

# Operating instructions

# Washer-disinfector

# G 7893

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

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

en - GB, AU

M.-Nr. 07 780 311

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# Warning and Safety instructions

This washer-disinfector complies with all relevant local and national safety requirements. Please note that incorrect use can lead to personal injury and damage to property.

To avoid the risk of accidents and damage to the machine, please read these instructions carefully before using it for the first time. They contain important information on its safety, use and maintenance.

Keep these instructions in a safe place for future reference, and pass them on to any future user.

## 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 laboratory utensils or medical equipment if the manufacturer has stated that they are suitable for machine processing. Follow the manufacturer's instructions. Miele cannot be held liable for damage caused by improper or incorrect use of the machine.

▶ This washer-disinfector is intended for stationary, indoor use only.

## Please pay attention to the following notes to avoid injury and damage.

▶ This washer-disinfector should be commissioned and then maintained by a Miele authorised and trained service technician only. A Miele service contract is recommended to ensure compliance with GLP Guidelines and the Medical Device Directive.

Unauthorised repairs and other work could be dangerous, for which the manufacturer cannot be held liable.

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

▶ The electrical safety of this washer-disinfector can only be guaranteed if it is correctly earthed. It is most important that this basic safety requirement is observed and regularly tested, and where there is any doubt, the on-site wiring system should be inspected by a qualified electrician. The manufacturer cannot be held liable for damage or injury caused by the lack of or inadequacy of an effective earthing system (e.g. electric shock).

▶ A damaged or leaking washer-disinfector is dangerous. Disconnect the machine from the mains immediately and call the Miele Service Department.

▶ Personnel operating the machine should be trained regularly. Untrained personnel and children must not be allowed access to the machine or its controls.

# Warning and Safety instructions

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- ▶ Take care when handling chemical agents such as cleaning agent, neutralising agent, rinsing agent etc. These may contain irritant or corrosive ingredients. Follow all instructions and safety procedures carefully. Wear protective gloves and goggles. With all chemical agents, the manufacturer's safety instructions and safety data sheets must be observed.
- ▶ This washer-disinfector is designed for operation with water and appropriate chemical agents only. Organic solvents and flammable liquid agents must not be used in this machine. These could cause an explosion, damage rubber and plastic components in the machine, and cause liquids to leak out of the machine.
- ▶ Avoid inhalation of powder cleaners, which can cause burning in the mouth, nose and throat if swallowed, or inhibit breathing.
- ▶ The water in the cabinet must not be used as drinking water.
- ▶ Do not sit or lean on an open door. The machine could tip up and be damaged or cause an injury.
- ▶ Be careful when sorting items with sharp pointed ends and positioning them in the machine that you do not hurt yourself or create a danger for others. Sharp items should be placed in baskets with the pointed ends facing downwards.
- ▶ Please be aware that the washer-disinfector may be operating at high temperatures. If the door is opened with the emergency release cord there is a danger of burning, scalding or chemical burning or if disinfecting agents are being used, a danger of inhaling toxic vapours.
- ▶ Where there is a risk of toxic or chemical substances occurring in the suds solution (e.g. aldehyde in the disinfecting agent), it is essential to regularly check door seals and make sure that the steam condenser is functioning correctly. Opening the machine door during a programme interruption carries particular risks in such circumstances.
- ▶ Should personnel accidentally come into contact with toxic vapours or chemical agents, follow the emergency instructions given in the manufacturer's safety data sheets.
- ▶ Mobile units, baskets, inserts and the load must be allowed to cool down before they are unloaded. Any water remaining in containers could still be very hot. Empty them into the wash cabinet before taking them out.
- ▶ Do not touch the heating elements if you open the door during or directly after the end of a programme: you could burn yourself. They remain hot for some time after the end of the programme.
- ▶ Never clean the machine or near vicinity with a hose or a pressure washer.

# Warning and Safety instructions

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▶ The washer-disinfector must be disconnected from the mains electricity supply before any maintenance or repair work is carried out. Do not reconnect it until the maintenance or repair work has been successfully completed.

**The following points should be observed to assist in maintaining quality standards when processing laboratory equipment and medical devices, in order to protect patients and to avoid damage to the loads being cleaned.**

▶ If the washer-disinfector is being used for disinfection in accordance with official regulations on the control of epidemics, the steam condenser and its connections to and from the wash cabinet must be cleaned and disinfected whenever any repairs are carried out or parts replaced.

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

▶ The standard of cleaning and disinfection in the disinfection programmes must be routinely confirmed by the user. The process must be thermo-electrically validated on a regular basis, and checked against documented control results. Chemical disinfecting procedures should also be monitored using chemical or bio indicators.

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

▶ Medical products are processed by thermal disinfection. Items such as theatre shoes which are not heat resistant can be processed using a chemical disinfection agent. The range of effective disinfection is based on claims made by the producer of the disinfecting agent. Their instructions on handling, use and effectiveness must be observed. Chemo-thermal disinfection is not suitable for reprocessing medical devices.

▶ Chemical agents could, under certain conditions, cause damage to the washer-disinfector. Follow the recommendations of the chemical agent manufacturer. In the event of any damage or material deterioration please contact Miele.

▶ Pre-treatments with cleaning or disinfecting agents can create foam, as can certain types of soiling and chemical agents. Foam can have an adverse effect on the disinfection and cleaning result.

▶ Foam must not be able to escape from the wash cabinet. It would hinder the correct functioning of the machine.

▶ Check the process used regularly to monitor foaming levels.

## Warning and Safety instructions

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- ▶ To avoid the risk of damage to the washer-disinfector and any accessories used with it caused by chemical agents, soiling and any reaction between the two please read the notes in "Chemical processes and technology".
- ▶ Where a chemical additive is recommended on technical application grounds (e.g. a cleaning agent), this does not imply that the manufacturer of the machine accepts liability for the effect of the chemical on the items being cleaned.  
Please be aware that changes in formulation, storage conditions etc. which may not be publicised by the chemical manufacturer, can have a negative effect on the cleaning result.
- ▶ When using chemical agents such as cleaning agent it is essential that the manufacturer's instructions are followed. Only use chemical agents for the purpose they are designed for as specified by the manufacturer, to the exclusion of other chemicals, to avoid such dangers as chemical reactions and material damage.
- ▶ 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 cleaning agent, water quality etc. are discussed with Miele.
- ▶ If cleaning and rinsing results are subject to particularly stringent requirements (e.g. chemical analysis, specialised industrial processes etc.), a regular quality control test must be carried out by the user to ensure that the required standards of cleanliness are being achieved.
- ▶ Mobile units, baskets and inserts should only be used for the purpose they are designed for.  
Hollow instruments must be thoroughly cleaned, internally and externally.
- ▶ Empty any containers or utensils before arranging them in the machine.
- ▶ Do not allow any remains of acids or solvents, and in particular hydrochloric acid or chloride solutions, to get into the wash cabinet. Similarly avoid any materials with a corrosive effect.  
The presence in compounds of any solvents should be minimal (especially those in hazard class A1).
- ▶ To avoid any corrosion damage, ensure that solutions or steam containing hydrochloric acid do not come into contact with the stainless steel outer casing of the machine.
- ▶ After carrying out any work on the mains water system, the water supply system to the washer-disinfector must be vented.  
Otherwise, the components in the machine may become damaged.
- ▶ Please follow the advice on installation in these instructions and the separate Installation Instructions.



# Warning and Safety instructions

## Using accessories

► Only use genuine Miele original accessories with this machine and only use them for the purposes they are designed for. Consult Miele on the type and application of such equipment.

► Only use Miele mobile units, baskets and inserts in this machine. Using accessories made by other manufacturers, or making modifications to Miele accessories, can result in unsatisfactory cleaning and disinfecting results, for which Miele cannot be held liable. Any resultant damage would also invalidate the machine guarantee.

► Only use chemical agents which have been approved by their manufacturer for use in the application you are using. The chemical agent manufacturer is responsible for any negative influences on the material the load is made from and for any damage they may cause to the machine.

## Symbols on the machine



Warning:  
Observe the operating instructions.



Warning:  
Danger of electric shock.

## Disposing of your old machine

► Please note that the machine may have been contaminated by infectious pathogens, facultative pathogens, genetically modified material, blood or other bodily fluids, 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 agent. Observe safety regulations and wear safety goggles and gloves. Make the door lock inoperable, so that children cannot accidentally shut themselves in. Then make appropriate arrangements for the safe disposal of the machine.

The manufacturer cannot be held liable for damage caused by non-compliance with these Warning and Safety instructions.

## Intended use

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This washer-disinfector can be used to clean, rinse, disinfect (thermally and chemo-thermally) and dry a wide range of reusable medical and laboratory products.

Follow the medical product manufacturer's instructions (according to EN ISO 17664) on how to process their items by machine.

### Examples of application areas:

- surgical instruments,
- minimally invasive surgical instruments,
- anaesthetic and intensive care instruments,
- baby bottles and teats,
- operating theatre shoes,

or

- laboratory equipment used in research and development,
- laboratory equipment used in areas of analysis and specimen taking,
- laboratory equipment used in micro-biology and biotechnology.

The type of laboratory products which can be processed range from evaporating dishes to centrifugal test tubes.

The term "item to be processed" is used throughout these instructions to refer to products which are not named specifically.

Processing medical instruments by machine achieves reproducible results, and should be used in preference to processing them by hand.

For the protection of personnel or patients, disinfection should be carried out thermally, e.g. using the DESIN varioTD programme.

The parameters for thermal disinfection according to EN ISO 15883-1 ( $A_0$ ) are 90°C (+5°C, -0°C) with a holding time of five minutes ( $A_0$  3000). An  $A_0$  value of 3000 is suitable for deactivating the HBV virus.

National health and safety regulations regarding disinfection must also be observed.

The cleaning programme as well as any chemical agents must be chosen according to the type of soiling and load being processed.

The agents used for processing the products should be selected according to the level of cleaning required as well as the area of analysis or analytical method where the product will be used.

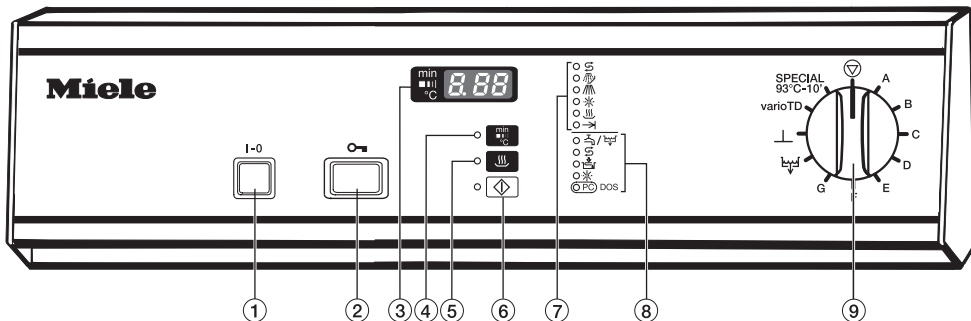
The cleaning result must ensure that the instruments have been disinfected correctly, that no residues are left behind, that subsequent sterilisation can be carried out and that the instruments can be used again safely. Medical products are best reprocessed using the DESIN varioTD programme.



















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

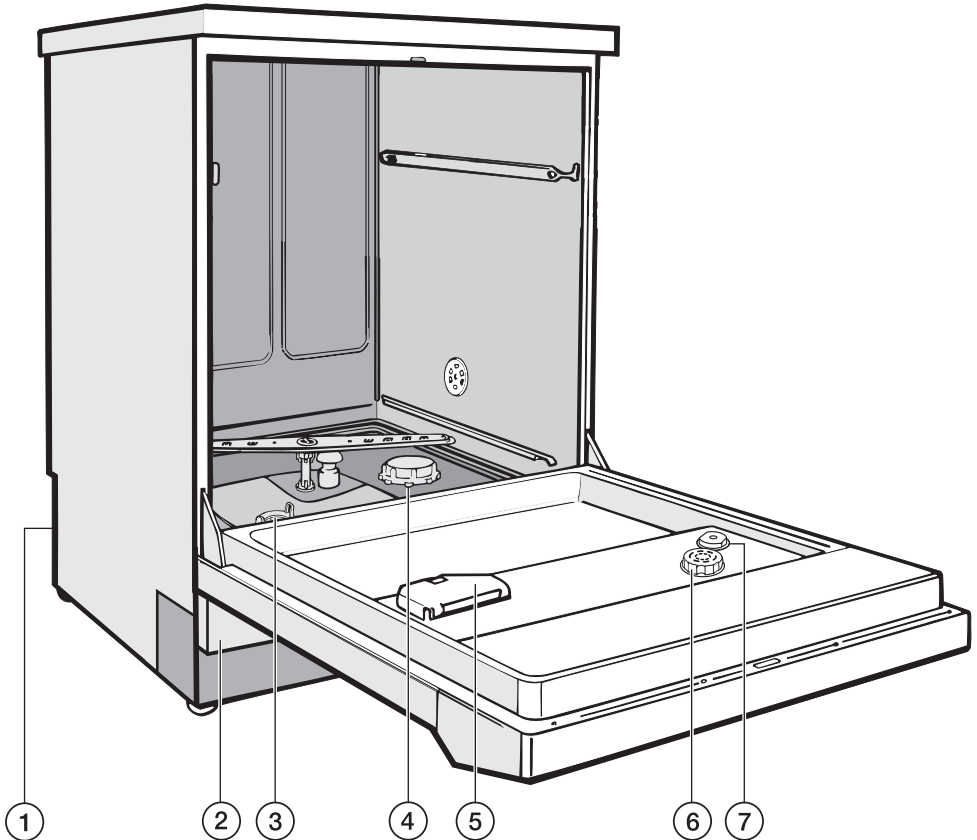
The washer-disinfector is programmed to carry out the final rinse with mains water or with processed water of a quality to suit the application (e.g. aqua destillata, purified water, de-ionised water, demineralised water). The water quality is of particular importance for applications requiring analytically clean laboratory glassware.

