TROLLEY DISHWASHER
WD-18CW
touch

(original documentation)

⚠ Read the manual before using the machine!

Service manual

cover_2

S/N: (En) Valid from: 202403 Rev.: 1.0

1. General instructions

Read the instructions in this manual carefully as they contain important information regarding the correct, effective and safe installation, use and servicing of the machine. Service personnel should have access to all documentation for the machine.

Keep this manual in a safe place so that it can and should be used by other operators of the machine.

- The machine is intended to be used for washing dishware that is found in the general catering and restaurant trade. Other uses are NOT recommended!
- The machine can be equipped with a number of different options. Certain options may be standard in a number of countries. Check what your machine is equipped with.
- The machine's display indicates what the machine is doing. The machine's various temperatures and any alarms are also shown.
- The capacity requirements of the machine can be found in the TECHNICAL DATA chapter.
- The electronics in the machine are RoHS compatible.

Before the machine is started up and used, the following points should be observed:

- The SAFETY INSTRUCTIONS chapter must be studied carefully before commissioning the machine.
- Installation of the machine must be performed in accordance with the requirements and instructions indicated in the INSTALLATION INSTRUCTIONS and TECHNICAL SPECIFICATIONS chapters.
- Any personnel who may at some point use the machine must be trained in its operation, use and care.
- The machine should not be used by anyone suffering from a physical or mental illness.
- A close eye should be kept on any children in the vicinity of the machine to ensure they do not tamper with it.
- All cover plates must be fitted during use.

The machine and equipment requires an annual service. Contact one of our authorised and trained service companies for such a service.

1.1 Symbols used

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

This symbol on a machine part warns of electrical equipment. The machine must be entirely non-live during servicing, turn off the power at the power switch or the main switch and if required, the switch should be locked to prevent unintentional operation. The component may only be removed by a qualified electrician.

This symbol warns that the machine's electronics are sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics at all times.

This symbol explains the right way to perform a task in order to prevent poor results and/or damage to the machine.

This symbol identifies recommendations and hints to help you get the best results when washing, to increase the machine's lifespan and reduce the risk of emergency shutdown.

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

This symbol warns of the importance to read the manual before using the machine.

This symbol warns that local regulations must be followed for recycling of packaging etc. as well as the destruction of the machine.

This symbol shows where any earth cable for potential equalisation can be connected. The earth bolt is placed on the machine's stand.

1.2 Machine rating

The machine has two rating plates, one of which is placed at the bottom of one side of the machine and the other in the electrical cabinet. The technical information on the plates is also included on the machine's wiring diagram. The various rating fields show:

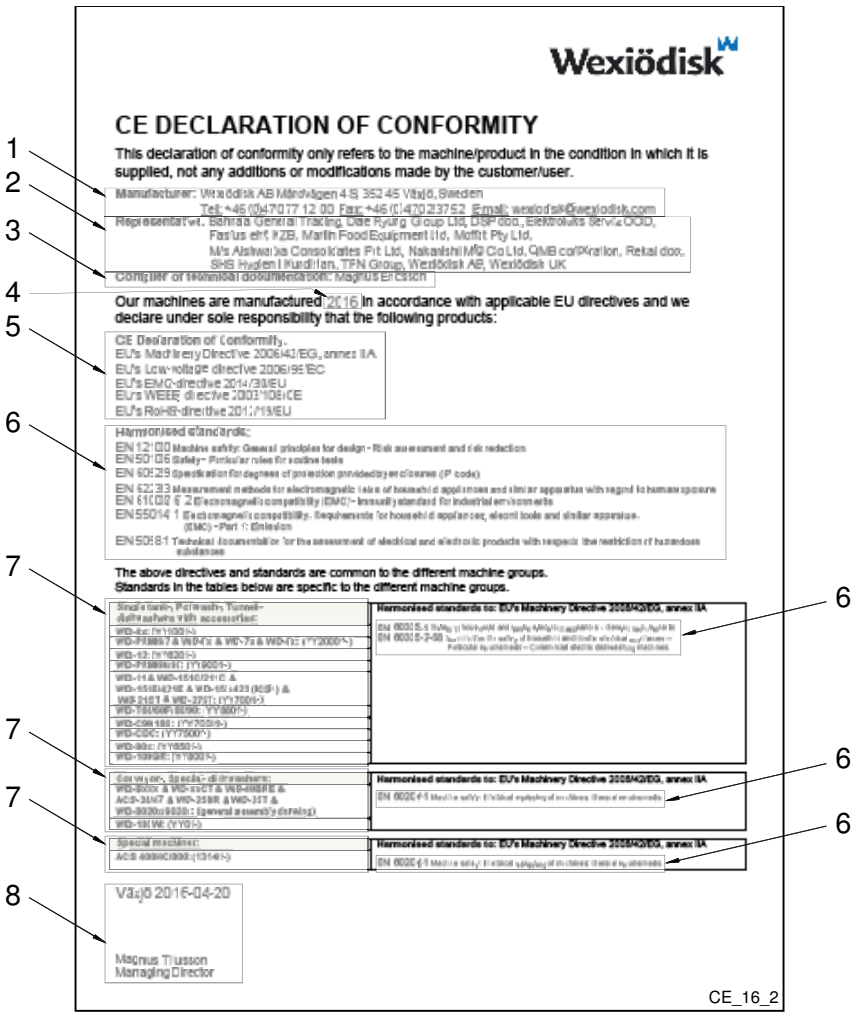
1. Machine type
2. Machine serial number
3. Year of manufacture
4. Enclosure protection class
5. Voltage
6. Number of phases with or without neutral
7. Frequency
8. Main fuse
9. Motor output
10. Electrical heating output
11. Max. output

1.3 Checking that the machine and manual correspond

Check that the type description on the rating plate corresponds with the type description on manual cover page. If manuals are missing, it is possible to order new ones from the manufacturer or the local distributor. When ordering new manuals, it is important to quote the machine number found on the rating plate.

1.4 EU Declaration of Conformity

A so-called EU Declaration of Conformity is provided on delivery of the machine.



1. Contact details of the manufacturer (Wexiödisk AB, Mårdvägen 4, SE-35245 Växjö, SWEDEN, Tel.: +46 470 771200, Fax: +46 470 23752, E-mail: wexiodisk@wexiodisk.com).
2. Representatives of Wexiödisk AB.
3. Person responsible for the product's documentation.
4. Year of manufacture of the product.
5. The EU Directives with applicable provisions to which all the machines, special machines and accessories comply.
6. Harmonised standards for the Directives specified, and which the machines, special machines and accessories meet, wherever relevant.
7. Model designation and serial number of the machines, special machines and accessories the document applies to.
8. Place and date with signature and name (in block letters) of the person responsible for ensuring compliance with legislation and regulations.

2. Safety instructions

Read the chapter GENERAL INSTRUCTIONS carefully before starting work.

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. 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.

Installation, repairs and servicing must be performed by an authorised engineer in accordance with local and national rules in effect for such work with water and drainage systems, electricity, ventilation and steam. To ensure electrical safety, components must only be tested when fitted in their normal place in the machine. We recommend that the work is performed by the manufacturer or one of the manufacturer's authorised service companies.

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.

The machine's electronics are sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics at all times.

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

In order to avoid dangerous situations, the following must be followed:

- Switch off the machine immediately in the event of failure or malfunction.
- Make sure the machine is non-live before removing the cover plate. Turn off the power using the power switch or the main switch. If required, the switch must be locked to prevent unintentional operation.
- Shut off the tap for incoming water and drain the machine's tank(s) before starting work. Let the machine cool down as pipes for water, washing pumps, booster heaters and valves become very hot when the machine is in operation.
- The machine and equipment requires an annual service. The machine should be serviced by a person authorised or trained to do so by us. Use original spare parts.
- Warranty repairs must be performed by an authorised company. Contact an authorised service company to draw up a programme of preventive care and maintenance. For authorised service companies, please see www.wexiodisk.com or contact Wexiödisk AB.
- The regular checks described in the manual must be carried out in accordance with the instructions.

2.2 Transport

Handle the machine with care during unloading and transport; there is a risk of it tipping over. Never lift or move the machine without using the wooden packaging to support the stand.

2.3 Installation

- The machine is designed for quick electrical installation.
- The machine must be connected to a lockable power switch, if it does not have an internal main switch.
- Make sure that the mains voltage is the same as that indicated on the machine's rating plate.

For increased safety, it is recommended to equip the installation with a ground fault circuit breaker.

2.4 Detergent and drying agent

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

2.5 Operation

Be very careful around the machine when it is in operation.

2.5.1 High temperatures

- The temperature of the washing and rinsing water is 60°C and 85°C. Do not open the machine until the washing and rinsing phases have finished. The steam that comes out of the machine after the wash has been completed is hot.
- Avoid touching hot pipes and booster heaters. The machine's outer jacket can also become hot during operation.

2.5.2 Risk of crushing

The machine, and any equipment, has moving parts before, during and after washing. Be careful therefore to avoid crush injuries. In connection with service or repairs that require the hood to be open, it must be secured by means of a prop for example.

2.5.3 Risk of slipping

The floor should be kept dry to eliminate any risk of slipping. Mop up any water and leftover food that has been spilt.

2.5.4 Sounds

The machine is not silent during operation, see TECHNICAL SPECIFICATIONS. Hearing protection may therefore need to be used.

2.6 Cleaning the machine

The water in the tank has a temperature of approximately 60°C and contains detergent. Be careful when draining and cleaning the wash tank. Wear protective gloves and safety glasses and have an eyebath within easy access.

3. Operational description

3.1 General information

The WD-18CW trolley dishwasher is designed for washing storage containers and other types of trolleys. You should therefore use a detergent suitable for this type of washing.

The machine comes as standard with electric heating but is also available with steam heating.

The machine is available in the following versions:

- A machine with a single shutter door, which is loaded and unloaded on the same side through this single shutter door.
- A machine with double shutter doors. A machine with two shutter doors on opposite sides through which the trolleys are fed.
- A machine with a clean and dirty side. A machine with double shutter doors installed in a wall which separates two areas, one of which is subject to strict cleanliness requirements. The shutter doors cannot be opened at the same time. This prevents dirt and impurities from being transferred in the air between the rooms.

The machine is manufactured entirely from non-corrosive materials. The bottom frame has adjustable feet and attachments for pumps.

The electrical cabinet containing all the electrical equipment and electronics is located at a comfortable working height on the side of the machine.

The entire machine is insulated against noise and heat. The exterior of the machine is made of polished panels.

3.2 Design

3.2.1 ON/OFF button

The white light of the ON/OFF button will illuminate when the main switch is set in the ON position.

NOTE! When the ON/OFF button is pressed, it will take up to 10 seconds before the touch panel illuminates.

The button is off when the machine's isolating power switch is in the OFF position or there is no power supply to the machine. The button is also off if the emergency stop is activated or another error occurs, and in such cases you must follow the instructions on the touch panel display regarding actions.

3.2.2 Touch panel

The machine's touch panel contains built-in guides on what and how things must be done.

Basic settings

Basic settings are set by the manufacturer prior to delivery. This includes:

- selecting the type of dishwasher
- the language displayed on the touch panel
- setting the date and time
- setting the adjustable values for the machine to the default settings

The settings can be changed later. These are accessed via the Menu icon.

General

The touch panel shows information in plain text. This is used to select the wash program, change settings and respond to various alarms. The text can be displayed in a number of different languages. The various process stages of the machine can be followed step by step during operation. Authorised technicians have access to all of the various functions in the control system via the touch panel. The main areas are as follows:

- Operation
- Settings
- Alarms
- Statistics

There are three different levels of authorisation regulating the level of access that the user has to the system:

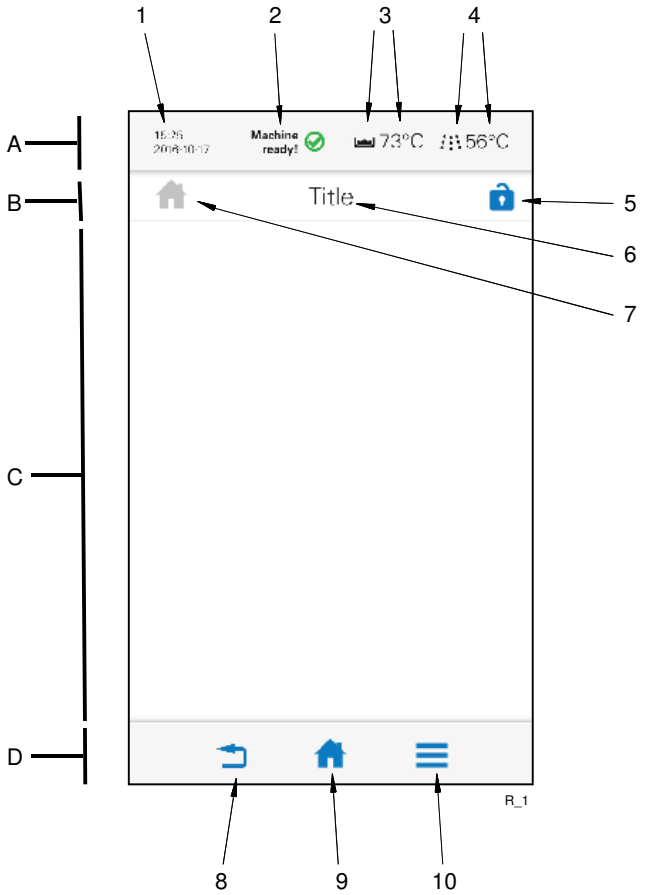
- OP = Operator. The OP can manage the system operation and view settings, but cannot alter any values.
- S1 = Non-authorised service personnel. People with authorisation level S1 cannot reset all the values. The password is "wd".
- S2 = Authorised service personnel. Personnel trained by the manufacturer and given a password can change all values after logging in. A personal password is given on completion of the approved training.

The values in different areas can be changed depending upon the authorisation level involved.

The process of selecting service mode and setting the different values is described in more detail in the ADJUSTMENT INSTRUCTIONS.

The panel comprises four fields:

A = Top bar
B = Process bar
C = Activity field
D = Bottom bar



The various fields are divided into the following parts:

1. Date and time
2. Machine status
3. Temperature of tanks
4. Temperature of final rinse
5. Login symbol
6. Text describing what happens in the activity field
7. Symbol for Process bar
8. Back button
9. Home button
10. Menu button

Inactive symbols are shown in grey and active symbols in blue. The activity field contains both information text and selectable symbols which are used to continue to different entries. Where applicable, the screen image can be navigated by swiping your finger up/down over the touch panel screen.

Logging in 

The user must be logged in with the correct level of authorisation to access certain functions or alter settings. To log in, click on the symbol with the locked padlock. Alternatively, the login screen is displayed automatically before pages that require login.

