

Operating instructions
Lab washers
PLW 6011
PLW 6111

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GENERAL RULES

1. GENERAL RULES

The washer-disinfector is generally referred to as “the machine” in these operating instructions. Reprocessable laboratory glassware and utensils are referred to as “load 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 consider the intended use of the machine
- Always carry out the required maintenance work
- Use of the machine should be limited to persons who have been properly trained and instructed on the use of the machine
- 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 this instruction manual with the machine for future reference.

If the machine is sold or transferred, the manual 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.

Read the warnings carefully before installing and using the machine.

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 Appropriate use

This machine is used to reprocess laboratory glassware and laboratory utensils using water. 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 a washer-disinfector.

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 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 load carrier (mobile unit, basket, module, insert, etc.) is important to ensure adequate reprocessing of the load.

The machine can be qualified for process validation.

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

	CAUTION
	Inappropriate use can lead to personal injury and damage to property.
	Miele cannot be held liable for damage caused by improper or incorrect use or operation of the machine.

2.2 Safety instructions and warnings

This machine complies with all statutory safety requirements. Inappropriate 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 Appropriate use

▶ Use of the machine is only approved for the applications stated in the operating instructions. Alterations or conversion of the machine, or using it for purposes other than those for which it was intended, are not permitted and could be dangerous.

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

2.2.2 Risk of injury

Please pay attention to the following notes to avoid injury

▶ The machine may only be installed, commissioned, repaired and maintained by the Miele Customer Service Department or a suitably qualified service technician. A Miele service contract is recommended to ensure full compliance with GLP guidelines. 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.

▶ With some metal parts, there is a risk that you may be injured or cut. Wear cut-resistant protective gloves when transporting and setting up the machine.

▶ The electrical safety of the machine can only be guaranteed when it is correctly earthed. It is essential that this standard safety requirement is observed and regularly tested. If in any doubt, please have the electrical installation inspected by a qualified electrician. Miele cannot be held liable for the consequences of an inadequate earthing 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 the Miele Customer Service Department.

▶ Machine operators must 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 load and the machine.

▶ Take care when using 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 designed for use with water and appropriate 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.

- ▶ The water in the wash chamber 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 could still be very hot. Empty this water into the wash chamber 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 power 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 loads being cleaned.

- ▶ Only authorised personnel may interrupt a programme 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 current health and safety regulations.
- ▶ Only reprocess undamaged and suitable items. When washing plastic items, ensure that they are thermally resistant. Nickel-plated items and items made of aluminium 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 chamber as wash items or soiling.
- ▶ Under certain circumstances, process chemicals may damage 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 agents containing chlorine can damage the elastomers of the machine. If cleaning agents containing chlorine have to be used, a maximum temperature of 70 °C in the “Main wash” programme blocks is recommended (see programme chart).
- ▶ 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 load must be removed completely before reprocessing.
- ▶ Pre-treatment with cleaning or disinfecting agents, some types of stains 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 chamber. 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, Miele takes no responsibility for the effect of such chemicals on the load 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, such as detergents, 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 load must be used only as intended.
Lumened 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 any containers or utensils before loading them.
- ▶ The amount of residual solvents on items going into the wash chamber should be minimal. There should be no more than a trace of any solvents with a flash point of below 21 °C.

PRODUCT INFORMATION

- ▶ Chloride solutions, in particular hydrochloric acid, or ferrous materials that can rust or corrode must not be placed in the chamber.
- ▶ 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 an unsatisfactory cleaning and disinfection result. Any resultant damage would not be covered by the warranty.

2.2.6 Disposing of your old appliance

- ▶ 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

To inform operating personnel of their obligations and to warn of residual risks, the machine is equipped with safety labels in accordance with the relevant legislation.

General warning signs



Caution!
Danger of electric shock!



Caution!
Observe the operating instructions!



Caution!
Hot surfaces!

The evaluation of risks for the health and safety carried out on-site, as well as the evaluation of residual risks, determine the safety equipment which the supervisor must provide for the user.

