Operating instructions
Washer-disinfector
G 7824

To avoid the risk of accidents or damage to the machine, it is essential to read these instructions before it is installed and used for the first time.
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This Miele washer-disinfector is designed to clean, rinse, disinfect and dry re-usable medical devices and accessories. Always comply with the manufacturer’s instructions for the particular medical devices (EN ISO 17664; CAN/CSA-Z17664).

**Typical applications include:**

- surgical instruments,
- minimally invasive instruments,
- instruments for anaesthetics and intensive care,
- baby bottles and teats,
- OR shoes
- rigid sterilization containers made of stainless steel and aluminum (including colour anodized aluminum),

In this operating manual, the general term instruments is used to cover a range of reusable medical devices.

Reprocessing instruments by machine achieves reproducible results and should be used in preference to processing by hand. Where disinfection is required to protect staff and/or patients, the preference is thermal disinfection, e.g. with the DES-VAR-TD process.

According to the $A_0$ concept described in EN ISO 15883-1 (CAN/CSA-Z15883-1-09), thermal disinfection occurs at $80^\circ C$ (± $5^\circ C$, ± $0^\circ C$) with 10 min holding time ($A_0$ 600), or at $90^\circ C$ (± $5^\circ C$, ± $0^\circ C$) with 5 min holding time ($A_0$ 3000), depending on the disinfection result required. The efficacy standard $A_0$ 3000 includes the inactivation of HBV.

Regional and/or other official directives may apply (e.g., CSA Z314.8 Decontamination of reusuable Medical Devices).

The cleaning parameters should always be optimally matched to the type of soiling and instruments involved. The processing chemicals used for reprocessing the products should be matched to the particular cleaning needs, and where applicable, to the analysis / analytical methods involved.

The cleaning result must ensure that the instruments can be disinfected correctly, that no residues are left behind, that subsequent sterilisation can be carried out and that the instruments can be used again safely. Re-usable medical devices are best reprocessed using the DES-VAR-TD process, or where applicable, the OXIVARIO or ORTHOVARIO processes.
Intended use

The use of a suitable carrier (wash carts, modules, insert, etc.) is important to ensure the adequate cleaning of the load. Examples are given in the section “Areas of application”.

The washer-disinfector is programmed to carry out the final rinse with mains water or with processed water of a quality to suit the application (e.g. purified water, fully demineralised water or demineralised water).

This washer-disinfector complies with EN ISO 15883 (CAN/CSA-Z15883).

User profiles

Daily-routine operators

For daily-routine operation of the washer-disinfector, operators must be instructed and receive regular training in the basic functions and loading of the washer-disinfector. They require a basic knowledge of machine reprocessing of medical devices.

Tasks for daily-routine work are located in operating levels A and C.

Daily-routine supervisors

Advanced knowledge of the machine-based reprocessing of medical devices is required for more complex tasks such as program interruption or program cancellation.

These tasks take place on operating level B.

Service tasks and administration

Additional expertise is required for changing the processes or adjusting the washer-disinfector, e.g. to suit accessories that are used or the site conditions.

This requires special expertise in the machine-based reprocessing of medical devices, in the reprocessing technology and the applicable standards and legislation.

Service tasks and alterations are carried out on operating level D.
Overview

1. Handle
2. "Profitronic" electronic control system
   (also see Programming manual)
3. Controls
4. Master switch with "Emergency cut off" button
5. Drop-down door (closed)
6. Service panel
Guide to the machine

Unclean (infeed) side

① Filler port for salt container (water softener)
② Filter combination
③ Drop-down door (open)
④ Containers for dispensing systems DOS 1 / DOS 3, and optional DOS 2 / DOS 4
Guide to the machine

Clean (outfeed) side

1. Handle
2. Door release
3. Drop-down door (closed)
4. Printer (optional)
5. Service panel
Guide to the machine

Controls

1. **Display**
   with screen saver; i.e. the background lighting switches itself off automatically after approx. 15 minutes; press any button to switch the display lighting back on

   During operation, any error messages occurring will be shown in the display. A chart listing all error messages that can appear in the display is given in the Programming Manual.

2. **On/Off button (I-0)**

3. **Cursor button left ⬅**
   Moves the cursor to the left:
   - to the previous menu item
   - to the previous parameter
   - to the previous entry point

4. **Cursor button right ➡**
   Moves the cursor to the right:
   - to the next menu item
   - to the next parameter
   - to the next entry point

5. **Minus button ➑**
   - Program selection for program slots 24 and above
   - Scrolls back page by page in menus
   - Used to enter letters and numerals
   - Used to change defaults, e.g. service parameters
Guide to the machine

6 Plus button
   - Program selection for program slots 24 and above
   - Scrolls forward page by page in menus
   - Used to enter letters and numerals
   - Used to change defaults, e.g. service parameters

7 Door switch

8 Start button
   - Starts a program
   - Activates the programming mode
   - Confirms the values and settings
   - Confirms menu items to enter the corresponding sub-menu

9 Stop button
   - Cancels a program
   - Exits the programming mode without saving
   - Exits from the menu

10 Service interface

11 Program selector
   Select program slots 1-23
Warning and Safety Instructions

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

Correct application

- This washer-disinfector is designed for use with the applications described in these Operating Instructions only. Alterations or conversions to the machine, or using it for purposes other than those for which it was designed, are not permitted and could be dangerous. This machine must only be used for cleaning and disinfecting instruments or medical devices if the manufacturer has stated that they are suitable for machine reprocessing. Manufacturer’s cleaning and maintenance instructions for instruments etc. must also be observed. Miele cannot be held liable for damage caused by improper or incorrect use or operation of the machine.

- This washer-disinfector is intended for indoor use only.

Please pay attention to the following notes to avoid injury!

- The washer-disinfector should be commissioned, maintained and repaired by a Miele service technician only. To ensure compliance with Medical Device Regulations and Guidelines, a Miele service contract is recommended. Unauthorised repairs can pose considerable risks or cause personal injury to the user.

- Do not install the washer-disinfector in an area where there is any risk of explosion or of freezing conditions.

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

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

- Machine operators must be trained on a regular basis. Untrained personnel must not be allowed access to the washer-disinfector or its controls.
Always exercise caution when handling the process chemicals for this machine. These products may contain irritant, corrosive or toxic ingredients.

Always comply with safety requirements and the manufacturer’s safety instructions (see safety data sheets)!

Use protective eyewear and gloves!

The washer-disinfector is designed to operate with water and the recommended processing chemicals only. The machine must not be operated with organic solvents or flammable liquids!

This could cause an explosion, property damage due to the destruction of rubber and plastic components, and the resulting leakage of liquids.

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

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.

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

If toxic chemical substances can form in the wash water during processing (e.g. aldehydes in the disinfectant), the door seal and, if applicable, the function of the steam condenser must be checked regularly.

In this event, opening the door of the washer-disinfector during a program interruption is particularly hazardous.

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

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

After drying with the drying unit, leave the door open at first to allow the items, wash carts, modules and inserts to cool down.

Steam heating is permissible up to a pressure of 1000 kPa (145 psi). This corresponds to a water steam temperature of 179 °C.

Do not hose down the washer-disinfector or the immediate vicinity, e.g. with a water hose or pressure washer.

The washer-disinfector must be disconnected from the mains electricity supply before any maintenance or repair work is carried out.
The following points should be observed, to assist in maintaining quality standards when reprocessing medical devices, in order to protect patients, and to avoid damage to property.

- If the washer-disinfector is being used for disinfection ordered by the authorities, the steam condenser and its connections to the wash chamber and outlet discharge must be disinfected before any repair or exchange.