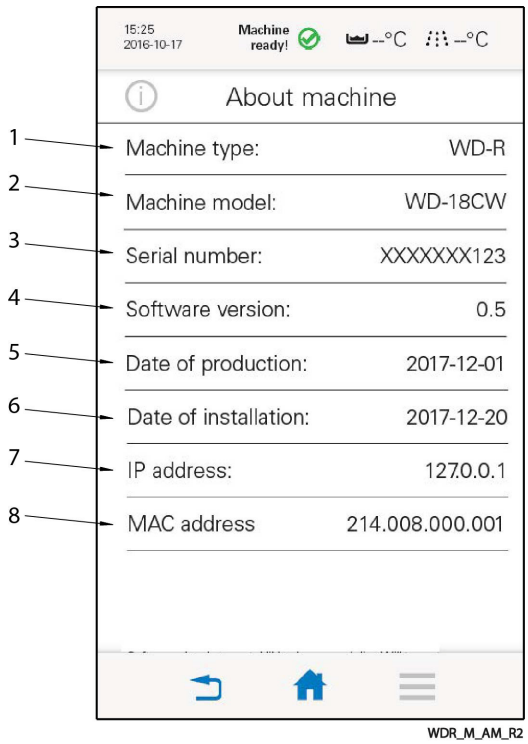
The following symbol is displayed in the "Process bar" after login is approved:

Logout

Log out by clicking on the home button, after which you will be asked if you would like to log out and any altered values will be saved after you have responded.

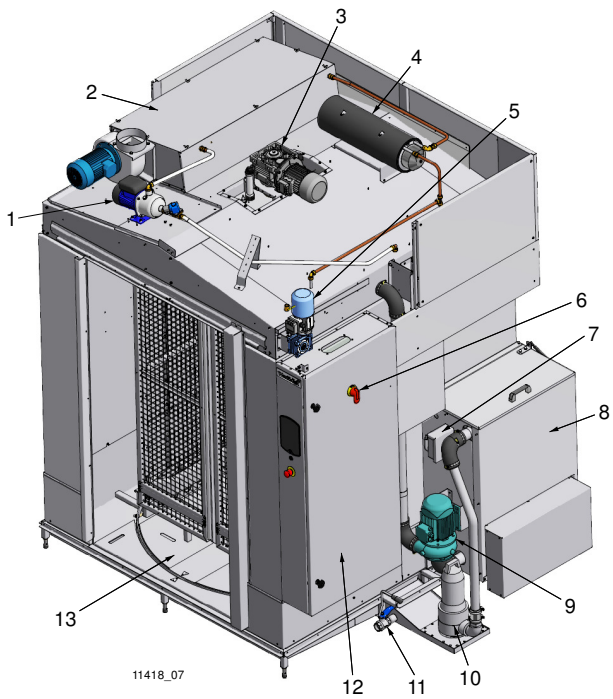
About the machine

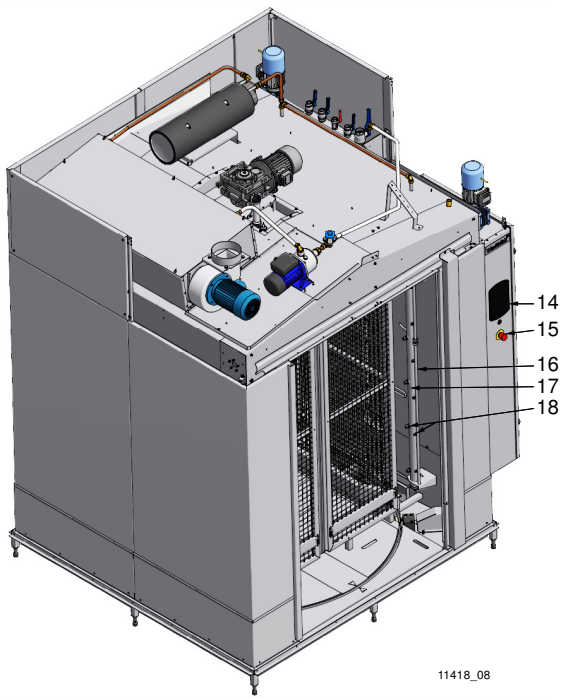
The menu beneath the button "About machine" contains basic information about the machine type, the date of manufacture and installation, and the IP address, etc. No login is required.



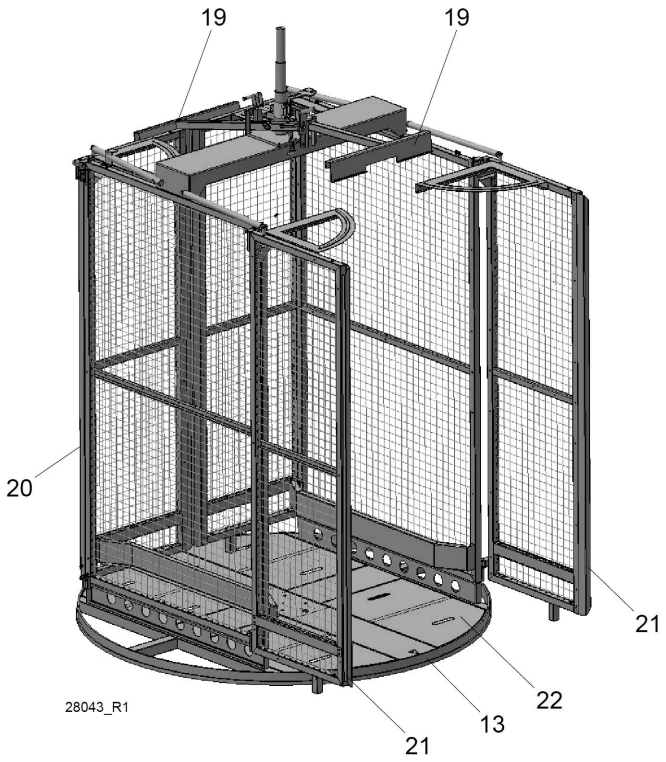
1. Machine type
2. Model
3. Serial number/Machine serial number
4. Software version
5. Date of production
6. Date of installation
7. IP address
8. MAC address

3.2.3 Machine design





1. Booster pump
2. Heat recovery unit
3. Shaft-mounted gear motor
4. Booster heater
5. Worm gear motor
6. Main switch
7. Pressure switch
8. Tank
9. Washing pump
10. Return pump
11. Drain tap
12. Electrical cabinets
13. Rotating table
14. Touch panel
15. Emergency stop
16. Rinse pipe
17. Rinse pipe
18. Nozzle



The machine's internal construction

- 13. Rotating table
- 19. Locking arms
- 20. Trolley support
- 21. Gates
- 22. Removable hatches

The equipment consists of a rotating table (13), fixed trolley supports (20), opening gates (21), locking arms (19) and removable hatches (22).

The trolley supports (20), locking arms (19) and gates (21) hold the trolleys in place during the wash process.

The WD-18CW can even wash tall trolleys. The shutter doors are high enough to accommodate trolleys with a maximum height of 1820 mm.

In the following chapter, figures are given in brackets to clarify what is being referred to.

3.2.4 Components, functions

Booster pump

The booster pump (1) pumps the incoming cold water via the heat recovery unit (2) and booster heater (4) to the rinse pipes (16) for final rinsing.

Heat recovery unit

The purpose of the heat recovery unit (2) is to:

- condense moisture and
- recover energy from the air released from the dishwasher.

In the heat recovery unit, there is a fan and a countercurrent air-water heat exchanger. Exhaust air is extracted through the fan from the end of the rinse zone and through the heat exchanger, where the moist air is condensed while the heat in the air is used to heat incoming cold water. The condensed water is routed down into the tank for recirculating rinse via a drainage plate.

The heat recovery unit is part of the dishwasher's heat recycling system.

Booster heater

The booster heater (4) consists of a water tank with a heating element. Final heating of incoming cold water (the water is pre-heated in the heat recovery unit) for final rinsing is carried out in the booster heater.

For connection of low pressure steam (50-140 kPa), two booster heaters are standard.

Tank

The tank (8) contains level pipes that keep the water in the tank at the correct level and act as a water stop to prevent water running out of the tank to the waste pipe.

The tank also has a tank-heating element to heat the water to the correct temperature, and a filter for collecting dirt.

Break tank (option)

Filling of the dishwasher with water is done via the break tank (9) to ensure that no back flow of water occurs into the mains water system. It is equipped with a level monitor with double level sensors. The upper sensor closes a valve for incoming cold water when the water level in the break tank becomes too high.

Electrical cabinets

The dishwasher has an electrical cabinet (12), that is located to the right as seen from the front.

The electrical cabinet contains high-voltage components such as the motor safety cut-out and contactors for heating, motors, pumps and fans. The dishwasher's main switch (6) is located on the electrical cabinet's door.

The electrical cabinet also contains low-voltage components such as the control card, panel card, frequency converter and emergency stop relay. The dishwasher's touch panel (14) is on the side of the electrical cabinet, which can be used to read the machine's current status, alarms, etc. There is also an emergency stop here.

Control system

The control system in the machine consists of:

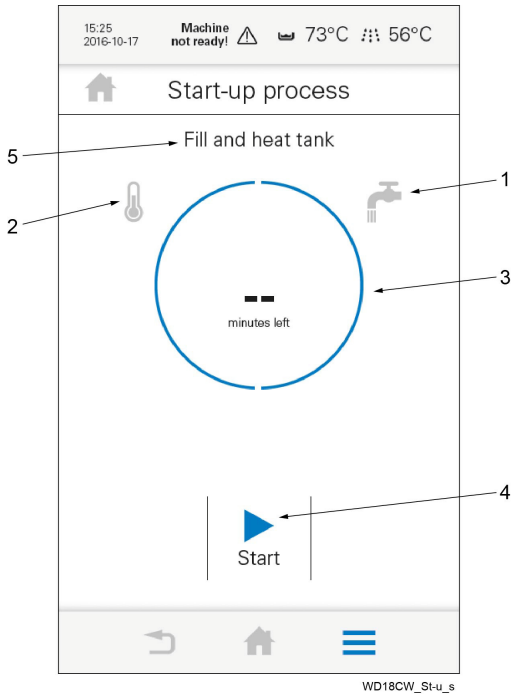
- a CPU board fitted with a SOM module that executes the machine's software
- one or two I/O cards (relay cards)
- a UI card (panel card) located beneath the left-hand door to the electrical cabinet that constitutes the dishwasher's touch panel
- a number of different components for input signals to the software such as temperature sensors, level monitors, etc.
- a number of components for executing output signals such as pumps, motors, valves, etc.

The CPU board and I/O card are located in the low voltage area of the electrical cabinet and the UI card is located on the left-hand door of the electrical cabinet. Components for input signals and for executing output signals can be found in various locations in the dishwasher. The control system handles the machine's software and controls the different processes in the machine. It is possible to make adjustments, check the status of temperatures/water levels/flow and generate statistics, etc. via the dishwasher's touch panel and WebTool (see separate manual for more information).

3.3 Operating principle

3.3.1 Start-up with filling and heating

The machine is started using the ON/OFF button beneath the machine's touch panel. The filling and heating procedure starts when the start button (4) on the touch panel screen is activated. The procedure is described with activity text (5), which describes what is happening or what must be done. Images on the screen show what is happening in the machine and if something unexpected occurs.

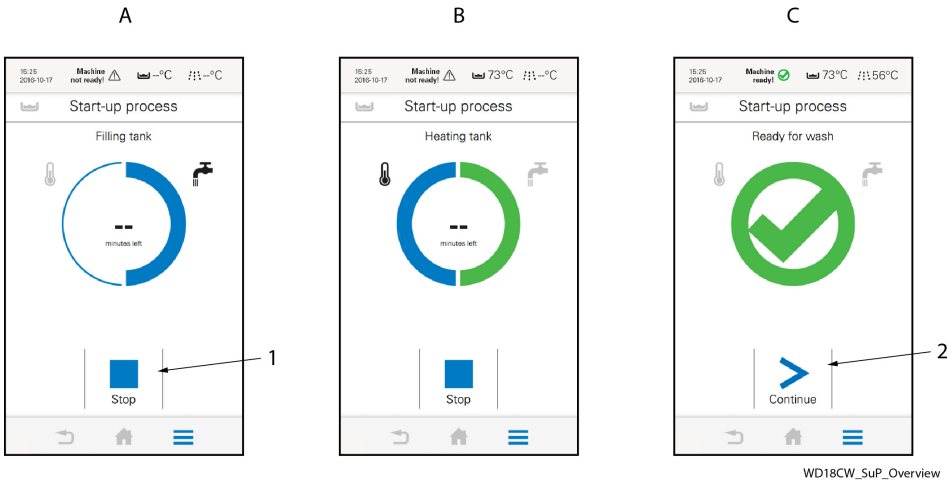


1. Symbol for filling tank
2. Symbol for heating the washing water
3. Symbol for remaining time
4. Start button
5. Activity text

The following will now happen in the machine:

- The heat in the booster heater comes on, E42=1 and remains on until the temperature reaches the reference value for the final rinse (85℃).
- The tank will start to fill with water. When the water level is above SP1, the process of heating the water in the tank begins. The tank continues filling until SP2 indicates that the water has reached the correct level.
- The booster heaters fill via Y02 together with the filling memory and flow meter BV02. The booster heaters start heating when the filling memory is on and the program has been selected. They are controlled by temperature regulators.

- During the heating process, the machine is blocked and the wash cycle cannot be started.
- The heat in the booster heater comes on and remains on until the temperature has reached the required starting value. At the same time, the heater in the tank switches on. The tank heater remains on until the temperature has reached the reference value for the tank. The detergent mixing process starts. Then the water is heated again to the set reference value. The machine is ready to start washing when the reference value - 5 °C has been reached.
- The screen indicates what the machine is doing.



Example of screen images during start-up

- A: Filling in progress. Stop (1) cancels and the machine returns to the previous image.
- B: Filling complete, heating in progress.
- C: The machine is ready for washing, press Continue (2) to go to the Home screen and to select the wash program.

3.3.2 Wash phase

In the various stages of the wash cycle, the cassette rotates as follows:

- Washing, approx. 10 rpm.
- Rinsing, approx. 13 rpm.
- Spin dry, approx. 45 rpm.

When the machine is ready for washing, the following display is shown on the touch panel screen.

Home screen

- The trolleys are positioned on the rotating table. A locking mechanism consisting of trolley supports and gates holds the trolleys in place.
- The shutter door opens, a program is selected, the items to be washed are pushed into the machine, locks engage and the shutter door closes.
- The rotating table starts if a program has been selected.
- The programme time countdown starts.
- The wash pump starts and runs for a preset time.
- The heat recovery fan starts after the final rinse has finished and stops a few seconds after the shutter doors are opened.
- Valve Y6, which is used for locking the rotating table, is only activated when the table is in its start position. The start position is indicated by an inductive sensor connected to the I/O board (relay board).
- Washing with recirculating water (60℃) with added detergent. The table rotates at approx. 10 rpm. The rotating motion ensures all the trolley parts are washed thoroughly.

It is possible to follow what is happening in the machine when a number of different images are displayed on the touch panel screen.