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

PRODUCT INFORMATION

2.3 Technical data

	PLW 6011	PLW 6111
Width (mm)	650	650
Depth with closed door (mm)	660	687
Height (mm)	1685	1840
Total weight (kg)	185	236
Average sound pressure level	< 70 dB(A)	
Protection rating (according to IEC 60529)	IP 21	
Backflow preventer (according to EN 1717)	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. (EN 1717) AA – Air gap not limited	
Operation	Temperature range +5 to +40 °C Relative humidity range 20 to 90 % without condensation Maximum altitude: 2000 m (special versions of the device are available for higher altitudes)	
Storage and transportation conditions	-5 ... +50 °C 20 % to 90 % without condensation 500 hPa to 1060 hPa	
Overvoltage category (according to IEC EN 60664)	II	
CE mark	2006/42/EC Machinery Directive	
Manufacturer address	Steelco S.p.A Via Balegante, 27 31039 Riese Pio X (TV), Italy	

2.4 Recommendations for proper operation

- The user must supervise the machine during operation.
- Only use process chemicals which have been approved by their manufacturer for the relevant application. The manufacturer of the process chemicals is liable for any negative influences on the material of the load and the machine.
- 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 objects.
- 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 load items.
- The machine is designed 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 result in premature wear on components.
- Solvent residues, chloride solutions and acids, particularly hydrochloric acid, can damage steel components and must not be introduced into the wash chamber.
- Do not use powder cleaning agents.
- 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 load for cleanliness.
- The on-site stopcock must be easily accessible so that the inlet can be turned off when not in use.

PRODUCT INFORMATION

2.5 Training

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

It is the duty of the supervisor 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 the Miele Customer Service Department or an authorised service technician.

ADMIN Responsible for the machine in the workplace:

More advanced tasks, e.g. interrupting or cancelling a programme, 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 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 load and in the machine.

Water with a hardness level higher than 0.7 mmol/l (4 °dH – German scale) must be softened. This occurs automatically during a programme 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 supply. The water softener must be reactivated at regular intervals. This requires the use of special reactivation salt. Reactivation is carried out automatically during a programme sequence. Softened water must be provided on site for machines without a built-in water softener.

Note: The water hardness is set by the Miele Customer Service Department.



CAUTION

Water from the chamber is not suitable for drinking!

The machine must be connected to the water supply in strict accordance with local regulations.

The water used must comply with European regulations for drinking water quality as a minimum. If the water supply has a high iron content, there is a danger of corrosion occurring on items being cleaned in the machine, as well as the machine itself. If the chloride content of the water exceeds 100 mg/l, the risk of corrosion to the load 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 supplied as standard for connection to cold water (blue coded hose) and hot water up to max. 60 °C (red coded hose). Connect the inlet hoses to the 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 DI water connections is 100 kPa.

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


The **maximum permissible static water pressure** is 800 kPa.

A booster pump is required if the flow pressure is below 100 kPa. If the pressure is higher than 800 kPa (8 bar), a pressure reducer must be installed.

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

INSTALLATION

A stopcock valve with a 3/4" male 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.


	CAUTION
	Do not overtighten the threaded unions on the hoses.

3.1.2 Information:

- 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 non-compliance with the safety instructions and warnings.
- Non-compliance with the above conditions will render the warranty invalid.


	CAUTION
	When the machine is not in operation, always close the stopcocks.

3.2 Electrical connection

	CAUTION
	Only qualified, skilled personnel may connect the machine to the power supply.

- It is recommended that the machine is connected to the mains electrical supply via a suitably rated plug and socket that complies to all local and national standards.
- 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 +/-10 %.
- The frequency of the power supply must not differ from its nominal value by more than 1 %.
- The electrical safety of the machine can only be guaranteed when it is correctly earthed. Equipotential bonding is required.
- Make sure that the electrical systems are properly earthed.
- The earth conductor is to be connected to the earth terminal identified by the standard symbol.
- If the machine is hard-wired to the power supply, it must be connected via a power switch with all-pole isolation. The power switch must be designed to operate at the rated current. It is recommended that the machine is connected to the mains electrical supply via a suitably rated plug and socket.
- For increased safety, it is recommended to protect the machine with a suitable residual current device (RCD) with a trip current of 30 mA (DIN VDE 0664).
- 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.



	CAUTION
	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)	German scale (°dH)	Parameter setting
0–10	0–1.01	0–5.60	Value 10
11–15	1.11–1.51	6.16–8.40	Value 15
16–20	1.61–2.02	8.96–11.20	Value 20
21–25	2.12–2.52	11.76–14.00	Value 25
26–30	2.62–3.03	14.56–16.80	Value 30
31–35	3.13–3.53	17.36–19.60	Value 35
36–40	3.64–4.04	20.16–22.40	Value 40
41–45	4.14–4.55	22.96–25.20	Value 45
46–50	4.65–5.05	25.76–28.00	Value 50
51–55	5.15–5.56	28.56–30.80	Value 55
56–60	5.66–6.06	31.36–33.60	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 dishwasher salt or other pure evaporated salt for reactivation. 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 dishwasher salt is located in the base of the wash chamber 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 supply container contains approx. 780 g of salt.



