

metos

COMBINATION DISHWASHER WD-90 DUO

(Translation of original user manual)

Installation and user manual



Dear Customer,

Congratulations on deciding to choose a Metos appliance for your kitchen activities. You made an excellent choice. We will do our best to make you a satisfied Metos customer like thousands of customers we have around the world.

Please read this manual carefully. You will learn correct, safe and efficient working methods in order to get the best possible benefit from the appliance. The instructions and hints in this manual will give you a quick and easy start, and you will soon note how nice it is to use the Metos equipment.

All rights are reserved for technical changes.

You will find the main technical data on the rating plate fixed to the equipment. When you need service or technical help, please let us know the serial number shown on the rating plate. This will make it easier to provide you with correct service.

For your convenience, space is provided below for you to record your local Metos service contact information.

METOS TEAM

Metos service phone number:.....

Contact person:.....

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1. General information

The dishwasher is intended for the washing of potwash items (e.g. pots and pans, canteens, baking trays, etc.) and normal wash items (e.g. glass, cutlery and crockery, etc.) in general catering and the restaurant trade.

The capacity requirements for connections, waste pipe, etc., and the emissions relating to noise levels which the machine generates in operation can be found under "Technical data" on page 57.



Before the dishwasher is brought into service and used, the following points should be observed:

- The section on safety (See "Safety instructions" on page 4.) must be studied carefully before bringing the machine into service.
- Installation of the machine must be performed in accordance with the requirements and instructions outlined in the chapter "Installation" on page 8.
- Any personnel using or who may at some point use the machine must be trained in its operation and use, see "Using the dishwasher" on page 22.
- The dishwasher should not be used by anyone suffering from a physical or mental illness.
- A close eye must be kept on any children in the vicinity of the machine to ensure they do not tamper with it.
- All protective covers must be installed during use.

Text messages appear on the machine's display which indicate what the machine is doing. Adjustable reference values and alarms are also indicated on the display. For setting of the reference values, contact your service engineer. The alarms which may potentially occur and the action which should be taken in response to these can be found under "Operating problems" on page 51.

General information

1.1 Symbols used in this manual



This symbol warns of situations where a safety risk may arise. The instructions given must be followed in order to prevent injury.



This symbol on a machine component warns of the presence of electrical voltage.



This symbol explains the correct way to perform a task in order to prevent damage to the dishwasher.



This symbol identifies recommendations and hints to help you get the best results when washing and to increase machine availability and lifetime.



This symbol explains the importance of careful and regular cleaning of the machine to meet hygiene requirements.

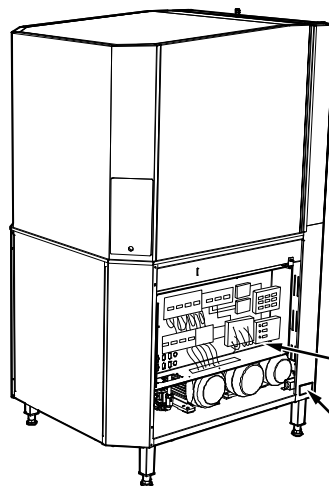
1.2 Symbols on the dishwasher



This symbol on a machine component warns of the presence of electrical voltage. The component may only be disconnected by a qualified electrician or trained personnel.

1.2.1 Machine marking

The machine has two rating plates, one on the side of the machine at the bottom (see figure), and the other in the electrical cabinet. The technical data on the plates can also be found on the machine's wiring diagram.

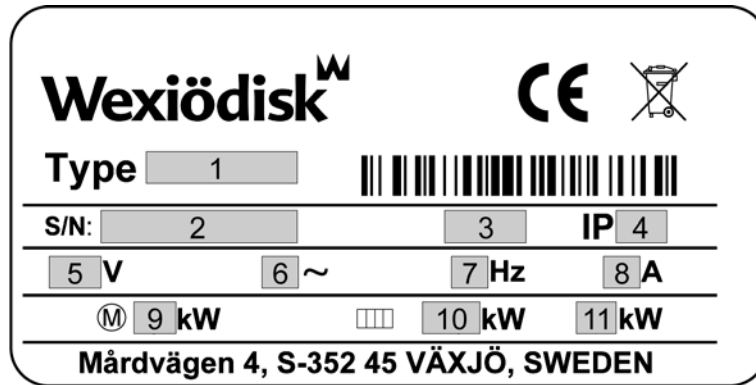


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Location of rating plates

General information

Rating plate:



1. Machine type
2. Machine serial number
3. Year of manufacture
4. Enclosure protection class
5. Voltage
6. Number of phases with or without neutral
7. Frequency
8. Main fuse
9. Motor output
10. Electrical heating output
11. Max. output

1.3 Checking that the dishwasher matches the installation and user manual

Check that the type description on the rating plate matches the type description on the front of the installation and user manual.

2. Safety instructions

2.1 General information

The machine is CE marked, which means that it complies with the requirements of the EU machinery directive with regard to product safety. Product safety means that the design of the machine will prevent personal injury or damage to property.



Modifying the equipment without the approval of the manufacturer will invalidate the manufacturer's product liability.

To further improve safety during installation, operation and servicing, the operator and the personnel responsible for installing and servicing the machine should read the safety instructions carefully.



Switch off the dishwasher immediately in the event of a fault or malfunction. The machine must only be repaired by trained engineers. The regular checks described in the installation and user manual must be carried out in accordance with the instructions. The machine must be serviced by personnel authorised for this purpose by the manufacturer. Use original spare parts. Contact an authorised service company to draw up a programme of preventative care and maintenance. Hazardous situations may arise if the instructions above are not followed.

Before the machine enters service, ensure that the staff are given the necessary training in handling and looking after the machine.

2.2 Transport



Handle the machine with care during unloading and transport; there is a risk of it tipping over.

Safety instructions

2.3 Installation



This symbol on a machine component warns of the presence of electrical voltage. The component may only be disconnected by a qualified electrician. Make sure the machine is non-live (turn off the power at the mains switch) before any work is performed on the machine. The electronics in the machine are sensitive to electrostatic discharge (ESD). For this reason, an anti-static wristband must be used.



Connection of water should only be undertaken by qualified personnel.



Water pipes must be connected in a way that complies with the regulations of the local water supply company. Check that the water and steam connections are tight and free of leaks before the machine is started up.

Make sure that the mains voltage is the same as that indicated on the machine's rating plate. The machine must be connected to a lockable mains switch.

2.4 Detergent and drying agent



Only detergent and drying agent intended for industrial dishwashers may be used. Ordinary washing-up liquid must not be used in the machine or for soaking. Contact your detergent supplier regarding the choice of a suitable detergent.



Be aware of the risks involved in handling detergents and drying agents. Protective gloves and safety glasses should be used when handling dishwasher detergent. Read the warning text on the detergent and drying agent containers as well as the detergent supplier's instructions.

2.5 Operation

2.5.1 Hot water



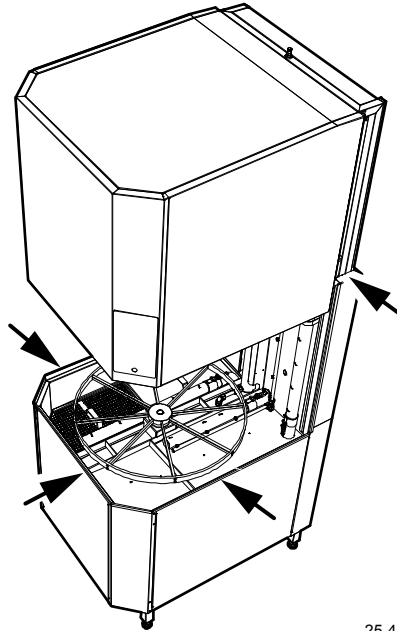
The temperature of the wash and rinse water is 58°C and 85°C, respectively.

Safety instructions

2.5.2 Risk of crushing



Take care when opening and closing the hood. There is a risk of body parts being crushed in the area between the hood and tank and in the area between the hood carriage and the rear edge of the top part of the machine.



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2.5.3 Risk of slipping



To prevent the risk of people slipping due to granules being spilled on the floor, the latter should be regularly swept clean. Keep the floor dry. Mop up any water which has been spilled.

2.6 Cleaning



The temperature of the water in the tank is approximately 55–65°C, and the water contains detergent. Be careful when draining and cleaning the tank. Use protective gloves.



Pressure washers must not be used for cleaning the machine. If water from a pressure washer is directed at the electrical cabinet, it may penetrate the cabinet and damage the electrical equipment, thereby impacting on safety.

To meet current regulations, electrical components of approved enclosure class are used. No enclosure class is designed to withstand high pressure.



The machine exterior may not be washed down with a pressure washer, nor should the machine be washed down using a hose pipe (applies mainly to connection points). Water may penetrate the electrical cabinet and control panel and damage the equipment, thereby impacting on safety.

Safety instructions



If floors are cleaned using high-pressure equipment, water may splash up under the machine and damage the components. These have not been designed to withstand being washed with water at high pressures. Never use a pressure washer to clean the floor within one metre of the machine without the special protective covers that are available to prevent splashing. Problems with splashing can also occur when using an ordinary hose pipe.

2.7 Repairing and servicing the dishwasher



Make sure the machine is non-live before opening the electrical cabinet. Turn off the power at the mains switch. Avoid touching hot pipes and the booster heater.

2.7.1 Instructions if the machine is not working



Check the following:

- Has the dishwasher been used according to the instructions?
- Are all the removable parts in their correct place?
- Is the mains switch in the ON position?
- Are the fuses in the electrical cabinet still intact? Ask service personnel to check the fuses.

If none of the above solves the problem, authorised service personnel must check the machine.

3. Installation

3.1 General information



The machine must only be installed by authorised personnel.

Read these instructions carefully, as they contain important information regarding the correct installation method. The instructions should be used together with the machine's wiring diagram and flow diagrams for water.



The machine is CE marked. The CE mark is only valid for an unmodified machine. Any damage to the machine arising from failure to follow the instructions will invalidate the supplier's warranty and product liability.

3.2 Requirements for the installation site

3.2.1 Lighting

In order to ensure the best possible working conditions during installation, operation, servicing and maintenance, make sure that the machine is installed in a well-lit room.

3.2.2 Ventilation

The machine produces heat and steam when in operation. In order to ensure the best possible working conditions, the dishwashing room will require a given air change rate. The ventilation requirements for the room are to be dimensioned on the basis of the applicable standards.

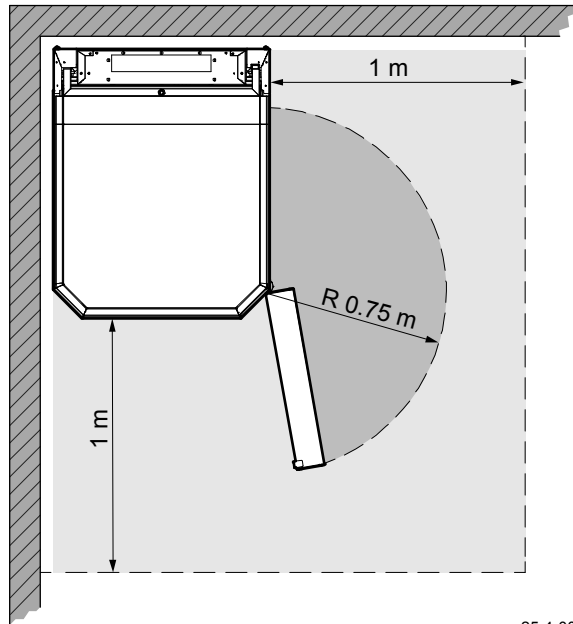
3.2.3 Drain/waste pipe

There must be a floor drain for the water from the dishwasher's waste pipe and any other waste water. If a loading table is located next to the machine, the drain for the waste pipe is best positioned under the loading table. Capacity requirements for the floor drain are stated in "Technical data" on page 57.

Installation

3.2.4 Space for servicing

The dishwasher is designed to allow it to be positioned in a corner as shown in the figure below. There must be a gap of at least 100 mm between the walls and the dishwasher. A clearance of around 1 metre must be left in front of and to the right of the dishwasher to allow access for servicing and maintenance. The electrical cabinet can be swung out from the dishwasher when servicing and repairs are needed. To facilitate this, clearance is needed in the form of a semi-circle with a radius of around 0.75 m running from the front right-hand corner of the machine, as shown in the figure below. If e.g. a loading table is to be positioned next to the machine, this should be easy to move.



Dishwasher (seen from above) positioned next to a wall

3.3 Preparing for the installation

Check that there is sufficient room for the dishwasher at the installation location and that the ceiling is high enough for the machine with its hood open. Check that there is sufficient room to transport the dishwasher to its installation location on delivery. The machine's dimensions can be found in chapter "Technical data" on page 57.

Make sure there is lifting equipment available which can handle the weight of the dishwasher and that the floor where it is to stand is dimensioned for the weight of the dishwasher when containing water, granules and the wash load. The machine's weight can be found in chapter "Technical data" on page 57.

Route connections for water and electricity.

Make sure there is a drain/waste pipe which is positioned as stated above.

In accordance with EN 61000-3-11, the machine is suitable for connecting to a mains voltage with an impedance of $Z_{\max}=0.375 \Omega$ or lower. The maximum impedance must be determined in consultation with the relevant authority prior to carrying out installation.

3.4 Transport and storage

Always transport the machine in an upright position. On delivery, the machine comes on a load pallet protected with cardboard. A packing notice will have been applied to the packaging where the latter covers the front of the machine.



Take care during transport and when moving the machine, as there is a risk of it tipping over.

If the machine is not to be installed immediately, it must be stored in a dry frost-free area.

3.5 Unpacking

Check against the delivery note that all the units have been delivered.

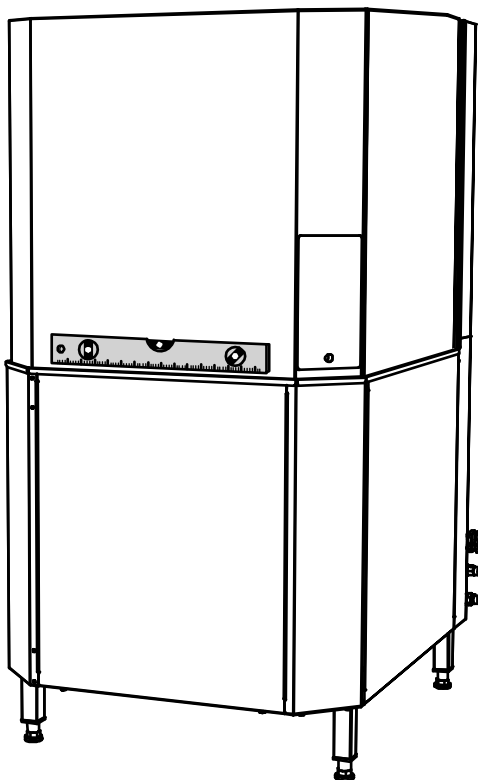
Inspect the machine for any transport damage.

