Operating instructions
Laboratory Glassware Washer
PG 8583

📖ℹ️ 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.

Intended use

This Miele laboratory glassware washer can be used to reprocess laboratory glassware and laboratory utensils with water based media. The process includes cleaning, rinsing and drying, and disinfection where required. Due to the wide variety of laboratory glassware and laboratory utensils on the market, it may be necessary in some cases to establish whether it is suitable for reprocessing in a laboratory glassware washer. This will depend on its use and the type of soiling present as well as disinfection parameters. Please also observe information provided by the manufacturer of the laboratory glassware and laboratory utensils.

Laboratory glassware and laboratory utensils suitable for reprocessing are for example:

– Vessels such as test tubes, beakers, flasks, cylinders, etc.

– Measuring vessels such as measuring cylinders, pipettes, volumetric flasks, etc.

– Dishes such as petri dishes, watch glasses, etc.

– Plates such as slides, sequencing plates, etc.

– Small items such as lids, spatulas, magnetic stirring rods, stoppers, etc.

– Other items such as funnels, pipe/hose pieces, etc.

Examples of application areas:

– Laboratories in schools, colleges and universities,

– Research, quality assurance, development, technology and production.

– Different areas of inorganic, organic, analytical and physical chemistry,

– Biology, microbiology and biotechnology,

– Hospital laboratories.

Laboratory glassware and laboratory utensils for reprocessing are referred to as the wash load if they are not more closely defined.

Processing conditions must be suitable for the wash load and for the type of soiling. Process chemicals must be suitable for the type of soiling and for methods of analysis being used.

The use of a suitable carrier (mobile unit, basket, module, insert, etc.) is important to ensure adequate processing of the load. Examples are given in the section "Areas of application".

This machine is programmed to carry out the final rinse with mains water or with processed water of a quality to suit the application (e.g. purified water, fully demineralized water or demineralized water). It is particularly important to ensure the appropriate water quality for the rinse and final rinse of items used for analytical purposes.

The machine can be qualified for process validation.

The machine fulfills the requirements of the EU Machinery Directive 2006/42/EC.

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.

Intended 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
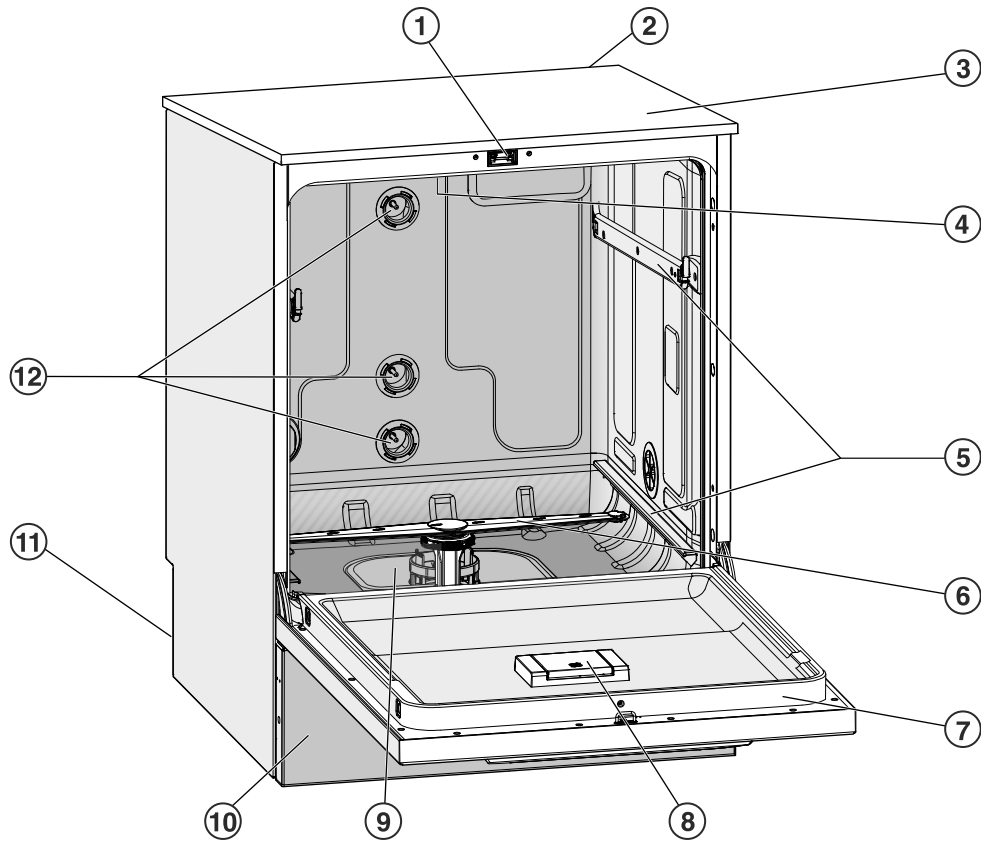
① Comfort door locking mechanism