Intermediate spin cycle

- Once the chemical pump stops, the intermediate spin cycle starts and runs for a preset time.

Final rinse

When the intermediate spin cycle is finished, valve Y02 opens and the final rinse starts. It continues until a preset amount of water has been used to rinse the items. (regardless of the current water pressure).

Final spin cycle

- Once valve Y02 closes, the final spin starts in order to get the items drip-dry. The condensing fan starts at the same time.
- Spin dry. The table rotates at approx. 45 rpm and the water is spun off the trolleys. The result is that the water pockets, which are a problem with conventional drying methods, are completely emptied. Because the trolleys are hot after the final rinse, they dry rapidly once they have left the machine.
- Once the preset spin time is over, the rotating table slows to search speed to find the position sensor for the start position.
- The shutter doors open a few centimetres while the heat recovery fan extracts some of the steam from the machine.
- The heat recovery fan stops and the shutter doors open fully. The washing process is finished.
- After the wash program has finished, the rotating table stops and is locked in position.

3.3.3 Wash cycles for programs ECO, Medium and Heavy with spin dry P1, P2, P3

- The wash pump and rotating table start.
- The wash pump stops and the rotating table's RPM increases for spin dry.
- When the spin dry is completed, the items in the dishwasher undergo a final rinse with fresh final rinse water from the booster heater and then the spin dry starts again.
- The condenser fan starts after the final rinse has finished.
- The rotating table detects the right position and stops.
- The shutter doors open a few decimetres and remain in this position for a short period while the condenser fan extracts some of the steam from the machine.
- The shutter doors open fully.

3.3.4 Wash cycles for programs ECO, Medium and Heavy without spin dry P4, P5, P6

- The wash pump and rotating table start.
- When washing is completed, the items in the dishwasher undergo a final rinse with fresh final rinse water from the booster heater and then the spin dry starts again.
- The condenser fan starts after the final rinse has finished.
- The rotating table detects the right position and stops.
- The shutter doors open a few decimetres and remain in this position for a short period while the condenser fan extracts some of the steam from the machine.
- The shutter doors open fully.

3.3.5 Guaranteed final rinse

The temperature of the final rinse water is always correct and the right amount of rinse water is always used.

If the rinse temperature is too low when the final rinse phase is due to start, an alarm is displayed on the touch panel screen. The alarm can be reset in the meantime. If extending the wash time by two minutes is not enough to reach the right temperature, an HACCP alarm is triggered. The wash program continues, but the machine will then rinse at a lower temperature. The above-mentioned alarm can also be set to stop the machine, as an additional HACCP alarm. The setting must be changed in the machine’s program.

If the alarm for a low flow during the final rinse has been triggered three times, it is automatically converted to an HACCP alarm. In the case of low flow, the options are an alarm only or an alarm which stops the machine. The factory setting is an alarm which does not stop the machine. If you need an alarm which stops the machine, the setting must be changed in the machine’s software.

3.3.6 End of wash, draining and internal rinse cleaning of the machine

- Press the ON/OFF button and follow the instructions on the touch panel.
- There is a special setting which allows you to open and close each shutter door manually so that you can clean the inside of the shutter doors. Before using the function, check that the arrows on the rotating table and sill plate are exactly aligned (home position). Instructions on the touch panel describe how to do this. This setting cannot be used on front-feed machines.

3.4 Text on the touch panel screen

Text messages appear on the touch panel's display in plain text (in the language selected) which indicate what the machine is doing. The machine's reference values, which are configurable, and various types of alarm also appear on the touch panel.

4. Adjustment instructions

Read the chapters GENERAL INSTRUCTIONS and SAFETY INSTRUCTIONS carefully before starting work.

The machine is equipped with WEB Tool, which allows you to connect to the machine's website.

4.1 Settings

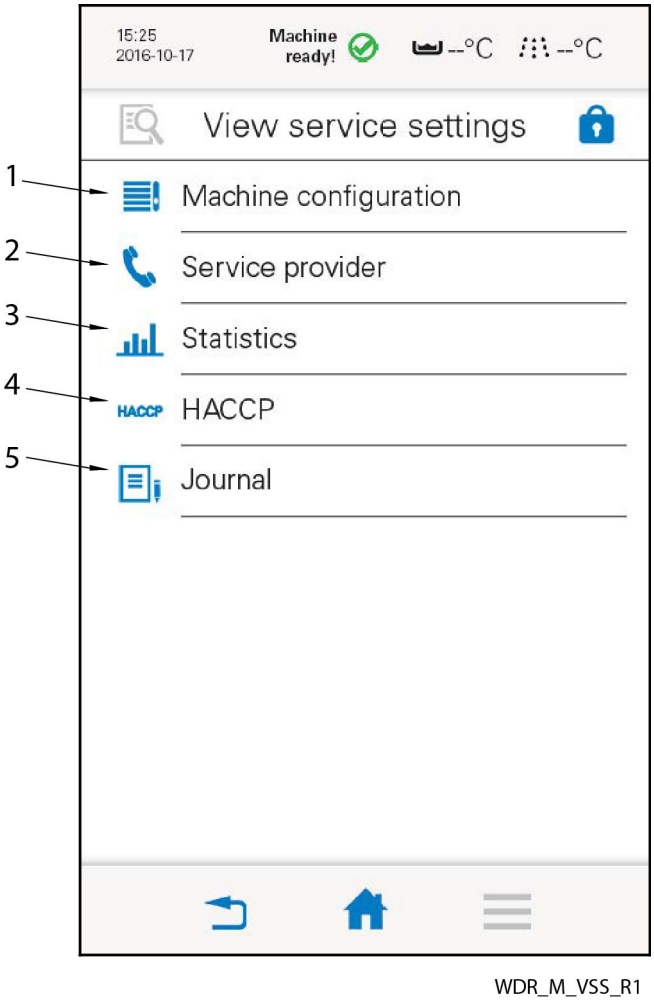
The machine's different settings are default set on delivery.

There are two Settings sections:

- "View service settings" where the user does not have authorisation to change anything.
- "Change service settings", where the user has authorisation (after login) to change values depending on access level.

4.1.1 View "service settings"

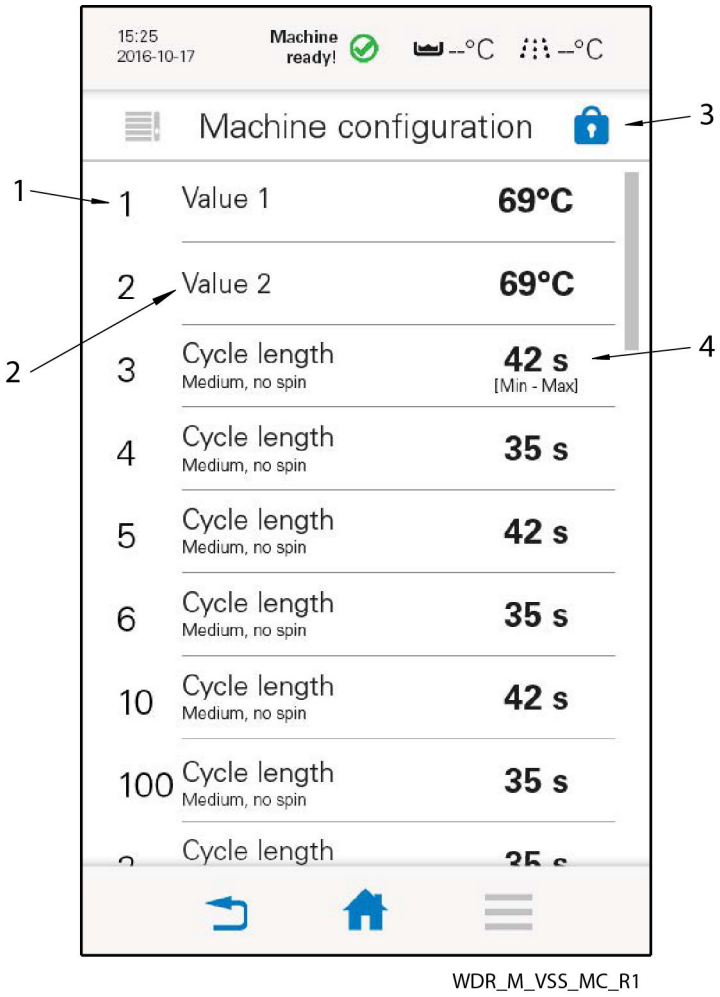
All users have access to "View service settings". No values can be changed here.



WDR_M_VSS_R1

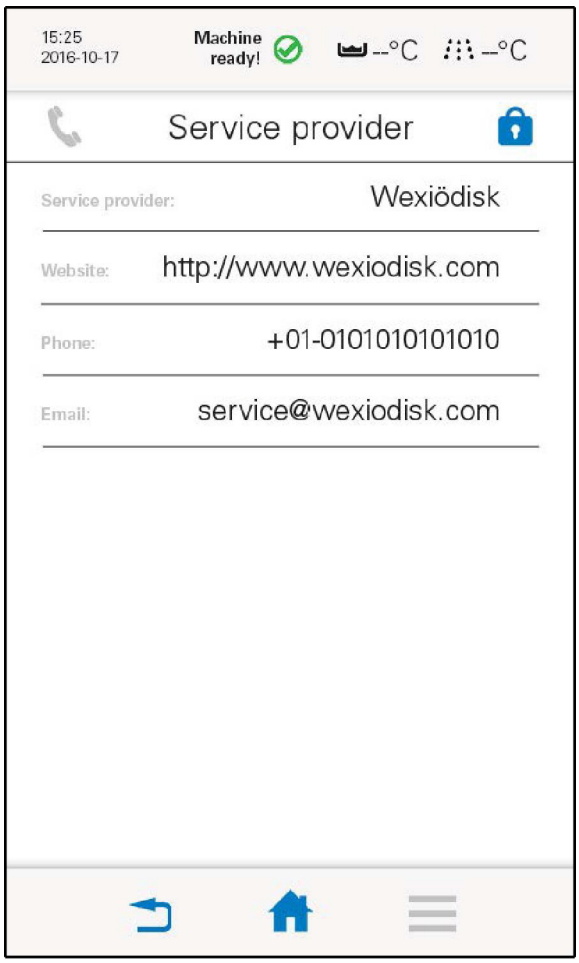
1. Machine configuration
2. Service provider
3. Statistics
4. HACCP
5. Journal

Machine configuration (1)



1. Reference number
2. Description
3. Login symbol
4. Preset value

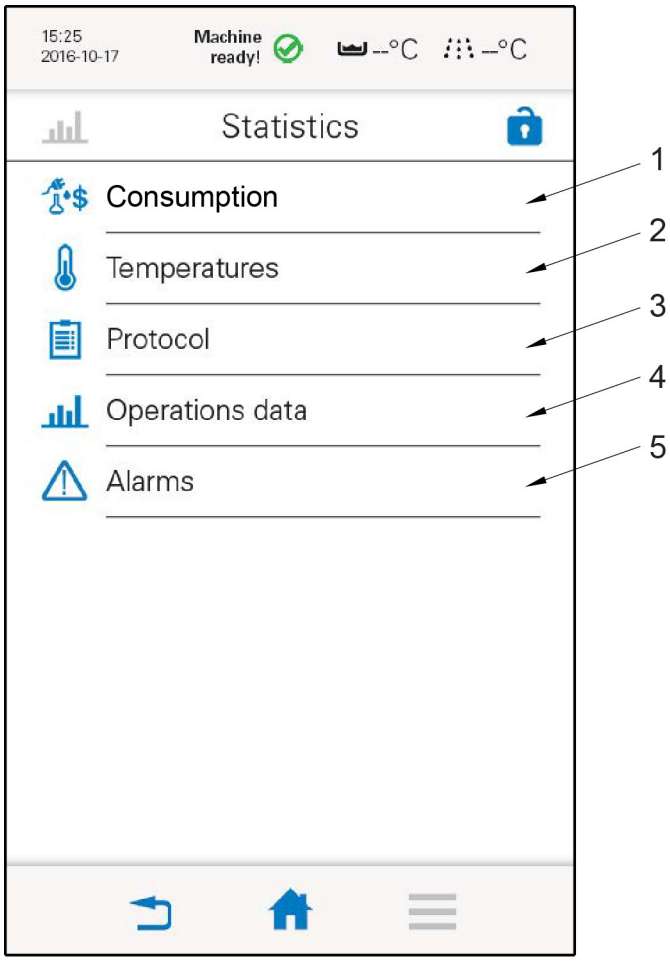
Service provider (2)



WDR_M_VSS_SP2

Here you can see contact details about the service company (if this info has been entered)

Statistics (3)



WDR_M_CSS_S_2309

1. Consumption (option)
2. Temperatures
3. Protocol
4. Operations data
5. Alarms

Consumption (1) is an information module which, with the help of input values, displays consumption in an overview.

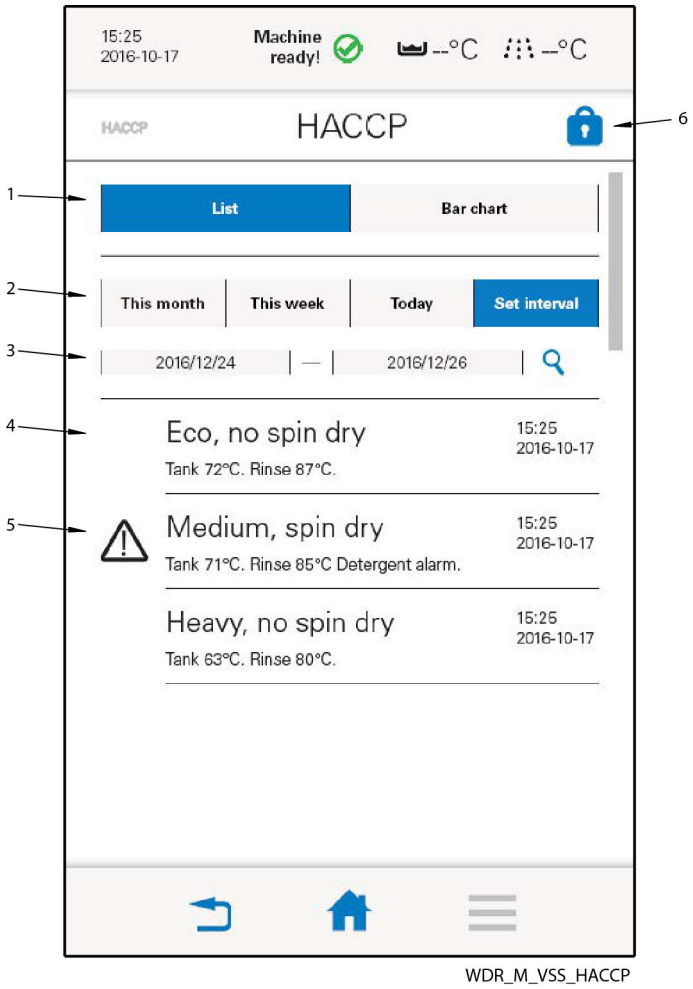
Temperature (2) displays statistics on the temperature during a given time period.

