

Operating instructions

Laboratory glassware washer

PLW 6111

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GENERAL RULES

1. GENERAL RULES

The laboratory glassware washer is generally referred to as “the machine” in these operating instructions. Reprocessable laboratory glassware and utensils are referred to as “wash items” if they are not more closely defined.

1.1 Limitation of liability

The manufacturer shall not be held liable for faults or problems which arise due to tampering or incorrect or improper use/operation of the machine.

The operator must comply with all instructions set forth in the operating instructions, most notably:

- Always observe the intended use of the machine.
- Required maintenance should always be performed promptly.
- Use of the machine should be limited to persons who have been properly trained and instructed.
- Use only original spare parts.

Any modifications, adaptation, or similar which may be made to machines which are subsequently placed on the market do not oblige the manufacturer to intervene on previously supplied machines, nor to consider the related operating instructions lacking and inadequate.

The operating instructions on the following pages are designed to guarantee the longevity and functionality of your machine.

The instructions in this manual do not replace, but rather supplement employer requirements to adhere to current legislation on standards of prevention and safety.

1.2 Validity, content, and storage

It is important to keep these operating instructions with the machine for future reference.

If the machine is sold or transferred, the operating instructions must be handed over to the new owner or users so that they can become acquainted with its functioning and the relevant safety instructions and warnings.

It is essential to read these operating instructions before installing and using the machine.
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2. PRODUCT INFORMATION

Before starting work, the user must be completely familiar with the functions and proper operation of the machine. The user must know the precise functions of all command and control devices of the machine.



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PRODUCT INFORMATION

2.1 Correct application

This machine is used to reprocess laboratory glassware and laboratory utensils. The process includes cleaning, rinsing and, where required, disinfection and drying. Due to the wide variety of laboratory glassware and laboratory utensils on the market, it may be necessary in some cases to establish whether the item is suitable for reprocessing in this laboratory glassware washer.

This will depend on its use and the type of soiling present as well as the disinfection parameters. Please refer to the information provided by the manufacturer of the laboratory glassware and laboratory utensils.

Laboratory glassware and laboratory utensils suitable for reprocessing include:

- 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

Reprocessing conditions must be suitable for the wash items and for the type of stain. Process chemicals must be suitable for the type of soiling and for methods of analysis being used.

The use of a suitable load carrier (mobile unit, basket, module, insert, etc.) is important to ensure adequate reprocessing of the wash items.

The machine can be qualified for process validation.

	WARNING
	Improper use can lead to personal injury and damage to property.
	Miele cannot be held liable for damage resulting from incorrect or improper use or operation.

2.2 Safety instructions and warnings

This machine complies with all statutory safety requirements. Improper use can lead to personal injury and damage to property.

Read the operating instructions carefully before using this machine. This will prevent both personal injury and damage to the machine.

Keep these instructions in a safe place where they are accessible to users at all times.

2.2.1 Correct application

- ▶ Use of the machine is only approved for the applications stated in the operating instructions. Conversions, modifications, and any other use are not permitted and could be dangerous. The cleaning and disinfection processes are only designed for laboratory glassware and utensils which are designated as reprocessable by the manufacturer. The information provided by the manufacturer of the wash items must be observed. Miele cannot be held liable for damage resulting from incorrect or improper use or operation.
- ▶ This machine is intended for indoor use in a stationary location only.

2.2.2 Danger 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 avoid downtimes and helps to optimize operating parameters. 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 a countertop, it must only be installed under a continuous countertop run which is firmly secured to adjacent units to improve stability.
- ▶ The electrical safety of the machine can only be guaranteed when correctly grounded. It is essential that this standard safety requirement is observed and regularly tested. If in any doubt, please have the electrical installation inspected by a qualified electrician. Miele cannot be held liable for the consequences of an inadequate grounding system (e.g., electric shock).
- ▶ A damaged or leaking machine can pose a threat to your safety. Always switch off a damaged or leaking machine immediately and contact Miele Service.
- ▶ Machine operators should be instructed on the use of the machine and trained regularly. 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 wash items and the machine.
- ▶ Exercise caution when handling process chemicals. Some chemicals may be caustic, irritating, and toxic. The relevant safety regulations and safety data sheets issued by the process chemical manufacturers must be observed. Wear gloves and protective goggles.
- ▶ The machine is only intended for use with water and suitable process chemicals. The use of organic solvents or inflammable liquids is not permitted.

PRODUCT INFORMATION

This could cause an explosion or damage rubber or plastic components in the machine and cause liquids to leak out of it.

- ▶ The water in the wash cabinet must not be used as drinking water.
- ▶ Do not lift the machine by protruding parts such as the door handle 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 topple over and become damaged or cause you an injury.
- ▶ 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.
- ▶ Please be aware that the machine may be operating at high temperatures. Deactivating the lock to open the door can result in a risk of burning or scalding, or contact with corrosive substances. Where disinfectant is in use, there is also a risk of inhaling toxic vapours.
- ▶ Should personnel accidentally come into contact with toxic vapours or process chemicals, follow the emergency instructions given in the manufacturer's safety data sheets.
- ▶ Load carriers such as baskets, mobile units, and inserts must be allowed to cool down before they are unloaded. Any water remaining in containers should be emptied into the wash cabinet before removing items.
- ▶ Never clean the machine or near vicinity with a water hose or a pressure washer.
- ▶ The machine must be disconnected from the electricity supply before any maintenance or repair work is carried out.

2.2.3 Quality assurance

The following points should be observed to assist in maintaining quality standards when reprocessing laboratory glassware and utensils and to avoid damage to the wash items being cleaned.

- ▶ Only authorized personnel may interrupt a program in exceptional circumstances.
- ▶ It is the responsibility of the operator to demonstrably ensure reprocessing standards in routine operation. Process results must be inspected and documented on a regular basis.
- ▶ For thermal disinfection, use temperatures and temperature holding times to achieve the required infection prophylaxis in accordance with health and safety regulations.
- ▶ Only reprocess undamaged and suitable items. When washing plastic items, ensure that they are thermally stable. Nickel-plated items and items made of aluminum require special procedures and are not generally suitable for machine reprocessing. Ferrous materials that can rust or corrode must not be introduced into the wash cabinet as wash items or as stains.
- ▶ Under certain circumstances, process chemicals can result in damage to the machine. Users are urged to follow the recommendations issued by manufacturers of process chemicals. Contact Miele in the event of damage and any suspicion of material incompatibility.
- ▶ 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 70°C (158°F) is recommended for the main wash program blocks (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 should not be introduced into the machine as these could cause damage to mechanical components in the water circuit. Abrasive residues on the wash items must be removed completely before reprocessing.
- ▶ Pre-treatment with cleaning or disinfecting agents, certain types of soiling and the interaction of certain process chemicals can create foam. Foam can have an adverse effect on the disinfection and cleaning result.
- ▶ Reprocessing should not result in foam being discharged from the wash cabinet. Foam discharge can compromise the operation of the machine.
- ▶ The process used must be monitored on a regular basis by the operator to check foaming levels.
- ▶ Even when a process chemical, e.g., detergent, is recommended on technical application grounds, Miele takes no responsibility for the effect of such chemicals on the wash items. Please note that changes in product formulation, storage conditions, etc. which are not announced by manufacturers of process chemicals may impair the quality of cleaning results.
- ▶ Always follow the relevant manufacturer's instructions on storage and disposal of process chemicals.
- ▶ In critical applications where very stringent requirements have to be met, it is strongly recommended that all the relevant factors for the process (detergent, water quality, etc.) are discussed with Miele.
- ▶ If the cleaning result is subject to particularly stringent requirements (e.g., chemical analysis), regular quality control should be carried out by the operator to ensure that required standards of cleanliness are being achieved.
- ▶ Load carriers such as mobile units, baskets, and inserts which hold the wash items must be used only as intended.
The interior of lumened items must be thoroughly flushed through with wash water.
- ▶ Secure small and light items with cover nets or place in a mesh tray for small items, so that they do not block the spray arms.
- ▶ Empty any containers or utensils before loading them.

PRODUCT INFORMATION

- ▶ The amount of residual solvents on items going into the wash 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 ferrous materials that can rust or corrode must not be placed in the cabinet.
- ▶ Ensure that solutions or steam containing chlorides or hydrochloric acid do not come into contact with the stainless steel outer casing of the machine in order to avoid any damage through corrosion.
- ▶ After any plumbing work, the water pipework to the machine will need to be vented. If this is not done, machine components can be damaged.
- ▶ 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.
- ▶ Follow the installation instructions in the operating and installation instructions.