3.6 Installation

Before positioning the machine at its intended location, make sure you adhere to the following procedure:



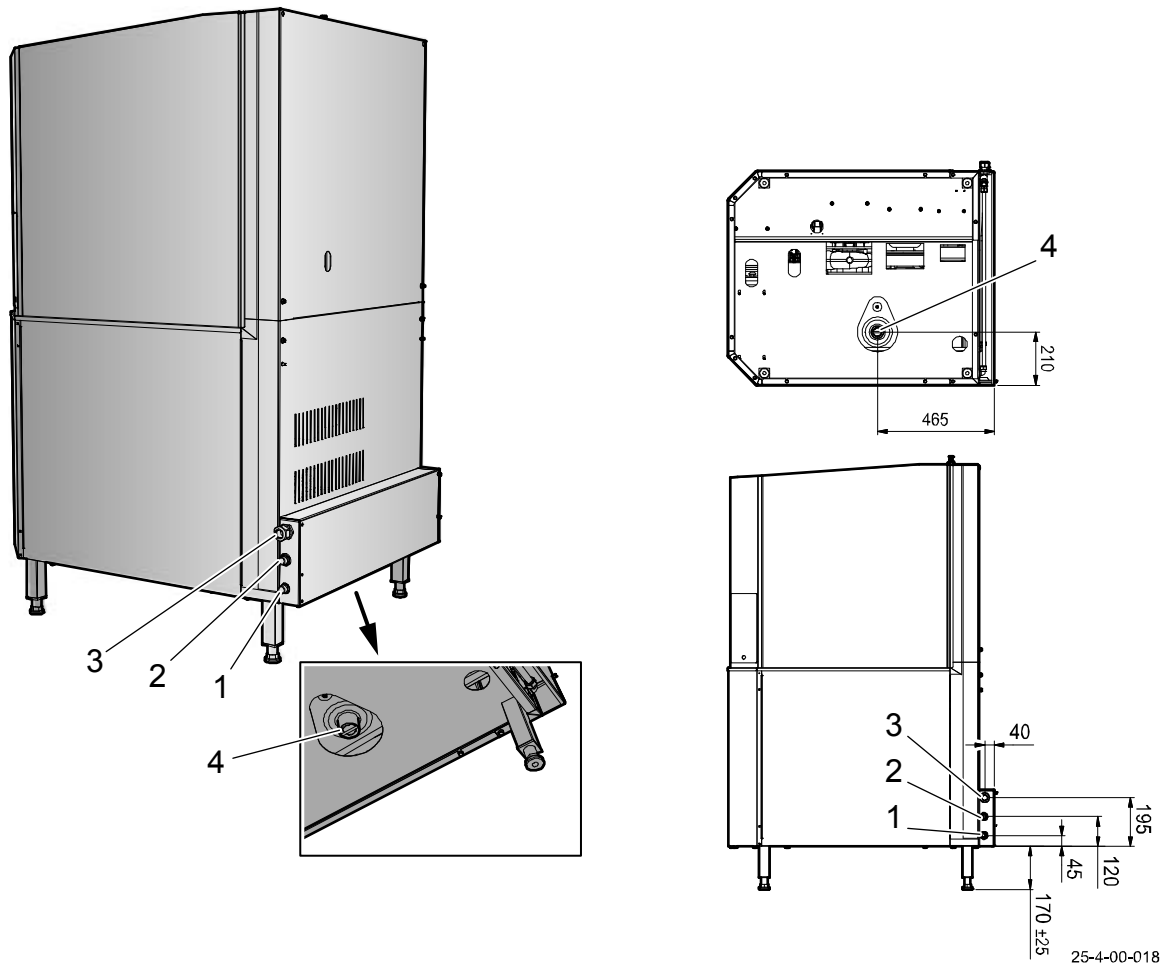
- Check that the overheating protection device has been reset.
- Check that the fuse for the element in the booster heater and tank, FU42, is off (it is in the electrical cabinet inside the right-hand side panel).
- Remove the protective plastic on the sides which are to be stood against a wall.
- Undo the detergent hose on the back of the machine (See “Detergent dosage” on page 18.). Hang the hose up so that it can be easily accessed by the detergent supplier.
- Move the machine into position. There must be a gap of at least 100 mm between the dishwasher and the walls.
- Adjust the dishwasher to ensure it is standing level – put a spirit level against the dishwasher rib. Check along three sides (front, right and left) of the machine that it is standing straight. Adjust the height using the dishwasher’s legs.



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- Check that the gap between the hood and lower part is approximately 5 mm all around the rib of the machine.

3.6.1 Connections

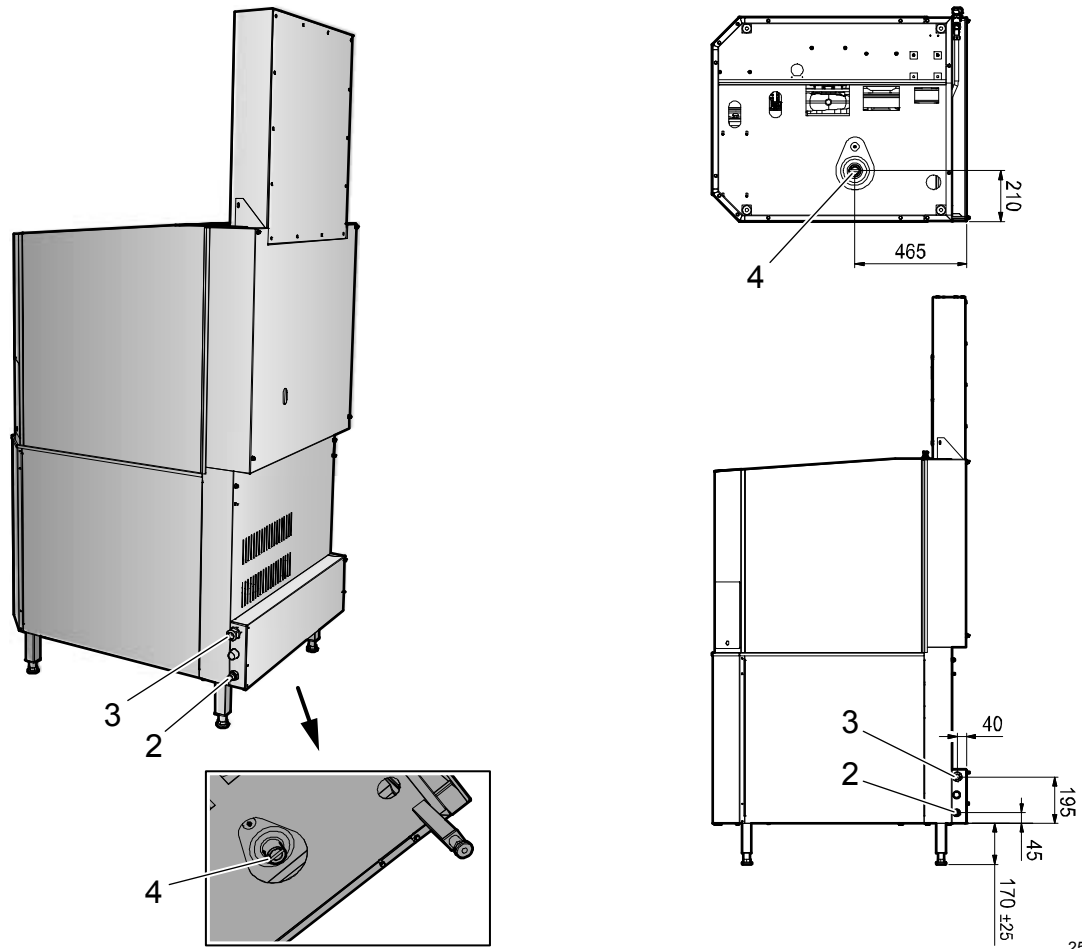


Standard dishwasher

Connection for:

- 1. Hot water
- 2. Cold water
- 3. Power supply
- 4. Drain/waste pipe

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25-4-00-019

Dishwasher with condensing unit

Connection for:

- 2. Cold water
- 3. Power supply
- 4. Drain/waste pipe

Water connection

Hot water (only standard machine) and cold water are connected at (1) and (2), see figures above. The machine should be connected using steel-braided flexible hose to allow it to be moved to the side when needed. This is particularly important if the machine is positioned in a corner. The hose should have an internal diameter of at least 12 mm. The connections have an external thread. Their dimensions can be found in "Technical data" on page 57. Both the hot and cold water connections are fitted with filters.



A shut-off tap must be installed on pipes for incoming water.

Electrical connection



This symbol on a machine component warns of the presence of electrical voltage. The component in question may only be disconnected by a qualified electrician or trained personnel.

The machine's wiring diagram contains information on connecting the dishwasher. On delivery, the diagram will be lying inside the dishwasher. Keep it safe to prevent it disappearing or getting destroyed.

The machine must be connected to a lockable mains switch. This should be located on a wall, well protected against water and steam emissions. On delivery, a cable is provided connected to the machine's cable connection (3) for the electrical power supply.

Drain/waste pipe connection

The waste pipe from the machine is connected at (4) and routed to a floor drain. The waste pipe connected to the dishwasher drain connection should be a corrosion-free metal pipe or a PP pipe which can withstand mechanical influences. The waste pipe is routed to a floor drain with the pipe exit kept clear of the water level. The recommended dimension of waste pipe and the requirements for floor drain capacity are stated in "Technical data" on page 57.

Installation

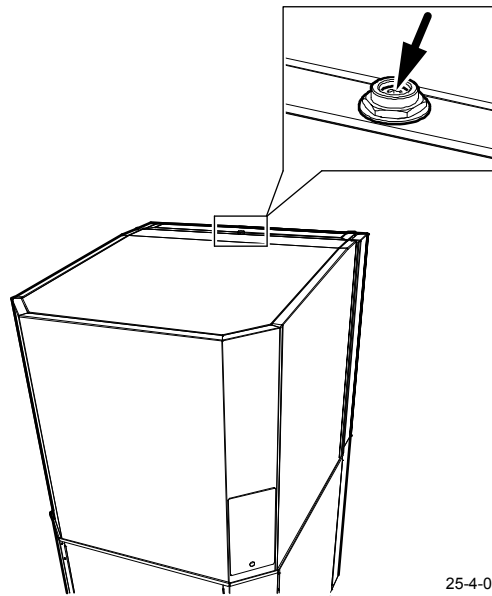
3.6.2 Bleeding the hood cylinder

Bleeding of the lifting cylinder for the hood should be performed when the dishwasher is filling with water on start-up. Proceed as follows:

1. Loosen the plug in the bleed valve at the very top of the hood.
2. Start the dishwasher by pressing the button for switch-on/switch-off.



3. If hood opening does not start, press the button for operating the hood (up and down).
4. Wait until water comes up through the hole in the bleed valve.
5. Tighten the plug by hand.
6. Open and close the hood using the button for operating the hood (at the very bottom of the panel).
7. Loosen the plug in the bleed valve and check that there is no more air coming out of the valve.



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Bleed valve for hood lifting cylinder

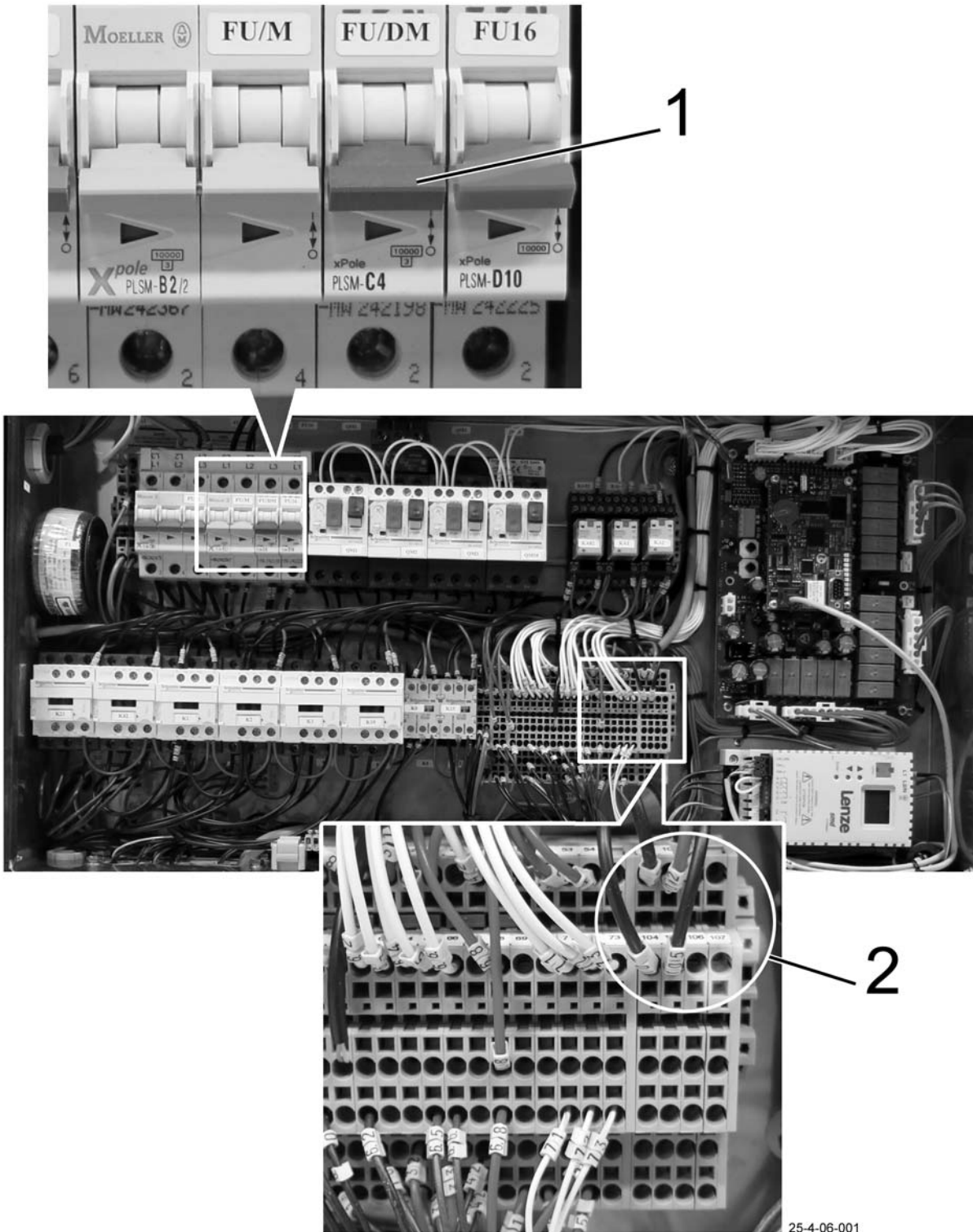
3.7 Installing detergent and drying agent equipment

The dishwasher is preconfigured for connection of detergent and drying agent equipment. The detergent and drying agent equipment is not included in delivery of the dishwasher. Contact your detergent supplier.