Protocol (3) shows a service protocol for the machine. This can also be saved to a PC or USB memory.

Operations data (4) displays values of different units such as water consumption, operating time for pumps etc.

Alarms (5) contains statistics on recorded alarms during a certain time period.

HACCP (4) HACCP



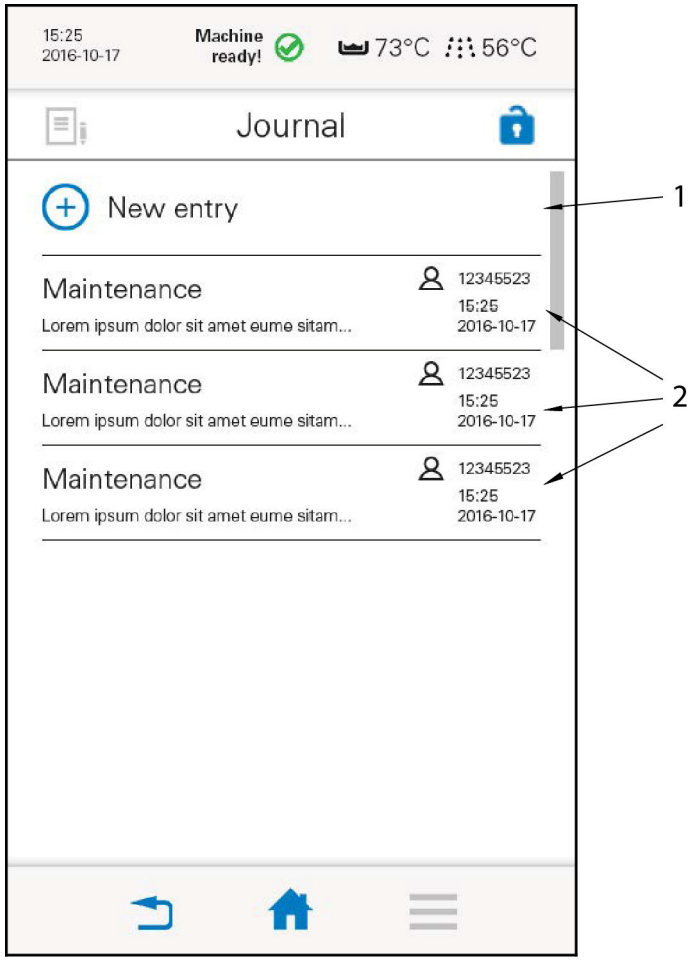
WDR_M_VSS_HACCP

1. Type of diagram
2. Time interval
3. Selected time interval and search button
4. Information
5. Alarm information
6. Logged out symbol

By selecting how the information is displayed (1), list or bar chart, and what time period is relevant (2 and 3), the information is adapted to the user's needs.

Different measurement points (4) are regularly shown with current values and in the event of a deviation, flagged with an alarm symbol (5).

Journal (5)



1. Record new entry
2. Entry

It is possible to record a new entry (1). The journal contains information about maintenance and similar entries performed since a previous point in time (2). Entries can be opened to see details about the entry. It is also possible to update and remove individual entries.

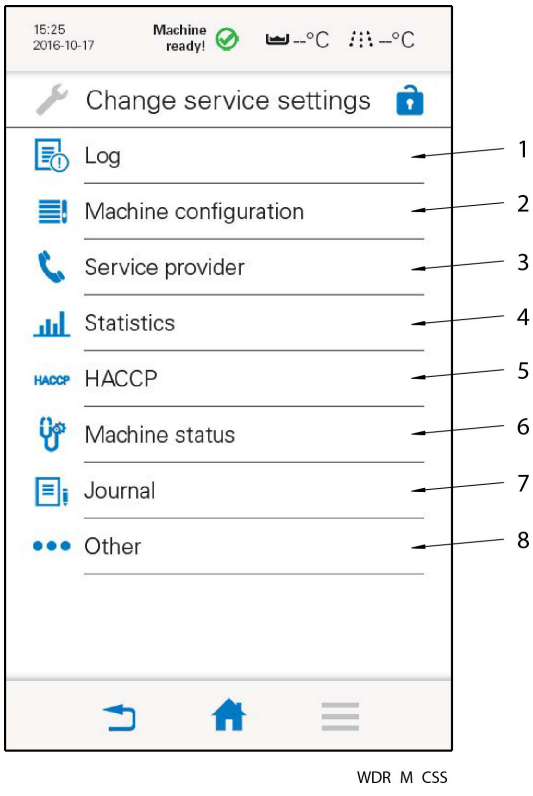
4.1.2 "Change service settings"

In order to access "Change service settings", the user must log in, with either access level S1 or S2. The password for S1 is "wd", while for S2, there is a personal password which is allocated after the satisfactory completion of training for authorised service personnel. There are two ways to log in:

- Go to Menu - Change service settings - a login page will be displayed.
- Press the button with the padlock - a login page is displayed

Enter the password on the login page and press:

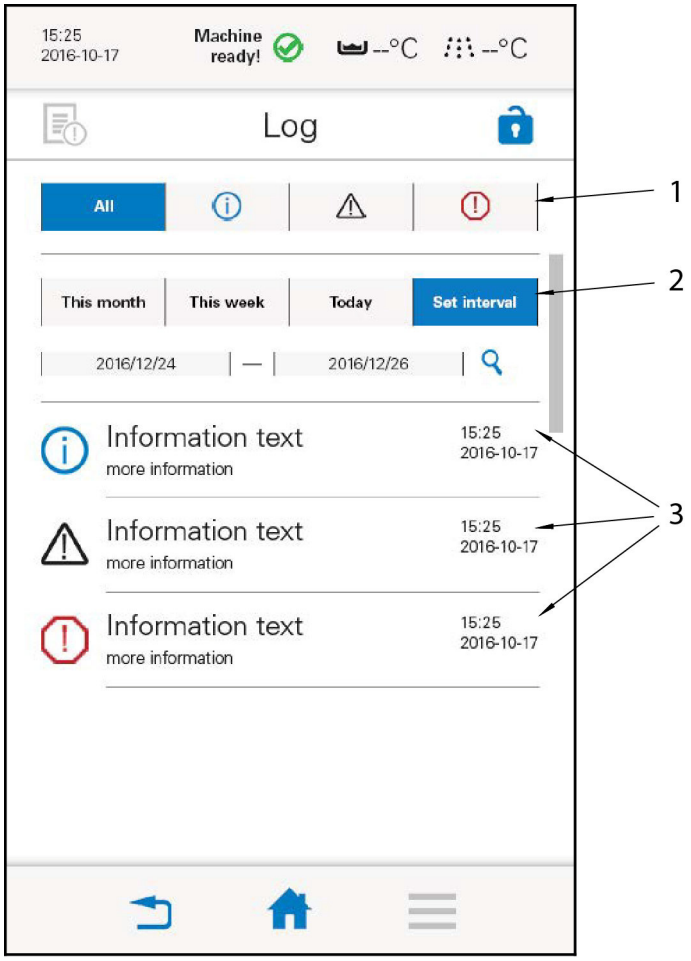
Make any required changes and then log out by pressing:



1. Log
2. Machine configuration
3. Service provider
4. Statistics
5. HACCP
6. Machine status
7. Journal
8. Other

Log (1)

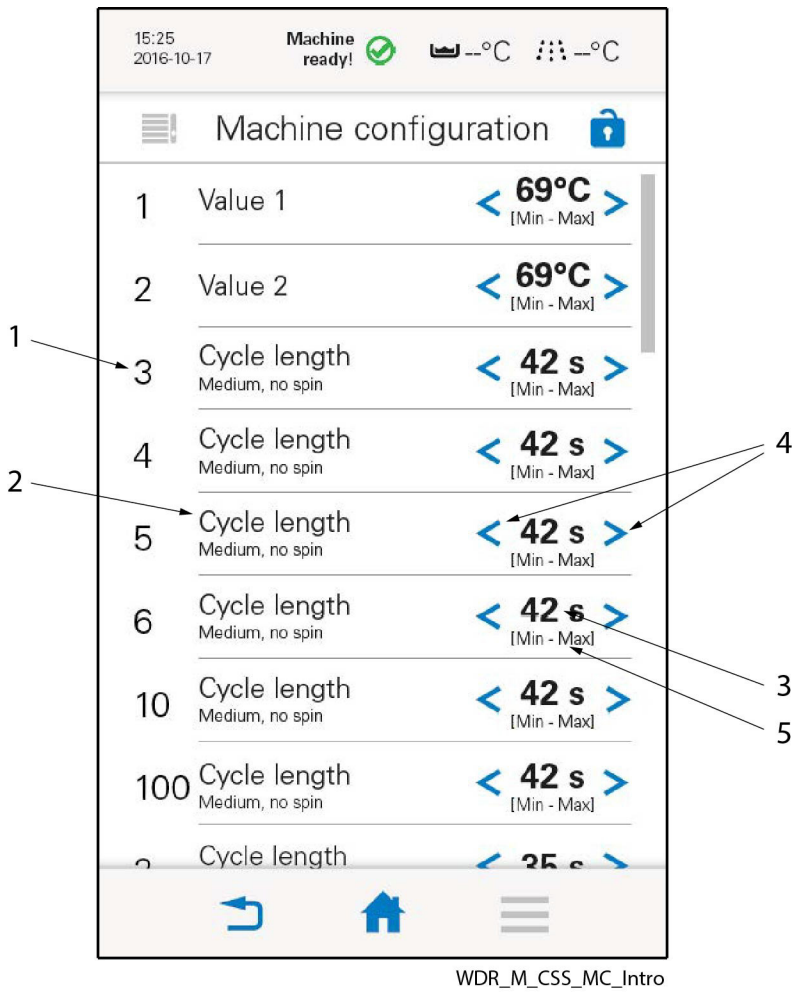
The log contains all alarms and events. In addition, login history and changes to the machine's configuration are displayed under the tab "All". By selecting which types of events and alarms are required (1) and for which relevant time period (2), only required events and alarms (3) are displayed.



WDR_M_CSS_L_All alarm

1. Tabs for different types of events and alarms
2. Time period
3. Received events and alarms as per selected criteria

Machine configuration (2)



1. Reference number
2. Explanatory text
3. Preset value
4. Arrows for adjustment of preset value
5. Setting interval (min - max)

Under the tab "Machine configuration", all values that can be adjusted are displayed. Each variable has a number and explanatory text. In addition, preset value is displayed. This can be adjusted by pressing on the arrow symbols (4) until the required value is displayed. Navigate the figure by swiping your finger up/ down over the touch panel screen.

All values can be seen by the operator (OP) without login and some values can be adjusted by non-authorised service personnel (SP1). Only authorised service personnel (SP2) can adjust all values.

The table shows the normal factory settings.

Reference values. Access levels S1 and S2		
Text on the touch panel screen	Reference value	Comment
(1) Temperature in tank	58°C	
(5) Chemical washtime P1	0.4 min.	
(6) Chemical washtime P2	0.6 min.	
(7) Chemical washtime P3	1.2 min.	
(11) Temperature boiler 1	75°C	Option
(12) Temperature boiler final rinse P1/P4	85°C	
(13) Temperature boiler final rinse P2/P5	85°C	
(14) Temperature boiler final rinse P3/P6	85°C	
(15) Amount of water for finalrinse P1/P4	6.0 litres	
(16) Amount of water for finalrinse P2/P5	6.0 litres	
(17) Amount of water for finalrinse P3/P6	6.0 litres	
(21) Time for spin dry after wash	5 seconds	
(22) Time for spin dry after final rinse	20 seconds	
(23) Frequency during washing	15 Hz	
(24) Frequency during spin dry after wash	80 Hz	
(25) Frequency during final rinse	15 Hz	
(26) Frequency during spin dry after final rinse	80 Hz	
(28) Waitingtime when opening door/hood	15 seconds	
(29) Timeout when opening door/hood	10 seconds	8 seconds at 60Hz
(30) Timeout when closing door/hood	10 seconds	8 seconds at 60Hz
(31) Timeout when filling	30 min.	
(32) Timeout during heating of tank	15 min.	
(33) Timeout during final rinse	30 seconds	
(36) Stop delay time of return pump	40 seconds	
(37) Stop delay time of heat recovery fan	65 seconds	
(38) Extended washing when low temperature final rinse	No	Option
(39) Alarm when low temperature in tank	45°C	
(40) Alarm when low flow during finalrinse	9.9 litres/min.	
(41) Machine locked when low flow during final rinse	No	Option
(42) Number of washes before water change alarm	0 washes	Option
(43) Machine locked when water change alarm	No	Option
(45) Duration time for output of alarm H20, H21	60 seconds	Option
(46) Duration time for output of alarm H22	60 seconds	Option
(47) Configured card	Yes	
(48) Filled boiler	No	
(49) Performed maintenance service	No	

Reference values. Access levels S1 and S2		
Text on the touch panel screen	Reference value	Comment
(52) Language	0 - 15	0 = Swedish, 1 = English, 2 = German, 3 = French, 4 = Italian, 5 = Dutch, 6 = Danish, 7 = Finnish, 8 = Spanish, 9 = Estonian, 10 = Czech, 11 = Hungarian, 12 = Chinese, 13 = Norwegian, 14 = Japanese, 15 = Bulgarian

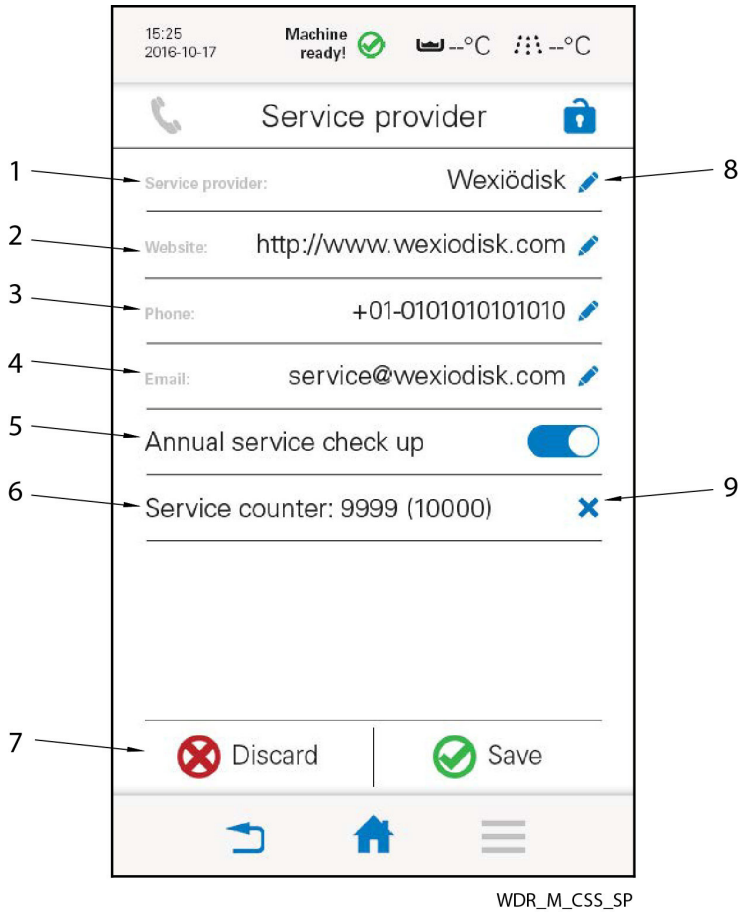
The language can also be selected by pressing the menu button and then selecting language . Selectable languages are displayed with flags for each language. Click on the appropriate flag.