2.2.4 Safety with children

- ▶ Children should be supervised in the vicinity of the machine. Do not allow children to play with the machine. There is a danger that children might shut themselves in the machine.
- ▶ Children must not use the machine.
- ▶ Keep children away from process chemicals. These contain irritant and corrosive ingredients which can cause burning in the eyes, mouth, and throat, or inhibit breathing. It is therefore important to keep children away from the machine when the door is open. There could still be residual process chemicals in the machine. Observe the safety data sheets for the process chemicals and seek medical advice immediately if a child has swallowed process chemicals or got them in their eyes.

2.2.5 Using accessories

- ▶ Only use genuine Miele original spare parts and accessories suitable for the application they are required for. Model designations are available from Miele.
- ▶ Only use Miele Load Carriers, such as mobile units, baskets, modules, and inserts. Using mobile units, baskets, and inserts made by other manufacturers or making modifications to Miele accessories can result in unsatisfactory cleaning and disinfection results. Any resultant damage would not be covered by the warranty.

2.2.6 Disposing of your old machine

- ▶ Please note that the machine may contain contamination from blood and other bodily fluids, pathogens, facultative pathogens, genetically modified material, toxic or carcinogenic substances, heavy metals, etc., and must be decontaminated before disposal. For environmental and safety reasons, dispose of all process-chemical residues in accordance with safety regulations. Wear gloves and protective goggles. Make the door lock inoperable, so that children cannot accidentally shut themselves in. Then make appropriate arrangements for safe disposal of the machine.

2.2.7 Warning signs

In order to inform users of their obligations and to warn of risks, the machine is equipped with warning signs in accordance with valid legislation.

General warning signs



Warning!
Danger of electric shock!



Warning!
Observe the operating instructions!



Warning!
Hot surfaces!

Health and safety risks on site are evaluated along with residual risks in order to determine the safety equipment which the operator must provide for the user.

Miele cannot be held liable for damage or injury caused by noncompliance with the safety instructions and warnings.

PRODUCT INFORMATION

2.3 Technical data

	Imperial	Metric
Width	25 9/16"	650 mm
Depth with closed door	27 1/16"	687 mm
Height	72 7/16"	1,840 mm
Total weight	521 lb	236 kg
Average sound pressure level	< 70 dB (A)	
Type of protection (according to IEC 60529)	IP21	
Backflow preventer	The hexagonal symbol indicates that the equipment is provided with a backflow preventer; the two letters inside the hexagon indicate the protection family and the protection type of that family. AA – Air gap not limited	
Operation	Temperature range +5 to +40°C (41 to 104°F). Relative humidity range 20 to 90% without condensation Maximum altitude: 2,000 m ASL (special versions of the device are available for higher altitudes).	
Storage and transportation conditions	-5 ... +50°C (23 to 122°F) 20% to 90% without condensation 500 hPa to 1,060 hPa	
Overvoltage category (according to IEC EN 60664)	II	
cUL	cUL certification	
Manufacturer's address	Steelco S.p.A Via Balegante, 27 31039 Riese Pio X (TV), Italy	

2.4 Recommendations for correct use

- The user must supervise the machine during the program.
- Only use process chemicals which have been approved by their manufacturer for the relevant application. The manufacturer of the process chemicals is liable for any negative influences on the material of the wash items and the machine.
- To prevent contact with contaminated material, appropriate personal protective equipment must be worn during reprocessing.
- Do not reprocess items containing substances which, in accordance with the current legislation, must not be discharged into the sewage system. These substances must be disposed of separately.
- Recommending process chemicals does not render the manufacturer responsible for any damage to processed materials and wash items.
- Follow the manufacturer's instructions (in compliance with EN ISO 17664) as well as national requirements and guidelines relating to the machine-based reprocessing of the wash items.
- The machine is only intended for use with water and process chemicals.
- The use of organic solvents or inflammable liquids is not permitted as there is a risk of explosion. Such substances can also result in premature wear on components.
- Solvent residues, chloride solutions, and acids, particularly hydrochloric acid, can damage steel components and must not be placed in the machine.
- Do not use powder detergents.
- Do not use domestic detergents.
- Accessories which are not approved by the manufacturer may compromise reprocessing results as well as user safety.
- The user must carry out a general check-up and clean the appliance regularly as indicated in the maintenance instructions.
- Carry out a visual check of the wash items for cleanliness.
- The on-site shutoff valve must be easily accessible so that the water supply can be turned off when not in use.

PRODUCT INFORMATION

2.5 Training

Instructions for use of the machine will be provided by Miele Service or an authorized service technician during machine commissioning.

It is the duty of the operator to ensure that users are sufficiently trained and instructed.

2.5.1 User profiles

User profiles are identified as follows:

SERVICE Service technician

The machine may only be installed, commissioned, repaired, and maintained by Miele Service or an authorized service technician.

ADMIN Responsible for the machine in the workplace:

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

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

Validation processes, if any, assume specialist knowledge about machine reprocessing of laboratory glassware and utensils, the processes involved, and applicable standards and legislation.

User User:

Users 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 utensils.

3. INSTALLATION

3.1 Water connection

3.1.1 Water quality

The quality of the water used in all the cleaning stages is essential in achieving good results.

- The water must be compatible with the material from which the machine is made.
- The water must be compatible with process chemicals.
- The water must be compatible with process requirements for the various stages of the process.

In order to achieve good reprocessing results, the machine requires a supply of soft water with a low calcium content. Hard water results in the build-up of calcium deposits on the wash items and on the inner walls of the wash cabinet.

Water with a hardness level higher than 0.7 mmol/l (4 gr/gal) must be softened. This occurs automatically during a program sequence on machines with a built-in water softener (option ex works). The water softener must be set to the exact hardness of the water.

The water softener must be reactivated at regular intervals. This requires the use of special reactivation salt. Reactivation is carried out automatically during a program sequence.

Softened water must be provided on site for machines without a built-in water softener.

Note: The water hardness is set by Miele Service.



WARNING

Water from the cabinet 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 national regulations for drinking water quality. If the water supply has a high iron content, there is a danger of corrosion occurring on items being cleaned in the laboratory glassware washer, as well as the machine itself. If the chloride content of the water exceeds 100 mg/l, the risk of corrosion to wash items 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 is equipped with a safety system for the protection of drinking water and may be connected to the water supply without a non-return valve, if national regulations permit.

The laboratory glassware washer is supplied as standard for connection to cold water (blue coded hose) and hot water up to max. 60°C (140°F) (red coded hose). Connect the intake hoses to the shutoff valves for cold and hot water.

If no hot water supply is available, the **red** coded inlet hose for the hot water connection must also be connected to the cold water supply.

The **minimum flow pressure** for cold water, hot water, and the DI water supply is 100 kPa (14.5 psi).

The **recommended flow pressure** is ≥ 200 kPa (29 psi) for the cold and hot water connections and ≥ 200 kPa (29 psi) for the DI water supply in order to avoid excessively long water intake times.

The **maximum permissible static water pressure** is 800 kPa (116 psi).

INSTALLATION

A booster pump is required if the flow pressure is below 100 kPa (14.5 psi). If the pressure is higher than 800 kPa (116 psi), a pressure reducer must be installed.


If water pressure is not within the specified range, contact Miele Service or an authorized service technician for advice.

A shutoff valve with a 3/4" threaded union must be provided on-site. The valve should be easily accessible, since the water supply should be shut off whenever the machine is not in use.


	WARNING
	Do not overtighten the threaded unions on the hoses.

3.1.2 Information:

- The machine is equipped with a safety system for the protection of drinking water and may be connected to the water supply without a non-return valve, if national regulations permit.
- If no hot water supply is available, the red coded inlet hose for the hot water connection must also be connected to the cold water supply.
- A Y-piece can be used to connect both hoses to the cold water supply.
- Miele cannot be held liable for damage or injury caused by noncompliance with the safety instructions and warnings.
- Non-compliance with the above conditions will render the warranty invalid.


	WARNING
	When the machine is not in operation, always close the shutoff valves.

3.2 Electrical connection

	WARNING
	Only qualified, skilled personnel may connect the machine to the domestic electrical supply.