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 cover

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

Control panel
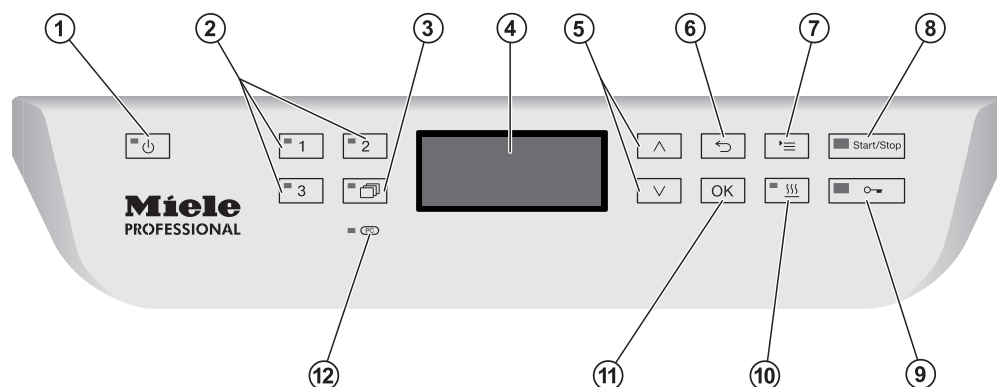
① **Button ⏻ (On/Off)**
For switching the machine on and off.

② **Buttons ▯1▮, ▯2▮ and ▯3▮**
Program selection buttons.
Can be configured.

③ **Button 🗗 (program list)**
For accessing the list of all programs.

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

⑤ **Arrow buttons ∧ and ∨**
For navigating within the user interface.

⑥ **Button ↰ (cancel)**
For canceling a process in the user interface
(not for canceling programs)

⑦ **Button '≡ (settings)**
For accessing the system settings menu.

⑧ **Button** *Start*/*Stop*
For starting or canceling a program.

⑨ **Button ⌲ (door release)**
For opening the door before or after a program.

⑩ **Button ∭ (drying assistance)**
For switching Drying assistance on and off.

⑪ **Button** *OK*
For selecting or confirming entries in the user interface.

⑫ **ℙℂ PC / Optical interface**
Used by Miele service technicians to run diagnostic checks and
can also be used to update programming data in the future.

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.
Program selection buttons ⬚1⬚, ⬚2⬚ and ⬚3⬚	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 Assistance" function has been activated for the selected program (not available for all programs; see "Program chart").
	OFF	The additional "Drying Assistance" 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.
Miele cannot be held liable for damage caused by improper or
incorrect use or operation of the machine.

▶ 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!

▶ This machine must be commissioned, serviced and repaired by a
Miele service technician only. To ensure compliance with Good
Laboratory Practice guidelines, a Miele service contract is
recommended. Unauthorized repairs can pose considerable risks to
the user.

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

▶ 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.

▶ 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 application you are using. The manufacturer of the process chemicals is responsible for any negative influences on the material of the load is made from and for any damage they may cause to 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.