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

- It is the responsibility of the operator to routinely check that the required cleaning and disinfection standards are being met. Therefore, process results need to be regularly tested and documented, both thermo-electrically and through inspection. For thermochemical processes, additional testing is required using chemical or biological indicators.

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

- The disinfection of medical devices is carried out by means of thermal disinfection. The disinfection of items that are not heat-resistant (e.g. OR shoes) can be carried out using the CHEM-DESIN program with the addition of a chemical disinfectant. The disinfection parameters are based on claims made by the disinfectant manufacturers. Their instructions on handling, use and efficacy must be observed. The use of chemical disinfection procedures is the responsibility of the operator. Chemical disinfection processes of this type are not suitable for the reprocessing of medical devices.

- Under certain circumstances processing chemicals can cause damage to the washer-disinfector. Always follow the recommendations of the processing chemical manufacturers. In case of damage or doubt about compatibility, please consult with Miele.

- Do not use any abrasive process chemicals in the washer-disinfector. These can cause damage to machine components, e.g. the spray arm bearings. If such chemicals are used for manual pretreatment of containers or instruments, these must be removed without trace prior to reprocessing in the washer-disinfector.

- Pre-treating (e.g. with cleaning agents or disinfectants), some types of soiling and the interaction of certain processing chemicals can cause foaming. Foam can have an adverse effect on the cleaning and disinfection results obtained.
The process must be set so that no foam escapes the wash compartment. Escaping foam jeopardizes the safe operation of the washer-disinfector.

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

To prevent material damage to the washer-disinfector and accessories used from the effects of processing chemicals, soiling and their interaction, follow the notes in chapter "Chemical Processes and technology".

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

When using processing chemicals, always follow the instructions of the chemicals manufacturer. In order to avoid material damage and possibly violent chemical reactions (such as explosive hydrogen gas reactions), use processing chemicals only for the applications intended by the manufacturer.

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

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

Wash carts, modules and inserts should only be used as intended by the manufacturer. Hollow items must be positioned for full exposure to wash water, internally and externally.

Empty all containers and hollow utensils before loading them into the machine.

The amount of residual solvents and acids on items going into the wash chamber should be minimal. This applies in particular to hydrochloric acid, chloride solutions and corroding ferrous materials. Only trace amounts of any organic solvents should be present in any soiling.

To avoid corrosive damage, make sure the stainless steel housing does not come into contact with solutions or steam containing hydrochloric acid.
After any plumbing work the water pipework to the washer-disinfector will need to be primed. If this is not done, components can be damaged.

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

Using accessories

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

Only use Miele wash carts, baskets and inserts with this washer-disinfector. Using wash carts and inserts made by other manufacturers, or making modifications to Miele accessories can cause unsatisfactory cleaning results, for which Miele cannot be held liable. Any resultant damage would not be covered by the warranty.

Only use process chemicals that are approved by their manufacturer for the application involved. Responsibility for any negative effects on the material of the load and the washer-disinfector itself lies with the chemical manufacturer.

Symbols on the machine

Warning:
Observe the operating instructions!

Warning:
Danger of electric shock!
Warning and Safety Instructions

Disposing of your old appliance

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

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

**Water hardness**

In order to achieve good cleaning results, the washer-disinfector requires a supply of soft water (water that is low in calcium and magnesium). If hard tap water is used, it can leave a white mineral deposit build-up on the instruments and the machine itself.

Tap water with a hardness level of 4 gr/gal (70 ppm CaCO₃) or more needs to be softened. This takes place automatically in the integrated water softener at 0.0 - 10.8 mmol/l (0 - 60 gr/gal).

To do this the water softener requires reactivation salt and the washer-disinfector must be programmed to correspond to the water hardness in your area.

The factory default for the water softener is set to a hardness of 19 gr/gal (340 ppm CaCO₃).

| If the actual water hardness is different (even if it is below 4 gr/gal), the factory default setting will need to be changed using the electronic control. |

If the water hardness is known to fluctuate, e.g. 8 - 17 gr/gal (140 - 310 ppm CaCO₃), always program for the highest value, in this instance 17 gr/gal (310 ppm CaCO₃).

Miele Service is able to measure the exact water hardness on site. Alternatively contact your local city water supplier for the water hardness level in your area.

It is useful to make a note of the water hardness so that you can provide the service technician with this information in the event of any service calls. Enter your water hardness level here:

______________________________ gr/gal (ppm CaCO₃)

**Setting the water hardness level**

When the machine is first commissioned the Miele service technician has to set the machine for your local water hardness level (see Program manual, Operation/Reactivation).

**Reactivation display**

After a certain number of cycles the message REACTIVATION will appear in the display to warn that the water softener is depleted and cannot supply any more softened water. **Immediately** after the program has finished reactivation salt will need to be replenished.

If this cannot be done immediately, and further cleaning cycles have been carried out, the reactivation process will need to be carried out twice in succession.
Reactivate the water softener

Only use special, coarse-grained reactivation salt with a grain size of 1 - 4 mm. Suitable water softener salt is available from Miele. Never use other types of salt, such as table salt, cattle salt, or de-icing salt. These salts can contain components that are insoluble in water and which could damage the water softener.

The salt container holds approximately 2 kg of salt.

Do not use any fine grained reactivation salt or salt tablets. Only use water softener salt available at Miele. Salt with granules > 4 mm must not be used in this machine.

⚠ Inadvertently filling the salt reservoir with cleaning agent will cause serious damage to the water softener. The filter cap can get clogged. The result is a pressure build-up in the salt container. There is a risk of chemical burns as well as a risk of injury due to an alkaline solution when removing the salt container. Prior to filling the salt container please make sure that you are holding a reactivation salt packet in your hand.

Filling the salt container

- Unscrew the filter cap.
- Fill the salt container with reactivation salt and close the filter cap.

Inserting the salt container

- Remove the wash cart from the wash cabinet.
Water softener (option)

- Unscrew the plastic lid at the top right of the wash cabinet.

A small amount of residual water is located in the plastic lid, which can be very hot depending on the previous program sequence.

- Insert the salt container and screw tight.

Carrying out reactivation

- Close the door.
- Open the water taps.
- Select and start the REACTIVATION program.

The system will automatically carry out the reactivation.

The water pressure (flow pressure at the tap connection) must be at least 100 kPa (14.5 psi).
If the flow pressure is lower than 100 kPa (14.5 psi) or highly fluctuating, the water softener cannot be properly reactivated. In this event, salt may still be present in the salt container after reactivation. Activate the REACTIVATION program again for a complete dissolution of the salt and to flush the softener.

Then:

- Switch off the washer-disinfector.
- Carefully unscrew the salt container in order for any water pressure to subside.

Do not use force.
If the salt container cannot be removed manually, contact Miele Service.

- The salt container must be emptied outside the wash cabinet.

Salt brine and salt residue in the wash cabinet may cause corrosion and must be flushed immediately.

- Screw the softener lid back on.
- Insert the wash cart.
- Close the water taps.
- Rinse the salt container and the filter cap with clear water.
Automatic program recognition

The automatic program recognition feature assigns a program place to a wash cart. For this to work, the wash carts must be coded with a magnetic strip (via a bit combination).

In operating level C, the only program available for a coded wash cart is the one assigned to the corresponding program place.

When a coded wash cart is inserted into the washer-disinfector and the door closes, the automatic program recognition system will select the assigned program.

The processes for coding the wash cart and for changing program places are described in the Programming manual for the washer-disinfector.