This machine complies with EN ISO 15883 for validation purposes.

# Guide to the machine



- ① On/Off switch I-O
- ② Door release 
- ③ Display
- ④  button to switch between the displays for:
- actual temperature
  - elapsed time
  - current block
- ⑤ Drying button  with indicator light
- ⑥ Start button  with indicator light
- ⑦ Programme sequence indicators:
-  Reactivation
  -  Pre-wash
  -  Main wash
  -  Rinse/Final rinse
  -  Drying
  -  Programme finished
- ⑧ Check/Fault indicators:
-  Inlet/drain
  -  Add salt
  -  Add neutralising agent
  -  Add rinsing agent
  -  DOS Optical interface for service technician; Add liquid cleaning agent indicator when connected to a K 60 DOS module.
- ⑨ Programme selector
-  Stop
  - A Freely programmable programme
  - B Inorganic
  - C Organic
  - D Standard
  - E Universal
  - F Intensive
  - G Plastic
  -  Drain
  -  Pre-rinse
  - varioTD
  - SPECIAL 93°C-10'



① Connection for DOS module K 60 at the rear of the machine

② Service panel

③ Filter combination

④ Salt reservoir

⑤ Dispenser for powder cleaning agent

⑥ Rinsing agent reservoir (with dosage selector)

⑦ Rinsing agent level indicator

At the rear of the machine:

– Interface connector RS 232 (optional)

– Suction tube for external neutralising agent container

# Caring for the environment

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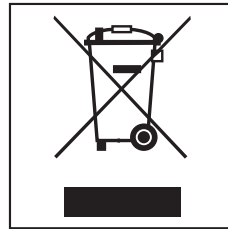
## Disposal of the packing material

The transport and protective packing has been selected from materials which are environmentally friendly for disposal and should be recycled.

Ensure that any plastic wrappings, bags etc. are disposed of safely and kept out of the reach of babies and young children. Danger of suffocation.

## Disposal of your old machine

Electrical and electronic machines often contain materials which, if handled or disposed of incorrectly, could be potentially hazardous to human health and to the environment. They are, however, essential for the correct functioning of your machine. Please do not therefore dispose of it with your general waste.



Please dispose of it at your local community waste collection / recycling centre or contact your dealer for advice. Ensure that it presents no danger to children while being stored for disposal.

# Opening and closing the door

## Electric door lock


This machine is equipped with an electric door lock.



The door can only be opened when:

- the electricity supply to the machine is switched on and
- the On/Off switch **I-O** is pressed in.

## To open the door

- Press the door release switch in as far as it will go, and at the same time grip the handle and open the door.

 Do not touch the heating elements if you open the door during or directly after the end of a programme; you could burn yourself. They remain hot for some time after the end of the programme.

The door cannot be opened after a programme has been started, and it remains locked until the end of the programme. It is still possible to open the door during the PRE-RINSE  and DRAIN  programmes.

The machine can be programmed (by a Miele approved service technician) to open during "Drying".

## To close the door


Lift the door upwards and push until it clicks shut. Do not press the door release button whilst shutting the door.

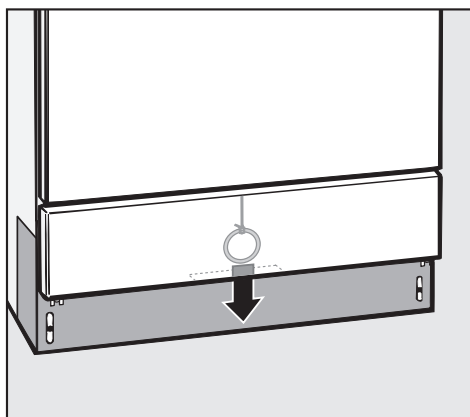
## To open the door with the emergency release

The emergency release should only be used when the door cannot be opened normally, e.g. in the event of a power failure.

Important note for SPECIAL programmes - read the notes in the Warning and Safety instructions.

There is a danger of burning, scalding and chemical burning if the door is opened using the emergency door release cord.

- Turn the programme selector to .
- Switch the machine off with the On/Off switch **I-O**.



- The emergency release cord is located at the bottom of the machine behind the service panel. Pull it downwards to open the door.

# Water softener

In order to achieve good cleaning results, the washer-disinfector needs to operate with soft water. Hard water results in the build-up of calcium deposits on the load and inside the wash cabinet.

Mains water with a hardness level higher than 0.7 mmol/l (4° dH – German scale) needs to be softened. This takes place automatically in the integrated water softener.

- The water softener requires reactivation salt.
- The washer-disinfector must be programmed to correspond to the water hardness in your area.
- Your local water authority will be able to advise you on the water hardness in your area.




Where the water hardness fluctuates e.g. between 1.4 - 3.1 mmol/l (8 - 17 °dH German scale), always programme the washer-disinfector to the higher value (17 °dH or 3.1 mmol/l in this example).

The built-in water softener has settings from 1 °dH - 60 °dH (0.2 - 10.8 mmol/l).



For future servicing it is useful to make a note of your water hardness level.

Enter the water hardness below:  
\_\_\_\_\_ °dH

## Programming the water softener

- Switch the washer disinfector off.
- Turn the programme selector to .
- Press  and  at the same time, hold them in and, whilst doing so, switch the machine on with the **I-O** switch.

The current programme status **P**... will appear in the display.


The indicator light  /  will come on.

- Press  once.

**ED1** will appear in the display.

- Turn the programme selector one switch position clockwise (1 o'clock position).

The number **19** will appear in the display (the factory water hardness default setting in °dH, equivalent to 3.4 mmol/l).

- Press  as many times as necessary, or hold it in until the required value (degree of hardness in °dH) appears in the display.

See table on the next page for water hardness settings in °dH, mmol/l and °f.

Once the number **50** has been reached, the counter will begin again at **0**.

- Press .

**5P** will appear in the display.

- Press  again.

The setting will now be stored in memory. The display will clear.

The machine is now ready for use.



## Table of settings

| °dH | mmol/l | °f | Setting       | °dH | mmol/l | °f  | Setting   |
|-----|--------|----|---------------|-----|--------|-----|-----------|
|     |        |    | <b>0 *)</b>   | 40  | 7,2    | 72  | <b>40</b> |
| 1   | 0,2    | 2  | <b>1</b>      | 41  | 7,4    | 74  | <b>41</b> |
| 2   | 0,4    | 4  | <b>2</b>      | 42  | 7,6    | 76  | <b>42</b> |
| 3   | 0,5    | 5  | <b>3</b>      | 43  | 7,7    | 77  | <b>43</b> |
| 4   | 0,7    | 7  | <b>4</b>      | 44  | 7,9    | 79  | <b>44</b> |
| 5   | 0,9    | 9  | <b>5</b>      | 45  | 8,1    | 81  | <b>45</b> |
| 6   | 1,1    | 11 | <b>6</b>      | 46  | 8,3    | 83  | <b>46</b> |
| 7   | 1,3    | 13 | <b>7</b>      | 47  | 8,5    | 85  | <b>47</b> |
| 8   | 1,4    | 14 | <b>8</b>      | 48  | 8,6    | 86  | <b>48</b> |
| 9   | 1,6    | 16 | <b>9</b>      | 49  | 8,8    | 88  | <b>49</b> |
| 10  | 1,8    | 18 | <b>10</b>     | 50  | 9,0    | 90  | <b>50</b> |
| 11  | 2,0    | 20 | <b>11</b>     | 51  | 9,2    | 92  | <b>51</b> |
| 12  | 2,2    | 22 | <b>12</b>     | 52  | 9,4    | 94  | <b>52</b> |
| 13  | 2,3    | 23 | <b>13</b>     | 53  | 9,5    | 95  | <b>53</b> |
| 14  | 2,5    | 25 | <b>14</b>     | 54  | 9,7    | 97  | <b>54</b> |
| 15  | 2,7    | 27 | <b>15</b>     | 55  | 9,9    | 99  | <b>55</b> |
| 16  | 2,9    | 29 | <b>16</b>     | 56  | 10,1   | 101 | <b>56</b> |
| 17  | 3,1    | 31 | <b>17</b>     | 57  | 10,3   | 103 | <b>57</b> |
| 18  | 3,2    | 32 | <b>18</b>     | 58  | 10,4   | 104 | <b>58</b> |
| 19  | 3,4    | 34 | <b>19 **)</b> | 59  | 10,6   | 106 | <b>59</b> |
| 20  | 3,6    | 36 | <b>20</b>     | 60  | 10,8   | 108 | <b>60</b> |
| 21  | 3,8    | 38 | <b>21</b>     |     |        |     |           |
| 22  | 4,0    | 40 | <b>22</b>     |     |        |     |           |
| 23  | 4,1    | 41 | <b>23</b>     |     |        |     |           |
| 24  | 4,3    | 43 | <b>24</b>     |     |        |     |           |
| 25  | 4,5    | 45 | <b>25</b>     |     |        |     |           |
| 26  | 4,7    | 47 | <b>26</b>     |     |        |     |           |
| 27  | 4,9    | 49 | <b>27</b>     |     |        |     |           |
| 28  | 5,0    | 50 | <b>28</b>     |     |        |     |           |
| 29  | 5,2    | 52 | <b>29</b>     |     |        |     |           |
| 30  | 5,4    | 54 | <b>30</b>     |     |        |     |           |
| 31  | 5,6    | 56 | <b>31</b>     |     |        |     |           |
| 32  | 5,8    | 58 | <b>32</b>     |     |        |     |           |
| 33  | 5,9    | 59 | <b>33</b>     |     |        |     |           |
| 34  | 6,1    | 61 | <b>34</b>     |     |        |     |           |
| 35  | 6,3    | 63 | <b>35</b>     |     |        |     |           |
| 36  | 6,5    | 65 | <b>36</b>     |     |        |     |           |
| 37  | 6,7    | 67 | <b>37</b>     |     |        |     |           |
| 38  | 6,8    | 68 | <b>38</b>     |     |        |     |           |
| 39  | 7,0    | 70 | <b>39</b>     |     |        |     |           |

\*) The "0" setting is only for machines which **do not have a water softener**


\*\* ) Factory default setting

# Water softener

## Filling the salt reservoir

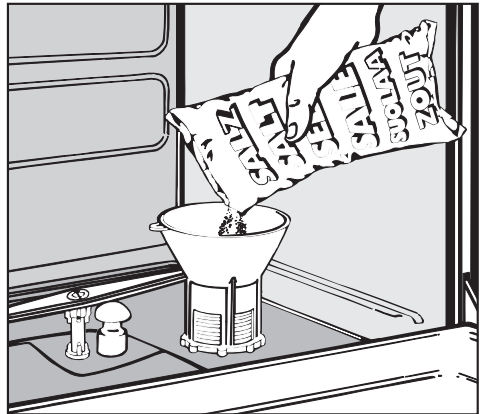
Only use special coarse grained reactivation salt with granules of approx. 1 - 4 mm. Do not use other types of salt such as cooking salt, agricultural grade or gritting salt. These may contain insoluble additives which can impair the functioning of the water softener. If in doubt consult the Miele Professional Department.

The salt reservoir holds approx. 2.5 kg of salt.

 Inadvertently filling the salt reservoir with cleaning agent will damage the water softener. Before filling the salt reservoir make sure that you have picked up the right packet of reactivation salt.

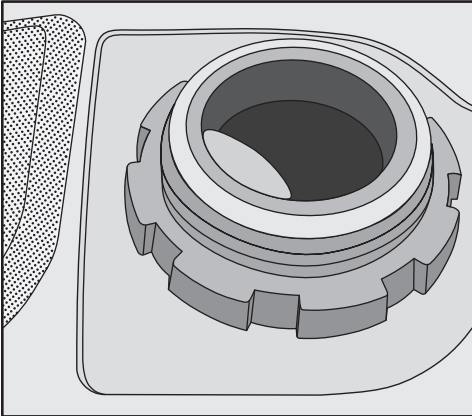
- Remove the bottom basket from the machine.
- Unscrew the salt reservoir cap.

Before filling the salt reservoir with reactivation salt for the first time, you must fill it with approx. 2.5 litres of water to enable the salt to dissolve. Once the washer-disinfector has been used, there is always sufficient water in the reservoir.



- Place the funnel provided in position.
- Fill carefully with salt.

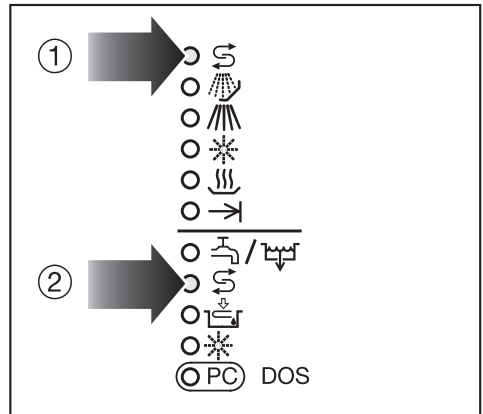
As it is poured in, displaced water will run out.



