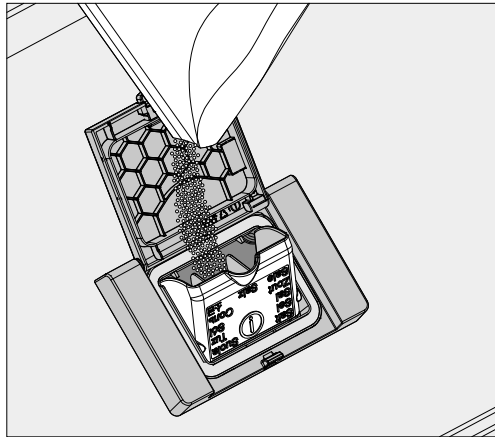
⚠ Never fill the reservoir with water.
The reservoir could overflow when filled with salt.

■ Add salt until the reservoir is full, making sure that the funnel still closes easily. Do not add any more than 2 kg of salt.

As the salt reservoir is being filled, displaced water (brine) may run out.

■ Clean any excess salt from around the opening of the reservoir, focusing especially on the reservoir's seal. **Do not use** running water as this can cause the salt reservoir to overflow.

■ Close the reservoir.

⚠ Do not force the reservoir shut if it has been overfilled.
If an overfilled salt reservoir is forced shut, this may damage the reservoir.
Remove excess salt before closing the reservoir.

■ Run the Rinse program after refilling salt.

This will ensure that any traces of salt and brine are dissolved, diluted, and rinsed away.

Excess salt and brine which has overflowed can cause corrosion damage if they are not rinsed away.

# Water softener

## Add salt reminder

If the salt level in the reservoir is low, the following reminder will appear:
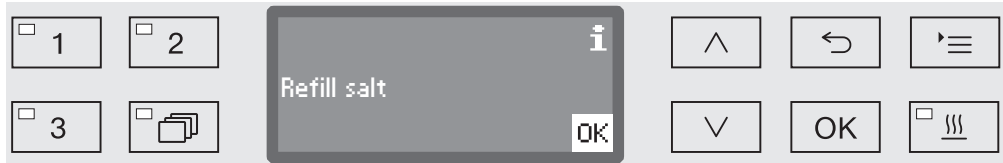


■ Confirm the message with the *OK* button and

■ fill the reservoir as described.

When the message first appears, there may be sufficient salt for a further program, depending on the water hardness level set.

> If there is no saline solution left in the water softener, a relevant message will appear in the display and the machine will be locked for further use.
> The machine can be used again a few seconds after the salt has been refilled.

## Wash carts, baskets, modules and inserts

This machine can be equipped with an upper and lower basket or a wash cart which can be fitted with different inserts and modules or exchanged for special accessories depending on the items to be washed.

Select accessories which are appropriate for the application.

Information on the individual areas of application can be found on the following pages, as well as in the operating instructions for the wash carts, baskets, modules and inserts (if available).

For all areas of application defined in "Intended use" Miele offers suitable accessories such as wash carts, baskets, modules, inserts and special fittings. Contact Miele for more information.

**Water supply**

Wash carts and baskets with spray arms are equipped with one or more connection points to the water supply. When loading baskets, wash carts, etc. into the machine, connect these to the water connection points in the back panel of the wash cabinet. The wash carts and baskets are held in place by the wash cabinet door when closed.
Any free connections in the back panel are closed mechanically.

**Older models of wash carts and baskets**

Only use older models of wash carts and baskets in this machine in consultation with Miele. In particular wash carts and baskets with water supply pipes for spray arms and injector manifolds must be converted to the new type of water connector.
Conversion must be carried out by Miele Service and is only available for selected models.

⚠ The assembly of connectors for the water supply of wash carts and baskets must be carried out by Miele Service.
Fitting faults on wash carts and baskets can cause damage to the machine.

Following conversion, wash carts and baskets can no longer be used in older models of the machine.

## Upper basket height adjustment

Height-adjustable upper baskets can be adjusted between three positions with 2 cm between each position to accommodate items of different heights.

To adjust the height, the brackets with rollers on the sides of the upper basket and the water connector at the back of the basket have to be moved. The roller brackets are each secured to the upper basket by two screws. The water connector consists of the following components:

- A stainless steel plate with 2 openings,

- a plastic connection piece and

- 6 screws

Only adjust the upper basket horizontally. The baskets are not designed to be positioned on a slant (one side up, one side down). Altering the height will alter loading heights for both the upper and lower baskets.

**To adjust the upper basket:**

■ Remove the upper basket by pulling it out until a resistance is felt and lifting it off the runners.

■ Unscrew the roller brackets and the water connector.

**To adjust the upper basket to the ...**

**... upper position:**
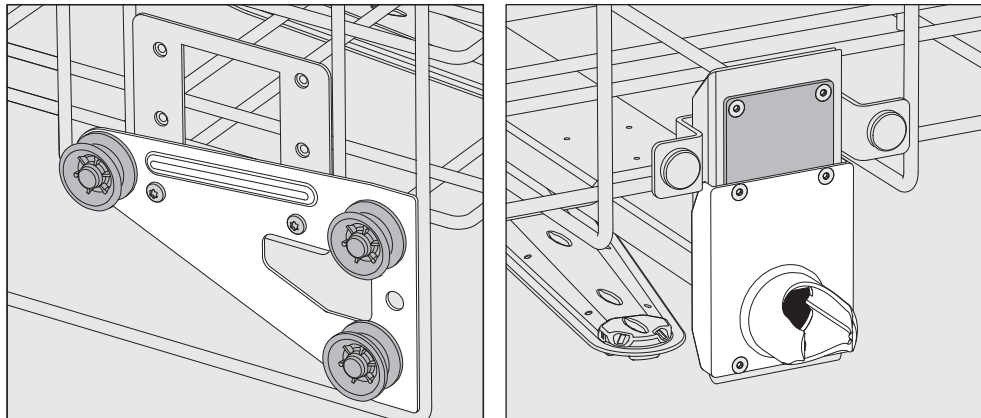


■ Move the roller brackets on both sides to the lowest position and secure them firmly.

■ Position the stainless steel plate over the openings in the water supply pipe so that the upper opening is covered. Secure the stainless steel plate at the top with 2 screws. Place the water connector in the lower opening of the stainless steel plate so that the middle opening is covered. Secure the water connector with 4 screws.

**... middle position:**
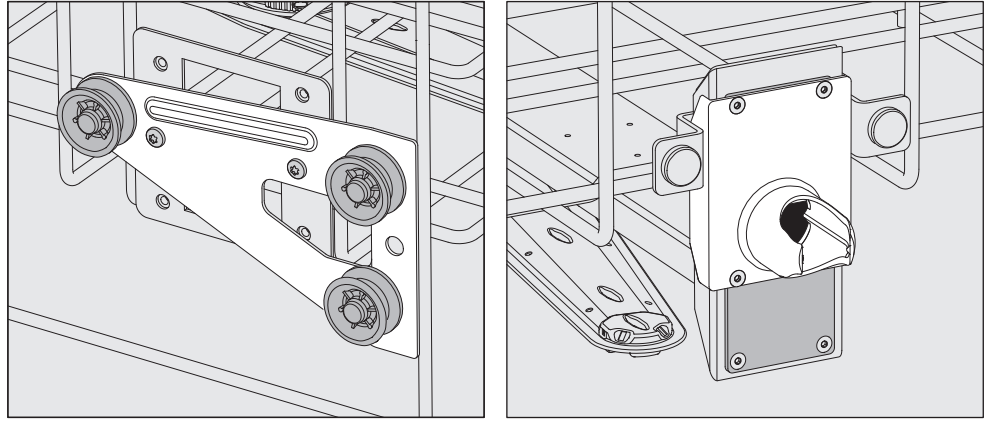


■ Move the roller brackets on both sides to the middle position and secure them firmly.

■ Position the stainless steel plate over the openings in the water supply pipe so that one of the outer openings is covered. Secure the stainless steel plate at the top or bottom with 2 screws. Place the water connector in the middle opening of the stainless steel plate so that the outer opening is covered. Secure the water connector with 4 screws.

**... lower position:**
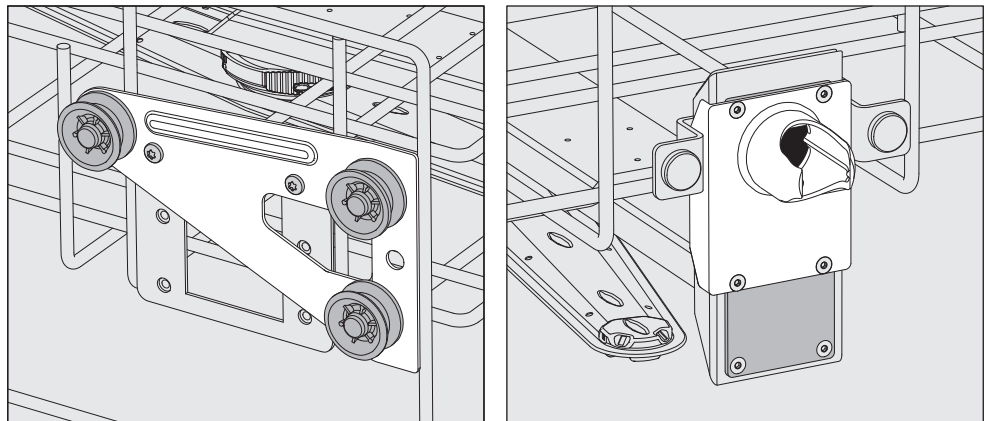


■ Move the roller brackets on both sides to the top position and secure them firmly.

■ Position the stainless steel plate over the openings in the water supply pipe so that the lower opening is covered. Secure the stainless steel plate at the bottom with 2 screws. Place the water connector in the upper opening of the stainless steel plate so that the middle opening is covered. Secure the water connector with 4 screws.

**Then check:** ■ Replace the upper basket on the rails and push it in carefully to check that the water connection is positioned correctly.

## Loading the machine

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

Special injector nozzles, irrigation sleeves or adapters may be required for appropriate internal cleaning, depending on the load. These, together with other accessories, are available from Miele.

- Arrange the load so that water can access all surfaces. This ensures that it gets properly cleaned.

- Do not place items to be cleaned inside other pieces where they may be concealed.

- Hollow items must be thoroughly cleaned, internally and externally.

- Ensure that items with long narrow hollow sections can be flushed through properly before placing them in a fitting or when connecting them to a water connection.

- Hollow vessels should be inverted and placed in the correct mobile units, baskets, modules and inserts to ensure that water can flow in and out of them unrestricted.

- Deep-sided items should be placed at an angle to make sure water runs off them freely.

- Tall, narrow, hollow items should be placed in the centre of the basket. This will ensure better water coverage.

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

- Lightweight items should be secured with a cover net (e.g. an A 6) and small items placed in a mesh tray to prevent them blocking the spray arms.

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

- Broken glass can result in serious injury when loading or unloading. Broken glass items must not be processed in the machine.

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

- With items which are made entirely or partly of plastic, observe the maximum thermal stability for the items and select an appropriate program or adjust the temperature of the program.

Observe the further information given in the following sections as necessary depending on area of application.

**Preparing the load**

■ Empty all items before loading into the machine (pay particular attention to relevant regulations).

■ Remove non-water soluble residues such as paint, adhesives and polymer compounds using appropriate solvents.

■ Rinse wash load items which have been in contact with solvents, chloride solutions or hydrochloric acid thoroughly with water and drain well before loading in the machine.

⚠ 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 (70°F).

⚠ Chloride solutions, in particular hydrochloric acid, or corrosive iron materials must not be placed in the cabinet.

■ Scoop nutrient media (Agar) out of petri dishes.

■ Shake out any blood residues and remove any clots.

■ If necessary rinse the wash load briefly with water to avoid introducing coarse soiling into the machine.

■ Remove all stoppers, corks, labels, sealing wax residue, etc.

■ Small items such as stoppers and taps, should be secured in suitable baskets for small parts.

It may be necessary in individual cases to check whether extremely stubborn contamination e.g. vacuum grease, paper labels, etc. which could affect the cleaning result, must be removed in advance.

It must be determined whether wash load items which are contaminated with microbiological material, pathogenic germs, facultative pathogenic germs, genetically modified material etc. need to be sterilized prior to machine reprocessing.

# Application technology

**Carry out a visual check before starting a program:**

- Is everything correctly loaded/connected for cleaning?

- Was the recommended loading template followed?

- Can the lumen / narrow sections of hollow items be accessed by the wash fluid?

- Are the spray arms clean, and can they rotate freely?

- Are the filters clean?
  Remove any coarse soiling and clean the filters if necessary.

- Are the removable modules, injector nozzles, irrigation sleeves and other rinsing fittings securely connected?

- Are the baskets and modules or wash carts correctly connected to the water supply and are the water connectors undamaged?

- Are all chemical containers sufficiently filled?

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

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

- Check that all hollow items are still securely located on their injector nozzles.

⚠ Any hollow items that have become disconnected from their adapters during reprocessing must be re-processed.

- Check that the lumen of hollow items are free of obstruction.

- Check that injector nozzles and connectors are securely held in position in the baskets or inserts.

## Wash load...

**...wide necked**   Wash load items with wide necks, e.g. beakers, wide necked Erlenmeyer flasks and petri dishes, or cylindrical items, e.g. test tubes, can be cleaned inside and out by rotating spray arms.
To do this the wash load is positioned in full, half or quarter inserts and placed in an empty lower basket or upper basket with a spray arm.

**...narrow necked**   Wash load items with narrow necks, e. g., narrow necked Erlenmeyer flasks, round-bottomed flasks, measuring cylinders and pipettes, require injector wash carts or baskets with special injector modules.

> The injector wash carts and modules come with their own operating instructions.

### When loading please note:

- Place petri dishes or similar items in the appropriate insert with the dirty side facing towards the middle.

- Place pipettes with the pointed end facing downwards.

- Quarter segment inserts should be positioned at a minimum 3 cm distance from the edge of the upper or lower basket.

- Position quarter segment inserts for test tubes around the middle to leave the corners of the upper or lower basket free.

- Use a cover net to avoid breakages if required.

# Chemical processes and technology

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

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

| General information | |
|---|---|
| **Problem** | **How to resolve it** |
| If elastomers (hoses and seals) and plastics in the machine are damaged, for example by swelling, shrinking, hardening or brittleness of materials, tears and cracks, components will not function correctly and this generally leads to leaks. | - Determine and remedy the causes of the damage.<br><br>See also the information on "Associated process chemicals", "Soiling", and "Reaction between process chemicals and soiling" in this section. |
| A heavy build-up of foam during the program sequence will impair the cleaning and rinsing effect on the wash items. Foam escaping from the wash cabinet can cause damage to the machine.<br>When foam develops, the cleaning process cannot be guaranteed to be standardized and validated. | - Determine and remedy the causes of the foam.<br>- Check the process used regularly to monitor foaming levels.<br><br>See also the information on "Associated process chemicals", "Soiling", and "Reaction between process chemicals and soiling" in this section. |
| Corrosion to stainless steel in the wash cabinet and to accessories has various appearances:<br>- rust (red marks / discolouration)<br>- black stains / discolouration<br>- white stains / discolouration (etched surface)<br>Corrosive pitting can lead to the machine not being water-tight. Depending on the application, corrosion can affect cleaning and rinsing results (laboratory analysis) or cause corrosion to (stainless steel) wash items. | - Determine and remedy the causes of corrosion.<br><br>See also the information on "Process chemicals", "Soiling", and "Reaction between process chemicals and soiling" in this section. |

| Associated process chemicals | |
|---|---|
| **Problem** | **How to resolve it** |
| The ingredients in process chemicals have a strong influence on the longevity and functionality (throughput) of the dispensing systems. | - Follow the process chemical manufacturer's instructions and recommendations.<br>- Carry out a regular visual check of the dispensing system (suction lance, hoses, dispensing canisters, etc.) for any damage.<br>- Regularly check the flow rate of the dispensing system.<br>- Ensure that the regular cycle of maintenance is observed.<br>- Please contact Miele for advice. |
| Process chemicals can damage elastomers and plastics in the machine and accessories. | - Follow the process chemical manufacturer's instructions and recommendations.<br>- Carry out a regular visual check of any accessible elastomers and plastics for damage. |
| Hydrogen peroxide can release large amounts of oxygen. | - Use only validated processes.<br>- The wash temperature must be lower than 158°F (70°C) when using hydrogen peroxide.<br>- Please contact Miele for advice. |
| The following process chemicals can cause large amounts of foam to build up:<br>- detergents and rinse aids containing surfactants<br>Foam can occur:<br>- in the program block in which the process chemical is dispensed<br>- in the following program block if it has been spilt<br>- in the following program with rinse aid if it has been spilt | - The process parameters in the wash program, such as dispensing temperature, dosage concentration, etc., must be set to ensure the whole process is foam-free or very low-foaming.<br>- Please observe the process chemical manufacturer's instructions. |

# Chemical processes and technology

| Associated process chemicals | |
| --- | --- |
| **Problem** | **How to resolve it** |
| De-foaming agents, especially silicone-based ones, can cause the following:<br>- deposits in the wash cabinet<br>- deposits on the wash items<br>- damage to elastomers and plastics in the machine<br>- damage to certain plastics (e.g., polycarbonate and plexiglass) in the wash items | - De-foaming agents should be used in exceptional cases only; for instance, when absolutely essential for the process.<br>- The wash cabinet and accessories should be periodically cleaned without wash items and without de-foaming agent using the Organic program.<br>- Contact Miele for advice. |

| Soiling | |
| --- | --- |
| **Problem** | **How to resolve it** |
| The following substances can damage elastomers (hoses and seals) and plastics in the machine:<br>- oil, wax, aromatic and unsaturated hydrocarbons<br>- emollients<br>- cosmetics, hygiene and skin care products such as creams (analytical applications, filling) | - Depending on usage, wipe the lower door seal on the machine periodically with a lint-free cloth or sponge. Clean the wash cabinet and accessories without wash items using the Organic program.<br>- Reprocess the wash items using the Oil program program (where this is available) or use a special program that dispenses cleaning detergents containing surfactants. |
| The following substances can lead to heavy build-up of foam during washing and rinsing:<br>- some disinfection agents, dishwashing detergents, etc.<br>- reagents for analysis, e.g., for microtiter plates<br>- cosmetics, hygiene and skincare products such as shampoos and creams (analytical applications, filling)<br>- active foaming agents such as surfactants | - Thoroughly rinse items in water beforehand.<br>- Select a cleaning program with at least one short pre-rinse in cold or hot water.<br>- Depending on the application, use de-foaming agents that do not contain silicone oils. |

| Soiling | |
|---|---|
| **Problem** | **How to resolve it** |
| The following substances can cause corrosion to stainless steel in the wash cabinet and the accessories:<br><br>- hydrochloric acid<br><br>- other substances containing chlorides, such as sodium chloride<br><br>- concentrated sulfuric acid<br><br>- chromic acid<br><br>- particles of iron and shavings | - Thoroughly rinse items in water beforehand.<br><br>- Put the drip-dry items to be washed into the mobile units, baskets, modules, and inserts and start a reprocessing program as soon as possible after placing in the wash cabinet. |

| Reaction between process chemicals and soiling | |
|---|---|
| **Problem** | **How to resolve it** |
| Natural oils and fats can be emulsified with alkaline process chemicals. This can lead to a heavy build-up of foam. | - Use the Oil program.<br><br>- Use a special program that dispenses cleaning detergents containing surfactants (pH neutral) in the pre-rinse.<br><br>- Depending on the application, use de-foaming agents that do not contain silicone oils. |
| Soiling containing high protein levels, such as blood, can cause a heavy build-up of foam when processed with alkaline process chemicals. | - Select a cleaning program with at least one short pre-rinse in cold water. |
| Non-precious metals such as aluminum, magnesium, and zinc can release hydrogen when processed with very acidic or alkaline process chemicals (oxyhydrogen reaction). | - Please observe the process chemical manufacturer's instructions. |

# Adding and dispensing process chemicals

> ⚠ 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 how to use them.
>
> Please follow any instructions relating to non-toxic residues.

> ⚠ Process chemicals pose a health risk.
>
> Some process chemicals may be corrosive and irritant.
>
> Observe the relevant safety 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.

> Contact Miele for information about suitable process chemicals.

> Highly viscous (thick) process chemicals can affect the dispenser monitoring and lead to inaccurate data. In this instance, please contact Miele Service for advice.

## Dispensing systems

The machine is equipped with a number of internal dispensing systems for process chemicals:

- Liquid cleaning detergent
  This is dispensed via a suction lance.

**Labelling of the suction lances**

Liquid process chemicals from external containers are dispensed by suction lances. Colour coding the suction lances can be helpful for correct dispensing.

Miele uses and recommends the following:

- Blue: for cleaning agent
- Red: for neutralizing agent
- Green: for chemical disinfection agents or an additional second cleaning agent
- White: for acidic process chemicals
- Yellow: for free choice

## DOS modules

If required, up to two additional, external dispensing modules (DOS modules) for liquid process chemicals can be fitted retrospectively.

External DOS modules are fitted by Miele Service. Internal dispensing systems cannot be retrospectively fitted.

**Connecting DOS modules**

DOS modules are supplied with their own installation instructions.

⚠ Before fitting the DOS modules, compare the connection data (voltage and frequency) on the data plates of the modules with that on the data plate of your machine. If the data does not match, the modules could sustain damage. If in any doubt, consult an electrician.
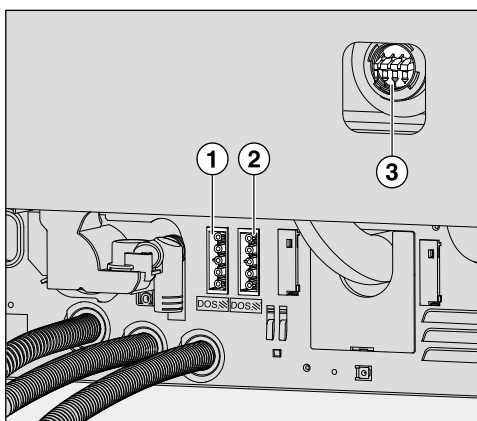


① Power supply connection for DOS 3 neutralizing agent.

② Power supply for DOS 4.

③ Connections for dispensing hoses.

■ Connect the module to the machine's power supply.

■ To connect the dispensing hose, release the hose clip on a free connector and remove the safety cap.

■ Push the dispensing hose onto the connector and secure it with a hose clip.

Unused connectors must be blanked off with safety caps to prevent the leakage of wash fluid.

**Dispensing liquids** For adjusting dispensing concentration, see "Further settings/ Dispensing systems."

# Adding and dispensing process chemicals

## Neutralizing agent

Neutralizing agent is dispensed via an external dispenser module. Dispenser modules are installed by Miele Service and can be retrofitted at any time.

Neutralizing agent (pH setting: acidic) neutralizes any residues of alkaline cleaning agents on the surface of the load and protects the wash chamber from deposits and discoloration.

Neutralizing agent is dispensed automatically in the Interim rinse phase after the main wash (see Program charts). The neutralizing agent container must be filled and the dispensing system vented for this to occur.

> In the Inorganic program neutralizing agent is dispensed additionally for an acidic pre-wash.

**Refilling neutralizing agent**
- Place the neutralizing agent container (red marking) on the open cabinet door or on a surface which is robust and easy to clean.

- Take the lid off the canister and remove the suction lance. Place the suction lance on the open wash cabinet door.

- Replace the empty container with a full one.



- Push the suction lance into the opening of the container and secure the lid. Observe the colour coding.

- Feed the suction lance into the container until it reaches the bottom.

- Wipe up any spilled process chemical thoroughly.

- Place the container on the floor next to the machine or in an adjacent cupboard. The container must not be placed on top of or above the machine. Make sure that the dispensing hose is not kinked or trapped.

- The dispensing system must then be vented (see "Settings ⚑ / Venting DOS").

**Checking consumption**   Check consumption regularly by checking the fill levels in the supply containers and replace containers in good time to avoid the dispensing system being sucked completely dry.

**Refill indicator**   When the fill level is low in the DOS 3 supply container for neutralizing agent you are reminded to refill it.
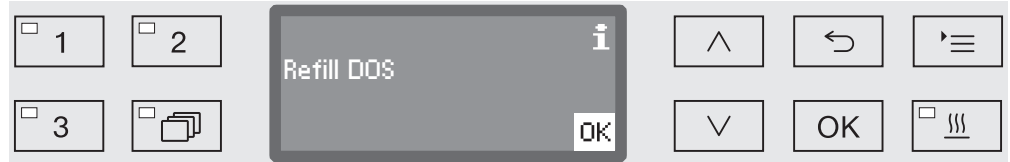


■ Confirm the message shown with *OK* and

■ Refill the neutralising agent as described.

> If it has run out, the machine will be locked for further use.
> It will be ready for use again when the supply container has been replaced.

**Dispensing neutralizing agent**   For adjusting dispensing concentration, see "Further settings/ Dispensing systems."

# Adding and dispensing process chemicals

## Detergent

> ⚠ Damage caused by using unsuitable detergents.
> Using unsuitable detergents, such as a detergent for a domestic dishwasher, will mean that the reprocessing result is not as expected.
> Only use detergents that are suitable for laboratory glassware washers.

The machine is only designed for use with liquid cleaning detergents. Liquid cleaning detergent is dispensed from an external container via a suction lance.

For environmental reasons it is important to always consider the following factors when selecting a cleaning agent:

- How alkaline does the cleaning agent need to be for the cleaning application involved?

- Are protein-removing enzymes required and is the program cycle suitable for this?

- Are surfactants required for proper dispersal and emulsification?

- Is a cleaning detergent containing active chlorine required or can a detergent without active chlorine be used?

> ⚠ Cleaning detergents containing chlorine can damage the elastomers of the machine.
> If the use of detergents containing chlorine is required, a maximum temperature of 167°F / 75°C in the "Dispensing detergent" program blocks is recommended (see program chart).
> In machines equipped with special oil-resistant elastomers (from the factory) for oil and grease applications, cleaning detergents containing chlorine may not be used!

> For cleaning specific types of soiling, and for information on the optimum cleaning agents and additives to use for liquid dispensing, please contact Miele Service.

**Replenishing liquid cleaning agent**

Liquid cleaning agent is dispensed from an external container, e.g. a canister.

■ Place the liquid cleaning agent container (blue marking) on the open cabinet door or on a surface which is robust and easy to clean.

■ Take the lid off the canister and remove the suction lance. Place the suction lance on the open wash cabinet door.

■ Replace the empty container with a full one.

■ Push the suction lance into the opening of the container and secure the lid. Observe the colour coding.

■ Feed the suction lance into the container until it reaches the bottom.

■ Wipe up any spilled process chemical thoroughly.

■ Place the container on the floor next to the machine or in an adjacent cupboard. The container must not be placed on top of or above the machine. Make sure that the dispensing hose is not kinked or trapped.

■ The dispensing system must then be vented (see "Settings ⚑ / Venting DOS").