⚠️ Make sure that no small metallic objects or instrument parts are stuck to the magnetic strip, in particular to the underside of it. Any metallic objects on the strip can result in the coding being incorrectly read.

Bit 6 is not a part of the modifiable magnetic strip. Note that wash carts with side coupling must be coded with magnetic strips that have Bit 6 set to 1. Wash carts without side coupling must be coded with magnetic strips that do not contain Bit 6. The magnetic strips in G 7824 / G 7825 / G 7826 washer disinfectors must contain grey magnets.
General information
The washer-disinfector can be fitted with various wash carts, adapted to the type and shape of the items that need to be cleaned and disinfected; they can be equipped with a wide variety of modules and inserts.

Wash carts, baskets and inserts should be properly selected to match the application involved.

Notes on the individual areas of application and examples of loading are given on the following pages.

Before Starting a program
you should carry out a visual check on the following before every program start:

– Are the items properly sorted, loaded and connected in the washer-disinfector?

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

– Is the filter combination free of coarse debris?
  Remove any coarse material and clean the filters if necessary.

– Is the wash cart correctly connected to the water supply?

– Are the removable modules, jets, sleeves and other rinsing attachments correctly connected?

– Are all chemical containers sufficiently filled?

At the End of each program
The following must be checked at the end of every program:

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

– Check that all hollow shafted instruments are still securely located on their jets.

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

– Check that the lumen of hollow instruments are free of obstruction.

– Check that jets and connectors are securely held in position in the baskets or inserts.

Protein test
Cleaning results should be subjected to periodic protein tests, e.g. with the Miele test kit or the Miele ProCare Protein Check. Cleaning verification shall be carried out weekly in accordance with "CSA Z314.8 Decontamination of reusable medical devices."
## Application technology

### Preparing the load

<table>
<thead>
<tr>
<th>Precaution</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only items which have been declared by their manufacturer as suitable for machine reprocessing may be reprocessed. The manufacturer’s specific reprocessing instructions must be observed. Disposable instruments must not be put into the machine for reprocessing.</td>
<td></td>
</tr>
<tr>
<td>- Arrange the load so that water can access all surfaces. This ensures that it gets properly cleaned.</td>
<td></td>
</tr>
<tr>
<td>- Do not place items to be cleaned inside other pieces where they may be concealed.</td>
<td></td>
</tr>
<tr>
<td>- Hollow instruments must be thoroughly cleaned, internally and externally.</td>
<td></td>
</tr>
<tr>
<td>- Ensure that instruments with long narrow hollow sections can be flushed through properly before placing them in inserts or connecting them to jets.</td>
<td></td>
</tr>
<tr>
<td>- Hollow items should be inverted and placed in the correct wash cart, modules and inserts to ensure that water can flow in and out of them unrestricted.</td>
<td></td>
</tr>
<tr>
<td>- Deep-sided items should be placed at an angle to make sure water runs off them freely.</td>
<td></td>
</tr>
<tr>
<td>- Tall, narrow, hollow items should be placed in the centre of the basket if possible to ensure better water coverage.</td>
<td></td>
</tr>
<tr>
<td>- Take apart any items which can be dismantled according to the manufacturer’s instructions and reprocess the individual parts separately from each other.</td>
<td></td>
</tr>
<tr>
<td>- Lightweight items can be secured with cover nets (e.g. A 6), and small parts can be placed in a small item mesh tray, so that they do not block the spray arms or become attached to the magnetic strip on the automatic program recognition.</td>
<td></td>
</tr>
<tr>
<td>- Only reprocess small items and micro components in special inserts, mesh trays with lids or mesh inserts, such as e.g. E 473/1 for micro components.</td>
<td></td>
</tr>
<tr>
<td>- The spray arms must not be blocked by items that are too tall or hang through the baskets. Gently rotate the arms by hand to check mobility.</td>
<td></td>
</tr>
<tr>
<td>- It is advisable to use only instruments made of special application steel which are not susceptible to corrosion.</td>
<td></td>
</tr>
<tr>
<td>- Items made of nickel and colour-anodised aluminum require special reprocessing conditions and are not suitable for machine reprocessing.</td>
<td></td>
</tr>
<tr>
<td>- Heat-sensitive load must only be reprocessed using a chemo-thermal program.</td>
<td></td>
</tr>
<tr>
<td>- Plastic items must be thermally stable.</td>
<td></td>
</tr>
</tbody>
</table>
Prepare items before loading

- Empty all items before loading into the machine (pay particular attention to regulations regarding infectious diseases and epidemics).

⚠️ Ensure that no acid or solvent residues, especially hydrochloric acid or chlorides, get inside the wash cabinet.

Storing instrument before reprocessing

Whenever possible, instruments should be reprocessed in washer-disinfectors without pre-soaking.

Chemically pre-treated instruments must be rinsed thoroughly before reprocessing in the washer-disinfector to avoid a significant build-up of foam.
Surgical instruments

Surgical instruments should be stored for as short a time as possible before machine reprocessing and for no longer than 2 hours. It is best to reprocess surgical instruments using the DES-VAR-TD program.

The OXIVARIO and ORTHOVARIO programs should be used for surgical instruments where there is a long delay between the time they are used and the time they can be reprocessed. See "Special options".

Disinfection of surgical instruments and of those used for minimally invasive surgery should take place thermally.

Demineralized water with a conductivity level of ~15μS/cm (microsiemens per centimetre) should be used for the final rinse whenever possible to ensure no marks are left on the load and to avoid corrosion. If the water used contains more than 100 mg chloride/litre there is a risk of corrosion.

Most rigid sterilization containers can be disinfected thermally with the CONTAINERS program. If anodized aluminum containers are being reprocessed, de-ionized water must be used for the wash cycles and the final rinse. These containers must not be reprocessed with an alkaline detergent.

For reprocessing rigid containers to an $A_0=600$ disinfection standard, the CONTAINER-600 program must be programmed in retrospectively by Miele.

The wash carts for surgical instruments and sterilization containers come with their own operating instructions.

When reprocessing narrow lumen instruments, e.g. those used in minimal invasive surgery an intensive internal cleaning result is imperative. Only the programs DES-VAR-TD and OXIVARIO are suitable for thorough cleaning. Always observe the specific loading instructions, and all applicable procedures, including for the use of appropriate detergents for these sensitive instruments.

For rinsing, use demineralized water with a conductivity of ~15 μS/cm (microsiemens per centimeter).

Very narrow-lumen instruments must be pre-cleaned manually where necessary. Follow the instrument manufacturer’s instructions!
Application technology

**Ophthalmic instruments**

Ophthalmic instruments can be cleaned and disinfected by machine in the E 529/1 injector wash cart.

For the final rinse, use demineralized water with a conductivity of ~15 μS/cm. To remove chemical residues from ophthalmic instruments, a custom program with 2 demineralized water rinses needs to be used. A custom "Ophthalmology" program must be programmed retrospectively by Miele.

In addition, the rinse water must have a low endotoxin and pyrogen content.

The upper level features various connectors for hollow instruments, e.g., rinsing and suction hand pieces and cannulas.

Silicone holders and stoppers placed in the mesh tray hold and secure the instruments to the hose connections in the injector wash cart.

The lower level of the injector wash cart is designed to take E 441/1 inserts or E 142 / E143 mesh trays for reprocessing solid instruments.

⚠️ In washer-disinfectors used to reprocess hollow narrow-lumen ophthalmic instruments, cover nets with plastic fibres must not be used. Plastic fibres can block narrow lumens.

The wash cart for ophthalmological instruments comes with its own operating instructions.

**Anaesthetic instruments**

Anaesthetic instruments should be thermally disinfected using the DES-VAR-TD-AN program.