- Remove the funnel and wipe any residual salt off the seal and the screw threads on the socket.
- Screw the cap back on firmly.
- Run the PRE-RINSE  $\perp$  programme to remove any traces of salt from the cabinet.

The programme sequence may be delayed for a few minutes after the start of the PRE-RINSE  $\perp$  programme. This is not a fault. The water softener is being reactivated.

## Add salt indicator



Reactivation takes place automatically during a programme.

The programme sequence indicator light ① ⚡ lights up whilst this is happening.

- Add salt when the Add salt ② ⚡ indicator lights up.

# Areas of application

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This washer-disinfector can be fitted with a top and bottom basket or a mobile unit. Various inserts and special baskets are also available for a wide variety of instruments and utensils.

Select baskets and inserts which are appropriate for the application.


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

## Before starting a programme you should carry out a visual check on the following:

- Is everything correctly loaded/connected for cleaning?
- Are the lumen or necks of hollow instruments positioned so that water can access them unhindered?
- Are the spray arms clean and do they rotate freely?
- Are the filters clean? Remove any coarse soiling and clean them properly if necessary.
- Is the adapter connecting the water supply to the spray arms/jets correctly connected?
- Are all chemical containers filled sufficiently?

## At the end of each programme:

- Carry out a visual check of the load for cleanliness.
- Check that all hollow instruments are still securely located on their jets.

 Any instruments that have become disconnected from the adapters during processing must be re-processed.

- Are the lumen of hollow instruments completely clean and clear of contamination?
- Check that jets and connectors are securely connected to the baskets or inserts.


## Loading the machine

- Arrange the load so that water can access all surfaces. This ensures that they get properly cleaned.
- Do not place items to be cleaned inside other pieces where they may be concealed.
- Hollow instruments must be thoroughly cleaned, internally and externally.
- Ensure that instruments with long narrow hollow sections can be flushed through properly before placing them in inserts or connecting them to jets.
- Hollow vessels should be inverted and placed in the correct baskets and inserts to ensure that water can flow in and out of them unrestricted.

- Deep-sided items should be placed at an angle to make sure water runs off them freely.
- Tall, narrow, hollow items should be placed in the centre of the baskets to ensure better water coverage.
- Lightweight items should be secured with a cover net (e.g. an A 6) and small items placed in a mesh tray to prevent them blocking the spray arms.
- Mobile units or baskets with an adapter must engage correctly.
- The spray arms must not be blocked by items which are too tall or which hang down in their path.
- It is advisable to use instruments made of surgical steel only, as these are not susceptible to corrosion.
- Nickel-plated instruments and coloured anodised aluminium instruments are not suitable for machine processing.
- Plastic items must be thermally stable.

### Preparing the load

- Empty all containers before loading into the machine (paying particular attention to regulations regarding infectious diseases and epidemics).
- Remove culture medium (agar) from Petri dishes.
- Pour away blood or other body fluids, and remove any dried on blood.
- Remove all stoppers, corks, labels, sealing wax residues, etc.

 Ensure that acids and residual solvents, especially hydrochloric acid or chlorides, do not get into the wash cabinet.

In certain cases, soiling that is difficult or impossible to remove, e.g. silicone grease, sticky labels, etc., which could affect the cleaning results, must be removed manually before being machine processed.

It is the user's responsibility to decide whether items contaminated with substances such as microbiological material, pathogens, facultative pathogens, genetically modified material etc. should be sterilised before being machine processed.

Contaminated instruments can be placed directly in the baskets or inserts in the machine without pre-treatment (no soaking required).

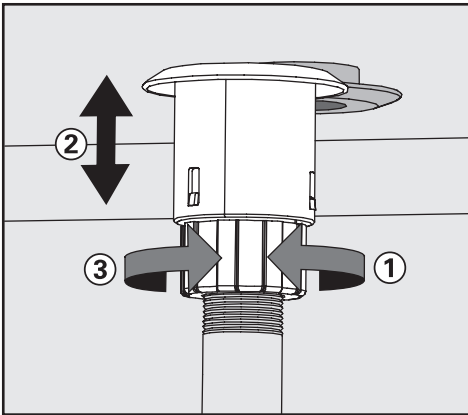
## Areas of application

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### Water connection spring adapter

Make sure that the spring adapter for water connection engages correctly when a basket or injector unit is inserted in the machine. It must be 4-5 mm higher than the water connection inlet in the machine.

If it is not, adjust the adapter accordingly.



- Loosen lock ring ①.
- Push up adaptor ②.
- Tighten lock ring ③.

### Height adjustable top basket

The top basket can be adjusted above and below the middle position by 2 cm.

Different height items can be reprocessed in this machine depending on the position the top basket is set at and the inserts used.

#### To adjust the top basket:

- Pull out the top basket until a resistance is felt; lift from the runners and remove.
- Unscrew the roller bearings on both sides of the basket with a 7mm spanner and reposition as required.

### Laboratory utensils

Wide-necked laboratory utensils, e.g. beakers, wide-necked conical flasks and Petri dishes, or cylindrical vessels, e.g. test tubes, are washed and rinsed internally and externally by the rotating spray arms.

To achieve this, they need to be positioned in a full, half or quarter insert, and then placed in an empty lower basket or into an upper basket with a spray arm.

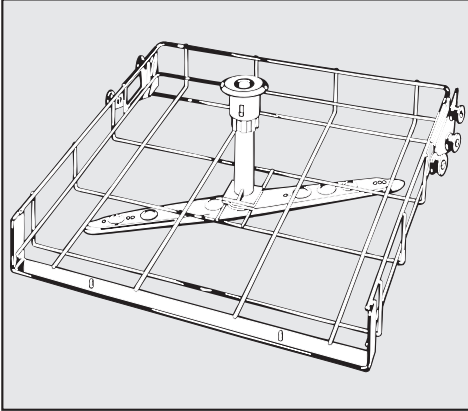
For narrow-necked utensils, e.g. narrow-necked conical flasks, round bottomed flasks, measuring flasks and pipettes, a mobile injector unit or injector basket is required.

Mobile injector units and baskets for narrow-necked laboratory utensils are supplied with their own operating instructions.

The following instructions relate only to basic preparation and loading of laboratory utensils.

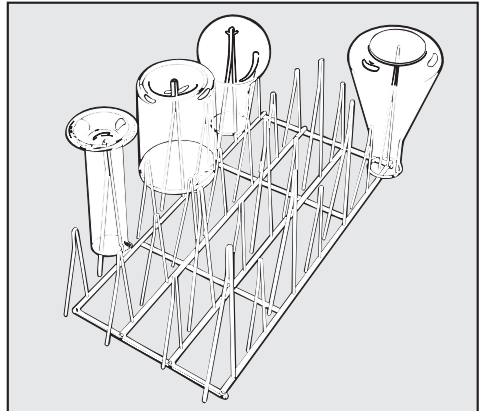
- Petri dishes and similar should be placed in the correct insert with the soiled side facing the centre.
- Place pipettes upright in the insert, with the opening uppermost.
- Use nets to secure items in order to avoid glass breaking.
- Quarter inserts should be placed in the mobile unit with at least 3 cm between them and the edge of the mobile unit.

## Areas of application



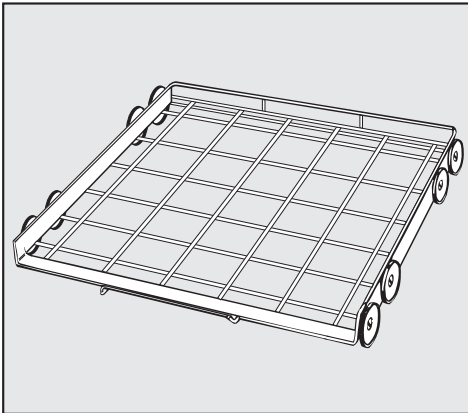
### Upper basket O 188/1

For various inserts, e.g. E 103 for test tubes, AK 12 for funnels and beakers, E 118 for Petri dishes, or E 134 for microscope slides.



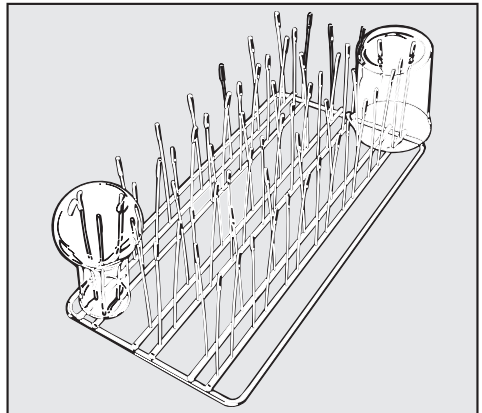
### E 106/2

For wide-necked beakers, measuring cylinders or medicine bottles.



### Lower basket U 874/1

for various inserts, e.g. E 136 for Petri dishes and E 403 for watch glasses.



### E 109

For beakers.



# Chemical processes and technology

## General notes

| Problem  | How to resolve it   |
|--|---|
| <p>If seals, hoses and plastics in the washer-disinfector suffer damage they will not be water-tight and will not function correctly. and will then not function correctly.</p>  | <p>– Establish the cause of the damage and rectify it.</p> <p>See information regarding "Chemical agents", "Soiling" and "Reaction between chemical agents and soiling".</p>  |
| <p>Heavy foaming during a programme affects cleaning and rinsing results. Foam escaping from the wash cabinet can cause damage to the washer-disinfector. Cleaning processes cannot be regulated and validated where there has been a build-up of foam..</p>   | <p>– Establish the cause of the foam and rectify it.</p> <p>– Check the process used regularly to monitor foaming levels.</p> <p>See information regarding "Chemical agents", "Soiling" and "Reaction between chemical agents and soiling".</p> |
| <p>Corrosion to stainless steel in the wash cabinet and to accessories can give them a different appearance:</p> <ul style="list-style-type: none"><li>– rust (red marks / discolouration),</li><li>– black marks / discolouration,</li><li>– white marks / discolouration (etched surface).</li></ul> <p>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.</p> | <p>– Establish the cause of the corrosion and rectify it.</p> <p>See information regarding "Chemical agents", "Soiling" and "Reaction between chemical agents and soiling".</p>   |

# Chemical processes and technology

## Chemical agents

| Problem   | How to resolve it   |
|---|---|
| <p>The ingredients in chemical agents 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 chemical agent.</p> <p>General types:</p> <ul style="list-style-type: none"><li>– alkaline to pH neutral products,</li><li>– acidic to pH neutral products</li><li>– hydrogen peroxide.</li></ul> | <ul style="list-style-type: none"><li>– Observe the chemical agent manufacturer's instructions and recommendations.</li><li>– Carry out a regular visual check of the dispensing system for any damage.</li><li>– Check the flow rate of the dispensing system regularly.</li></ul> |
| <p>Chemical agents can damage elastomers and plastics in the washer-disinfector and accessories.</p>  | <ul style="list-style-type: none"><li>– Observe the chemical agent manufacturer's instructions and recommendations.</li><li>– Carry out a regular visual check of any accessible elastomers and plastics for damage.</li></ul>  |
| <p>Hydrogen peroxide can release large quantities of oxygen.</p>  | <ul style="list-style-type: none"><li>– Only use approved processes such as OXIVARIO or OXIVARIO PLUS.</li><li>– The wash temperature must be less than 70 °C when using hydrogen peroxide.</li><li>– Please contact Miele for advice.</li></ul>                                    |

# Chemical processes and technology

## Chemical agents

| Problem  | How to resolve it   |
|--|---|
| <p>The following chemical agents can cause large amounts of foam to build up:</p> <ul style="list-style-type: none"><li>– cleaning agents and rinsing agents containing tensides,</li></ul> <p>Foam can occur:</p> <ul style="list-style-type: none"><li>– in the programme block in which the chemical agent is dispensed,</li><li>– in the following programme block if it has been spilt,</li><li>– in the following programme with rinsing agent if it has been spilt.</li></ul> | <ul style="list-style-type: none"><li>– Process parameters in the wash programme, such as dispensing temperature, dosage concentration etc. must be set to ensure the whole process is foam free or very low foaming.</li><li>– Please observe the chemical agent manufacturer's instructions.</li></ul>  |
| <p>De-foaming agents, especially silicone based ones can cause the following:</p> <ul style="list-style-type: none"><li>– deposits to build up in the cabinet,</li><li>– deposits to build up on the load,</li><li>– damage to elastomers and plastics in the washer-disinfector,</li><li>– damage to certain plastics (e.g. polycarbonate and plexiglass) in the load being processed.</li></ul>  | <ul style="list-style-type: none"><li>– De-foaming agents should be used in exceptional cases only, for instance when absolutely essential for the process.</li><li>– The wash cabinet and accessories should be periodically cleaned without a load and without de-foaming agent using the ORGANIC programme.</li><li>– Please contact Miele for advice.</li></ul> |