CAUTION!

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 load and on wash chamber surfaces.

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



CAUTION!

Always run the “Rinse” programme 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.



CAUTION!

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

DISPENSING

5. DISPENSING

The dispensing system for process chemicals comprises:

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

Additional dispenser pumps can be fitted by the Miele Customer Service Department or an authorised service technician.

5.1 Fill level sensor

Each dispenser pump is fitted 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 plinth of the machine.
- Remove the siphon and place it on a chemical-resistant and easy-to-clean surface.
- Insert the siphon into the new container.
- Place the container in the plinth of the machine.
- Close the door in the plinth.
- Start the appropriate programme for venting the DOS pump (see the “Fill DOS (1–4)” programme table).

	CAUTION
	Only use process chemicals designed specifically for use in the machine and follow the chemical manufacturer's instructions.
	Take care when using process chemicals. Some agents may be corrosive and irritant. The relevant safety regulations and safety data sheets issued by the process chemical manufacturers must be observed. Wear protective gloves and goggles.
	The chemical compartment in the plinth of the machine is accessed using a key. The compartment may only be accessed by authorised personnel.

5.4 Caution!

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

	CAUTION
	<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 gloves and goggles.
- Follow the instructions for dispensing chemicals.

	CAUTION
	Take care when using process chemicals. Some agents may be corrosive and irritant. The relevant safety regulations and safety data sheets issued by the process chemical manufacturers must be observed. Wear protective gloves and goggles.

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 programme is running.


There is a risk of burning if contact is made with the door glass while a programme is running.



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

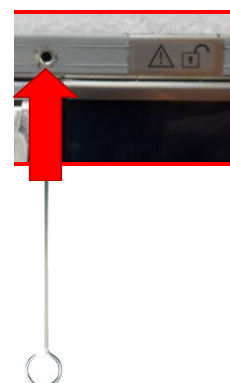
6.2.1 Emergency release

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 cut.

	CAUTION
	If the emergency release is operated during a programme sequence, hot water and process chemicals can escape. The load, the load carrier and the wash chamber 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 cut 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. Push 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 the 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 cleaning machine and check the compatibility with the chemicals used during the wash programmes.
- Place the items carefully into the load carriers.
- Make sure that load items are not shielded or concealed by other items.
- Position load items in such a way that fluids can drain off freely.
- Tall or heavy items should be placed towards 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 load evenly across the baskets.
- The mobile units, baskets, modules and inserts that hold the load 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 items where they may be concealed. Do not place items so close together that cleaning is hampered.
- Arrange the load so that 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 resistant.

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

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

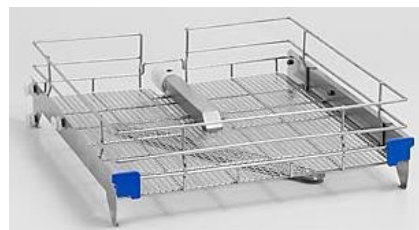
Before starting to use the machine, make sure that all the routine checks have been carried out. Check the spray arm rotation.

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

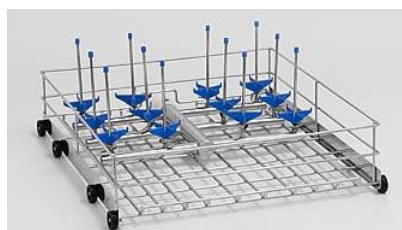
Other accessories are available from Miele.



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 after a programme

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

	CAUTION
	Any lumened items which have become disconnected during reprocessing must be reprocessed.

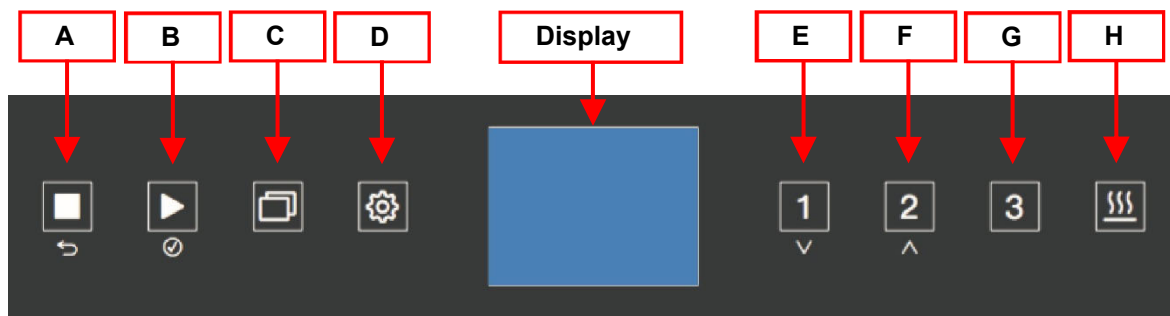
- Are the lumens free from obstructions?