- The machine must only be operated with the voltage, frequency, and fuse rating shown on the data plate.
- The power supply voltage must not differ from its nominal value by more than +/-6%.
- The frequency of the power supply should not differ from its nominal value by more than 1%.
- The electrical safety of the machine can only be guaranteed when it is correctly grounded. Equipotential bonding is required.
- Make sure that the electrical systems are properly grounded.
- The ground conductor is to be connected to the ground terminal identified by the standard symbol.
- If the machine is hard wired to the power supply, connection should be made via a power switch with all-pole isolation. The power switch must be designed to operate at the rated current.
- For increased safety, it is recommended to protect the machine with a suitable residual current device (RCD) with a trip current of 30 mA.
- The machine should be disconnected from the power supply when not used for a longer period of time.
- The electrical connection and fuse rating must comply with local and national regulations.



	WARNING
	Please refer to the installation plan provided.

BUILT-IN WATER SOFTENER (OPTIONAL)

4. BUILT-IN WATER SOFTENER (OPTIONAL)

The built-in water softener is designed to prevent residues from the water supply in the machine. Salt consumption depends on the water hardness.

French scale (°fH)	Water hardness (mmol/l)	Water hardness (gr/gal)	Parameter setting
0–10	0–1.01	0–5.9	Value 10
11–15	1.11–1.51	6.49–8.83	Value 15
16–20	1.61–2.02	9.41–11.81	Value 20
21–25	2.12–2.52	12.40–14.73	Value 25
26–30	2.62–3.03	15.32–17.72	Value 30
31–35	3.13–3.53	18.30–20.64	Value 35
36–40	3.64–4.04	21.28–23.62	Value 40
41–45	4.14–4.55	24.21–26.60	Value 45
46–50	4.65–5.05	27.19–29.53	Value 50
51–55	5.15–5.56	30.11–32.51	Value 55
56–60	5.66–6.06	33.09–35.43	Value 60

4.1 Salt refill indicator

If the salt level in the salt container is low, the following reminder will appear in the display: “salt loading”.

BUILT-IN WATER SOFTENER (OPTIONAL)

4.2 Refilling the salt

Use only special, coarse-grained reactivation salt or other pure evaporated salt. Never use any other kind of salt, e.g., table salt, animal feed salt, or de-icing salt. Other salts may contain insoluble additives which can impair the functioning of the water softener.

The following prompt reminds the user to refill the salt container:

- “salt loading”

The container for reactivation salt is located in the base of the wash cabinet inside the machine.

- Open the door.
- Remove the load carrier.
- Unscrew the plastic cap on the container.
- Fill the funnel with salt.
- Raise the funnel by the handle and place it on the container.
- Release the handle. The salt then passes from the funnel into the container.
- Repeat the process until the container is visibly full.

The container holds approx. 780 g (1.7 lb) of salt.



WARNING!

The container must always be completely filled. If filled to less than full, the water softening capacity is reduced and limescale deposits may occur on the wash items and on wash cabinet surfaces.

- Refit the plastic cap on the salt container and screw tight.
- Place the load carrier back into the machine.
- Start the “Rinse” program.



WARNING!

Run the “Rinse” program after refilling the salt. This removes and dissolves spillages of salt and brine. Excess salt and brine which has overflowed can cause corrosion damage if they are not rinsed away.



WARNING!

During reactivation, the following appears on the display: “regeneration”.

DISPENSING

5. DISPENSING

The dispensing system for process chemicals comprises:

- 1 dispenser pump (DOS1) for detergent
- 1 dispenser pump for neutralizing agent
- Fill level sensor
- The system is equipped with flow meters.

Additional dispenser pumps can be installed by Miele Service or an authorized service technician.

5.1 Fill level sensor

Each dispenser pump is equipped with a fill level sensor that monitors the fill level in the process chemical canisters. A lack of product is indicated on the display.


5.2 Dispensing quantity control

Each dispenser pump is monitored by a flow meter. This electronic device monitors the volume of product dispensed.

5.3 Refilling process chemicals


Replace an empty container as follows:

- Have a new container with process chemicals ready.
- Open the door in the base of the machine.
- Remove the suction lance and place it on a chemical-resistant and easy-to-clean surface.
- Insert the suction lance into the new container.
- Place the container back in the base of the machine.
- Close the door in the base.
- Start the appropriate program for venting the DOS pump (see the "Fill DOS (1–4)" program table).

	WARNING
	Only use process chemicals designed specifically for use in the machine and follow the manufacturer's instructions.
	Exercise caution when handling process chemicals. Some products may be corrosive and irritant. The relevant safety regulations and safety data sheets issued by the process chemical manufacturers must be observed. Wear protective goggles and gloves.
	The chemical compartment in the base of the machine is accessed using a key. The compartment may only be accessed by authorized personnel.

5.4 Warning!

- Consult the relevant manufacturer's instructions for the maximum amount of process chemical permitted for each program.
- To ensure the efficiency of the dispensing system, maintenance as described in the "MAINTENANCE" chapter must be performed regularly.
- Only use liquid detergents. Do not use powder detergent.
- Always follow the relevant manufacturer's instructions on storage and disposal of process chemicals.
- Check that the process chemical is suitable for the program used.

	WARNING
	<p>The machine must be completely emptied before you carry out maintenance work or move/relocate the machine.</p> <p>This is necessary to prevent contact with chemicals and to protect machine components which may suffer damage.</p>


OPERATION

6. OPERATION

6.1 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.

- Wear protective goggles and gloves.
- Follow the instructions for dispensing chemicals.

	WARNING
	Exercise caution when handling process chemicals. Some products may be corrosive and irritant. The relevant safety regulations and safety data sheets issued by the process chemical manufacturers must be observed. Wear protective goggles and gloves.

6.2 Opening and closing the door


Open and close the door using the door handle.

The door is locked electronically and cannot be opened while a program is running.

There is a risk of burning if the door glass is touched while a program is running.




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	WARNING
	Hold the door during opening and closing. Jerking the door open or slamming it shut may break the glass.
	Insert baskets into the cabinet slowly to avoid breaking the glass.
	Before opening the door, check that the door area is free of obstacles.

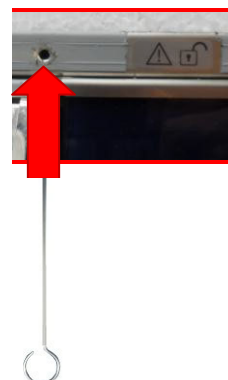
6.2.1 Emergency release

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 failure.

	WARNING
	If the emergency release is operated during a program sequence, hot water and process chemicals can escape.
	The wash items, the load carriers, and the wash cabinet may be very hot.
	Danger of scalding, burning, and chemical burns. Where disinfecting agents are used, there is also a danger of inhaling toxic fumes.

In the event of a power failure or if the door lock is damaged, the door can be opened as follows:

1. An emergency release device is located between the door and the cover plate and is identified by a sticker (see image).
2. Insert the tool contained in the accessory kit into the emergency release opening.
3. Prize the tool to the left until you hear the door open.
4. To close the door, continue to press in the tool as described in point 3.



OPERATION


6.3 Switching on


The machine is switched on and off using a power switch.

Take note of any fault or warning messages on the display when starting the machine.

6.4 Preparation

- Follow the manufacturer's instructions for reprocessing.
- Make sure that the items are suitable for reprocessing in a laboratory glassware washer and check the compatibility with the chemicals used during the wash programs.
- Place the wash items carefully into the load carriers.
- Make sure that wash items are not shielded or concealed by other items.
- Position wash items in such a way that fluids can drain off freely.
- Tall or heavy items should be placed toward the middle of the basket if possible to facilitate washing.
- Make sure that items do not block the spray arms and that the arms can turn freely.
- Distribute the wash items evenly across the baskets.
- The mobile units, baskets, modules, and inserts that hold the wash items must be used only as intended.
- Empty any containers or utensils before loading them.
- Take apart any items which can be dismantled according to the manufacturer's instructions and process the individual parts separately from each other.
- Do not place items to be cleaned inside other pieces where they may be concealed. Do not place items so close together that cleaning is hampered.
- Arrange the wash items so that wash water can access all surfaces.
- Only reprocess small items and micro components in special inserts, mesh trays with lids, or mesh inserts.
- Plastic items must be thermally stable.

	WARNING
	Connectors that are not in use must be closed using the caps provided. Additional caps are available from Miele.

	WARNING
	The maximum load for each cycle is 35 kg (77 lb) (incl. basket).
	Never operate the machine without a load carrier in place.

