

# metos

## TROLLEY DISHWASHER WD-18CW *touch*

(original documentation)



Read the manual before using the machine!

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## Installation and user manual

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# 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.

**Wexiödisk**

### 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.

1. Manufacturer: Wexiödisk AB Mårdvägen 4 S-352 45 Växjö, Sweden  
 Tel.: +46 (0)470 77 12 00 Fax: +46 (0)470 23752 Email: wexiodisk@wexiodisk.com

2. Representatives of Wexiödisk AB:  
 3. For Asia: General Trading Co. Ryujing Group Ltd, DSP doo, Elektrowis Service OOO, Fostus ehf, ZB, Martin Food Equipment Ltd, Moffitt Pty Ltd, M/S Alatiwala Consolidates Pvt Ltd, Nakanishi MFG Co Ltd, QMB col/PKration, Retail doo, SHS Hygien I Mundtlan, TPN Group, Westödisk AB, Wexiödisk UK  
 4. Country of manufacture: Mårdvägen 4, Växjö, Sweden

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

6. CE Declaration of Conformity:  
 EU's Machinery Directive 2006/42/EG, annex IA  
 EU's Low-voltage directive 2006/95/EC  
 EU's EMC-directive 2014/53/EU  
 EU's WEEE-directive 2002/96/CE  
 EU's RoHS-directive 2011/65/EU

6. Harmonised standards:  
 EN 12100 Machine safety: General principles for design - Risk assessment and risk reduction  
 EN 50105 Safety - Particular rules for a coffee toasters  
 EN 60205 Specification for degrees of protection provided by enclosures (IP code)  
 EN 62233 Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure  
 EN 55014 EMC - Electromagnetic compatibility (EMC) - Immunity standard for industrial environments  
 EN 55014-1 EMC compatibility (EMC) - Requirements for household appliances, electric tools and similar apparatus - (EMC) - Part 1: Emission  
 EN 50581 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

7. The above directives and standards are common to the different machine groups. Standards in the tables below are specific to the different machine groups.

Bread toasters, Pilsener toasters, yeast- dough toasters with accessories: WD-181 (17000-1) WD-F9887 & WD-F & WD-F & WD-F (172000-1) WD-18 (17000-1) WD-F9888 (171800-1) WD-18 & WD-F9889 (171800-1) WD-18 (171800-1) & WD-18 (171800-1) & WD-18 (171800-1) & WD-18 (171800-1) WD-F9889 (171800-1) WD-18 (171800-1) WD-18 (171800-1)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex IA EN 60205-1 Safety - Particular rules for a coffee toasters EN 60205-2-50 Safety - Particular rules for a coffee toasters - Part 2: Immunity - Commercial electric distribution networks
Coffee toasters, Special coffee toasters: WD-181 & WD-181 & WD-181 & ACS-3147 & WD-2588 & WD-317 & WD-9020 & WD-9020 (General assembly drawings) WD-18 (171800-1)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex IA EN 60205-1 Machine safety: Detailed application of machine safety standards
Special machines: ACS 4000C000 (171800-1)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex IA EN 60205-1 Machine safety: Detailed application of machine safety standards

8. Växjö 2016-04-20  
 Magnus Tjansson  
 Managing Director

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- 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).
- Representatives of Wexiödisk AB.
- Person responsible for the product's documentation.
- Year of manufacture of the product.
- The EU Directives with applicable provisions to which all the machines, special machines and accessories comply.
- Harmonised standards for the Directives specified, and which the machines, special machines and accessories meet, wherever relevant.
- Model designation and serial number of the machines, special machines and accessories the document applies to.
- 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](http://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. Installation instructions



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

### 3.1 General information



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 diagram for water and any steam. These can be found in the machine's electrical cabinet.
- 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.
- If holes need to be drilled in the machine, the holes must be fitted with an edge strip or similar protection.

### 3.1.1 Rust on industrial dishwashers



- Large-scale industrial dishwashers in general as well as our dishwashers are made of stainless materials, but despite this, there are still situations where rust can occur on “stainless” materials.
- We are going to describe a few reasons for this here, so that you, as a user, service engineer or other type of personnel, can avoid this.
- Rust usually occurs due to the fact that something that is not stainless finds its way onto the stainless surface. The non-stainless particles will soon start to rust, and then contaminate the stainless material, which also starts to rust. If no action is taken at this point, serious damage such as a hole in the material can occur.

RISK SITUATION	CAUSE	DECLARATION / ACTION
Drilling holes when installing a detergent device.	Using a drill or hole saw that has previously been used for ordinary non-stainless materials.	“Contaminated” hole-drilling tools can cause enormous damage in the form of pores in stainless plates. Never use a cutting tool that has previously been used on other materials or blackplate.
	Using blunt tools when drilling holes.	Stainless plate, which has overheated during hole drilling, may lose its “stainless” properties. This can show up as rust around the hole for the detergent cell.
	Shavings from hole drilling.	The shavings from drilling or hole sawing are usually heated so much that they lose their stainless properties. They must always be removed by hand! Washing after hole drilling is not enough!
Rust spots that occur during normal operation and use.	Minerals, e.g. ferrous gravel or earth, from dishware or food (vegetables and root vegetables) that has been lying in crates, find their way onto the stainless surface. Minerals (gravel) can also be found on the wheels of catering trolleys.	Daily cleaning is always important. Use a suitable brush for “mechanical” cleaning, e.g. in the wash tanks, on the wash trays and filters.
	Steel wool. Ordinary steel wool is not stainless, and can cause serious damage to stainless surfaces and plates.	Use stainless cleaning pads. Remove all ordinary steel wool from the catering facility / restaurant.