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	Press once to interrupt a programme. <ul style="list-style-type: none"> “NO DISINFECTION” appears on the display. The door remains locked. An additional warning appears at a chamber temperature of more than 65 °C. Continue the programme by pressing the START button. The current wash phase is then repeated. Press twice to cancel a programme. <ul style="list-style-type: none"> The programme is cancelled and the door unlocked.
	↶	(cancel)	For cancelling a process in the user interface.
B	▶	START	For starting the programme.
	⊙	(confirm)	For selecting or confirming entries in the user interface.
C	☰	P+	For accessing the list of all additional programmes.
D	⚙	PRG	The menu incorporates all relevant functions. During standby: Press the button for 5 seconds to access the menu.
E	1	P1	Universal programme
	∨	(down)	For navigating in the user interface.
F	2	P2	Standard programme
	∧	(up)	For navigating in the user interface.
G	3	P3	Intensive programme
H	☰	DRY	Drying function. The drying function can be activated or deactivated before starting a programme.

7.2.1 Buzzer

The machine has an integrated buzzer. An audible signal sounds each time a button is pressed. If the machine develops a fault, a warning signal sounds (see “Warning and safety instructions”).

CONTROL PANEL AND SYMBOLS USED

7.3 Display

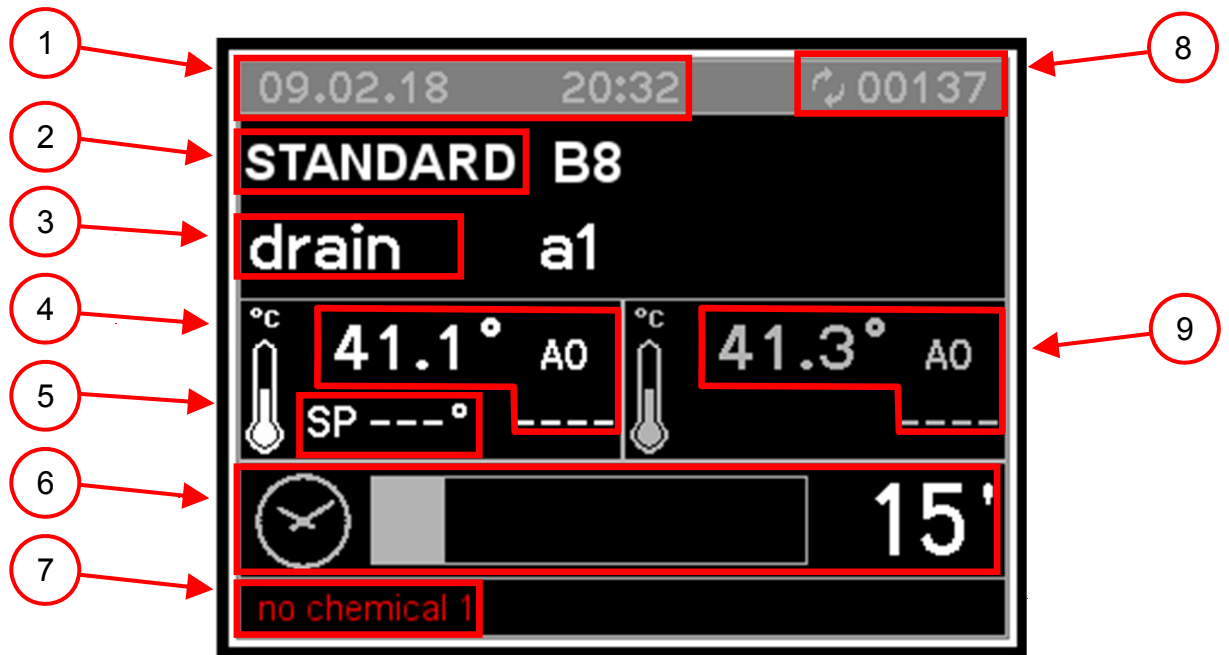


FIG. 1

The following information may appear on the display:

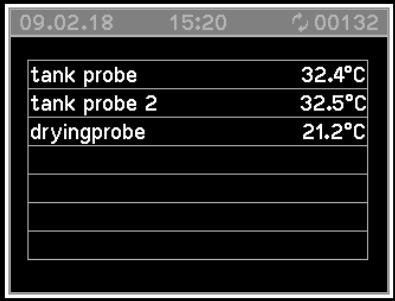

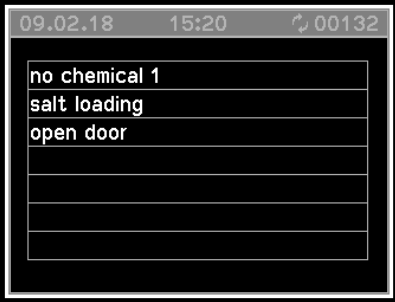

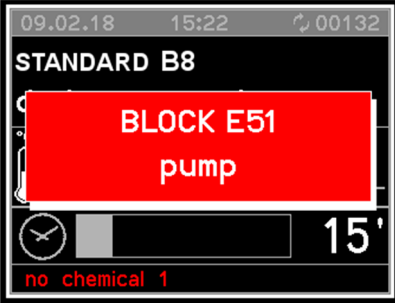
1. Date and time
2. Selected programme
3. Current wash phase
4. Temperature in wash chamber (sensor 1) with A0 value
5. Target temperature for current programme phase
6. Remaining time
7. Instructions and error messages
8. Cycle counter
9. Temperature in wash chamber (sensor 2) with A0 value


When the machine is ready for operation, the last selected programme, the temperature, the date and the time are displayed.

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

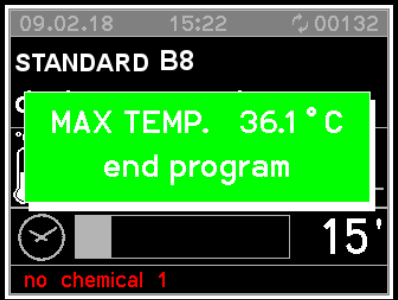
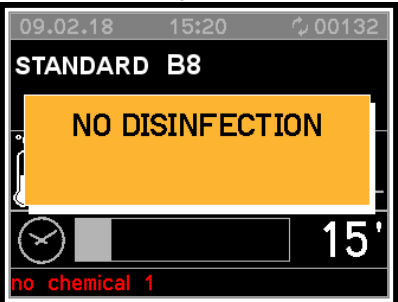
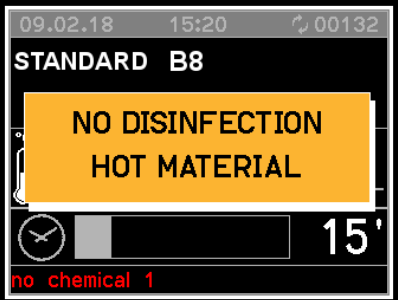
By pressing the P+ button, it is possible to scroll through all the available programmes.

CONTROL PANEL AND SYMBOLS USED












<p>FIG. 2</p>	
 <p>The screenshot shows a control panel display with a black background and white text. At the top, it displays the date '09.02.18', the time '15:20', and a program number '00132'. Below this, there is a list of three items: 'tank probe' with a value of '32.4°C', 'tank probe 2' with a value of '32.5°C', and 'dryingprobe' with a value of '21.2°C'. There are several empty lines below the list.</p>	<p>The temperature and pressure values can be displayed while a programme is running by pressing the PRG  button (Fig. 2).</p>
<p>FIG. 3</p>	
 <p>The screenshot shows a control panel display with a black background and white text. At the top, it displays the date '09.02.18', the time '15:20', and a program number '00132'. Below this, there is a list of three items: 'no chemical 1', 'salt loading', and 'open door'. There are several empty lines 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 black background and white text. At the top, it displays the date '09.02.18', the time '15:22', and a program number '00132'. Below this, the text 'STANDARD B8' is visible. A large red rectangular box with white text in the center reads 'BLOCK E51 pump'. At the bottom right, there is a timer showing '15' with a clock icon. 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>

In the event of an error which does not lead to the programme 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).