Before starting to use the machine, make sure that all the routine checks have been carried out. Check the spray arm rotation.

The list below provides examples of load carriers and inserts which may be used when reprocessing laboratory glassware and utensils.

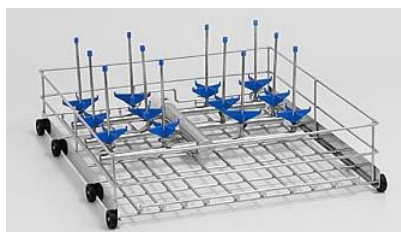
Other accessories are available from Miele.



Upper basket with nozzles



Upper basket with spray arm



Lower basket with nozzles



Lower basket for pipettes




Insert for glassware



Insert for Petri dishes

6.4.1 Checks at the end of a program

- Carry out a visual check of the wash items for cleanliness.
- Are all lumened instruments still attached to the appropriate nozzles?

	WARNING
	Any lumened instruments which have become disconnected during reprocessing must be reprocessed again.

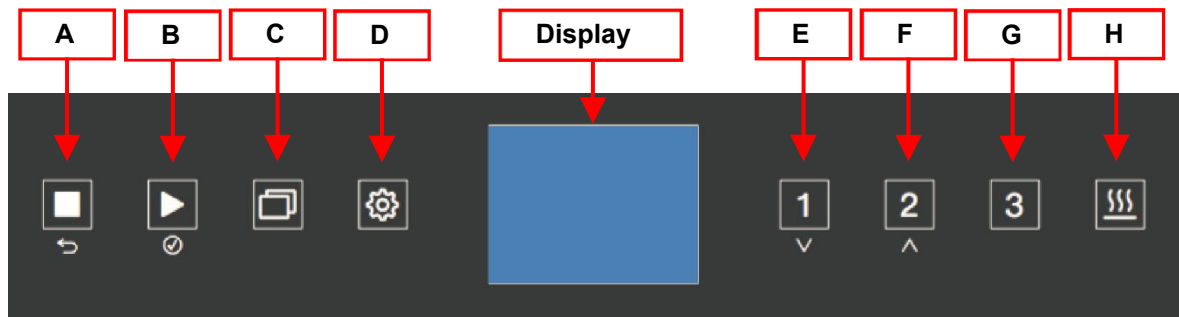
- Are the lumens free from obstructions?

CONTROL PANEL AND SYMBOLS USED

7. CONTROL PANEL AND SYMBOLS USED

7.1 Control panel













The control panel is used to operate the machine.



CONTROL PANEL AND SYMBOLS USED

7.2 Buttons

The buttons on the display are touch-sensitive and backlit (LED). There are 8 buttons available with the following functions:

BUTTON		DESCRIPTION	
A		STOP	<p>Press once to interrupt a program.</p> <ul style="list-style-type: none"> “NO DISINFECTION” appears in the display. The door remains locked. An additional warning appears at a wash cabinet temperature of more than 65°C (150°F). The program can be continued by pressing the START button. The current wash phase is then repeated. <p>Press twice to cancel a program.</p> <ul style="list-style-type: none"> The program is cancelled and the door is unlocked.
		(cancel)	For cancelling a process in the user interface.
B		START	Start the program.
		(confirm)	For selecting or confirming entries in the user interface.
C		P+	For accessing the list of all programs for program selection.
D		PRG	<p>The menu incorporates all relevant functions.</p> <p>During standby: Press the button for 5 seconds to access the menu.</p>
E		P1	Universal program
		(down)	For navigating in the user interface.
F		P2	Standard program
		(up)	For navigating in the user interface.
G		P3	Intensive program
H		DRY	<p>Drying function.</p> <p>The drying function can be activated or deactivated before starting a program.</p>

7.2.1 Audible signal

The machine has an integrated buzzer (audible signal). An audible signal sounds each time a button is pressed. A warning signal sounds if the machine malfunctions (see “Safety instructions and warnings”).

CONTROL PANEL AND SYMBOLS USED

7.3 Display

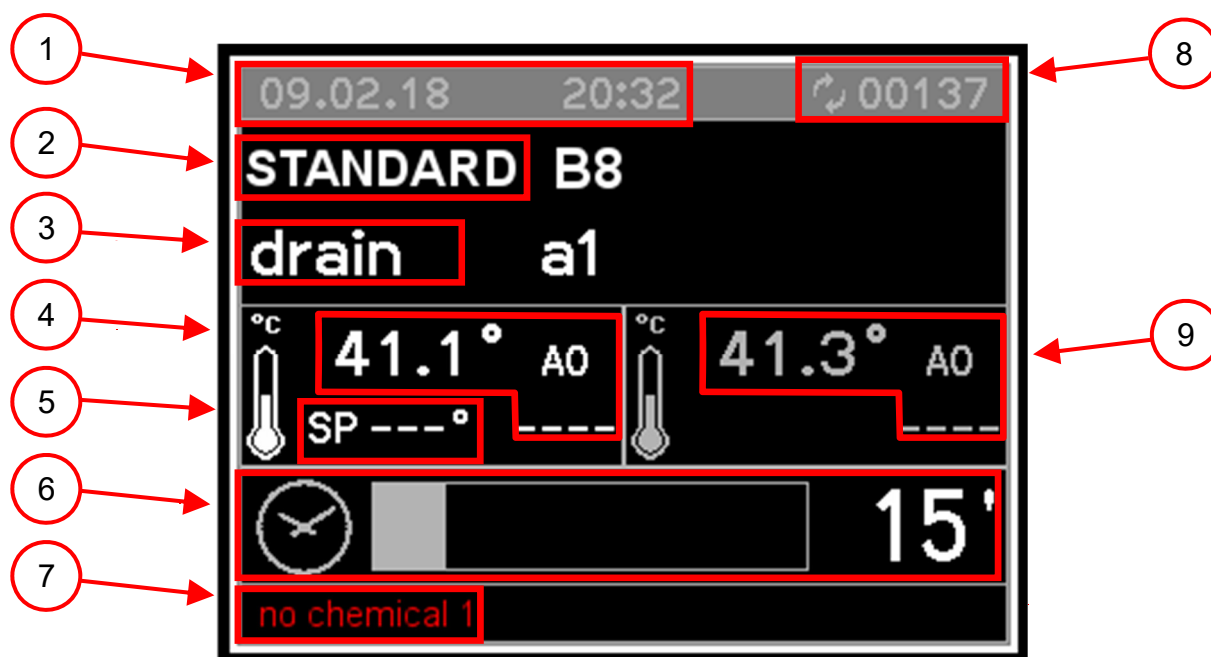


FIG. 1

The following information will appear in the display:

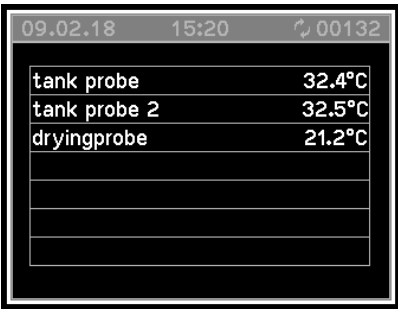

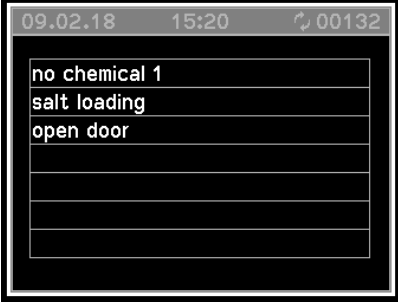

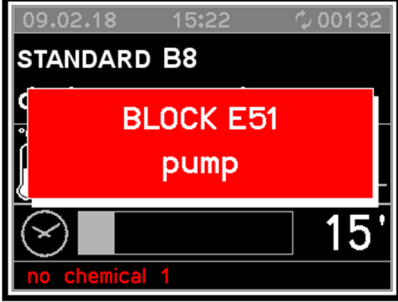

1. Date and time
2. Selected program
3. Current wash phase
4. Temperature in wash cabinet (sensor 1) with A0 value
5. Target temperature for current phase
6. Remaining time
7. Instructions and error messages
8. Cycle counter
9. Temperature in wash cabinet (sensor 2) with A0 value

When the machine is ready for operation, the display shows the last selected program as well as the temperature, date, and time.