NOTE! If rust spots have developed, they must be dealt with immediately by a person authorised to do so!

## 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 and ambient temperature

The machine is intended to be used in an indoor environment at normal room temperature. Maximum ambient temperature for the machine in operation must be 35°C. During operation, the machine emits heat and steam. In order to ensure the best possible working conditions, a certain air renewal rate is required in the dishwashing room. The ventilation requirements for the dishwashing room are to be dimensioned on the basis of the applicable standards.

### 3.2.3 Power supply

Electrical connections are made by qualified personnel in a way that complies with local and national regulations. The machine's capacity requirements are stipulated in TECHNICAL SPECIFICATIONS.

### 3.2.4 Water

Water connections are made by qualified personnel in a way that complies with local and national regulations. The machine's capacity requirements are stipulated in TECHNICAL SPECIFICATIONS.

### 3.2.5 Steam (optional)

Steam connections are made by qualified personnel in a way that complies with local and national regulations. The machine's capacity requirements are stipulated in TECHNICAL SPECIFICATIONS.

### 3.2.6 Drain/waste pipe

There must be a waste pipe with an effective trap for the machine's waste water and for water used for rinse cleaning. The machine's capacity requirements for drainage are stipulated in TECHNICAL SPECIFICATIONS.

### 3.2.7 Space for servicing

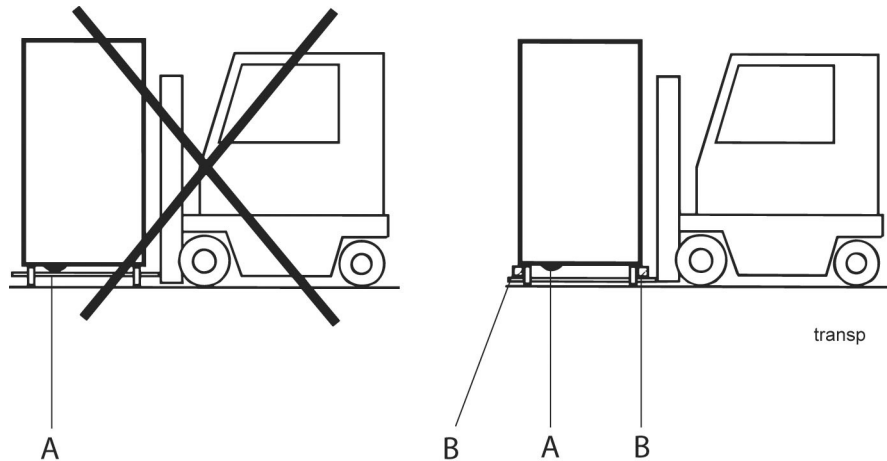
A 1-metre area should be left clear in front of the machine for servicing purposes. Depending on if the machine has different accessories, there may also be such a requirement at the infeed and outfeed ends as well as above the machine.

### 3.3 Transport and storage

Always transport the machine in an upright position.



Take care during transport, as there is a risk of tipping. NOTE! The machine must not be transported without a pallet or other support. Some form of support beam must always be used along the sides of the machine during transport. Otherwise the machine may become damaged. When transporting the machine without a normal wooden pallet, always check that none of the components underneath the machine can be damaged.



A = Pumps  
B = Spacers



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

### 3.4 Unpacking



- Check against the delivery note that all the units have been delivered.
- Remove the packaging, but leave the pallet and any transport supports in place.
- Packaging must be sent for destruction or recycling in accordance with local regulations.
- Inspect the machine for any transport damage.



## 3.5 Installation

Parts which must be assembled are prepacked inside each machine section together with the necessary bolts, nuts, etc.

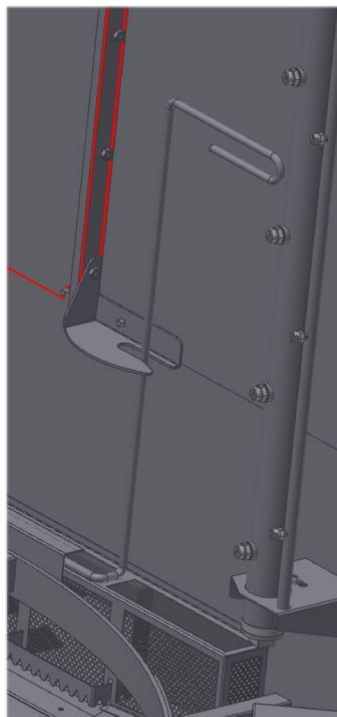
There are two installation options for the machine: free-standing in the room (1 shutter door) or with a clean and dirty side (2 shutter doors).

The machine can also be installed "on the floor" or "recessed in the floor".

### 3.5.1 Preparing for the installation



- Check that correct connections are available for water, electricity, drainage and possibly steam at the installation location. See TECHNICAL SPECIFICATIONS.
- Check that the overheating protection device is reset.
- Check that there is sufficient room for the machine at the installation location. The height of the machine during transport is 2750 mm, but it can also be delivered in two parts with the dimensions of (LxWxH) part 1: 2.6x2.0x2.25 m and part 2: 1.9x2.05x0.8 m.
- If necessary, it can be delivered in even smaller parts. When the machine is divided into further parts (option), the filter support plate is installed as per the image below.