⚠️ If no sterilization will occur after washing, germ growth will need to be inhibited during storage. Because this requires thorough drying, a sufficient amount of drying time must be selected.

The wash cart for anaesthetic instruments comes with its own operating instructions.
Baby bottles

Baby bottles can be cleaned and disinfected in E 135 containers, for example, and nipples in E364 inserts or droppers in E458 inserts.

- Only use baby bottles with washer-safe volume markings.
- If there is a delay of 4 hours or more before bottles can be washed, fill them with water to prevent residues from drying on.

If the process is not to be followed by sterilization, the load should be dried completely to avoid the development of water-borne bacteria.
A sufficient drying time is therefore absolutely essential.

The inserts for baby bottles and nipples come with their own operating instructions.

Support frame E 750

- Place the support frame in the middle of the upper level of the E 555 wash cart.

- Place one E 135 container on each side on the hook of the support frame.

The angled positioning of the containers ensures that all of the inside of the bottle is reached by the water jets.
Both blocked corners of the insert must be located at the positions marked with X in the drawing. In this area the inside of the bottle is not reached sufficiently by the jets of water and the bottles are not properly cleaned.
OR shoes

OR shoes and/or insoles made of heat-sensitive materials should be thermo-chemically cleaned and disinfected at 60°C using the CHEM-DESIN program.

A thermal disinfection program (SHOE-TD-75/2 program) can be used as long as the manufacturer has confirmed the thermo-stability of the product(s) involved.

For reprocessing OR shoes to an $A_0=60$ disinfection standard, the SHOE-60 program must be programmed in retrospectively by Miele.

For information on the efficacy of thermochemical disinfection, contact the disinfectant manufacturer directly.

OR shoes should be cleaned and disinfected in a machine installed specifically for this purpose only. If OR shoes are to be reprocessed in a washer-disinfector which is used for other applications, a risk assessment must be carried out by the user.

The wash cart E 550 can be used with a suitable insert, e.g. E 730.

When OR shoes are cleaned, large quantities of lint can accumulate. For this reason, be sure to check the wash cabinet filters frequently and clean as needed (see section on "Cleaning and care").
Transfer trolley for loading and unloading the machine

⚠️ Contaminated surfaces of the transfer trolley must be disinfected after the machines has been loaded. Only use chemical disinfectants recognized by Health Canada.

The Miele transfer trolley can be used to transport wash carts from the preparation area to the washer-disinfector and from there to the checking and wrapping table.

The height of the transfer trolley can be adjusted by Miele. The height should be set so that the open machine door is held underneath the side catches on the transfer trolley.

If the machine is not fitted on a base the position of the foot pedal on the transfer trolley may need to be changed.

Adjusting the foot pedal

1. Unscrew foot pedal ①.
2. Loosen lock nuts ② on the set screw ③.
3. Screw the set screw ③ further through the foot pedal so that the end stop is reached earlier.
4. Relock the set screw.
5. Screw on the foot pedal.
Loading and unloading
Transporting wash carts

- Hang the wash cart into the locating slots on the transfer trolley using both hooks.
- To lift the wash cart step down on the transfer trolley foot pedal.
- Push the transfer trolley under the open door on the washer-disinfector as far as it will go. The wash cart will then sit over the door.
- Secure the brakes on the wheels.

- To lower the wash cart step down on the transfer trolley foot pedal.
At the end of a program

- Move the transfer trolley up to the washer-disinfector so that the machine door is held underneath the side catches on the transfer trolley.

- Pull the wash cart up to the stopping point on the open door so that it is lifted with the transfer trolley and can be moved away.
Chemical reactions

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

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

<table>
<thead>
<tr>
<th>General information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem</strong></td>
</tr>
<tr>
<td>If elastomers (seals and hoses) and plastic components in the machine are damaged, this can lead to, for example, swelling, shrinking, hardening or brittleness of materials leading to the development of tears and cracks. Components can then not function correctly and this generally leads to leaks.</td>
</tr>
<tr>
<td>Heavy foaming during a program affects cleaning and rinsing results. Foam escaping from the wash cabinet can cause damage to the washer-disinfector. Cleaning processes cannot be regulated where there has been a build-up of foam.</td>
</tr>
<tr>
<td>Corrosion to stainless steel of the wash cabinet and to accessories has various appearances: – rust formation (red spots / stains), – black spots / stains, – white spots / stains (smooth surface is slightly corroded). Corrosive pitting can lead to the washer-disinfector not being water-tight. Depending on application corrosion can influence cleaning and rinsing results (laboratory analysis) or cause corrosion to stainless steel items in the cabinet.</td>
</tr>
</tbody>
</table>
## Connected processing chemicals

<table>
<thead>
<tr>
<th>Problem</th>
<th>How to resolve it</th>
</tr>
</thead>
</table>
| The ingredients in processing chemicals have a strong influence on the longevity and functionality (throughput) of the dispensing system. The dispensing system (hoses and pumps) should be set up for a particular type of process chemicals. General types: – alkaline to neutral pH products, – acid to neutral pH products, – hydrogen peroxide. | – Use Miele approved process chemicals in this machine. The instructions and recommendations of the manufacturer of the process chemicals must be observed.  
– Carry out regular visual inspections of the dispensing system to check for signs of damage.  
– Regularly check the flow rate of the dispensing system. |
| Process chemicals can damage elastomers and plastics in the washer-disinfector and accessories. | – Use Miele approved process chemicals in this machine. The instructions and recommendations of the manufacturer of the process chemicals must be observed.  
– Perform regular visual inspections of all visible elastomer and plastic components for damage. |
| Hydrogen peroxide can release large amounts of oxygen.                 | – Only use approved processes such as OXIVARIO or OXIVARIO PLUS.  
– The wash temperature must be lower than 70 °C when using hydrogen peroxide.  
– Please contact Miele Service for advice. |
### Connected processing chemicals

<table>
<thead>
<tr>
<th>Problem</th>
<th>How to resolve it</th>
</tr>
</thead>
</table>
| The following process chemicals can cause large amounts of foam to build up: | - Process parameters in the wash program, such as dispensing temperature, dosage concentration etc. must be set to ensure the whole process is foam free or very low foaming.  
- Observe the instructions of the manufacturer of the processing chemicals. |
| - cleaning and rinsing agents that contain tensides.                   |                                                                                                             |
| Foam can occur:                                                        |                                                                                                             |
| - in the program block in which the process chemical is dispensed,     |                                                                                                             |
| - in the subsequent program block due to carry-over,                   |                                                                                                             |
| - in the case of rinsing agents, in the subsequent program due to carry-over. |                                                                                                             |
| Antifoaming agents, particularly silicone-based antifoaming agents, can cause the following: | - Use antifoaming agents only in exceptional cases or when they are absolutely necessary for the process.  
- Periodic cleaning of the wash cabinet and accessories without a load and without an antifoaming agent using the ORGANICA program (if available).  
- Please contact Miele Service for advice. |
| - deposits in the wash cabinet,                                        |                                                                                                             |
| - deposits on the load,                                                |                                                                                                             |
| - damage to elastomers and plastics in the washer-disinfector,         |                                                                                                             |
| - damage to certain plastics (e.g. polycarbonate and plexiglass) in the load being processed. |
## Chemical processes and technology