▶ Take care not to inhale powder cleaning detergents. Swallowing process chemicals can cause chemical burns in the mouth and throat or lead to asphyxiation.

▶ 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 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.

Warning and Safety Instructions

▶ 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.

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, the appropriate temperatures and holding times, as required by microbiological and public health standards and guidelines, must be used to achieve the required degree of infection control.

▶ 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.

▶ Process chemicals containing chlorine can damage the elastomers of the machine.
If the use of process chemicals containing chlorine is required, a maximum temperature of 70°C in the program block "Main wash" is recommended (see program overview).
In machines equipped with special oil-resistant elastomers (ex works) for oil and grease applications process chemicals containing chlorides 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 prevent material damage to the machine and accessories used from the effects of process chemicals, soiling and their interaction, follow the notes in chapter "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 follow the instructions of the chemical's manufacturer. The process chemicals must only be used for the application it is designed for and in the situation specified to avoid material damage and such dangers as a severe chemical reaction (e.g. an explosive oxyhydrogen gas reaction).

▶ 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

▶ For applications that demand especially stringent cleaning and rinsing results, the operator must ensure that quality control occurs on a regular basis to meet the standards involved.

▶ 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.

▶ 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 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.

Warning and Safety Instructions

Symbols on the machine
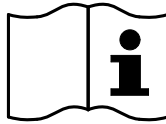
Attention:
Observe the operating instructions!

Attention:
Danger of electric shock!

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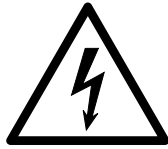It can be very hot inside the wash chamber when the door is opened!

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.

Miele will not be held liable for damage caused by failure to comply with these Warning and Safety Instructions.

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.
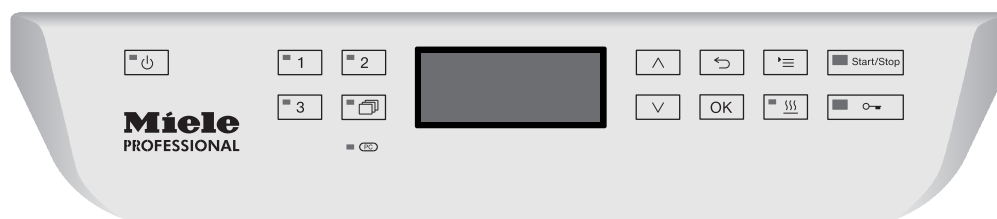
A light touch on the relevant button is sufficient to operate the functions. The buttons can also be pressed and held for approx. 20 seconds.

Display illustrations

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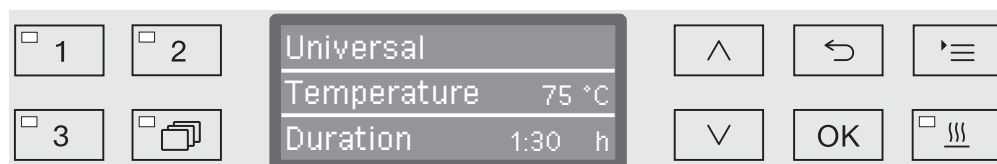
The control buttons are shown next to the display. The ⏻, ⚬⊷ and *Start*/*Stop* buttons are not shown.

Operation

Switching on

The machine must be connected to the electrical supply.

∎ Press the ⏻ button until the LED lights up.

After that, the display will show the following:

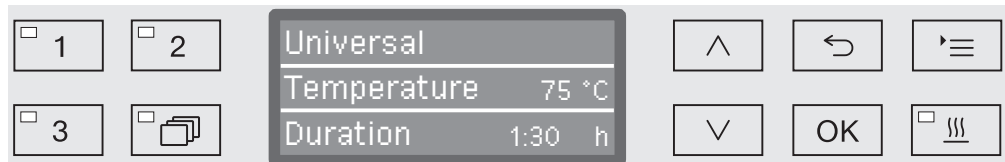| □ 1	□ 2	**Miele** PROFESSIONAL PG 8583	∧	↰	ᐧ≡
□ 3	□ ▤		∨	OK	□ ⌇⌇

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

□ 1	□ 2	Universal Temperature 75 °C Duration 1:30 h	∧	↰	ᐧ≡
□ 3	□ ▤		∨	OK	□ ⌇⌇

If the machine is being used for the first time, or if the factory settings have been reinstated, some basic parameters, e.g. language, date, time of day, etc. must be set first. 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 a function to switch off automatically (Auto-Off). 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.