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### 3.5.2 Positioning the machine

Check the following points before the machine is placed in position:

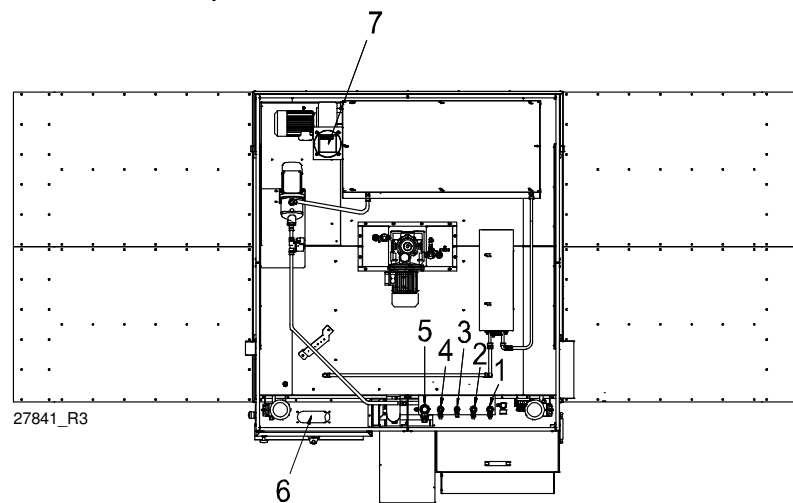
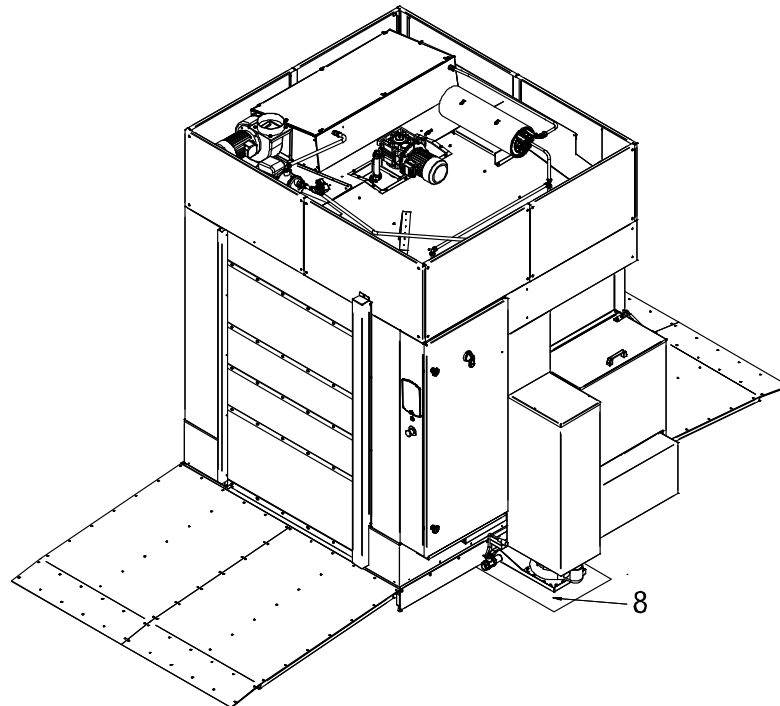


- Check that the fuse for the machine at the site is off, blocked and that outgoing electrical circuits from the machine are non-live.
- Remove the protective plastic on the sides which are to be stood against a wall.

Place the machine in position and check that it, and any accessories, are horizontally level.

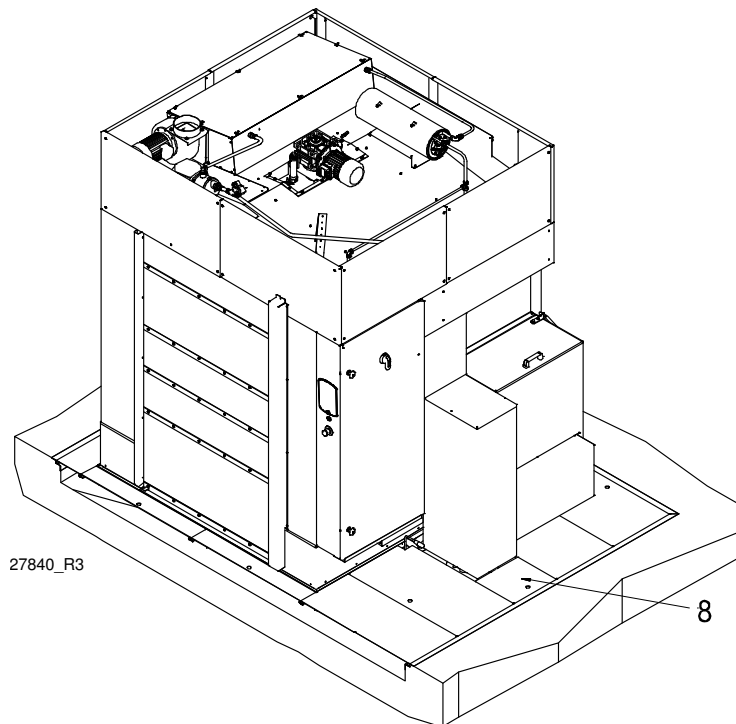
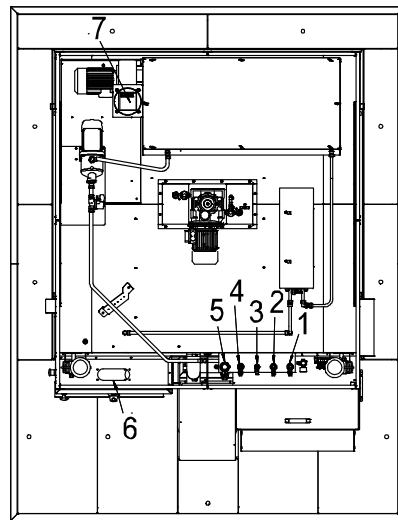
Once the machine has been filled with water, do another check to make sure the machine is horizontal.