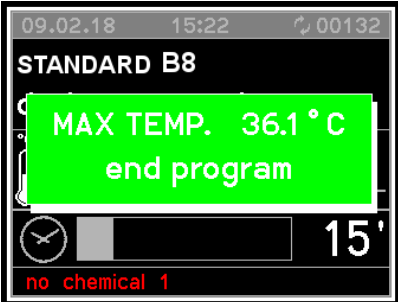
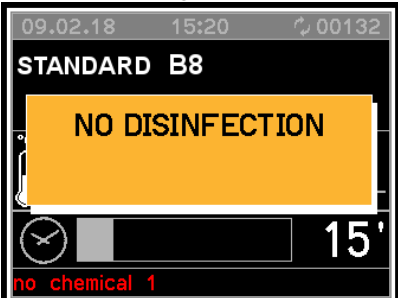
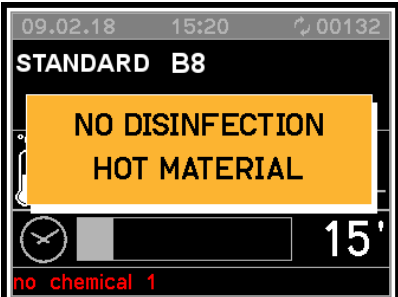
When one of the program buttons (P1 , P2 or P3) is pressed, the display shows the program linked to that button and the following message appears in the bottom left: "press start" or "open door" (see 7).

By pressing the P+ button, it is possible to scroll through all the available programs.











CONTROL PANEL AND SYMBOLS USED

<p>FIG. 2</p>  <p>The screenshot shows a control panel display with a header bar containing the date '09.02.18', time '15:20', and a pressure icon followed by '00132'. Below the header, there is a table with three rows of data: 'tank probe' with '32.4°C', 'tank probe 2' with '32.5°C', and 'dryingprobe' with '21.2°C'. There are four empty rows below the data table.</p>	<p>The temperature and pressure values can be displayed while a program is running by pressing the PRG  button (Fig. 2).</p>
<p>FIG. 3</p>  <p>The screenshot shows a control panel display with a header bar containing the date '09.02.18', time '15:20', and a pressure icon followed by '00132'. Below the header, there is a list of warning messages: 'no chemical 1', 'salt loading', and 'open door'. There are four empty rows below the list.</p>	<p>Press the PRG  button twice to display warning messages (Fig. 3).</p>
<p>FIG. 4</p>  <p>The screenshot shows a control panel display with a header bar containing the date '09.02.18', time '15:22', and a pressure icon followed by '00132'. Below the header, the text 'STANDARD B8' is displayed. A large red rectangular box with white text 'BLOCK E51 pump' is overlaid on the display. Below the box, there is a progress bar with a clock icon on the left and the number '15' on the right. At the bottom left, the text 'no chemical 1' is displayed in red.</p>	<p>In the event of a fault, a window appears indicating the fault code and a brief description (Fig. 4).</p>
<p>In the event of an error which does not lead to the program being interrupted (e.g., lack of salt), a message is shown in the bottom left of the display (see Figs. 1 to 6) or can be called up by pressing the PRG  button (see Fig. 3).</p>	








CONTROL PANEL AND SYMBOLS USED

FIG. 5	
	
FIG. 6	
<p>Fig. 6.A</p> 	<p>If a program was cancelled, a window appears indicating that disinfection did not take place (Fig. 6.A).</p>
<p>Fig. 6.B</p> 	<p>If the temperature in an interrupted program was 65°C (150°F) or lower, the message shown in Fig. 6.A is displayed.</p> <p>If the temperature was above 65°C (150°F), the message shown in Fig. 6.B is displayed.</p>

8. PROGRAMS

Program	Button	Application
Mini		Short program for lightly soiled items and loads that do not require intensive cleaning.
Universal		For removing organic residues and certain inorganic residues. For standard applications and analyses, light to medium levels of soiling, and medium rinse requirements.
Standard		Simple program for a range of stains. For light soiling and low rinse requirements: Not suitable for denaturing and acid-soluble residues such as proteins, metallic salts, and amines.
Intensive		For removing organic residues and certain inorganic residues. For standard applications and analyses, medium to heavy soiling, and medium to high rinse requirements.
Inorganic materials		For removal of inorganic residues. General program for analysis and water analysis, and for water-based cultures with acid-soluble metallic salts such as Ca^{2+} and Mg^{2+} , etc., for light to medium levels of soiling and medium to high rinse requirements.
Organic materials		For organic residues, e.g., heavy soiling or after sterilization; partially suitable for fats and waxes. Not suitable for acid-soluble residues such as metallic salts and amines. For medium to heavy soiling and medium rinse requirements. Connection to hot water and fully demineralized water recommended.
Plastics		For heat-sensitive wash items such as plastic flasks (temperature resistance: at least 55°C (130°F)). For standard applications and analyses, light to medium levels of soiling, and medium rinse requirements.
Pipettes		For pipettes
Oil		For heavy oil soiling (crude oil, synthetic oils/lubricants, fuels, and partially natural oils). This program can also be used for removing fats and waxes. Connection to hot water and fully demineralized water recommended.
Disin 93/10		For cleaning and thermal disinfection at 93°C (199°F) with 10 minutes' temperature holding time.
Cold water rinse		Cold water rinse, holding time: 1 minute. For flushing out saline solution, 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.






PROGRAMS

Program	Button	Application
AD rinse		Rinse with fully demineralized water (DI water, (ultra)pure water), holding time: 3 minutes.
Drying		Additional drying after the end of a program.
Drain		For draining wash water, e.g., after a program cancellation.
Fill DOS1		Primes the detergent dispenser system after replenishing or replacing the container.
Fill DOS2		Primes the additional liquid agent dispensing system after replenishing or replacing the container.
Fill DOS3		Primes the neutralizing agent dispensing system after replenishing or replacing the container.
Fill DOS4		Primes the additional liquid agent dispensing system after replenishing or replacing the container.






8.1 Program blocks






- **Drain**
Drains water from the wash cabinet.
- **Pre-rinse**
A pre-rinse removes coarse stains and substances which may cause foaming.
- **Main wash**
Depending on the wash items, cleaning generally occurs at temperatures between 45°C and 93°C (113°F and 199°F) with the addition of appropriate detergent (process chemicals).
- **Interim rinse**
In the interim rinse stages, chemicals from the previous phases are rinsed off and neutralized.
- **Final rinse**
To avoid deposits on the wash items and to reduce process chemical residues, fully demineralized water should preferably be used, if available, for the final rinse.
- **Drying**
Adequate drying reduces the risk of corrosion through residual moisture on the wash items.

8.2 Program chart




Phase	Function	Washing	Main wash	Main wash 2	Main wash 3	Washing	Neutralization	Interim rinse 1	Interim rinse 2	Washing	Drying
	Function	Pre-rinse	Main wash	Main wash 2	Main wash 3	Washing	Neutralization	Interim rinse 1	Interim rinse 2	Washing	Drying
	Program	Button									
Mini			HW DOS 1 60°C 180 s				HW DOS 3 120 s			DI 60°C 60 s	120°C 1,800 s
Standard			HW DOS 1 70°C 180 s				HW DOS 3 120 s	HW 60 s		DI 70°C 60 s	120°C 1,800 s
Universal		CW50 60 s	HW DOS 1 75°C 180 s				HW DOS 3 120 s	HW50 60 s		DI 75°C 60 s	120°C 1,800 s
Intensive		CW50 60 s	HW DOS 1 80°C 180 s				HW DOS 3 120 s	CW50 60 s	DI 60 s	DI 75°C 60 s	120°C 1,800 s
Inorganic materials			CW50 DOS 3 50°C 120 s	HW DOS 1 75°C 180 s			HW DOS 3 120 s	DI 60 s	DI 60 s	DI 70°C 60 s	120°C 1,800 s

PROGRAMS

Phase	Function	Washing	Main wash	Main wash 2	Main wash 3	Washing	Neutralization	Interim rinse 1	Interim rinse 2	Washing	Drying
	Program	Button									
Organic materials			HW DOS 1 65°C 180 s	HW DOS 1 85°C 180 s			HW DOS 3 120 s	HW50 60 s		DI 75°C 60 s	120°C 1,800 s
Plastics		CW50 60 s	CW50 DOS 1 55°C 180 s				CW50 DOS 3 120 s	DI50 60 s		DI 55°C 60 s	60°C 1,800 s
Pipettes		CW50 60 s	HW DOS 1 70°C 180 s				HW DOS 3 120 s	CW50 60 s	DI 60 s	DI 70°C 60 s	100°C 1,800 s
Oil			HW DOS 4 DOS 1 45°C 60 s	HW DOS 4 DOS 1 65°C 120 s	HW DOS 1 85°C 180 s		HW DOS 3 120 s	HW50 60 s		DI 75°C 60 s	120°C 1,800 s
Disin 93/10			CW50 DOS 1 93°C 600 s				HW DOS 3 120 s	HW 60 s		DI 75°C 60 s	120°C 1,800 s