Ready for operation (standby)

When it is ready for use (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").

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.

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.
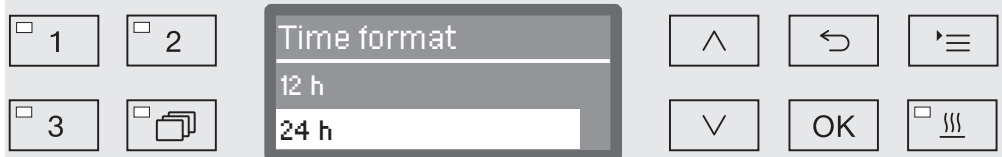
Operation

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: ʼ≡ 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 ʼ≡ 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		∧	↰	ʼ≡
3	🗗	12 h 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.

1	2	Settings ⚑		∧	↶	≡
		Language ⚑				
3	🗗	Date		∨	OK	⌇⌇⌇

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 ✓.

1	2	Language ⚑		∧	↶	≡
		english (GB) ✓				
3	🗗	english (USA)		∨	OK	⌇⌇⌇
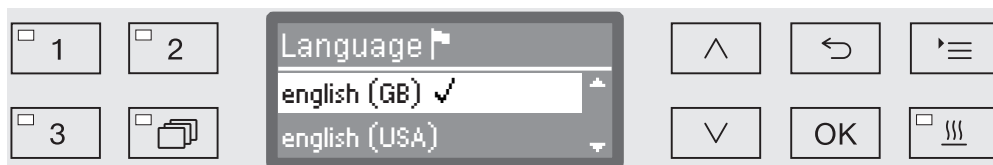
System messages

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.

1	2	i		∧	↶	≡
		Refill salt				
3	🗗	OK		∨	OK	⌇⌇⌇

System messages are displayed at the start and end of a programme and have to be confirmed (acknowledged) individually with *OK* or all together at the end of the programme 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.

Opening and closing the door

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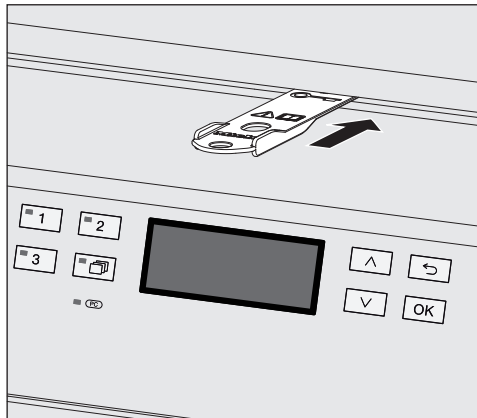
■ Push the tool supplied in the accessory pack horizontally into the gap between the door and the lid or worktop. The right-hand edge of the tool must align with the outer right-hand edge of the display.

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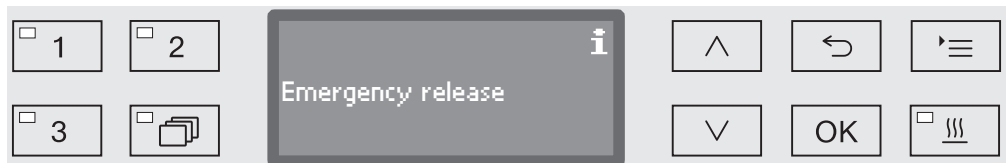
The message remains in the display until the door is closed. It is not recorded if the machine is switched off.

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.

Application technology

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.

⚠ 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.

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.