### 3.6 Connections



*The machine installed "on the floor"*

1. Hot water connection
2. Cold water connection
3. Compressed air connection
4. Condensation connection (option)
5. Steam connection (option)
6. Electrical connection
7. Ventilation connection
8. Floor drain



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*The machine is installed "recessed into the floor"*

1. Hot water connection
2. Cold water connection
3. Compressed air connection
4. Condensation connection (option)
5. Steam connection (option)
6. Electrical connection
7. Ventilation connection
8. Floor drain

In the following chapter, figures are given in brackets to clarify what needs to be done. These numbers refer to the figures and list above.

### 3.6.1 Electrical connection

Information about electrical connections is available on the machine's wiring diagram which is provided on delivery. Store the diagrams in the plastic pocket, located in the electrical cabinet, even after installation.



- The machine is designed for quick electrical installation.
- The machine has a built-in main switch.
- The connection in the electrical cabinet is at (6).
- The machine is equipped with a phase sequence detector. The machine will not start if the phase sequence is incorrect. If the phase sequence is incorrect, the touch panel will show POWER SUPPLY FAILURE CHECK EMERGENCY STOP.



It is important that the electrical connection is checked so that it is certain that the live and neutral wires are correctly connected and not swapped over. It is also important to check at the same time that the earthing system connection is correct and sufficient so that the machine's electrical and personal security system is not compromised.

After completing the installation, switch on the main switch and all circuit breakers.

### 3.6.2 Water connection, regardless of any options



- A shut-off cock must be installed on the incoming lines.
- It is important that the water supply has sufficient pressure to ensure the correct flow of water to the machine. The required water flow and pressure can be found in the TECHNICAL SPECIFICATIONS.

Connect the cold and hot water pipes according to the labels by the connection points (1, 2). If the machine is connected with a hose, this should be steel braided and have an internal diameter of at least 12 mm.

The hot water connection on the machine is fitted with a filter.

The cold water connection on the machine is fitted with a filter, non-return valve and vacuum valve.

As the machine is fitted with a break tank, the connection is fitted with a filter and non-return valve.

### 3.6.3 Ventilation

The machine's heat load for the room is stipulated in TECHNICAL SPECIFICATIONS.

The machine has a heat recovery unit connected to an exhaust fan to reduce the amount of steam released. Extractor fans for extracting steam can be installed above the infeed and outfeed openings, as well as above the area of the machine where steam is emitted from the condensing fan.

The machine has a ventilation connection (7) which allows an external ventilation duct to be connected. The connection to the ventilation system is made using a strain-relief grip.

### 3.6.4 Compressed air connection

It is important that the air supply has sufficient pressure to ensure that the air entering the machine is at the correct pressure (3). The required pressure can be found in the TECHNICAL SPECIFICATIONS.

### 3.6.5 Steam (optional)



The steam connection (5) is fitted with a shut-off valve and filter. When connecting a pipe from the ceiling, it is taken into the same area as the water pipes behind the cover plate next to the electrical cabinet. The required steam pressure can be found in the TECHNICAL SPECIFICATIONS.

#### Condensing water

A condensation connection (4) is only provided on steam-heated machines. The pipe is connected to the system's steam boiler.

### 3.6.6 Drain/waste pipe

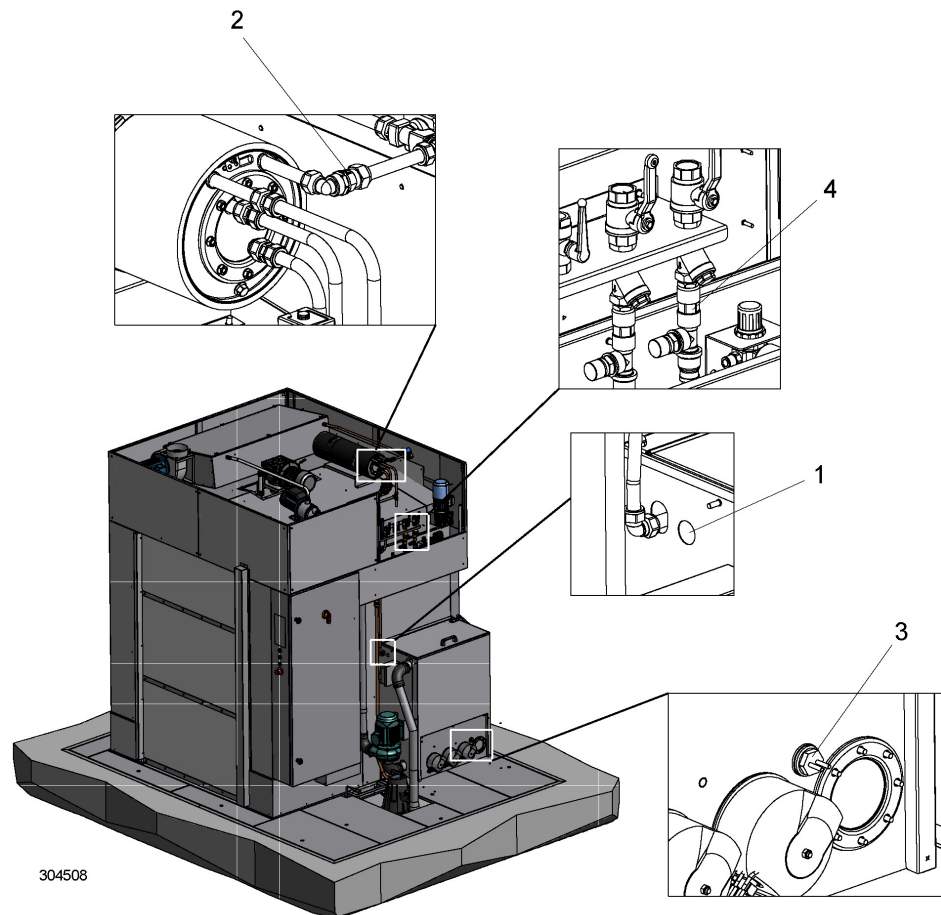
The waste water system connected to (8) should consist of a 50 mm metal pipe that will withstand mechanical impacts. The waste pipe must run to a floor drain, where its opening must be above the water level.