<table>
<thead>
<tr>
<th>Soiling</th>
<th>How to resolve it</th>
</tr>
</thead>
</table>
| **Problem**                                                            | - Depending on usage wipe the lower door seal on the washer-disinfector periodically with a lint-free cloth or sponge. Clean the wash cabinet and accessories without a load using the ORGANIC program (if available).  
- Prepare the load using the "OIL" program (where this is available) or use a special program that dispenses emulsifiers. |
| The following substances can damage elastomers (hoses and seals) and plastics in the washer-disinfector:  
- Oil, wax, aromatic and unsaturated hydrocarbons,  
- emollients,  
- cosmetics, hygiene and skin care products such as creams (analytical applications). |                                                                                                                                                                                                                  |
| **Problem**                                                            | - Rinse the items with a sufficient quantity of water before placing them in the washer-disinfector.  
- Select a wash program with one or more short pre-rinses with cold or hot water.  
- Depending on application use antifoaming agents that do not contain silicone oils. |
| The following substances can cause excessive foaming during washing and rinsing:  
- agents such as disinfection agents etc.  
- reagents for analysis, e.g. for microtitration plates,  
- cosmetics, hygiene and skin care products such as shampoos and creams (analytical applications).  
- foaming substances in general, for instance tensides. |                                                                                                                                                                                                                  |
| **Problem**                                                            | - Rinse the items with a sufficient quantity of water before placing them in the washer-disinfector.  
- Let the load drip dry before putting it on the carts, baskets and inserts and placing in the washer-disinfector. |
| The following substances can cause corrosion of the stainless steel in the wash cabinet and the accessories:  
- hydrochloric acid,  
- other substances containing chlorides such as sodium chloride etc.,  
- concentrated sulphuric acid,  
- chromic acid,  
- iron particles and shavings. |                                                                                                                                                                                                                  |
## Reaction between processing chemicals and soiling

<table>
<thead>
<tr>
<th>Problem</th>
<th>How to resolve it</th>
</tr>
</thead>
</table>
| Natural oils and fats can be emulsified with alkaline processing chemicals. This can lead to a heavy build-up of foam. | - Use the program OIL (if available).  
- This special program dispenses emulsifiers (pH neutral) in the pre-rinse.  
- Depending on application use antifoaming agents that do not contain silicone oils. |
| In combination with alkaline processing chemicals, items with soiling that contains proteins, e.g. blood, can cause excessive foaming. | - Select a wash program with one or more short pre-rinses with cold water. |
| In combination with very acidic or alkaline process chemicals, base metals such as aluminums, magnesium and zinc may release hydrogen (oxyhydrogen reaction). | - Observe the instructions of the manufacturer of the processing chemicals. |
Dispensing systems

⚠️ Use only detergents and neutralizers specially designed for washer-disinfectors, and observe the manufacturer’s recommendations for use! Please observe carefully any instructions relating to toxic residues. It is recommended to use tested Miele process chemicals only. For suitable process chemicals contact Miele Professional.

The washer is equipped as standard with two dispensing pumps:

- Dispensing system DOS 1 (blue) for dispensing liquid detergents. The dosing rate is 120 ml/min.

- Dispensing system DOS 3 (red) for dispensing acidic processing chemicals, such as neutralizers or rinsing agents. The dosing rate is 20 ml/min.

**Additional DOS pumps (optional):**

- Dispensing system DOS 2 (white) for dispensing acidic processing chemicals, such as neutralizers or lubricants. The dosing rate is 20 ml/min.

- Dispensing system DOS 4 (green) for dispensing low-foam, washer-compatible disinfection agents or an additional detergent. The dosing rate is 120 ml/min.

Depending on the application(s) chosen for this washer-disinfector, the appropriate amounts of liquid processing chemicals are dispensed through these systems.

If a dispensing system is to dispense different process chemicals, the change of chemicals must be carried out by Miele Service Department.
Dispensing liquid detergents and neutralizer

Optional features

⚠️ For all special information about the OXIVARIO and ORTHOVARIO processes and how to connect the container with H₂O₂ solution, see the section on "Special options - OXIVARIO and ORTHOVARIO".

OXIVARIO

This washer-disinfector can be set up or retro-fitted to use the OXIVARIO process by adding an additional dispensing pump and a special buffer tank for hydrogen peroxide (H₂O₂ solution). The H₂O₂ solution hose is colour coded black.

The DOS 2 dispenser is used for the H₂O₂ solution.

ORTHOVARIO

This washer-disinfector can be retro-fitted to use the ORTHOVARIO process by adding a special dispensing pump to the DOS 4 dispenser in the OXIVARIO system.

– Dispensing system DOS 4 (green) to dispense a special tenside cleaning agent. It can dispense up to 105 ml/min.

"Fill DOS [X] container"

■ Refill or replace the container shown in the display.

[x] Instead of an X, the number of the affected dispensing system will appear.

Fill the containers when a message to that effect appears in the display, e.g. FILL DOS 1 CONTAINER. This will prevent air locks and the subsequent requirement to vent the system.
Dispensing liquid detergents and neutralizer

Adding liquid detergents and neutralizers

- Switch off the washer-disinfector using the main switch.
- Lift the service panel up, tilt it forward and release it from its lower brackets.

- Open the right drawer that houses the liquid processing chemical dispensers.
- Remove the containers from the drawer.
- Unscrew the suction lance and remove it.
- Fill the container with the required product.

- Insert the suction lance into the container opening and screw it into place.

Once the containers have been filled, the message clears from the display.

- Put the container back into the drawer and push the drawer in.
- Set the service panel onto the lower bracket, press against the washer-disinfector and lower it into position.
**Dispensing liquid detergents and neutralizer**

**Message "Check dispensing system [X]"**
The current program has been interrupted.  
- Check the container(s) and dispensing hoses shown in the display.  
  [x] Instead of an X, the number of the affected dispensing system will appear.  
- Refill the container or replace it with a full one.  
- Use the appropriate service program to prime the affected dispensing system (clear it of air).

If a container is not being used, the level query for the unused dispensing system can be turned off to avoid the error message (see "Machine functions, container query..." in the Programming Manual supplied with the washer-disinfector).

**Priming the dispensing system**
Whenever a container has been allowed to completely empty, it must be primed (cleared of air) after refilling.  
- Select the corresponding service program, e. g., DOS1-FILL.  
- Press the ⬤ start button.
**Main switch**

The main switch disconnects the user side of the washer-disinfector from the electrical supply.

- Turn the main switch to **I ON**.

After completion of the start process the washer-disinfector is ready for operation.

**Switching on**

- Press the **I-O** button.

Depending on the set operating level, the following will appear in the display:

<table>
<thead>
<tr>
<th>Operating level</th>
<th>Message in display</th>
</tr>
</thead>
<tbody>
<tr>
<td>A and B</td>
<td>the last selected program</td>
</tr>
<tr>
<td>C</td>
<td>AUTOMATIC MOBILE UNIT RECOGNITION</td>
</tr>
<tr>
<td>D</td>
<td>Select from:</td>
</tr>
<tr>
<td></td>
<td>- the last selected program</td>
</tr>
<tr>
<td></td>
<td>- Program guide</td>
</tr>
<tr>
<td></td>
<td>- Programming</td>
</tr>
</tbody>
</table>

The display background lighting switches itself off automatically after approx. 15 minutes. Press any button to switch it back on again.
Door lock
The machine is equipped with an electric door lock. The door can only be opened when:
- the washer-disinfector is connected to the electrical supply,
- the main switch is in the **I-ON** position,
- the **I-O** button is pressed,
- no wash or disinfection program is running.
To open the door on the clean side (G 7824), please also note the following:
- Disinfection programs must have been completed without fault according to program parameters, or
- the INTERLOCK YES function is active.

Opening the door
■ Press the door switch 🔄. At the same time, grip the handle and open the door.