# Chemical processes and technology

## Soiling


| Problem  | How to resolve it   |
|--|---|
| <p>The following substances can damage elastomers (hoses and seals) and plastics in the washer-disinfector:</p> <ul style="list-style-type: none"> <li>– oil, wax, aromatic and unsaturated hydrocarbons,</li> <li>– emollients,</li> <li>– cosmetics, hygiene and care products such as creams (analytical applications).</li> </ul>  | <ul style="list-style-type: none"> <li>– Refit the washer-disinfector with oil resistant elastomeres.</li> <li>– Depending on usage wipe the lower door seal on the washer-disinfector periodically with a lint-free cloth or sponge.<br/>Clean the wash cabinet and accessories without a load using the ORGANIC programme.</li> <li>– Prepare the load using the "OIL" programme (if available) or use a special programme that dispenses cleaning agents containing tensides.</li> </ul> |
| <p>The following substances can lead to a heavy build-up of foam during washing and rinsing:</p> <ul style="list-style-type: none"> <li>– some disinfecting agents and dishwashing detergents,</li> <li>– reagents for analysis e.g. for microtiter plates,</li> <li>– cosmetics, hygiene and care products such as shampoos and creams (analytical applications),</li> <li>– active foaming agents such as tensides.</li> </ul> | <ul style="list-style-type: none"> <li>– Thoroughly rinse items in water beforehand.</li> <li>– Select a cleaning programme with at least one short pre-rinse in cold or hot water.</li> <li>– Depending on application use de-foaming agents that do not contain silicone oils.</li> </ul>   |
| <p>The following substances cause corrosion to stainless steel in the wash cabinet and on accessories:</p> <ul style="list-style-type: none"> <li>– hydrochloric acid,</li> <li>– other substances containing chlorides such as sodium chloride etc.,</li> <li>– concentrated sulphuric acid,</li> <li>– chromic acid,</li> <li>– particles of iron and swarf.</li> </ul>  | <ul style="list-style-type: none"> <li>– Thoroughly rinse items in water beforehand.</li> <li>– Place items drip dried into mobile units, baskets and inserts and then place these in the wash cabinet.</li> </ul>  |

# Chemical processes and technology

## Reaction between chemical agents and soiling

| Problem  | How to resolve it  |
|--|--|
| Natural oils and fats can be emulsified with alkaline chemical agents. This can lead to a heavy build-up of foam.  | <ul style="list-style-type: none"><li>- Where available use the "OIL" programme.</li><li>- This special programme dispenses cleaning agents containing tensides (pH neutral) in the pre-rinse.</li><li>- Depending on application use de-foaming agents that do not contain silicone oils.</li></ul> |
| Soiling containing high protein levels such as blood can cause a heavy build-up of foam when processed with alkaline chemical agents.                              | <ul style="list-style-type: none"><li>- Select a cleaning programme with at least one short pre-rinse in cold water.</li></ul>   |
| Non-precious metals such as aluminium, magnesium and zinc can release hydrogen when processed with very acidic or alkaline chemical agents (oxyhydrogen reaction). | <ul style="list-style-type: none"><li>- Please observe the chemical agent manufacturer's instructions.</li></ul>   |

# Dispensing chemical agents

 Only use agents formulated specifically for use in washer-disinfectors and make sure you follow the manufacturer's instructions. Pay particular attention to information regarding toxic residues.

## Adding rinsing agent


The dispensing of rinsing agent in the final programme block via DOS 2 has to be activated by a Miele service technician.

Rinsing agent is necessary to ensure water does not cling and leave marks on items, and to help items dry faster after they have been washed.

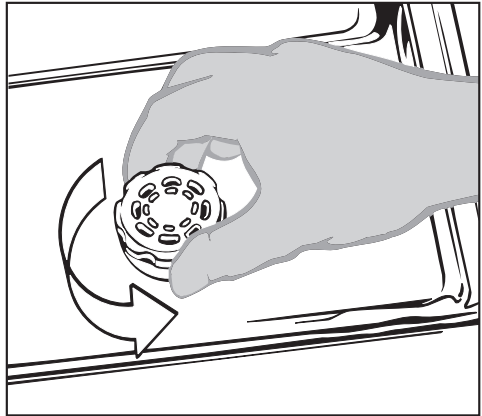
Because residues of rinsing agent remain on the surface of items after they have dried, it is important to check the suitability of the rinsing agent being used.

Rinsing agent is poured into the storage reservoir, and the amount set is dispensed automatically.

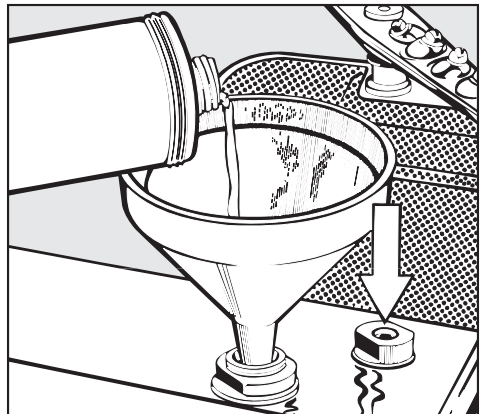
The rinsing agent reservoir holds approx. 180 ml.

 Only fill the rinsing agent reservoir with rinsing agent formulated for washer-disinfectors. Do not fill it with cleaning agent. This would damage the reservoir.

- Open the door fully.

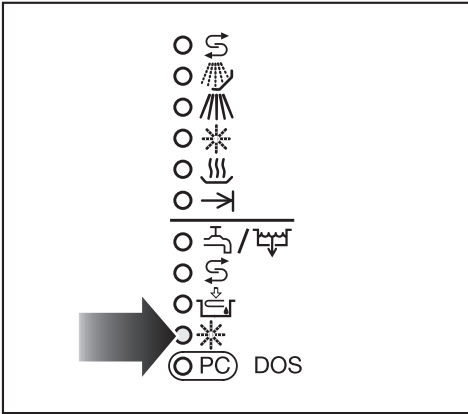


- Undo the screw cap.



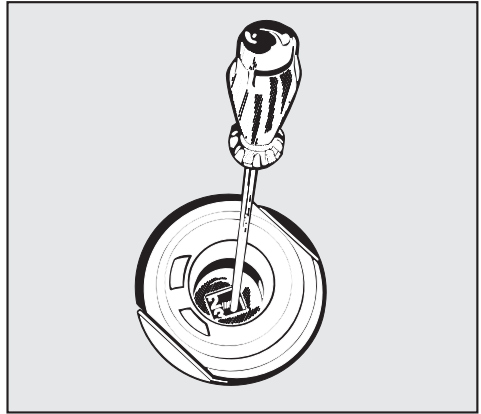
- Add rinsing agent until the level indicator is dark (see arrow in the illustration). Use a funnel if necessary.
- Screw the cap back on.
- Mop up any spilt rinsing agent. This prevents over-foaming occurring during the next programme.

## Add rinsing agent indicator



- Add rinsing agent to the rinsing agent reservoir when the Add rinsing agent indicator \* lights up.

## Setting the dosage



The dosage adjuster in the opening has settings adjustable from 1 to 6 (1-6 ml). It is set to 3 (3 ml) at the factory.

If spots appear on items:

- Use a higher setting.

If clouding or smearing appears on items:

- Use a lower setting.

# Dispensing chemical agents

## Adding neutralising agent

Neutralising agent (pH-level: acidic) neutralises residues of alkaline cleaning agents on the surface of instruments and utensils.

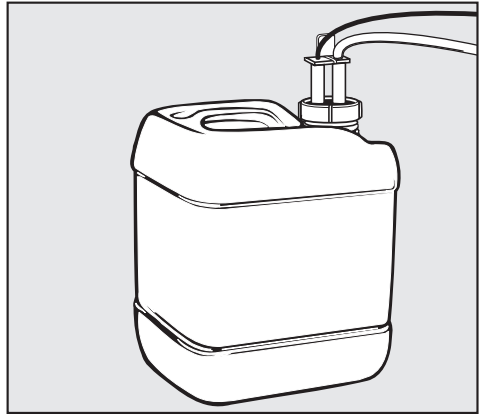
If the cleaning agent being used is mildly alkaline, you will need to use a phosphoric acid based neutralising agent.  
If using a neutral enzyme based liquid cleaning agent, you will need to use a citric acid based neutralising agent.

The neutralising agent is automatically dispensed in the programme stage Rinse 2 following the cleaning cycle of a programme. The dispensing system container needs to be filled with neutralising agent and vented.

In Programme **B INORGANIC**, neutralising agent is also dispensed for an acidic pre-wash.

See "Programmable functions" for details on how to vent the dispensing system and set the dosage.

- When refilling the red container with neutralising agent you could place it on the open wash cabinet door or on a surface which is easy to clean.
- Insert the siphon tube into the container and screw on securely (observing the colour code).




- Place the container on the floor next to the washer-disinfector or in an adjoining cupboard.





# Dispensing chemical agents

## Adding cleaning agent

 Only use cleaning agents suitable for washer-disinfectors. Do not use cleaning agents designed for domestic dishwashers.

A liquid cleaning agent can be dispensed via the optional DOS module K 60 (DOS 1 dispensing pump for liquid cleaning agent). The machine must be set up for this by a Miele approved service technician. The DOS module is connected externally. See "Programmable functions" for details on how to vent the dispensing system and set the dosage.

We recommend using a DOS module (available as an optional extra) for the dispensing of liquid cleaning agent.

Liquid cleaning agent has to be used on Programme **C** ORGANIC.



## Dispensing powder cleaning agent

 Avoid inhalation of powder cleaners.

These chemicals can cause burning in the mouth and throat if swallowed and can inhibit breathing.

When using the following upper baskets, **liquid cleaning agent** must be dispensed from a DOS module, e.g. DOS K 60:

- ○ 175
- ○ 176
- ○ 176/1
- ○ 183
- ○ 184
- ○ 187
- ○ 190/2.

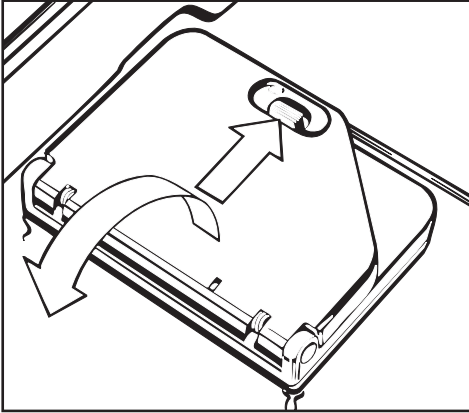
Powder cleaning agent must be placed in the powder cleaning agent dispenser before every programme (except with  "PRE-RINSE" and  "DRAIN").

### Dosage example:

Approx. 10.5 litres of water are taken into the machine in the "Main wash" programme stage.  
30 g of cleaning agent will be required for a cleaning agent concentration of approx. 3 g/l.

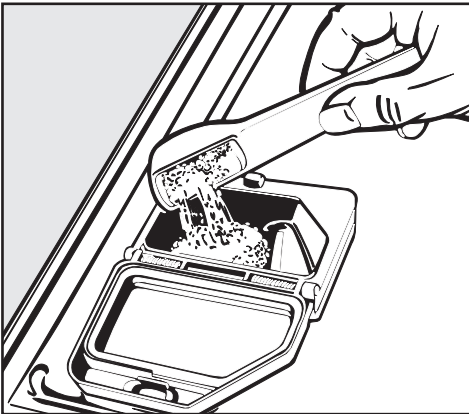
Follow manufacturer's instructions if they differ.

## Dispensing chemical agents



- Press the button on the powder cleaning agent dispenser. The flap will spring open.

The flap is always open at the end of a programme.



- Add powder cleaning agent to the compartment.
- Close the dispenser flap.

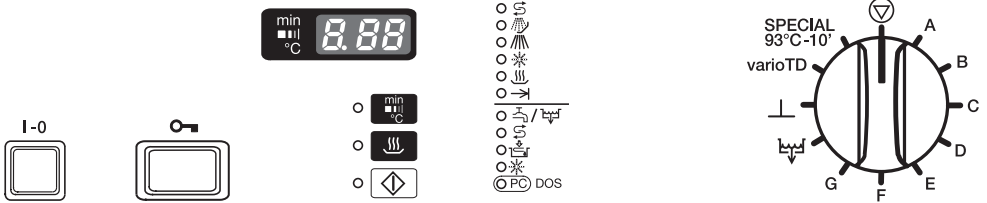
⚠ At the end of the programme, check that there are no cleaning agent residues remaining in the dispenser. If there are, you will need to repeat the programme.

For environmental reasons, please consider the following points when selecting a cleaning agent:

- What level of alkalinity is required to achieve the correct level of cleaning?
- Is active chlorine required for disinfection or oxydation (pigment removal)?
- Are tensides required for dispersal and emulsification?
- Only use specially formulated cleaning agents which are mildly alkaline and free of active chlorine in thermal disinfecting programmes.


Some types of soiling may require different combinations of cleaning agents and other additives. The Miele Professional Department will be pleased to advise you.

# Operation



## Switching on




- Close the door.
- Open the stopcocks.
- Press the **I-0** switch.

When the programme selector is at , a dot lights up in the display.


## Starting the programme

Choose your programme according to the type of instruments or utensils being cleaned and the degree of soiling. The different programmes and their uses are described in the **Programme chart** at the end of this booklet.

- Turn the programme selector clockwise or anti-clockwise to the required programme.

The temperature of the first stage of the programme selected will appear in the display, except with  and . The indicator light next to the start button  will flash.

## Selecting the Drying additional function

The Drying additional function may be selected immediately after the programme has been selected (except with Pre-rinse programme ).


To do this:

- Press .

The programme will be extended by Drying block 1 (if available) and 2; see Programme chart.

The display shows programmed Drying time 2. This can be altered in 5 minute steps by pressing the  button. The new drying time is programmed in for the programme selected after the programme start. The total running time for the programme increases accordingly.


- Press the Start button .


The current temperature will appear in the display. The indicator light next to the Start button  will light up.