In order to change the following reference values with access level S2, the user must log in.

Reference values. Authorisation level S2		
Text on the touch panel screen	Reference value	Comment
(101-S2) Machine type	2	The machine must be restarted for this to take effect.
(102-S2) Extra card	Yes	
(105-S2) Expo mode (No, Yes no water 1, Yes no water 2, Yes with water)	0	0 = No 1 = Yes without water & without rotation 2 = Yes without water & with rotation 3 = Yes with water & with rotation
(107-S2) Automatic cleaning of doors	No	Option
(108-S2) Automatic cage doors	No	Option
(109-S2) Automatic draining tank	No	Option
(110-S2) Choose clean side	0	Option B/0=normal A/1=reverse The machine must be restarted for this to take effect.
(111-S2) One side door, Two side door	1	0 = one side door 1 = two side door

Reference values. Authorisation level S2		
Text on the touch panel screen	Reference value	Comment
(112-S2) Parallel door, Clean and dirty side	0	0 = parallel doors 1 = clean and dirty side
(114-S2) Multiple signal output	No	Option
(115-S2) Extra HACCP-alarm	No	
(116-S2) Stop if low temperature in tank	No	Requires (115-S2) = Yes
(117-S2) Stop if low temperature final rinse	No	Requires (115-S2) = Yes
(118-S2) Stop if alarm for motor protection pumps	No	Requires (115-S2) = Yes
(119-S2) Stop if detergent alarm	No	Requires (115-S2) = Yes
(120-S2) Flow sensor BV02 pulses	75 pulses	The machine must be restarted for this to take effect.
(122-S2) Flow sensor BV1 pulses	75 pulses	The machine must be restarted for this to take effect.
(123-S2) Break tank	No	Option.
(130-S2) Alarm for maintenance service enabled	No	Option. The maintenance alarm is displayed after 15000 washes or 1 year.
(170-S2) Power meter (Pulses)	10	
(189-S2) Max filling time Break Tank sensor Max	2.0 minutes	Requires (123-S2) = Yes
(190-S2) Waiting time start filling Break Tank sensor max	2 seconds	Requires (123-S2) = Yes
(193-S2) Activation time for draining pump	6 min.	Requires (109-S2) = Yes
(201-S2) HACCP webtool	Yes	
(202-S2) Display configuration (standalone, master, slave)	0	0 = standalone 1 = master 2 = slave 1 or 2 in double displays.

Service provider (3)



1. Name of service provider
2. Website address
3. Telephone number
4. E-mail
5. Reminder for annual service
6. Service counter
7. Discard or save changes
8. Symbol for editing of field
9. Resetting of service counter

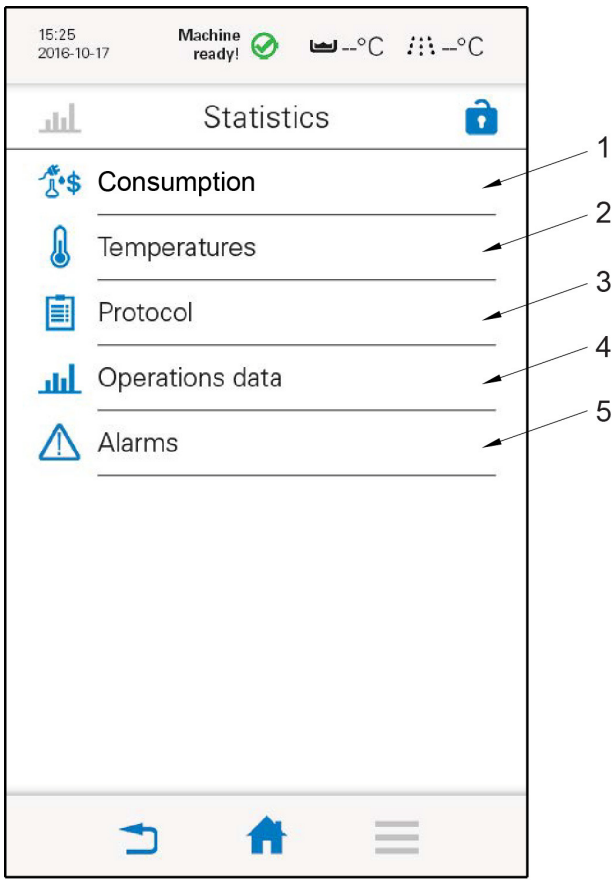
Fields 1–4 contain Information about the service provider. The information can be edited and updated by pressing the symbol (8).

By having the symbol in the field (5) in on position, a message is generated when it is time for a service. If the symbol is set to off position (grey), no message is created and no entry in the log.

Service counter (6), which displays the number of performed washes and the service interval. The service counter is reset by pressing x (9).

Statistics (4)

If logged in, the user can change sub-level settings.



WDR_M_CSS_S_2309

1. Consumption (option)
2. Temperatures
3. Protocol
4. Operations data
5. Alarms

Consumption (1) is an information module which, with the help of input values, displays consumption in an overview.

Temperatures (2) display statistics on the temperature during a given time period.

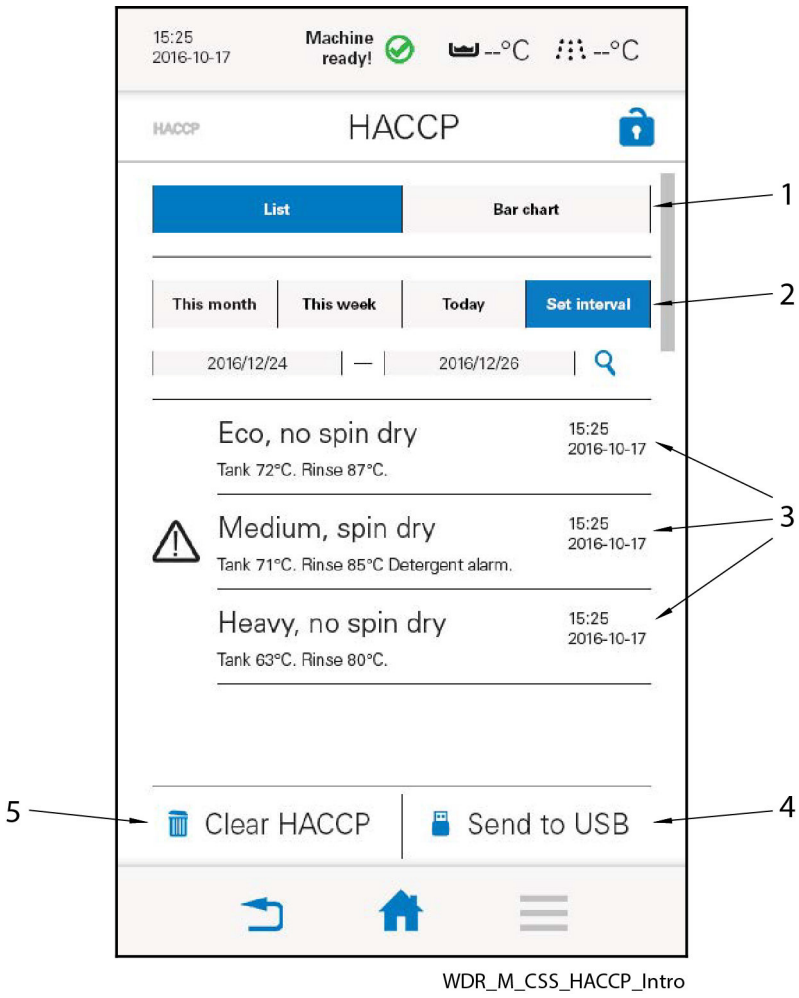
Protocol (3) shows a service protocol for the specified period. This can also be saved to a PC or USB memory.

Operations data (4) displays values of different units such as water consumption, operating time for pumps etc.

Alarms (5) contains statistics on recorded alarms during a certain time period.

HACCP (5) HACCP

As access level OP but with authorisation to reset and write data to USB.

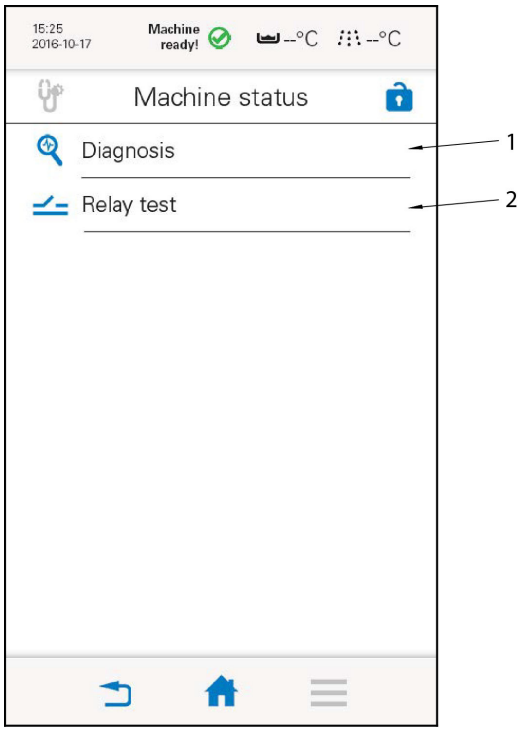


WDR_M_CSS_HACCP_Intro

1. Tabs for different display options
2. Time period with possibility to select desired period
3. Events
4. Send to USB
5. Clear HACCP history

HACCP contains all events and messages. By selecting how different events are displayed (1) and what time period is relevant (2), only interesting events are displayed. Service personnel with a login can transfer information to USB and also clear previous events.

Machine status (6)



WDR_M_CSS_MS

1. Diagnoses
2. Relay test

Under the Diagnosis tab (1), the following is displayed:

- current temperatures
- current water level
- current flows
- current status of inputs and outputs on the I/O card
- etc.

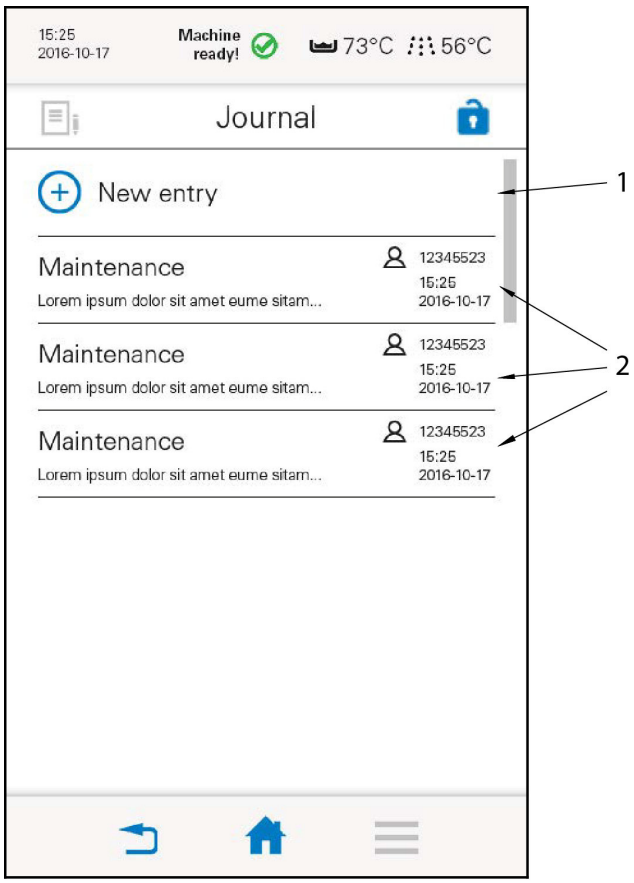
Under the Relay test tab (2), the following machine components/functions can be test run individually:

- Pumps
- Valves
- Heating element
- External alarm
- Protection circuit, shutter door(s)

When a relay test of pumps is being run, the tank must be full of water!

Close the shutter door(s) before any of the pumps are operated by means of the relay test! When a relay test is run, pumps, etc. can also be operated without closing the shutter door(s). All safety functions are then disabled.

Journal (7)

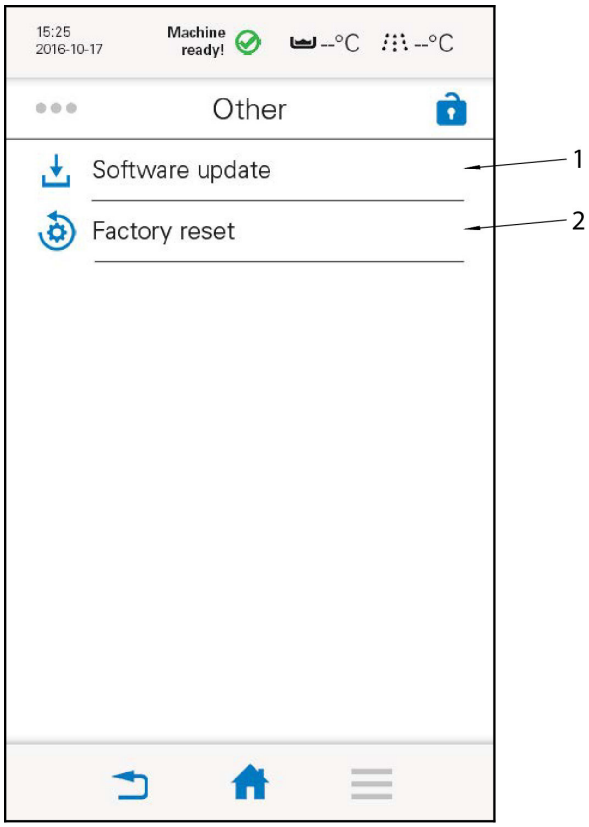


1. Record new entry
2. Previous events

Under the Journal tab, different events that have occurred or which users and service personnel have recorded are displayed. Users with the required authorisation can update, change or remove entries.

Other (8) ●●●

The messages and functions which do not belong in any of the other groups have been included in the OTHER group. The content of the group varies depending on the type of machine.



WDR_M_CSS_O

1. Software update
2. Factory reset

The software is updated (1) by connecting the USB to the machine, see instructions on the touch panel screen.

Factory reset of settings is done under tab (2), see instructions on the touch panel screen.

4.2 Resetting filling memory

If the booster heaters are emptied of water, the filling memory must be reset.

- Go to the menu and select "Change settings" (login is required).
- Go to the tab "Machine configuration"
- Click down to reference value 48 "Filled booster heaters".
- Select NO.
- Save.
- At the next filling, the value is automatically changed to YES.