Detergent and drying agent equipment is best positioned on the wall to the side of the machine.

3.7.1 Electrical connection of the equipment

- Remove the machine's right-hand side panel. The panel is fastened to the frame with two screws in the panel bottom edge.
- Terminals and a circuit breaker for the detergent and drying agent equipment are located in the electrical cabinet inside the right-hand side panel. They are shown in the figure below. See the wiring diagram for the dishwasher.



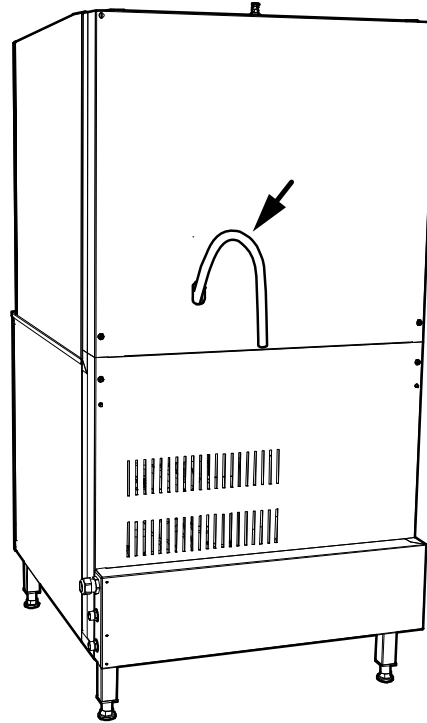
Electrical cabinet

1. Circuit breaker (FU/DM) for detergent and drying agent equipment
2. Terminals (101–107) for connection of detergent and drying agent equipment

Installation

3.7.2 Detergent dosage

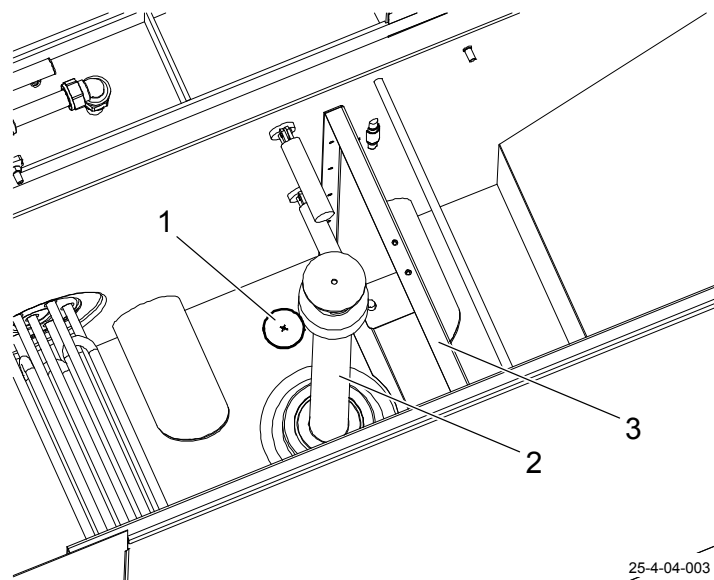
The equipment for detergent dosage is connected to the hose on the rear of the machine.



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Hose for detergent dosage on the rear of the dishwasher

In the tank bottom is an outlet for a sensor for measuring detergent concentration.



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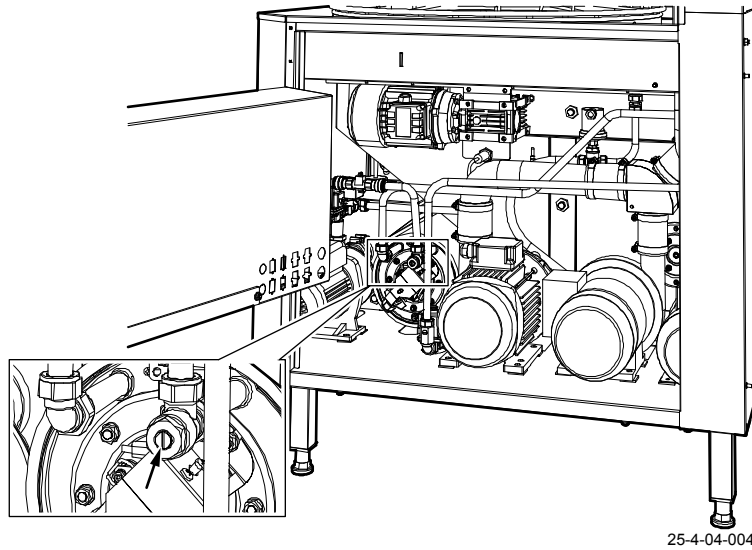
Dishwasher tank

1. Outlet for sensor (detergent concentration)
2. Level pipe
3. Permanent strainer (dividing wall)

Installation

3.7.3 Drying agent dosage

On the connector between the water pipe and connection for incoming water to the booster heater is a plug where a drying agent dispenser can be connected.



Connection for drying agent

3.8 Trial operation

3.8.1 Checklist for start-up

1. Before the machine fills with water, the following must be checked:

- Water and drain connections
- The machine should be standing level (See “Installation” on page 11.)
- The washing basket should allow of easy movement in and out of the machine
- Detergent and drying agent
- The level pipe, cover plates and strainers should be in position
- The FU42 mini-switch (fuse for tank and booster heater elements) should be in the OFF position.
- Check the pump’s direction of rotation.
NOTE: If the pump is rotating in the wrong direction, the phase must be inverted on the terminal block for the incoming electrical cable
- The right amount of granules should be in the machine
- The overheating protection for the booster heater and the tank element should have been reset

2. Filling the machine:

- Switch on the power to the machine. Press the button for switch-on/switch-off.



- Fill the machine with water, see “Filling with water” on page 33.
- The booster heater fills automatically. Set FU42 to the ON position once filling of the tank is completed.
- Bleed the hood cylinder, see “Bleeding the hood cylinder” on page 15.

3. Check the setting of the reference values:

- Check operation of the booster pump and break tank.
- Check that the temperatures indicated in the reference values are being achieved.
- All the reference values are set to the recommended values on delivery

4. Run a number of washes complete with loads and check that:

- There are no water leaks
- The limit switch for the hood operates correctly
- The hood automatic system operates correctly; i.e. the hood goes up automatically when a wash program has been run and that it goes up and down as it should when the hood operating button is pressed
- The hood’s anti-crushing system works correctly, see “Checking the hood’s anti-crushing system” on page 48
- The water temperatures are maintained

Installation

- The washed items are clean, see “Check the wash result” on page 38
- The washed items are dried
- There is adequate water flow to the machine, see “Technical data” on page 57.
Inform the customer if the water flow and the water pressure are too low.

5. Final check: Empty the machine (“Changing the water” on page 40) and switch it off using the button for switch-on/switch-off.

- Re-tighten all the connections on the circuit breakers and relays.
- Set all the circuit breakers to the ON position.
- Display the instructions on how to care for the machine which are supplied with it (quick-reference guide).

6. Train dishwashing staff.

3.9 Recycling

Comply with local regulations governing recycling of packaging, protective plastic laminates, granules, etc., and recycling when the machine is destroyed at the end of its useful life.

The packaging consists of wood, corrugated cardboard and plastic and must be recycled as these fractions or as combustible material.

Protective plastic laminates and granules are to be sorted as plastics or combustible material.

The machine is manufactured from stainless steel plate, but includes a certain amount of brass. It also contains electronic components. These should be recycled in accordance with local regulations.

3.10 Technical documentation



It is important that the members of staff who are to use the machine read and understand the installation and user manual which comes with the dishwasher. Alternatively, the safety officer of the premises at which the machine is to be used can train the staff in the safe use, handling and operation of the dishwasher. The machine has to be handled correctly if it is to be used in a safe manner. Keep the installation and user manual near the machine where it will be easily accessible to users. If the installation and user manual is lost or destroyed, a new one must be ordered from the dishwasher manufacturer or its local representative.

4. Using the dishwasher

This chapter deals with the layout of the dishwasher, how to use it when washing, the activities and checks you should perform prior to washing, and the care and maintenance required for the machine.

4.1 Before washing

4.1.1 Using the machine

The dishwasher is intended for the washing of potwash items (e.g. pots and pans, canteens, baking trays, etc.) and normal wash items (e.g. glass, cutlery and crockery, etc.) in general catering and the restaurant trade.

The capacity requirements for connections, waste pipe, etc., and the emissions relating to noise levels which the machine generates in operation can be found under "Technical data" on page 57.

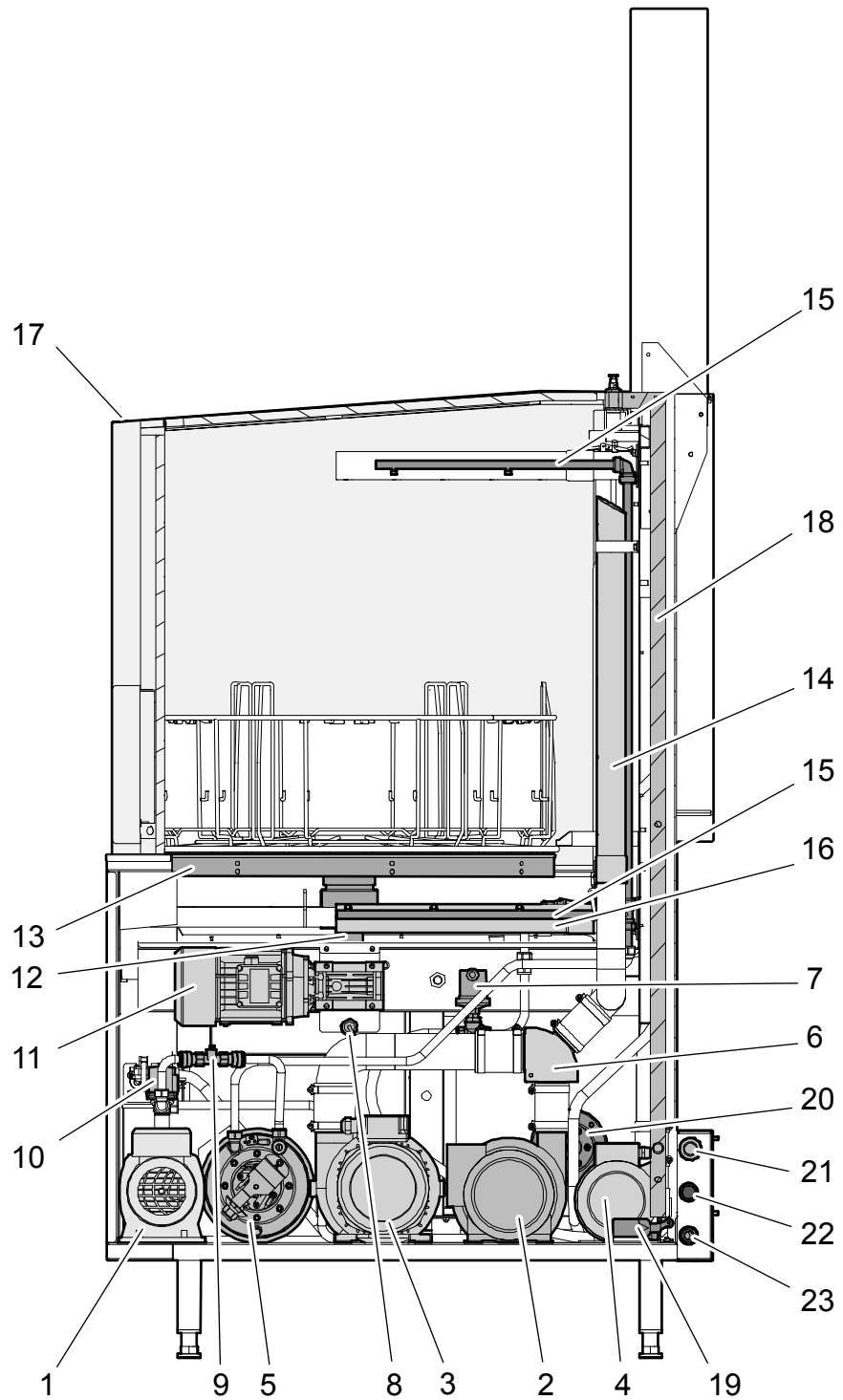


Before the dishwasher is brought into service and used, the following points should be observed:

- The section on safety (See "Safety instructions" on page 4.) must be studied carefully before bringing the machine into service.
- Installation of the machine must be performed in accordance with the requirements and instructions outlined in the chapter "Installation" on page 8.
- Any personnel using or who may at some point use the machine must be trained in its operation and use, see below.
- The dishwasher should not be used by anyone suffering from a physical or mental illness.
- A close eye must be kept on any children in the vicinity of the machine to ensure they do not tamper with it.
- All protective covers must be installed during use.

Text messages appear on the machine's display which indicate what the machine is doing. Adjustable reference values and alarms are also indicated on the display. For setting of the reference values, contact your service engineer. The alarms which may potentially occur and the action which should be taken in response to these can be found under "Operating problems" on page 51.