Once the programme is running, all the other programmes are blocked. If the programme selector is then turned to another programme, the values shown in the display will go out. The values can be seen again if the programme selector is turned back to the position of the programme currently in operation.

During a programme, you can switch between the following displays:







- the current temperature,
- the elapsed programme duration and
- the current block:
  - 1 = Pre-wash 1
  - 2 = Pre-wash 2
  - 3 = Main wash 1
  - 4 = Main wash 2
  - 5 = Chemical disinfection\*
  - 6 = Rinse 1
  - 7 = Rinse 2
  - 8 = Rinse 3
  - 9 = Rinse 4
  - 10 = Final rinse 1
  - 11 = Final rinse 2
  - 12 = Drying 1
  - 13 = Drying 2

- Press  to switch between the displays.

\* Wash block 5 (normally for chemical disinfection) can be programmed in as an additional programme stage in freely programmable Programmes **A**, **B** and **C**. It is then **not** possible to dispense chemical disinfection agents. The programme sequence indicator  will light up when block 5 is active.

## Programme sequence indicators



The indicator light for the current programme stage lights up during the programme:

- |   |   |
|---|---|
|  | Reactivation  |
|  | Pre-wash 1 + 2  |
|  | Main wash 1 + 2*  |
|  | Rinses 1 - 4/<br>Final rinse 1 + 2                            |
|  | Drying  |
|  | End of programme<br>(Programme parameters have been achieved) |

# Operation


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## Programme end


The programme has ended when →I lights up constantly in the programme sequence display and the  indicator has gone out. A  will appear in the middle of the display. All the other indicators come on and go out in sequence.

At the same time a buzzer sounds for a maximum of 30 seconds (default setting).

The buzzer can be changed; see "Programmable functions".

Use the  button to call up the total running time of a programme or the current temperature.

## Additional drying


If additional drying is required after the end of a programme, the  programme can be used with the Drying additional function. The running time for this is approx. 1 minute in addition to the drying time displayed.

## Switching off

- Press and release the **I-0** switch.

As the machine is fitted with an electric door lock, the door can only be opened if the **I-0** switch is pressed in (see "Opening and closing the door").

## Cancelling a programme

 Where a programme is cancelled, the items must be reprocessed.

### Programme cancellation due to a fault

If the programme is cancelled before completion, a fault message "F.." will appear in the display.


Depending on the cause, the appropriate measures must be taken to resolve the problem. Proceed as described in "Problem solving guide".

### Cancelling the programme manually

Once a programme is running, it should only be cancelled in extreme cases, e.g. when articles in the machine rattle or jostle against each other or the wrong programme has been selected.

#### Application: Medical equipment


When testing to EN ISO 15883-1 or HTM 2030 standards, a programme must not be interrupted or cancelled.


 With officially registered epidemics, any contaminated water must be decontaminated using a disinfecting agent before it is discharged into the sewerage system.

- Turn the programme selector to .

The programme will be cancelled after approx. 2 seconds.

- Open the door .

 Caution. Water and items in the machine may be hot. Danger of burning or scalding.

- Arrange the load securely. (Wear protective gloves where necessary, and observe appropriate health and safety regulations relating to infectious diseases).
- Replenish powder cleaning agent if necessary.
- Close the door.
- Start the Drain  programme.  
The water will drain away.
- Select and start the programme again.

**The following procedure should be followed when dealing with official cases requiring the containing of epidemics using the SPECIAL 93°C-10' programme:**


- Start the programme again.

The display will show the temperature holding time required counting downwards.

# Programmable functions


For future servicing work, please document any alterations to the factory default settings.  
Enter any alterations in the appropriate box.

## General notes:



- Switch positions that have not been allocated a function are indicated in the middle part of the display by a bar ( - ).
- The programming level is called up via the  position. It is shown as *E.* in the display.
- When processing medical devices, any changes made to programmes or dispensing systems must be documented in a log book kept with the machine (in accordance with the Medical Devices Directive). The machine's cleaning and disinfecting standards must be re-validated.



## The following applies to all programmable functions:

### To activate programming mode


■ Turn the programme selector to .

■ Switch off the machine.

■ Press and hold in  and  at the same time, and, whilst doing so, press the **I-0** switch.

The current programme version *P.* will appear in the display. The  /  indicator light comes on.

### To save values and exit from programming mode

■ Press . *SP* will appear in the display.

■ Press  again. The alteration is now saved.



### To exit from programming mode without saving

■ Switch the machine off with the **I-0** switch. The alteration will not be saved.



### Resetting the operating hours counter for the filter in the drying unit

After the filter in the drying unit has been changed, the operating hours counter needs to be reset.

| Step  | Display / Result  |
|---|---|
| ■ Press  as often as necessary or hold it pressed in until E04 appears in the display. | <i>E04</i>  |
| Turn the programme selector to the 7 o'clock position.  | The current value will appear in the display, e.g. <i>105</i> |
| ■ Press  once.   | <i>000</i>  |

Once the setting has been saved and you have come out of programming mode, the operating hours counter will go out.



# Programmable functions

## Dispensing liquid cleaning agent via DOS 1

### Setting the dosage concentration

The dosage concentration must be set exclusively for liquid cleaning agent. Set it according to the manufacturer's recommendations or the official standards required.

The dosage concentration must not be altered even if powder cleaning agent is dispensed via the dispenser in the door.




| Step  | Display / Result   |
|---|--|
| ■ Press  until E02 appears.  | <i>E02</i>   |
| ■ Turn the programme selector to <b>B</b> .   |  |
| without DOS Module connected:   | <i>10</i> = 10 sec dosage duration                                       |
| with DOS Module connected:  | <i>1.00</i> = 1.0 % dosage concentration                                 |
| ■ Press  as many times as necessary or hold pressed in until the required value appears in the display, e.g. 0.50. | <i>0.50</i><br>The dosage duration/concentration level has now been set. |

Dosage concentration set: \_\_\_\_\_

### Venting the dispensing system

The dispensing system must be vented:



- when the dosage concentration is set for the first time,
- if the liquid cleaning agent container runs out and is not refilled in time.

| Step  | Display / Result   |
|---|--|
| ■ Press  until E02 appears.  | <i>E02</i>   |
| ■ Turn the programme selector to <b>A</b> .   | <i>d01</i>   |
| ■ Press  .   | The dispensing system will be vented automatically. <i>0</i> will appear in the display when the venting process has finished. |
| ■ Exit from programming mode. Then start the Pre-rinse  programme. | Any agents which are in the wash cabinet after the venting process will be diluted before being drained away.                  |

## Dispensing neutralising agent via DOS 3

### Setting the dosage concentration

The dosage concentration for the neutralising agent must be set according to the manufacturer's recommendations or the official standards required.




| Step   | Display / Result  |
|--|---|
| ■ Press  until E02 appears.   | <i>E02</i>  |
| ■ Turn the programme selector to <b>F</b> .  | The dosage concentration which has been programmed in will appear in the display, e.g. <i>0.10</i> = 0.10 % |
| ■ Press  as many times as necessary or hold pressed in until the required value appears in the display, e.g. 0.2. | <i>0.20</i><br>The dosage concentration level has now been set.   |

Dosage concentration set: \_\_\_\_\_

### Venting the dispensing system

The dispensing system must be vented:

- when the dosage concentration is used for the first time,
- if the chemical agent container runs out and is not refilled in time.

| Step   | Display / Result   |
|--|--|
| ■ Press  until E02 appears.   | <i>E02</i>   |
| ■ Turn the programme selector to <b>E</b> .  | <i>do3</i>   |
| ■ Press  .  | The dispensing system will be vented automatically. <i>0</i> will appear in the display when the venting process has finished. |
| ■ Exit from programming mode.<br>Then start the Pre-rinse  programme. | Any agents which are in the wash cabinet after the venting process will be diluted before being drained away.                  |

# Programmable functions

## Buzzer



A buzzer can be programmed for the following:

- a constant tone will sound at the end of a programme,
- a buzzer will sound at one second intervals as a fault warning, and
- 3 short beeps followed by a 2 second pause, then 3 short beeps etc will sound as a reminder to remove a test item.

The reminder to remove a test item function has to be programmed by an approved Miele service technician.

The buzzer settings are displayed as numbers:



- 20** Switched off
- 21** At the end of a programme (factory default setting)
- 22** Fault indication
- 23** At end of a programme + fault indication
- 24** Reminder to remove a test item
- 25** At the end of a programme + reminder to remove a test item
- 26** Fault indication + reminder to remove a test item
- 27** At the end of programme + fault indication + reminder to remove a test item.

| Step   | Display / Result |
|--|------------------|
| ■ Press  until E04 appears.   | <i>E04</i>       |
| ■ Turn the programme selector to <b>B</b> .  | <i>21</i>        |
| ■ Press  repeatedly or hold pressed in until the required number appears in the display, e.g. 26. | <i>26</i>        |

Value set: \_\_\_\_\_

The buzzer will sound at the setting selected for 30 seconds.

To switch the buzzer off early:

- turn the programme selector to ,
- press .
- interrupt the electricity supply, e.g. open the door.

## Changing programme parameters

The settings for individual parameters set at the factory are outlined in the Programme chart at the end of these operating instructions.

Programme parameters can only be changed if they are activated in a programme; see Programme chart.

Any changes carried out must be documented, e.g. handwritten into the corresponding column of the Programme chart.

## Changing the wash parameters

The parameters for the cleaning programmes can be changed to suit particular requirements. For this purpose, the temperature and the temperature holding time in the Main wash 1 and 2 and Final rinse 1 and 2 programme blocks can be changed.

The programme parameters for the Main wash 1 programme block in the SPECIAL 93°C-10' programme cannot be changed.

Temperatures over 55°C result in blood denaturation and fixing.

On the varioTD programme, take note of the appropriate requirements for infection prevention.

Values which can be set for the temperature:

30°C - 93°C in Programmes A to G and varioTD in 1°C increments

Values which can be set for the holding time:

1-15 mins.

## Changing the drying parameters

The parameters for drying can be changed to suit particular requirements. The temperature and drying time can both be changed in programme blocks Drying 1 (if available) and 2.

Values which can be set for the temperature:

50°C - 99°C in 1°C increments

Values which can be set for the drying time:

Drying 1: 1-99 minutes in 1 minute steps



Drying 2: 5-95 min in 5 minute steps

The drying time for programme block Drying 2 can also be altered using the  button (see "Operation, Selecting the additional Drying  function").



# Programmable functions

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## Changing the temperature

| Step  | Display / Result   |
|---|--|
| ■ Press button  as often as necessary or hold pressed in until the level of the programme block you wish to change appears in the display. | <i>E09</i> for Main wash 1<br><i>E12</i> for Main wash 2<br><i>E22</i> for Final rinse 1<br><i>E25</i> for Final rinse 2<br><i>E28</i> for Drying 1<br><i>E31</i> for Drying 2 |
| ■ Turn the programme selector to the programme you wish to change, e.g. <b>A</b> .  | °C <i>_ 75</i>   |
| ■ Press  or hold pressed in until the required value appears in the display, e.g. 70 °C.   | °C <i>_ 70</i>   |

## Changing the temperature holding time

| Step  | Display / Result   |
|---|--|
| ■ Press button  repeatedly, or hold pressed in until the level of the programme block you wish to change appears in the display. | <i>E10</i> for Main wash 1<br><i>E13</i> for Main wash 2<br><i>E23</i> for Final rinse 1<br><i>E26</i> for Final rinse 2<br><i>E29</i> for Drying 1<br><i>E32</i> for Drying 2 |
| ■ Turn the programme selector to the programme you wish to change, e.g. <b>A</b> .  | min <i>^ 7</i>   |
| ■ Press  repeatedly or hold pressed in until the required value appears in the display, e.g. 10.                               | min <i>^ 10</i>  |

## Resetting to factory default settings

| Step  | Display / Result   |
|---|--|
| ■ Press  as often as necessary or hold it pressed in until E33 appears in the display. | <i>E33</i>   |
| ■ Turn the programme selector to a programme.   |  |
| Factory default setting:  | <i>00</i>  |
| Electronics have been programmed to another setting:  | <i>PP</i>  |
| ■ Press  when <i>PP</i> shows in the display.  | <i>00</i> , the factory default settings have been reinstated. |

The water softener has been reset to the factory default setting. It will need to be reprogrammed; see "Programming the water softener".  
Programme changes which have been made to the freely programmable Programmes A, B and C will be kept and will not be reset.

# Programmable functions

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## Setting the time and date



The serial interface contains the date and time. This data is transmitted to the report printer.

You can reset the date and time, e.g. to change from summer to winter time.

The individual values of date and time are activated according to the position of the programme selector:

- "1 o'clock" position: Calendar day *01 - 31*
- "2 o'clock" position: Month *01 - 12*
- "3 o'clock" position: Year *00 - 99* = 2000 - 2099
- "4 o'clock" position: Hours *00 - 23*
- "5 o'clock" position: Minutes *00 - 59*

If the serial interface has not been activated, a - will appear in the display for each programme selector position when Level *E34* is selected.

| Step   | Display / Result                                |
|--|---|
| ■ Press  repeatedly or hold it pressed in until E34 appears in the display.                         | <i>E34</i>                                      |
| Wait approx. 30 seconds before carrying out the next step.   | The control unit is reading the current values. |
| ■ Turn the programme selector to the position of the value you want to change, e.g. the "4 o'clock" position to change the hours.  | <i>10</i>                                       |
| ■ Press  repeatedly or hold pressed in until the required value appears in the display, e.g. 1 x. | <i>11</i>                                       |

The new values will be transmitted to the serial interface after the values have been saved and you have come out of the programming mode.