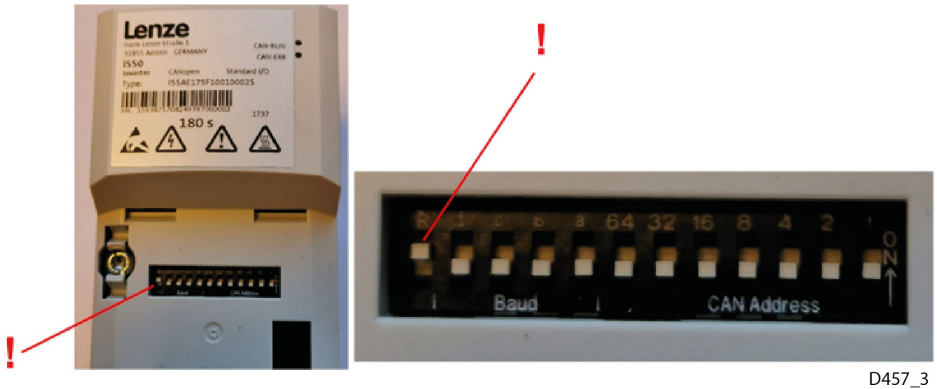
4.3 Configuring the frequency converter

Frequency converter LENZE i550

1. Display
2. Pushbutton for switching between codes and adjusting values (“plus button”)
3. Pushbutton for switching between codes and adjusting values (“minus” button)
4. Memory module
5. Jumper between digital inputs 24V and DI1
6. ENTER pushbutton

4.3.1 Activation of terminating resistance for CAN bus

NOTE! Check the settings of the DIP switches that are located behind the "keypad".



D457_3

4.3.2 Adjusting set parameters

Use a wristband!

- Switch on the power using the ON/OFF button on the machine.
- No wash program must be active and the frequency converter must show SLEEP in the display (1).
- Press ENTER (6).
- Move to the code selected using the pushbuttons (2,3).
  (Codes with adjustable parameters are described in Table 1 below)
- Press ENTER (6) when the code selected is displayed, and the preset value for the code selected will now be displayed
- Increase the value using the button (2) or reduce the value using the button (3).
- Confirm the change in value by pressing and holding ENTER (6) until SET stops flashing.
- Repeat the above procedure if further parameters are to be changed.
- The frequency converter will return to normal operation automatically after around 30 seconds if no further buttons are pressed and the display (1) will show SLEEP.

Upon delivery, the machine's frequency converter has been set to the values shown in Table 1.
Table 1 shows the codes deviating from the default settings for the frequency converter.
NOTE! Other parameters also exist but these have and **must** have the default configuration.

Table 1 – Setting up the frequency converter		
Code	Description	Value
P201:001	Reference value source	5 (Network)
P203:002	Start when the power is switched on	1
P208:001	400V Rated voltage	1
P211	Max. frequency	150 Hz
P220	Acceleration	5.0 seconds
P221	Deceleration	5.0 seconds
P315:001	Slip compensation	0%
P323	Motor rated current	A *
P400:037	Control via CAN open	1
P510:001	CAN address	2
P510:002	CAN data speed	4 (250kbps)
P510:003	System bus participant	1 (Mini master)
P510:004	Start remote delay	0 ms
P522	Communication error monitoring time	1000 ms
P540:005	Time between status messages (RPDO1)	0 ms
P550:005	Time between status messages (TPDO1)	500 ms
P610:001	Activate sleep mode	1
P610:003	Frequency threshold	1 Hz
P704:001	DC brake	60%
P704:004	DC brake demag.time	20%
P706:001	Brake resistor	0

* See the relevant wiring diagram.

5. Service

Read the chapters GENERAL INSTRUCTIONS and SAFETY INSTRUCTIONS carefully before starting work.

5.1 Repairs and machine maintenance

5.1.1 Frequency converter. Lenze i550

Lenze i550

1. Display
2. Pushbutton for switching between codes and adjusting values (“plus button”)
3. Pushbutton for switching between codes and adjusting values (“minus” button)
4. ENTER pushbutton
5. Memory module
6. Jumper between digital inputs + 24V and DI1

Replacement

The machine must be completely electrically dead for three minutes before the frequency converter is replaced, i.e. the power must be turned off at the main switch. A wristband must be put on before connections are made in the electrical cabinet.

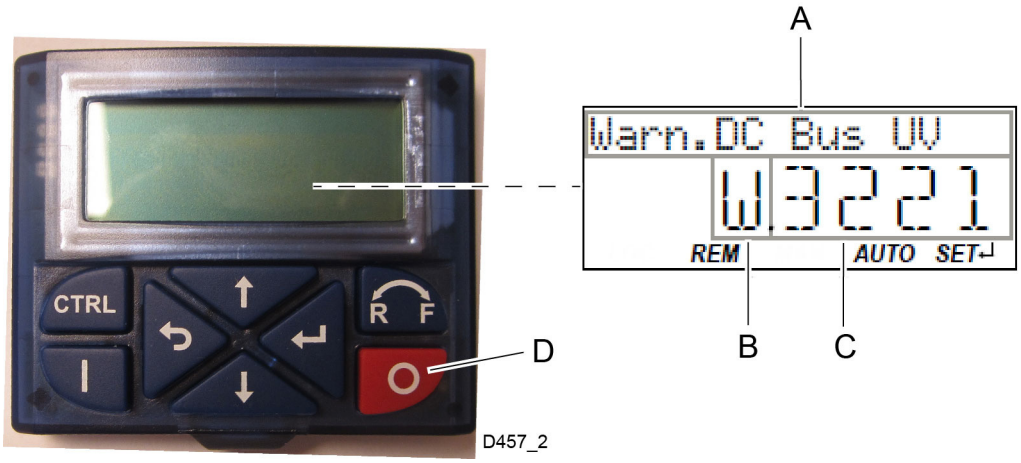
This is what you should do:

- Remove the defective frequency converter.
- Move the existing memory module (5) to the new frequency converter.
- Move the existing jumper (6) to the new frequency converter.
- Install the new frequency converter in the machine.

Adjusting configurable parameters

This is described in the chapter “Adjustment Instructions”,

Troubleshooting



- A = Error text
- B = Error type *
- C = Error code
- D = Reset button for resettable alarm

* The types of faults that may occur are:

- F = Error
- T = problem
- W = Warning error

Alarm codes

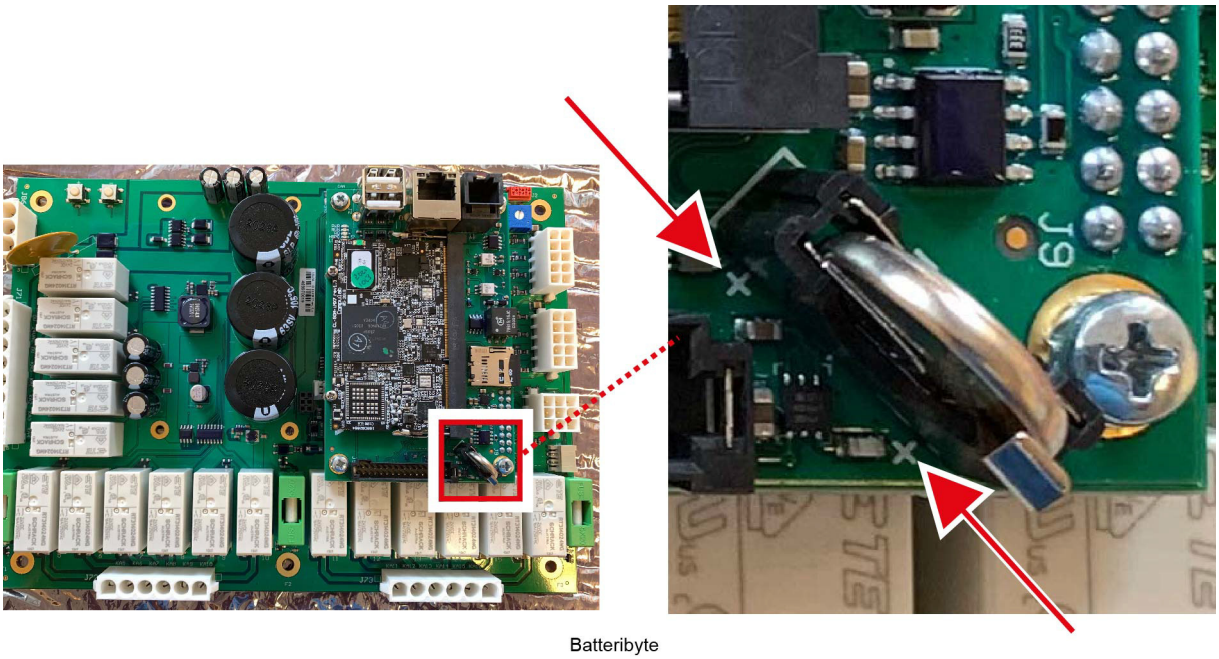
A message will appear on the dishwasher display if the frequency converter has an error. The alarm code will be shown on the frequency converter’s display.

For alarm codes, possible causes and actions, see the manual for the Lenze i550, which is supplied with the machine.

5.1.2 Short

Battery replacement

When the card battery needs to be replaced, it is important that the new battery has the same specifications as the original battery. Checked against the machine's wiring diagram. Check the polarity carefully!



Batteribyte

Replacing the I/O card (WD742.7039)

1. Start by making sure the machine is not live by turning off the main switch. Ensure that all tanks are empty and the shutter door is open.
2. Replace the slave card and connect all contacts. The machine's original cable with part number WD61190400 should be used between the cards.
3. Turn on the main switch and start the machine.
4. Test the machine and check that it is working. Also check any additional functions that may be activated.

Replacement of non-preset computer card (WD742.7038)

1. Start by making sure the machine is not live by turning off the main switch. Check that all tanks are empty.
2. Replace the computer card and connect the contacts J86, J71, J21, J41, J42 and J5 (Touch panel). Other contacts must not be connected!
3. Remove the SD memory from the old computer card and insert it into the new computer card. The memory already in the new computer card may be put away for storage.
4. Turn on the main switch and start the machine. Do NOT fill.
5. Go into the “Other service settings” menu and log in with “wd” as the password to access the reference value menu. Look up the reference value “Configured card” and change this to NO. Save and allow the machine to restart. The reference values in the SD memory must now be transferred to the computer card.
6. Switch the machine off when the display returns to its normal display. Turn off the power at the main switch when the machine has been turned off.
7. Fit the other contacts (J72 and J73).
8. Turn on the main switch and start the machine.
9. Check the reference value table and check that this agrees with the settings that the dishwasher should have. Pay particular attention that you check the reference value that relates to the machine type in question. Leave the diagnostics menu after you have completed the check.
10. Test the machine and check that it is working. Also check any additional functions that may be activated.

Retrieving reference values from the SD card when replacing the SOM module (WD742.7041)

1. Check that the machine is turned off at the main switch.
2. Remove the following contacts: J72, J73, J21, J41, J42.
3. Replace the SOM module.
4. Turn on the power at the main switch and start the machine.
5. Enter the menu “Other service settings” and log in with the password “wd” or another valid password.
6. Go to machine configuration.
7. Go to the reference value “configured card” and set this as 0. Save.
8. The reference value will now be copied from the SD card to the SOM module and restart automatically.
9. Switch the machine off when it has returned to its normal display. When the machine is switched off, turn off the power to the machine and replace J72, J73, J21, J41, J42 and restart the machine.
10. Check the reference value table and check that this agrees with the settings that the dishwasher should have. Pay particular attention that you check the reference value that relates to the machine type in question. Leave the diagnostics menu after you have completed the check.

5.2 Checks and maintenance

The machine should be serviced annually, or after approximately 15,000 washes, and in accordance with the diagram below.

CONNECTIONS	
Object	Check/Action
Safety valve for heat recovery unit	Check the opening function of the safety valve and ensure that there is no leakage.
Steam connection (steam-heated machine)	Check that no leakage is occurring at the connections and couplings.
Water connection	Check that no leakage is occurring at the connections and couplings.
Drainage system	Check for leaks.
Electrical connection	Check and where necessary re-tighten the main circuits.

ELECTRICAL EQUIPMENT	
Object	Check/Action
Main switch	Check the function, and that all poles are broken at 0.
ON/OFF button	Check the function.
Emergency stop	Check the function.
Anti-crushing shutter door(s)	Check the function.
Element	Measure the amperage of all the elements. Check the seal of the O-ring, connections and drain plug on the booster heater.
Pressure switch	Check the hose connections.
Contactors	Check the function and wear. Re-tighten the connections where necessary.
Solenoid valves	Check the function and any leakage.
Level monitors	Replace.
Relays	Check the function. Can be checked as per "Adjustment instructions", option "Relay test".
Electronic components	Check the operation of all the sensors. Can be checked as per "Adjustment instructions", option "Diagnosis"
Control equipment	Check that all reference values are set for correct and optimal functioning.

PUMPS, FAN	
Object	Check/Action
Pumps	Check for leaks and check the function of the cooling fans.
	Check the operation of the pumps and the direction of rotation. Listen for any abnormal bearing noises.
	Check the power for all pumps.
	The rubber pressure and suction hoses must be changed every five years.
Condensing fan	Check the power
	Check to make sure there are no leaks
	Check the function of the motor’s cooling fan
	Check the motor’s bearings
	Clean the fan casing

SHUTTER DOOR / ROTATING TABLE / LOCKING ARM	
Object	Check/Action
Incoming air pressure	Check the pressure on the manometer. The required pressure can be found in the "TECHNICAL SPECIFICATIONS".
Shutter door / Shutter doors	Check that the shutter door / shutter doors are working accordingly. Can be checked as per "Adjustment instructions", option "Diagnosis".
Shutter door switch	The machines should stop if a shutter door is opened during washing and rinsing phases.
Locking arm	Ensure that the gates are locked.
Rotating table	Check that the rotating table stops in the correct position (inductive sensor (B0)). The rotating table is adjusted by means of the adjuster.
	Check that the locking cylinder for the rotating table is working.

EQUIPMENT FOR STEAM (steam-heated machine)	
Object	Check/Action
Steam heating element	Check that the elements and the O-rings do not leak.
Steam traps (condensate diverters)	Check the function; that the steam trap is correctly positioned, i.e. that its upper section is hot
Steam pressure	Check the steam pressure on a stationary machine and during full operation.

WASHING AND RINSING SYSTEM	
Object	Check/Action
Final rinse nozzle	Check that: - there is no dirt or limescale on the nozzles - the nozzles are correctly adjusted
Wash arms	Check: - that there is no dirt or limescale in the nozzles, - there is no cracking, - that the wash arms can be easily removed and refitted

DETERGENT AND DRYING AGENT	
Object	Check/Action
Detergent and drying agent equipment	Check the function and any leakage. Check the hoses. They must be replaced every other year.
Detergent, drying agent	Check that the right type of agent is used.