Operation

Selecting a program

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

■ Press the ⬚ button and

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

⬚ 1	⬚ 2	Universal		∧	↩	≡
⬚ 3	⬚	Temperature	75 °C	∨	OK	⬚
		Duration	1:30 h			
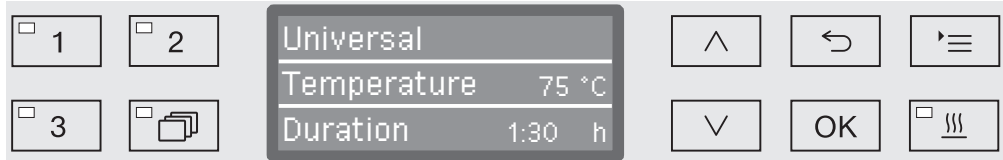
The LED in the button selected will light up and the relevant program will appear in the display. The LED in the *Start/Stop* button also starts to flash.

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

Always select the program depending on the type of load and degree and type of soiling, or on infection prevention issues.
The programs and their areas of application are described in the Program overview at the end of these operating instructions.

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.

The start of a program can be delayed; for example, to benefit from economy rates of electricity or to clean the wash chamber 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 in the Settings menu (see "Settings ⚑/Delay start").

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

Setting the start time
■ Select a program.

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

1	2	Start time	∧	↰	⊨
3	⧉	**12** : 00	∨	OK	♨

■ Use the arrow buttons ∧ (higher) and ∨ (lower) to set the hours and confirm your selection with the *OK* button.

Each press of the *OK* button takes the highlighting to the next input position automatically. You cannot go back to the previous entry. If a mistake is made, the process must be canceled using the ↰ button and repeated.

■ Set the minutes using the arrow buttons ∧ (higher) and ∨ (lower) 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	∧	↰	⊨
3	⧉	Temperature 75 °C Switch on at 12:30	∨	OK	♨
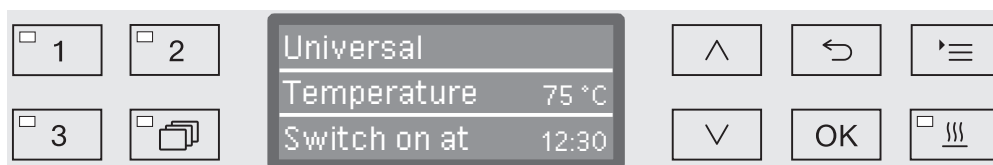
The selected program with the set start time set is then shown on the display. If automatic deactivation has been selected (see "Further settings/Switch off after"), the machine will switch itself off after the set time until the program start time set is reached.

Deactivating delay start
■ Press the ↰ button or switch the machine off using the ⏻ button.

Operation

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

If drying assistance has been activated, the door will automatically open a few centimetres at the end of the program to release steam from the cabinet. The load will then be dried using passive heat given off by the residual heat in the cabinet.

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 approx. 2 minutes longer.

Activating and deactivating drying
- Select a program.
- Press the ♨ button before the program start. The LED in the button indicates whether drying is on or off.

Program sequence indicator

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

```
┌─ 1    ┌─ 2      Universal         ∧    ↩    ┐≡
                  Main wash 1
┌─ 3    ┌─ 🗗      Time left   25 Min    ∨    OK   ┌─ ⸚
```
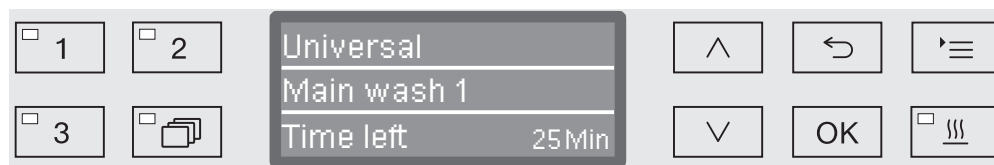
Top line	– Program name.
Middle line	The following parameters can be checked using the arrow buttons ∧ and ∨:

- 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,
- 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
- 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").