4.1.2 Machine layout

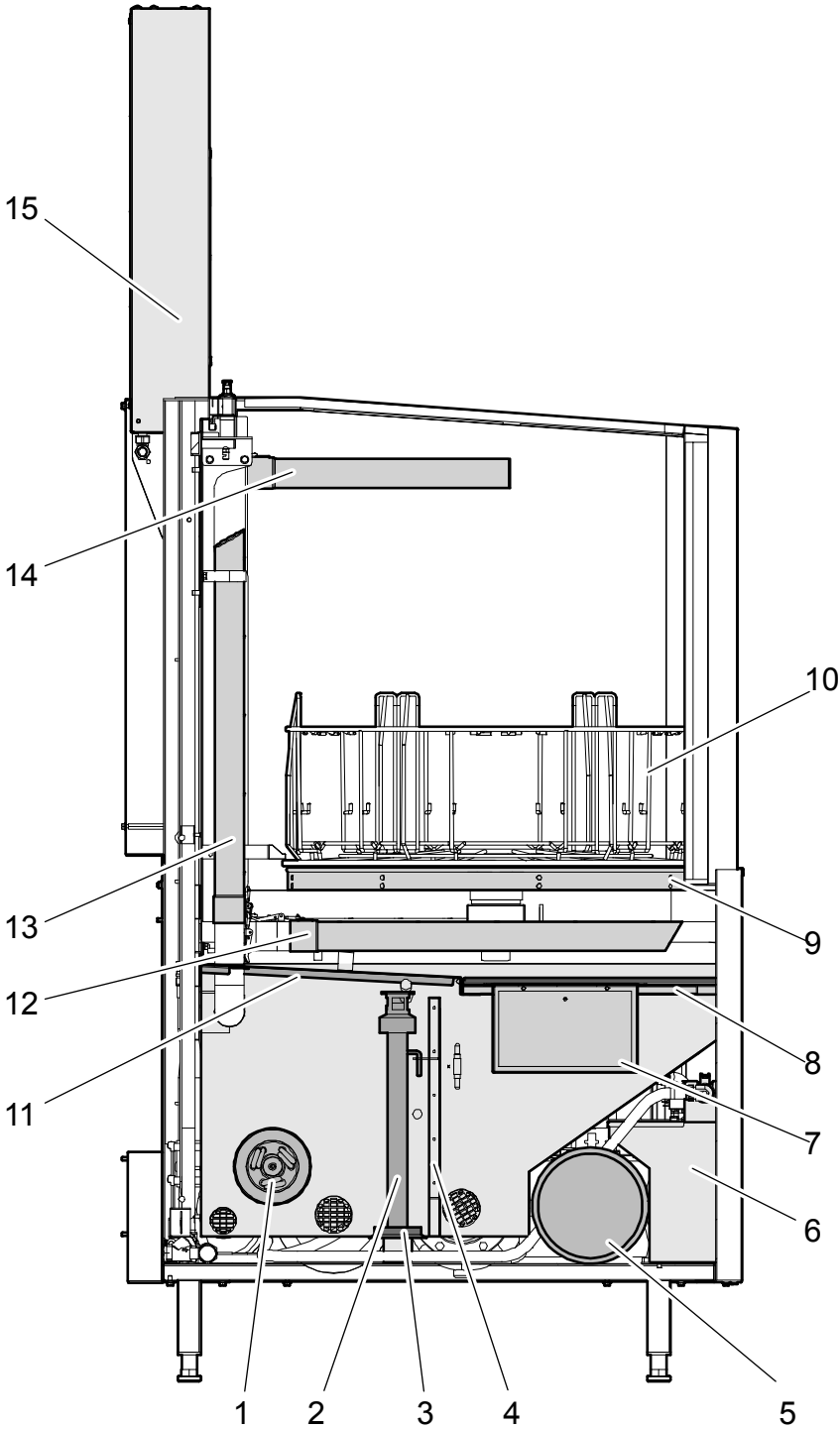


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Cross-sectional view, right-hand side.

Using the dishwasher

1. **Booster pump** – pumps water from the break tank via the booster heater to the rinse pipes for final rinse, as well as water from the break tank to the hood lifting cylinder. It is controlled using solenoid valves.
2. **Chemical wash pump** – pumps water from the tank to the rinse pipes for potwash (not with granules).
3. **Granule pump** – pumps water and granules from the granule part of the tank into the rinse pipes for potwash.
4. **Normal wash pump** – pumps water from the tank to the rinse pipes for normal wash.
5. **Booster heater** – heats the water which comes from the break tank for pumping to the rinse pipes for final rinse.
6. **Reversing valve** – releases water to the rinse pipes for potwash, either from the chemical wash pump or from the granule pump.
7. **Pressure switch for the anti-crushing system** – detects when water pressure in the pipes to the hood lifting cylinder exceeds a set value (can be adjusted by a service engineer). If the pressure exceeds this value, the hood opens.
8. **Inductive sensor** – indicates if the rotating table is turning or not.
9. **Flow meter** – measures how much water is being pumped into the dishwasher from the break tank.
10. **Solenoid valve** (two items) – these solenoid valves open to release water to rinse pipes for final rinse and to the hood lifting cylinder.
11. **Worm gear with electric motor** – turns the rotating table.
12. **Rotating table shaft** – rotated by the worm gear and turns the rotating table.
13. **Rotating table** – this is where the washing basket is positioned (the figure shows a basket for potwash).
14. **Rinse pipe, potwash** – see the figure below showing the machine's washing compartment.
15. **Rinse pipe, final rinse** – see the figure below showing the machine's washing compartment.
16. **Rinse pipe, normal wash** – see the figure below showing the machine's washing compartment.
17. **Hood** – raised and lowered using an operating button on the machine display.
18. **Hood carriage** – the hood is fixed in the hood carriage which controls the path of the hood as it goes up and down.
19. **Limit switch for hood carriage** – indicates when the hood is in the closed position.
20. **Tank element** – heats the water in the tank to the correct temperature.
21. **Electrical connection** - this is where the electrical cable is connected. The machine comes supplied with a cable fitted to the machine's electrical connection.
22. Standard machine: **Cold water connection**
Dishwasher with condensing unit: **Safety valve** – trips if the pressure in the condensing unit gets too high.
23. Standard machine: **Hot water connection**
Dishwasher with condensing unit: **Cold water connection**

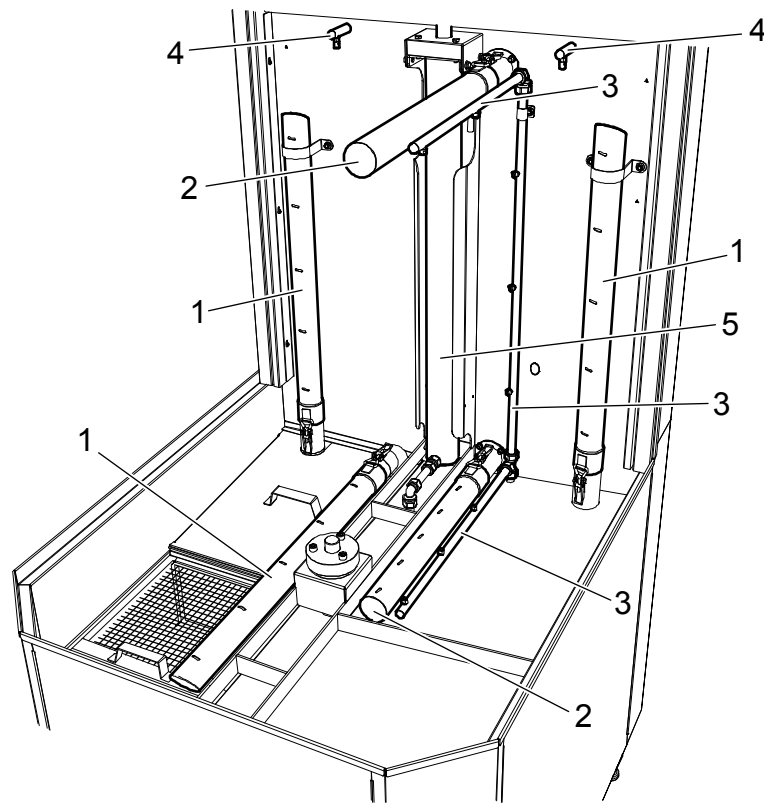


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Cross-sectional view, left-hand side.

Using the dishwasher

1. **Tank element**
2. **Level pipe** – holds the water in the tank at the correct level and acts as a water stop to prevent water running out of the tank via the waste pipe.
3. **Rubber sleeve** – sits on the level pipe and achieves a seal with the bottom of the tank.
4. **Permanent strainer** – acts as a dividing wall in the tank. It lets water through but keeps the granules in place in that part of the tank nearest the front of the dishwasher.
5. **Booster heater** – heats water coming into the machine.
6. **Break tank** – ensures an even flow into the machine. The tank is fitted with a float which closes a valve for incoming water once the water level in the break tank gets too high, as well as a level sensor in its lower part.
7. **Granule collection basket** – used together with cover plate (8) when granules in the dishwasher are to be collected, e.g. for cleaning. During washing, the granule collection basket and cover plate (8) are replaced by a strainer.
8. **Cover plate** – for use together with the granule collection basket. See also above under point 7.
9. **Rotating table**
10. **Washing basket** – this is where items are placed for washing. The washing basket is positioned directly on the rotating table. The figure shows the type of washing basket used during a potwash.
11. **Cover plate** – covers that part of the tank which is to be kept free of granules.
12. **Rinse pipe, potwash** – see the figure below showing the machine's washing compartment.
13. **Rinse pipe, potwash** – see the figure below showing the machine's washing compartment.
14. **Rinse pipe, normal wash** – see the figure below showing the machine's washing compartment.
15. **Condensing unit** (not on standard machine) – this is a heat exchanger which utilises the energy in the steam which forms within the dishwasher during washing to heat incoming water.



25-4-04-001

Machine's washing compartment – rinse pipes, cold water jets etc.

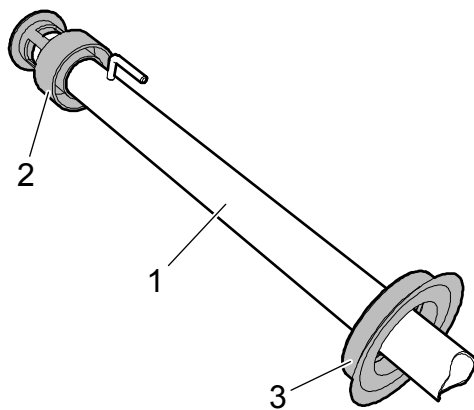
1. **Rinse pipe, potwash** – rinses the items when a potwash program is run using a water/detergent mix, with or without granules. The water is pumped from the tank using the chemical wash pump or granule pump and exits through the rinse pipes.
2. **Rinse pipe, normal wash** – rinses the items when a normal wash program is run using a water/detergent mix. The water is pumped from the tank using the normal wash pump.
3. **Rinse pipe, final rinse** – these rinse the items with fresh water from the break tank, which is pumped to the rinse pipes using the booster pump. When filling the tank with water, these rinse pipes are used for that purpose.
4. On standard machine: **Cold water jet** – used to rinse the rear edge of the washing compartment with cold water in order to condense the steam within the washing compartment before the hood opens.
On machine with condensing unit: **Drain connection** – drains condensation water from the condensing unit.
5. **Hood lifting cylinder** – lifts and lowers the hood. Operated via the booster pump.

Using the dishwasher

4.1.3 Before filling the dishwasher with water

Before filling the machine with water prior to the day's work shift, or after a change of water, a check should be performed to verify the following:

- The machine has been properly cleaned (See "Cleaning the inside of the machine" on page 44.).
 - The strainers have been cleaned.
 - The wash arms are not dirty or clogged.
 - The water tank has been rinsed out.
 - The level sensors in the tank are not dirty.
- Water taps on the water pipe to the machine are open.
- There are enough granules in the machine (See "Checking the amount and cleaning the granules" on page 46.).
- Granules are only in that part of the tank intended for them.
- There is detergent and drying agent in the relevant dispensers.
- The level pipe (1) is clean and has been correctly fitted, i.e. the rubber sleeve (3) on the level pipe achieves a good seal with the bottom of the tank, and the foam separator (2) is clean and not jammed in position.



25-4-03-005

- Cover plates and strainers are correctly fitted.
- The permanent strainer (dividing wall) in the tank has been cleaned.

4.1.4 Before washing with a potwash program

When washing with a potwash program, you should remember the following:

- Make sure as much food residue as possible is removed from the items to be washed before putting them in the machine (this will help reduce the number of times the washing water in the machine will need changing).
- Make sure nothing projects from the washing basket which might catch the walls of the dishwasher and prevent the basket from rotating.
- Check that the correct wash program has been selected.

Using the dishwasher

4.1.5 Before washing with a normal wash program

To obtain the best wash result when washing with a normal wash program, you should remember the following:

- Make sure as much food residue as possible is removed from the items to be washed before putting them in the machine (this will help reduce the number of times the washing water in the machine will need changing).
- Do not allow food residues to dry on the items to be washed using the normal wash program. If, for instance, the items to be washed have to stand overnight without being washed, as much of the food residue as possible must be removed and the items left to soak. Use a soaking agent and follow the supplier's instructions.
- Check that the correct wash program has been selected.

Using the dishwasher

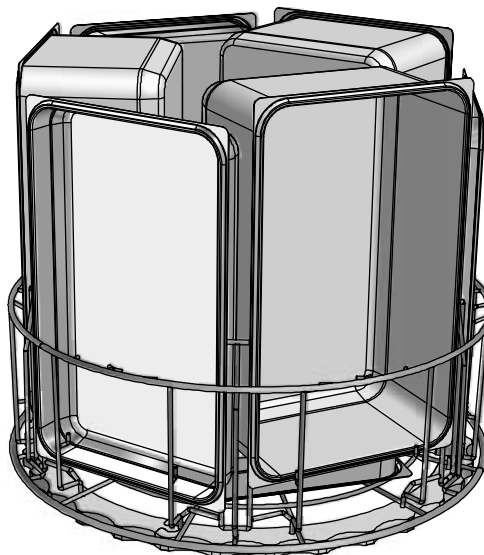
4.1.6 Positioning of items in baskets

Potwash

Potwash items are positioned in the baskets supplied. The dirty side (the inside) of the items to be washed must face away from the centre of the basket. Items must be positioned so that water will not collect in them, e.g. canteens, pots and pans, etc., positioned on the bottom of the basket must be turned to face bottom up.