CONTROL PANEL AND SYMBOLS USED

<p>FIG. 5</p>  <p>The screenshot shows a control panel interface for 'STANDARD B8'. At the top, it displays the date '09.02.18', time '15:22', and a refresh icon with '00132'. A large green box in the center contains the text 'MAX TEMP. 36.1 °C' and 'end program'. Below this, there is a progress bar and a timer set to '15''. At the bottom, it says 'no chemical 1'.</p>	<p>At the end of the programme, a window appears (Fig 5).</p>
<p>FIG. 6</p>	
<p>Fig. 6.A</p>  <p>The screenshot shows a control panel interface for 'STANDARD B8'. At the top, it displays the date '09.02.18', time '15:20', and a refresh icon with '00132'. A large orange box in the center contains the text 'NO DISINFECTION'. Below this, there is a progress bar and a timer set to '15''. At the bottom, it says 'no chemical 1'.</p>	<p>If a programme was cancelled, a window appears indicating that disinfection did not take place (Fig. 6.A).</p>
<p>Fig. 6.B</p>  <p>The screenshot shows a control panel interface for 'STANDARD B8'. At the top, it displays the date '09.02.18', time '15:20', and a refresh icon with '00132'. A large orange box in the center contains the text 'NO DISINFECTION' and 'HOT MATERIAL'. Below this, there is a progress bar and a timer set to '15''. At the bottom, it says 'no chemical 1'.</p>	<p>If the temperature in a cancelled programme was 65 °C or lower, the message shown in Fig. 6.A is displayed.</p> <p>If the temperature was above 65 °C, the message shown in Fig. 6.B is displayed.</p>

8. PROGRAMMES

Programme	Button	Application
Quick wash		Short programme 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 programme for a range of soiling. For light soiling and low final 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 final rinse requirements.
Inorganic		For removing inorganic residues. General programme 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		For organic residues, e.g. heavy soiling or after sterilisation; 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 demineralised water recommended.
Plastic		For heat-sensitive loads such as plastic flasks (temperature resistance: at least 55 °C). For standard applications and analyses, light to medium levels of soiling and medium rinse requirements.
Pipettes		For pipettes
Oil		For heavy oil soiling such as crude oil, synthetic oils/lubricants, fuels and partially natural oils. The programme can also be used for removing fats and waxes. Connection to hot water and demineralised water recommended.
Disin 93/10		For cleaning and thermal disinfection at 93 °C with 10 minutes' temperature holding time.
Cold water rinse		Cold water rinse, holding time: 1 minute. For flushing out saline solution, rinsing heavily soiled loads, 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.

PROGRAMMES

Programme	Button	Application
AD rinse		Rinse with demineralised water (DI water, (ultra)pure water), holding time: 3 minutes.
Drying		Additional drying after the end of a programme.
Drain		For draining wash water, e.g. after a programme cancellation.
Fill DOS1		Primes the cleaning agent dispensing 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 neutralising 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 Programme blocks

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






8.2 Programme overview

Phase	Function		Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Drying
	Programme	Button	Pre-wash	Main wash	Main wash 2	Main wash 3	Neutralisation	Interim rinse 1	Interim rinse 2	Final rinse	Drying	
Quick wash				HW DOS 1 60 °C 180 s			HW DOS 3 120 s			DI 60 °C 60 s		120 °C 1800 s
Standard				HW DOS 1 70 °C 180 s			HW DOS 3 120 s	HW		DI 70 °C 60 s		120 °C 1800 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 1800 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 1800 s
Inorganic				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 1800 s




PROGRAMMES

Phase	Function		Washing	Main wash	Main wash 2	Main wash 3	Neutralisation	Washing	Interim rinse 1	Washing	Interim rinse 2	Washing	Drying	
	Programme	Button												
Organic				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 1800 s	
			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 1800 s	
Pipettes				HW DOS 1 70 °C 180 s			HW DOS 3 120 s	CW50 60 s			DI	DI 70 °C 60 s	100 °C 1800 s	
				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 1800 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 1800 s

PROGRAMMES

Phase	Function	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Drying
	Programme										
	Button										
Cold water rinse		CW 120 s	Main wash	Main wash 2	Main wash 3	Neutralisation	Interim rinse 1	Interim rinse 2	Final rinse	Drying	
AD rinse		DI 120 s									
Drying											120 °C 1800 s
Drain		Drain pump/valve is activated without the circulation pump.									
Fill DOS1			HW DOS 1 10 s					HW 10 s			

PROGRAMMES

Phase	Function	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Washing	Drying	
													Pre-wash
Programme	Button												
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, demineralised water (DI)

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 = Cleaning agent

DOS 2 = Additional liquid agent

DOS 3 = Neutralising 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 the programme

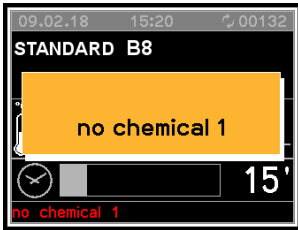
To start, proceed as follows:

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

MACHINE STATUS

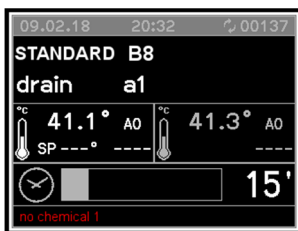
9. MACHINE STATUS

9.1 Ready for operation



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

9.2 Programme



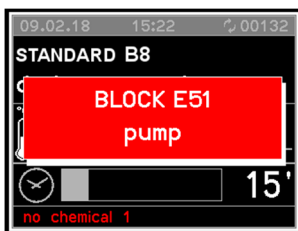
When the machine is ready for operation and the door is closed, it is possible to press the START ► button.