Ensure that the drain connection is kept in place by using e.g. cable ties in the designated areas.

### 3.6.7 Detergent and drying agent



- The machine comes ready for fitting detergent and drying agent equipment, but this is not included with the machine.
- To avoid making unnecessary holes in the machine, the equipment should be placed on the wall behind the machine on the outfeed side.
- Use the same make and type of detergent and drying agent.



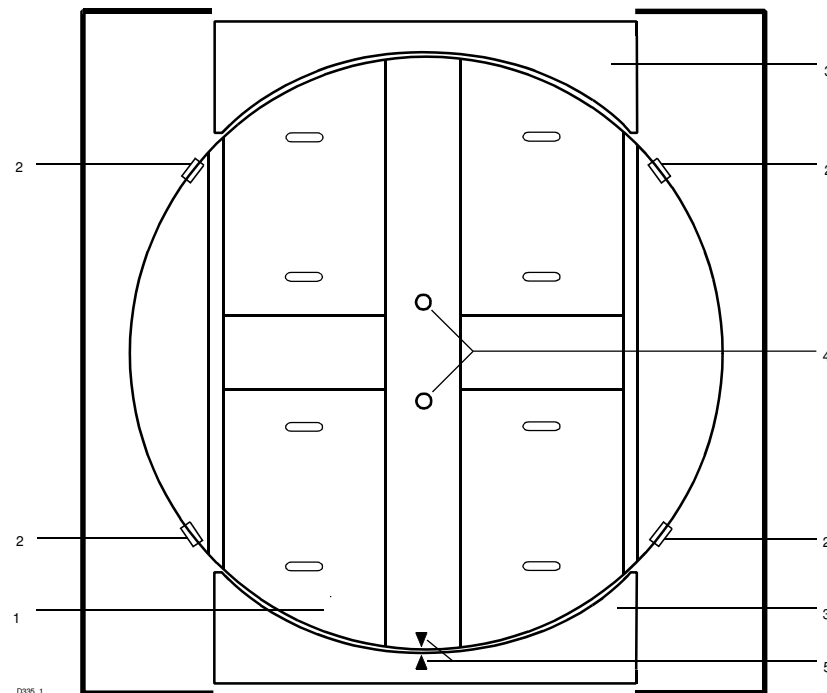
#### *Connecting detergent and drying agent*

1. Plugged connection for the hose connection for solid detergent.
2. Drying agent dosage outlet
3. Measuring cell for measuring the concentration of detergent in the chemical wash tank.
4. Water outlet for detergent dosing

#### **Electrical connection of the equipment**

For information about wiring diagram, see the machine's wiring diagram.

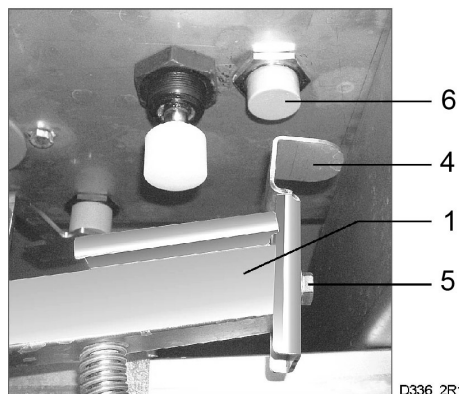
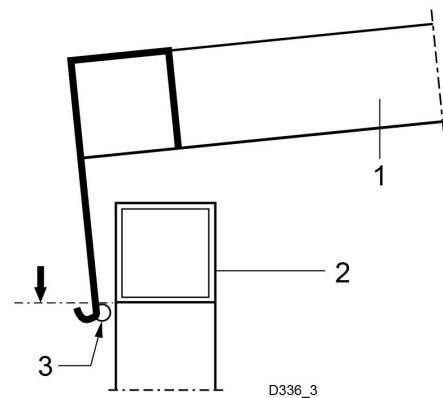
### 3.7 Adjustment of rotating table



*Floor of the machine showing rotating table and floor plates*

1. Rotating table
  2. Support rollers
  3. Sill plate
  4. Location of support legs
  5. Rotating table start position markers
- After installing the machine, the rotating table (1) needs to be adjusted to the correct level. This is done using the two support legs, which are located under the machine at (4).
  - If the machine is mounted on a stand, check that the stand is adjusted to the correct height and that the machine is horizontal.
  - Check that both sill plates (3) are in place.
  - The rotating table (1) must be in its start position. The markers (5) on the rotating table and sill plate should now be exactly aligned.
  - Adjust the support legs through both holes at (4). There is a nut welded to the top of each leg. Use a ratchet spanner to adjust the legs to the correct position. Turn to the right to screw the legs downwards and to the left to screw them upwards. Screwing the legs to the right or left raises or lowers the rotating table.
  - Check under the machine to ensure that the legs are touching the floor. If the machine is recessed into the floor, remove the cover plates around the machine to check the legs.
  - If the rotating table (1) is adjusted to the correct position, the top of the rotating table should be at the same level as the top of both the sill plates (3). In this position, the rotating table should not be resting on the four support rollers (2).