⚠️ Do not touch the heating element under the sump filter when you open the door directly after completion of the program. They remain hot even for some minutes after the program has ended and can cause burns.

Closing the door
■ Lift the door upward and push until it clicks shut.
Changing operating level

Four operating levels are available for selection in the electronic control unit of the washer-disinfector:

<table>
<thead>
<tr>
<th>Operating level</th>
<th>Authorized access for</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Pre-set programs / open programs</td>
</tr>
<tr>
<td>B</td>
<td>Open program selection</td>
</tr>
<tr>
<td>C</td>
<td>Automatic program recognition (program selection via wash cart coding) - optional</td>
</tr>
<tr>
<td>D</td>
<td>Open program selection / programming / change code (see Programming Manual)</td>
</tr>
</tbody>
</table>

To change operating level:

- Press and hold the ◀ and ▶ buttons simultaneously.

The display will show the operating levels A B C D.

- Use ◀ or ▶ to select the operating level.

- Press ◁ to confirm selection.

- Enter code when prompted in the display.
  The factory preset coding is set to >0000<.
  To enter the code:
  - Press the Start button ◁.
    [0000] will appear.
  - Enter numbers using the ◀ and ▶ buttons. Select the cursor position with the ▶ or ◀ buttons.
  - Press ◁ to confirm code.

If you enter the wrong code:
FALSE CODE, ENTER AGAIN will appear in the display.

Selecting or changing your own code

The factory default code can be changed. See "System functions" in the Programming Manual.
Code 1 for levels ABC
Code 2 for levels ABCD
Starting a program

You can find detailed and important information regarding the Miele default programs in the program overview chart in the accompanying Programming Manual.

⚠️ Any program or dosing changes in connection with the preparation of medical devices must be documented in a log book.

A: Pre-set programs

Preset programs can be compiled in operating levels B or D once and cleared for operating level A (see Programming Manual/System function - Programs under "A" free access).

- Check the display to see whether the required program is being displayed.
  - If several pre-set programs are being compiled and cleared, use the program selector to choose a particular one.
- Press the Start button 🔄.

Further information about program selection can be found in the Programming manual in "Operating level A".

B: Open program selection

In operating level B, you have three ways to select a program:

1. Program selector
   - Turn the program selector to the desired program number.
   - The program name appears in the display.
   - Press the Start button 🔄.
   - The programme will run.

2. + and - buttons
   - Turn the program selector to 24.
   - From program 24 upwards:
     - Press + (scrolls forwards) until the required program is shown.
   - From program 64 downwards:
     - Press - (scrolls backwards) until the required program is shown.
   - Press the Start button 🔄.
   - The program will run.
3. Program chart

The PROGRAMME-SURVEY menu lists all stored programs.

- Select the PROGRAMME-SURVEY menu option with < and confirm with ▼.
- Select the program with < or > and confirm with ▼.

This exits the program chart, and the selected program is shown in the display.
- Press the Start button ◁.

The program will run.

For further information on program selection see "Operating Level B" in the Programming manual.

Operating level C

⚠️ Make sure that no small metallic objects or instrument parts are stuck to the magnetic strip, in particular to the underside of it. Any metallic objects on the strip can result in the coding being incorrectly read.

⚠️ Before starting a program by pressing the Start button it is absolutely essential to check that the program required for this wash cart is the one shown in the display. Otherwise inadequate cleaning or disinfection could be the result. Please make sure, that the places assigned for the programs using automatic program recognition are not changed around arbitrarily.

- Open the door.
- Push the coded wash cart into place in the washer-disinfector.
- Close the door.
- Check that the correct program is displayed and press ◁ to start.

The program will run.

D: Open program selection

- Select the PROGRAMME-SURVEY menu option with < and confirm with ▼.
- Select the program with < or > and confirm with ▼.

This exits the program chart, and the selected program is shown in the display.
- Press the Start button ◁.

The program will run.
Program sequence
The program will start automatically as soon as the Start button is pressed.
The program stages are shown in the display during the program sequence.

Detailed information on program sequence is given in the appendix of the Programming manual.

⚠️ Do not change the printer paper roll or ribbon cartridge during a running program.

End of program
At the end of the program PROGRAMME - END is shown in the display and the background lighting flashes.

- Press any button to stop the lighting from flashing.

For general information on how to switch off the flashing signal, see the section "System functions" in the Programming Manual.

Cancelling a program
A program can only be interrupted or cancelled in operating levels B and D.

In order to conduct a performance qualification to assess the cleaning result, the program must be cancelled before it proceeds to the disinfection step (as per EN ISO 15883-1; CAN/CSA Z.15883-1-09).

In operating level B or D
- Press the Stop button 🚫.
  The program is interrupted.
  The following will appear in the display: CANCEL OR>CONTINUE<
  ⚠️ In cases involving mandatory decontamination, disinfectant must be added to the contaminated water before it can be discharged into the sewerage system.
  The door on the unclean side can be opened for this purpose.

- Use cursor ← to select >CANCEL<, the cursors will start flashing.
- Press the Start button ☀.
  The program is cancelled and the water drained away.
  WATER DRAIN appears in the display.
Interrupting a program

A program can only be interrupted or cancelled in operating levels B and D.

If a disinfection program has been interrupted and then continued, be sure to check the display upon program completion. If the message PROCESS PARAMETERS NOT MET appears, the door has been opened after the disinfection, hence the disinfection parameters are not met. Repeat the program if necessary.

If the door must be opened for urgent reasons, e.g., if items are moving around too much, or the cleaning performance needs to be checked:

**In operating level B or D**

- Press the Stop button 

The program is interrupted.

The following will appear in the display:

CANCEL OR>CONTINUE<

- Open the door .

**For pass-through machines:**

The setting at Machine function/Door interlock determines which door of the washer-disinfector can be opened, see Programming manual.

The door on the unclean side can always be opened, regardless of the setting.

The door on the clean side can then only be opened when the machine is set to INTERLOCK YES.

When using the washer-disinfector as a medical device (as per EN ISO 15883, CAN/CSA Z.15883), INTERLOCK NO should always be configured.

⚠️ Caution. Water and items in the machine may be hot. There is the danger of burning or scalding. In programs with thermochemical disinfection, steam containing high levels of disinfectant can escape!

- Rearrange the load.
  - Follow infection control regulations and wear protective gloves.

- Close the door.

- Press the Start button 

The program continues.
For data transfer between Profitronic system and an external report printer or PC, a 5 m interface cable is included with the appliance.

The interface cable is wound up inside the machine and must only be connected by Miele Service.

The serial interface is RS 232 compatible. For the interface configurations see "PC/Printer Function" in the Programming manual. Various printers can be used as external printers:

- Miele PRT 100 report printer.
- Epson-compatible character set (font) (a list of suitable printers can be obtained from Miele Service).

Pin configuration in the 9-pole sub-D connector on the interface cable:
- 5 GND (ground)
- 3 TXD (transmit)
- 2 RXD (receive)
- 1-4-6 (linked)
- 7-8 (linked)

A standard null modem or laplink cable can be connected. The maximum length of the extension cable for the printer/PC must be 10 m.

If connecting a printer or PC, please note the following:

- Only use an industry-standard PC or printer (IEC 60950 certified).
- Select a printer or PC that is suited to the installation application.

For instructions on how to set the report printer functions, refer to the section on PC/Print functions in the Programming Manual.

Various reports can be printed:

1. Program report
2. Optional function report
3. Wash protocol report
4. Fault protocol report
Service

After every 2000 hours of operation, or at least once a year Miele Service will need to perform preventative maintenance on the washer-disinfector.