Gastronorm containers

Gastronorm containers in sizes GN1/1, GN1/2, GN1/3, GN2/3 and GN2/8 can be washed in the basket without any problem. For other sizes, special accessories may be needed. Contact your dealer.



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Maximum number of Gastronorm GN1/1 containers which can be washed simultaneously. One item 65 mm deep on the bottom. Three items 200 mm deep and three items 65 mm deep around the sides of the basket, positioned alternately, with a 65 mm deep item followed by a 200 mm deep item, and so on.

ABC canteens

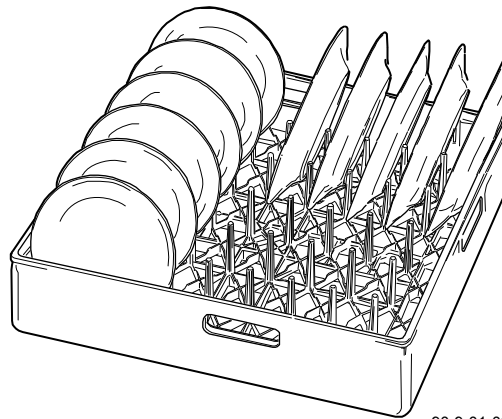
ABC canteens are hung by their handles on hooks around the top edge of the basket. A special basket for washing ABC canteens is also available – contact your dealer.

Other potwash items

Special accessories are available for washing ladles, saucepans, trays, lids, grills, baking trays, etc., as well as various other accessories for securing the items in position – contact your dealer.

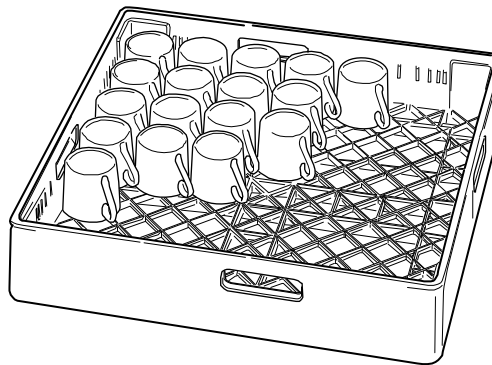
Normal wash

Normal wash items are positioned in plastic baskets measuring 50x50 cm. The machine comes supplied with three baskets:



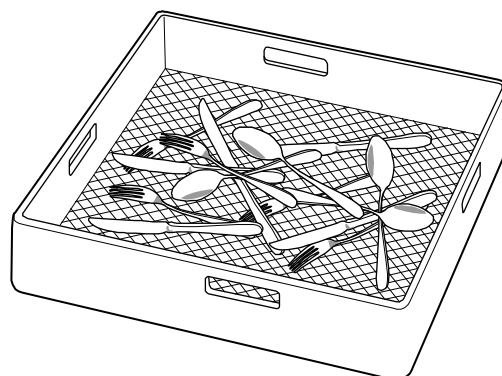
90-9-01-001

The yellow basket is used for plates, side plates, etc.



90-9-01-002

The blue basket is used for glasses and cups



90-9-01-003

The brown basket is used for cutlery

Using the dishwasher

4.2 Washing

4.2.1 Filling with water

Before washing can be started, the dishwasher tank must be filled with water and the detergent mixed. The points below must be followed when the dishwasher has no water in it.



When filling the machine with water, you should not have any items in the machine. Water which is hotter than for normal washing is flushed into the washing compartment when the machine is being filled. This can result in food residue getting burnt onto any items in the machine, giving a poorer wash result.

This is what you should do:

1. **Carry out the recommended checks**
before washing commences, see “Before filling the dishwasher with water” on page 29.
2. **Start the machine**
by pressing the ON/OFF button. The dishwasher’s hood opens.



3. **Select a wash program.**
For the best program to select, see “Wash programs” on page 34.
4. **Press the button for operating the hood** (the button at the very bottom of the panel). Wait until the text MACHINE IS READY FOR WASH appears on the display on the panel.
5. **Open the hood** with the button for operating the hood (the button at the very bottom of the panel).
6. **The machine is ready to be used!**

4.2.2 Washing

The dishwasher’s tank must be filled with water (see above “Filling with water” on page 33) before washing can begin.



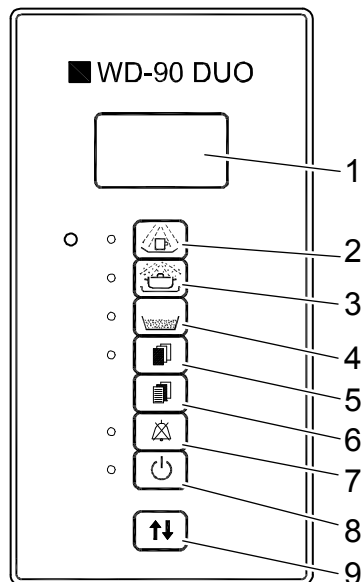
Take care to select the correct program for the items which are to be washed.

This is what you should do:

1. **Put the items to be washed in the machine.**
For information on what you need to remember before washing and when positioning items in the basket, see “Before washing” on page 23“.
2. **Select a wash program.**
Select the desired wash program by pressing one of the buttons for program selection, see “Wash programs” on page 34.
3. Start the wash: **Press the button for operating the hood** at the very bottom of the panel (see “Wash programs” on page 34).
4. Once the wash program has completed its cycle, the hood opens. **Remove the items.**

Using the dishwasher

4.2.3 Wash programs



25-4-00-003_1

Panel card

1. Display
Button for selection of:
2. Normal wash programs
3. Potwash programs
4. Granule collection program
5. Activation of service mode
6. Page-to-page scrolling (service mode)
7. Alarm reset
8. On / Off
9. Operating the hood – up or down

The dishwasher has normal wash programs, for washing glass, crockery and cutlery, etc., and potwash programs, for washing heavily soiled items, e.g. pans and canteens.

Once the dishwasher has finished the wash, the hood goes up and you can insert a new basket. Between washes, the last wash program run (for both potwash and normal wash) is shown on the display (1). If no wash has been performed since the machine was switched on, program P1 is displayed for both normal wash and potwash. The program which is currently active in the machine is indicated on the display by having a shaded box next to it. In addition, the type of program currently active is indicated by an illuminated LED next to the relevant program selection button on the panel.

Using the dishwasher

The following text is displayed if the last potwash program run was a program **with** granules (P1–P3):

NORMAL WASH PX
POTWASH WITH
GRANULES PX
CLOSE THE HOOD

The following text is displayed if the last potwash program run was a program **without** granules (P4–P6):

NORMAL WASH PX
POTWASH WITHOUT
GRANULES PX
CLOSE THE HOOD

To start an active program, press the button for operating the hood (9). To start a program which is not active but which is shown on the display, press the program selection button for the type of program in question. The hood is then closed using the operating button (9). If a program other than the ones shown on the display is to be run, select the program as described below.

During washing, in standby mode, on start-up and switch-off, etc., the status of the machine is shown in plain text on the display.



It is important that the correct wash program is selected for the type of items in question.

Normal wash programs

A normal wash program is used for items such as, e.g. glass, crockery and cutlery. Three different normal wash programs can be selected with the button (2) by pressing it once, twice or three times. The selected program is shown on the display (1).

- Pressing the button once selects normal wash program 1 (P1).
- Pressing the button twice selects normal wash program 2 (P2).
- Pressing the button three times selects normal wash program 3 (P3).
- Pressing the button four times selects program P0, which results in the machine being set to standby mode for washing.

The difference between the three normal wash programs is the time it takes for the actual wash cycle to complete. For the total time used by the relevant normal wash program, see “Technical data” on page 57.

Potwash programs

For potwash, there are six different programs to choose from, three where granules are used for the wash (P1–P3) and three without granules (P4–P6). The selected program is shown on the display (1) in the same way as for the normal wash programs.

- Pressing the button for potwash programs (3) once, twice or three times selects potwash programs P1–P3. For these three programs, cleaning of the items to be washed is intensified by the addition of granules. Programs (P1–P3) are best used for washing items which are very heavily soiled.
- Pressing the button (3) four, five or six times selects potwash programs P4–P6, which are potwash programs without granules.
- Pressing the button (3) seven times selects program P0, which results in the machine being set to standby mode for washing.

The potwash programs are differentiated not just by the use or otherwise of granules, but also the time the wash cycle takes, see “Technical data” on page 57.

Granule collection program

The granule collection program is used to collect the granules in the machine in a special basket when the amount of granules is to be checked or the granules cleaned. The procedure for collection of granules is described under “Checking the amount and cleaning the granules” on page 46.

Pressing button (4) once activates the granule collection program. Pressing it twice activates program 0 – standby mode.

4.2.4 Cancelling a wash program and stopping the machine

Cancelling a wash program

It is possible to cancel a selected wash program at the start, provided washing has not actually begun. This is achieved by opening the hood using the button for hood operation. It is also possible to change a selected program before the hood has managed to close ready to start the program. This is achieved by pressing the program selection buttons.

Stopping the machine



If for any reason you need to stop the dishwasher while it is running, press the button for switch-on/switch-off.

Using the dishwasher

4.3 After use

4.3.1 Care and maintenance

To obtain a good wash result when washing and to get the best possible benefit from the dishwasher, it needs to be looked after and maintained at given intervals. Much of the care and maintenance can be performed by the dishwashing room staff, while other maintenance will require trained service personnel to perform the work.

The table below shows the recommended intervals for various maintenance activities. The recommended intervals below should be seen as the minimum amount of maintenance under normal use of the dishwasher. Maintenance may be performed more frequently, depending on how often and how much you wash, and the type of items you wash, etc. It is important to have an eye to the conditions which actually obtain on-site.

| Activity | Interval: | | | | | | See chapter: |
|---|------------------|-------|------------|-------------|--------|---|--|
| | After every wash | Daily | Every week | Every month | Yearly | Other | |
| Check the wash result | X | | | | | | "Check the wash result" on page 38 |
| Change the water in the tank | | X | | | | As needed | "Changing the water" on page 40 |
| Check the wash arms | | X | | | | | "Checking and cleaning the wash arms" on page 43 |
| Clean the wash arms | | | X | | | As needed | |
| Clean the inside of the machine: - tank - strainers - cover plates - level pipe - level sensor, etc. | | X | | | | The strainers must be cleaned / emptied as needed | "Cleaning the inside of the machine" on page 44 |
| Clean the outside of the dishwasher | | X | | | | | "Cleaning the exterior" on page 46 |
| Clean the granules | | | X | | | As needed | "Checking the amount and cleaning the granules" on page 46 |
| Check the amount of granules in the dishwasher | | | X | | | | |

Using the dishwasher

| Activity | Interval: | | | | | | See chapter: |
|--|------------------|-------|------------|-------------|---------------|-----------|---|
| | After every wash | Daily | Every week | Every month | Yearly | Other | |
| Change the granules | | | | | Once or twice | As needed | "Longer periods without use" on page 50 |
| Check the anti-crushing system in the hood | | | | X | | | "Checking the hood's anti-crushing system" on page 48 |
| Machine with condensing unit: Check the safety valve | | | | | 2 or 3 times | | "Checking the safety valve (machine with condensing unit)" on page 49 |

4.3.2 Check the wash result

The wash result should be checked after each wash. Check that:

- No discolouration, spots, misting, food residue or deposits are visible on the washed items.
- No deposits at all can be made out on the washed items.
- No granules have become lodged in or on the washed items. It is particularly important to check this when washing perforated canteens.

The table below contains suggestions as to what you should check and, if the problems listed are present on checking of the washed items, what action you should take to deal with them.

| Problem: | Check: | | | | | | | | | | | | |
|---|----------|------------------|---------------------|-----------------------------|-------------|-------------|-------------------|--------------------------------|---------------|----------------|-----------------------|-------------------|---------|
| | Scraping | Detergent dosage | Drying agent dosage | Water change/water turnover | Washing | Final rinse | Pre-rinse | Time/water volume, final rinse | Time, washing | Water hardness | Cleaning of wash arms | Stacking of items | Soaking |
| | | | | | Temperature | | Program selection | | | | | | |
| Starch spots Visible, mainly on glass, as small spots | X | X | X | X | X | X | X | X | | | | | X |

Using the dishwasher

| Problem: | Check: | | | | | | | | | | | | |
|--|----------|------------------|---------------------|-----------------------------|-------------|-------------|-----------|--------------------------------|---------------|----------------|-----------------------|-------------------|---------|
| | Scraping | Detergent dosage | Drying agent dosage | Water change/water turnover | Washing | Final rinse | Pre-rinse | Time/water volume, final rinse | Time, washing | Water hardness | Cleaning of wash arms | Stacking of items | Soaking |
| | | | | | Temperature | | | Program selection | | | | | |
| Misting | | X | X | | | X | X | X | X | X | | | |
| Food residues | X | X | | X | | | | | X | | X | X | |
| Protein residues Visible as discolouration or marks on canteens used to fry e.g. meatballs, hamburgers or fish | | X | | | | | X | | X | | | | X |
| Detergent residues Not visible on the washed items but identifiable by chemical means (phenolphthalein) | | X | | X | | | | X | | | | X | |

Scraping – It is important that as much food residue as possible is scraped off the items before putting them in the machine. Proper scraping will mean the water in the washer tank will not need changing as often.

Detergent and drying agent dosage – The dosage of the detergent and drying agent will also affect the wash result. If too high or too low a dosage is suspected, the detergent supplier should be contacted. There is the option of fitting a sensor in the tank to measure detergent concentration in the water. Using this, detergent can be added automatically to achieve the right dosage. Contact your detergent supplier.

Water change – The water in the tank should be changed at least once a day during normal use of the dishwasher. In certain cases, e.g. if many or highly soiled items are washed, it may be necessary to change it more often.

Water turnover – If water turnover in the machine is not good enough, this can lead to problems such as starch spots on glass and on the undersides of plates. Contact the service company for help in dealing with the problem.

Temperature – If the temperature during washing and the final rinse is too low, the items in the wash will not emerge clean. If you suspect this is the case, contact the service company.

If normal wash items are rinsed (pre-rinsed) before being put in the dishwasher,

Using the dishwasher

the temperature of the water must not be too high (<40°C). Otherwise there is a risk that proteins and starch will burn onto the items, and you will end up with a poor wash result.