**Checking consumption**

Check consumption regularly by checking the fill levels in the supply containers and replace containers in good time to avoid the dispensing system being sucked completely dry.

**Refill indicator**

When the fill level is low in the DOS 1 supply container for liquid cleaning detergent you are reminded to replenish it.



■ Confirm the message shown with *OK* and

■ refill the liquid cleaning detergent as described.

If the liquid cleaning detergent has run out, the machine will be locked for further use.
It will be ready for use again when the supply container has been replaced.

**Dispensing liquid process chemicals**

For adjusting dispensing concentration, see "Further settings/ Dispensing systems."

# Operation

### Selecting a program

**Program selection buttons**

■ Select a program using program selection buttons ⌷1⌷, ⌷2⌷ or ⌷3⌷.

**Program list**

■ Press the ⌻ button,

■ use the ∧ and ∨ arrow buttons to highlight a program, and confirm your selection with *OK*.

| □ 1 | □ 2 | Universal | | ∧ | ⤺ | ≡ |
|-----|-----|-----------|--|---|---|---|
| □ 3 | □ ⌻ | Temperature 75 °C<br>Duration 1:30 h | | ∨ | OK | □ ⟨⟨⟨ |
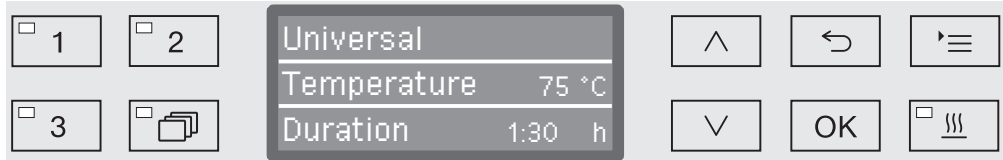
The LED in the button selected lights up and the relevant program appears on the display. The LED in the *Start/Stop* button also starts to flash.

Another program can be selected at any time before a program has started. Once it has started, program selection is locked.

The different program and their uses are described in "Program charts" at the end of these operating instructions.

Always select the program depending on the type of load items and degree and type of soiling, or on infection prevention issues.

### Starting a program

■ Close the door.
  When the door is closed, the LED in the ○⊸ button will light up.

■ Press the *Start/Stop* button.
  The LED in the *Start/Stop* button will light up constantly and the LED in the ○⊸ button will go out.

**Starting a program using delay start**

The start of a program can be delayed; for example, to benefit from economy rates of electricity or to clean the wash cabinet before it is used the next day. Starting from the programmed time, a delay start time between 1 minute and 24 hours can be selected in one-minute increments (see "Settings ⚑ / Time of day").

Delay start must be switched on (see "Settings ⚑/Delay start").

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

Setting the start time

■ Select a program.

■ Press the *OK* button before starting the program.

| □ 1 | □ 2 | Start time | ∧ | �ↄ | ▸≡ |
|---|---|---|---|---|---|
| □ 3 | □ ⊐ | **12** : 00 | ∨ | OK | □ ⌇⌇ |
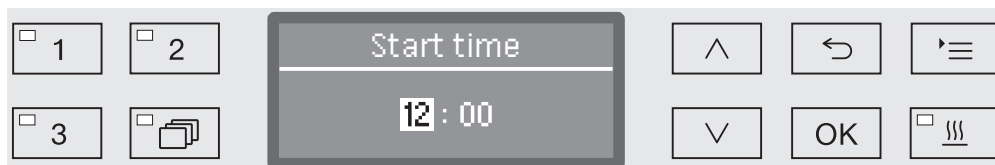
■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the hours, and confirm your selection with the *OK* button.

When the *OK* button is pressed, the display jumps automatically to the next input position. You cannot go back to the previous entry. If a mistake is made, the process must be cancelled using the ↄ button and repeated.

■ Set the minutes using the ∧ (higher) and ∨ (lower) arrow buttons, and save your entry with *OK*.

The start time is now saved and can be changed as described at any time up to activation of delay start.

Activating delay start

■ Delay start is activated with the *Start/Stop* button.

| □ 1 | □ 2 | Universal | ∧ | ↄ | ▸≡ |
|---|---|---|---|---|---|
| □ 3 | □ ⊐ | Temperature 75 °C<br>Switch on at 12:30 | ∨ | OK | □ ⌇⌇ |
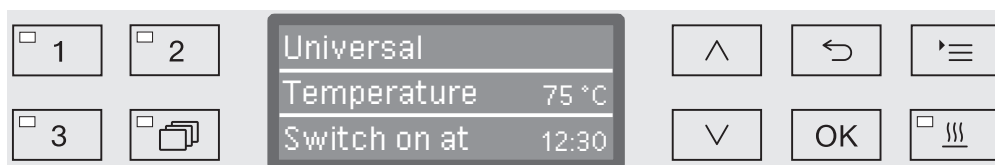
The selected program with the set start time is then shown on the display. If automatic deactivation has been selected (see "Further settings/Switch off after"), the machine will switch itself off after the set time until the program start time is reached.

Deactivating delay start

■ Press the ↄ button or switch the machine off using the ⏻ button.

# Operation

**Drying**

The additional "Drying" function accelerates the drying process at the end of the program.

When the drying function is activated and the door is closed, the drying system feeds heated and HEPA-filtered air into the wash chamber for active drying of the load. The heated air is discharged through the steam condenser and can be cooled down if necessary (see "Further settings/Air cooling").

The drying function can be preselected for all programs with a drying phase or can be retrospectively switched on or off every time a program is selected (see "Settings ⚑/Drying").

Drying is activated or deactivated prior to program start by pressing the ♨ button. The LED in the button ♨ indicates whether the additional function is on or off. The drying time of the program can also be changed.

When the drying function is activated, the program runs longer.

Activating and deactivating drying

- Select a program.

- Press the ♨ button before the program start.

If the drying time (Drying time) is set as changeable (Time changeable?) in the program settings, the time set can be altered. Otherwise the pre-set drying duration cannot be changed.

If drying is deactivated

If the drying function has been previously deactivated, it can be activated by pressing the drying button.



If the time is set as changeable, the preset drying time for this program is shown in minutes (min) in the display and the possible setting range is displayed in the bottom line.

- Use the arrow buttons ∧ (higher) and ∨ (lower) to change the drying time and press *OK* to save the setting. Drying is now activated.

If drying is activated

If the drying function has been activated, you can choose either to deactivate the drying function, activate automatic door opening or reset the drying time as described above.



- Deactivate

  Drying is deactivated.

- Set the time (only if the time is set as changeable)

  You can alter the drying duration with this option.

- Automatic door opening

  Activates or deactivates automatic door opening at the end of the program.

■ Select an option using the arrow buttons ∧ and ∨ and confirm this with *OK*.

## Program sequence indicator

After the program has started, the program sequence can be followed in the three-line display.



**Top line**    - Program name.

**Middle line**    The following parameters can be checked using the arrow buttons ∧ and ∨:

- Current program block, e.g. Main wash 1,

- Actual or required temperature
  (depending on the display set, see "Further settings/Display: Temperature"),

- $A_0$ value,

- Conductivity
  (only for machine version with conductivity meter),

- Cycle number,

**Bottom line**    - Time left (in hours; under an hour, in minutes)

## End of program

A program is usually finished when the following parameters and messages are shown in the display:

**Top line**    - Program name.

**Middle line**    Continuously alternating between:

- Parameter met/not met,

- $A_0$ value,

- Conductivity in final wash block
  (only for machine version with conductivity meter).

- Cycle number,

**Bottom line**    - Program finished.

In addition, the LED in the *Start/Stop* buttons goes out and the LED in the ○⇥ button begins to flash. In the factory default state, an acoustic tone also sounds for approx. 10 seconds (see "Settings⚑/Volume").

## Interrupting a program

> The factory default setting prevents interruption of programs while they are running. If required, this function can be activated by Miele Technical Service.

A program which is already running should only be interrupted if strictly necessary, e.g. if the wash load is moving about significantly.

> ⚠ Be careful when opening the door.
> The wash load could be hot. Danger of scalding, burning, and chemical burns.

■ Press the ⌐ button.

You are asked if you really wish to open the door.
If the temperature in the wash chamber is above 60 °C at the moment, it is first necessary to acknowledge the following message:

| 1 | 2 | **i** Warning! Cabinet hot. Open anyway? [OK] | ∧ | ↺ | ⊫ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ⧴ |

■ Confirm the message with *OK*.

| 1 | 2 | Open door? Yes No | ∧ | ↺ | ⊫ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ⧴ |
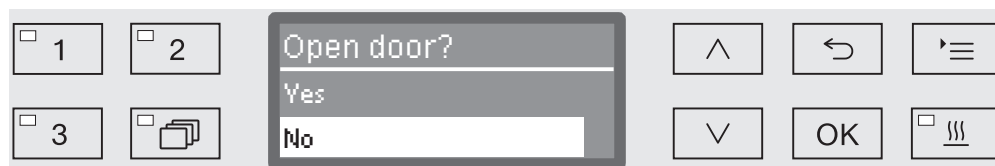
■ Use the ∧ and ∨ arrow buttons to select Yes.

■ By pressing the *OK* button the program is interrupted.

Selecting Yes interrupts the program and the door opens. The display shows the following message:

| 1 | 2 | **i** Program interrupted: Door open | ∧ | ↺ | ⊫ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ⧴ |
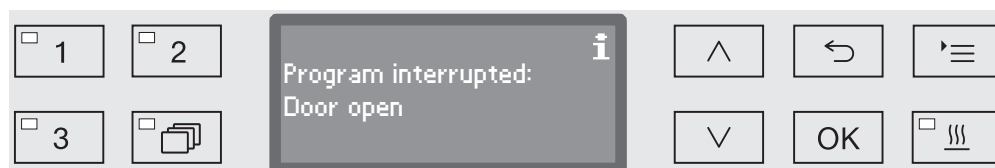
■ Rearrange the items so that they are stable and close the door.

The program continues from the point at which the interruption occurred. Every program interruption is recorded in the cycle report.

If no button is pressed for several seconds, or if the process is cancelled using the ↺ button, the display will revert to the program sequence display. The program is not interrupted.

# Operation

## Cancelling a program

⚠ If a program is cancelled, the items in the machine must be reprocessed again.

⚠ Be careful when opening the door.
The wash load could be hot. Danger of scalding, burning, and chemical burns.

**Program cancelled due to a fault**

The program stops prematurely and an error message appears in the display.

Take appropriate steps to resolve the fault, depending on its cause (see "Problem-solving guide").

**Cancelling a program manually**

A program which is already running should only be cancelled if strictly necessary, e.g. if the wash load is moving about significantly.

∎ Press and hold the *Start/Stop* button until the display changes to the following view:

| 1 | 2 | Program cancellation<br>No<br>Yes | ∧ | � | ☰ |
|---|---|---|---|---|---|
| 3 | ▱ | | ∨ | OK | ⧌ |
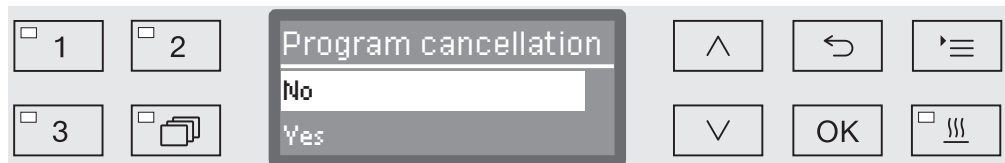
∎ Use the ∧ and ∨ arrow buttons to select Yes.

∎ Pressing the *OK* button interrupts the program. Entry of a code may also be required (see "Further settings/Code").

If no button is pressed for several seconds, or if the process is cancelled using the ↝ button, the display will revert to the program sequence display.

**Restarting the program**

∎ Start the program again or select a new program.

## System messages

After the machine is switched on or a program sequence is completed, a series of system messages may be shown on the display. These indicate e.g., low fill levels in the containers or required maintenance.

**Changing the filter**

Several hours before reaching the maximum permitted operation hours, you will be prompted to change the air filters.

| 1 | 2 | Change HEPA filter? | ∧ | ↩ | ≡ |
|---|---|---|---|---|---|
| 3 | ⟳ | Now | ∨ | OK | ☷ |
| | | Later ( operating hrs.) | | | |
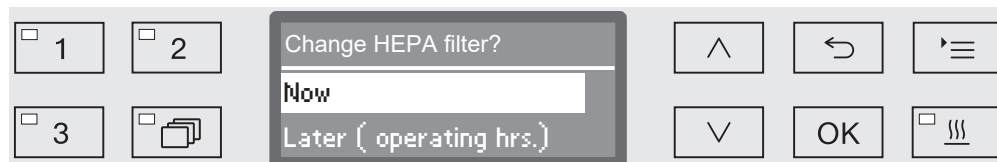
■ Confirm the message with *OK* and change the filter according to the instructions in the section "Maintenance".
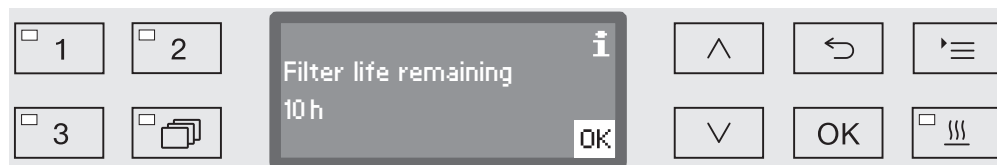
| 1 | 2 | i | ∧ | ↩ | ≡ |
|---|---|---|---|---|---|
| 3 | ⟳ | Filter life remaining | ∨ | OK | ☷ |
| | | 10 h        OK | | | |

The remaining operating hours for this filter type are shown in the display.

■ Confirm the message with *OK*.

Then you will be asked if you wish to reset the operating hours counter.

⚠ The operating hours counter must only be reset when the filter has been changed.

| 1 | 2 | Reset | ∧ | ↩ | ≡ |
|---|---|---|---|---|---|
| 3 | ⟳ | Yes | ∨ | OK | ☷ |
| | | No | | | |

– Yes

The operating hours counter will be reset for the new filter.

– No
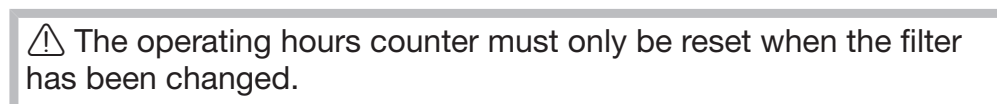
The counter will not be reset.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Confirm your selection with *OK*.

# Operation

**Cleaning the filter combination**

The filters in the wash cabinet must be checked daily and cleaned regularly; see "Maintenance / Cleaning the filters in the wash cabinet".

A counter in the controls can be activated to remind you of the required cleaning at regular intervals.

| 1 | 2 | Clean filter comb.? Now | ∧ | ↩ | ≡ |
| 3 | ▱ | Later ( Programs) | ∨ | OK | ⌇ |

| 1 | 2 | i  Clean filter combination! OK | ∧ | ↩ | ≡ |
| 3 | ▱ | | ∨ | OK | ⌇ |
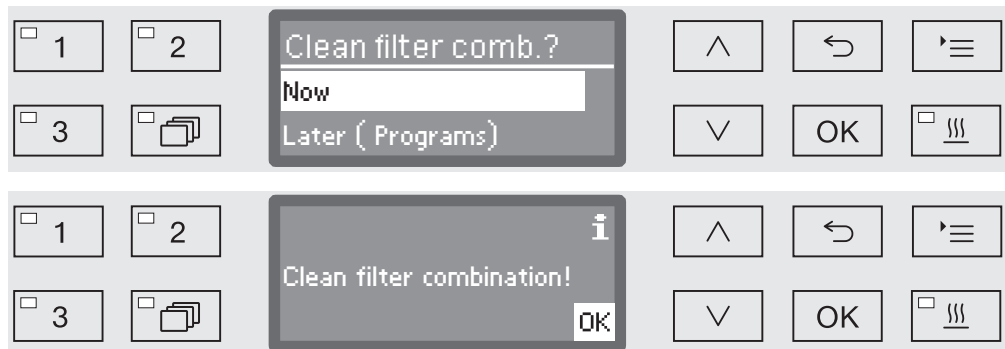
■ Follow the instructions in the "Maintenance" section for cleaning the filters.

**Resetting the counter**

The counter for the cleaning interval may be reset only after cleaning has been completed.

| 1 | 2 | Filter combination Reset | ∧ | ↩ | ≡ |
| 3 | ▱ | Interval | ∨ | OK | ⌇ |
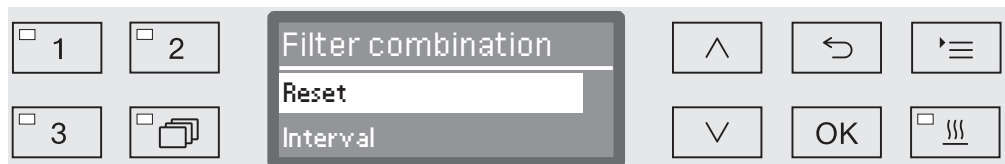
- Reset

    The counter is reset.

- Interval

■ Select an option using the ∧ and ∨ arrow buttons and confirm your selection with *OK*.

**Low fill levels**

When the fill level is low in one of the containers, e.g., for process chemicals or the salt reservoir, you are prompted to refill the container.

| i  Refill DOS  OK | i  Refill salt  OK |
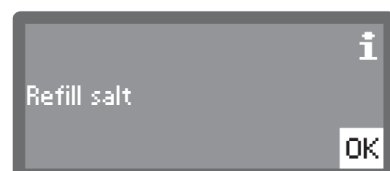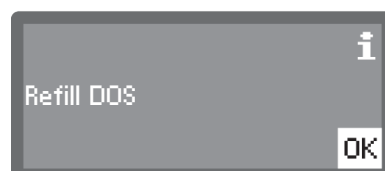
■ Acknowledge the messages with *OK* and refill the relevant containers. To do this, follow the instructions in the sections "Adding and dispensing process chemicals" and "Water softener".

## Spray pressure and spray arm monitoring

The machine has a sensor for monitoring spray pressure in order, for example, to detect pressure fluctuations due to misloading or foam in the water circulation system. Spray pressure monitoring is set at the factory to be active in the "Cleaning" and "Final rinse" wash blocks. The spray pressure monitoring result is documented together with an optional process documentation.

Spray arm speed can also be monitored, e.g. for prompt detection of blockages due to misloading or foam in the water circulation system. Spray arm speed monitoring can be activated or deactivated via the programmable settings.

Miele Service can make further settings for spray pressure and spray arm monitoring.

# Settings ⚑

The structure of the Settings ⚑ menu is shown below. The menu incorporates all relevant functions to support daily routine tasks.

In the structure overview all options which can be permanently selected have boxes ☐ beside them. Factory settings are indicated by a tick ☑. You will find an explanation of how to change settings after the overview.

Settings ⚑
- ▶ Delay start
  - ▶ No ☑
  - ▶ Yes ☐

- ▶ Drying
  - ▶ No ☐
  - ▶ Yes ☑
    - ▶ Automatic door opening
      - ▶ No ☑
      - ▶ Program end ☐

- ▶ Priming DOS system
  - ▶ DOS_

- ▶ Language ⚑
  - ▶ deutsch ☐
  - ▶ english (GB) ☑
  - ▶ ... ☐

- ▶ Time of day
  - ▶ Set
  - ▶ Display
    - ▶ On ☐
    - ▶ "On" for 60 seconds ☐
    - ▶ Do not display ☑
  - ▶ Time format
    - ▶ 12 h ☐
    - ▶ 24 h ☑

- ▶ Volume
  - ▶ Keypad tone
  - ▶ Buzzer tones
    - ▶ Program end
    - ▶ Warning

## Delay start

This setting must be activated for Delay start to be available for use.

∎ Open the menu as follows:

Button ⬏≡

    ▸ Settings ⚑

        ▸ Delay start

| ▢ 1 | ▢ 2 | Delay start | | ∧ | ↩ | ⬏≡ |
|---|---|---|---|---|---|---|
| ▢ 3 | ▢ ◱ | No | | ∨ | OK | ▢ ⌇⌇⌇ |
| | | Yes | | | | |
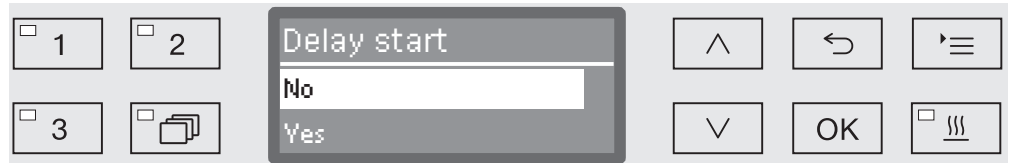
- No

    Delay start is deactivated.

- Yes

    Delay start is activated and can be used for all programs.

∎ Select an option using the ∧ and ∨ arrow buttons.

∎ Press *OK* to save the setting.

## Drying

The drying function can be preset or deactivated for all programs with a drying phase (see Program charts).

The additional "Drying" function accelerates the drying process at the end of the program.

When the drying function is activated and the door is closed, the drying system feeds heated and HEPA-filtered air into the wash chamber for active drying of the load. The heated air is discharged through the steam condenser and can be cooled down if necessary (see "Further settings/Air cooling").

■ Open the menu as follows:

Button ⌐≡

  ▸ Settings ⚑

    ▸ Drying

| 1 | 2 | **Drying** | ∧ | ↺ | ⌐≡ |
|---|---|---|---|---|---|
| 3 | ▢ | No<br>Yes | ∨ | OK | ⧙ |

- No

  The drying function is automatically deactivated for all programs.

- Yes

  The drying function is activated for all programs. The program duration is lengthened if the drying function is activated.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

If the Yes option was selected, Automatic door opening can be activated for all programs. This opens the door at the end of the program, allowing any heat remaining in the wash chamber to dissipate faster.

| 1 | 2 | Auto. door opening | ∧ | ↺ | ≡ |
| 3 | ⧉ | No<br>Program end | ∨ | OK | ≋ |
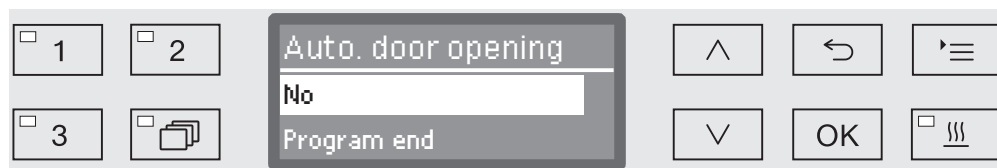
- No

   The door remains closed at the end of the program.

- Program end

   As soon as the temperature in the wash chamber has dropped below 60 °C, the comfort door closing aid opens the door slightly. Before the door is opened, an appropriate message is shown in the display and a signal tone sounds if the buzzer has been activated.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

## DOS venting

The dispensing system for liquid process chemicals can only dispense reliably if the system has been purged of air.

The DOS system must only be vented:

- if the dispensing system is being used for the first time,

- if the process chemical container has been replaced,

- the dispensing system has been sucked completely dry.

Before venting, ensure that the liquid process chemical container is sufficiently full and the suction lance are securely screwed to the containers. Only one DOS system can be vented at a time.

■ Open the menu as follows:

Button ˈ≡

   ▸ Settings ⚑

      ▸ Priming DOS system

         ▸ DOS... (name of dispensing system)
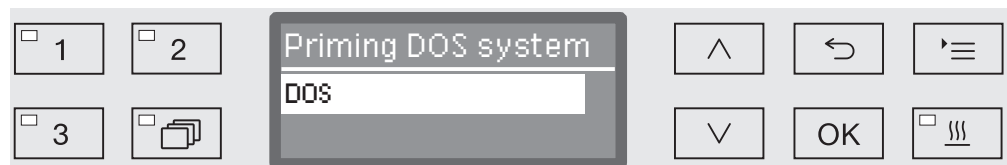
| 1 | 2 | **Priming DOS system** | ∧ | ↩ | ˈ≡ |
|---|---|---|---|---|---|
| 3 | ▤ | DOS | ∨ | OK | ⑈ |

Automatic venting will start when the dispensing system is selected. Once started, the automatic venting process can no longer be cancelled.

■ Select a dispensing system using the ∧ and ∨ arrow buttons.

■ Press *OK* to start the venting process.

Automatic venting is successfully completed when the following message appears in the display:

| 1 | 2 | Dispensing system    **i** | ∧ | ↩ | ˈ≡ |
|---|---|---|---|---|---|
| 3 | ▤ | successfully primed   OK | ∨ | OK | ⑈ |
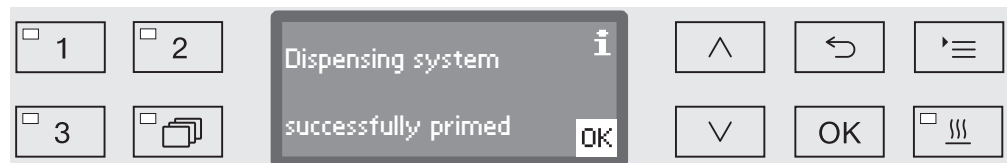
## Language ⚑

The language set will be used in the display.

■ Open the menu as follows:

Button ˈ☰

▸ Settings ⚑

▸ Language ⚑

> The flag symbol ⚑ after the Settings ⚑ and Language ⚑ menu options acts as a guide if a language which you do not understand has already been set.

| □ 1 | □ 2 | Language ⚑<br>english (GB) ✓ ▲<br>english (USA) ▼ | ∧ | ↶ | ˈ☰ |
|---|---|---|---|---|---|
| □ 3 | □ ▤ | | ∨ | OK | □ ≋ |
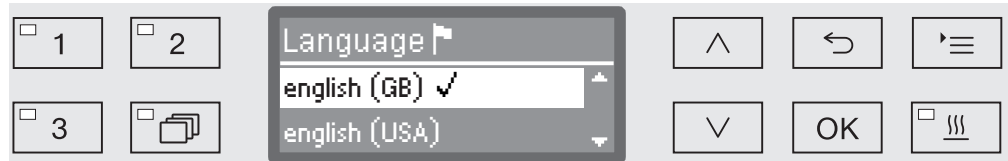
A list of all the available languages will be displayed. The language currently selected is marked with a tick ✓.

> The factory default language is set as German.

■ Use the ∧ and ∨ arrow buttons to select the language you want.

■ Press *OK* to save the setting.

The display will change immediately to the language selected.

## Time of day

The time of day is required for process documentation, Delay start, the machine log book and the display. The date format and the current time of day have to be set.

> There is no automatic adjustment between summer time (daylight savings) and winter time.
> You need to make this adjustment yourself as necessary.

**Select Clock display**

To set the format for the time of day in the display:

■ Open the menu as follows:

Button ᐅ≡

　▸ Settings ⚑

　　▸ Time of day

　　　▸ Time format

| 1 | 2 | **Time format** | ∧ | ↶ | ᐅ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | 12 h / 24 h | ∨ | OK | ⌇ |

- 12 h

  Time of day display in 12-hour format (am/pm).