OTHER	
Object	Check/Action
Tanks	Check the build-up of limescale in the tank and on the element. If necessary, remove the limescale.
Rubber sleeves	Check the rubber sleeves and replace those which are damaged.
Water level	Check the upper and lower water level in the tank.
Filters	Check that the filters are not damaged and that no filters are missing. Clean these where necessary.
Hoses	Check that the hoses other than the pump hoses in the machine are not damaged. These must be replaced every five years.

OTHER	
Object	Check/Action
Break tank (option)	Check the build-up of limescale in the tank, in the air gap and on the element. If necessary, remove the limescale.
Pump filter	Cleaning. Check that these are present and are not damaged.
Drain filter	Cleaning. Check that this is present and is not damaged.

Run the machine at full operation and check the functions and the results in the table below:

Trial run, handling	
Object / Function	Check/Action
Water pressure, final rinse flow	Check the filling time of the machine. At the correct water pressure, the filling time is around 20 minutes.
Washing and drying results	Check that the washing and drying results are satisfactory.
Temperatures	Check that the temperatures are maintained during operation.
Foaming	Check that no foam forms in the tank when the machine is in operation.
Routines	Check that routines for daily and weekly cleaning are being followed.
Training	If necessary, provide training for the personnel about operating and maintaining the machine.
Manuals	Check that the installation and user manual is available.

5.3 Cleaning the heat recovery unit

NOTE! Cleaning of the heat recovery unit should be performed 1-2 times a year. How to do this is described in the OPERATING INSTRUCTIONS.

6. Troubleshooting

Read the chapters GENERAL INSTRUCTIONS and SAFETY INSTRUCTIONS carefully before starting work.

6.1 General information

The tables specify a number of common faults and functions that should be checked. In addition to the faults mentioned, other kinds of problems could also affect the functioning of the machine. Service technicians should therefore be well acquainted with the machine and have access to all documentation for the machine when troubleshooting.

Various values can be checked and adjusted using the program from the machine's touch panel. This is described in ADJUSTMENT INSTRUCTIONS.

6.2 Troubleshooting table

Below, there is a list of possible problem causes (and their solutions) that do not activate alarms on the touch panel's display. If an error message (alarm) is shown in the display, see instead "6.3 Error messages".

STARTING THE MACHINE		
PROBLEM	CAUSE	ACTION
There is no indication on the touch panel display when the ON/OFF button is pressed.	No power supply to the machine.	Check the fuses and the incoming power cable.
	The main switch is off.	Turn on the main switch.
	The circuit breaker has tripped.	Reset the circuit breaker.

FILLING		
PROBLEM	CAUSE	ACTION
The machine does not fill with water.	The stopcock on the incoming water supply is closed.	Open the tap.
	The shutter door(s) is/are open.	Close the shutter door(s).
	The magnetic switch for the shutter door(s) is not working.	Check the magnetic switch.
	The solenoid coil is defective.	Replace the coil.
	Fault in the level sensor.	Check and, if necessary, replace the level sensor.

FILLING		
PROBLEM	CAUSE	ACTION
The tanks overfill.	The solenoid is dirty.	Clean the solenoid valve.
	The solenoid membrane is broken.	Replace the solenoid.
	Fault in the level sensor.	Check and, if necessary, replace the level sensor.
	The level pipe is not in place.	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.
The machine fills slowly.	The filter in the incoming water supply pipe is blocked.	Clean the filter.
	The incoming water pressure is too low.	Check the water pressure.
	The solenoid for the tanks is defective. The solenoid is dirty.	Check and, if necessary, clean the solenoid. Replace damaged parts or the entire valve.
	Water runs outside the break tank due to limescale deposits around the air gap of the break tank (option)	Remove limescale deposits

TEMPERATURES		
PROBLEM	CAUSE	ACTION
The tank temperature is too low.	The heating element in the tank is defective. (Electrically-heated machine).	Replace the heating element.
	The contactor is not working. (Electrically-heated machine).	Check and, if necessary, replace the contactor.
	The circuit breaker has tripped. (Electrically-heated machine).	Check the power supply and reset the fuse.
	Incorrect reference value.	Check and adjust the reference value.
	The filter in the incoming steam pipe is clogged. (Steam-heated machine).	Clean the filter.
	The steam valve on the tank is defective. (Steam-heated machine).	Check and, if necessary, clean the steam valve. Replace damaged parts or the entire valve.
	The steam pressure is too low. (Steam-heated machine).	Check the steam pressure.
	The steam trap is defective. (Steam-heated machine).	Check the operation of the steam trap. Replace the steam trap if necessary.

TEMPERATURES		
PROBLEM	CAUSE	ACTION
The final rinse temperature is too low.	The heating element in one of the booster heaters is defective. (Electrically-heated machine).	Replace the heating element.
	The contactor is not working. (Electrically-heated machine).	Check and, if necessary, replace the contactor.
	The circuit breaker has tripped. (Electrically-heated machine).	Check the power supply and reset the fuse.
	Incorrect reference value.	Check and adjust the reference value.
	The filter in the incoming steam pipe is blocked. (Steam-heated machine).	Clean the filter.
	The steam valve on the booster heaters is defective. (Steam-heated machine).	Check and, if necessary, clean the steam valve. Replace damaged parts or the entire valve.
	The steam pressure is too low. (Steam-heated machine).	Check the steam pressure.
	The steam trap is defective. (Steam-heated machine).	Check the operation of the steam trap. Replace the steam trap if necessary.

STARTING THE WASH PROGRAMME, WASHING		
PROBLEM	CAUSE	ACTION
The machine does not start washing.	The shutter door(s) are not closed.	Close the shutter door(s).
	One of the shutter door(s) magnetic switches is not working.	Check and, if necessary, replace the solenoid switch.
	The motor safety cut-out has tripped.	See “The motor safety cut-out has tripped”.
	The drive motor has burnt out.	Replace the drive motor.
	The contactor is not working.	Check and, if necessary, replace the contactor.
One of the pumps will not start.	The water level in the tanks is too low.	Check that the level pipe’s rubber sleeve forms a seal against the bottom plate.
	Fault in the sensor.	Check and, if necessary, replace the level sensor.
	The motor safety cut-out has tripped.	See “The motor safety cut-out has tripped”.
	The pump motor has burnt out.	Replace the pump.
	The contactor is not working.	Check and, if necessary, replace the contactor.
The display indicates that the anti-crushing mechanism has been triggered.	Object preventing the shutter door(s) from coming down.	Remove the object.
	One of the shutter door(s) is stiff.	The shutter door(s)' switch is incorrectly adjusted. Adjust the switch.
	The bottom magnetic switch has failed.	Replace the magnetic switch.

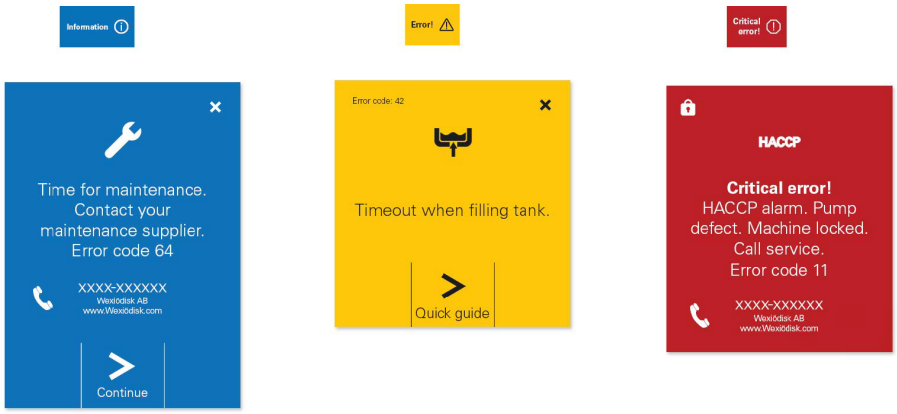
STARTING THE WASH PROGRAMME, WASHING		
PROBLEM	CAUSE	ACTION
The motor safety cut-out has tripped.	The motor safety cut-out is incorrectly set.	Check and set the correct value.
	Fault in the motor.	Check the motor power supply.
	Phase drop-off.	Check the incoming power supply.
	The motor safety cut-out has failed.	Replace the motor safety cut-out.
Noise from the washing pump.	Incorrect direction of rotation.	Check that the direction of rotation matches the arrow on the pump. Change two of the incoming phases.
	Dirt in the pump housing.	Dismantle and clean the pump housing.
	Bearing fault.	Replace the bearing and the entire pump, if necessary.
	Low water level. Foam in the tank.	Check the level. Change the water.
Final rinse with fresh water does not start/stop.	The solenoid is not functioning.	Check the membrane and the coil. Replace the solenoid, if necessary.

WASHING RESULTS		
PROBLEM	CAUSE	ACTION
The machine is not cleaning properly.	The rinsing and washing nozzles are clogged with dirt.	Check and clean the nozzles.
	There is too little detergent.	Check that there is sufficient detergent and that the detergent dosage is correctly set.
	The wash or rinse temperature is too low.	Check: The operation of the heating elements in the tanks and booster heater. Contactors and circuit breakers. Setting of the reference values.
	The wrong wash program.	Choose a wash program with a longer washing time.
	The water in the tanks is too dirty.	Change the water.
	Foam is forming in the tanks.	Check that the washing temperature is not too low and that the correct detergent is being used.
	One of the pumps is not working.	Check the pump, motor safety cut-out and contactors.
	Detergent and drying agent of a different make to normal are used which has caused a blockage in hoses and pumps.	When changing the make of detergent and drying agent, the dosing systems with hoses and respective pumps must be thoroughly rinsed with plain water.

DRYING RESULTS		
PROBLEM	CAUSE	ACTION
Dishware does not dry.	The rinse nozzles are blocked.	Check and clean the nozzles.
	The final rinse temperature is too low.	Check: The function of the booster heater's elements. (Electrically-heated machine). Contactors and circuit breakers for the heating elements. Operation of the solenoids. The steam valves and steam traps for the booster heaters. (Steam-heated machine). The reference values for the final rinse.
	Incorrect drying agent dispenser.	Check and adjust the dosage equipment.

6.3 Error messages

Three different levels of messages may be displayed on the touch panel screen.



1. Information alarms (blue), which can be dealt with by the operator
2. Error alarms (yellow), which can often be dealt with by the operator
3. Critical error alarms (red), where service personnel must be contacted

All messages show an error code and text:

Error code and text	Cause	Action
(1) Emergency stop activated. Press reset	The emergency stop has been activated during operation. All relays will be switched off.	Follow the instructions on the touch panel display.
(2) Input failure on digital inputs. Call service	Internal control of the I/O card has indicated the current being too high at a digital input, i.e. short-circuited input. All relays are set to the OFF position. The alarm cannot be reset.	Check the input circuits according to the wiring diagram. Check which input is causing the problem by removing one cable at a time on the contacts on the IO board, and then replace the cables one at a time until the alarm returns. Troubleshoot!
(3) Nominal values corrupted in memory. Call service	Nominal values (reference values) in the memory have been damaged on both the CPU card and the panel card. The machine is locked. All relays are set in the OFF position. The alarm cannot be reset.	Log in using WEB Tool. Check that all reference values are correct and adjust if necessary. Save!
(4) Communication error between CPU card and I/O Card 1. Call service	The communication between the CPU card and I/O card 1 has been interrupted. All relays on I/O card set to OFF position. The alarm will be reset if communication between the cards is restored.	Restart the machine! If the alarm recurs repeatedly; replace the CPU + I/O card.

Error code and text	Cause	Action
(5) Communication error between CPU card and I/O Card 2. Call service	The communication between the CPU card and I/O card 2 has been interrupted. All relays on I/O card set to OFF position. The alarm will be reset if communication between the cards is restored.	Restart the machine! Check the CAN cabling between I/O card 1 and I/O card 2. If the alarm recurs repeatedly; replace the CPU + I/O card.
(7) Communication error between CPU card and display card. Call service	Communication between CPU card and the panel card has been interrupted. All relays are set to the OFF position. The alarm will be reset if communication between the cards is restored.	Restart the machine! If the alarm recurs repeatedly; replace the CPU + display card.
(8) Motor protection doors activated. Call service	Motor safety cut-out on one of the shutter doors activated.	Check that there is 230 V on all the phases to the safety cut-out. Reset the safety cut-out and check the voltage and amperage to the door motors.
(9) Motor protection pumps activated. Call service	The motor safety cut-out for one of the pumps has tripped.	Check the load's electricity consumption during operation. Must not exceed value according to wiring diagram. Check that the voltage on all the phases to the motor safety cut-out correspond with the electrical diagram. Check the settings on the motor safety cut-out and reset it manually.
(10) HACCP alarm pump functionality defect. Press reset	This alarm only occurs if reference value “(115-S2) Extra HACCP-alarm” is set to YES:1. The alarm is displayed if one of the pumps has stopped for more than one minute after an alarm (9) was tripped and the reference value "(118-S2) Stop if alarm for motor protection pumps" is set to NO:0.	Rectify the fault, see alarm (9). Reset the alarm on the machine’s panel.
(11) HACCP alarm pump defect. Machine locked. Call service	This alarm only occurs if reference value “(115-S2) Extra HACCP-alarm” is set to YES:1. The alarm is displayed if one of the pumps has stopped for more than one minute after an alarm (9) was tripped and the reference value "(118-S2) Stop if alarm for motor protection pumps" is set to YES:1. Current wash is completed, after which the machine is locked.	Rectify the fault, see alarm (9). Restart the machine!
(12) Washing stopped lower door sensor off at dirty side during washing	The magnetic switch does not work.	Faulty or badly adjusted switch. It should activate when the door is around 1 cm above its bottom position.
(13) Washing stopped lower door sensor off at clean side during washing	The magnetic switch does not work.	Faulty or badly adjusted switch. It should activate when the door is around 1 cm above its bottom position.