Program selection – The time taken by the wash and final rinse, as well as the volume of water used for the final rinse are all important for the wash result. If the items are not cleaned, you should try selecting a program with a longer wash cycle, see “Technical data” on page 57. The volume of water used for the final rinse of the washed items can be adjusted by a service engineer – contact the service company.

Water hardness – If the water used for washing is hard (>10°dH), a higher concentration of detergent may be needed to ensure the washed items emerge clean. Contact your detergent supplier.

Cleaning, rinse pipes – Cleaning of the machine is important for achieving a good wash result. See “Care and maintenance” on page 37 for recommendations as to how often cleaning should be performed. In certain cases it may be necessary to clean more frequently than recommended.

Stacking of items – How the items are positioned in the basket is critical for how the washing water will manage to rinse them during washing. This in turn will determine the wash result, see “Positioning of items in baskets” on page 31.

Soaking – (does not apply to potwash programs with granules, where soaking should not be used) – In certain cases the items need to be soaked before washing, if they are to emerge fully clean. In such cases the items are soaked e.g. overnight in water with a soaking agent. Follow the instructions of the detergent supplier.



Ordinary washing-up liquid must **NOT** be used in the machine or for soaking. It causes foam to form and produces poor wash results.

4.3.3 Changing the water



Take care to scrape off food residues from the items before putting them in the dishwasher. If residues are properly scraped off, the water will not need changing as often, saving time, money and the environment.

The water in the washer tank should be changed daily. More frequent changes of water are needed if:

- Significant amounts of foam build up in the machine; e.g. if you can see foam coming out of the waste pipe, or the strainer in the machine's tank is covered with foam. If this occurs, the water should be changed immediately.
- A lot of items are washed at certain periods of the day. Schedule water changes so that a good wash result is achieved over the entire work shift. Change the water, for instance, after periods when a lot of items have been washed.
- On checking the wash result you discover any of the problems mentioned in the chapter “Check the wash result” on page 38 above.

Using the dishwasher

This is what you should do:

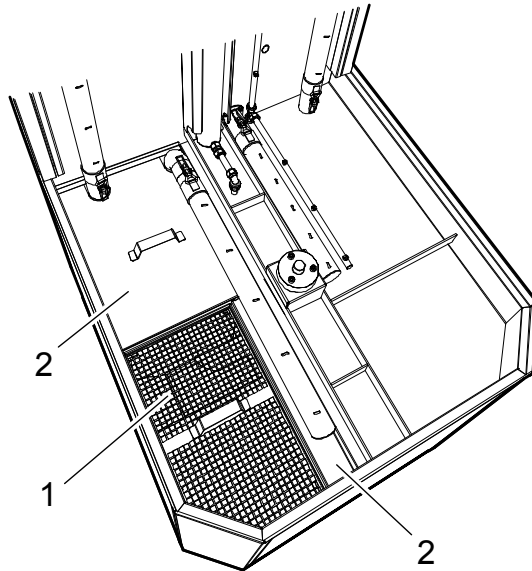
1. Run potwash program P4 (See chapter “Wash programs” on page 34) by pressing the button for potwash programs. Check that P4 is shown on the display.



2. Lower the hood with the button for operating the hood (the button at the very bottom of the panel). Wait until the program has completed its cycle and the hood has opened.
3. Switch off the machine by pressing the button for switch-on/switch-off. The hood must be open.



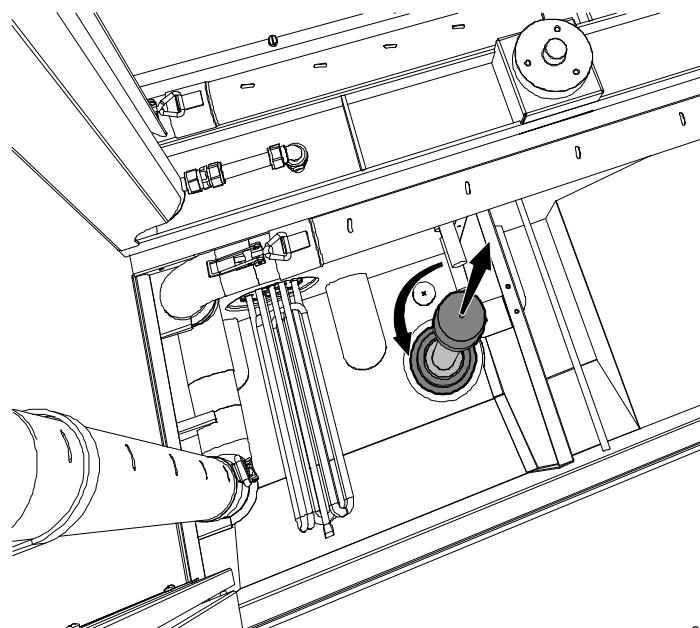
4. Remove the rotating table. Get hold of the spokes in the rotating table, towards the hub, and pull it straight up towards you. Where necessary, press on the shaft with the thumb of one hand to get the rotating table to come off more easily.
5. Remove the strainer (1) and cover plates (2). Rinse these down with water. Remove any detritus which has got stuck in the strainer holes.



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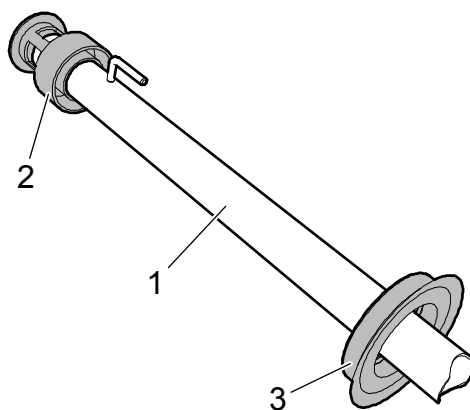
Using the dishwasher

6. Unhook the level pipe from its holder, turn it one quarter turn and leave it for the moment in the waste pipe. There should now be a slight chink between the bottom of the tank and the rubber sleeve to allow the water to run out.



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7. If the tank and granules are dirty, rinse these through with water. Stir the granules round while rinsing them.
8. Clean the level pipe (1) and check that the foam separator (2) on the level pipe is not locked in position but can move backwards and forwards.

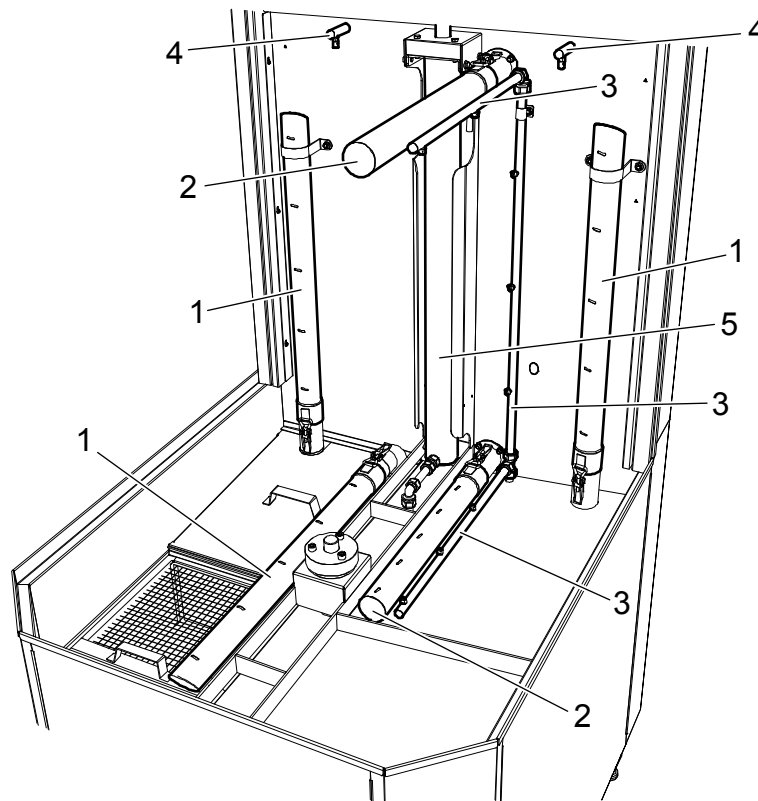


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9. Refit the level pipe. Make sure the rubber sleeve (3) achieves a good seal with the bottom of the tank.
10. Refit the cover plates and the strainer.
11. Refit the rotating table. Make sure the screw heads on the shaft plate which supports the rotating table end up in the holes on the bottom of the rotating table's hub.
12. Now the machine can be filled with water, see "Filling with water" on page 33.

Using the dishwasher

4.3.4 Checking and cleaning the wash arms



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The machine's washing compartment with wash arms and cold water jets

1. Rinse pipe, potwash
2. Rinse pipe, normal wash
3. Rinse pipe, final rinse
4. Standard machine: cold water jet
Machine with condensing unit: drain connection
5. Hood lifting cylinder

Check:

The rinse pipes and cold water jets should be checked daily.

Check to ensure the following points:

- The rinse pipes and cold water jets are not dirty.
- There is no detritus clogging the wash nozzles on the rinse pipes.
- The catches for the rinse pipes for normal wash (2) and potwash (1) are properly engaged.
- The rinse pipes and cold water jets are not damaged (if they are damaged, contact the service company)

Using the dishwasher

Cleaning:

The rinse pipes (1, 2) should be properly cleaned at least once a week.

Proceed as follows:

1. Rinse the outside of the rinse pipes and cold water jets with water.
2. Open the catches for the rinse pipes for normal wash (2) and potwash (1).
3. Remove the rinse pipes and rinse them out on the inside with water.
4. Check there is no detritus clogging the jets or inside the rinse pipes. Remove any detritus.
5. Refit the rinse pipes in their correct position and close the catches around the pipes.

4.3.5 Cleaning the inside of the machine

The machine should be cleaned at least once a day when in normal operation. At least once a week, more thorough cleaning of the machine should be carried out, where the rinse pipes and granules are also properly cleaned and a check performed on the amount of granules.



Make sure you adhere to the following when cleaning the machine:

- Do NOT use steel wool as this can cause rust to form on the machine.
- Pressure washers can damage the machine and must NOT be used for cleaning purposes. Never use a pressure washer to clean the floor within one metre of the machine without the protective covers that are available to prevent splashing. The supplier cannot be held liable for any faults caused by the use of pressure washers on the machine and any such use will invalidate the warranty.

This is what you should do:

1. Open the hood – press the button for operating the hood (the button at the very bottom of the panel).
2. Remove the rotating table from the machine. Get hold of the spokes in the rotating table, towards the hub, and pull it straight up towards you. Where necessary, press on the shaft with the thumb of one hand to get the rotating table to come off more easily.
3. Clean and rinse off the rotating table with water.
4. Re. weekly cleaning: Replace the strainer next to the granule collection basket and the cover plate with a hole for the basket.
5. Re. daily cleaning: Start potwash program P4 by pressing the button for potwash programs (see chapter “Wash programs” on page 34). Check that program P4 is indicated on the machine display. Lower the hood with the button for operating the hood (at the very bottom of the panel). Wait until the program has completed its cycle and the hood has opened.



Re. weekly cleaning: Run the granule collection program (see “Wash programs” on page 34) by pressing the button for this program. Lower the

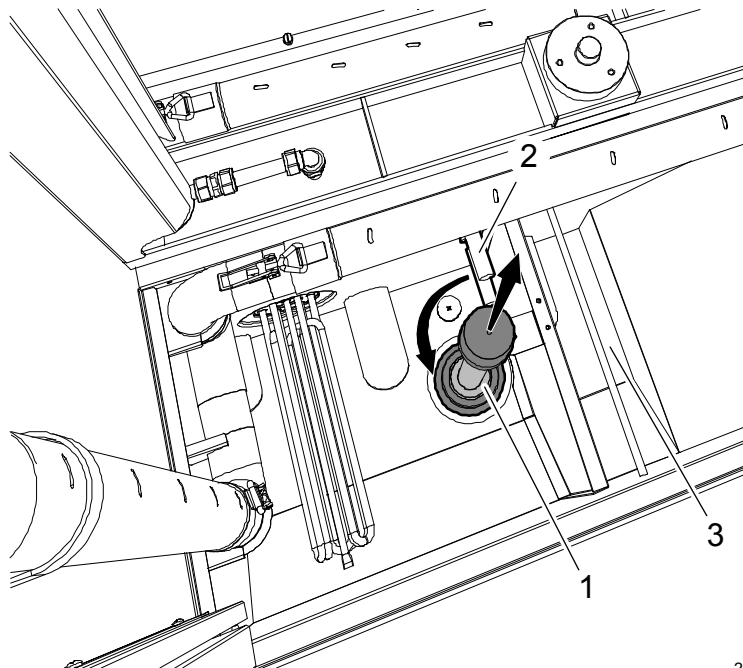
hood with the button for operating the hood (at the very bottom of the panel). Wait until the program has completed its cycle and the hood has opened.



6. Switch off the machine by pressing the button for switch-on/switch-off. The hood must be open.



7. Remove the cover plates and strainer/granule collection basket.
8. Re. weekly cleaning: Check the amount of granules and clean them as instructed in the chapter "Checking the amount and cleaning the granules" on page 46.
9. Clean and rinse off the cover plates and strainer with water. Remove any detritus which has got stuck in the strainer holes.
10. Unhook the level pipe (1) from its holder and turn it one quarter turn. Leave it for the moment in the waste pipe. There should now be a slight chink between the bottom of the tank and the rubber sleeve on the level pipe to allow the water to run out.



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11. Once the tank is empty, remove the level pipe (1), and clean and rinse with water.
12. Clean the inside of the tank. Clean the permanent strainer (dividing wall) in the tank.
13. Clean and check that no detritus has got stuck in the level sensors (2) in the tank.
14. Clean the rinse pipes, see "Checking and cleaning the wash arms" on page 43.
15. Clean the inside of the hood, etc.

Using the dishwasher

16. Re. daily cleaning: Rinse the granules with water in the tank (3). Stir the granules round while they are being rinsed and remove any detritus mixed in with them.
Re. weekly cleaning: Pour the granules back into that part of the tank which is nearest the front (3).
17. Refit the level pipe. Make sure the rubber sleeve achieves a good seal with the bottom of the tank.
18. Refit the strainer and cover plates.
19. Refit the rotating table. Turn the rotating table until the screw heads on the shaft plate which supports it end up in the holes on the bottom of the rotating table's hub.
20. Clean the washing accessories for the machine, such as baskets, etc.