### 3.8 Adjusting the locking arms



18CW\_336a

1. Locking arm
2. Upper gate bar
3. Circular rod, Ø 6 mm
4. Sensor plate
5. Screw
6. Inductive sensor



It is important to adjust the locking arms (1) to avoid the machine from being started without the gates having been locked.

- Power to the controls needs to be on and the diagnostics mode must be displayed on the touch panel to make adjustments.
- Close the gates.
- Pull the locking arm (1) down. When the upper edge of the circular rod (3) is level with the underside of the upper gate bar (2), the signal on the touch panel's diagnostics mode is displayed. If the signal is not displayed in this mode, the sensor plate (4) must be adjusted.
- Undo the screw (5) and move the sensor plate (4) up or down. Continually check whether the touch panel's diagnostics mode is displayed in exactly the right position by pulling the locking arms down.
- If the machine has a two side door, adjust both locking arms.



## 3.9 Trial operation

Prepare the machine for trial operation with the help of OPERATING INSTRUCTIONS. The instructions describe the measures that must be taken to prepare the machine for operation.

### 3.9.1 Start-up schedule

This should be completed when the machine is started up and used.

<b>Machine type:</b>
<b>Machine serial number:</b>
<b>Installation date:</b>

Read the installation and user manuals carefully. Then check the following points:

#### 1. Check the following before starting and filling the dishwasher with water:

- Air, water and waste pipe connections
- The machine is connected with the correct phase sequence
- The overheating protection devices are reset
- The rotating table is correctly adjusted vertically
- The support rollers on the rotating table have a few millimetres' clearance
- The washing machine is horizontal
- Any equipment for detergent and drying agent is correctly connected
- Pump strainers, level pipes and filter trays are correctly in place
- For electrically-heated machine: FU21, FU41 (option) and FU42 mini-switches are in the OFF position

#### 2. Filling the dishwasher with water:

- Check that the distance between the position sensor for the locking arms and the indicator plate for them is correctly set, and that the indicator plate screw is properly tightened
- Check the locking function of the gates
- Open the tap(s) to the dishwasher's water connection and fill the machine with water (possibly as an option via break tank).
- Turn on the mains switch and the machines On/Off button.
- Press "PLAY" on the display panel and follow the instructions.
- Check the direction of rotation of the pumps  
N.B.! If the direction of rotation is wrong, phase inversion of the relay is required
- Turn on the mini-switches FU21 and FU42 when the booster heater and tank have filled with water

**3. Check the setting of the reference values:**

All the reference values have been set to the recommended values on delivery.

- Check that all reference values are correctly adjusted
- Check that the water temperatures (tank, booster heater, etc.) have been reached in accordance with the reference values

**4. Run a number of washes complete with dishware and check:**

- There are no water leaks
- The switch for the shutter doors is working
- Water temperatures are maintained
- The washed items are clean
- The washed items are dried
- There is an adequate water flow to the dishwasher  
NOTE! Inform the customer if the water flow and the water pressure of the incoming water are too low!
- For steam-heated machines, also check:  
The steam valves open and close  
The condenser conductors open and close  
There is no steam leakage

**5. Final check: Empty the machine, turn the machine off using the ON/OFF button and then turn off the power at the main switch.**

- Re-tighten all connections on contactors and circuit breakers
- Check that all circuit breakers are in the ON position
- Set up the quick guide supplied

**6. Train and inform personnel concerning:**

- Washing
- Care (daily, weekly and other frequencies)
- Recommendation for annual service

**3.10 Documentation**

For correct use and servicing, it is essential that the documentation accompanying the machine is made available to personnel who will be using the machine. The installation and user manual, which describes handling and care among other things, should be stored near the machine.

## 4. Operating instructions



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



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

The use of the machine is dependent on how the machine is equipped.



This chapter describes what must be done with the machine:

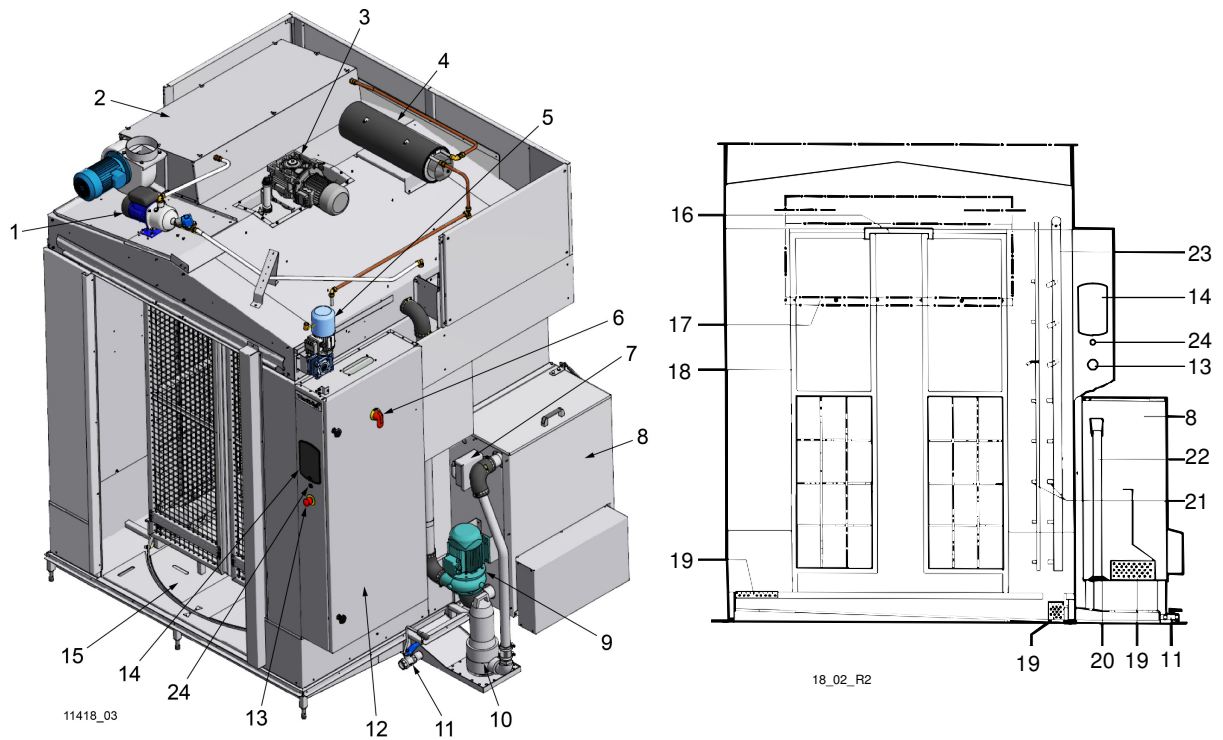
- Before washing
- How washing should be performed
- After completed washing
- In the event of error messages and troubleshooting



When the machine is not in use for an extended period of time, e.g. overnight, over a weekend or similar, the machine's power supply must be isolated, the water supply shut off and the machine left open.

## 4.1 Before washing

### 4.1.1 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. Emergency stop
14. Touch panel
15. Rotating table
16. Locking arm
17. Shutter door
18. Gate
19. Filter
20. Rubber sleeve

21. Nozzle
22. Level pipe
23. Rinse pipe
24. ON/OFF button

In the following chapter, figures are given in brackets to clarify what needs to be done. These numbers refer to image and list above.

### 4.1.2 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 around 10 seconds before the touch panel illuminates.

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

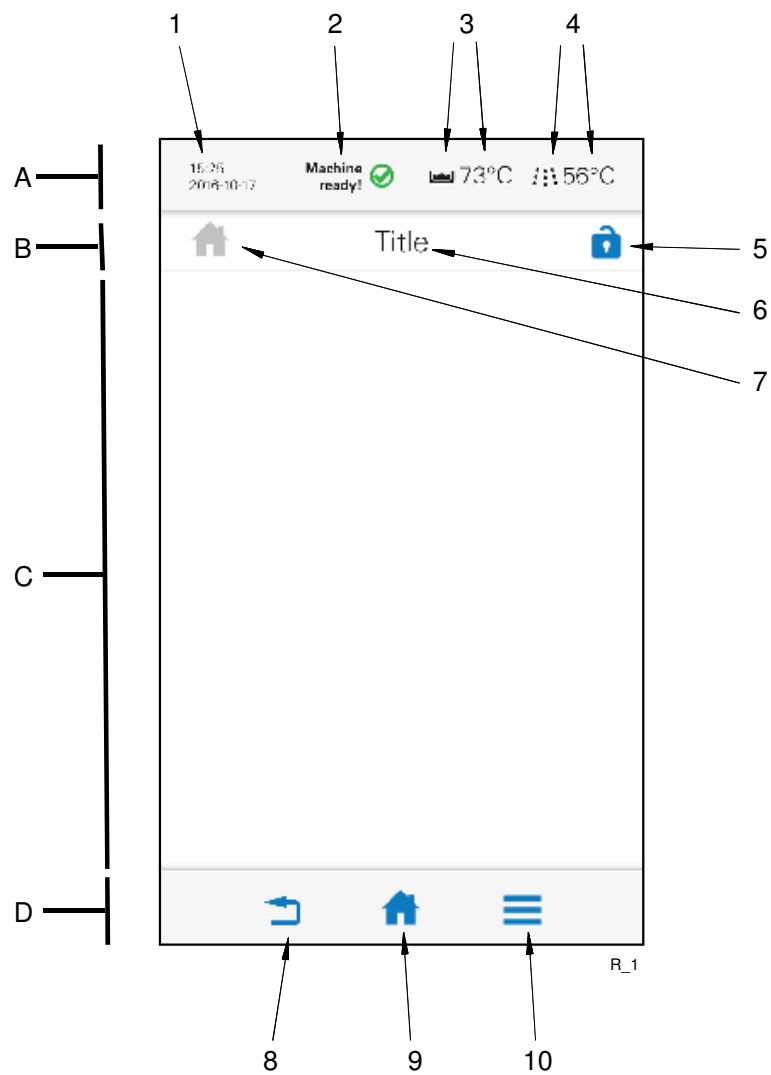
### 4.1.3 Touch panel

#### General

The panel comprises four fields:

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

Active (clickable) symbols are in blue. Inactive symbols are in grey. The activity field (C) contains both information text and selectable symbols which are used to continue to different entries:



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 function displayed
8. Back button
9. Home button
10. Menu button

## Top bar (A)

This indicates the machine status using text and symbols (2, 3, 4) and the date and time (1).