Error code and text	Cause	Action
(14) Washing stopped both door sensors indicate on at dirty side	The upper and lower sensors are actuated.	Check both switches in the on and off positions. Rectify any faults.
(15) Washing stopped both door sensors indicate on at clean side	The upper and lower sensors are actuated.	Check both switches in the on and off positions. Rectify any faults.
(16) Communication error frequency converter. Call service	CAN communication between CPU board and frequency inverter has been interrupted. The frequency converter is stopped.	Check the CAN cable between the frequency converter and the CPU board.
(17) Rotation error rotating table. Press reset	The rotation sensor for the rotating table (B0) has not registered any pulses within the prescribed time, i.e. sensor B0 is issuing no signal when the table should rotate. The frequency converter is stopped. The wash program is interrupted.	Check that nothing has got stuck in the drive mechanism. Check the rotating table's sensor B0. Check that no alarm codes are displayed on the frequency converter's display. Reset the alarm on the machine’s panel.
(18) Overtemperature frequency inverter. Call service	The frequency inverter has overheated. The frequency converter is stopped.	- Check/reduce the frequency inverter's load. - Improve the cooling function
(19) DC BUS overvoltage frequency inverter. Call service	Alarm from the frequency converter about voltage being too high in the DC bus. The frequency converter is stopped.	Check the reference values and alarm code for the frequency converter.
(20) Frequency inverter error. Call service	Buzzer alarm signal from the frequency converter including problems such as overvoltage, voltage too low, retardation time too short. The frequency converter is stopped.	Check the reference values and alarm code for the frequency converter.
(27) Timeout when opening door at dirty side. Press reset	Check that nothing has become lodged in the slide bars of the shutter door.	Follow the instructions on the touch panel display.
(28) Timeout when opening door at clean side. Press reset	Check that nothing has become lodged in the slide bars of the shutter door.	Follow the instructions on the touch panel display.
(29) Timeout when closing door at dirty side. Press reset	Check that nothing is preventing the shutter door from closing or has become lodged in the slide bars of the shutter door.	Follow the instructions on the touch panel display.
(30) Timeout when closing door at clean side. Press reset	Check that nothing is preventing the shutter door from closing or has become lodged in the slide bars of the shutter door.	Follow the instructions on the touch panel display.
(31) Temperature sensor error tank B21. Call service	The temperature sensor has registered either a failure or a short-circuit in the sensor.	Replace the sensor.
(32) Temperature sensor error B41. Call service	The temperature sensor has registered either a failure or a short-circuit in the sensor.	Replace the sensor.
(33) Temperature sensor error B42. Call service	The temperature sensor has registered either a failure or a short-circuit in the sensor.	Replace the sensor.

Error code and text	Cause	Action
(34) Temperature sensor error B43. Call service	The temperature sensor has registered either a failure or a short-circuit in the sensor.	Replace the sensor.
(35) Temperature sensor error heat recovery unit B05. Call service	The temperature sensor has registered either a failure or a short-circuit in the sensor.	Replace the sensor.
(36) Problem locking arm. Check arm and air pressure. Call service	No compressed air or a trolley is pushing against the cage.	Rectify the problem with the compressed air. Push on the cage so that the arm releases.
(37) Low flow during final rinse. Press reset	The alarm is tripped because the flow through flow meter BV02 is below the nominal value defined as reference value "(40) Alarm when low flow during final rinse" when valve Y02 is open.	Check the function of: booster pump M10, valve Y02 (valve blocked, coil or membrane broken, etc.), water meter BV02. Check the setting of reference value "(40) Alarm when low flow during final rinse". The alarm is reset when the flow returns to normal or on the machine's panel.
(38) HACCP alarm no flow during final rinse. Press reset	This alarm only occurs if reference value "(115-S2) Extra HACCP-alarm" is set to YES:1. No water flow measured by flow meter BV02 during final rinse (valve Y02 open and no temperature reduction in the booster heater measured by temperature sensor B42). The alarm is set as per the time defined by reference value "(33) Timeout during final rinse". This alarm is triggered if reference value "(41) Machine locked when low flow during final rinse" is set to NO:0.	Check the function of: break tank (level monitor B12, float valve, water level in the machine, etc.), water meter BV02, booster pump M10, valve Y02, temperature sensor B42. The alarm is reset when the flow exceeds the alarm limit or on the machine's panel.
(39) Final rinse error sensor error flow meter BV02. Call service	No water flow through flow meter BV02 during final rinse (valve Y02 open) while at the same time the temperature is falling in the booster heater (measured by temperature sensor B42). The alarm is triggered as per the time defined by reference value (33) "Timeout during final rinse". The alarm is reset when the flow returns to normal.	Check flow sensor BV02. Reset the alarm on the machine's panel.
(40) HACCP alarm final rinse defect. Press reset	This alarm only occurs if reference value "(115-S2) Extra HACCP-alarm" is set to YES:1. Final rinse function deficient. This alarm is activated when the conditions for alarm nos. 37, 38 or 39 have been fulfilled three times in a row. This alarm is activated if reference value "(41) Machine locked when low flow during final rinse" is set to NO:0.	Check cause, see alarm nos. (37), (38) and/or (39). Reset the alarm on the machine's panel.

Error code and text	Cause	Action
(41) HACCP alarm final rinse defect. Machine locked. Call service	This alarm only occurs if reference value “(115-S2) Extra HACCP-alarm” is set to YES:1. Final rinse function deficient. The alarm is activated when the conditions for alarm nos. 37, 38 or 39 have been fulfilled three times in a row. This alarm is activated if reference value "(41) Machine locked when low flow during final rinse" is set to YES:1. Current wash is completed, after which the machine is locked.	Check cause, see alarm nos. (37), (38) and/or (39). Restart the machine!
(42) Timeout when filling tank. Press reset to start filling again	The level in the tank is still low (level monitor SP2 is off) despite the time defined as reference value *"(31) Timeout when filling"* having passed since filling of the machine started. Valves Y02 and Y05 (standard machine only) are closed.	- Check the operation of the break tank (level monitor B12, float valve, water flow into the machine, etc.) - Check that the level pipe is in position and that the level pipe's rubber sleeve forms a seal against the bottom plate of the tank. - Check that valves Y02 and Y05 (standard machine only) are working and are not jammed. - Check that booster pump M10 is working. - Check that level monitor SP2 is working. Reset the alarm by pressing the reset button. The alarm recurs if the tank is not full after an additional period (reference value *"(31) Timeout when filling"*) has passed.
(43) Timeout when heating tank. Press reset	The temperature in the tank has not reached the correct level (reference value *"(1) Temperature tank"*) in the prescribed time (reference value *"(32) Timeout during heating of tank"*).	If the alarm recurs, the following should be checked: - heating element in tank E21 - that relay K21 is not faulty - that circuit breaker FU42 has not tripped - temperature sensor B21 in tank. If necessary, increase the time for heating by changing reference value *"(32) Timeout during heating of tank"*. The alarm can be reset using the reset button on the machine’s panel. It is then possible to start washing even if the temperature has not reached the correct level.

Error code and text	Cause	Action
(44) Low temperature in tank. Press reset	The temperature in the tank (measured by temperature sensor B21) is below the alarm limit (reference value "*(39) Alarm when low temperature in tank*") when the wash cycle is in progress.	If the alarm recurs, check: - heating element in tank E21, - that relay K21 is not faulty - that circuit breaker FU42 has not tripped - temperature sensor B21 in tank, - setting of reference value *"(39) Alarm when low temperature in tank"* The alarm is reset when the flow exceeds the alarm limit or using the reset button.
(45) HACCP alarm heating of tank defect. Press reset	This alarm can only appear if reference value *"(115-S2) Extra HACCP-alarm"* is activated, i.e. the reference value is set to YES:1. If the conditions for alarm (44) have been met and these have persisted for at least one minute and the reference value *"(116-S2) Stop if low temperature in tank"* is set to NO:0, this alarm is activated.	See alarm no. 44. The alarm can be reset by pressing the reset button.
(46) HACCP alarm heating of tank defect. Machine locked. Call service	This alarm can only appear if reference value *"(115-S2) Extra HACCP-alarm"* is activated, i.e. the reference value is set to YES:1. If the conditions for alarm (44) have been met and these have persisted for at least one minute and the reference value *"(116-S2) Stop if low temperature in tank"* is set to YES:1, this alarm is activated. Current wash is completed, after which the machine is locked.	Rectify the cause, see alarm 44. Restart the machine!
(47) Low temperature before finalrinse.	The temperature in the booster heater is low when the final rinse starts. The wash sequence is extended by 2 minutes, if the temperature after the extension is still low the machine will rinse despite the low temperature. If, despite this, the temperature is below what is indicated by one of the reference values (12), (13) and (14) "Temperature boiler final rinse Px/Px", the alarm is activated.	Check that: the heating element in booster heater E42, temperature sensor B42, contactor K42 are not faulty, circuit breaker FU42 has not tripped, setting of reference values (12), (13) and (14) "Temperature boiler final rinse Px/Px". Reset the alarm on the machine's panel.
(48) HACCP alarm heating of boiler defect. Press reset	This alarm only occurs if the reference value "(115-S2) Extra HACCP-alarm" is set to YES:1. See alarm no. (47).	See alarm no. (47). Reset the alarm on the machine's panel.

Error code and text	Cause	Action
(49) HACCP alarm heating of boiler defect. Machine locked. Call service	This alarm only occurs if the reference value "(115-S2) Extra HACCP-alarm" is set to YES:1. See alarm no. (47), current wash is completed, after which the machine is locked.	Check and rectify the cause of the alarm, see alarm no. (47). Restart the machine.
(50) Washing detergent alarm active. Check detergent device	Alarm signal from external detergent device has activated input on dishwasher's control system.	Check the detergent device according to the supplier's recommendations. Reset the alarm using the reset button on the machine's panel.
(51) HACCP alarm washing detergent dosing defect. Press reset	This alarm can only appear if the reference value "*(115-S2) Extra HACCP-alarm*" is set to YES:1. The alarm is activated if the conditions for alarm (50) have been met for at least one minute and the reference value "*(119-S2) Stop if detergent alarm*" is set to NO:0.	Check the detergent device according to the supplier's recommendations. The alarm can be reset by pressing the reset button.
(52) HACCP alarm washing detergent dosing defect. Machine locked. Call service	This alarm can only appear if the reference value "*(115-S2) Extra HACCP-alarm*" is set to YES:1. The alarm is activated if the conditions for alarm (50) have been met for at least one minute and the reference value "*(119-S2) Stop if detergent alarm*" is set to YES:1. Current wash is completed, after which the machine is locked.	Check the detergent device according to the supplier's recommendations. Rectify the fault. Restart the machine.
(53) Low level tank. Check return pump	The level pipe is leaking.	Check that the level pipe forms a seal against the bottom plate.
(54) Lockingarm not secured		Follow the instructions on the touch panel display.
(55) Rotating table out of position. Pull it to position		Follow the instructions on the touch panel display.
(57) External alarm activated. Press reset	External alarm, i.e. alarm denoting fault in connected device.	Troubleshoot connected device. Reset the alarm on the machine's panel.

Error code and text	Cause	Action
(58) Time to change water in tank. Press reset	A predefined number of wash cycles have been completed. The counter function that counts the number of wash cycles and raises an alarm when a specific number of wash cycles have been completed is activated by setting the reference value *"(42) Number of washes before water change alarm"* to the desired number of wash cycles before an alarm is to be raised. This alarm is triggered if reference value *"(43) Machine locked when water change alarm"* is set to NO:0. The counter must be reset when the water change has been completed in order that the machine can be started again (see ACTION column).	Drain the water from the machine. The alarm is reset (the counter is reset to zero) when the water is drained from the machine (level monitor for lower level in tank set to 0 certain time). The alarm can be reset temporarily by pressing the reset button on the panel. Machine then washes one cycle, after which the alarm returns.
(59) Time to change water in tank. Machine locked	A predefined number of wash cycles have been completed, see alarm (58) above. This alarm is triggered if reference value (43) "*Machine locked when water change alarm*" is set to YES:1. The machine is locked when this alarm is activated. It is then not possible to use the machine to wash until the water has been changed.	The machine is locked (see the CAUSE column). Change the water! See alarm (58). Restart the machine!
(61) Emergency stop activated. Press reset		Follow the instructions on the touch panel display.
(62) HACCP alarm no flow during final rinse. Machine locked	This alarm only occurs if reference value "*(115-S2) Extra HACCP-alarm"* is set to YES:1. No water flow measured by flow meter BV02 during final rinse (valve Y02 open) and no temperature reduction in the booster heater measured by temperature sensor B42. The alarm is set as per the time defined by reference value *"(33) Timeout during final rinse"*. This alarm appears if reference value *"(41) Machine locked when low flow during final rinse"* is set to YES:1. Current wash is completed, after which the machine is locked.	Check the operation of: - break tank (level monitor B12, float valve, water level in the machine, etc.) - water meter BV02 - booster pump M10 - valve Y02. Restart the machine!
(63) Power supply failure. Check the emergency switch	Power supply fault. Internal check upon startup of the IO board to ensure that the power from relay 0 is activated (LED by relay 0 is lit). If there is no power to input J71, the alarm is tripped. The machine will not start.	Check that there is power to input J71 on the IO card. Restart the machine!

Error code and text	Cause	Action
(64) Time for maintenance	The alarm is activated via WEB Tool (reference value *"(130-S2) Alarm for maintenance service enabled"* set to YES:1). The alarm is tripped when a year has passed since the last service, or after 15,000 wash cycles.	Annual service must be performed on the machine. The alarm can be overridden with the reset button (RESET) after which the machine can be used as normal. The alarm is reset by the service engineer by resetting the service counter, i.e. reference value *"(49) Performed maintenance service*" set to YES:1, via the panel (service mode) or WebTool.
(65) Power guard activated. Part of equipment is turned off	Information that the external output monitor has been closed by the heating element in the tank or the booster heater.	The alarm is cancelled once power consumption is back within normal limits.
(66) Sensor error. Clean and check function for level sensors	If both sensors in tank SP1 (lowest tank level) and SP2 (upper tank level) do not transmit the same signal (low level) when the dishwasher starts, this alarm is triggered. The heating element in the tank cannot be activated.	If the tank was drained when the machine started: - clean and check that tank level sensors SP1 and SP2 are working. Reset the alarm on the touch panel.
(95) Short circuit on digital inputs. Check flow sensor		Check the input circuits according to the wiring diagram. Check which input is causing the problem by removing one cable at a time on the contacts on the IO board, and then replace the cables one at a time until the alarm returns. Troubleshoot! Check that the flow meter is not leaking.
(98) Hardware error power on function defect. Call service	The machine's "power on" function is defective. When the machine is switched off, an internal check of the I/O card must show that the power from relay 0 is deactivated. If it is not, the consequence is that the machine is not shut down, but all relays are set to the OFF position.	Check: - status of relay 0 on I/O card, - incoming voltage. Restart the machine! If the above does not help, replace the CPU + I/O card.
(99) The machine type has been changed. Verify this	The machine type has been changed. The alarm only appears when the machine has been restarted following a change of machine type. The machine is locked.	The change must be verified in order to come into force and for the machine to be unlocked. Log in using WebTool (requires S2 rights = training in WebTool). Check that the reference values for the current machine type are correct. Save!
(100) Nominal values restored from SD memory	The configuration has been retrieved from the backup on the SD card. Operating data and other statistics have been reset.	This is an information text. Reset the alarm on the touch panel.

Error code and text	Cause	Action
(105) Timeout when filling break tank. Press reset to start filling again	The time limit (30 s) for filling the break tank has elapsed without the break tank being filled (level monitor B12 still off).	Check: that the stopcock on the incoming water pipe is not closed, the filter on the water connection is not blocked, the flow or water pressure of incoming water is not too low, (see user manual under heading “Technical data”), that the float valve in the break tank is operational, that level monitor B12 is not broken. Filling the break tank is restarted if the alarm is reset on the touch panel.
(251) / (252) Platform error	The machine has crashed. The software cannot execute the correct operations.	Switch off the machine and restart it. Call service and inform them.