Phase	Function	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Drying
		Pre-rinse	Main wash	Main wash 2	Main wash 3	Neutralization	Interim rinse 1	Interim rinse 2	Final rinse	Drying		
Program	Button											
Cold water rinse		CW 120 s										
AD rinse		DI 120 s										
Drying												120°C 1,800 s
Drain		Drain pump/valve is activated without the circulation pump.										
Fill DOS1			HW DOS 1 10 s				HW 10 s					

PROGRAMS

Phase	Function		Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Drying
		Button	Pre-rinse	Main wash	Main wash 2	Main wash 3	Neutralization	Interim rinse 1	Interim rinse 2	Final rinse	Drying
Fill DOS2				HW DOS 2 10 s				HW 10 s			
Fill DOS3				HW DOS 3 10 s				HW 10 s			
Fill DOS4				HW DOS 4 10 s				HW 10 s			

CW = Cold water
 HW = Hot water
 DI = (Ultra)pure water, fully demineralized water (DI water)
 CWxx = CW proportion in mixed water (CW + HW) as percentage (CW50 = 50% CW + 50% HW)
 HWxx = HW proportion in mixed water (HW + DI) as percentage (HW50 = 50% HW + 50% DI)
 DIxx = DI proportion in mixed water (DI + CW) as percentage (DI50 = 50% DI + 50% CW)
 DOS 1 = Detergent
 DOS 2 = Additional liquid agent
 DOS 3 = Neutralizing agent
 DOS 4 = Additional liquid agent (e.g., emulsifier, defoamer, etc.)
 s = Holding time in s

*) Drying plus 120 s cooling down time

8.3 Starting a program

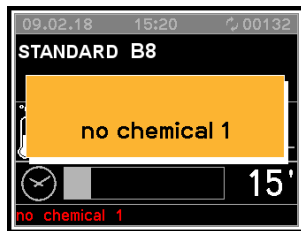
To start, proceed as follows:

- Select a program.
- Press the START ► button.

MACHINE STATUS

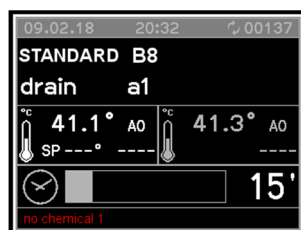
9. MACHINE STATUS

9.1 Ready for operation



The machine is ready for operation. The diagnostics function is active.

9.2 Program



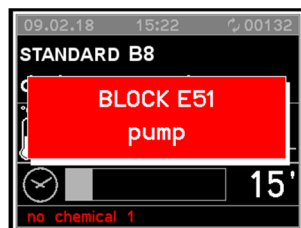
When the machine is ready for operation and the door is closed, it is possible to press the START ► button.

The program performs a defined series of phases. The diagnostics function and regulators are active.

The user interface provides information on the phase in progress and the temperature in the wash cabinet.

The display indicates if the door is open and issues warning messages, e.g., lack of salt.

9.3 Malfunctioning



The diagnostics function has detected a fault which causes the program to be cancelled. The door remains locked.





The fault is indicated via the display. The machine can be made ready for operation again using the reset function (see "Reset").

9.4 Power failure

In the event of a brief power failure while a program is running, the current wash phase is repeated and the program continued.

9.5 Reset

In the event of a malfunction while a program is running, the door remains closed and locked. To acknowledge the fault message, proceed as follows:

1. Press STOP  and START  simultaneously and hold for 5 seconds.
2. The display indicates the button combination.
3. Press the P2  button followed by the P1  button.
4. The reset is complete. The machine is once again ready for operation and the door can be opened.

Note:

If the fault persists, e.g., due to a defective component, the machine will remain locked.

If this is the case, contact Miele Service or an authorized service technician.

MENU

10. MENU

The menu incorporates all administrative processes and settings.






Access to other sections of the menu is password-protected. The user password will be provided during commissioning by Miele Service or an authorized service technician.

Access to programming and the menu are protected by different passwords:

- **First level:** *The user (USER) and operator (ADMIN) password provides access to programs and time settings.*
- **Second level:** *The technician (SERVICE) password allows unhindered access to all menus and machine settings.*

If the password is lost, contact Miele Service or an authorized service technician.

10.1 Accessing the menu

- To enter the menu, hold the PRG button  for 5 seconds.
- Press P1  and P2  to scroll through the menu:
- Press START  to confirm selection.
Press STOP  to exit the menu and return to “Ready for operation” or “Malfunction” mode.

Main menu

- ↳ Standard programs
View and copy programs.
- ↳ Customer programs
Create new customer programs.
- ↳ Program selection
Activate and deactivate programs.
- ↳ Settings
Access programming.

10.2 Parameter settings

Access to the programming mode is password-protected.

To select parameters, proceed as follows:

- When setting parameters, a password will be requested, which is entered using the P1 and P2 buttons. If an incorrect password is entered, the menu is closed immediately.
- You can scroll through the parameters using the P1 and P2 buttons.
- Press START ► to change a parameter.
- Use the P1 and P2 buttons to increase or decrease the various parameter values.
- To exit the programming mode, press the STOP ■ button for 5 seconds.

10.3 Parameter list

CATEGORY	SECTION	PARAMETER	DESCRIPTION	MIN	MAX	UDM
SYSTEM DATA						
MACHINE	1	01	User name (16 characters)	,	~	CHAR_STR
PRINTOUT	1	04	Graphic printout at the end of a program (0: no printout, 1: graphic printout 2: table printout, 3: printout on USB)	0	3	NUM
PRINTOUT	1	05	Printout results of current program; 0=OFF 1=ON	0	1	SEL
KEYBOARD	1	07	Buzzer volume – infeed side (0: buzzer OFF)	0	50	NUM
KEYBOARD	1	08	Buzzer volume – end of program (infeed side)	0	50	NUM
KEYBOARD	1	09	Buzzer alarm volume – infeed side (0: Buzzer OFF)	0	50	NUM
KEYBOARD	1	13	Show A0 value in display; 0=OFF 1=ON	0	1	SEL
MACHINE DATA						
KEYBOARD	2	04	Select language	0	7	SEL
KEYBOARD	2	07	Font types (0=European, 1=European+Japanese, 2=European+Cyrillic)	0	2	NUM

11. CLOCK

- The controls have a real-time clock.
- Times are saved for historical data.

12. AUDIBLE SIGNAL

The audible signal sounds when a button is pressed. In the event of a serious fault, a continuous tone will sound depending on the settings for parameters P1.7, P1.8, and P1.9. The volume can be set using the parameters.

13. HISTORICAL DATA (BATCH PROTOCOLS)









Operating data is recorded while the program is running.

The internal memory is able to save up to 200 programs. If the memory is full, the oldest data is overwritten.

13.1 Outputting batch protocols retrospectively

Internally stored protocols can be output retrospectively from the machine.

The following options are available for documentation:

- To open the menu, press and hold the PRG button  for 5 seconds.
- Scroll through the menu using the P1  and P2  buttons and select "History".
- Confirm your selection by pressing START .
- Select the "Print" option using the P1  and P2  buttons and start the printout by pressing the START  button. "Printing in progress" is shown on the display.
- Press the STOP  button to cancel the printout. The menu will be exited.

13.1.1 External software

Data can be retrieved directly via the documentation software.

LIST OF WARNINGS AND EVENTS

14. LIST OF WARNINGS AND EVENTS

Messages and warnings may appear in the display during operation.

A warning remains on display until the underlying cause is dealt with. A warning interrupts the current program.