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 No Yes	∧	↶	≡
3	⟦		∨	OK	⧉
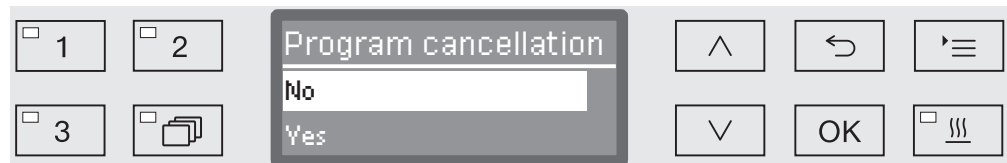
∎ Use the ∧ and ∨ arrow buttons to select Yes.

∎ 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.

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 ☑

▸ Priming DOS system
　▸ DOS_

▸ Filter maintenance
　▸ Filter combination
　　▸ Reset (Yes/No)
　　▸ Interval ⇨ 10

▸ 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 ʼ≡

   ▸ Settings ⚑

      ▸ Delay start

1	2	Delay start	∧	�	ʼ≡
3	⧉	No / Yes	∨	OK	♨

– 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 assistance" function accelerates the drying process at the end of the program.

If drying assistance has been activated, the door will automatically open a few centimetres at the end of the program to release steam from the cabinet. The load will then be dried using passive heat given off by the residual heat in the cabinet.

■ Open the menu as follows:

Button ⁖≡

    ▸ Settings ⚑

        ▸ Drying

1	2	Drying		∧	↰	⁖≡
3	⧉	No 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.

Routine checks

Before each day's use, 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 and

– All wash carts, baskets, inserts, and modules.

Cleaning the filters in the wash cabinet

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

⚠ This machine must not be used without all the filters in place.

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!
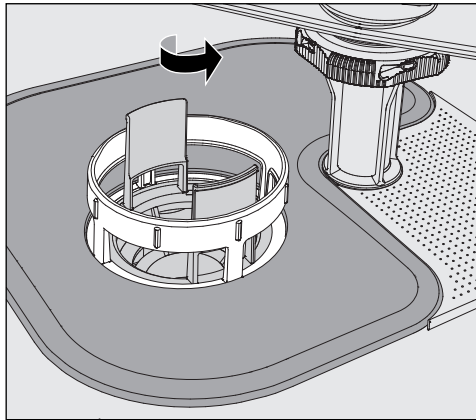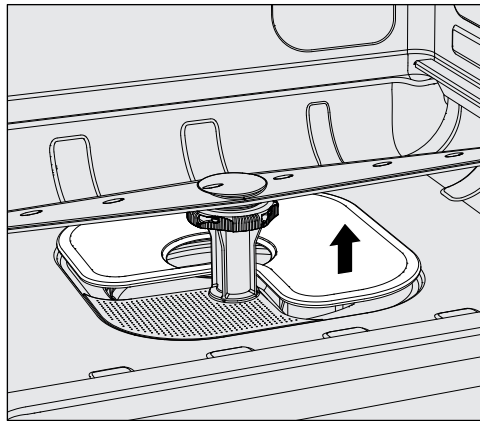

⚠ Danger of injury from glass shards, needles etc. which are retained in the filters.

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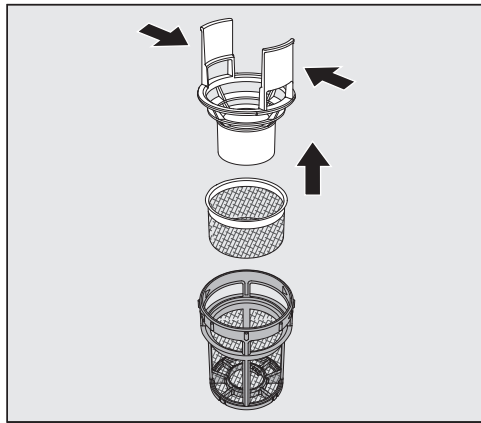
■ Press the catches towards each other and pull the coarse filter upwards to remove it.

■ 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.