For this reason, wait approx. 30 seconds before switching off the washer-disinfector.



The washer-disinfector is capable of documenting processing procedures (process documentation). Process documentation can be carried out either by using documentation software or via a printer. To do this the washer-disinfector is fitted with a serial interface located at the rear of the machine.

The interface must be configured by a Miele Service technician.

## Process documentation using documentation software

The process documentation is transferred using external documentation software for digital archiving.

## Process documentation using a report printer

The process reports are printed on a report printer connected to the machine and then archived in paper form.

Only use data terminals (e.g. printers) which are certified in accordance with EN/IEC 60950.

A report containing the following data will be produced during a programme sequence:

- Date and machine number
- Programme start and programme name
- Blocks used in the programme
- Dispensing system with dosage temperature and where appropriate dosage amount
- Target values for temperature and temperature holding times
- Minimum temperature during the temperature holding time
- All faults (e.g. Water inlet fault)
- Programme end
- Messages, e.g. insufficient salt

Reports can be produced in German, English, French, Italian and Spanish.

Please contact Miele if you require further information about suitable printers and software.

# Maintenance

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## Service

This washer-disinfector should be serviced in accordance with local and national safety regulations **after every 1000 operating hours, or annually** by a Miele approved service technician.

A service will cover the following:

- Electrical safety tests
- 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 baskets, inserts and modules
- Drying unit

and where applicable:

- Steam condenser
- Any printer connected to the machine.

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

- A programme will be run as a test run
- Thermo electrical measurements will be taken
- Seals will be tested for water tightness
- All relevant measuring systems will be safety tested including fault indications.

## Process validation

The standard of disinfection in the disinfection programmes must be confirmed by the user as a routine matter.

In the UK, safety checks should be carried out to the machine every 3 months by a Miele approved service technician in accordance with EN ISO 15883 and HTM 2030.

## Routine checks

Before the start of each working day, the user must carry out a number of routine checks. A check list is supplied with the machine for this purpose.

The following need to be inspected:

- All filters in the wash cabinet
- The spray arms in the machine and in the baskets
- The wash cabinet and the door seal
- The dispensing systems
- Baskets and inserts

If powder cleaning agent is being used, the temperature at the time of dispensing must be checked every two weeks.

The dispensing temperature for validation is set out in the validation report.

Check the dispensing temperature as follows.

During a programme sequence, check the temperature which shows in the display when you hear the container lid spring open. Document this temperature and compare it to the data stated in the validation report.



You must inform the Miele Service Department if the dispensing temperature displayed differs from the temperature set out in the validation report by more than +/- 2°C.


# Maintenance

## Cleaning the filters in the wash cabinet

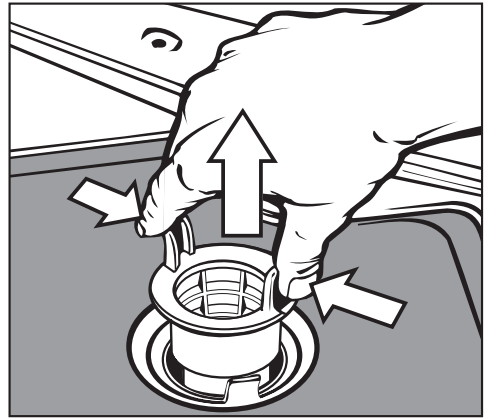
The filters in the base of the wash cabinet are designed to prevent coarse soiling getting into the circulation system.

A build-up of coarse soiling can cause the filters to clog up. They should, therefore, be checked daily and cleaned if necessary.

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

 Watch out for glass splinters, needles etc. which could cause injury.

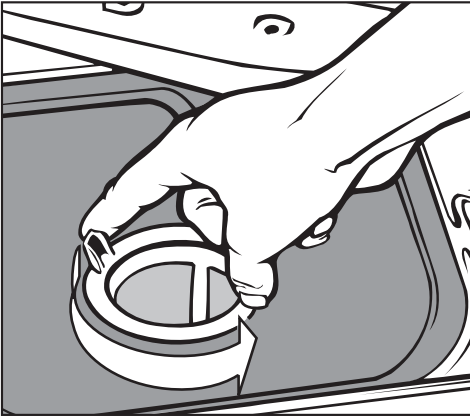
## Cleaning the coarse filter



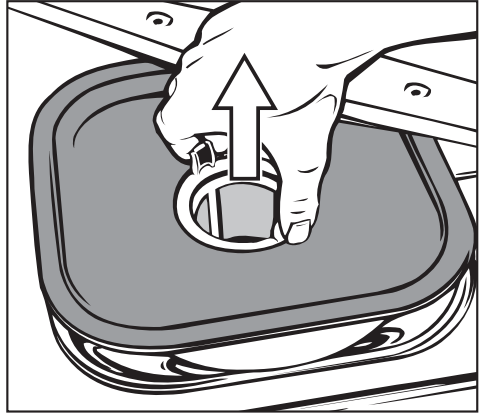
- Press the two lugs together, remove and clean the coarse filter.
- Put the clean filter back in position and press until it clicks in place.

## Cleaning the flat and micro-fine filters

- Remove the coarse filter.
- 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.



- Then remove the micro-fine filter together with the flat filter.
- Clean the filters.
- Replace the filters by carrying out the above steps in the reverse order. Ensure that the filters sit flat in the base of the wash cabinet.

# Maintenance

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## Cleaning the spray arms

The spray arms can become blocked and should therefore be checked every day.

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

Remove the spray arms as follows:

- Take any baskets out of the wash cabinet.

Spray arm on top basket or mobile unit (if present):

- Loosen the nut on the spray arm and take the spray arm off.

Metal nuts have a left-hand thread.  
Ceramic nuts have a right-hand thread.


- Unscrew the **upper** spray arm.
- Loosen the knurled thumb nut to unscrew the **lower** spray arm.
- After cleaning the spray arms, fit or screw them back into position.

After replacing the spray arms, check that they rotate freely.

## Cleaning the control panel


- The control panel should only be cleaned using a damp cloth or with a proprietary cleaning agent for glass or plastic surfaces.


An approved and listed disinfecting agent can be used to wipe surfaces.

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

## Cleaning the front of the machine

- The front should be cleaned using a damp cloth and a small amount of washing-up liquid, or with a non-abrasive proprietary cleaning agent designed for use on stainless steel.
- To help prevent resoiling (fingermarks etc.) a stainless steel conditioning agent (available from the Miele Spare Parts Department or via the internet on [www.miele-shop.com](http://www.miele-shop.com)) can also be used.

 Do not use any cleaning agents containing ammonia or thinners as these can damage the surface material.

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

## Cleaning the wash cabinet

The wash cabinet is generally self-cleaning.

However, should a build-up of deposits occur in the cabinet please contact Miele for advice.

## Cleaning the door seals

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

Seals which are no longer tight or which have suffered damage must be replaced with new ones by an approved Miele technician.

## Dispensing systems

When processing chemicals are being used, they should be monitored regularly for any dispensing irregularities.

# Maintenance

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## Baskets and inserts

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

The following need to be inspected:

- Check that rollers on baskets/inserts are free of hindrance and that they are secure.
- Check that the basket connector is at the correct height and screwed on correctly.
- Check that jets, sleeves and hose adapters are securely held in position in baskets/inserts.
- Check that washing solution can flow unhindered through all jets, sleeves and hose adapters.
- Make sure caps and closures on sleeves are correctly located.
- Check that the locking caps in the module connectors of modular system mobile units are working properly.

and where applicable:

- Make sure that the spray arms rotate freely.
- Make sure the spray arm jets are free of any blockages. See "Cleaning the spray arms".

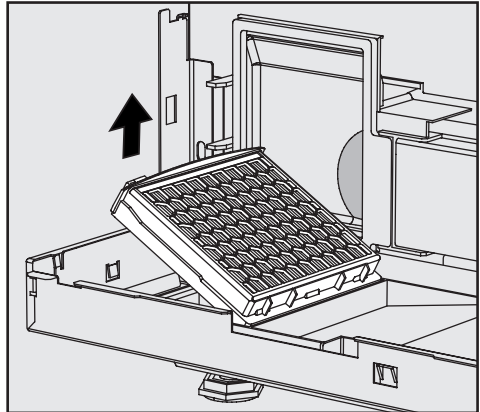


## Drying unit (TA) - Maintenance

### *SF2* in the display: Change the filter

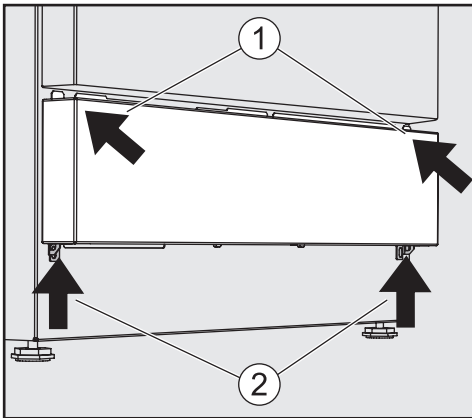
The filter must be changed if *SF2* starts to flash in the display.

To ensure the machine operates correctly, use **original Miele HEPA filters** only (classification 12).



- Remove the filter from its holder, and replace with a new one.
- Lift the service panel upwards and push until it clicks shut.


Reset the filter operating hours counter after changing the filter. See "Programmable functions" for how to do this.



- Press the service panel firmly at both sides and keep pressing (1) to release the locking mechanism.
- Place a finger into each of the openings below the service panel (2) and push up the locking mechanism.
- Pull the service panel forwards to open it.


## Problem solving guide

The following guide may help to find the reason for a fault and enable you to correct it. You should, however, note the following:

 Repairs should only be carried out by a Miele authorised and trained service technician in strict accordance with current local and national safety regulations. Unauthorised or incorrect repairs could cause personal injury or damage to the machine.





To avoid unnecessary service call-outs, check that the fault has not been caused by incorrect operation.

To do this:





- Turn the programme selector to  (the fault code goes out).
- Switch the machine off with the On/Off switch **I-0**.
- Switch the machine on again and reselect the programme.
- If the problem occurs again and cannot be remedied, please contact Miele.
- Quote the fault code "F...".

| Problem   | Possible cause   | Remedy   |
|---|--|--|
| <b>The washer-disinfector is not switched on.</b> | The door is not properly closed.                                 | Close the door firmly.   |
|   | The appliance is not plugged in.                                 | Plug it in and switch on at the socket.  |
|   | The fuses are defective or have tripped.                         | Reset the fuses.<br>(Minimum fuse rating: see data plate).   |
|   | The machine is not switched on.                                  | Press the <b>I-0</b> switch and select a programme.  |
| <b>The machine is not switched on.</b>            | Fault code:<br><b>F 04 - F 17, F 20 - F 26,<br/>F 28 - F - -</b> | Call Miele Service.  |
|   | Fault code: <b>F 31 - 33</b>                                     | There is a fault with the controls for the dispensing system.<br>Call the Miele Customer Contact Centre. |





## Problem solving guide

| Problem   | Possible cause   | Remedy   |
|---|--|--|
| <p><b>The  DOS indicator starts flashing before the start of a programme. The programme cannot be started.</b></p>     |  | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-0 switch</b>.</li> </ul> |
|   | <p>Fault code: <b>Fdo</b>:<br/>The container for liquid cleaning agent is empty.</p>           | <p>Fill the container with liquid cleaning agent or replace it with a new, full container.</p>   |
|   |  | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Start the programme again.</li> </ul>  |
| <p><b>A few minutes after the start of a programme, the  DOS indicator flashes and the programme is cancelled.</b></p> |  | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-0 switch</b>.</li> </ul> |
|   | <p>Fault code: <b>Fdo</b>:<br/>Fault with the system for dispensing liquid cleaning agent.</p> | <p>Fill the container with liquid cleaning agent or replace it with a new, full container.<br/>Vent the dispensing system; see "Programmable functions".</p>   |
|   |  | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Start the programme again.</li> </ul>  |




# Problem solving guide

| Problem   | Possible cause  | Remedy   |
|---|---|--|
| <p><b>The  indicator starts flashing before the start of a programme. The programme cannot be started.</b></p>     |   | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-0 switch</b>.</li> </ul> |
|   | <p>Fault code: <b>Fdo</b>:<br/>The neutralising agent container is empty.</p>               | <p>Fill the container with neutralising agent or replace it with a new, full container.</p>  |
|   |   | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Start the programme again.</li> </ul>  |
| <p><b>A few minutes after the start of a programme, the  indicator flashes and the programme is cancelled.</b></p> |   | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-0 switch</b>.</li> </ul> |
|   | <p>Fault code: <b>Fdo</b>:<br/>Fault with the system for dispensing neutralising agent.</p> | <p>Fill the container with neutralising agent or replace it with a new, full container. Vent the dispensing system; see "Programmable functions".</p>  |
|   |   | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Start the programme again.</li> </ul>  |

## Problem solving guide

| Problem  | Possible cause   | Remedy   |
|--|--|--|
| <b>The Add salt indicator light  flashes.</b>   | The salt reservoir has not been replenished, meaning that the water softener could not be reactivated. | Fill carefully with salt.  |
| <b>A few minutes after the start of a programme, the  /  indicator flashes and the programme is cancelled.</b> |  | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-O switch</b>.</li> </ul> |
|  | Fault code: <b>F..E:</b><br>There is a water inlet fault.  | <ul style="list-style-type: none"> <li>– Open the stopcock.</li> <li>– Clean the water inlet filter.</li> <li>– The water pressure at the intake is too low. Ask a plumber for advice.</li> </ul>  |
|  |  | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Start the programme again.</li> </ul>  |