- 24 h
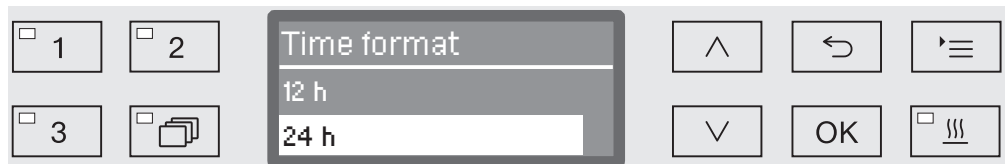
  Time of day display in 24-hour format.

■ Use the ∧ and ∨ arrow buttons to select the date format you want.

■ Press *OK* to save the setting.

**Set the time of day**

To set the format for the time of day:

■ Open the menu as follows:

Button '≡

   ▶ Settings ⚐

     ▶ Time of day

       ▶ Set

| 1 | 2 | Time of day | ∧ | ↺ | '≡ |
|---|---|---|---|---|---|
| 3 | ▢ | **12** : 00 | ∨ | OK | ⌇ |
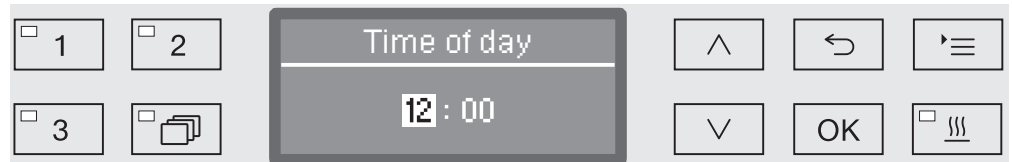
■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the hours and confirm your selection with the *OK* button.

When the *OK* button is pressed, the display jumps automatically to the next input position. You cannot go back to the previous entry. If a mistake is made, the process must be cancelled using the ↺ button and repeated.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the minutes and press the *OK* button to save the time of day.

The time of day will be saved when the *OK* button is pressed for the last time.

# Settings ⚑

**Display**

If necessary, the machine can set to standby for use during breaks in operation.

- An option to display the time of day must be selected for this purpose.

- Additionally, automatic shutdown must be activated and a standby duration set in "Additional settings/Switch off after".

Once the set standby time elapses, the machine is activated for use. During standby, the machine remains switched on and the time is shown on the display. Pressing any button reactivates the machine.

■ Open the menu as follows:

Button ʼ≡

   ▶ Settings ⚑

      ▶ Time of day

         ▶ Display

| 1 | 2 | Display | ∧ | � | ʼ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | Do not display / On | ∨ | OK | ︴ |

- On

  Once the set standby time elapses, the machine is permanently activated for use and the time appears on the display.

- "On" for 60 seconds

  Once the set standby time elapses, the machine is activated for use for 60 seconds. After the 60 seconds have elapsed, the machine switches off. The time appears on the display while the machine is in standby.

- Do not display

  After the standby time has elapsed, the machine switches off. The time no longer appears on the display.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

## Volume

A buzzer which is integrated into the control panel can give an acoustic signal in the following situations:

- When buttons are pressed (keypad tone)

- End of program

- System messages (information)

■ Open the menu as follows:

Button ⟩≡

  ▶ Settings ⚐

    ▶ Volume

| 1 | 2 | Volume<br>Keypad tone<br>Buzzer tones | ∧ | ↶ | ⟩≡ |
|---|---|---|---|---|---|
| 3 | ⎙ | | ∨ | OK | ♨ |

- Buzzer tones

  Setting the buzzer volume for program end and system messages (information).

- Keypad tone

  Setting the buzzer volume for keypad tone.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Confirm your selection with *OK*.

When Keypad tone has been selected, you can adjust the volume immediately. When Buzzer tones has been selected, you must first select for which tone, Warning or Program end, you would like to adjust the volume.

| Keypad tone |
| Quieter          Louder |

| Program end |
| Quieter          Louder |
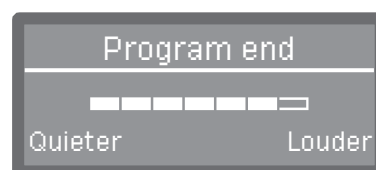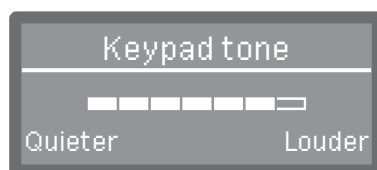
The volume level is represented by a bar chart. On the lowest setting the buzzer tone is switched off.

■ Use the arrow buttons ∧ (Louder and ∨ (Quieter) to set the volume.

■ Press *OK* to save the setting.

# Additional settings

The Additional settings menu incorporates all administrative processes and settings.

> The Additional settings menu can only be accessed by using a PIN code. The standard PIN code is "8000" and can be changed to a custom 4-digit code.
> If you do not have the PIN code, contact a user with appropriate access rights or cancel the process using the ⤺ button.

In the structure overview all options which can be permanently selected have boxes ☐ beside them. Factory settings are indicated by a tick ☑. You will find an explanation of how to change settings after the overview.

Additional settings

- ▸ Code
  - ▸ Program cancellation
    - ▸ Code required ☐
    - ▸ Code not required ☑
  - ▸ Change code
- ▸ Date
  - ▸ Date format
    - ▸ DD:MM:YY ☑
    - ▸ MM:DD:YY ☐
  - ▸ Set
- ▸ Log book
  - ▸ Consumption: Water
  - ▸ Consumpt.:Cleaning agent
  - ▸ Consumpt.: Rinse aid
  - ▸ Consumpt.: Neutralizer
  - ▸ ...
  - ▸ Operating hours
  - ▸ Program cycle counter
  - ▸ Service interval
- ▸ Report
  - ▸ Short ☑
  - ▸ Long ☐
- ▸ Temperature unit
  - ▸ °C ☑
  - ▸ °F ☐
- ▸ Program settings
  - ▸ Change program
    - ▸ ...
  - ▸ Reset program
    - ▸ ...

- ▸ Air cooling
  - ▸ Yes ☐
  - ▸ No ☑
- ▸ Release program
  - ▸ All ☑
  - ▸ Selection
    - ▸ ... ☐
- ▸ Move program
  - 1 Universal
  - 2 Standard
  - 3 Intensive
- ▸ Dispensing system
  - ▸ DOS_
    - ▸ Active
    - ▸ Inactive
    - ▸ Priming DOS system
    - ▸ Concentration
    - ▸ Change name
- ▸ Test program
  - ▸ No
  - ▸ Laboratory
  - ▸ Validation
- ▸ Filter maintenance
  - ▸ HEPA filter
    - ▸ Reset (Yes/No)
  - ▸ Filter combination
    - ▸ Reset (Yes/No)
    - ▸ Interval ⇨ 10

‣ Interface
 ‣ Ethernet
  ‣ Module status
  ‣ DHCP
 ‣ RS232
  ‣ Print reports
  ‣ Language ⚑
  ‣ Mode
  ‣ Baud rate: 9600 ☑
  ‣ Parity: none ☑
  ‣ Reset (Yes / No)

‣ Water hardness ⇨ 19

‣ Display view
 ‣ Actual temperature ☐
 ‣ Required temperature ☑

‣ Display
 ‣ Contrast
 ‣ Brightness

‣ Switch off after
 ‣ Yes ☑
 ‣ No ☐

‣ Factory default
 ‣ Reset
  ‣ Program settings only
  ‣ All settings
  ‣ No

‣ Software version
 ‣ EB ID XXXXX
 ‣ EGL ID XXXXX
 ‣ EZL ID XXXXX
 ‣ EFU ID XXXXX
 ‣ LNG ID XXXXX

## PIN code

The Additional settings menu incorporates relevant functions and system settings which require an enhanced knowledge of machine reprocessing. Access to the menu can therefore be protected by a four digit PIN code. The standard PIN code is "8000" and can be changed to a custom 4-digit code.
It is not possible to block individual options or the inputting of multiple PIN codes at the same time.

⚠ If a PIN code is lost, a new code must be issued by Miele Service.

**Entering the PIN code**

If access to the Additional settings menu is blocked, you will be prompted to enter the PIN code when it is selected.
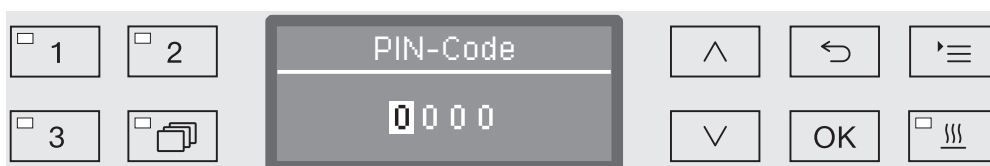


If you do not have the PIN code, contact a user with appropriate access rights or cancel the process using the ↩ button.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to enter the relevant digits.

■ Confirm each digit individually with the *OK* button.

When the *OK* button is pressed, the display jumps automatically to the next input position. You cannot go back to the previous entry. If a mistake is made, the process must be cancelled using the ↩ button and repeated. Entered digits are replaced by a * symbol.

If all digits are entered correctly, the menu will be released.

If an incorrect entry is made, an error message will appear.



■ Confirm the message with *OK*.

Access remains blocked and the display reverts to the menu selection.

**To block cancellation of a program**

A program which is already running should only be cancelled if strictly necessary, e.g. if the wash load is moving about significantly. Access to the option of cancelling a program can be blocked using the PIN code.

■ Open the menu as follows:

Button '≡

▸ Additional settings

▸ Code

▸ Program cancellation

| □ 1 | □ 2 | Program cancellation<br>Code required<br>Code not required | ∧ | ↺ | '≡ |
|---|---|---|---|---|---|
| □ 3 | □ ◉ | | ∨ | OK | □ ⧵⧵⧵ |
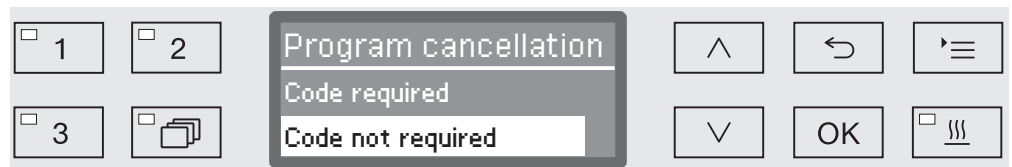
- Code required

  A program can only be cancelled by entering the PIN code.
- Code not required

  All users can cancel running programs at any time.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

# Additional settings

**Change the PIN code**

The PIN code consists of a four-digit number and is set by the user. Each digit can be programmed freely between 0 and 9.

> ⚠ When a new PIN code is entered, the old PIN code is overwritten and is permanently deleted. Therefore, it cannot be reinstated.
> If a PIN code is lost, a new code must be issued by Miele Service.

■ Open the menu as follows:

Button ›≡

   ▸ Additional settings

     ▸ Code

       ▸ Change code
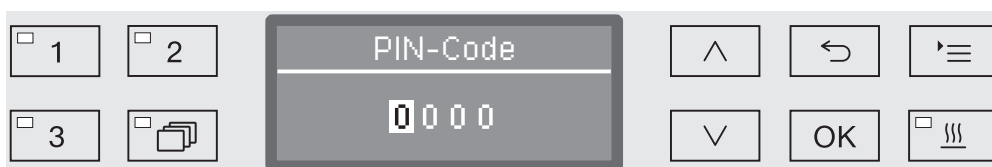
| 1 | 2 | PIN-Code | ∧ | ↶ | ›≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | 0 0 0 0 | ∨ | OK | ⌇⌇⌇ |

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to enter the relevant digits.

■ Confirm each digit individually with the *OK* button.

When the *OK* button is pressed, the display jumps automatically to the next input position. You cannot go back to the previous entry. If a mistake is made, the process must be cancelled using the ↶ button and repeated. Entered digits are replaced by a * symbol.

The PIN code is saved to memory once you have confirmed the last digit.

## Date

The date is required e.g. for process documentation. The date format and the current date have to be set.

**Select the date format**

The selected date format appears in the display and in the process documentation.

■ Open the menu as follows:

Button ›≡

  ▸ Additional settings

    ▸ Date

      ▸ Date format

| □ 1 | □ 2 | Date format | | ∧ | ↰ | ›≡ |
|---|---|---|---|---|---|---|
| | | DD:MM:YY | | | | |
| □ 3 | □ ⟱ | MM:DD:YY | | ∨ | OK | □ ⅋ |

- DD = Day

- MM = Month, and

- YY = Year.

■ Use the ∧ and ∨ arrow buttons to select the date format you want.

■ Press *OK* to save the setting.

# Additional settings

**Setting the date**    The current date will be set in the selected date format.

■ Open the menu as follows:

Button ꞌ≡

  ▸ Additional settings

    ▸ Date

      ▸ Set
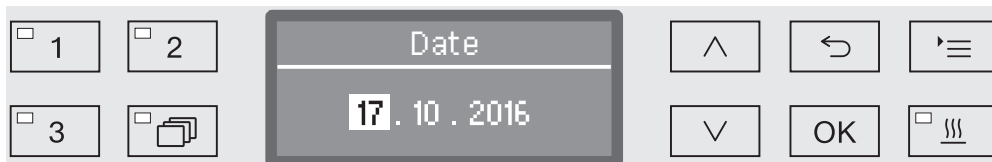


■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the day/month and confirm your entry using the *OK* button.

When the *OK* button is pressed, the display jumps automatically to the next input position. You cannot go back to the previous entry. If a mistake is made, the process must be cancelled using the ↶ button and repeated.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the day/month and confirm your entry using the *OK* button.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the year and press the *OK* button to save the date.

The date will be saved when the *OK* button is pressed for the last time.

## Log book

The entire life cycle of the machine, including consumption data for water and process chemicals, as well as operating hours and program cycles are recorded in the log book.

Miele Service can also use the log to calculate a recommendation for service intervals.

■ Open the menu as follows:

Button ⌐≡

▸ Additional settings

▸ Log book

| | | Log book | | | |
|---|---|---|---|---|---|
| □ 1 | □ 2 | Consumption: Water | ∧ | ↰ | ⌐≡ |
| □ 3 | □ ⎚ | Consumpt.:Cleaning agent ▾ | ∨ | OK | □ ⌇⌇⌇ |
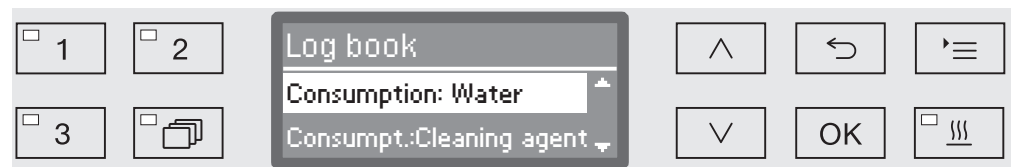
- Consumption: Water

   Display the total amount of water used in litres (L).

- Consumpt.:Cleaning agent

   Display the total amount of liquid cleaning detergent used in litres (L).

- Consumpt.: Rinse aid

   Display the total amount of rinse aid used in litres (L).

- Consumpt.: Neutralizer

   Display the total amount of neutralizing agent used in litres (L).

- Operating hours

   Display of the total number of operating hours.

- Program cycle counter

   Total of all completed program cycles. There is no breakdown of individual programs. Cancelled programs are not included.

- Service interval

   Date of the next service (entered by Miele Service).

■ Select an option using the ∧ and ∨ arrow buttons and confirm your selection with *OK*.

Values in the machine log book cannot be altered.

■ Press the ↰ button to exit the menu.

# Additional settings

## Report

You can choose between two different report formats of process reports for the purpose of archiving.

More information on selecting these can be found in "Process documentation".

## Temperature unit

During a program the temperature display is refreshed every 2 to 5 seconds depending on the program stage. The temperature can be displayed in degrees Celsius (°C) or Fahrenheit (°F).

| The temperature unit is set at the factory to °C. |
| --- |

If the temperature unit is changed to °F, the temperature displayed is automatically recalculated.

■ Open the menu as follows:

Button ▸≡

   ▸ Additional settings

      ▸ Temperature unit
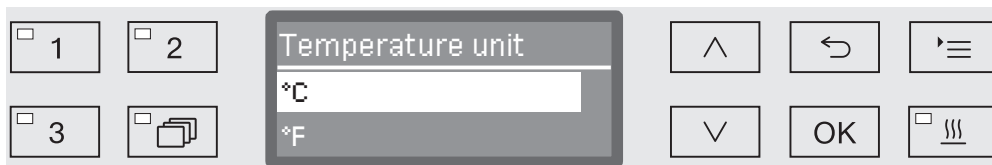


\- °C

   Display temperature in degrees Celsius.

\- °F

   Display temperature in degrees Fahrenheit.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

## Program settings

You can use this menu to customize the current program to suit technical requirements and the load items or to reset all programs to the factory default settings.

Additional specialist knowledge is required to alter program settings and this should therefore be undertaken only by experienced users or by Miele Service.

More information can be found in "Program settings".

## Air cooling

During the drying phase, the hot exhaust air from the wash cabinet is released into the room via the steam condenser. Depending on the size of the room, this can heat up the room to a greater or lesser degree.

To reduce this effect, the heated air can be cooled down during the drying phase using a fine spray in the steam condenser.

> Cooling in the steam condenser will increase water consumption.

■ Open the menu as follows:

Button '≡

▸ Additional settings

　▸ Air cooling

| 1 | 2 | Air cooling | ∧ | ⤺ | '≡ |
| 3 | 🗇 | Yes / No | ∨ | OK | ♨ |
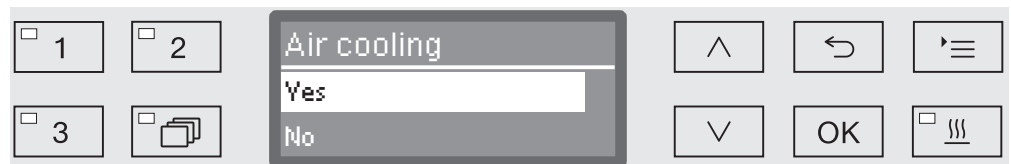
- Yes

   Hot air is cooled using the steam condenser.

- No

   Hot air is released uncooled into the room.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

# Additional settings

## Program release

It is possible to block access to individual programs. Blocked programs are not available for selection, so for example it can be ensured that only validated programs are used.

∎ Open the menu as follows:

Button ⸾≡

   ▸ Additional settings

      ▸ Release program

| □ 1 | □ 2 | Release program | ∧ | ↶ | ⸾≡ |
|---|---|---|---|---|---|
| | | **All** | | | |
| □ 3 | □ 🗗 | Selection | ∨ | OK | □ ≈ |
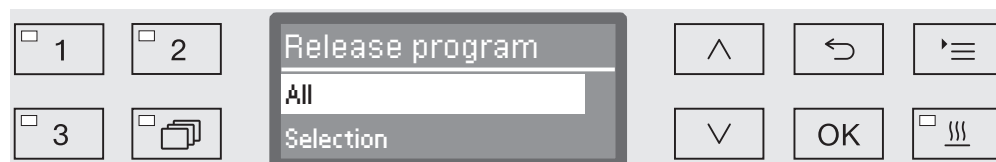
- All

   All programs are released for use.

- Selection

   A selection of programs are available for use.

∎ Select an option using the ∧ and ∨ arrow buttons and confirm your selection with *OK*.

The Selection option displays a list of all programs.

| □ 1 | □ 2 | Release program | ∧ | ↶ | ⸾≡ |
|---|---|---|---|---|---|
| | | Accept ▲ | | | |
| □ 3 | □ 🗗 | ☑ Universal ▼ | ∨ | OK | □ ≈ |
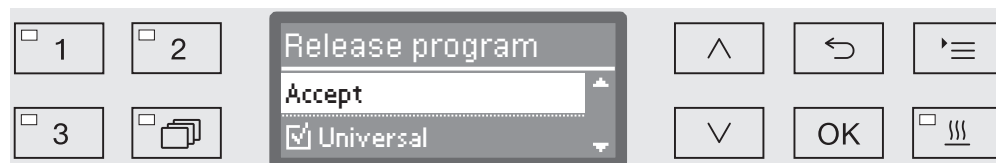
Programs are selected by multiple choice. A box □ is shown next to all programs in the list. If a program is released, there is a tick ☑ in the box. An empty box indicates a blocked program.

∎ Programs can be released or blocked using the arrow buttons ∧ and ∨ and by confirming with *OK*.

∎ To save the selection, select the Accept option at the end of the list and confirm with *OK*.

## Moving a program: allocating program selection buttons

You can sort the program selection list to suit your requirements and therefore also allocate the program selection buttons 1, 2 and 3.

■ Open the menu as follows:

Button ᐳ≡

   ▸ Additional settings

      ▸ Move program

| 1 | 2 | Move program | ∧ | � | ᐳ≡ |
|---|---|---|---|---|---|
| 3 | ▱ | 1. Universal<br>2. Standard | ∨ | OK | ☷ |
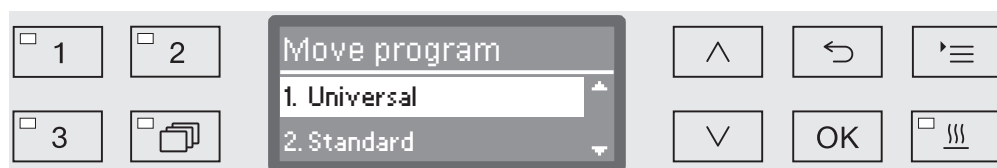
All enabled programs are shown in the program list (see "Further settings/Enabling programs"). A program's position in the program list is the determining factor for assigning the program selection buttons. Programs are numbered from 1 - n. The first three programs in the list are assigned to the program selection buttons; for example:

- 1. Universal **on program selection button** 1

- 2. Standard **on program selection button** 2

- 3. Intensive **on program selection button** 3

- 4. Inorganic

- 5. Organic

- etc.

■ Use the ∧ and ∨ arrow buttons to select the program you would like to move.

■ Confirm your selection with *OK*.

Now you can move this program within the list.

■ Use the ∧ and ∨ arrow buttons to move the program to the position you want.

■ Press *OK* to save the program to the selected position.

The program which was previously saved to this position and all subsequent programs are moved down by one position.

The process can be repeated as often as you wish.

■ Press the ↼ button to exit the menu.

## Dispensing systems

Up to two process chemicals can be dispensed in each wash block. Using the following menu you can activate and vent the dispensing system, change the name if necessary and set the dispensing concentration for all programs.

**Activating dispensing systems**

Individual dispensing systems can be activated or deactivated for all programs as follows.

■ Open the menu as follows:

Button '≡

▸ Additional settings

   ▸ Dispensing system

      ▸ DOS... (name of dispensing system)

| 1 | 2 | DOS | | ∧ | ↰ | '≡ |
| --- | --- | --- | --- | --- | --- | --- |
| 3 | ▱ | Active / Inactive | | ∨ | OK | ≋ |

- Active

  The selected dispensing system is activated. Dispensing will only occur in the appropriate wash blocks (see Program charts).

- Inactive

  The selected dispensing system is deactivated for all programs.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

**DOS venting**   The dispensing system for liquid process chemicals can only dispense reliably if the system has been purged of air.

The DOS system must only be vented:

- if the dispensing system is being used for the first time,

- if the process chemical container has been replaced,

- the dispensing system has been sucked completely dry.

Before venting, ensure that the liquid process chemical container is sufficiently full and the suction lance are securely screwed to the containers. Only one DOS system can be vented at a time.

■ Open the menu as follows:

Button ‚≡

   ▸ Additional settings

      ▸ Dispensing system

         ▸ DOS... (name of dispensing system)

            ▸ Priming DOS system
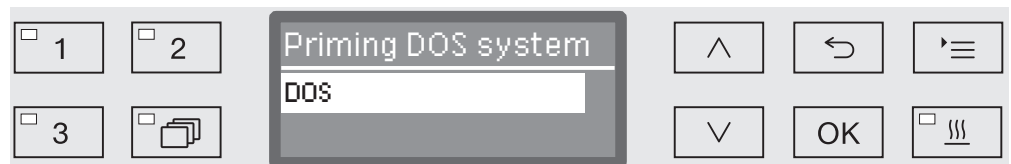
| 1 | 2 | **Priming DOS system** <br> DOS | ∧ | ↩ | ‚≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | | ∨ | OK | ﹏ |

Automatic venting will start when the dispensing system is selected. Once started, the automatic venting process can no longer be cancelled.

■ Select a dispensing system using the ∧ and ∨ arrow buttons.

■ Press *OK* to start the venting process.

Automatic venting is successfully completed when the following message appears in the display:

| 1 | 2 | Dispensing system    **i** <br> successfully primed   OK | ∧ | ↩ | ‚≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | | ∨ | OK | ﹏ |
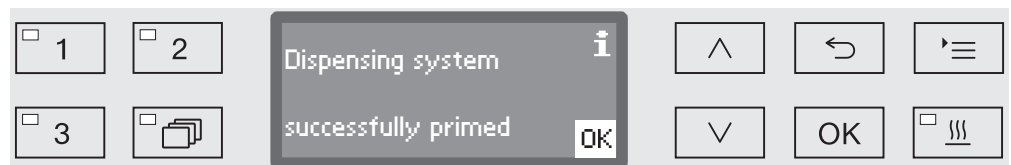
# Additional settings

**Setting the dispensing concentration for liquid agents**

The dispensing concentration for liquid process chemicals, e.g. in the case of a change of process chemicals, can be adjusted for all programs at once.

The dispensing concentration must be set in accordance with the manufacturer's instructions or with the required processing result.

The consumption of liquid agents is recorded in the log book (see "Further settings/Log book").

Changing program parameters on a validated machine will necessitate a renewed performance validation.

■ Open the menu as follows:

Button ⌐≡

▸ Additional settings

  ▸ Dispensing system

    ▸ DOS_

      ▸ Concentration

| 1 | 2 | Concentration<br>0.30 %<br>(0.05 - 2.00 %) | ∧ | � | ⌐≡ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ≋ |
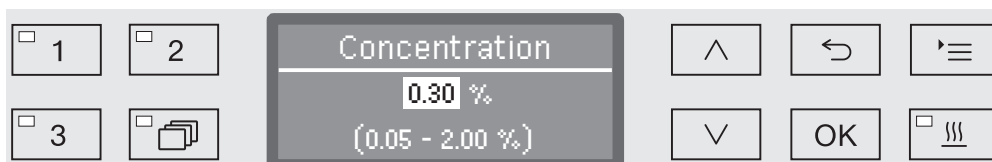
Dispensing concentration can be adjusted in increments of 0.01. The possible range is shown in the bottom line of the display.

■ Set the concentration using the arrow buttons ∧ (higher) and ∨ (lower).

■ Press *OK* to save the setting.

**Renaming a dispensing system**

If required the name of the dispensing system "DOS1" etc. can be extended to include additional information e.g. "DOS1 cleaning agent". The name "DOS" and the accompanying number cannot be changed.

> Document all changes of factory settings in case of a subsequent Service call.