Once it has been cleaned, it is a good idea to leave the machine with the hood open if no washing is due for a day, e.g. overnight.

4.3.6 Cleaning the exterior

Wipe the outside of the machine with a soft, damp cloth.



Make sure you adhere to the following when cleaning the machine:

- Do NOT use steel wool as this can cause rust to form on the machine.
- Pressure washers must NOT be used for cleaning. Never use a pressure washer to clean the floor within one metre of the machine without the protective covers that are available to prevent splashing. The supplier cannot be held liable for any faults caused by the use of pressure washers on the machine and any such use will invalidate the warranty.

4.3.7 Checking the amount and cleaning the granules

For normal operation, the granules should be cleaned and their amount checked at least once a week.

Collection of granules

1. Open the machine hood. Press the button at the very bottom of the panel.
2. Remove the rotating table by getting hold of the spokes, towards the hub, and pull it straight up towards you.
3. Replace the strainer next to the granule collection basket and the cover plate with a hole for the basket.
4. Run the granule collection program



5. Once the granule collection program has completed its cycle and the hood has opened, remove the basket from the machine.
6. Clean and check the granules as indicated below.
7. Once this is done, pour the granules back into the machine, into that part of the tank which is nearest the front of the machine.

Cleaning

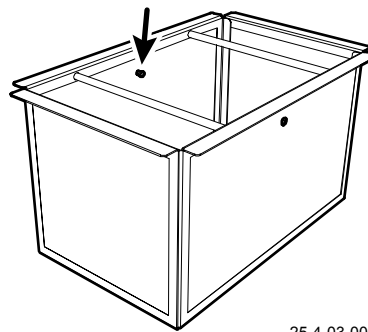
1. Pour the granules into a bucket.
2. Place the bucket in a sink.
3. Rinse the granules with water. Stir the granules round at the same time.
4. Remove any food residues and detritus.

Checking the granules

Once a week you should check there are enough granules in the machine.

The amount of granules is checked in one of two ways:

- By measuring them with a litre measure or similar (for granule volume, see “Technical data” on page 57), or
- By checking the amount when the granules are in the granule collection basket. The basket has two rivets which indicate the level the granules should reach in the basket. If the granules reach this level, the amount is correct.



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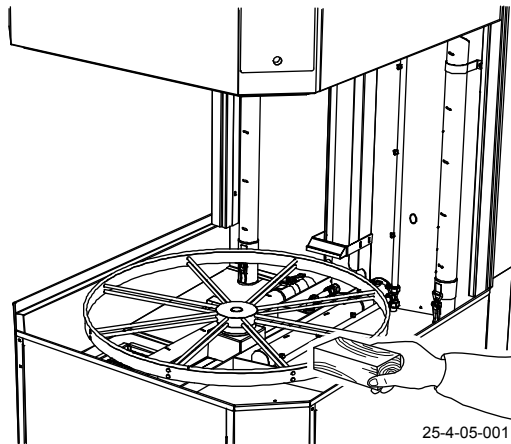
Add fresh granules as needed.

Using the dishwasher

4.3.8 Checking the hood's anti-crushing system

Operation of the hood's anti-crushing system must be checked once a month. It should also be checked by a service engineer whenever the machine is serviced.

1. Open the hood. Press the button for operating the hood (at the very bottom of the panel).
2. Hold a piece of wood or similar against the edge on the lower part of the machine.



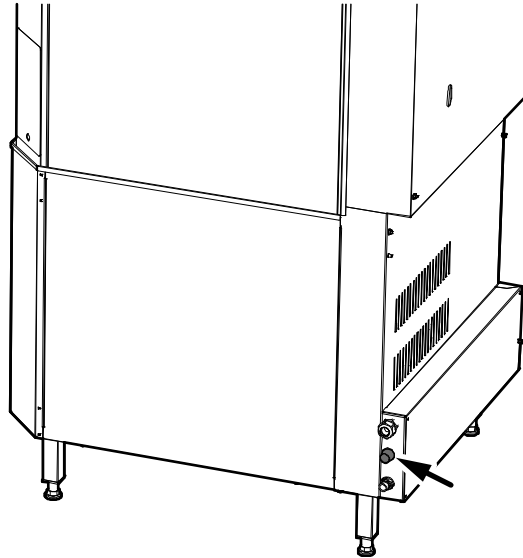
3. Press the button for operating the hood (at the very bottom of the panel).
4. Once the hood has gone down far enough to reach the piece of wood and start pressing on it, the hood should reverse and return to its open position.

The sensitivity of the anti-crushing system may need adjusting from time to time. If so, a service engineer must be called.

4.3.9 Checking the safety valve (machine with condensing unit)

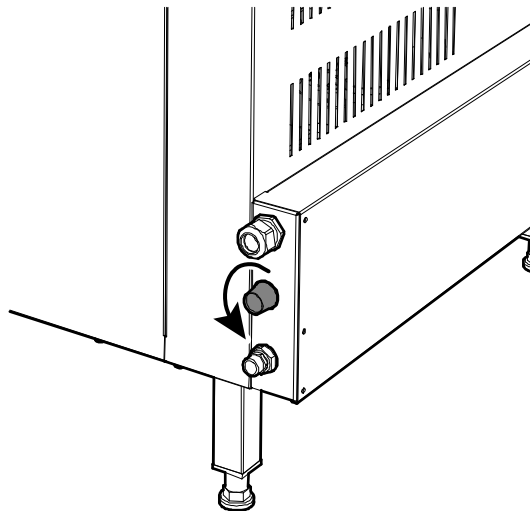
The safety valve for the condensing unit must be checked two or three times a year for correct operation. Proceed as follows:

1. The location of the safety valve is shown in the figure below.



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2. Make sure the water is turned on to the machine.
3. Open the valve by turning the black knob anti-clockwise.



25-4-01-002

4. Check that water flows out of the valve's outlet.
5. Close the valve.

4.3.10 Longer periods without use

Periods without use of up to a week

- The machine is cleaned as for weekly cleaning (see “Cleaning the inside of the machine” on page 44 and “Cleaning the exterior” on page 46).
- The granules are placed in a bucket containing water mixed with soaking agent or chlorine.
- Carefully wash the granules – stir the granules round and remove any food residues or detritus.
- Leave the granules in the water for the period the machine is not in use.
- Alternatively, the granules can be cleaned and then put in a freezer for this period.
- Rinse the granules with clean water before pouring them back into the machine.

Periods without use of longer than a week

- The machine is cleaned as for weekly cleaning (see “Cleaning the inside of the machine” on page 44 and “Cleaning the exterior” on page 46).
- Disinfect the granules by pouring them into a bucket containing water mixed with soaking agent or chlorine.
- Carefully wash the granules – stir the granules round and remove any food residues or detritus.
- Pour out the granules into the collection basket and store them in this for the period the machine is not in use.
- Alternatively, the granules can be cleaned and then stored in a freezer for this period.
- Rinse the granules with clean water before pouring them back into the machine.

Change the granules

The granules should be changed once or twice a year. It may be a good idea to do this during longer scheduled periods without use, such as e.g. holiday periods or similar.

Collect the old granules in the machine as instructed in section “Checking the amount and cleaning the granules” on page 46.



Different makes of granules differ in both size and weight. The machine is designed to use Wexiödisk original granules, and these should be used when filling with new granules. The amount to be added to the machine is indicated under “Technical data” on page 57.

Recycling the granules



Used granules can be recycled either as hard plastics or combustible materials.

Using the dishwasher

4.3.11 Operating problems

Troubleshooting

| PROBLEM | CAUSE | ACTION |
|--|---|---|
| No indication on the control panel display when the control button is pressed. | The mains switch is off. | Turn on the mains switch. |
| The machine will not fill with water. | The shut-off tap on the incoming water supply is closed. | Open the tap. |
| The tanks will not stop filling with water. | The level pipe is not in place in the tank. | Fit the level pipe. |
| | The level pipe's rubber sleeve is not sealing against the bottom plate. | Check that the level pipe is closed. Change the rubber sleeve if it is damaged. |
| Noise from the wash pump. | Low water level. Foam in the tank. | Check the level. Change the water. |
| The machine is not cleaning properly. | See chapter "Check the wash result" on page 38. | |
| Granules are sticking to the washed items. | The rinse nozzles are blocked. | Clean the nozzles. |
| | There is too much foam in the machine. | Check to see how clean the wash water is. Change the water if necessary. |
| | The permanent strainer in the tank has not been cleaned. | Clean the permanent strainer, see section "Cleaning the inside of the machine" on page 44 |
| The granules end up in the wrong tank. | The cover plates and strainer are not in place in the tank or have been incorrectly fitted. | Fit cover plates and strainer(s). Check they are correctly located and cover the tank. |
| Items do not dry. | The rinse nozzles are blocked. | Check and clean the nozzles. |

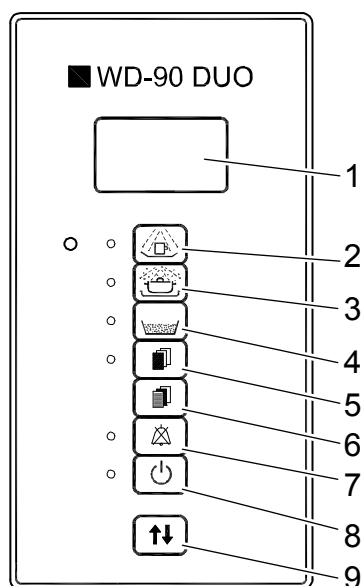
When contacting the service company, the following details relating to the machine should be provided:

- Machine type and model
- Machine serial number and installation date
- Short description of the fault/problem
- What happened immediately before the fault occurred

Machine faults and user errors

If a fault occurs on the machine, an alarm appears on the panel display. Alarms are displayed in order of priority, i.e. if several alarms are activated at the same time, the one which is highest in the list is displayed first.

Some alarm texts warn when something is wrong, whereas others just provide information. Some alarms only occur if the machine has certain additional options, such as e.g. an extra HACCP alarm.



25-4-00-003_1

Panel for program selection, start and stop, etc.

1. Display
2. Selection of normal wash programs
3. Selection of potwash programs
4. Granule collection
5. Activation of service mode
6. Page selection in service mode
7. Alarm reset
8. On / Off
9. Hood, up/down

Next to the panel button for alarm reset is a LED which illuminates red when an alarm is activated. If the alarm can be reset with the reset button, the LED flashes, but if it cannot, the LED will be constantly lit.



Generally, if the actions proposed below do not solve the problem, or if the alarm returns repeatedly in succession, you should contact the service company for them to deal with the fault.

Using the dishwasher

| ALARM TEXT | ACTION |
|--|---|
| (0) PLATFORM ERROR | Switch off the machine and restart it. |
| (63) POWER SUPPLY FAILURE CHECK THE EMERGENCY SWITCH | Switch off the machine and restart it. |
| (98) HARDWARE ERROR POWER ON FUNCTION DEFECT CALL SERVICE | Switch off the machine and restart it. |
| (3) NOMINAL VALUES CORRUPTED IN MEMORY CALL SERVICE | Contact service personnel. |
| (99) THE MACHINE TYPE HAS BEEN CHANGED VERIFY THIS | This alarm should not occur on normal operation. If it does, contact service personnel. |
| (2) INPUT FAILURE ON DIGITAL INPUTS CALL SERVICE | Contact service personnel. |
| (100) NOMINAL VALUES RESTORED FROM UI | This is an information text. Reset with the reset button on the machine. |
| (4) COMMUNICATION ERR BETWEEN CPU BOARD AND I/O BOARD1 CALL SERVICE | Restart the machine. |
| (7) COMMUNICATION ERR BETWEEN CPU BOARD AND U/I BOARD CALL SERVICE | Restart the machine. |
| (9) OVERLOAD PUMPS ACTIVATED CALL SERVICE | Contact service personnel. |
| (10) HACCP ALARM PUMP FUNCTIONALITY DEFECT PRESS RESET | Reset the alarm by pressing the reset button. In certain cases, the machine may lock when this alarm is displayed. If this happens, contact service personnel. |
| (11) HACCP ALARM PUMP DEFECT MACHINE LOCKED CALL SERVICE | The machine is locked when this alarm is activated. Contact service personnel. |
| (20) FREQUENCY INVERTER ERROR CALL SERVICE | Contact service personnel if the alarm cannot be reset or if it recurs. |
| (16) COMMUNICATION ERROR FREQUENCY INVERTER CALL SERVICE | Contact service personnel if the alarm cannot be reset or if it recurs. |

Using the dishwasher

| ALARM TEXT | ACTION |
|--|---|
| (17) ROTATION ERROR ROTATING TABLE PRESS RESET | Contact service personnel if the alarm cannot be reset or if it recurs. |
| (18) OVERTEMPERATURE FREQUENCY INVERTER CALL SERVICE | Contact service personnel if the alarm cannot be reset or if it recurs. |
| (19) DC BUS OVERVOLTAGE FREQUENCY INVERTER CALL SERVICE | Contact service personnel if the alarm cannot be reset or if it recurs. |
| (101) HOOD SAFETY PROTECTION ACTIVATED | Check that whatever caused the anti-crushing system to trip has been removed. Reset the alarm by pressing the reset button. Restart the machine by pressing the start button. |
| (103) TIMEOUT WHEN CLOSING HOOD PRESS RESET | Reset the alarm by pressing the reset button. Contact service personnel if the alarm recurs. |
| (102) TIMEOUT WHEN OPENING HOOD PRESS RESET | Reset the alarm by pressing the reset button. Contact service personnel if the alarm recurs. |
| (31) TEMP SENSOR ERROR TANK B21 CALL SERVICE | Contact service personnel if the alarm will not go out. |
| (33) TEMP SENSOR ERROR B42 CALL SERVICE | Contact service personnel if the alarm will not go out. |
| (37) LOW FLOW DURING FINAL RINSE PRESS RESET | Check the water flow in the machine, e.g. that the water tap(s) are open, that there are no problems with the water supply, etc. Reset the alarm by pressing the reset button. |
| (38) HACCP ALARM NO FLOW DURING FINAL RINSE PRESS RESET | Check the water flow in the machine, e.g. that the water tap(s) are open, that there are no problems with the water supply, etc. Reset the alarm by pressing the reset button. |
| (62) HACCP ALARM NO FLOW DURING FINAL RINSE MACHINE LOCKED | Check the water flow in the machine, e.g. that the water tap(s) are open, that there are no problems with the water supply, etc. Contact service personnel. |
| (39) FINAL RINSE ERR SENSOR ERROR FLOW METER BV02 CALL SERVICE | Reset the alarm by pressing the reset button. Check the wash result after the wash cycle has completed, see section "Check the wash result" on page 38. If the wash result is not acceptable or the alarm recurs, contact service personnel. |
| (40) HACCP ALARM FINAL RINSE DEFECT PRESS RESET | The alarm can be reset with the reset button, but a check should be made on the water flow in the machine (to ensure the water taps to the machine's water connection are open), and on the wash result (see section "Check the wash result" on page 38) after a completed wash cycle. If the wash result is not satisfactory, contact service personnel. |
| (41) HACCP ALARM FINAL RINSE DEFECT MACHINE LOCKED CALL SERVICE | The machine is locked when this alarm is activated. Check the water flow in the machine - Make sure water taps for the machine's water connection are open. - Make sure there are no problems on the water supply to the machine, etc. If this is not the problem, contact service personnel. |