## Problem solving guide

| Problem   | Possible cause  | Remedy   |
|---|---|--|
| <p><b>The programme is cancelled and the  /  indicator flashes.</b></p> |   | <p>Before trying to rectify the problem, you must:</p> <ul style="list-style-type: none"> <li>– Turn the programme selector to  (the fault code goes out).</li> <li>– Switch the machine off with the <b>I-O switch</b>.</li> </ul> |
|   | <p>Fault code: <b>F..A</b>:<br/>There is a water drainage fault.</p>  | <ul style="list-style-type: none"> <li>– Clean the filters in the wash cabinet.</li> <li>– Clean the drain pump.</li> <li>– Clean the non-return valve.</li> <li>– Remove any kinks and straighten the drain hose.</li> </ul>  |
|   |   | <p>Then:</p> <ul style="list-style-type: none"> <li>– Switch the machine on.</li> <li>– Drain the water.</li> <li>– Start the programme again.</li> </ul>  |
| <p><b>Water in the wash cabinet is not heated; the programme lasts too long.</b></p>  | <p>Fault code: <b>F01 - F03, F18, F19, F27</b><br/>This machine has a resettable heater limiter which will switch off the heating elements if they over-heat. This could be caused, for example, by large articles covering the heating elements or if the filters in the wash cabinet are blocked.</p> | <p>To rectify the problem:</p> <ul style="list-style-type: none"> <li>– Clean the filters in the wash cabinet.</li> <li>– Rearrange the load.</li> <li>– Reset the thermal cut-out (see "Other problems, Thermal cut-out").</li> </ul>   |

## Problem solving guide

| Problem   | Possible cause   | Remedy   |
|---|--|--|
| <b>Cleaning agent residue is left in the dispenser for powder cleaning agent at the end of a programme.</b> |  | <ul style="list-style-type: none"> <li>– Remove the residue.</li> <li>– Run the process again.</li> </ul>              |
|   | The dispenser for powder cleaning agent was still damp when it was filled.         | Make sure the dispenser is dry before adding cleaning agent.   |
|   | An item was blocking the lid of the powder cleaning agent dispenser.               | Arrange the items so that the lid can open.  |
| <b>The powder cleaning agent dispenser lid cannot be closed properly.</b>                                   | Clogged detergent residue is blocking the catch.                                   | Remove the residue.  |
| <b>Knocking noise in the wash cabinet.</b>  | A spray arm is knocking against an item.   | Cancel the programme and rearrange the load; see <b>Cancelling a programme.</b>  |
| <b>Rattling noise in the wash cabinet.</b>  | Items are insecure in the wash cabinet.  | Cancel the programme and rearrange the load; see <b>Cancelling a programme.</b>  |
| <b>Knocking noise in the water pipes.</b>   | This may be caused by the on-site installation or the cross-section of the piping. | This has no influence on the functioning of the washer-disinfector. If in doubt, contact a suitably qualified plumber. |

## Problem solving guide

| Problem                                       | Possible cause   | Remedy   |
|---|--|--|
| <b>Glass utensils are cloudy and etched.</b>  | The items are not suitable for machine processing.   | Only clean instruments that are suitable for machine processing in the machine.  |
|   | Neutralisation has not been carried out during the programme cycle.  | Fill the neutralising agent container.   |
|   | The damage to glassware was caused by too high a wash temperature.   | Select a suitable programme, or lower the wash temperature.  |
|   | The damage to glassware was caused by a cleaning agent that is too alkaline.   | Use a milder cleaning agent, or lower the DOS1 concentration.  |
| <b>Stainless steel utensils are corroded.</b> | The chloride content of the water is too high.   | Have the water analysed. If necessary, connect the machine to an external water softener unit and use deionised water.   |
|   | The salt reservoir cap has not been screwed on correctly.  | Replace it making sure it screws back on correctly.  |
|   | Neutralisation has not been carried out during the programme cycle.  | Fill the neutralising agent container.   |
|   | Rust has entered the wash cabinet due to: <ul style="list-style-type: none"> <li>– the iron content of the water being too high,</li> <li>– rusty instruments being cleaned in the machine.</li> </ul> | <ul style="list-style-type: none"> <li>– Check the water supply.</li> <li>– Dispose of any rusty instruments.</li> </ul> |
|   | The stainless steel is not a good enough quality to be processed by machine.   | Only use utensils made of high quality stainless steel.  |



## Problem solving guide

| Problem   | Possible cause   | Remedy  |
|---|--|---|
| <b>White residues and/or flecks are visible on items.</b> | The water softener is programmed to a setting which is too low.                | Check the water hardness level of the water supply and programme the water softener correctly.  |
|   | Water entering the machine through the AD water connection is not soft enough. | Change the resin in the aqua purificator.   |
|   | The salt reservoir is empty.   | Fill carefully with salt.   |
|   | The salt reservoir cap has not been screwed on correctly.                      | Replace it making sure it screws back on correctly.   |
|   | The rinsing agent reservoir is empty.  | Add rinsing agent.  |
|   | The rinsing agent dosage has been set too low, causing water marks.            | Increase the rinsing agent dosage setting.  |
|   | The quality of the rinsing water was not good enough.                          | <ul style="list-style-type: none"><li>– Use water with a lower conductivity level.</li><li>– If the washer disinfecter is connected to a cartridge for demineralised water, check its condition and exchange it if necessary.</li></ul> |

## Problem solving guide

| Problem                                       | Possible cause  | Remedy   |
|---|---|--|
| <b>The cleaning result is unsatisfactory.</b> | Baskets or inserts have been incorrectly loaded or overloaded.            | Rearrange the items.<br>Do not overload baskets or inserts.                                  |
|   | The programme selected is not suitable for the degree of soiling.         | Select a suitable programme or change the programme parameters.                              |
|   | The cleaning agent used is not suitable for the degree of soiling.        | Use a cleaning agent suitable for machine processing.  |
|   | Soiling has been allowed to dry onto the items for too long.              | Items should only be left after being used for a maximum of 6 hours before machine cleaning. |
|   | One of the spray arms is restricted.                                      | Rearrange the items.   |
|   | The jets in the spray arms or the inserts are blocked.                    | Check the jets in the spray arms and clean them if necessary.                                |
|   | The filters in the wash cabinet are soiled.                               | Check the filters, and clean them if necessary.  |
|   | The basket or insert has not connected to the water inlet point properly. | Connect the adapter connecting the water supply to the basket or insert properly.            |

### Thermal cut-out

This machine has a resettable heater limiter which will shut off the elements in the event of over-heating. This could be caused, for example, by large articles covering the heating elements or if the filters in the wash cabinet are blocked.

If the fault code: **F01 - F03, F18, F19, F27** (water was not heated up in the wash cabinet and the programme is taking too long) shows in the display, proceed as follows:

- Remove the cause of the fault.
- Remove the service panel.
- Press the reset button on the heater limiter located on the right-hand side of the plinth.

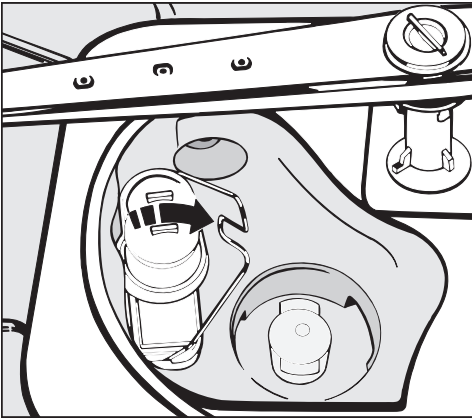
**If this switch trips again, contact the Miele Service Department.**

## Other problems

### Cleaning the drain pump and non-return valve

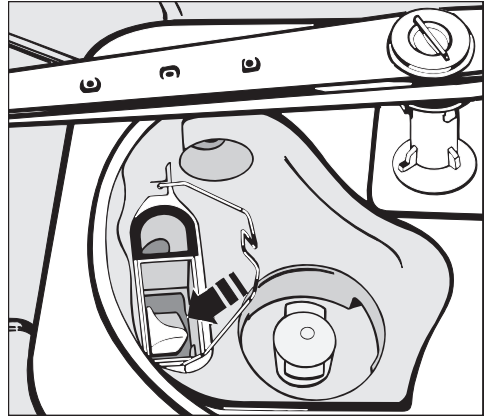
If water has not been pumped away at the end of a programme, the drain pump or the non-return valve might be blocked. They are easy to clean.

- Take the filter combination out of the wash cabinet.
- Release the locking clamp.



- Lift up the non-return valve and rinse under running water.

The drain pump is situated under the non-return valve (see arrow).




- Before replacing the non-return valve, check that the drain pump is free of obstructions.
- Carefully replace the non-return valve and secure with the locking clamp.

For safety reasons, the load should be cleaned and disinfected again.

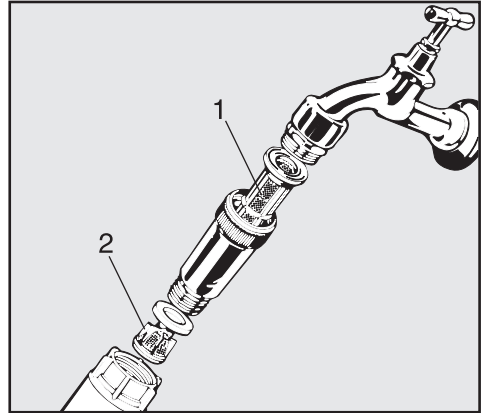
### Cleaning the filters in the water inlet

Filters are incorporated in the screw connection of the water inlet hose to protect the water inlet valve. If these filters get dirty they need to be cleaned, otherwise insufficient water flows into the wash cabinet.

 The plastic housing of the water connection contains an electrical component. It must not be dipped in water.

### To clean the filter

- Disconnect the machine from the mains supply.
- Turn off the stopcock and unscrew the water inlet hose.



- Clean the large area filter (1) and fine filter (2), and replace with new filters if necessary.
- Replace filters and the seal. Make sure they are sitting correctly.
- Reconnect the inlet hose to the stopcock, making sure it goes on correctly and is not cross-threaded.


Open the stopcock gradually to test for leaks.

If there is a leak, the inlet hose might not be on securely or it may have been screwed on at an angle.

- Unscrew and reconnect the water inlet valve correctly.

## After sales service

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 This machine must be commissioned and repaired by a Miele trained and qualified technician only. Unauthorised repair work could cause personal injury or damage to the machine.


In the event of any faults that you cannot remedy yourself, please contact your authorised Service Dealer or Miele. See back cover for contact details.

- When calling your Dealer or Miele, please quote the model and serial number of your machine, both of which are shown on the data plate (see "Electrical connection").
- Please also quote any fault code.

Please note that telephone calls may be monitored and recorded for training purposes.

A call-out charge will be applied for service visits where the problem could have been resolved as described in these instructions.

Please refer to the installation diagrams supplied with the machine.

 Furniture and fittings installed near the machine must be of a commercial standard able to withstand the effects of steam and condensation.

The machine must be installed correctly and levelled.

Any unevenness in the floor level can be compensated for and the height of the machine raised or lowered by adjusting the front screw feet.

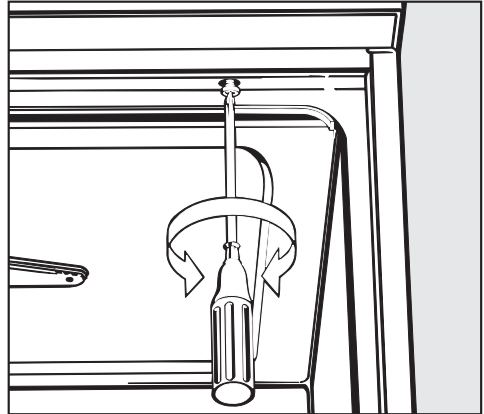
The machine can be installed in the following ways:

- Free-standing.
- The machine can be installed next to other machines or furniture, or in a suitable niche. The niche must be at least 60 cm wide and 60 cm deep.
- Built under:  
The machine can be installed under a continuous worktop or sink drainer. The recess must be at least 60 cm wide, 60 cm deep and 82 cm high.

## Building the machine under a continuous worktop

The machine lid must be removed as follows:

- Open the door.



- Undo the fixing screws on the left and right hand sides.
- Pull the machine lid approx. 5 mm forwards, lift it upwards and remove it.

### **Machines with steam condensers:**

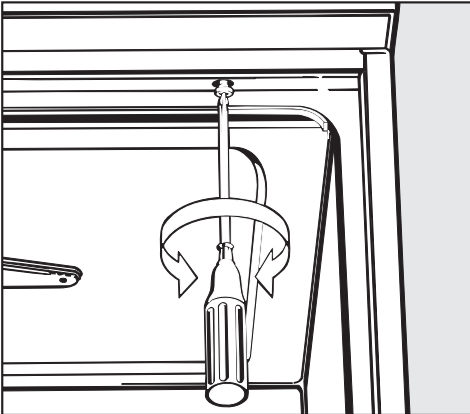
To prevent steam damage to the worktop, the self-adhesive protective foil supplied (25 x 58 cm) must be stuck in place underneath the worktop near the steam condenser.