If the option

- Change name

has been selected, the display changes to the following view:



The current name is shown on the second line of the display. This can be changed using the options shown in the bottom line. The top line shows which option has been selected from the bottom line.

Names may consist of up to 15 characters including spaces. The following options are available:

- Letters from A to Z,
  each new word will start with a capital letter.

- Numbers from 0 to 9.

- Space ⌴.

- Use the 🗑 symbol to delete the last position.

- The name is saved when the OK symbol in the display is selected. The display will then revert to the initial menu.

- The ↩ symbol in the display or the ↩ button end the process without saving the name change. The display reverts to the initial menu.

■ Use the arrow buttons ∧ (right) and ∨ (left) to move the cursor to the option you require.

■ Confirm each entry with *OK*.

# Additional settings

## Test program

Various programs are available for monitoring cleaning performance in routine testing.

See "Maintenance" for more information on these programs.

## Filter maintenance

**HEPA filter replacement**

The air filter in the drying unit must be replaced regularly with a new one. For more information on changing the filter, see "Maintenance / Changing the HEPA filter".

**Cleaning the filters in the wash cabinet**

The filters in the wash cabinet must be checked daily and cleaned regularly; see "Maintenance / Cleaning the filters in the wash cabinet".

A counter in the controls can be activated to remind you of the required cleaning at regular intervals.

**Activating and setting the interval**

■ Open the menu as follows:

Button ▸≡

  ▸ Additional settings

    ▸ Filter maintenance

      ▸ Filter combination
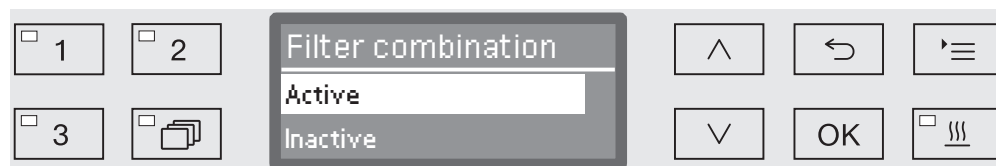


- Active

  The cleaning interval is activated.
  The Active selection allows you to reset the counter or set the cleaning interval.

- Inactive

  The cleaning interval is deactivated.

■ Select an option using the ∧ and ∨ arrow buttons and confirm your selection with *OK*.

Resetting the
counter

> The counter for the cleaning interval may be reset only after cleaning has been completed.

| | | Filter combination | | ∧ | ↩ | ⊢≡ |
| 1 | 2 | Reset | | | | |
| 3 | ⧉ | Interval | | ∨ | OK | ≋ |
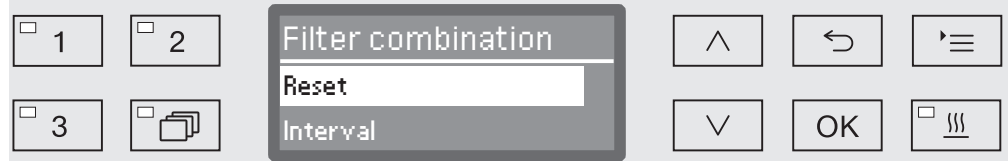
- Reset

  The counter is reset.

- Interval

■ Select an option using the ∧ and ∨ arrow buttons and confirm your selection with *OK*.

Setting the interval    The interval depends on the number of programs sequences and must be set on the basis of usage and the expected number of particles/solids in the soiling.

Example:
For weekly cleaning with 2 program sequences per day and 5 workdays in the week, this yields an interval of 10 (2 x 5 = 10). With a higher incidence of particles, a shorter interval should be selected in order to clean the filters several times weekly.

| | | Interval | | ∧ | ↩ | ⊢≡ |
| 1 | 2 | 10 | | | | |
| 3 | ⧉ | (5 - 100) | | ∨ | OK | ≋ |
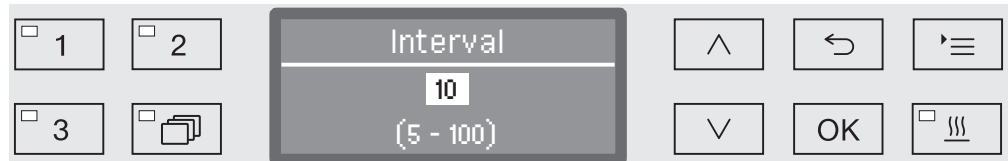
The setting value is entered in increments of 5. The possible range is shown in the bottom line of the display.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the Interval.

■ Press *OK* to save the setting.

## Interface

With Miele machines, cleaning processes can be documented. To enable this, these machines are equipped with a module slot on the back to take a Miele Communication Module. The communication module is available from Miele and comes with its own operating instructions.

> ⚠ Unauthorized access poses a risk.
> Settings in the machine (e.g., the wash block temperature or the dispensing of process chemicals) may be changed as a result of unauthorized access via the network.
> The machine should be operated in a separate network segment that is physically disconnected from other network segments, or access to the network should be restricted using a firewall or a router configured to provide protection against unauthorized access.
> Use strong passwords to protect access to the network.
> Limit access to the network to persons requiring access in the course of their work.

> Only use terminal devices (PC, printers, etc.) which comply with EN/IEC 62368.

> Contact Miele for more information about communication modules, software, and suitable printers.

| | |
|---|---|
| Ethernet | The XKM 3000 L Med communication module makes it possible to establish an Ethernet interface for digital archiving of process data via external software. |
| | The module can be connected to a WiFi network via an existing wireless access point. |
| RS232 | An XKM RS232 10 Med communication module is required for direct connection to a report printer.<br>The XKM RS232 10 Med module can also be used for connection to a terminal or terminal emulator. The data is transmitted in ASCII code. |

| | |
|---|---|
| **Configuring the interface** | ⚠ The interface must only be configured by suitably qualified and competent persons. |

■ Open the menu as follows:

Button ›≡

    ▸ Additional settings

        ▸ Interface

- Ethernet

  Configuration of an Ethernet interface.

- RS232

  Configuration of a serial RS232 interface

■ Select the type of interface and confirm your selection with *OK*.

The parameters for the interface must be configured next.

**Ethernet**
- Module status

  Connection status displayed (Active/Inactive)

- Address status

  List of interface parameters, e.g. IP address, Subnet mask etc.

- DHCP

  The Ethernet interface can either be implemented via a Dynamic Host Configuration Protocol (DHCP) or by setting the following parameters:

  – IP address
  – Subnet mask
  – Standard gateway
  – DNS Server automatic
  – DNS Server 1
  – DNS Server 2
  – Port type
  – Port

# Additional settings

**RS-232**

- Print reports

  Subsequent selection of cycle reports (see "Process documentation").

- Language ⚑

  Any one of the following languages can be set for the RS232 interface:
  German, English (GB), French, Italian, Spanish, Portuguese, Swedish or Russian.

- Mode

  – Terminal

    Connection to a terminal or terminal emulator.
    Cyrillic characters are not available as ASCII code. When Russian is selected as the language, the information appears in English (GB).

  – Printer

    Connection to protocol printer

- Baud rate

  Transfer speed of the interface.

  – 2400, 9600, 19200, 38400, 57600, 115200.

- Parity

  Ensuring data transmission. The parity of the sender and receiver must match.

  – none, even, odd.

- Reset

  The interface configuration is reset to the factory defaults.

  Following parameters are preconfigured:

| Baud rate | 9600 |
|-----------|------|
| Bit | 8 |
| Parity | none |
| Stop bits | 1 |

## Water hardness

You can use this menu to set the water softener to the water hardness of the mains supply.

For more information see "Water softener".

## Display: Temperature

The wash cabinet temperature can be viewed during a program. Either the current actual temperature or the required temperature which has been preset for the current wash block is displayed.

■ Open the menu as follows:

Button ᐟ≡

  ▸ Additional settings

    ▸ Display view
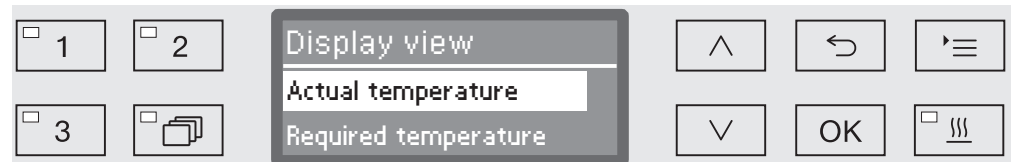


- Actual temperature

  Display the current actual temperature in the wash cabinet.

- Required temperature

  Display the required temperature which has been preset for the current wash block. If a temperature has not been set, a dotted line --- is shown.

During a program both settings are displayed as Temperature. There is no breakdown of actual and required temperature.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

# Additional settings

## Display: brightness and contrast

You can use this menu to adjust the brightness and contrast of the display.

∎ Open the menu as follows:

Button '≡

▸ Additional settings

▸ Display



- Contrast

  Set the contrast.

- Brightness

  Set the brightness.

∎ Select an option using the ∧ and ∨ arrow buttons.

∎ Confirm your selection with *OK*.
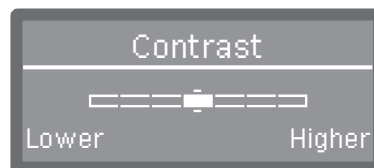


Contrast and brightness are shown as a bar chart in the display.

∎ Use the arrow buttons ∧ (Higher/Brighter) and ∨ (Lower/Darker) to set the brightness and contrast you want.

∎ Press *OK* to save the setting.

## Switch off after

If the machine has not been used for a specific time period, it can be set to standby or switched off automatically.

**Ready for operation (standby)**

During standby, the machine remains switched on and the time is shown on the display. Pressing any button reactivates the machine.

■ To activate standby, the Auto-Off function must be enabled under Additional settings/Switch off after and a standby time set.

■ In addition, an option to display the time of day must be selected in Settings ⚐/Time of day/Display.

Once the set standby time elapses, the machine is activated for use.

**Auto-Off function**

To save energy, the Auto-Off function can be activated. If the machine has not been used for a specific time period, it switches itself off automatically.

■ To activate the Auto-Off function, it must first be enabled under Additional settings/Switch off after and a standby time set.

■ Then, the option Do not display must be selected under Settings ⚐/Time of day/Display.

After the standby time has elapsed, the machine switches off automatically.

■ Use the ⏻ button to switch the machine on again.

# Additional settings

**Switching off after activating**

■ Open the menu as follows:

Button ᐣ≡

  ▸ Additional settings

    ▸ Switch off after



- Yes

  The Auto-Off function is activated. A duration must be set after which automatic switch-off should occur.

- No

  The Auto-Off function is deactivated.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

**Setting the standby duration**

If the Yes option has been selected, the standby duration after which automatic switch-off should occur must be set next.



The standby duration can be adjusted in 5 minute increments. The possible range is shown in the bottom line of the display.

■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the standby duration.

■ Press *OK* to save the setting.

## Factory default

All parameters which have been altered can be reset to their default settings. Control parameters and program settings are reset separately.

■ Open the menu as follows:

Button ˈ≡

  ▶ Additional settings

    ▶ Factory default

      ▶ Reset

| □ 1 | □ 2 | Reset<br>No ▲<br>Program settings only ▼ | ∧ | ↰ | ˈ≡ |
|---|---|---|---|---|---|
| □ 3 | □ ⧉ | | ∨ | OK | □ ⑊ |

- No

  Altered parameters are maintained.

- Program settings only

  All program settings are reset.

  Programs saved on free memory locations remain unchanged.

- All settings

  All control parameters including dispensing quantities and water hardness will be reset.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Confirm your selection with *OK*.

The machine is restarted.

**All settings**

When All settings is selected and the machine is restarted, you will be prompted to re-enter basic parameters such as the language, date, time, water hardness, etc.

■ Enter the language, date, time, and so on.

When the last entry is made, all the parameters are saved and the factory default settings have been reset. The display changes and shows the last selected program.

## Software version

You can use this menu to call up the software versions of individual elements, e.g. when contacting Miele Service.

For more information see "Service".

# Program settings

## Adjusting program settings

The program settings should be adjusted to suit technical requirements and the load items.

Additional specialist knowledge is required to alter program settings and this should therefore be undertaken only by experienced users or by Miele Service.

> Changing program parameters on a validated machine will necessitate a renewed performance validation.

## Program structure

Each program is subdivided into program blocks which run one after another. A program consists of at least one and a maximum of 11 program blocks. Each block can occur only once in a program.

The so-called program header is placed above the program blocks and contains general program settings. Individual wash block parameters are also globally activated or deactivated here.

**Program header**
- Spray arm monitoring

  It is possible to monitor spray arm rotation in selected wash blocks.
- Conductivity limit

  The conductivity of the water in the final rinse phase is monitored using a conductivity measuring module (optional feature).
- Change water volume

  The water intake quantity can be increased or reduced in each program. The setting is then valid for all program blocks including water intake.
- Drainage time

  If the on-site drainage system is insufficient to drain the waste water from the wash cabinet within the time allocated, the drainage time can be increased.

**Program blocks**    Wash block sequence is predefined and is the same as in the program chart (see "Program chart").

- Pre-rinse 1 **to** 3

    Pre-washing removes coarse soiling and foam-building substances.

- Main wash 1 **and** 2

    Depending on the wash load, cleaning generally occurs at temperatures between 50°C and 85°C (104 - 140°F) with the addition of an appropriate cleaning detergents.

- Interim rinse 1 **to** 4

    In the interim rinse stages the process chemicals from the previous wash blocks are rinsed away and neutralized by the addition of neutralizing agents.

- Final rinse 1 **to** 2

    To avoid deposits on the wash load demineralized water (DI) should preferably be used if available for the final rinse.

- Drying

    Adequate drying reduces the residual moisture on the load.

# Program settings

## Opening the menu

The menu for program settings is locked for machine users by factory default. If required, this function can be activated by Miele Service.

∎ Open the menu as follows:

Button '≡

 ▸ Additional settings

  ▸ Program settings

| 1 | 2 | Program settings<br>**Change program**<br>Reset program | ∧ | ↩ | '≡ |
|---|---|---|---|---|---|
| 3 | ⟳ | | ∨ | OK | Ⅷ |
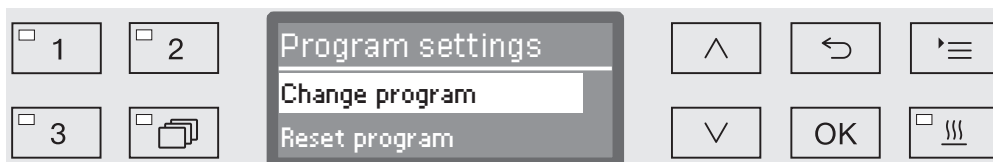
- Change program

 Programs can be adapted to suit specific technical requirements.

- Reset program

 Reset a program to factory default settings. Programs newly installed by Miele Service will be deleted with this option.

## Resetting a program

Programs can be individually reset to factory default.

⚠ Programs stored on a free memory location are irretrievably deleted.

 ...

  ▸ Program settings

   ▸ Reset program

All programs are then listed in the display.

∎ Use the ∧ and ∨ arrow buttons to select the program and confirm your selection with *OK*.

| 1 | 2 | Reset program<br>**Yes**<br>No | ∧ | ↩ | '≡ |
|---|---|---|---|---|---|
| 3 | ⟳ | | ∨ | OK | Ⅷ |
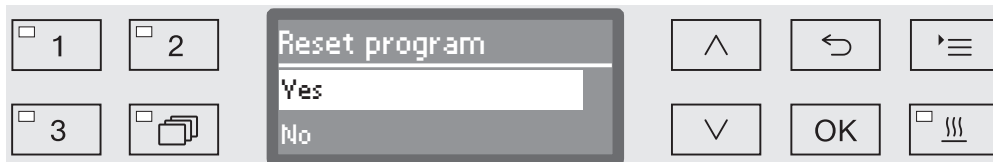
- Yes

 The program will be reset to factory default.

- No

 Program parameters will not be changed.

∎ Use the ∧ and ∨ arrow buttons to select an option and confirm your selection with *OK*.

## Altering a program

You can alter all parameters which are identified as changeable in the program charts. Other settings can only be altered by Miele Service.

A program setting is altered in two steps:

- First the wash blocks must be reallocated to the program or the existing allocation confirmed again. Only allocated program blocks can be parameterized.

- Then the program parameters can be altered.

> Document all changes of factory settings in case of a subsequent Service call.

> Changing program parameters on a validated machine will necessitate a renewed performance validation.

```
...
    ▸ Program settings
        ▸ Change program
```
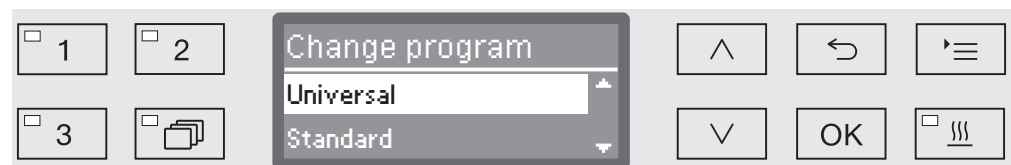


■ Select the program you want to alter.

For more information see "Allocating wash blocks".

**Allocating wash blocks**

For every program change the wash blocks must first be allocated.



Allocation is by multiple choice. A box is shown next to all wash blocks in the display. If a wash block is allocated to the program, there is a tick ☑ in the box. This wash block is allocated to the program by ticking the box or the allocation can be removed by removing the tick.

■ The wash blocks can be selected or deselected using the ∧ and ∨ arrow buttons and confirming with *OK*.

■ To save the selection, select the Accept option at the end of the list and confirm with *OK*.

■ If you want to adopt the preset wash blocks without any changes, you can confirm the Accept option immediately with *OK*.

The further setting options will then follow. You can edit these in any order you want.

# Program settings

**Spray arm monitoring**

The cleaning result depends on the wash water reaching all surfaces and cavities of the wash load. To do this the wash water is distributed throughout the wash chamber by the rotation of the machine, basket and cart spray arms.

It is possible to monitor the rotation speed of the spray arms during a program.

The rotation speed is determined using special magnetic spray arms. The sensors of this machine cannot detect the magnetic spray arms of older basket and mobile unit models and therefore these cannot be monitored.

If the rotational speed detected is not within a preset range, this is an indication of blockage due to loading errors or build-up of foam in the water circulation system.

The rotation speed range depends on the area of application, the program and the wash cart or basket used.

Switching on spray arm monitoring

Spray arm monitoring is switched on and off for all wash blocks.

...

▶ Spray arm monitoring



- Off

  Spray arm monitoring is switched off.

- Off for basket

  Only the machine spray arms are monitored. The sensors for the basket and cart spray arms are deactivated.

- On

  All spray arms are monitored.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

The action desired at different spray arm rotational speeds is set in each wash block.

>   ...
>   ▸ Select wash block, e.g.: Main wash 1
>       ▸ Spray arm monitoring

| 1 | 2 | Spray arm monitoring | ∧ | ↶ | ⌷≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | On -> Stop ▲ <br> On -> Warning ▼ | ∨ | OK | ⧉ ⌇⌇⌇ |
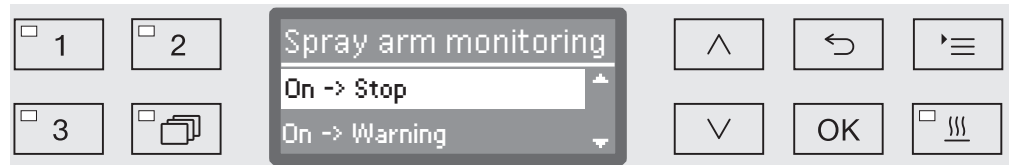
- On -> Stop

  A program in operation is interrupted if the rotational speed deviates. The interruption is shown on the display and noted in the cycle report.

- On -> Warning

  The program continues to run normally if the rotational speed deviates. Only a message appears on the display and the deviation is noted in the cycle report.

- Off

  No message appears and the program continues to run normally.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

# Program settings

**Measuring conductivity (optional feature)**

Electrical conductivity in a water based solution is a measure of the total amount of dissolved conductive substances (e.g. salts, acids, etc.).

The electrical conductivity during the final rinse phase is relevant for the processing result. Salts and deposits in the water remain on the wash load after drying.
High conductivity in this phase can limit the intended use of processed wash load items.

The conductivity of the final rinse water can vary and fluctuations can be caused by external conditions like,

- An exhausted water softener and/or demineralization cartridge (optional accessory).

- a ruptured membrane in the reverse osmosis unit (optional accessory),

- on-site work on the water supply,

- Interchanged water connections after maintenance work.

Possible causes for carry-over of conductive substances from previous wash blocks are e.g.:

- residual used water,

- residual initial contamination,

- residual process chemicals,

- properties of items being processed, e.g. items holding a lot of water that is carried from one program block to the next,

- type of load,

- foam.

The conductivity of the final rinse phase is the total of the conductivity of water used in water inflow and the carry-over of conductive substances from the previous wash blocks.

If a conductivity meter is fitted ex-works, the conductivity of the wash water can be monitored. Non-conductive substances, e.g. non-ionic tensides are not detected by the sensor.

The conductivity meter is not fitted on all machines as standard and cannot be fitted retrospectively.

**Activating conductivity measuring**

Conductivity measuring is activated individually for each program. Conductivity is measured in the final rinse phase.

```
...
    ▸ Conductivity limit
```
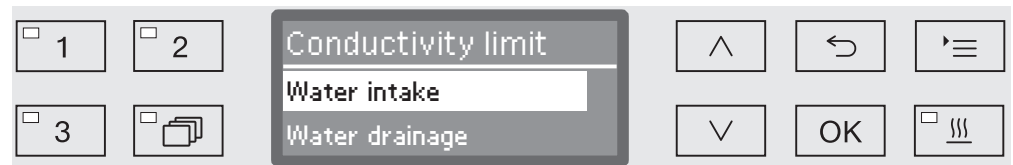


- Water intake

  The electrical conductivity of the water before the beginning of the final rinse phase is measured.

- Water drainage

  The electrical conductivity of the water at the end of the final rinse phase is measured.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

Following selection a maximum limit value for electrical conductivity must be set.

**Set limit value**

The limit values for Water intake and Water drainage are set individually.

```
...
    ▸ Conductivity limit
        ▸ Water intake or Water drainage
            ▸ Set
```
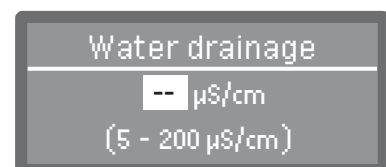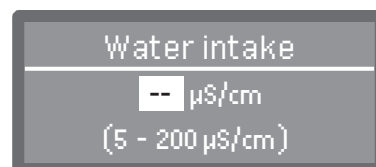


Adjustment is in increments of 1. The possible range is shown in the bottom line.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the limit value.

■ Touch *OK* to save the limit value.

# Program settings

**Repeating if limit value is exceeded**
If the conductivity exceeds the limit value for the water intake or the water drain, the measurement can be repeated.
If the limit value of the water intake is too high, the water is pumped out and the water intake is repeated. if the conductivity at the end of the rinse cycle is above the limit value for the drained water, the entire final rinse is repeated.
If the value exceeds the limit again, the program will be cancelled with a error message. The message will be displayed both on the display and the cycle report.

 ...
  ▶ Conductivity limit
   ▶ Water intake **or** Water drainage
    ▶ Number of repeats
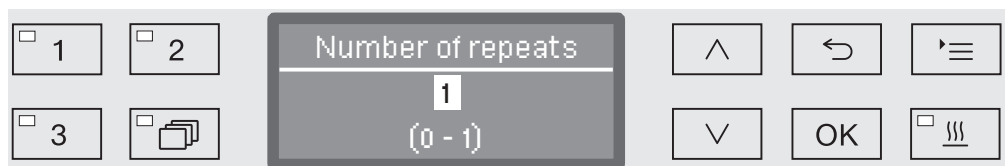


Adjustment is in increments of 1. The possible range is shown in the bottom line.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the number of repetitions.

■ Press *OK* to save the setting.

**Calibrating the conductivity meter**
The conductivity meter must be recalibrated by Miele Service at regular intervals, e.g. during servicing. Sometimes calibration may also be necessary outside the service cycle.
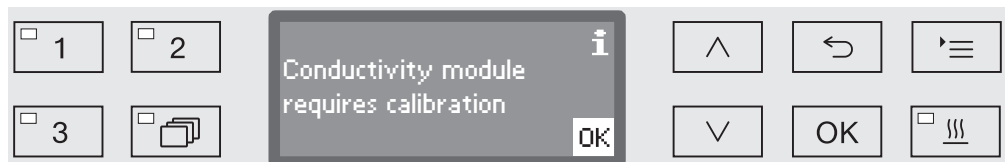


■ If this message appears, contact the Miele Service Department.

**Activating the conductivity sensor**

The conductivity is measured during the final rinse phase (see program charts).

  ...
▶ Final rinse 1 **or** Final rinse 2

      ▶ Conductivity Monitoring

| 1 | 2 | Conductivity Monitoring<br>Yes<br>No | ∧ | ↺ | ≡ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ♨ |

\- Yes

The conductivity is being measured.

\- No

The conductivity sensor is deactivated.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

**Changing water quantity**

Increasing the water level is advisable if a large amount of water clings to items due to the structure of the wash load or if a heavy build-up of foam might occur due to the type of soiling (e.g. blood) and the process chemicals used. The additional amount of water required depends on the type of basket or wash cart used, the type of soiling and the load.

If a lightly soiled load is being reprocessed which does not hold much water, the amount of water can be reset to the factory default amount to save water and energy.

  ...
      ▶ Change water volume

| 1 | 2 | Change water volume<br>0.0 l<br>(0.0 - 8.5 l) | ∧ | ↺ | ≡ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ♨ |
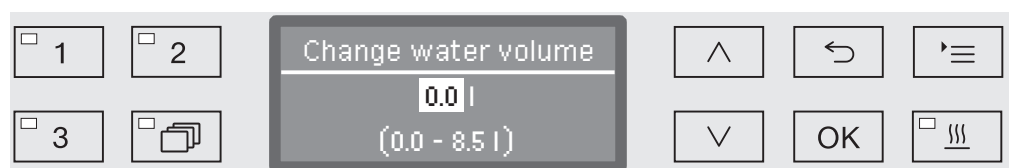
The water quantity can be increased in 0.5 l increments, or set back to the factory default amount. The possible range is shown in the bottom line. The setting "0 l" equates to the factory default setting.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to alter the water quantity.

■ Press *OK* to save the setting.

# Program settings

**Increasing drainage time**

If there is still water remaining in the wash cabinet at the end of a wash block, because e.g. the on-site drainage system is inadequate, the following error message will be displayed to enable water to be drained out of the wash cabinet within the designated time:
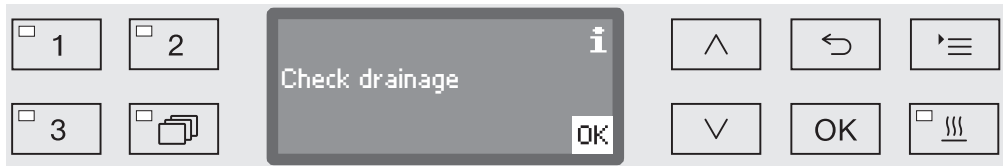


In this case, the drainage time can be increased.

```
    ...
      ▶ Drainage time
```



- Standard

  The standard drainage time setting applies.