Maintenance covers the following:

– electrical integrity
– Door mechanism and door seal
– Any screw connections and connectors in the wash cabinet
– Water inlet and drainage
– Internal and external dispensing systems
– Spray arms
– Filter combination
– Sump including drain pump and non-return valve
– All wash carts, baskets, inserts, and modules.

Where applicable:

– Steam condenser
– Drying unit
– Connected printer.

The following operational tests will be carried out within the framework of the maintenance:

– A program test run
– Seals will be tested for water tightness
– All relevant measuring systems will be safety tested, including fault displays
– Safety features
Performance qualification

Performance qualification needs to be performed as outlined in "CSA Z314.8 Decontamination of reusable instruments". It is the responsibility of the operator to check that the required cleaning and disinfection standards are always met.

Routine checks

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

The following items must be checked:

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

Cleaning the coarse filter

- Press the two lugs together, remove and clean the coarse filter.
- Put the clean filter back in position and press until it clicks in place.

Cleaning the flat and micro-fine filters

- Remove the coarse filter as described.
- Remove the fine filter from between the coarse and the micro-fine filters.
- To unscrew the micro-fine filter, take hold of the two lugs and turn twice in an anti-clockwise direction.
- Remove it together with the flat filter.
- Clean the filters and the micro-fine filter under running water.
- Replace the filters by carrying out the above steps in the reverse order.

The flat filter must lie flat in the base of the wash cabinet.
Cleaning the spray arms

It is possible for spray arm jets to become blocked by particles inside them. Therefore, it is important to inspect the spray arms every day.

- Use a sharp, pointed object to push any particles into the spray arm jets, then rinse thoroughly under running water.

To do so, remove the spray arms as follows:

**Spray arms in the wash cabinet:**
- Remove wash cart.
- Loosen the securing clip on the spray arm connection and then pull the spray arm upwards or downwards.
- Remove the sealing ring and the bearing shells and clean them.
- Re-install the sealing ring and the bearing shells.

**Spray arms on wash carts/modules:**
- Turn the nut (left-hand thread) with the spray to the right and pull the spray arm off downward.

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

- After cleaning the spray arms screw them back into position.
- After replacing the spray arms, check that they rotate freely.
Cleaning the control panel

- Clean the control panel and the glass door with a damp cloth or with a suitable cleaner for glass or plastic. For disinfection purposes low and intermediate chemical disinfectants may be used.

⚠️ Do not use abrasive cleaners or all-purpose cleaners. Because of their chemical composition they could cause serious damage to the plastic surface.

Cleaning the front of the washer-disinfector

- To clean the stainless steel front, use a damp cloth with a solution of washing-up liquid and hot water, or with a non-abrasive cleaning agent for use on stainless steel.

- To help prevent re-soiling (fingerprints, etc.), a suitable stainless steel conditioner can be used after cleaning.

⚠️ Do not use ammonium-based cleaners or thinners! They can damage the surface material.

⚠️ Do not hose down the washer-disinfector or the immediate vicinity, e.g. with a water hose or pressure washer.

Cleaning the wash cabinet

The wash cabinet is mostly self-cleaning.

- If you notice a build-up of deposits, please contact Miele Service for advice.

Cleaning the door seal

- The door seals should be cleaned regularly with a damp cloth to remove any soiling.

**Useful tip:** Damaged or leaky door seals should be replaced by Miele Service.
Wash carts, modules and inserts

Wash carts, modules and inserts should be checked daily to make sure they are functioning correctly. The washer-disinfector is supplied with a check list.

Check the following points:

– Are the rollers in proper condition, and are they securely attached to the wash cart/basket?

– For wash carts in the modular system, are the caps in the module connection working properly?

– Are all spray jets, spray sleeves and hose adaptors securely attached to the wash cart/insert?

– Are all spray jets, spray sleeves, and hose adapters unclogged so that wash water can flow through?

– Are all caps, covers, and fasteners securely attached to the spray sleeves?

Where applicable:

– Do the spray arms rotate freely?

– Are the spray jets clogged? See the section on "Maintenance/Cleaning the spray arms".

– Are the screws in the magnetic rails for automatic program recognition tightly secured?

– Is the magnetic strip of the automatic program recognition feature free of attached metal objects?

Wash carts, baskets and inserts must be inspected in the course of the routine checks of the washer-disinfector after 2000 operating hours or at least once per year, see "Maintenance/Routine checks".
Built-in printer (optional)

A red indicator light behind the front panel of the printer will light up when the printer roll is finished. Regularly check how much paper is left on the roll. To change the paper roll do this:

- Open the front panel of the printer at the upper edge and then pull it downwards.
- Remove the empty paper roll and spindle together from the holder, fit the new roll onto the spindle and put back in place.
- Guide the paper up and over the paper transport roller (slit behind the ribbon cartridge). Press the grey paper transport button until the paper re-emerges above the ribbon cartridge.
- Guide the paper through the slit in the front panel. Shut the panel.

Replacement paper rolls (58 mm wide / outer diameter approx. 50 mm) can be purchased from Miele.

Replacing the ribbon cartridge

- Open the front panel of the printer at the upper edge and then pull it downwards.
- The ribbon cartridge is above the paper roll. Pull it forward and out of the holder and replace it with a new one. The paper must be guided between the ribbon and the cartridge housing.
- Turn the small wheel on the right for manual ribbon transport clockwise until the ribbon is taut.
- Guide the paper through the slit in the front panel. Shut the panel.

Replacement ribbon cartridges can be purchased from Miele.
After sales service

⚠️ Repairs should only be carried out by Miele Service. Unauthorised or incorrect repairs could cause personal injury or damage the machine.

To avoid unnecessary service call-outs, check that the fault has not been caused by incorrect operation when an error message first appears.

An overview of all error messages that can appear in the display is given in the Programming Manual under "Messages".

If a fault occurs and cannot be corrected using the advice in the Operating Instructions and Programming Manual, please contact Miele Service.

The telephone number of the Miele Service can be found on the back cover if these operating instructions.

When contacting Miele Service, please quote the model and serial number of your washer-disinfector. These are located on the data plate (see "Electrical connection").
Converting the type of heating

Converting from steam to electric heating or from electric to steam
If your machine is convertible, you can change the type of heating using the STEAM >>ELECTRO or ELECTRO >>STEAM service program.

- Select STEAM >>ELECTRO or ELECTRO >>STEAM (see Operation / B. Free program selection).

- Press the Start button .

When the service program has ended, a message will appear in the display.

- To confirm >CONTINUE< press .
All electrical work must be carried out by a suitably qualified electrician in accordance with local and national safety regulations.

- The electrical installation must be in compliance with current local and national safety regulations.

- The plug connection must comply with national regulations, the socket must be accessible after the machine has been installed. This is to facilitate access for safety checks, for example when the machine is being commissioned or serviced.

- For hard-wired machines, connection should be made via a suitable mains switch with all-pole isolation. The contact opening between all open contacts must be at least 3 mm wide and the mains switch must be lockable in the open position.

- An equalization of the potentials should be carried out.

- For technical data, see the data plate or the attached wiring diagram!

- For increased safety, it is recommended to protect the machine with a 30 mA residual current device (RCD).

- The rotational direction of motorized power units depends on the electrical connection of the washer-disinfector. Connect the washer-disinfector in phase with clockwise rotating field.

Further notes on electrical connection are given on the Installation diagram supplied with the machine.

The machine must only be operated with the voltage, frequency and fuse rating shown on the data plate.

The data plate showing relevant test marks is located on the cover plate behind the service panel on the unclean side of the machine.