Using the dishwasher

| ALARM TEXT | ACTION |
|---|--|
| (42) TIMEOUT WHEN FILLING TANK PRESS RESET TO START FILLING AGAIN | Check that water taps connected to the machine are open. Check that the level pipe is in place and its rubber sleeve achieves a good seal with the tank bottom. Reset the alarm by pressing the reset button. |
| (105) TIMEOUT WHEN FILLING BREAK TANK PRESS RESET TO START FILLING AGAIN | Check that water taps connected to the machine are open and there are no problems on the water supply to the machine. Reset the alarm by pressing the reset button. Contact service personnel if the alarm will not go out. |
| (43) TIMEOUT WHEN HEATING TANK PRESS RESET | Reset the alarm by pressing the reset button. Contact service personnel if the alarm will not go out. |
| (44) LOW TEMPERATURE IN TANK PRESS RESET | Reset the alarm by pressing the reset button. Contact service personnel if the alarm will not go out. |
| (45) HACCP ALARM HEATING OF TANK DEFECT PRESS RESET | Reset the alarm by pressing the reset button. |
| (46) HACCP ALARM HEATING OF TANK DEFECT MACHINE LOCKED CALL SERVICE | The machine is locked when this alarm is displayed. Contact service personnel. |
| (47) LOW TEMP. BEFORE FINAL RINSE EXTENDED CHEMICAL WASH | Reset the alarm by pressing the reset button. Check the wash result after the wash cycle has completed, see section "Check the wash result" on page 38. If the wash result is not acceptable, contact service personnel. |
| (48) HACCP ALARM HEATING OF BOILER DEFECT PRESS RESET | The alarm can be reset using the reset button, but service personnel should be contacted as soon as possible. |
| (49) HACCP ALARM HEATING OF BOILER DEFECT. MACHINE LOCKED CALL SERVICE | The machine is locked when this alarm is activated. Contact service personnel. |
| (50) WASHING DETERGENT ALARM ACTIVE CHECK DETERGENT DEVICE | Check whether the machine is out of detergent. Add detergent. The alarm can be reset by pressing the reset button. Contact service personnel or the supplier of the detergent device if the alarm will not go out. |
| (51) HACCP ALARM WASHING DETERGENT FUNCTIONALITY DEFECT PRESS RESET | Check whether the machine is out of detergent. Add detergent. Reset the alarm by pressing the reset button. Contact service personnel or the supplier of the detergent device if the alarm will not go out. |
| (52) HACCP ALARM WASHING DETERGENT DEFECT. MACHINE LOCKED. CALL SERVICE | Check whether the machine is out of detergent – add detergent. Reset the alarm by pressing the reset button. Contact service personnel or the supplier of the detergent device if the alarm will not go out. |
| (65) POWER GUARD ACTIVATED PART OF EQUIPMENT IS TURNED OFF | Information that the power guard has engaged. The text will go out once power consumption is back within normal limits. |
| (57) EXTERNAL ALARM ACTIVATED PRESS RESET | The alarm can be reset by pressing the reset button. Contact service personnel if the alarm recurs. |

Using the dishwasher

| ALARM TEXT | ACTION |
|---|--|
| (58) TIME TO CHANGE WATER IN TANK PRESS RESET | See section "Changing the water" on page 40. NOTE: It is important that the machine is switched off when water is being emptied out of it. If this is not the case, the machine will immediately indicate an alarm again, even if the water has been changed. The alarm may be temporarily reset with the reset button, e.g. if a wash needs to complete its cycle. |
| (59) TIME TO CHANGE WATER IN TANK MACHINE LOCKED | See section "Changing the water" on page 40. NOTE: It is important that the machine is switched off when water is being emptied out of it. If this is not the case, the machine will immediately indicate an alarm again, even if the water has been changed. |
| (60) CHECK GRANULE LEVEL PRESS RESET | Check the level as instructed in section "Checking the amount and cleaning the granules" on page 46. Reset the alarm by pressing the reset button. |
| (104) TIME TO CHANGE GRANULES PRESS RESET | For changing granules, see section "Change the granules" on page 50. Reset the alarm by pressing the reset button. |
| (64) TIME FOR MAINTENANCE CONTACT: | The alarm is displayed for the first 10 seconds after start-up. Once it goes out, the machine can be used as normal. Contact service personnel as soon as possible. |

5. Technical data

Wexiödisk AB reserves the right to make changes to technical data without prior notification.

| Volume | [litres] |
|---------------------------------|-----------------|
| Tank, total | 90 |
| Tank's granule part | 40 |
| Recommended granule amount | 5 |
| Water volume in condensing unit | 2 |

| Wash cycles^a | [min.] |
|------------------------------------|---------------|
| Normal wash: | |
| Program 1 | 1.3 |
| Program 2 | 1.8 |
| Program 3 | 3.3 |
| Potwash: | |
| with granules: Program 1 | 5.1 |
| Program 2 | 8.1 |
| Program 3 | 10.9 |
| without granules: Program 4 | 2.5 |
| Program 5 | 4 |
| Program 6 | 7 |
| Granule collection program | 2 |

a. The values in the table relate to the factory setting. The wash cycles can be adjusted – contact your service engineer.

| Weight | [kg] |
|--|------------------|
| Machine with condensing unit excluding water, detergent and granules. | 370 ^a |
| Machine without condensing unit excluding water, detergent and granules. | 341 ^b |

a. on delivery approx. 30 kg should be added for the packaging
 b. on delivery approx. 30 kg should be added for the packaging

| Washing capacity | [items] |
|--|------------------|
| Max. number of 1/1 containers per wash | 6+1 ^a |

a. Three GN1/1 containers 200 mm deep and three GN1/1 containers 65 mm deep, plus one GN1/1 container 65 mm deep positioned on the bottom of the basket.

Technical data

| Water consumption | [litres/ program] |
|--------------------------|------------------------------|
| Rinsing ^a | 4–6 |
| Cooling | 0–1.5 |

a. Adjusted on installation

| Temperature | [°C] |
|--|-------------|
| Surface temperature, cover plates on machine exterior ^a | 35 |

a. At a room temperature of 20 °C.

| Noise levels | [dB(A)] |
|---|----------------|
| When running wash programs with granules ^a | 70 |

a. The noise level is measured one metre in front of the machine at a height of 1.5 metres.

| Electrical data ^a | |
|-------------------------------------|-------------------|
| Main fuse | 20 A |
| Max. connection area | 6 mm ² |

a. Applies for connection to 3-phase AC, rated at 400–415 V and 50 Hz.

| Output | [kW] |
|-----------------------------------|-------------|
| Chemical wash pump (M1) | 1.5 |
| Granule pump (M2) | 2.2 |
| Rinse pump/booster pump (M10) | 0.67 |
| Normal wash pump (M3) | 0.74 |
| Condensing fan (M15) | 0.129 |
| Motor, rotating table (M16) | 0.55 |
| Booster heater (E42) ^a | 9 |
| Element in tank (E21) | 9 |
| Total connected power | 11.7 |

a. to heat incoming water.

| Dimensions of connections for water | |
|---|--------|
| Hot water connection, external thread ^a | 1/2" |
| Cold water connection, external thread ^b | 1/2" |
| Waste pipe (outside diameter) | Ø50 mm |

a. 50–70 °C

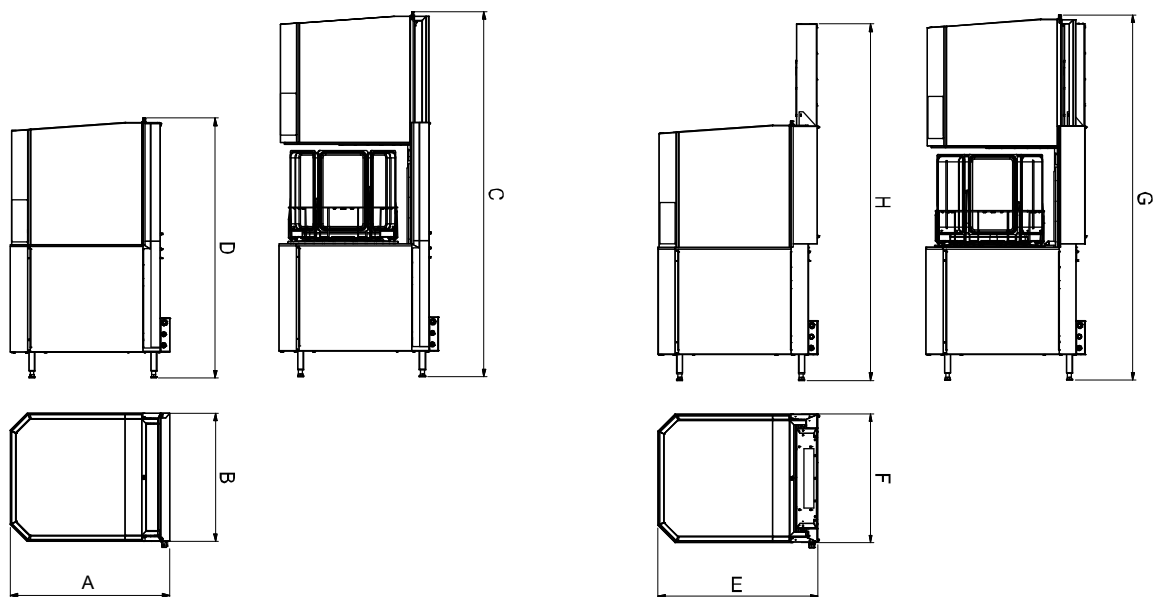
b. 5–12 °C

| Capacity requirements for water connections | |
|--|---------------|
| Max. water pressure | 600 kPa |
| Min. water pressure | 50 kPa |
| Flow (incoming water) | 5 litres/min. |
| Floor drain | 3 litre/sec. |

Technical data

| Dimensions | [mm] |
|------------------------------|-----------------------|
| Standard machine: | |
| A. Depth | 1060 ^a |
| B. Width | 850 ^a |
| C. Height – hood open | 2415 ±25 |
| D. Height – hood closed | 1720 ±25 ^b |
| Machine with condensing unit | |
| E. Depth | 1060 ^a |
| F. Width | 850 ^a |
| G. Height - hood open | 2415 ±25 |
| H. Height - hood closed | 2360 ±25 ^c |

- a. approx. 100 mm should be added for packaging
b. the package height on delivery for a standard dishwasher is approx. (D + 250) mm
c. the package height on delivery for a dishwasher with condensing unit is approx. (D + 350) mm



25-4-00-015

| Additional information | |
|------------------------------|--------|
| Enclosure protection class | IP 55 |
| Water hardness (recommended) | 2–7°dH |

CE Declaration of Conformity

This declaration of conformity only refers to the machine/product in the condition in which it is supplied, not any additions or modifications made by the customer/user.

Manufacturer: Wexiödisk AB Mårdvägen 4 S-352 45 Växjö, Sweden Tel: +46 470 77 12 00 Fax: +46 470 237 52
Representative: Metos AS, Metos BV, Metos Oy AB, Metos Sarl, Metos SIA, Metos Storkök AB, Metos UAB
Compiler of technical documentation: Magnus Ericsson

Our machines are manufactured 2015 in accordance with applicable EU directives and we declare under sole responsibility that the following products:

Single tank-, Pot wash-, Tunnel- dishwashers with accessories:

WD-4x, WD-6x, WD-7x, WD-PRM6/7

WD-12, WD-90x, WD-100GR

WD-11, WD-151C/211C, WD-151E/211E/241E/331E/421E, WD-153/213/243/333/423

WD-215T, WD-PRM60/90, WD-T60/60F/80/90, WD-C90/180, WD-BF90/180, WD-CDC

Conveyor-, Special- dishwashers *:

WD-B xxx, WD-xxCT, WD-40BRE, ACS-38/47

WD-18CW, WD-25BR, WD-25T, WD-8020/8020W/8020WL/9020/9020W, ACS 400HC, ACS 800

Conform to the following directives:

CE Declaration of Conformity

according to EU's Machinery Directive 2006/42/EG, annex IIA

Harmonised standards

EN 12 100-1 Machine safety: specification for general requirements, part 1

EN 12 100-2 Machine safety: specification for general requirements, part 2

EN 60 204-1 Machine safety: electrical equipping of machines: general requirements

EN 60 335-1 Safety of household and similar electrical appliances - General requirements

EN 60 335-2-58 Specification for safety of household and similar electrical appliances - Particular requirements - Commercial electric dishwashing machines

CE Declaration of Conformity

according to EU's Low-voltage directive 2006/95/EC

Harmonised standards

EN 60 529 Specification for degrees of protection provided by enclosures (IP code)

EN 62 233 Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

CE Declaration of Conformity

according to EU's EMC-directive 2004/108/EC

Harmonised standards

EN 61 000-6-2 Electromagnetic compatibility (EMC) - Immunity standard for industrial environments

EN 55 014-1 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. (EMC) - Part 1: Emission

CE Declaration of Conformity

according to EU's WEEE-directive 2003/108/CE

according to EU's RoHS- directive 2011/65/EU

Harmonised standards

EN 50 581 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

For products marked with *

EN 60 204-1 Machine safety: electrical equipping of machines: general requirements

For other products

EN 50106 Safety - Particular rules for routine tests

Växjö 2015-01-01

Magnus Titusson
Managing Director