# Installation

## Levelling and securing the machine

To ensure stability, the machine must first be aligned and then screwed to the worktop.

- Open the door.



- Secure the machine to the front edge of the worktop using screws through the holes on the left and right hand sides of the front trim.


Do not use silicone sealant to seal the gaps between the machine and any neighbouring units as this would hinder ventilation to the circulation pump.

## Cover plate (protects the worktop)

If required, a special cover plate can be ordered from Miele.

This cover plate protects the underside of the worktop against steam rising from the machine.



 All electrical work must be carried out by a suitably qualified and competent person in strict accordance with current local and national safety regulations (BS 7671 in the UK).

- Connection should be made via a suitable isolator, with an on-off switch which is easily accessible for servicing and maintenance work after the machine has been installed. An electrical safety test must be carried out after installation and after any servicing work. When switched off there must be an all-pole contact gap of at least 3 mm in the mains connection switch.
- For extra safety it is advisable to protect the machine with a suitable residual current device (RCD). Contact a qualified electrician for advice.
- The mains connection cable may only be replaced by an original Miele spare part or an appropriate cable with wire end ferrules.
- For technical data see data plate or wiring diagram supplied.

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


This machine **can be converted** in accordance with the conversion diagram and wiring diagram supplied.

The **data plate** with test certification is on the rear of the machine and also behind the plinth panel on the protective plastic cover.

The **wiring diagram** is supplied with the machine.

See also the installation diagram supplied.


### Additional equipotential bonding



There is a screw connection point marked with the earth symbol () at the back of the machine, to which equipotential bonding can be connected.

**WARNING**  
**THIS APPLIANCE**  
**MUST BE EARTHED**

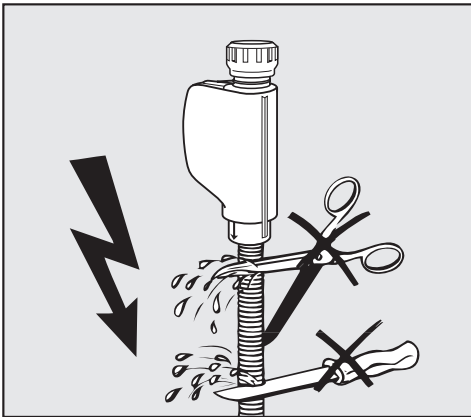
# Plumbing

## Connection to the water inlet

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

- The machine must be connected to the water supply in strict accordance with current local and national water authority regulations.
- If the iron content in the water is too high, there is a risk of corrosion occurring on items being processed in the machine, as well as in the machine itself.  
If the chloride content of the water exceeds 100mg/l, the risk of corrosion to items being processed in the machine will be further increased.
- If there are too many impurities in the local water supply, it will be necessary to operate the steam condenser with demineralised water.
- This machine is constructed to comply with German water regulations (DVGW), and may be connected to a suitable supply without an extra non-return valve if national regulations permit.
- The **minimum flow pressure** for a cold and hot water connection is 100 kPa (1.0 bar) and with an AD water connection it is 60 kPa (0.6 bar).
- The **recommended flow pressure** for a cold and hot water connection is  $\geq 250$  kPa (2.5 bar) and for an AD water connection is  $\geq 150$  kPa (1.5 bar). Otherwise fill times will be too long.
- The **maximum permitted static water pressure** is 1000 kPa (10 bar).
- If the water pressure is not in the range specified above (the  /  indicator light may come on and the fault code F E will appear in the display) please contact Miele for advice.
- The machine is supplied as standard for connection to a cold (coded blue) and a hot (coded red) water supply up to a max. temperature of 70 °C. Connect the inlet hoses to the stopcocks for the hot and cold water supplies.
- If a hot water supply is not available, the inlet hose coded **red** should also be connected to the cold water stopcock.
- The inlet hose for the steam condenser (without non-return valve) must only be connected to the cold water stopcock.
- AD water connection - see the following page.
- Stopcocks with 3/4 BSP male thread are to be provided on site. They should be easily accessible so that the water supply can be turned off when the machine is not in use.

- The DN 10 inlet hoses are approx. 1.7 m long terminating in a 3/4 inch female thread. On no account must the inlet filters be removed.
- Large surface area filters are enclosed in the kit supplied with the machine for installing between the stopcock and the inlet hose (see illustration in "Maintenance - Cleaning the filters in the wash cabinet"). The large surface area filter for AD water is made from chrome nickel steel, and can be recognised by the matt top surface.



⚠ The inlet hoses must **not** be shortened or damaged in any way (see illustration).

See also the installation diagram supplied.

## **AD water connection (pressurised) > 0.6-10 bar (60-1000 kPa) over pressure**

The machine is supplied as standard for connection to an AD water supply of 0.6 - 10 bar (60 - 1000 kPa). If the water pressure (flow rate) is below 1.5 bar (150 kPa) the water intake time is automatically extended.

- The AD pressure tested hose (marked "H<sub>2</sub>O pur") with a 3/4" threaded union must be connected to the on-site AD stopcock for purified water.

⚠ If the AD water supply is not used, the electronics must be re-programmed by a Miele approved service technician. The inlet hose will remain on the rear of the machine.

## **IMPORTANT Australia and New Zealand.**

This appliance must be installed according to AS/NZS 3500.1. Back flow prevention is already integrated in the appliance.

# Plumbing

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## Drainage

– The drainage system is fitted with a non-return valve which prevents dirty water from flowing back into the machine via the drain hose.

– The machine should preferably be connected to a **separate** drainage system on-site.

If separate drainage is not available, contact your Miele application specialist for professional advice.

The on-site drain connection point should be sited between 0.3 m and 1 m **above the lower edge of the machine**.

If it is lower than 0.3 m, lay the hose in a curve at a height of at least 0.3 m.

The drainage system must be able to take a minimum drainage flow of 16 l/min.

– The drain hose is approx. 1.4 m long, is flexible and has an internal diameter of 22 mm. It must not be shortened.

Hose clips are supplied for securing it in position.

– A longer drain hose (up to 4 m long) is available to order from the Miele Spare Parts Dept.

– The drainage system must not exceed 4 metres.



See also the installation diagram supplied.

## Technical data

|  |  |
|--|--|
| Height with lid  | 85 cm  |
| Height without lid   | 82 cm  |
| Width  | 60 cm  |
| Depth  | 60 cm  |
| Depth with door open   | 120 cm   |
| Weight (net)   | 70 kg  |
| Voltage, connected load, fuse rating   | See data plate   |
| Mains cable  | Approx. 1.8 m  |
| Water temperature:   |  |
| Cold water   | Max. 20 °C   |
| Hot and AD water   | max. 70 °C   |
| Static water pressure  | Max. 1000 kPa (10 bar) pressure                                  |
| Minimum flow pressure:   |  |
| Cold/hot water inlet connections   | 100 kPa pressure   |
| AD water connection  | 60 kPa pressure  |
| Recommended flow pressure:   |  |
| Cold/hot water inlet connections   | ≥ 250 kPa pressure   |
| AD water connection  | ≥ 150 kPa pressure   |
| Delivery head  | min. 0.3 m, max. 1 m   |
| Ambient temperature  | 5 °C to 40 °C  |
| Relative humidity  | 80 % for temperatures to 31 °C                                   |
| Decreasing proportionately to  | 50 % for temperatures to 40 °C                                   |
| Altitude   | Max. 1500 m *  |
| Degree of soiling  | P2 (according to IEC/EN 61010-1)                                 |
| Protection category (according to IEC 60529)                                   | IP20 (Dust permeation)   |
| Noise level in dB (A),<br>Sound level LpA during cleaning and<br>drying phases | < 70   |
| Test marks   | VDE, radio interference suppression                              |
| CE mark  | MDD-Guidelines 93/42/EWG, Class IIb                              |
| Manufacturer's address   | Miele & Cie. KG, Carl-Miele-Str. 29,<br>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 (A<sub>0</sub> value). This must be done by a Miele authorised service technician.

# Programme overview

| Programme   | Application  |
|---|--|
| <b>A</b><br>CUSTOMER  | Freely programmable programme : programmed by a Miele authorised service technician; factory-set parameters as for UNIVERSAL programme.  |
| <b>B</b><br>INORGANIC   | For the removal of inorganic residues; general analysis and water analysis and aqueous nutrients with acid-soluble metallic salts such as Ca <sup>2+</sup> , Mg <sup>2+</sup> etc, suitable for low to medium soiling levels and for medium to high quality rinse requirements.                    |
| <b>C</b><br>ORGANIC   | For removing organic residues such as oils, fats, wax, agar. Not suitable for acid-soluble residues (e.g. metallic salts, amines), for medium to high soiling levels and for medium rinse requirement. Requires <b>liquid cleaning agent</b> : Hot, cold and AD water connections recommended.     |
| <b>D</b><br>STANDARD  | Simple programme for varied soiling, not suitable for denaturing and acid-soluble residues such as proteins, metallic salts and amines, for low level soiling and low rinse requirements.  |
| <b>E</b><br>UNIVERSAL   | For the removal of organic residues such as protein, oil, certain types of grease, and for certain inorganic residues (pH 7 water-soluble metallic salts). Suitable for preparation and analytical applications with low to medium levels of soiling and medium quality rinse requirements.        |
| <b>F</b><br>INTENSIVE   | For the removal of organic residues such as protein, oil, cell and tissue culture, oils and certain types of grease (pH 7 water-soluble metallic salts). Suitable for preparation and analytical applications with medium to high levels of soiling and medium to high quality rinse requirements. |
| <b>G</b><br>PLASTIC   | For temperature sensitive laboratory equipment e.g. plastic bottles (temperature resistant to at least 55°C). Suitable for preparation and analytical applications with low to medium levels of soiling and medium quality rinse requirements.   |
|  DRAIN     | To drain soiled water from the machine, e.g. after a programme has been cancelled. <b>If applicable, observe regulations on containing the spread of epidemics</b> - see "To cancel a programme".  |
|  PRE-RINSE | For rinsing heavily soiled items (e.g. for removing soiling or disinfectant residue, or to prevent soiling drying on to dishes when a complete programme does not yet need to be run).   |
| varioTD   | Complies with general hygiene regulations. 90°C (+5 °C, 0°C) programme with a 5-minute holding time, in accordance with the requirements of EN ISO 15883-1.  |
| SPECIAL<br>93°C-10'   | For cleaning and thermal disinfection at 93°C with a 10 minute holding time, area of effectiveness A/B range, in accordance with § 18 IfSG.  |

Programmes A to G and vario TD can be optimised to specific requirements on request by Miele Service.

\* Organic residues such as oils and fats may require conversion to oil-resistant elastomers.

\*\* The dispensing of rinsing agent with DOS 2 must be activated by a Miele service technician.

# Programme overview

| Programme sequence |                              |                               |                              |       |             |       |    |              |                     |                     |                |
|--------------------|------------------------------|-------------------------------|------------------------------|-------|-------------|-------|----|--------------|---------------------|---------------------|----------------|
| Pre-wash           |                              | Main wash                     |                              | Rinse |             | Rinse |    | Final rinse* |                     | Drying <sup>x</sup> |                |
| 1                  | 2                            | 1                             | 2                            | 1     | 2           | 3     | 4  | 1            | 2                   | 1                   | 2              |
| CW                 |                              |                               | HW<br>DOS 1<br>80°C<br>3 min |       | HW<br>DOS 3 | HW    | AD |              | AD<br>75°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
|                    | CW<br>DOS 3<br>50°C<br>1 min |                               | HW<br>DOS 1<br>75°C<br>3 min |       | HW<br>DOS 3 | AD    | AD |              | AD<br>70°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
|                    |                              | HW<br>DOS 1<br>65°C<br>3 min  | HW<br>DOS 1<br>85°C<br>3 min |       | HW<br>DOS 3 | HW    | AD |              | AD<br>80°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
|                    |                              |                               | HW<br>DOS 1<br>75°C<br>3 min |       | HW<br>DOS 3 |       | AD |              | AD<br>75°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
| CW                 |                              |                               | HW<br>DOS 1<br>80°C<br>3 min |       | HW<br>DOS 3 | HW    | AD |              | AD<br>75°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
| CW                 |                              |                               | HW<br>DOS 1<br>85°C<br>3 min |       | HW<br>DOS 3 |       | AD | AD           | AD<br>80°C<br>1 min | 99°C<br>25 min      | 70°C<br>5 min  |
| CW                 |                              |                               | CW<br>DOS 1<br>55°C<br>5 min |       | CW<br>DOS 3 | CW    | AD | AD           | AD<br>55°C<br>1 min | 65°C<br>5 min       | 55°C<br>35 min |
|                    |                              |                               |                              |       |             |       |    |              |                     |                     | 65°C<br>30 min |
|                    |                              |                               |                              |       |             |       | CW |              |                     |                     |                |
| CW                 |                              | CW<br>DOS 1<br>55°C<br>5 min  |                              |       | HW<br>DOS 3 | HW    |    |              | AD<br>93°C<br>5 min |                     | 99°C<br>35 min |
|                    |                              | CW<br>DOS 1<br>93°C<br>10 min |                              |       | HW<br>DOS 3 | HW    |    |              | AD<br>75°C<br>3 min |                     | 99°C<br>35 min |

CW = cold water, HW = hot water, AD = Aqua destillata, °C = temperature, min = holding time, x = additional function;

DOS 1 = For liquid cleaning agent from 40 °C, DOS 3 = For dispensing neutralising agent after water has been taken in.

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