- Extended

  Drainage time is increased by a strictly preset increment.
  Program duration will increase with this setting.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

**Setting the concentration level**

Up to two process chemicals can be dispensed in each wash block. It is also possible to use the same dispensing system twice.

 ...
▸Dosage 1 **or** Dosage 2

        ▸ Dispensing system

| 1 | 2 | DOS 2 Rinse aid | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
|   |   | No |   |   |   |
| 3 | ▱ | Yes | ∨ | OK | ⧎ |

The number of dispensing systems can vary according to model and the number of connected DOS modules.

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

Then you can set the dispensing concentration in % (percent).

| 1 | 2 | DOS | ∧ | ↰ | ≡ |
|---|---|---|---|---|---|
|   |   | 0.30 % |   |   |   |
| 3 | ▱ | (0.05 - 2.00 %) | ∨ | OK | ⧎ |

Adjustment is in 0.01 % increments. The possible range is shown in the bottom line. Please observe the concentration recommendations of the process chemicals manufacturer.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the dispensing concentration.

■ Press *OK* to save the setting.

# Program settings

**Set wash block temperature**

The wash block temperature is reached by heating up the wash water. The temperature must be suited to the requirements of the task.

> At temperatures over 55°C, protein denaturing occurs which can cause the soiling to fix.
> Infection prevention requirements must be observed as appropriate.

...
  ▸ Wash block temperature

| 1 | 2 | Wash block temp.<br>**Without heating**<br>Set | ∧ | ↩ | ▸≣ |
|---|---|---|---|---|---|
| 3 | 🗐 | | ∨ | OK | ﹋ |
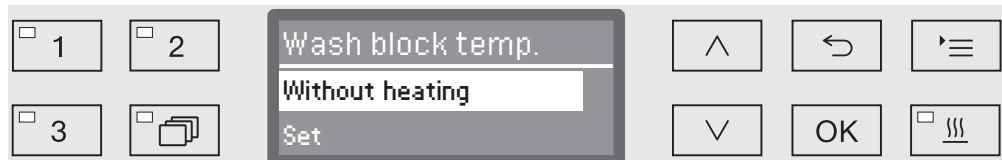
- Without heating

  The wash water is not heated up. The temperature in the wash cabinet is the result of the temperature of the previous wash block and the the incoming tap water temperature.

- Set

  Setting a wash block temperature.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

When Set is selected the wash block temperature must then be entered.

| 1 | 2 | Wash block temp.<br>**60** °C<br>(30 - 93 °C) | ∧ | ↩ | ▸≣ |
|---|---|---|---|---|---|
| 3 | 🗐 | | ∨ | OK | ﹋ |
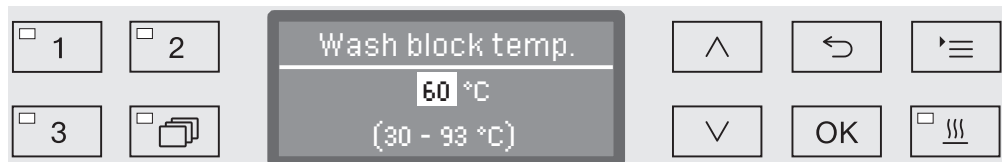
Adjustment is in increments of 1. The possible range is shown in the bottom line.

Dispensing of process chemicals occurs at a default dispensing temperature set at the factory. If process chemicals are to be dispensed in this wash block, the lowest temperature that can be set will be the dispensing temperature. It is not possible to set a lower value.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the wash block temperature.

■ Press *OK* to save the setting.

**Setting the holding time**

The holding time is the duration in which the wash block temperature is kept constant.

...
▸ Holding time

| | | Holding time | | | |
|---|---|---|---|---|---|
| □ 1 | □ 2 | **1** Min | ∧ | ↰ | ⊢≡ |
| □ 3 | □ 🗇 | (0 - 15 Min) | ∨ | OK | □ ∭ |
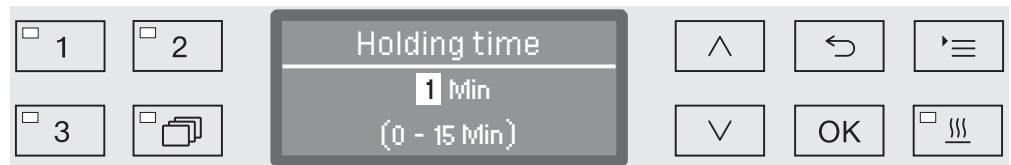
The duration can be set in 1 minute increments. The possible range is shown in the bottom line.

If process chemicals are to be dispensed in this wash block, the holding time will equal at least to the dispensing (DOS) contact time. It is not possible to set a lower value.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the holding time.

■ Press *OK* to save the setting.

# Program settings

**Drying unit**

The additional "Drying" function accelerates the drying process at the end of the program.

When the drying function is activated and the door is closed, the drying system feeds heated and HEPA-filtered air into the wash chamber for active drying of the load. The heated air is discharged through the steam condenser and can be cooled down if necessary (see "Further settings/Air cooling").

Cooling down pause

A cooling down pause can be inserted between the end of the final rinse phase and starting of the drying system. During this pause, water vapor is extracted from the wash chamber and condensed by the steam condenser. This reduces the moisture level in the wash chamber, which promotes drying.

...

▸ Cooling down pause

| 1 | 2 | Cooling down pause | ∧ | ↶ | ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | No / Time | ∨ | OK | ∭ |
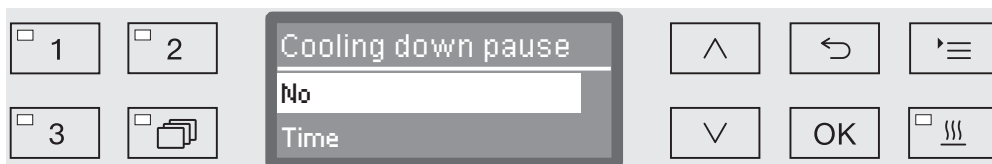
- No

  The drying unit starts immediately after the rinse phase without a cooling down pause.

- Time

  The cooling down pause is activated for a duration which can be set.

■ Use the arrow buttons ∧ and ∨ to select an option and press *OK* to confirm your selection.

When Time has been selected, the duration of the cooling down pause must then be set.
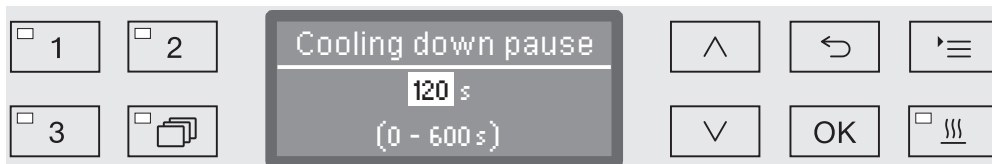
| 1 | 2 | Cooling down pause | ∧ | ↶ | ≡ |
|---|---|---|---|---|---|
| 3 | ⧉ | 120 s (0 - 600 s) | ∨ | OK | ∭ |

The setting value is entered in increments of 10. The possible range is shown in the bottom line of the display.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the duration of the cooling down pause.

■ Press OK to save the setting.

| | |
|---|---|
| Setting the temperature and time | The drying phase consists of two blocks. The temperature and duration (holding time) must be set for each block.<br>The first block (temperature 1 and drying time 1) is not assigned in all programs, but if necessary can be set up by Miele Service. |
| Setting temperature 1 | ...<br><br>▸ Temperature 1 |
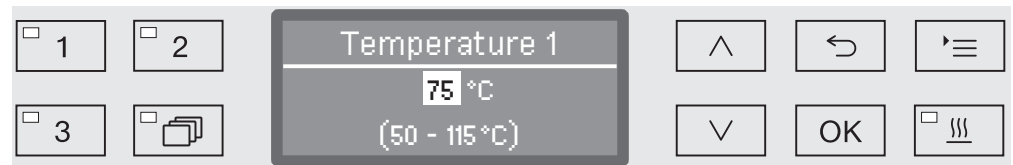
<table>
<tr><td>□ 1</td><td>□ 2</td><td rowspan="2">Temperature 1<br>75 °C<br>(50 - 115°C)</td><td>∧</td><td>↩</td><td>≡</td></tr>
<tr><td>□ 3</td><td>□ ⊡</td><td>∨</td><td>OK</td><td>□ ⌇⌇⌇</td></tr>
</table>

The temperature is set in 5° increments. The possible range is shown in the bottom line of the display.

■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the temperature.

■ Press *OK* to save the setting.

| | |
|---|---|
| Setting drying time 1 | ...<br><br>▸ Drying time 1 |
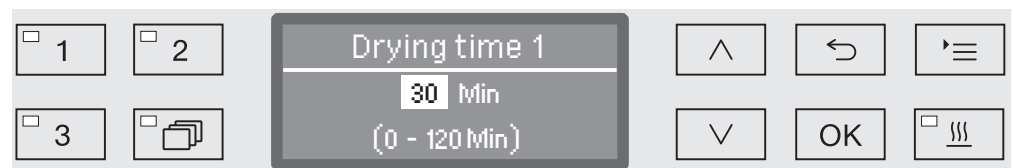
<table>
<tr><td>□ 1</td><td>□ 2</td><td rowspan="2">Drying time 1<br>30 Min<br>(0 - 120 Min)</td><td>∧</td><td>↩</td><td>≡</td></tr>
<tr><td>□ 3</td><td>□ ⊡</td><td>∨</td><td>OK</td><td>□ ⌇⌇⌇</td></tr>
</table>

The holding time is set in 1 minute increments. The possible range is shown in the bottom line of the display.

■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the holding time.

■ Press *OK* to save the setting.

| | |
|---|---|
| Setting temperature 2 | ...<br><br>▸ Temperature 2 |
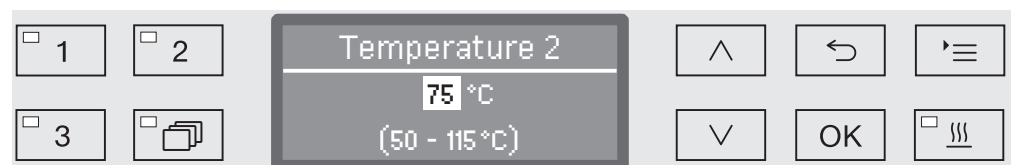
<table>
<tr><td>□ 1</td><td>□ 2</td><td rowspan="2">Temperature 2<br>75 °C<br>(50 - 115°C)</td><td>∧</td><td>↩</td><td>≡</td></tr>
<tr><td>□ 3</td><td>□ ⊡</td><td>∨</td><td>OK</td><td>□ ⌇⌇⌇</td></tr>
</table>

The temperature is set in 5° increments. The possible range is shown in the bottom line of the display.

■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the temperature.

■ Press *OK* to save the setting.
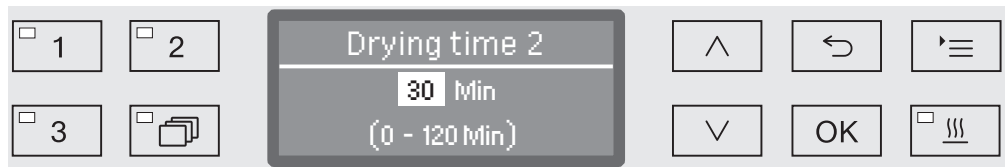
# Program settings

Setting drying
time 2

    ...

        ▶ Drying time 2

            ▶ Set

| 1 | 2 | **Drying time 2**<br>**30** Min<br>(0 - 120 Min) | ∧ | ↶ | ≡ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ﹏ |

The holding time is set in 1 minute increments. The possible range is shown in the bottom line of the display.

■ Use the ∧ (higher) and ∨ (lower) arrow buttons to set the holding time.

■ Press *OK* to save the setting.
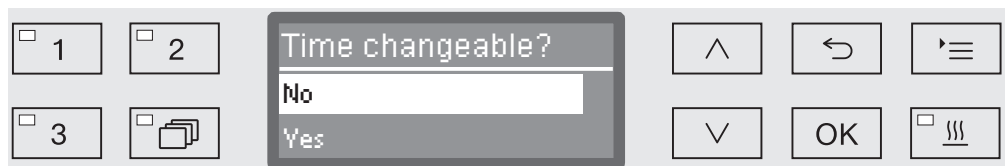
Time changeable

If required, the drying time can be set again and saved before the start of every program.

    ...

        ▶ Drying time 2

            ▶ Time changeable?

| 1 | 2 | **Time changeable?**<br>No<br>Yes | ∧ | ↶ | ≡ |
|---|---|---|---|---|---|
| 3 | 🗗 | | ∨ | OK | ﹏ |

- Yes

    The drying time can be set again and saved before the start of every program.

- No

    The drying time cannot be changed.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

Fan cooling

After drying, cooling of the wash load can be accelerated by the drying system. To do so the drying system blower runs with the heating switched off, cooling the interior of the wash chamber.

...

▸ Cooling down with fan

| □ 1 | □ 2 | Cooling down with fan | ∧ | ↶ | ⟩≡ |
|---|---|---|---|---|---|
| □ 3 | □ 🗗 | No<br>Set the time | ∨ | OK | □ ∭ |
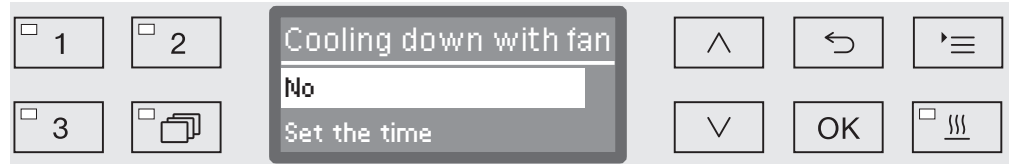
- No

  The drying unit fan is not switched on.

- Set the time

  The drying unit fan will run for a specified duration.

■ Use the arrow buttons ∧ and ∨ to select an option and press *OK* to confirm your selection.

When Set the time has been selected, the duration of the cooling down pause must then be set.

| □ 1 | □ 2 | Cooling down with fan | ∧ | ↶ | ⟩≡ |
|---|---|---|---|---|---|
| □ 3 | □ 🗗 | 120 s<br>(10 - 200 s) | ∨ | OK | □ ∭ |

The setting value is entered in increments of 10. The possible range is shown in the bottom line of the display.

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the cooling down duration.

■ Press OK to save the setting.

# Process documentation

## Documenting processes

Processes are documented per cycle. Required and actual values are always recorded.

During a program cycle, the following data is recorded, among other things:

- Machine model and serial number

- Date

- Program start and program name

- Cycle number

- Wash blocks used

- Dispensing system with dispensing temperature and target dispensing amount if necessary

- Target values for temperature and holding times

- Minimum and maximum temperatures during the holding time

- Wash pressure measuring results

- All fault messages

- End of program

- System messages, e.g. salt refill

Further data can be incorporated into the report as required. Contact Miele Service for more information on this.

**Memory**

Depending on scale, between 10 and max. 20 batch protocols are stored in an internal power-failure-safe memory within the machine. In the event of network or printer problems, for example, these can be subsequently recalled. If the memory is full, the oldest report is overwritten.

In addition, raw data from the last program cycle is stored to create a graphical display of the process data. This data can be transformed into graphical representations using external documentation software. Transferring raw data requires an Ethernet interface. It is not possible to create graphical representations on the display or on a directly connected printer. Power-failure-safe storage of graphical information is not available.

**Adding cycle numbers**

Miele Service can add subsequent cycle numbers, e.g. in the event of software updates or if the machine controls are replaced.

## Communication module for external archiving

A module slot is integrated into the back of the machine for a Miele communication module for permanent archiving of batch protocols. The module enables the installation of an Ethernet interface for documentation using documentation software or an RS-232 interface for connection to a report printer.

Please contact Miele for further information on software and suitable printers.

Only use terminal devices (PC, printers, etc.) which comply with EN/IEC 62368.

The communication modules are available from Miele as an accessory and can be retrofitted at any time. The modules are supplied with their own installation instructions.
The interface must only be configured by suitably qualified and competent persons. Follow the instructions in "Additional settings/ Interface".

## Process documentation using external software (option)

For digital archiving the process data is transmitted to external process documentation software via an Ethernet interface. Transmission can optionally occur continuously during the process or as a single data packet at the end of the process. The settings for this are modified by Miele Service.

Information on wash pressure, $A_0$ value, conductivity and temperature in the wash cabinet can be archived graphically if required.

Installation of an Ethernet interface requires the retrospective fitting of an XKM 3000 L Med communication module.
For connection to a WLAN network the module can be connected via a cable to an existing wireless access point.

**Problems with data transmission**

If there is a network problem during a running process, e.g. due to a loose cable, a relevant fault message is displayed.
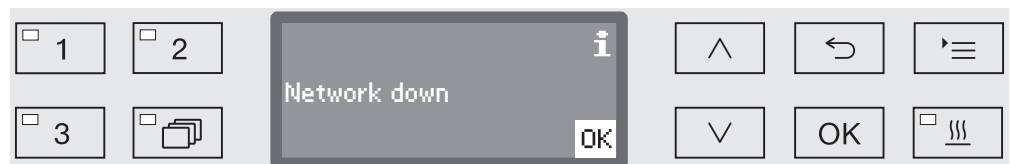


The process running will be continued without interruption and the process data will be saved in the meantime in the internal memory.

In the event of network or report software problems contact your system or network administrator.

# Process documentation

## Process documentation using a report printer (option)

Process reports are printed via a directly connected report printer and archived on paper. Graphic representations are not included. An XKM RS232 10 Med communication module is required for direct connection.

**Report formats**  You can choose from two different report formats for paper archiving:

- In long format all recorded data is included.
- Short format includes only selected parameters.

The report format has no effect on the data stored in the machine. All the data required for a long report is stored, so the report format can be changed for each new cycle.

■ Open the menu as follows:

Button ⸲≡

  ▸ Additional settings

    ▸ Report



- Short

  Print in short format
- Long

  Print in long format

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to save the setting.

### Outputting batch protocols retrospectively

Internally stored protocols can be output retrospectively from the machine.

**External software** If supported, data can be retrieved directly via the documentation software using an existing network connection. It is not necessary to input entries at the machine itself.

**Report printer** The following options are available for printing reports retrospectively.

■ Open the menu as follows:

Button ꞌ≡

  ▸ Additional settings

    ▸ Interface

      ▸ RS232

        ▸ Print reports



- Last report

  Output of the last cycle report.
- Current work day

  Output of all cycle reports for the current working day.
- Last working day

  Output of all cycle reports for the previous working day.
- All

  Output of all saved reports.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Data transmission is started by pressing the *OK* button.

Data transmission runs in the background so the machine can go on being used.

# Maintenance

## Service

The machine should be serviced **every 1,000 hours of operation, or at least once a year,** by Miele Service or a suitably qualified specialist.

Maintenance covers the following points and functional checks:

- replacement of wear parts
- electrical safety check compliant with national rules and regulations
- 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 non-return valve
- all mobile units, baskets, modules, and inserts
- Steam condenser
- wash mechanism / wash pressure
- Drying unit
- visual inspection and functional check of components
- a thermo-electric check (optional on request)
- leak test on seals
- safety testing of all relevant measuring systems
- safety features

Where applicable:

- Conductivity meter

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

## Routine checks

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

The following items must be checked:

- All filters in the wash cabinet
- The spray arms in the machine and on any wash carts or baskets
- The wash cabinet and the door seal
- The dispensing systems
- The wash carts, baskets, modules, and inserts
- The filters in the load carriers

## Cleaning the filters in the wash cabinet

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

⚠ Risk of damage due to blocked waterways.
If the filters are not inserted, dirt particles will end up in the machine water circuit. The dirt particles may block the nozzles and valves.
Only start a program if the filters are inserted.
Check that the filters are positioned correctly when you reinsert them after cleaning.

In the controls, it is possible to set a cleaning interval for the filters in the wash chamber, see "Settings ⚑/Filter maintenance".
The cleaning interval is not a substitute for the daily routine check of the filters in the wash chamber!
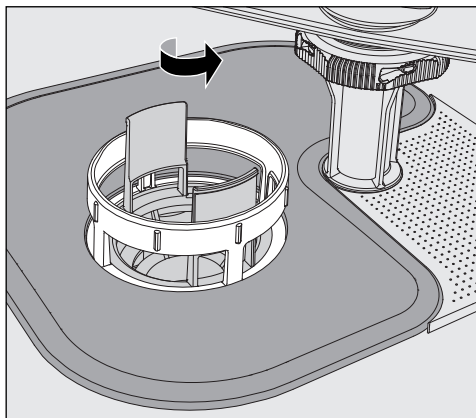


⚠ Danger of injury from glass shards, needles etc. which are retained in the filters.

■ Turn the microfine filter in the direction of the arrow and remove it together with the coarse filter.
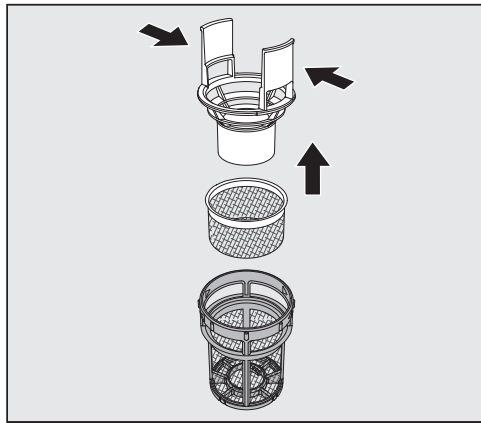
■ Press the catches towards each other and pull the coarse filter upwards to remove it.

■ Remove the fine filter which sits loosely between the coarse filter and the microfine filter.
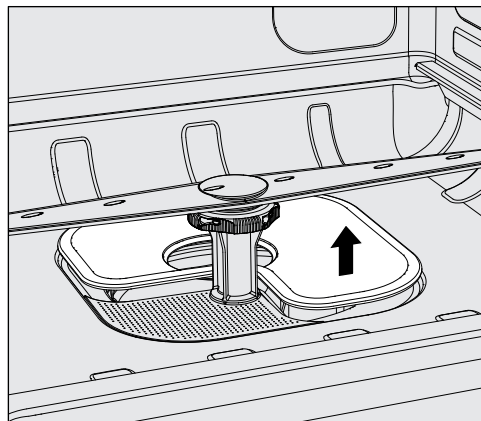


■ Remove the flat filter last.

■ Clean the filters.

■ Re-insert the filter combination in the reverse order. Ensure ...

- ... that the flat filter sits flat in the base of the wash chamber.

- ... that the coarse filter has securely clicked into place in the microfine filter.

- ... that the microfine filter is tightly screwed in as far as it will go.

> If a cleaning interval was set for the filters in the wash chamber, this interval must be reset after cleaning; see "Settings ⚑/Filter maintenance.

## Cleaning the spray arms

The spray arm nozzles can become blocked, especially if the filters are not inserted correctly in the wash cabinet. This can cause coarse particles of soiling to get into the wash water circuit.

The spray arms must be visually checked daily for any soiling.

■ To do this, remove the wash cart and the baskets.

■ Visually check the spray arms for soiling and blocked nozzles.

■ Also check that the spray arms can turn easily.

> ⚠ Immobile or blocked spray arms must not be used again.
> In this case, contact Miele Service.

**Cleaning the spray arms**

The spray arms in the machine as well as in the wash carts and baskets must be fully dismantled for cleaning:

■ Remove the wash cart or baskets from the machine.

The upper spray arm of the machine is connected by a push-fit connector.

■ Pull the upper spray arm of the machine downwards to remove it.

The lower spray arm of the machine and the spray arms in the wash carts and baskets are secured with bayonet fittings.
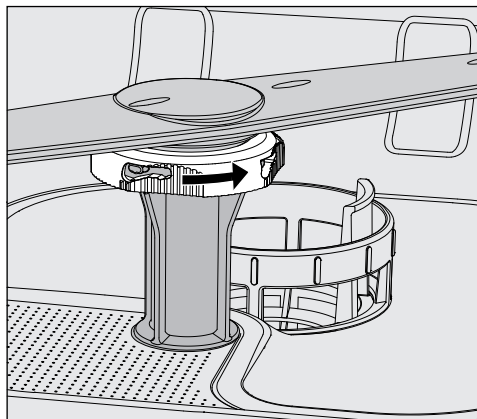


■ To release the knurled bayonet fittings, turn them in the direction of the arrow as far as they will go.

■ Then the spray arms can be removed by pulling them upwards or downwards.

> **Wash cart and basket spray arms with knurled nuts:**
> The spray arms of older types of wash carts and baskets are secured with knurled nuts. These must be unscrewed and the spray arms pulled downwards to remove them.
> Metal knurled nuts have a left-hand thread.
> Ceramic knurled nuts have a right-hand thread.

# Maintenance
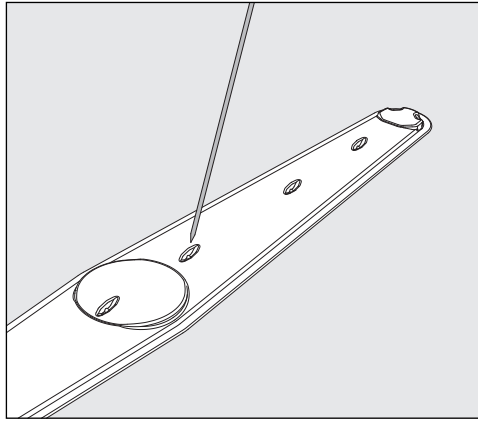


- Use a pointed object to push particles into the spray arm.

- Rinse the spray arm thoroughly under running water.

> ⚠ Do not allow any magnetic objects or load items to attach to the magnets on the spray arms.
> Any metallic objects on the magnets can cause a false reading of spray arm rotation.
> Remove all metal objects from the magnets.

- Check the spray arm bearings for visible signs of wear.

> Visible wear on the bearings can adversely affect the long-term functioning of the spray arms.
> In this case, contact Miele Service.

- Replace the spray arms after cleaning.

- Make sure the spray arms can rotate easily after they have been fitted.

> The spray arms and baskets each have a number e.g. 03, which is also embossed on the water supply pipes near the bayonet fittings. When refitting, ensure that the numbers on the spray arms correspond with the numbers on the water supply pipes.

## Cleaning the machine

> ⚠ Never clean the machine or surrounding area with a water hose or a pressure washer.

> ⚠ Do not use cleaning agents containing ammonia or thinners on stainless steel surfaces!
> These agents can damage the surface material.

**Cleaning the control panel**

> ⚠ Do not use any abrasive materials or general-purpose cleaners to clean the control panel.
> These can cause considerable damage to the glass and plastic surfaces and to the onset control buttons.