14.1 List of warnings

Warning	Display message	Description
1	power fail	Signals a power failure during a program.
2	open load. door	Loading door open and/or unlocked during a program.
4	load.door fail.	Loading door locked but open.
7	unblock.door 1	Door fault.
9	unlocking 1fail.	Door release timeout
11	no cold water	Cold water impulse reading from flow meter
12	no hot water	Cold water impulse reading from flow meter – timeout
13	no demin. water	Cold water impulse reading from flow meter – timeout
14	no c.+hot water	Cold and hot water level – timeout
15	no c.+demi water	Cold and DI water level – timeout
16	no h.+demi water	Hot and DI water level – timeout
17	no chemical 1	Lack of process chemicals (DOS1)
18	no chemical 2	Lack of process chemicals (DOS2)
19	no chemical 3	Lack of process chemicals (DOS3)
20	no chemical 4	Lack of process chemicals (DOS4)
21	heating element1	Fault with heating element 1
23	drain problem	Minimum tank level during draining – timeout
24	fan problem	Fan switch ON, pressure switch open
25	drying min°C	Air temperature does not reach the specified value during drying.
26	prewash max°C	Tank temperature exceeds specified value during prewash.
27	tank probe lim°C	Cabinet temperature exceeds 102°C (215°F). (= max. setting 95°C + safety level 7°C) (Tank heating switch or tank sensor defective)
28	dryingprobelim°C	Air temperature exceeds 162°C (323°F). (= max. setting 150°C + safety level 12°C) (Drying heating switch or air sensor defective)
29	boilerprobelim°C	Tank 1 temperature exceeds 100°C (212°F). (= max. setting 80°C + safety level 20°C) (Tank 1 heating switch or tank 1 sensor defective)
30	tank probe	Cabinet temperature sensor 1 fault
31	tank probe 2	Cabinet temperature sensor 2 fault
32	drying probe	Drying temperature probe fault
33	boiler probe	Boiler temperature probe fault

LIST OF WARNINGS AND EVENTS

Warning	Display message	Description
34	check temp.	Temperature difference between the two sensors is greater than 1°C (1.8°F).
35	Serial connect.1	No connection between main PCB and loading controller
36	Serial connect.2	No connection between the expansion board and the keyboard (unloading side).
37	CANserialconnec.	No connection between master and slave (CANbus).
39	no tank heating	No heating in wash cabinet. No temperature increase during allocated time.
40	no boilerheating	Problem with boiler heating.
41	no boilerheating	Problem with boiler heating.
42	magnetothermic	Steam heating fault
43	Phase sequence	Phase sequence is incorrect.
44	levels steamcond	Steam condenser fault
45	pump steam cond.	Min. and max. level active drain pump fault.
46	pump	Circulation pump on; pressure switch closed. Circulation pump is rotating in the wrong direction.
47	flowmeter fail.1	DOS1 dispenser fault
48	flowmeter fail.2	DOS2 dispenser fault
49	flowmeter fail.3	DOS3 dispenser fault
50	flowmeter fail.4	DOS4 dispenser fault
51	flow.cold water	Water intake fault (cold water).
52	flow.warm water	Water intake fault (hot water).
53	flow.demi water	Water intake fault (fully demineralized water).
54	airfilter obstr.	Air filter is obstructed. Change the air filter. Vacuum switch defective. No compressed air available (check compressed air supply).
55	conduc. probe	Conductivity sensor fault.
56	conductivity	Conductivity exceeds maximum threshold.
58	no tank heating	No temperature increase during allocated time.
59	no boilerheating	No temperature increase during allocated time.
60	TIME	Maximum time exceeded in main wash phase
72	DRYING	Exhaust air pressure: fault when opening or closing exhaust air valve.
73	DRYING	Exhaust air pressure: exhaust air limit switch (open and close both active at the same time).
74	boilerprobelim°C	The boiler temperature is too high.
75	boiler probe	Boiler probe 2 defective
76	BOILER	The max. level on tank 3 is active and the min. level is inactive.
77	BOILER	The max. level on tank 1 is active and the min. level is inactive.
78	BOILER	The max. level on tank 2 is active and the min. level is inactive.

LIST OF WARNINGS AND EVENTS

14.2 List of display messages

Display message	Description
press start	A program can be started.
no chemical 1	Lack of product in DOS 1.
no chemical 2	Lack of product in DOS 2.
no chemical 3	Lack of product in DOS 3.
no chemical 4	Lack of product in DOS 4.
salt loading	Refill the reactivation salt container.
pump steam cond.	Steam condenser activated for a specified time to bring the amount of condensate below the max. level.
pressure probe	Wash pump pressure monitoring fault
- open door -	The door is open and not locked.
wait	General reminder to wait before next input.
close door!	Close the door.
ON PRINT	Appears when an attempt is made to start a program with the START button during printing.
NO DISINFECTION	The program was interrupted and the wash items were not disinfected.

USB PORT (OPTIONAL)

15. USB PORT (OPTIONAL)

Testing and transmission point for Miele Service.



16. PROCESS DOCUMENTATION

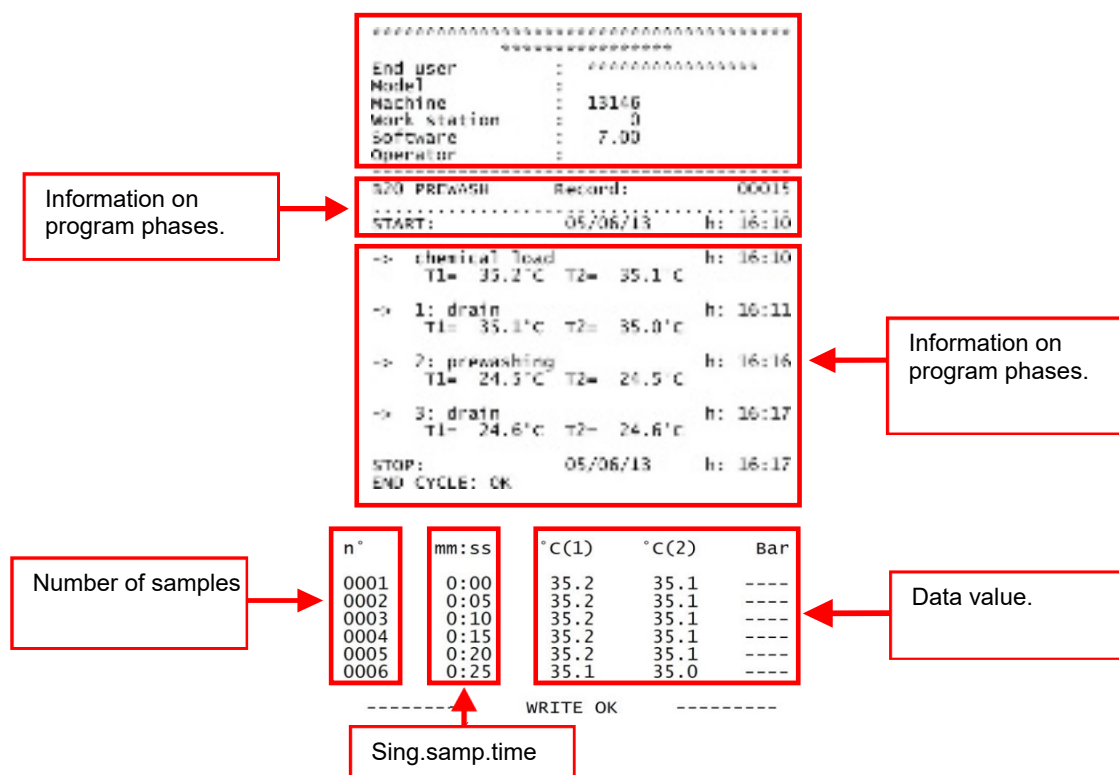
16.1 Serial interface

The RS232 interface is intended for connecting devices such as a PC or printer as per the RS232 standard protocol, in accordance with EN/IEC 60950.

Printers are connected as described below:

Interface: RS232
 Baud rate: 2,400 bps
 Data length: 8 bits/chr
 Parity: None.
 Handshake: XON/XOFF 40 COLUMNS

The format of the protocol is as follows:



16.2 User administration

Several user profiles can be created and managed in the controls. For more information, please contact Miele Service or an authorized service technician.

16.3 USB port

Testing and transmission point for Miele Service.

MAINTENANCE

17. MAINTENANCE

17.1 General recommendations on maintenance

Maintenance for the machine described in this manual can be divided into “Routine maintenance” and “Special maintenance”.

17.1.1 Machine status

The machine must be completely switched off. The person performing the task must ensure that there is no-one around the machine during this operation.

17.1.2 Safety systems

The machine should only be operated in compliance with valid standards and regulations relating to the use of disinfectants (cf. data sheets for individual products). Rules relating to contact with machine parts potentially contaminated with pathogens also apply. Personal protective gear must be worn.