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

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

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 programme to be cancelled. The door remains locked.

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

9.4 Power failure

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

9.5 Reset

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

1. Press STOP ■ and START ► together 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 use 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 the Miele Customer Service Department or an authorised 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 the Miele Customer Service Department or an authorised service technician.

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

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

If the password is lost, contact the Miele Customer Service Department or an authorised 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 use” or “Malfunction” mode.

Main menu

- ↳ Standard programmes
View and copy programmes.
- ↳ Customer programmes
Create new customer programmes.
- ↳ Programme selection
Activate and deactivate programmes.
- ↳ 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 inserted 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 programme (0: no printout, 1: graphic printout 2: table printout, 3: printout on USB)	0	3	NUM
PRINTOUT	1	05	Printout results of current programme; 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 programme (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=OFF 1=ON	0	7	SEL
KEYBOARD	2	07	Font types (0=European, 1=European+Japanese, 2=European+Cyrillic)	0	2	NUM

CLOCK

11. CLOCK

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

12. BUZZER

The buzzer 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)









During a programme, operating data is recorded.

The internal memory is able to save up to 200 programmes. 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 the START  button.
- 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.

WARNINGS AND EVENTS LIST

14. WARNINGS AND EVENTS LIST

Messages and warnings may appear on the display during operation.

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

14.1 Warnings list

Warning	Display message	Description
1	power fail	Power failure during programme
2	open load. door	Loading door open and/or unlocked during a programme.
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	Chamber temperature exceeds 102 °C. (= max. setting 95 °C + safety level 7 °C) (Tank heating switch or tank sensor defective)
28	dryingprobelim°C	Air temperature exceeds 162 °C. (= max. setting 150 °C + safety level 12 °C) (Drying heating switch or air sensor defective)
29	boilerprobelim°C	Tank 1 temperature exceeds 100 °C. (= max. setting 80 °C + safety level 20 °C) (Tank 1 heating switch or tank 1 sensor defective)
30	tank probe	Chamber temperature sensor 1 fault
31	tank probe 2	Chamber temperature sensor 2 fault
32	drying probe	Drying temperature probe fault
33	boiler probe	Boiler temperature probe fault

WARNINGS AND EVENTS LIST

Warning	Display message	Description
34	check temp.	Temperature difference between the two sensors is greater than 1 °C.
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 chamber. 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 (demineralised 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.

WARNINGS AND EVENTS LIST

14.2 List of display messages

Display message	Description
press start	Programme 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 dishwasher 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 -	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 programme with the START button during printing.
NO DISINFECTION	Programme interrupted. Load not disinfected.

USB PORT (OPTIONAL)

15. USB PORT (OPTIONAL)

Testing and transmission point for the Miele Customer Service Department.