■ Clean the control panel with a damp cloth and a solution of dishwashing liquid or with a non-abrasive stainless steel cleaner.

■ Proprietary glass or plastic cleaning agents can also be used to clean the display.

■ For surface disinfection only use low-level surface disinfectants. Do not use high-level disinfectants such as Hydrogen Peroxide and Paracetic Acid.

**Cleaning the door and the door seal**

■ Wipe the door seal regularly with a damp cloth to remove any soiling.
Seals which are no longer tight or which have suffered damage must be replaced with new ones by Miele Service.

■ Remove any soiling from the door sides and hinges.

■ Regularly clean the groove in the plinth panel under the door with a damp cloth.

**Cleaning the wash cabinet**

The wash cabinet is generally self-cleaning. However, should a build-up of deposits occur in the cabinet, please contact Miele Service for advice.

**Cleaning the front**

■ To clean the stainless steel front, use a damp cloth with a solution of dishwashing liquid and hot water, or with a non-abrasive cleaning agent for use on stainless steel. For surface disinfection only use low-level disinfectants. Do not use high-level disinfectants such as Hydrogen Peroxide and Paracetic Acid.

**Preventing re-soiling**

■ To help prevent re-soiling of stainless steel surfaces (fingerprints, etc.), a suitable stainless steel conditioner can be used after cleaning.

# Maintenance

### Checking wash carts, baskets, modules and inserts

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

The following points need to be checked:

- Are the mobile unit or basket rollers in good condition, and are they securely attached to their mobile units or baskets?

- Are the water connectors present and undamaged?

- Are height-adjustable water connectors adjusted to the correct height and securely fixed?

- Are all nozzles, irrigation sleeves, and hose adapters securely attached to mobile units, baskets, or modules?

- Are all 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?

- Are end caps present and securely positioned for all modules and injector manifolds?

- Are the locking caps in the water connectors of mobile units and baskets working properly?

Where applicable:

- Do the spray arms rotate freely?

- Are the spray arm nozzles free of any blockages? See "Cleaning the spray arms".

- Do the magnets integrated into the spray arms have any metallic objects sticking to them?

- Do the tubular filters need to be cleaned or filter plates, e.g., in an E 478/1, need to be replaced?

**Maintenance of wash carts, baskets, modules and inserts**

The machine should be serviced **every 1,000 hours of operation, or at least once a year,** by Miele Service or a suitably qualified specialist.

## Changing the HEPA filter

The air filter for the internal drying unit has a limited lifespan and has to be replaced at regular intervals, e.g. when the following message appears:
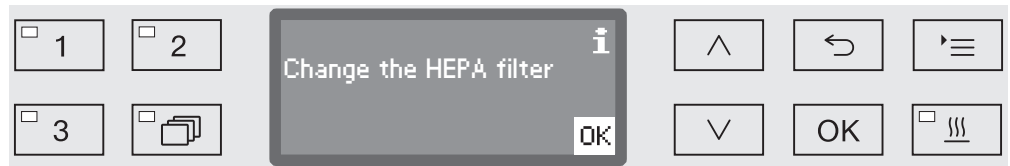


Replace with an **Original Miele HEPA filter classification 13** for optimum performance.

■ Open the service panel in the base.
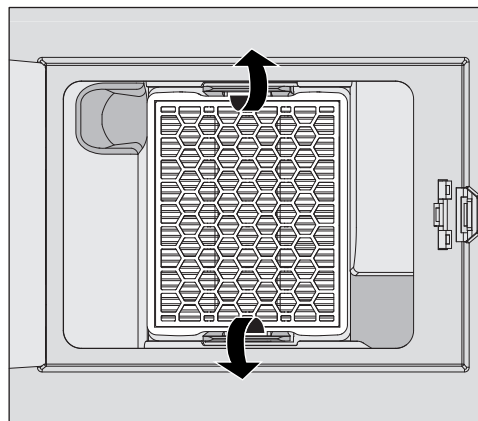


■ Push the retaining clips outwards to release the HEPA filter.

■ Grasp the indentations on the sides and pull the filter forwards.

■ Insert a new HEPA filter, making sure that it locates securely in the retaining clips.

■ Close the service panel.

Whenever the HEPA filter is replaced, the operating hours counter must be reset.

# Maintenance

**Resetting the operating hours counter for the HEPA filter**

The maximum permissible number of operating hours is pre-set in the controls for all filters. After a filter has been changed the operating hours counter must be reset.

■ Open the menu as follows:
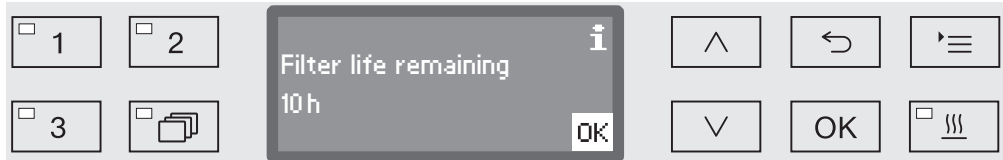
Button '≡

  ▸ Additional settings

    ▸ Filter maintenance

      ▸ HEPA filter



The remaining operating hours for this filter type are shown in the display.

■ Confirm the message with *OK*.

Then you will be asked if you wish to reset the operating hours counter.

⚠ The operating hours counter must only be reset when the filter has been changed.



- Yes

  The operating hours counter will be reset for the new filter.

- No
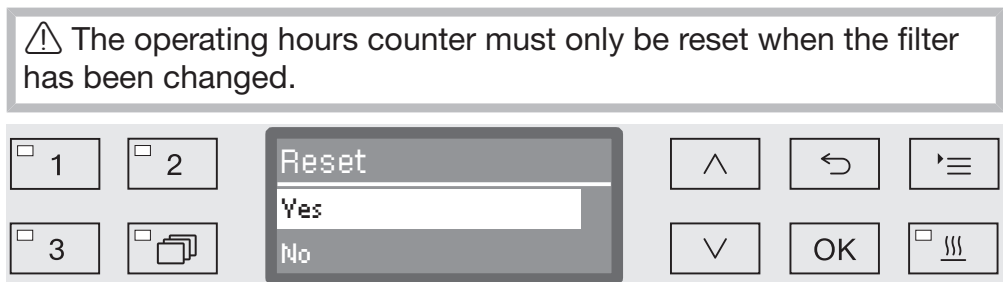
  The counter will not be reset.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Confirm your selection with *OK*.

## Performance check

Adequate processing performance must be regularly confirmed by the user.

**Test point for measuring sensors**

The sensor test point is located at the front right on the top of the machine under the lid or the countertop. To reach the access point, the lid of the machine must be removed or the machine must be pulled out from under the countertop.

■ Open the door.
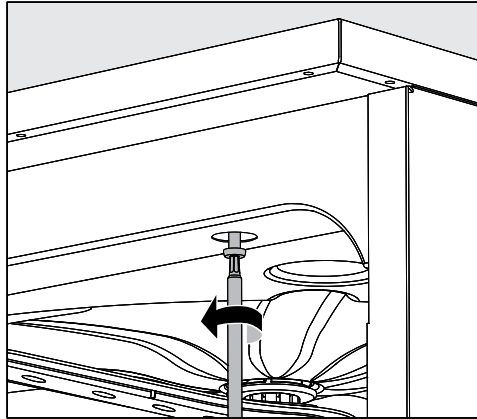


■ Unscrew the retaining screws.

■ Then remove the safety screws on the back of the machine from the **lid** and lift the **lid** to remove it.

Or

■ Pull the machine out by approx. 6" (15 cm) from under the **countertop**.

# Maintenance

**Test programs**

Various programs are available for monitoring cleaning performance in routine testing. The test programs are not separate processing programs. Rather, they are additional functions that can be activated prior to starting any processing program.

The test programs interrupt the program cycle automatically at specified points. The interruption is indicated by an audible signal tone and message on the display. Miele Service can set the duration of the interruption to between 10 seconds and approx. 42 minutes. During this time period, measurements can be made or the door can be opened to obtain a sample.
To prevent the wash cabinet from cooling, do not keep the door open too long.

After the time period elapses, the program cycle continues automatically. If the door has been opened, the program cannot resume until the door has been closed again.
If a measurement or sample is not needed, you can resume the program sooner by pressing the *Start/Stop* button.

In addition, the door can be opened at any time during the drying phase to check the dryness of the wash load. In this way, you can determine the optimal drying time.

The following test programs can be selected:

- Laboratory

  The program sequence can be paused in each wash block immediately before the wash fluid is drained away.

- Validation

  The program sequence is interrupted at the following points:

  – before the chamber washer solution is drained away in the final wash block,

  – after the interim rinse before the chamber washer solution is drained away, and

  – after water intake and before draining in the final rinse block.

**Activating a test program**

Test programs are valid for only one program sequence each time. A test program must be selected again for further tests.

■ Open the menu as follows:

Button ▸≡

  ▸ Additional settings

    ▸ Test program

| 1 | 2 | Test program |  | ∧ | ↩ | ▸≡ |
|---|---|---|---|---|---|---|
| 3 | ⧉ | No<br>Laboratory |  | ∨ | OK | ≈ |

- No

  The menu is exited without selecting a program.
- Laboratory

  Activates the Laboratory test program.
- Validation

  Activates the Validation test program.

■ Select an option using the ∧ and ∨ arrow buttons.

■ Press *OK* to activate the test program for the next program start.

You can now start the performance test.

■ Select and start a program using the program selection buttons or via the program list.

The program will be identified in the bottom line as Test program during the program sequence.

If you want to deactivate the test program before the performance test you need to go to the next menu level up and select the No option.

# Problem solving guide

The following guide should help you to find the reason for a fault and to correct it. However, please note the following:

> ⚠ Repairs may only be carried out by Miele Service.
> Unauthorized repairs can expose the user to considerable risk.

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

## Technical faults and messages

| Problem | Possible cause and solution |
|---|---|
| **The display is dark and all LEDs are out.** | The machine is not switched on.<br>■ Switch the machine on using the ⏻ button. |
| | A fuse is defective or has tripped.<br>■ Refer to the minimum fuse rating on the data plate.<br>■ Reset the trip switch.<br>■ If the fuse trips again, call Miele Service. |
| | The machine is not plugged in.<br>■ Insert the plug. |
| **The machine has switched itself off.** | This is not a fault.<br>The Auto-Off function switches the machine off automatically after a pre-set duration to save energy.<br>■ Switch the machine on again using the ⏻ button. |
| **The time appears on the display.** | This is not a fault.<br>The machine is ready for use.<br>■ Press any button to reactivate the machine. |
| **Power failure during operation** | If a temporary power failure occurs during a program cycle, no action is required.<br>The program which was running continues from the point of interruption.<br>If the temperature in the wash cabinets falls below a minimum valie required for the program block at the time of the power failure, the program block is repeated.<br>When a power failure lasts ≥ 20 hours, the entire program will be repeated.<br>Each power failure is being documented in the process documentation. |
| Next service due on: | This is not a fault.<br>Miele Service has recommended a date for the next service visit.<br>■ Please contact Miele Service to arrange a service visit. |

## Dispensing/dispensing systems

> ⚠ Caution when handling process chemicals.
> For all process chemicals, the process chemical manufacturer's safety instructions as given on their safety data sheets must be observed.

| Problem | Possible cause and solution |
|---|---|
| Refill DOS | During a program sequence a low level of liquid process chemical in a container has been identified.<br>■ Replace the empty container with a full one. |
| Prog. start not possible. Prime dispenser pump DOS | A program cannot be started because ...<br> ... there is air in the dispensing system.<br> ... the dispensing system has been sucked completely dry.<br>■ Check the fill level in the supply container. Replace the empty container with a full one if needed.<br>■ Vent the dispensing system. |
| Dispensing system DOS priming | This is not a fault.<br>The dispensing system will now be automatically vented.<br>Wait until the venting process is finished. |
| Priming DOS canceled. Priming must be repeated | Venting of the dispensing system was cancelled because an insufficient flow rate was identified. A dispensing hose may be kinked or the suction lance blocked.<br>■ Check the dispensing hose for kinks and leaks. Position it so that it cannot become kinked.<br>■ Check the suction aperture of the suction lance for blockages and remove these as necessary.<br>■ Start the venting process again.<br><br>Contact Miele Service if there are leaks in the dispensing hose or a fault with the suction lance. |
| Check container/lance DOS | Little or no flow has been identified.<br>■ Check the level in the supply container. Replace an empty container with a full one, if necessary.<br>■ Check the suction aperture of the suction lance for deposits.<br>■ Prime the dispensing system.<br><br>The dispensing hose is kinked.<br>■ Remove any kinks from the dispensing hose. Position it so that it cannot become kinked.<br>■ Check the dispensing hose for leaks.<br>■ Prime the dispensing system.<br><br>Contact Miele Service if there are leaks in the dispensing hose or a fault with the suction lance. |

> Highly viscous (thick) process chemicals can affect the dispenser monitoring and lead to inaccurate data. In this instance, please contact Miele Service for advice.

# Problem solving guide

## Insufficient salt/water softener

| Problem | Possible cause and solution |
|---|---|
| Refill salt | Salt is running low in the water softener.<br>■ Refill the reactivation salt before starting the next program. |
| Machine locking soon. Insufficient salt | Salt in the water softener is completely used up and reactivation is no longer possible. The machine is locked for further use.<br>■ Refill with reactivation salt. |
| Salt container empty, Program locked | The water softener cannot reactivate because there is insufficient salt. The machine is locked for further use.<br>■ Refill with reactivation salt.<br><br>The machine is unlocked a few seconds after the salt reservoir is refilled. Reactivation will occur automatically during the next program sequence. |
| Salt container lid not closed correctly | The salt container is not closed properly.<br>■ Close the container properly. |
| | Salt residues are preventing it from closing.<br>■ Remove the residues from the refilling funnel, the lid and the seal. **Do not use** running water as this can cause the salt container to overflow.<br>■ Close the container properly. |
| | The salt container flap has sprung open during a program.<br><br>⚠ When the door is opened, hot steam and process chemicals can escape!<br><br>■ Open the door and close the container flap. |

## Cancel with fault number

If a program is cancelled and a fault number appears, e.g. Fault XXX (where XXX represents a number), there could be a serious technical fault.

In the event of a program being cancelled and a fault number being shown:

■ Switch the machine off using the ⏻ button.

■ Wait approximately 10 seconds before switching the machine on again with the ⏻ button.

■ Acknowledge the fault number by entering your PIN code.

■ Start the previously selected program again.

If the same error message appears again:

■ Make a note of the error message.

■ Switch the machine off using the ⏻ button.

■ Contact Miele Service.

Please also read the notes regarding the following fault numbers.

| Problem | Possible cause and solution |
| --- | --- |
| Fault 403-405 | A program has been canceled because water intake by the machine was insufficient or severely restricted.<br>■ Turn on the faucets fully.<br>■ Follow the further information provided in the Check water intake message. |
| Fault 406–408 | A program was cancelled because the water flow rate is insufficient.<br>■ Check whether the faucets are fully open.<br>■ Refer to the information regarding minimum flow pressure in "Connection to the water supply" and "Technical data".<br>■ Check the filter in the water inlet.<br>■ Contact Miele Service for advice. |
| Fault 412–414 | A program was cancelled because the water flow rate is too high.<br>■ Refer to the information regarding recommended maximum flow pressure and maximum permissible static water pressure in "Connection to the water supply" and "Technical data".<br>■ Contact Miele Service for advice. |
| Fault 422 | A program was canceled because the conductivity of the supplied DI water is too high.<br>■ Check your system for DI water. |

# Problem solving guide

| Problem | Possible cause and solution |
| --- | --- |
| Fault 426, 526 | Wash pressure is too low.<br>– Wash pressure is too low due to a heavy build-up of foam. Spilled rinse aid may not have been cleaned up after being added.<br>■ Follow the instructions regarding foam build-up in "Chemical processes and technology".<br>■ Start the Rinse program to clean the wash cabinet.<br><br>– The load carriers were loaded incorrectly or overloaded.<br>■ Use only wash carts, baskets, modules, and inserts suitable for the particular application.<br>■ Arrange hollow or deep-sided wash items so that water runs off them freely.<br><br>– The water lines are clogged or leaking.<br>■ Check and clean the filters in the wash cabinet and the spray arms.<br>■ Check the injector manifolds for possible leaks, e.g.:<br>  – Are all caps and end caps in place?<br>  – Are all connections fitted with nozzles, irrigation sleeves, hose adapters, or other irrigation connectors?<br>  – Are installed silicone hoses undamaged?<br>■ Check the washers in the water connectors in the back panel of the wash cabinet to ensure they are flush and remove any blockages.<br><br>– The amount of water is insufficient for the application.<br>■ Increase the amount of water (see "Program settings"). If necessary, consult Miele Service. |
| Fault 433 | Protruding wash items or other objects, e.g., towels, are preventing the door from being closed properly by the Comfort lock.<br>■ Remove all objects and sort the wash items so that they do not obstruct the door.<br>■ Close the door. |

| Problem | Possible cause and solution |
|---|---|
| Fault 438 | The door seal sticks.<br>■ Clean the door seal. |
| | Heavy objects in front of the machine can impede the automatic opening of the door by the Comfort lock.<br>■ Do not place (heavy) objects in front of the door of the machine. |
| | The Comfort door lock is blocked.<br>■ Try to open the door carefully (without using force) by pulling on the door handle.<br>If the door is still blocked:<br>■ Open the door using the emergency release.<br>■ Close the door and try to open it again using the ⌀↦ button.<br>If it is still blocked:<br>■ Contact Miele Service. |
| Fault 440 | The float switch in the base of the machine has not been activated. The switch might be blocked.<br>■ Remove the filter combination.<br>■ Check the float switch to make sure it moves freely. The float switch is located in the base of the machine behind the spray arm. |
| Fault 460-462 | A program was interrupted due to the spray arm speed dropping below the set value because:<br>- items are obstructing the machine or basket spray arms.<br>■ Arrange the load so that the spray arms can turn easily and start the program again.<br>- wash pressure is too low due to a heavy build-up of foam.<br>■ Follow the instructions regarding foam build-up in "Chemical processes and technology". |
| Fault 492, 504 | A program has been cancelled because there is not enough water pressure. The filters in the wash chamber may be blocked.<br>⚠ Danger of injury from glass shards, needles etc. which are retained in the filters.<br>■ Check and clean the filters in the wash chamber (see "Maintenance/Cleaning the filters in the wash chamber"). |

# Problem solving guide

| Problem | Possible cause and solution |
|---|---|
| Fault 518-521 | No flow was detected when dispensing from an external supply container. |
| | ⚠ Caution when handling process chemicals.<br>For all process chemicals, the process chemical manufacturer's safety instructions as given on their safety data sheets must be observed. |
| | ■ Check the level in the containers and replace empty ones with filled ones.<br>■ Check the suction openings of the suction lance and remove any deposits.<br>■ Check the hose connections on the suction lance, the machine and any DOS modules.<br>■ Remove any kinks from the dispensing hoses and check the hoses for leaks. Position the dispensing hoses so that they cannot kink.<br>■ Vent the dispensing system. |
| | If you identify any leaks in the dispensing hoses or defects on the suction lances contact Miele Service. |
| Fault 550 | The waterproof system has been activated. There might be a leak in one of the water inlet hoses.<br>■ Close the faucets.<br>■ Contact Miele Service. |
| Fault 555 | Too much water has accumulated in the steam condenser. Wash water may have been diverted behind the protective panel of the steam condenser on the back wall of the wash cabinet because of angled wash items or injector nozzles.<br>■ When installing angled injector nozzles and sorting wash items, ensure that the wash water outlets point towards the centre of the wash cabinet.<br>■ Restart the machine. Excess water is pumped out automatically. |
| Fault 559 | There is a problem with the process documentation interface. The machine has detected a module for an Ethernet interface, but only a serial interface is activated in the controls (RS232).<br>Deactivate the RS232 interface:<br>■ Open the menu for configuring the interface Additional settings/Interface and then select Ethernet.<br>■ Wait approx. 90 seconds. The Ethernet module XKM 3000 L Med needs this time for initialization. It may be necessary to reconfigure the interface.<br>Or<br>■ Replace the Ethernet module XKM 3000 L Med with a XKM RS232 10 Med module to set up a serial interface. |

| Problem | Possible cause and solution |
|---|---|
| Fault 578 | The peak-load cut-out has lasted longer than 3 hours.<br>∎ Have your electrical system and your energy management system tested by a suitably qualified person. |

## Process-related faults and messages

| Problem | Possible cause and solution |
|---|---|
| Change the HEPA filter | The maximum permissible operating hours for the HEPA filter have been reached.<br>∎ Replace the HEPA filter with a new one.<br>∎ Reset the operating hours counter for the HEPA filter. |
| Drying during program deactivated | Drying cannot be selected at the start of a program because drying is not available for the selected program.<br>∎ Start the program without drying.<br>Or<br>∎ Have the drying parameters for this program adjusted by Miele Service. |
| Wrong code entered | The PIN code entered is not the same as the code saved.<br>∎ Enter the PIN code again.<br>∎ Report the loss of the PIN code to Miele Service. |
| Test program: Test object can now be removed | This is not a fault.<br>A test program is running to check performance. At certain points in the program the sequence is interrupted so that samples can be taken.<br>∎ Take a sample.<br>or<br>∎ Wait. The program will continue automatically in approx. 30 seconds.<br>or<br>∎ Continue the program without delay by pressing the *Start/Stop* button. |
| Program cancelled | This is not a fault.<br>A program which was running was cancelled by the user.<br><br>⚠ The wash cabinet interior can be very hot.<br>When the door is opened, hot steam and process chemicals can escape. Protective measures for personal safety must be observed. |
| Program continued | This is not a fault.<br>The process of cancelling a program was not completed.<br>The program which was running continued without interruption. |

# Problem solving guide

| Problem | Possible cause and solution |
|---|---|
| Peak load cut-out | This is not a fault.<br>Individual components of the machine are paused while there is a peak load signal from your energy management system. |
| All settings reset | This is not a fault.<br>A user has restored factory default settings.<br>■ Confirm the message with *OK*. |
| All program settings reset | This is not a fault.<br>A user has restored the factory default setting for the program.<br>■ Confirm the message with *OK*. |

## Door

| Problem | Possible cause and solution |
|---|---|
| **The door is open a fraction and cannot be closed using the ○╼ button.** | This is not a fault.<br>The Comfort door lock has opened the door slightly at the end of the program.<br>■ Open the door. The door can now be closed completely again using the ○╼ button. |
| Door not closed properly | Slamming the door can result in problems with the Comfort door lock.<br>■ Open and close the door. |
| | If the same error message appears again:<br>■ Contact Miele Service. |
| Warning! Cabinet hot. Open anyway? | When the ○╼ button is pressed, the temperature in the wash cabinet is over 60°C (160°F).<br><br>⚠ When the door is opened, hot steam and process chemicals can escape!<br><br>■ Open the door only when necessary. |
| Obstruction sensor | The door was closed before the door lock rail was fully retracted.<br>■ Open the door.<br>■ The door lock rail must be fully retracted before you close the door again. |
| Emergency release | The door was opened using the emergency release.<br>■ See "Opening the door using the emergency release". |

## Unsatisfactory cleaning and corrosion

| Problem | Possible cause and solution |
|---|---|
| **There are white deposits on the wash load.** | The water softener is set too low.<br>■ Set the water softener to the correct water hardness. |
| | There is no salt in the salt reservoir.<br>■ Refill with reactivation salt. |
| | The quality of the water for the final rinse was insufficient.<br>■ Use demineralized water (DI) with a low conductivity.<br>■ If the machine is connected to a water demineralization cartridge, check the conductivity level and replace resins as necessary. If the machine is connected to a DI water purification system, consult the manufacturer of the purification system. |
| | The water from the DI water connection is not sufficiently demineralized.<br>■ Check the external demineralization system. If necessary, replace the demineralization cartridge with a new one. |

# Problem solving guide

| Problem | Possible cause and solution |
|---|---|
| **The cleaning result is unsatisfactory.** | Wash carts, baskets, modules and inserts were not suitable for the load.<br>■ Select wash carts, baskets, modules and inserts which are suitable for the task. |
| | Wash carts, baskets, inserts and modules were incorrectly loaded or overloaded.<br>■ Arrange the wash load correctly according to the information in the Operating instructions.<br>■ Avoid overloading the wash carts, baskets, modules and inserts. |
| | The program was not suitable for the soiling.<br>■ Select a suitable program.<br>or<br>■ Adjust the parameters to suit the task. |
| | A spray arm is blocked.<br>■ Ensure the spray arms are not obstructed when arranging the wash load. |
| | Injector nozzles on the wash carts, baskets, modules or inserts are blocked.<br>■ Check the nozzles and clean them as necessary. |
| | The filters in the wash cabinet are dirty.<br>■ Check the filters and clean them if necessary. |
| | Wash carts, baskets or modules were not correctly mounted on the water connection.<br>■ Check the adapter. |
| **Items made of glass are showing signs of corrosion.** | The items are not suitable for machine reprocessing.<br>■ Only use items which are declared by their manufacturer as suitable for machine reprocessing. |
| | Neutralization has not taken place during the program.<br>■ Check the level in the supply container and vent the dispensing system if necessary. |
| | The wash temperature was too high.<br>■ Select a different program.<br>or<br>■ Reduce the wash temperature. |
| | Cleaning detergents used were too alkaline.<br>■ Use a milder cleaning detergent.<br>or<br>■ Reduce the concentration of the cleaning detergent. |

| Problem | Possible cause and solution |
|---|---|
| **Stainless steel items are showing signs of corrosion.** | The stainless steel is of insufficient quality for machine reprocessing.<br>■ Only use stainless steel items made of high quality stainless steel and follow the instructions of the manufacturer regarding machine reprocessing. |
| | The chloride content in the water is too high.<br>■ Have a water analysis check carried out. Connection to an external water processing unit and the use of demineralized water may be necessary. |
| | Neutralization has not taken place during the program.<br>■ Check the level in the supply container and vent the dispensing system if necessary. |
| | Rust or superficial rust has built up in the wash cabinet, e.g. due to an excessively high iron content in the water or rust on other wash load items.<br>■ Check the installation.<br>■ Discard any rusty items. |

## Spray arm monitoring / conductivity / wash pressure

| Problem | Possible cause and solution |
|---|---|
| Spray arm monitoring - upper spray arm: Spray arm blocked or excessive foaming<br>**or**<br>Spray arm monitoring - lower spray arm: Spray arm blocked or excessive foaming<br>**or**<br>Spray arm monitoring - mobile unit spray arm 1 - : spray arm blocked or excessive foaming | The rotation speed set has not been reached.<br>– Wash items are obstructing the machine or basket spray arms.<br>■ Arrange the wash items so that the spray arms can turn easily and start the program again. |
| | – The relevant spray arm is blocked.<br>■ Clean the spray arm.<br>■ Check whether the filters in the wash cabinet are clean and correctly inserted.<br>■ Start the program again. |
| | – Wash pressure is too low due to a heavy build-up of foam.<br>■ Follow the instructions regarding foam build-up in "Chemical processes and technology".<br>■ Start the Rinse program to clean the wash cabinet.<br>■ Then reprocess the wash items again. |