The wiring diagram is supplied with the machine.

WARNING

THIS APPLIANCE MUST BE EARTHED
Electromagnetic compatibility

The machine has been tested for electromagnetic compatibility in accordance with EN 61326-1 and is suitable for operation in commercial environments, such as hospitals, medical practices and laboratories and other similar environments which are connected to the mains power supply.

The machine’s HF emissions are very low and are therefore unlikely to interfere with other electronic appliances in the vicinity.

Flooring in the installation area must be wood, concrete or tiled. Synthetic flooring must be able to withstand a relative humidity level of 30 % to minimise the risk of electrostatic discharges.

The quality of the power supply should comply with that found in a typical commercial or hospital environment and should deviate from the nominal voltage by a maximum of +/- 10 %.
Please refer to the installation diagram supplied with the machine.

- The water supply must at least meet the standards for drinking water. A high iron content can leave a rust film on items being cleaned and the machine itself. When the chloride content in the water supply is above 100 mg/l, the risk of corrosion damage to items being cleaned is greatly increased.

- In certain regions (e.g. mountain regions) the water composition may cause precipitates to form, requiring the use of softened water for the steam condenser.
<table>
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<tr>
<th><strong>Technical data</strong></th>
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| **Height**
(incl. base and cover)
(incl. base and upper enclosure) | 1536 mm (space required)
1928 mm (space required) |
| **Width** | 900 mm |
| **Depth**
Depth with door open | 770 mm
1337 mm |
| **Useable cabinet dimensions H/W/D** | 510/530/620 mm |
| **Weight (net, incl. base, steam condenser and upper enclosure)** | Approx. 350 kg |
| **Operating weight** | Approx. 500 kg |
| **Voltage** | see data plate |
| **Connected load** | see data plate |
| **Fuse rating** | see data plate |
| **Compressed air connection** | 600 kPa (required for steam operation) |
| **Steam connection with electric drying unit** | 250 - 1000 kPa (36-145 psi) / 140 - 180 °C |
| **Water pressure (flow pressure)** | 100 - 1000 kPa (14.5 - 145 psi) overpressure |
| **Cold, hot, and deionized (DI) water** | 70max. °C |
| **Ambient temperature** | 5 °C - 40 °C |
| **Relative humidity maximum linear decreasing to** | 80% for temperatures up to 31°C
50% for temperatures up to 40°C |
| **Altitude above sea level** | up to 1500 m |
| **Degree of soiling (as per IEC/EN 61010-1)** | P2 |
| **Overvoltage category (according to IEC 60664)** | II |
| **Ingress protection (as per IEC 60529)** | IP20 (dust penetration) |
| **Noise level in dB (A), peak LpA for cleaning and drying cycles** | < 70 |
| **Certifications** | CSA, Health Canada registered Class II Medical Device, radio interference protection, EN ISO 15883 Part 1 and 2 (CSA Z15883 Part 1 and 2) |
| **CE-mark** | MPG Guidelines - 93/42/EEC, Class IIb |
| **Manufacturer’s address** | Miele & Cie. KG, Carl-Miele-Straße 29,33332 Gütersloh, Germany |

# If installed at altitudes above 1500 m the boiling point of the suds solution will be lower. Disinfecting temperature parameters should be lowered and the holding time increased (A0 value).
Optional equipment

**Optional modules:**

- Drying unit
- Steam condenser
- Water softener
- Report printer
- Dispensing systems DOS 2 and DOS 4
- OXIVARIO retrofitting kit
- ORTHOVARIO kit (must be retrofitted by Miele service)
Special Options - OXIVARIO and ORTHOVARIO

This washer disinfector can be set up or retro-fitted to use the OXIVARIO process by adding two additional dispenser pumps together with a buffer tank for hydrogen peroxide solution $\text{H}_2\text{O}_2$. The DOS 2 dispenser is used for the $\text{H}_2\text{O}_2$ solution.

For the ORTHOVARIO process, the DOS 4 dispensing system must be equipped (fitted) with a special dispensing pump for a special tenside detergent.

The OXIVARIO, OXIVARIO PLUS and the ORTHOVARIO programs are available for these requirements.

The OXIVARIO process releases active oxygen under alkaline conditions. The cleaning agent used must be tenside free and have a pH value of between 11 and 11.5.

The ORTHOVARIO process uses a material-tolerant tenside based detergent in the first cleaning phase and then releases active oxygen in the second phase with a pH value of between 10.0 and 11.0 and a slightly higher temperature of 65 °C.

Areas of application

The OXIVARIO process has an alkaline main wash making it particularly suitable for the reprocessing of surgical instruments where existing procedures are not satisfactory. This process is especially suited for reprocessing surgical instruments, e.g. those used in high frequency surgery, orthopaedic surgery as well as for instruments which have dried out during long delays until reprocessing, and for instruments affected by antiseptics.

The OXIVARIO PLUS process is designed to prevent iatrogenic prion transmission (vCJD - variant Creutzfeldt-Jakob disease).

The cleaning processes are gentle enough for minimally invasive instruments, including fibre optics, as long as the manufacturer has approved alkaline cleaning methods for them.

However, these processes are not suitable for anodized aluminum. The materials in titanium alloys, e.g., implants, may vary in terms of material compatibility. Colour-coding can change, resulting in errors. Consult the manufacturer of the items for verification.

The ORTHOVARIO process is suitable for processing aluminum instruments which are sensitive to alkalines. It is particularly suitable for orthopaedic instruments including motor systems.

Because of its oxidising effect it must not be used for titanium implants, and in particular colour coded ones.
The processes clean so thoroughly that, to prevent damages, instruments with metal surfaces sliding across each other (e.g. scissors, forceps) must be carefully attended to with suitable medical grade lubricant immediately following reprocessing.

⚠️ These warning and safety instructions are in addition to those given at the beginning of this booklet.

- H₂O₂ solution must only be used in special containers from "Dr. Weigert", with the matching adapters.
- Always comply with the safety instructions (material safety data sheets) from the manufacturers of the process chemicals.
- Be especially careful when handling H₂O₂ solution. It is a corrosive chemical. Always comply with all applicable safety regulations! Protective eyewear and gloves must be worn.
- Empty containers must be disposed of in accordance with the manufacturer's instructions.
- H₂O₂ solution must not be mixed with any other chemicals. This could cause a violent chemical reaction, such as flash fire.
- Only special tenside detergents from "Dr. Weigert" should be used.
Connecting the H₂O₂ container

The connection hose for the H₂O₂ solution container is identified by a black label. The connection hose is supplied without an adapter as extraction systems for hydrogen peroxide container will vary depending on supplier.

- Connect the appropriate adapter from the manufacturer to the (black) connection line.

- Connect the H₂O₂ container.

- Start the DOS2-FILL service program.

⚠️ Unlike with other processing chemicals, the H₂O₂ solution container must be fully emptied before it is exchanged for a new one.

Do not replace the H₂O₂ solution container with a new one until the FILL DOS 2 CONTAINER message is displayed. After connecting the new container you must run the DOS2-FILL service program. If the CHECK DISPENSING SYSTEM 2 message appears you should check the container as well as the dispensing system. The program automatically pauses for this.
Old electrical and electronic equipment often still contain valuable materials. However, they may also include harmful substances that were essential for proper functioning and safe use. Improperly disposing of these items in your household waste can be harmful to your health and the environment. Therefore, please do not dispose of your old appliance in your regular household waste.

Instead, use your local community waste collection and recycling centre for electric and electronic appliances.

Ensure that your old machine presents no danger to children while being stored for disposal.