17.1.3 Procedure

If possible, run a disinfection program for the wash cabinet. Open the wash cabinet door and wipe with a suitable disinfectant.

Wipe all internal parts as well as any baskets and their contents.

Leave the disinfectant to act for the required amount of time (see the product data sheet or safety data sheet for the disinfectant in question).

When performing maintenance on parts of the machine which have not been reached by the disinfectant, take appropriate precautions and use suitable safety gear.

17.1.4 Decontamination procedures

Before making repairs or replacing mechanical parts (e.g., drain pump, heating elements, etc.) in cases where disinfection has not been completed, the disinfection procedure must first be carried out in order to eliminate any pathogenic residues.

17.2 Maintenance reminder

The machine displays the “Maintenance” reminder after a specified time or after a specified number of operating hours. This warning does not affect the normal use of the machine.

17.3 Routine maintenance work

Routine maintenance includes all work aimed at keeping various parts of the machine clean and functional. Such work must be performed on a regular basis or when it is considered necessary. Since these are simple cleaning tasks, they are normally performed by the machine operators at their own risk. The following table shows the various routine maintenance tasks, their frequency, and who is to perform them.

Each task is described in more detail on the following pages.

17.4 Table of routine maintenance tasks

CLEANING AND MAINTENANCE WORK		
FREQUENCY	TASK	PERSON RESPONSIBLE
DAILY	<ul style="list-style-type: none">– Clean the filters in the wash cabinet.– Check the fill level of the containers on a regular basis, at least once a day.	User
WEEKLY	<ul style="list-style-type: none">– Check that the spray arms can rotate freely. Open caps and rinse inside the spray arms.Check and clean the nozzles.	User

Note:

Routine maintenance tasks must be performed at the intervals specified in the table and in accordance with the daily checklists.

However, we recommend performing work as and when needed and not to wait until the next scheduled maintenance.








WARNING

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

MAINTENANCE

CLEANING THE MACHINE CASING		
	Responsible person: User	Frequency: Daily
<p>PROCEDURE: Use a damp cloth to clean the machine casing. Use only pH-neutral detergents. Do not use abrasive detergents, solvents, and/or thinners.</p> <p>CLEANING THE CONTROL PANEL: Clean the control panel with a damp cloth and dish detergent. Do not use abrasive detergents, solvents, and/or thinners.</p>		


DESCALING		
	Responsible person: User	Only required for machines without an internal water softener. Frequency: Weekly; daily with high water consumption or hard water.
<p>PROCEDURE: The machine must always be empty when descaling is carried out. Add 50 ml of descaling agent directly to the wash cabinet. Start a cleaning program and allow to run until completion.</p>		

CLEANING FILTERS IN THE WASH CABINET		
	Responsible person: User	Frequency: Daily
PROCEDURE: Clean the drain filters in the cabinet as follows:		
<ul style="list-style-type: none">Open the wash cabinet door and remove the filter insert.		
<div><p>Warning: Hot surfaces</p></div>		
		
<ul style="list-style-type: none">Remove the filter combination from the wash cabinet.		
		
<ul style="list-style-type: none">Unscrew the threaded pin and remove the filter basket cover.		
<div></div>		
<ul style="list-style-type: none">Clean the drain filter insert. Remove residues.Remove any deposits from the wash cabinet drain and clean.		

MAINTENANCE



- Replace the clean filter.
- Replace the cover. Secure with the threaded pin.
- Replace the filter combination.

CLEANING THE THERMOSTAT PROBE IN THE WASH CABINET		
	Responsible person: User	Frequency: Every 6 months
PROCEDURE: Clean the thermostat probe in the cabinet as follows:		
<ul style="list-style-type: none">• Open the wash cabinet door and remove the filter insert.		
<div></div> <ul style="list-style-type: none">• Visually check the thermostat probe in the cabinet.• If there are incrustations, clean the thermostat probe using a damp cloth and an appropriate detergent.		
Take care not to damage or move the probe.		

CLEANING THE SPRAY ARMS		
	Responsible person: User	Frequency: Weekly
PROCEDURE: Clean the spray arms as follows:		
<ul style="list-style-type: none"> Open the wash cabinet door and remove the filter insert. 		
<div style="text-align: center;">  <p>Warning: Hot surfaces</p> </div>		
		
<ul style="list-style-type: none"> Unscrew the fastening pins of the two spray arms and remove the spray arms. 		
		
		
<ul style="list-style-type: none"> Unscrew the seal on the rear of the nozzle and remove it. Remove any incrustations from the washing nozzle and clean using an appropriate detergent. Replace the end caps. Make sure the seal is properly positioned and in good condition. Replace it if necessary. Reinstall the spray arms. Secure with the fastening pins. 		

MAINTENANCE

17.5 Drying air filtration

The machines are equipped with an air filter (class 5) in accordance with EN 779 as well as a HEPA H14 filter in accordance with EN 1822 as standard. The filters will be replaced during maintenance by a Miele service technician.

17.6 Special maintenance

Special maintenance work should only be performed by qualified, skilled personnel.

If your machine requires special maintenance to resolve a fault, please contact Miele Service.

17.6.1 Table of special maintenance work

CLEANING AND CHECKING OPERATIONS		
FREQUENCY	ACTION	OPERATOR
Special maintenance tasks must be carried out by Miele Service after 1,000 operating hours or every 12 months at the latest.	<ul style="list-style-type: none">• Filters in valves: Check, clean, and replace as necessary.• Change the pre-filter.• Change the HEPA filter.• Maintenance of dispensing systems.• Check the temperature sensor.• Safety thermostat: Check the sensor.• Solenoid valves: Check for leaks.• Drain pump: Check for leaks.• Check the pressure switches.• Check piping and seals.	SERVICE

18. PROBLEMS – CAUSES – REMEDY

18.1 Introduction

This chapter includes possible problems which may occur during machine operation, along with their causes and solutions.

If the problems persist or become a more regular occurrence even after having carried out the instructions in this chapter, please contact Miele Service.

18.2 Problems (P) – Causes (C) – Remedy (R)

P. MACHINE DOES NOT START:

C. Circuit breaker deactivated.

R. Check the power supply.

P. WASH PROGRAM DOES NOT START:

C. The door is not closed correctly.

R: Check door closure.

C. Lack of process chemicals.

R. Replace the chemical container and select "Fill DOSx".

P: MACHINE DOES NOT REACH SET TEMPERATURE FOR THE SELECTED PROGRAM:

C. Deposits on thermostat probe in wash cabinet.

R. Clean the thermostat probe in the wash cabinet as described under "Maintenance".

P. MACHINE DOES NOT PROPERLY RUN WASH PROGRAM:

C. The nozzles are clogged by deposits or limescale.

R. Clean the nozzles or spray arms as described under "Maintenance".

C. Lack of water.

R. Ensure sufficient water pressure and remove blockages.

C. Insufficient water supply for the relevant program.

R. Shut off the water supply and clean the inlet filters (SERVICE).

P. INCORRECT DISPENSING:

C. Chemical dispenser pump is not working properly.

R. Perform routine maintenance and contact Miele Service or an authorized and trained service technician.

P: MACHINE DOES NOT DRY:

C. Air filter of drying system is dirty or clogged.

R. Contact Miele Service to replace the filter.

C. The fan of the drying system does not work.

R. Contact Miele Service or an authorized and trained service technician.

DISPOSING OF YOUR OLD MACHINE

19. DISPOSING OF YOUR OLD MACHINE

Please note that the machine may contain contamination from blood and other bodily fluids, pathogens, facultative pathogens, genetically modified material, toxic or carcinogenic substances, heavy metals, etc., and must be decontaminated before disposal.

For environmental and safety reasons, dispose of all process-chemical residues in accordance with safety regulations. Wear gloves and protective goggles.

Make the door lock inoperable, so that children cannot accidentally shut themselves in the machine. Then make appropriate arrangements for safe disposal of the machine.

Old electrical and electronic appliances often contain valuable materials. However, they also contain harmful substances which were essential for their correct functioning and safety. These could be hazardous to human health and to the environment if disposed of with household waste or if handled incorrectly. Therefore, please do not dispose of your old machine with household waste.



Please dispose of it at your local community waste collection/recycling centre. Consult your dealer if necessary. You are also responsible (by law, depending on country) for deleting any personal data that may be stored on the appliance being disposed of. Please ensure that your old appliance poses no risk to children while being stored for disposal.



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