# Problem solving guide

| Problem | Possible cause and solution |
|---|---|
| Conductivity level too high: Actual value: µS/cm Max value: µS/cm | Carry-over of conductive substances during reprocessing.<br>■ Check the process. |
| | Empty or faulty water softener or demineralization system.<br>■ Check external water softener or demineralization systems.<br>■ Reactivate the systems if necessary. |
| | Work on the on-site water supply.<br>■ Contact a suitably qualified plumber. |
| | Plumbing connections transposed.<br>■ Observe the markings on the plumbing connections (see "Connection to the water supply"). |
| Conductivity level exceeds limit | If the level drops below the measuring range, the conductivity cannot be determined.<br>■ Contact Miele Service. |
| Conductivity module requires calibration | The conductivity meter must be recalibrated.<br>■ Contact Miele Service. |
| Conductivity module communication error | The connection to the conductivity meter has been interrupted.<br>■ Contact Miele Service. |
| Spray pressure exceeds tolerance | The wash pressure differs from the reference value.<br>Possible causes of fluctuations in the wash pressure include:<br>- defective water connections,<br>- open adapters,<br>- foam build-up.<br>■ Identify and resolve the cause of this.<br>■ The program is not interrupted. Nevertheless, the wash load must be reprocessed. |
| Spray pressure fluctuating too much | A program was interrupted because of severe fluctuations in the wash pressure.<br>Possible causes of fluctuations in the wash pressure include:<br>- defective water connections,<br>- open adapters,<br>- foam build-up.<br>■ Identify and resolve the cause of this.<br>■ Reprocess the load again. |

## Water inlet and drainage

| Problem | Possible cause and solution |
|---|---|
| Check water intake | One or more faucets are turned off.<br>■ Turn on the faucets. |
| | There was insufficient water in the machine.<br>■ Clean the water intake filters.<br>■ Turn on the faucets fully. |
| | Water flow pressure is too low. Refer to the technical data.<br>■ Contact a qualified plumber. |
| Check drainage | A program was canceled because the water in the wash chamber is only being pumped away slowly or not at all.<br>- The drain hose is blocked.<br>■ Remove any kinks or large loops in the drain hose.<br>■ Start the program again.<br><br>- The filters in the wash chamber are blocked.<br>■ Clean the filters in the wash chamber.<br><br>⚠ Danger of injury from glass shards, needles etc. which are retained in the filters.<br><br>■ Start the program again.<br><br>- The drain pump or non-return valve is blocked.<br>■ Clean the supply line to the drain pump and the non-return valve.<br>■ Start the program again.<br><br>- The drainage system cannot accommodate the water because it is blocked.<br>■ Contact a qualified plumber. |

# Problem solving guide

## Noises

| Problem | Possible cause and solution |
|---|---|
| **Knocking noise in the wash cabinet.** | One or more spray arms are knocking against the wash load.<br>■ Cancel the program. To do this follow the instructions in "Cancelling a program".<br>■ Arrange the wash load so it cannot obstruct the spray arms.<br>■ Make sure the spray arms can rotate freely.<br>■ Re-start the program. |
| **Rattling noise in the wash cabinet.** | Items are insecure in the wash cabinet.<br>■ Cancel the program. To do this follow the instructions in "Cancelling a program".<br>■ Rearrange the load so that items are secure.<br>■ Re-start the program. |
| **Knocking noise in the water pipes.** | This may be caused by the on-site installation or the cross-section of the piping. It has no influence on the function of the machine.<br>■ Contact a suitably qualified plumber. |

## Printer/serial interface

| Problem | Possible cause and solution |
|---|---|
| Serial printer fault: no paper | The printer has run out of paper.<br>■ Replenish the paper. |
| Serial printer fault: offline | The machine cannot connect to the printer.<br>■ Switch the printer on.<br>■ Check the connection between the machine and the printer.<br>■ If in doubt, have the configuration of the interface checked by a qualified person.<br><br>If the printer has been replaced, the printer type must be adjusted in the interface configuration. |
| Serial printer fault: general fault | The printer is not ready for operation.<br>■ Check the printer for fault messages.<br>■ Change the printer cartridge if necessary. |
| Network down | The communication module has identified a network interruption or cannot establish a connection.<br>■ Consult your network administrator.<br><br>If the problem cannot be resolved:<br>■ Contact Miele Service. |

## Cleaning the drain pump and non-return valve

If water has not pumped away at the end of a program there may be a foreign object in the drain pump or blocking the non-return valve.

■ Take the filter combination out of the wash chamber (see "Maintenance/Cleaning the filters in the wash chamber").
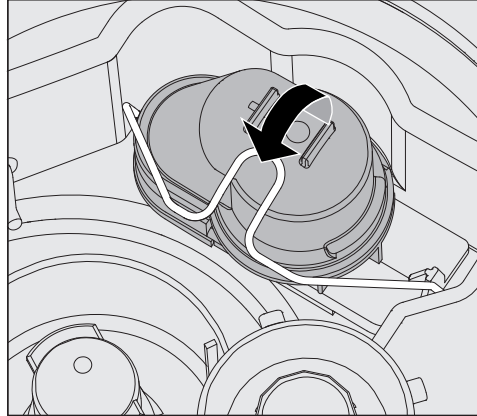


■ Open the locking clamp.

■ Lift out the non-return valve and rinse well under running water.

■ Make sure that the vent on the outside of the non-return valve is not blocked (this vent is only visible after the non-return valve has been taken out). If it is blocked, use a pointed object to release the blockage.
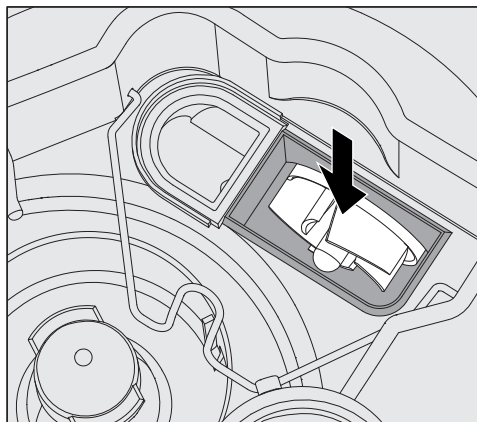


The drain pump impeller is situated under the non-return valve (see arrow).

■ Check the impeller for blockages and remove them if necessary before refitting the non-return valve.

■ Carefully replace the non-return valve and secure it with the clamp.

# Maintenance

## Clean the water intake filters

Filters are incorporated into the water inlet connection on the hose to protect the water inlet valve. If these filters get dirty they must be cleaned as otherwise too little water will flow into the wash cabinet.

> ⚠ The plastic housing on the water inlet valve contains an electrical component. It must not be immersed in water.

**To clean the filter**
- Disconnect the machine from the power supply (switch the machine off, unplug it, or disconnect or disable the breaker).
- Close the faucet.
- Unscrew the water intake valve.
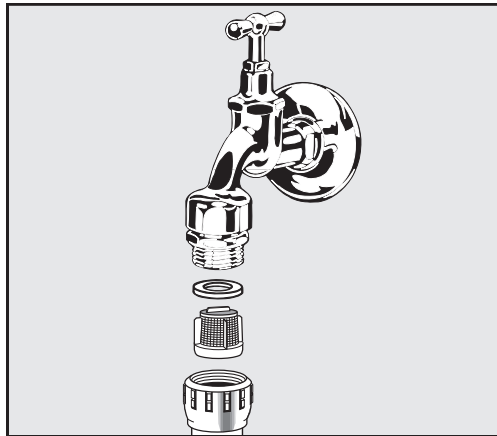


- Take the sealing washer out of the screw connection.
- Pull the filter out using combination or pointed pliers.
- Clean the filter or replace it if necessary.
- Replace the filter and seal, making sure they are sitting correctly.
- Screw the water intake valve onto the faucet. Ensure that the screw connection goes on straight and not cross-threaded.
- Open the faucet. If water leaks out, the screw connection may not be connected securely or it may have been screwed on at an angle. Unscrew and reconnect the water intake valve correctly.

**Retrofitting the large-surface filter**

If the water contains a high level of insoluble components, a large-surface filter can be installed between the faucet and the water inlet hose.
The large-surface filter is available from Miele Service.

## Contacting Miele Service

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

To avoid unnecessary service visits, check that the fault has not been caused by incorrect operation when a fault message first appears. Please refer to the relevant instructions in the "Problem solving guide".

If, having followed the advice in the operating instructions, you are still unable to resolve a problem, please contact Miele Service.

Contact details can be found at the end of these operating instructions.

When contacting Miele Service, please quote the model and serial number of your machine. This information can be found on the data plate. There is one data plate on the side of the door and another on the back of the machine.

Please tell Miele Service the fault message or code shown on the display.

# After sales service

## Software version

When contacting Miele Service you may need the version number of individual components of control software. These can be called up as follows:

■ Open the menu as follows:

Button ˈ≡

    ▸ Additional settings

        ▸ Software version



The software units are listed on the display. XXXXX stands for the relevant version number:

- EB ID: XXXXX

  Software version of the control and display units in the control panel.

- EGL ID: XXXXX

  Software version of the control board.

- EZL ID: XXXXX

  Software version of the relay board.

- EFU ID: XXXXX

  Software version of the frequency converter.

- LNG ID: XXXXX

  Language package version.

You cannot change any settings in this menu.

> Software updates and upgrades may only be undertaken by Miele Service.

■ Exit the menu with the *OK* or ↩ buttons.

## Installation and levelling

> Please refer to the installation diagram provided.

> ⚠ In order to reduce the risk of water damage, the area around the machine should be limited to furniture and fittings that are designed for use in commercial environments.

The machine must be stable and horizontal.

You can compensate for any unevenness in the floor level and height of the machine by adjusting the four feet. The feet can be screwed out to a maximum of 60 mm.

> ⚠ Do not lift the machine by protruding parts such as the control panel.
> They could be damaged or torn off.

> ⚠ Some metal parts pose a risk of injury/being cut.
> Wear cut-resistant protective gloves when transporting and setting up the machine.

> ⚠ For transport by means of a hand truck, the machine must be in its original packaging or placed on a stable, continuous support. Otherwise, components in the base of the machine can be damaged.

The machine is suitable for the following types of installation:

- Freestanding.

- Slot-in:

  The machine can be installed beside other appliances or furniture or in a suitable niche. The niche must be at least 600 mm wide and 600 mm deep.

- Built-under:

  The machine can be built under a continuous worktop. The space provided must be at least 600 mm wide, 600 mm deep and 820 mm high.

# Installation

## Building under a continuous worktop

**Removing the lid**

To build the machine under a continuous worktop the lid must be removed as follows:

■ Unscrew both securing screws from the lid at the back of the machine.

■ Open the door.
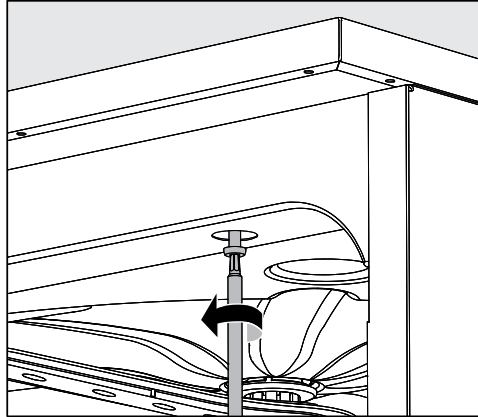


■ Unscrew the left and right fixing screws.

■ Lift the lid off.

**Steam condenser**

To avoid steam damage to the worktop, the protective foil supplied (25 x 58 cm, self-adhesive) must be applied underneath the worktop in the area of the steam condenser.

**Prevent heat build-up**

During the drying phase hot exhaust air is discharged from the wash cabinet through the steam condenser on the back of the machine. To avoid heat build-up and excessive condensation, sufficient air circulation must be ensured.

■ Leave at least 10 mm (0.39 in) space between machine and worktop for air circulation.

■ Install ventilation grills in the side cabinets if necessary.

**Securing to the countertop**

To improve stability, the machine must be secured to the countertop after it has been aligned.

■ Open the door.
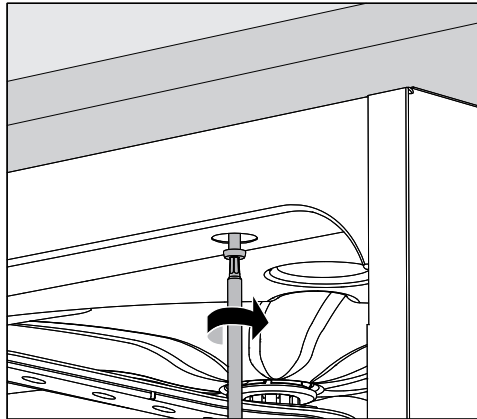


■ Screw the machine to the continuous countertop through the holes in the front trim on the left and right.

| Please contact Miele Service to secure it at the sides to adjacent cabinetry. |
| --- |

**Venting the circulation pump**

⚠ The gaps between a built-in machine and adjacent cabinetry must not be sealed, e.g., with silicone sealant, as this could compromise ventilation of the circulation pump.

**Protective foil/ countertop protector**

The protective foil supplied protects the countertop from damage caused by steam when the door is opened. It should be positioned underneath the countertop above the machine door.

## Electromagnetic compatibility (EMC)

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

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

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

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

# Electrical connection

⚠ All electrical work must be carried out by a suitably qualified electrician.

- The electrical installation must be in compliance with current local and national safety regulations.

- The connection to the power supply must comply with national regulations. The socket must be accessible after the machine has been installed. An electrical safety test can then easily be carried out, e.g., after any service or maintenance work.

- If the machine is hard-wired to the power supply, a power switch capable of disconnecting the machine at all poles must be installed. This power switch must be designed to operate at the rated current, have a contact gap of at least 3 mm, and also be lockable in the off position.

- If necessary, equipotential bonding must be carried out.

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

- For increased safety, it is recommended to protect the machine with a 30 mA residual current device (RDC).

- If replacing the power cable, use only original replacement parts from the manufacturer or a suitable cable with core cable ends.

Further notes on electrical connection are given on the Installation diagram supplied with the machine.

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

This appliance **can be converted to a different type of power supply** in accordance with the conversion diagram and wiring diagram supplied.

A **data plate** can be found on the inside of the door and another on the back of the machine.

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

## Equipotential bonding connection

There is a screw connection point marked ⏚ at the back of the machine, to which additional equipotential bonding can be connected.

## Peak-load negotiation

The machine is suitable for use in an energy management system. For this purpose, it must be technically adapted and the controls reset by Miele Service.

| Please contact Miele Service for further information. |
| --- |

**Peak-load management**

In the event of a peak-load negotiation, some machine components, such as the heater element, will be switched off for a while. The machine will remain on during this period and the current program will not be interrupted. If one of the components that is switched off is needed during the current program stage, the program cycle time will simply increase for the duration of the load negotiation.

The third line of the display will alert you to the peak-load negotiation, for example:
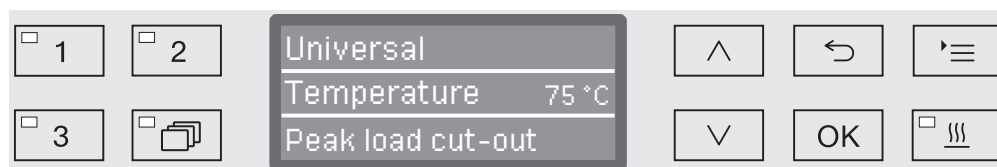
# Water connection

## Connecting the water supply

⚠ Water from the machine is not suitable for drinking!

- The machine must be connected to the water supply in strict accordance with local regulations.

- The water used must at least comply with regulations for drinking water quality. If the water supply has a high iron content, there is a danger of corrosion occurring on wash items made of stainless steel and on the machine itself. If the chloride content of the water exceeds 100 mg/l, the risk of corrosion to wash items made of stainless steel in the machine will be further increased.

- In certain regions (e.g., mountainous areas), the water composition may cause precipitates to form, requiring the use of softened water in the steam condenser.

- The machine complies with the applicable standards for the protection of drinking water.

- The machine is supplied as standard for connection to cold water (blue coded hose) and optionally to hot water up to max. 65°C (149°F) (red coded hose). Connect the inlet hoses to the water shut off valves for cold and hot water.

- If there is no hot water supply available, the inlet hose coded **red** must be connected to the cold water supply or alternatively has to be deactivated by a Miele Service technician.

- The intake hose without water protection device for the steam condenser is connected to the cold water tap.

- The **minimum flow pressure** for the cold water connection is 100 kPa pressure, for the hot water connection 40 kPa pressure, and for the DI water connection 30 kPa pressure.

- The **recommended flow pressure** is ≥ 200 kPa for the cold and hot water connections and ≥ 200 kPa for the DI water connection in order to avoid excessively long water intake times.

- The **maximum permissible static water pressure** is 1,000 kPa.

- If water pressure is not within the specified range, please contact Miele Service for advice.

- More information on DI water connection can be found at the end of this section.

- Faucets with a ¾ inch screw thread must be provided on site. The faucets must be easily accessible to allow the water inlet to be turned off when not in use.

- The water inlet hoses are approximately 1.7 m long pressure hoses, DN 10, with ¾ inch screw thread. The filters in the screw threads must not be removed.
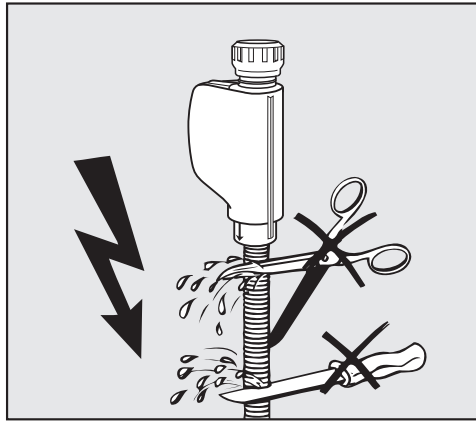
⚠ Do **not** shorten or otherwise damage the inlet hoses supplied with the machine.

See the installation diagram supplied.

**Retrofitting the large-surface filter**

If the water contains a high level of insoluble components, a large-surface filter can be installed between the faucet and the water inlet hose.
The large-surface filter is available from Miele Service.

**Pressurized DI water connection (30-1,000 kPa / 4.4-145 psi)**

This machine can be connected to pressurized DI water with a pressure between 30-1,000 kPa (4.4-145 psi). If the water pressure is below 200 kPa (29 psi) the water intake duration will be automatically increased.

■ The pressure tested hose for DI water, coded green, has a ¾ inch female connection with garden hose thread and is connected to the onsite DI water tap.

⚠ If the machine is not going to be connected to fully demineralized water, the DI water connection has to be deactivated by Miele Service. The inlet hose remains on the back of the machine.

**DI water connection for a non-pressurized system below 4.4 psi (30 kPa) gage pressure Non-pressurized (gravity feed) DI water connection 1.3 - 8.7 psi (8.5 - 60 kPa)**

DI water connections below 4.4 psi (30 kPa) gage pressure require the installation of an external booster pump, which can be requested through Miele Service. Installation of the pump must be carried out by Miele Service.

If DI water is supplied from a DI water reservoir with gravity feed or low pressure, an optional DI water booster pump supplied by Miele is required.
The pressure for gravity feed or low pressure ranges between 1.3 - 8.7 psi (8.5 - 60 kPa). The external DI water booster requires an external power supply with 120V. For further details refer to install diagram. The installation must only be carried out by Miele Service.

# Water connection

**Fully demineralized water ring line**  The machine can be connected to a ring line system for fully demineralized water. For this purpose, it must be technically adapted and the controls reset by Miele Service.

> Please contact Miele Service for further information.

## Connecting the water drain

- A non-return valve is incorporated into the drain system in the machine to prevent drainage water flowing back into the machine via the drain hose.

- The machine drainage hose should be connected to a **separate** drain for the machine only. If no separate drain is available, we recommend connecting it to a dual-chamber siphon.

> ⚠ Typically, the drain water of the machine will reach temperatures greater than 60°C (140°F).
> Some on-site drain material may not be compatible with the discharge temperature.
> The operator is responsible to verify the compatibility of all utility services including drainage, however Miele offers as an optional effluent cool down kit to reduce the drain temperature to 60°C (140°F).

- The on-site connection point, **measured from the lower edge of the machine**, should be positioned at a height between 0.3 m and 1.0 m (1-3.2 ft). If it is lower than 0.3 m, the drain hose must be laid in a coil at a height of at least 0.3 m.

- The drainage system must be able to accommodate a minimum drainage flow of 16 l/min.

- The drainage hose is approx. 1.4 m (4.6 ft) long and flexible with an internal diameter of 22 mm (7/8"). Hose clips for the connection are supplied.

- The drain hose must not be shortened.

- The drain hose can be extended using a connection piece to attach a further length of hose up to 4.0 m (13 ft) long. The drainage length must not exceed 4.0 m.

- Drainage noise can be considerably reduced if the drainage hose is positioned in an arc at a minimum height of 0.6 m and a max. height of 1.0 m (2-3.2 ft) measured from the bottom edge of the machine.

> See installation diagram supplied.

## General program information

| Program | Area of application |
|---|---|
| Short | Very short program for very lightly soiled wash items and very low final rinse requirements:<br><br>- to remove water-soluble soiling<br><br>- suitable to a limited extent for organic soiling<br><br>- not suitable for denatured residues such as protein<br><br>- not suitable for inorganic, acid-soluble residues such as metallic salts |
| Standard | Short program for lightly soiled wash items and low rinse requirements:<br><br>- to remove water-soluble soiling<br><br>- suitable to a limited extent for organic soiling<br><br>- not suitable for denatured residues such as protein<br><br>- not suitable for inorganic, acid-soluble residues such as metallic salts |
| Universal | Program for lightly soiled to moderately soiled wash items and moderate rinse requirements:<br><br>- to remove water-soluble soiling<br><br>- to remove organic soiling<br><br>- to remove denatured residues such as protein<br><br>- suitable to a limited extent for inorganic, acid-soluble residues, such as metallic salts |
| Intensive | Program for moderately soiled to heavily soiled wash items and moderate to high rinse requirements:<br><br>- to remove water-soluble soiling<br><br>- to remove organic soiling<br><br>- to remove denatured residues such as protein<br><br>- suitable to a limited extent for inorganic, acid-soluble residues, such as metallic salts |
| Injector Plus | Program with increased wash pressure and increased water levels for the following basket combinations:<br><br>- upper basket with one spray arm and lower basket with 2 injector modules<br><br>- upper and lower baskets with a total of 4 injector modules<br><br>Use as described for the Universal program. |

# Program guide

## Programs for specific soiling

| Program | Area of application |
|---|---|
| Inorganic | Program for lightly soiled to moderately soiled wash items and moderate to high rinse requirements:<br><br>- to remove inorganic, acid-soluble residues such as metallic salts |
| Organic | Program for moderately soiled to heavily soiled wash items and moderate rinse requirements:<br><br>- to remove concentrated organic residues, e.g., fats, waxes, and stubborn dried-on or thermally adhered organic residues<br><br>- not suitable for inorganic, acid-soluble residues such as metallic salts |
| Oil program | Program for heavily soiled wash items and moderate rinse requirements:<br><br>- to remove oil stains (e.g., synthetic oils, lubricants, fuels, and some natural oils), fats, and some waxes<br><br>- not suitable for inorganic, acid-soluble residues such as metallic salts<br><br>- **liquid cleaning detergent required**<br><br>- **hot water** and DI water supply recommended |

## Programs for specific wash items

| Program | Area of application |
|---|---|
| Plastics | Program for lightly soiled to moderately soiled wash items and moderate rinse requirements:<br><br>- for temperature-sensitive laboratory equipment, e.g., plastic bottles<br><br>- **temperature resistance up to minimum 55°C (131°F)** required |
| Pipettes | Program for lightly soiled to moderately soiled pipettes and moderate to high rinse requirements:<br><br>- for measuring and volumetric pipettes |

## Additional programs

| Program | Area of application |
|---|---|
| Special 93°C-10' | Program for cleaning and thermal disinfection at 93°C with 10 minutes' temperature holding time. The wash water is not pumped away until after disinfection is complete. |
| Drain | To drain away wash water, e.g., after a program has been cancelled (see "Operation / Cancelling a program"). |
| Rinse | Program for rinsing the wash cabinet, for flushing out brine (see "Water softener / Adding reactivation salt"), or for rinsing heavily soiled wash items, e.g., for preliminary removal of soiling, residual disinfecting agent, or to prevent residues from drying on and forming incrustations before running a full load. Cold water is used for rinsing, holding time: 1 Min |
| Demineralized rinse | Program for rinsing the wash cabinet and for rinsing wash items with DI water, holding time: 3 Min. |

## Program selection depending on the accessories used

| Upper basket | | Lower basket | | Water volume | Program |
|---|---|---|---|---|---|
| Carrier with spray arm for various inserts | 2 injector modules | Carrier for various inserts | 2 injector modules | | |
| ✓ | | ✓ | | | Universal Standard Intensive Inorganic Organic Plastics Short Oil program |
| | ✓ | ✓ | | | |
| | ✓ | | | | |
| | | | ✓ | | |
| ✓ | | | ✓ | + 2.0 to 2.5 l | Injector Plus |
| | ✓ | | ✓ | | |
| | | | A 303 (+ 1 module) | | Pipettes |

# Program parameters

## Free memory

New program name: _____

### Program header

▶ Change water volume [l] _____

Drainage time
- ▶ ☐ Standard
- ▶ ☐ Extended

Spray arm monitoring
- ▶ ☐ On
- ▶ ☐ Off for basket
- ▶ ☐ Off

Conductivity limit (option)

Water intake
- ▶ Set [µS/cm] _____
- ▶ Number of repeats ☐ 0 / ☐ 1

Water drainage
- ▶ Set [µS/cm] _____
- ▶ Number of repeats ☐ 0 / ☐ 1

### Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | | | | | | | | |
| Dosage 1 — Dispensing system | | | | | | | | | | | |
| Dosage 1 — ▶ Concentration [%] | | | | | | | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | | | | | | | | |
| ▶ Holding time [Min] | | | | | | | | | | | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | | |

### Drying unit

Cooling down pause
- ▶ ☐ No
- ▶ Set [seconds] _____

▶ Temperature 1 _____
▶ Drying time 1 [Min] _____
▶ Temperature 2 _____

Drying time 2
- ▶ Set [Min] _____
- ▶ Time changeable? ☐ Yes / ☐ No

Cooling down with fan
- ▶ ☐ No
- ▶ Set [seconds] _____

Automatic door opening
- ▶ ☐ No / ☐ Program end

---

▶ = customizable parameters

CW = cold water
HW = hot water
CWxx = CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW)
DI = aqua destillata, fully demineralized water, DI water