16. PROCESS DOCUMENTATION

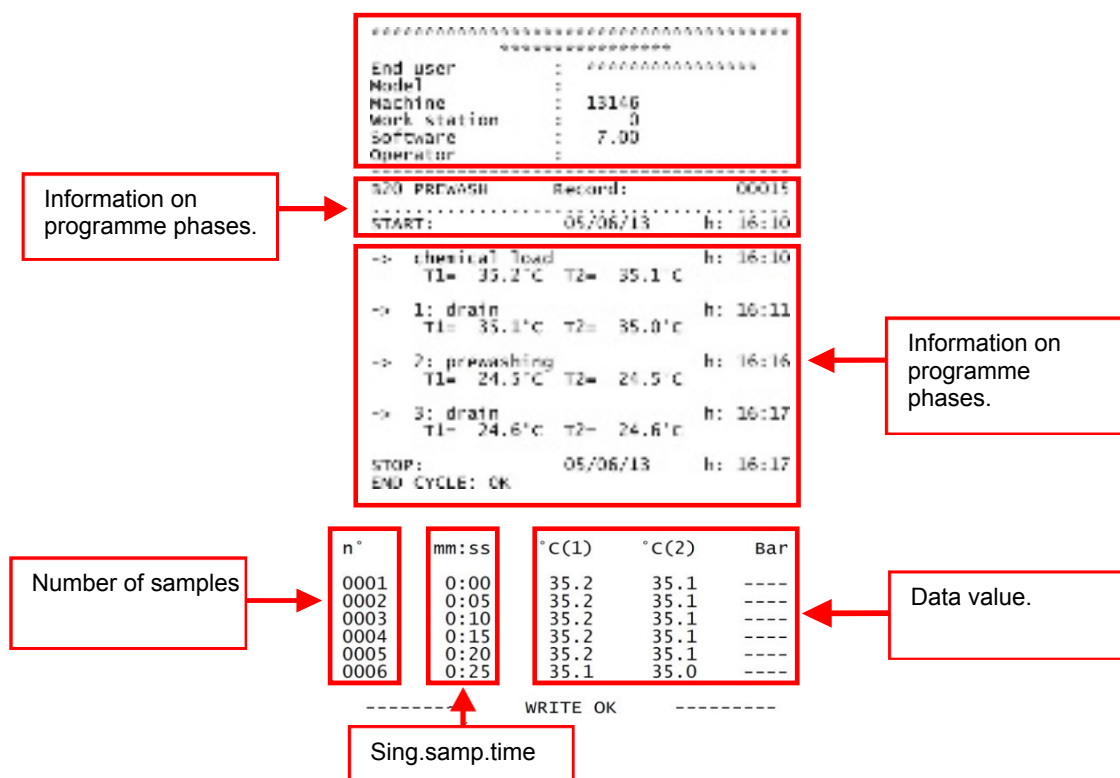
16.1 Serial interface

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: 2400 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 further information, please contact the Miele Customer Service Department or an authorised service technician.

16.3 USB port

Testing and transmission point for the Miele Customer Service Department.

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 the safety of others in the vicinity is not compromised.

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 programme for the wash chamber. Open the wash chamber 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

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 chamber. – 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 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.

	CAUTION
	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
PROCEDURE: Use a damp cloth to clean the machine casing. Use only pH-neutral detergents. Do not use abrasive detergents, solvents and/or thinners.		
CLEANING THE CONTROL PANEL: Clean the control panel with a damp cloth and washing-up liquid. Do not use abrasive detergents, solvents and/or thinners.		

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

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

MAINTENANCE

	
<ul style="list-style-type: none">• Replace the clean filter.• Replace the cover. Secure with the threaded pin.• Replace the filter combination.	

CLEANING THE THERMOSTAT PROBE IN THE WASH CHAMBER	
Responsible person: User	Frequency: Every 6 months
PROCEDURE: Clean the thermostat probe in the chamber as follows:	
<ul style="list-style-type: none">• Open the wash chamber door and remove the filter insert.	
	
<ul style="list-style-type: none">• Visually check the thermostat probe in the chamber.• 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: Every week
PROCEDURE: Clean the spray arms as follows:	
<ul style="list-style-type: none"> Open the wash chamber door and remove the filter insert. 	
 <p>Attention: Hot surfaces</p>	
	
<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. 	
<ul style="list-style-type: none"> Remove any incrustations from the washing nozzle and clean using an appropriate cleaning agent. Replace the end caps. Make sure the seal is properly positioned and in good condition. Exchange it if necessary. Refit 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 the Miele Customer Service Department.

17.6.1 Table of special maintenance work

CLEANING AND CHECKING OPERATIONS		
FREQUENCY	ACTION	OPERATOR
Special maintenance tasks must be carried out by the Miele Customer Service Department after 1000 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 the Miele Customer Service Department.

18.2 Problem (P) – Cause (C) – Remedy (R)

P. MACHINE DOES NOT START:

- C.** Circuit breaker deactivated.
- R.** Check the power supply.

P. WASH PROGRAMME DOES NOT START:

- C.** Door 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 PROGRAMME:

- C.** Deposits on thermostat probe in wash chamber.
- R.** Clean the thermostat probe in the wash chamber as described under “Maintenance”.

P. MACHINE DOES NOT PROPERLY RUN WASH PROGRAMME:

- C.** 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 programme.
- 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 the Miele Customer Service Department or an authorised and trained service technician.

P: MACHINE DOES NOT DRY:

- C.** Air filter of drying system is dirty or clogged.
- R.** Contact the Miele Customer Service Department to replace the filter.
- C.** The fan of the drying system does not work.
- R.** Contact the Miele Customer Service Department or an authorised 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 general waste or if handled incorrectly. Please do not, therefore, dispose of your old appliance with general waste.



Make use of local waste collection/recycling centres for electrical and electronic devices. Consult your dealer if necessary. National legislation may require the deletion of personal data saved on the machine before disposal. Please ensure that your old appliance poses no risk to children while being stored prior to disposal.

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