Min = holding time in minutes

DOS 1 = cleaning detergent
DOS 3 = neutralizing agent
DOS 4 = DOS module

# Free memory

## New program name:

### Program header

| | |
|---|---|
| ▶ Change water volume [l] | |
| Drainage time | Spray arm monitoring |
| ▶ □ Standard | ▶ □ On |
| ▶ □ Extended | ▶ □ Off for basket |
| | ▶ □ Off |

| Conductivity limit (option) | |
|---|---|
| Water intake | Water drainage |
| ▶ Set [µS/cm] | ▶ Set [µS/cm] |
| ▶ Number of repeats    □ 0 / □ 1 | ▶ Number of repeats    □ 0 / □ 1 |

### Wash block

| Parameter | Pre-rinse | | | Main wash | | Interim rinse | | | | Final rinse | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 3 | 4 | 1 | 2 |
| Water quality | | | | | | | | | | | |
| Dosage 1 — Dispensing system | | | | | | | | | | | |
| Dosage 1 — ▶ Concentration [%] | | | | | | | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | | | | | | | | |
| ▶ Holding time [Min] | | | | | | | | | | | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | | |

### Drying unit

| | | |
|---|---|---|
| Cooling down pause | Cooling down with fan | Automatic door opening |
| ▶ □ No | ▶ □ No | ▶ □ No / □ Program end |
| ▶ Set [seconds] | ▶ Set [seconds] | |
| ▶ Temperature 1 | | |
| ▶ Drying time 1 [Min] | | |
| ▶ Temperature 2 | | |
| Drying time 2 | | |
| ▶ Set [Min] | | |
| ▶ Time changeable?    □ Yes / □ No | | |

▶ = customizable parameters

| | | | | |
|---|---|---|---|---|
| CW | = | cold water | Min | = holding time in minutes |
| HW | = | hot water | | |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) | DOS 1 | = cleaning detergent |
| DI | = | aqua destillata, fully demineralized water, DI water | DOS 3 | = neutralizing agent |
| | | | DOS 4 | = DOS module |

# Program parameters

## Short

### Program header

| | |
|---|---|
| ▶ Change water volume [l] | |
| Drainage time | Spray arm monitoring |
| ▶ Standard ☑ | ▶ On ☐ |
| ▶ Extended ☐ | ▶ Off for basket ☑ |
| | ▶ Off ☐ |

**Conductivity limit (option)**

| Water intake | Water drainage |
|---|---|
| ▶ Set [µS/cm] | ▶ Set [µS/cm] |
| ▶ Number of repeats ☐ 0 / ☑ 1 | ▶ Number of repeats ☐ 0 / ☑ 1 |

### Wash block

| Parameter | | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | | HW | | HW | | | | DI | |
| Dosage 1 | Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| | ▶ Concentration [%] | | | | 0.3 | | 0.1 | | | | | |
| Dosage 2 | Dispensing system | | | | | | | | | | | |
| | ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | | 140°F/ 60°C | | | | | | 140°F/ 60°C | |
| ▶ Holding time [Min] | | | | | 3 | | 2 | | | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | | On | |

### Drying unit

| | |
|---|---|
| Cooling down pause | Cooling down with fan |
| ▶ No ☑ | ▶ No ☐ |
| ▶ Set [seconds] | ▶ Set [seconds] 120 |
| ▶ Temperature 1 | |
| ▶ Drying time 1 [Min] | Automatic door opening |
| ▶ Temperature 2  110°C | ▶ No ☑ / ☐ Program end |
| Drying time 2 | |
| ▶ Set [Min]  30 | |
| ▶ Time changeable? ☐ Yes / ☑ No | |

▶ = customizable parameters

| | | | Min | = | holding time in minutes |
|---|---|---|---|---|---|
| CW | = | cold water | | | |
| HW | = | hot water | DOS 1 | = | cleaning detergent |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) | DOS 3 | = | neutralizing agent |
| DI | = | aqua destillata, fully demineralized water, DI water | DOS 4 | = | DOS module |

# Standard

## Program header

- ▶ Change water volume [l] _____
- Drainage time: ▶ Standard ☑  ▶ Extended ☐
- Spray arm monitoring: ▶ On ☐  ▶ Off for basket ☑  ▶ Off ☐
- Conductivity limit (option)
  - Water intake: ▶ Set [µS/cm] _____  ▶ Number of repeats ☐ 0 / ☑ 1
  - Water drainage: ▶ Set [µS/cm] _____  ▶ Number of repeats ☐ 0 / ☑ 1

## Wash block

| Parameter | | | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | | | CW50 | | HW | DI | | | DI | |
| Dosage | 1 | Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| | | ▶ Concentration [%] | | | | 0.4 | | 0.1 | | | | | |
| | 2 | Dispensing system | | | | | | | | | | | |
| | | ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | | | 158°F/ 70°C | | | | | | 158°F/ 70°C | |
| ▶ Holding time [Min] | | | | | | 3 | | 2 | 1 | | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | | | On | |

## Drying unit

- Cooling down pause: ▶ No ☐  ▶ Set [seconds] 30
- Cooling down with fan: ▶ No ☐  ▶ Set [seconds] 120
- ▶ Temperature 1 _____
- ▶ Drying time 1 [Min] _____
- ▶ Temperature 2 110°C
- Drying time 2: ▶ Set [Min] 30  ▶ Time changeable? ☐ Yes / ☑ No
- Automatic door opening: ▶ No ☑ / ☐ Program end

---

- ▶ = customizable parameters

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| Min | = | holding time in minutes |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Program parameters

## Universal

### Program header

| Parameter | Setting |
|---|---|
| ▸ Change water volume [l] | |
| Drainage time | ▸ Standard ☑  ▸ Extended ☐ |
| Spray arm monitoring | ▸ On ☐  ▸ Off for basket ☑  ▸ Off ☐ |

**Conductivity limit (option)**

| | |
|---|---|
| Water intake | ▸ Set [µS/cm] _____  ▸ Number of repeats ☐ 0 / ☑ 1 |
| Water drainage | ▸ Set [µS/cm] _____  ▸ Number of repeats ☐ 0 / ☑ 1 |

### Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | CW50 | | | HW | | HW | HW | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| ▸ Concentration [%] | | | | 0.3 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| ▸ Concentration [%] | | | | | | | | | | | |
| ▸ Wash block temperature | | | | 167°F/ 75°C | | | | | | 167°F/ 75°C | |
| ▸ Holding time [Min] | 1 | | | 3 | | 2 | 1 | 1 | | 1 | |
| ▸ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

### Drying unit

| Parameter | Setting |
|---|---|
| Cooling down pause | ▸ No ☐  ▸ Set [seconds] 30 |
| ▸ Temperature 1 | |
| ▸ Drying time 1 [Min] | |
| ▸ Temperature 2 | 110°C |
| Drying time 2 | ▸ Set [Min] 30  ▸ Time changeable? ☐ Yes / ☑ No |
| Cooling down with fan | ▸ No ☐  ▸ Set [seconds] 120 |
| Automatic door opening | ▸ No ☑ / ☐ Program end |

▸ = customizable parameters

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| Min | = | holding time in minutes |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Intensive

## Program header

| | |
|---|---|
| ▶ Change water volume [l] | _____ |

| Drainage time | Spray arm monitoring | Conductivity limit (option) | |
|---|---|---|---|
| ▶ ☑ Standard | ▶ □ On | Water intake | Water drainage |
| ▶ □ Extended 1 | ▶ ☑ Off for basket | ▶ Set [µS/cm] _____ | ▶ Set [µS/cm] _____ |
| | ▶ □ Off | ▶ Number of repeats □ 0 / ☑ 1 | ▶ Number of repeats □ 0 / ☑ 1 |

## Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | CW50 | | | HW | | HW | DI | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| ▶ Concentration [%] | | | | 0.4 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | 176°F/ 80°C | | | | | | 167°F/ 75°C | |
| ▶ Holding time [Min] | 1 | | | 3 | | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

## Drying unit

| | |
|---|---|
| Cooling down pause | Cooling down with fan |
| ▶ □ No | ▶ □ No |
| ▶ Set [seconds] _____ 30 | ▶ Set [seconds] _____ 120 |

| | |
|---|---|
| ▶ Temperature 1 | _____ |
| ▶ Drying time 1 [Min] | _____ |
| ▶ Temperature 2 | 110°C |
| Drying time 2 | |
| ▶ Set [Min] | 30 |
| ▶ Time changeable? | □ Yes / ☑ No |

Automatic door opening
▶ ☑ No / □ Program end

---

▶ = customizable parameters

| | | | |
|---|---|---|---|
| CW | = cold water | Min | = holding time in minutes |
| HW | = hot water | | |
| CWxx | = CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) | DOS 1 | = cleaning detergent |
| | | DOS 3 | = neutralizing agent |
| DI | = aqua destillata, fully demineralized water, DI water | DOS 4 | = DOS module |

# Program parameters

## Injector Plus

### Program header

- ▶ Change water volume [l]
- Drainage time
  - ▶ ☑ Standard
  - ▶ □ Extended
- Spray arm monitoring
  - ▶ □ On
  - ▶ ☑ Off for basket
  - ▶ □ Off
- Conductivity limit (option)
  - Water intake
    - ▶ Set [µS/cm]
    - ▶ Number of repeats □ 0 / ☑ 1
  - Water drainage
    - ▶ Set [µS/cm]
    - ▶ Number of repeats □ 0 / ☑ 1

### Wash block

| Parameter | | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | CW50 | | | HW | | HW | HW | DI | | DI | |
| Dosage 1 | Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| | ▶ Concentration [%] | | | | 0.3 | | 0.1 | | | | | |
| Dosage 2 | Dispensing system | | | | | | | | | | | |
| | ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | | 167°F/ 75°C | | | | | | 167°F/ 75°C | |
| ▶ Holding time [Min] | | 1 | | | 3 | | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | | On | |

### Drying unit

- Cooling down pause
  - ▶ □ No
  - ▶ Set [seconds] — 30
- ▶ Temperature 1
- ▶ Drying time 1 [Min]
- ▶ Temperature 2 — 110°C
- Drying time 2
  - ▶ Set [Min] — 30
  - ▶ Time changeable? □ Yes / ☑ No
- Cooling down with fan
  - ▶ □ No
  - ▶ Set [seconds] — 120
- Automatic door opening
  - ▶ ☑ No / □ Program end

---

- ▲ = customizable parameters
- Min = holding time in minutes

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Inorganic

## Program header

| | |
|---|---|
| ▶ Change water volume [l] | _____ |

**Drainage time**

- ▶ ☑ Standard
- ▶ ☐ Extended 1

**Spray arm monitoring**
- ▶ ☐ On
- ▶ ☑ Off for basket
- ▶ ☐ Off

**Conductivity limit (option)**

| Water intake | ▶ Set [µS/cm] _____ | ▶ Number of repeats ☐ 0 / ☑ 1 |
|---|---|---|
| Water drainage | ▶ Set [µS/cm] _____ | ▶ Number of repeats ☐ 0 / ☑ 1 |

## Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | CW50 | HW | HW | DI | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 3 | DOS 1 | DOS 3 | | | | | |
| Dosage 1 — ▶ Concentration [%] | | | | 0.3 | 0.4 | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | 122°F/ 50°C | 167°F/ 75°C | | | | | 158°F/ 70°C | |
| ▶ Holding time [Min] | | | | 2 | 3 | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

## Drying unit

**Cooling down pause**
- ▶ ☐ No
- ▶ Set [seconds]  30

| | |
|---|---|
| ▶ Temperature 1 | _____ |
| ▶ Drying time 1 [Min] | _____ |
| ▶ Temperature 2 | 110°C |

**Drying time 2**
- ▶ Set [Min]  30
- ▶ Time changeable?  ☐ Yes / ☑ No

**Cooling down with fan**
- ▶ ☐ No
- ▶ Set [seconds]  120

**Automatic door opening**
- ▶ ☑ No / ☐ Program end

---

▶ = customizable parameters

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| Min | = | holding time in minutes |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Program parameters

## Organic

### Program header

| | |
|---|---|
| ▸ Change water volume [l] | |
| **Drainage time** | **Spray arm monitoring** |
| ▸ ☑ Standard | ▸ ☐ On |
| ▸ ☐ Extended | ▸ ☑ Off for basket |
| | ▸ ☐ Off |

**Conductivity limit (option)**

Water intake
- ▸ Set [µS/cm]
- ▸ Number of repeats: ☐ 0 / ☑ 1

Water drainage
- ▸ Set [µS/cm]
- ▸ Number of repeats

### Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Main wash 3 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | HW | HW | | HW | HW | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | DOS 1 | | DOS 3 | | | | | |
| Dosage 1 — ▸ Concentration [%] | | | | 0.4 | 0.3 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | | |
| Dosage 2 — ▸ Concentration [%] | | | | | | | | | | | | |
| ▸ Wash block temperature | | | | 149°F/65°C | 185°F/85°C | | | | | | 167°F/75°C | |
| ▸ Holding time [Min] | | | | 3 | 3 | | 2 | 1 | 1 | | 1 | |
| ▸ Conductivity Monitoring (conductivity) | | | | | | | | | | | On | |

### Drying unit

| | |
|---|---|
| ▸ Temperature 1 | |
| ▸ Drying time 1 [Min] | |
| ▸ Temperature 2 | 110°C |
| Drying time 2 | |
| ▸ Set [Min] | 30 |
| ▸ Time changeable? | ☐ Yes / ☑ No |

**Cooling down pause**
- ▸ ☐ No
- ▸ Set [seconds]: 30

**Cooling down with fan**
- ▸ ☐ No
- ▸ Set [seconds]: 120

**Automatic door opening**
- ▸ ☑ No / ☐ Program end

---

▸ = customizable parameters

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| Min | = | holding time in minutes |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Oil program

## Program header

| | |
|---|---|
| ▶ Change water volume [l] | _____ |
| Drainage time | ▶ ☑ Standard    ▶ ☐ Extended 1 |
| Spray arm monitoring | ▶ ☐ On    ▶ ☑ Off for basket    ▶ ☐ Off |

**Conductivity limit (option)**

| | |
|---|---|
| Water intake | ▶ Set [µS/cm] _____    ▶ Number of repeats   ☐ 0 / ☑ 1 |
| Water drainage | ▶ Set [µS/cm] _____    ▶ Number of repeats   ☐ 0 / ☑ 1 |

## Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | HW | | | HW | HW | HW | HW | DI | | DI | |
| Dosage 1 — Dispensing system | DOS 4 | | | DOS 4 | DOS 1 | DOS 3 | | | | | |
| Dosage 1 — ▶ Concentration [%] | 0.5 | | | 0.4 | 0.3 | 0.1 | | | | | |
| Dosage 2 — Dispensing system | DOS 1 | | | DOS 1 | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | 0.3 | | | 0.4 | | | | | | | |
| ▶ Wash block temperature | 113°F/ 45°C | | | 149°F/ 65°C | 185°F/ 85°C | | | | | 167°F/ 75°C | |
| ▶ Holding time [Min] | 1 | | | 2 | 3 | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

## Drying unit

| | |
|---|---|
| ▶ Temperature 1 | _____ |
| ▶ Drying time 1 [Min] | 30 |
| ▶ Temperature 2 | 110°C |
| Drying time 2   ▶ Set [Min] | 30 |
| ▶ Time changeable? | ☐ Yes / ☑ No |
| Cooling down pause   ▶ ☐ No   ▶ Set [seconds] | _____ |
| Cooling down with fan   ▶ ☐ No   ▶ Set [seconds] | 120 |
| Automatic door opening | ▶ ☑ No / ☐ Program end |

---

▶ = customizable parameters

| | | |
|---|---|---|
| CW | = | cold water |
| HW | = | hot water |
| CWxx | = | CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) |
| DI | = | aqua destillata, fully demineralized water, DI water |
| Min | = | holding time in minutes |
| DOS 1 | = | cleaning detergent |
| DOS 3 | = | neutralizing agent |
| DOS 4 | = | DOS module |

# Program parameters

## Plastics

### Program header

| | |
|---|---|
| ▶ Change water volume [l] | |
| Drainage time | Spray arm monitoring |
| ▶ Standard ☑ | ▶ On ☐ |
| ▶ Extended ☐ | ▶ Off for basket ☑ |
| | ▶ Off ☐ |

| Conductivity limit (option) | |
|---|---|
| Water intake | Water drainage |
| ▶ Set [µS/cm] | ▶ Set [µS/cm] |
| ▶ Number of repeats ☐ 0 / ☑ 1 | ▶ Number of repeats ☐ 0 / ☑ 1 |

### Wash block

| Parameter | Pre-rinse | | | Main wash | | Interim rinse | | | | Final rinse | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 3 | 4 | 1 | 2 |
| Water quality | CW | | | CW | | CW | CW | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| Dosage 1 — ▶ Concentration [%] | | | | 0.3 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | 131°F/55°C | | | | | | 131°F/55°C | |
| ▶ Holding time [Min] | 1 | | | 3 | | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

### Drying unit

| | |
|---|---|
| ▶ Temperature 1 | 80°C |
| ▶ Drying time 1 [Min] | 30 |
| ▶ Temperature 2 | 70°C |
| Drying time 2 | |
| ▶ Set [Min] | 15 |
| ▶ Time changeable? | ☐ Yes / ☑ No |

| | |
|---|---|
| Cooling down pause | Cooling down with fan |
| ▶ No ☑ | ▶ No ☐ |
| ▶ Set [seconds] | ▶ Set [seconds] 120 |

| Automatic door opening |
|---|
| ▶ No ☑ / ☐ Program end |

▶ = customizable parameters

| | | | |
|---|---|---|---|
| CW | = cold water | Min | = holding time in minutes |
| HW | = hot water | | |
| CWxx | = CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) | DOS 1 | = cleaning detergent |
| DI | = aqua destillata, fully demineralized water, DI water | DOS 3 | = neutralizing agent |
| | | DOS 4 | = DOS module |

# Pipettes

## Program header

- ▶ Change water volume [l] _____

Drainage time
- ▶ ☑ Standard
- ▶ □ Extended 1

Spray arm monitoring
- ▶ □ On
- ▶ ☑ Off for basket
- ▶ □ Off

Conductivity limit (option)

Water drainage — Water intake
- ▶ Set [µS/cm] _____
- ▶ Number of repeats □ 0 / ☑ 1

| Wash block | Pre-rinse | | | Main wash | | Interim rinse | | | | Final rinse | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 3 | 4 | 1 | 2 |
| Water quality | CW50 | | | HW | | HW | DI | DI | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| ▶ Concentration [%] | | | | 0.4 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | 158°F/ 70°C | | | | | | 158°F/ 70°C | |
| ▶ Holding time [Min] | 1 | | | 3 | | 2 | 1 | 1 | | 1 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

## Drying unit

- ▶ Temperature 1 _____
- ▶ Drying time 1 [Min] _____
- ▶ Temperature 2 80°C
- Drying time 2
  - ▶ Set [Min] 35
  - ▶ Time changeable? □ Yes / ☑ No

Cooling down pause
- ▶ □ No
- ▶ Set [seconds] 30

Cooling down with fan
- ▶ □ No
- ▶ Set [seconds] 120

Automatic door opening
- ▶ ☑ No / □ Program end

---

▶ = customizable parameters

CW = cold water
HW = hot water
CWxx = CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW)
DI = aqua destillata, fully demineralized water, DI water

Min = holding time in minutes
DOS 1 = cleaning detergent
DOS 3 = neutralizing agent
DOS 4 = DOS module

# Program parameters

## Special 93°C-10'

### Program header

| | |
|---|---|
| ▶ Change water volume [l] | |
| Drainage time | Conductivity limit (option) |
| ▶ ☑ Standard | Water intake |
| ▶ □ Extended | ▶ Set [µS/cm] |
| | ▶ Number of repeats   □ 0 / ☑ 1 |
| Spray arm monitoring | Water drainage |
| ▶ ☑ On | ▶ Set [µS/cm] |
| ▶ □ Off for basket | ▶ Number of repeats |
| ▶ □ Off | |

### Wash block

| Parameter | Pre-rinse 1 | Pre-rinse 2 | Pre-rinse 3 | Main wash 1 | Main wash 2 | Interim rinse 1 | Interim rinse 2 | Interim rinse 3 | Interim rinse 4 | Final rinse 1 | Final rinse 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water quality | | | | CW70 | | HW | HW | | | DI | |
| Dosage 1 — Dispensing system | | | | DOS 1 | | DOS 3 | | | | | |
| Dosage 1 — ▶ Concentration [%] | | | | 0.6 | | 0.1 | | | | | |
| Dosage 2 — Dispensing system | | | | | | | | | | | |
| Dosage 2 — ▶ Concentration [%] | | | | | | | | | | | |
| ▶ Wash block temperature | | | | 199°F/ 93°C | | | | | | 167°F/ 75°C | |
| ▶ Holding time [Min] | | | | 10 | | 1 | 1 | | | 3 | |
| ▶ Conductivity Monitoring (conductivity) | | | | | | | | | | On | |

### Drying unit

| | |
|---|---|
| ▶ Temperature 1 | 100°C |
| ▶ Drying time 1 [Min] | 20 |
| ▶ Temperature 2 | 95°C |
| Drying time 2 | |
| ▶ Set [Min] | 50 |
| ▶ Time changeable? | □ Yes / ☑ No |
| Cooling down pause | Cooling down with fan |
| ▶ □ No | ▶ □ No |
| ▶ Set [seconds]   30 | ▶ Set [seconds]   120 |
| | Automatic door opening |
| | ▶ ☑ No / □ Program end |

▶ = customizable parameters

| | | | |
|---|---|---|---|
| CW | = cold water | Min | = holding time in minutes |
| HW | = hot water | | |
| CWxx | = CW proportion in mixed water as percentage (CW70 = 70% CW + 30% HW) | DOS 1 | = cleaning detergent |
| DI | = aqua destillata, fully demineralized water, DI water | DOS 3 | = neutralizing agent |
| | | DOS 4 | = DOS module |

| | Imperial | Metric |
|---|---|---|
| Height with machine lid<br>Height without machine lid | 32 7/8"<br>32 5/16" | 835 mm<br>820 mm |
| Width | 23 9/16" | 598 mm |
| Depth<br>Depth with door open | 23 9/16"<br>47 1/4" | 598 mm<br>1,200 mm |
| Wash cabinet dimensions:<br>  Height<br>  Width<br>  Depth of upper basket / lower basket | 20 9/16"<br>21 1/8"<br>20 3/8" / 20 9/16" | 520 mm<br>530 mm<br>474 mm / 520 mm |
| Weight (net) | 172 lbs | 78 kg |
| Max. load capacity of open door | 81.6 lbs | 37 kg |
| Voltage, rated load, fuse rating | See data plate | See data plate |
| Power cable | Approx. 5' 9" ft. | Approx. 1.8 m |
| Water intake temperature:<br>  Cold water / steam condenser<br>  Hot water / DI water | Max. 68°F<br>Max. 149°F | Max. 20°C<br>Max. 65°C |
| Static water pressure | max. 145 psi | Max. 1,000 kPa pressure |
| Minimum water intake flow pressure:<br>  Cold water / steam condenser<br>  Hot water<br>  DI water | 14.5 psi<br>5.8 psi<br>4.4 psi | 100 kPa pressure<br>40 kPa pressure<br>30 kPa pressure |
| Recommended water intake flow pressure:<br>  Cold water / hot water<br>  DI water<br>  Steam condenser | 29 psi<br>29 psi<br>14.5 psi | ≥ 200 kPa pressure<br>≥ 200 kPa pressure<br>≥ 100 kPa pressure |
| Drain height | min. 11 3/4" ft, max. 3' 3" ft | Min. 0.3 m, max. 1.0 m |
| Drain hose length | max. 13' 1" ft | Max. 4.0 m |
| Operation (according to<br>IEC/EN 61010-1, CAN/CSA-C22.2 No.<br>61010-1):<br>  Ambient temperature<br>  Relative humidity maximum<br>  linear decrease to<br>  Relative humidity minimum | 40 °F to 104 °F<br>80 % for temperatures up to 88°F<br>50 % for temperatures up to 104°F<br>10% | 5°C to 40°C<br>80% for temperatures up to 31°C<br>50% for temperatures up to 40°C<br>10% |
| Storage and transportation conditions:<br>  Ambient temperature<br>  Relative humidity<br>  Air pressure | - 4 °F to 140 °F<br>10 % to 85 %<br>7.25 psi to 15.37 psi | - 20°C to 60°C<br>10% to 85%<br>500 hPa to 1060 hPa |
| Altitude above sea level (according to IEC/EN 61010-1, CAN/CSA-C22.2 No. 61010-1) | up to 6,561 ft* | Up to 2,000 m* |
| Ingress protection (according to IEC 60529) | IP21 | |
| Soiling level (according to IEC/EN 61010-1) | 2 | |
| Overvoltage category (according to IEC 60664) | II | |
| Sound emission values in dB (A), sound pressure level LpA during cleaning and drying phases | < 70 | |
| Certifications | CAN/CSA-C22.2 No. 61010-1-04, CAN/CSA-C22.2 No. 61010-2-040, UL Std. No. 61010-1 (2nd Edition), IEC 61010-2-040:2006 | |
| Manufacturer's address | Miele & Cie. KG, Carl-Miele-Straße 29, 33332 Gütersloh, Germany | |

* If installed above 6,561 ft (2,000 m), the boiling point of the wash water will be lower. In this case, the disinfecting temperature and the holding time might need to be adjusted.

# Caring for the environment

## Disposal of the packing material

The packaging is designed to protect the machine against transportation damage. The packaging materials used are selected from materials which are environmentally friendly for disposal and should be recycled.

Recycling the packaging reduces the use of raw materials in the manufacturing process and also reduces the amount of waste in landfill sites..

## Disposal of your old appliance

Electronic and electrical appliances contain many valuable materials. They also contain certain materials, compounds and components which were essential for the proper functioning and safe use of the equipment. These could be hazardous to your health and to the environment if disposed of with general waste or if handled incorrectly. Therefore, please do not dispose of your old appliance with general waste.
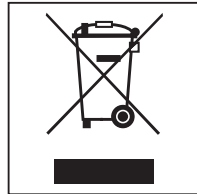


Consult with local authorities, dealers or Miele in order to dispose of and recycle electrical and electronic appliances. Miele assumes no responsibility for deleting any personal data left on the appliance being disposed. Please ensure that your old appliance is kept away from children until removal. Observe safety requirements for appliances that may tip over or pose an entrapment hazard.

# Miele

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

## Canada
**Importer**
**Miele Limited**

### Professional Division
161 Four Valley Drive
Vaughan, ON  L4K 4V8
Phone: 1-888-325-3957
www.mieleprofessional.ca
professional@miele.ca

### Miele Professional Technical Service
Phone: 1-888-325-3957
serviceprofessional@miele.ca

Manufacturer: Miele & Cie. KG
Carl-Miele-Straße 29, 33332 Gütersloh, Germany