Alarm and information messages are displayed here. More information about these is shown in the activity field (C).

## Process bar (B)

This indicates what the machine is doing using various symbols (7) and text (6). This is where authorised personnel log in (5).

## Activity field (C)

This indicates what must be done or what is happening in the machine, and is shown using various figures and text.

Alarm and information messages are displayed in detail here. There are three different levels of these.



- BLUE: Information message with code number.
- YELLOW: Non-critical alarm message with code number. Yellow alarms may be reset by the user. A yellow alarm may change to a red alarm after being displayed a certain number of times.
- RED: Critical alarm message with code number. Service personnel must be contacted for these alarms.

## Bottom bar (D)

This displays the machine's three main symbols (8, 9, 10).



*Back button (8)*



*Home button (9)*





































*Menu button (10)*






## Symbols

The following symbols and a brief description may be displayed in the various fields of the panel (some depending on machine type).

Symbol	Explanation	Symbol	Explanation
	Black: Information Blue: About the machine		Change the water
	Autostart of filling and washing		Consumption
	Back to previous figure / Reduce		Environmentally friendly/ Lowest consumption
	Cleaning the machine		Consumption
	Contact details		Warning / Alarm for operator
	Cost		Detergent
	Cancel / Reset		Down / Reduce
	Remove / Clear		Yes / Confirm / Ready
	Diagnosis		Fill tank
	Drying		Forward to next figure / Increase
	Edit		Strong/ Highest consumption
	Empty tank		HACCP
	Final rinse		Medium / Normal consumption
	Home		Journal
	Language		Log



Symbol	Explanation	Symbol	Explanation
	Logged in		Logged out
	Low flow		Machine status
	No / Cancel		No flow
	Other		Relay test
	START		Protocol
	Repeat / Machine is in operation		Reset
	Save to PC		Save to USB
	Service alarm		Service settings
	Machine configuration		Settings
	Updating software		Time and date
	Statistics		STOP / Off
	Tank		Temperature / Heating
	User		Up / Increase
	Filling tank		View service settings
	Eco program without spin dry with lowest consumption		Eco program with spin dry with lowest consumption
	Front locking arm		Back locking arm
	Heavy wash program without spin dry		Heavy wash program with spin dry

Symbol	Explanation	Symbol	Explanation
	Medium wash program without spin dry		Medium wash program with spin dry
	Spin dry		Menu
	Return / Back		

#### 4.1.4 Preparations before filling

In this chapter, figures are given in brackets from the figure beneath chapter 4.1.1 Machine design.

Check:



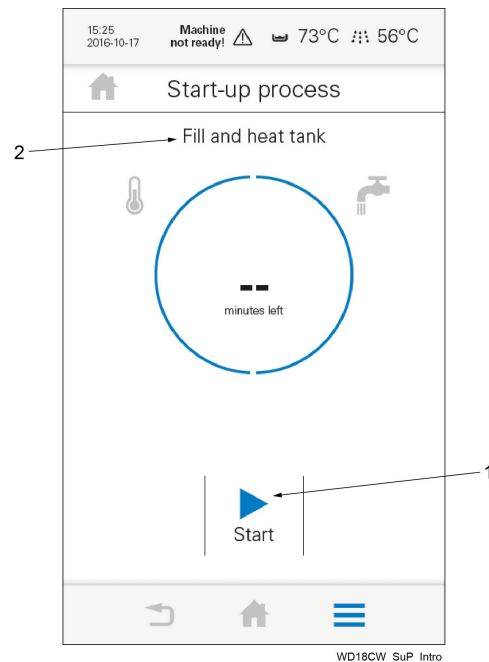
- that the machine and removable parts have been cleaned. If not – clean them!
- that the rubber sleeve (20) is not damaged.
- that removable parts are correctly in place (19, 20, 22).
- the drain tap (11) must be closed.
- the amount of detergent and drying agent.
- that the stopcock for the water to the machine is open.
- that the main switch is in the ON position.

Remember:



- 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. Washing-up liquid causes a build-up of foam, produces poor wash results and can damage the machine.
- Steel wool must not be used for pre-treating the dishware.
- Only detergent and drying agent intended for industrial machines may be used.
- Use the same make and type of detergent and drying agent.

### 4.1.5 Filling and heating the machine



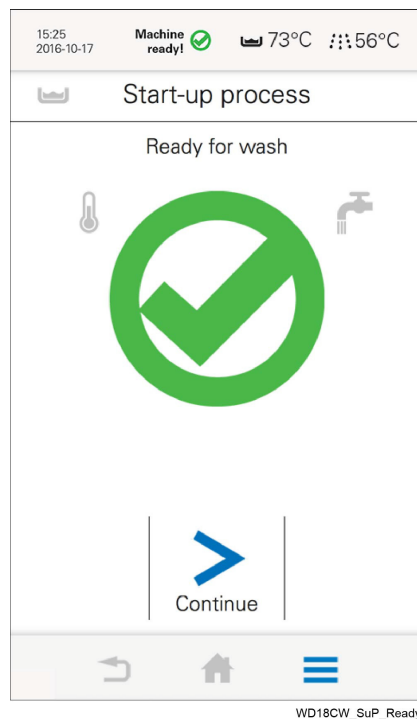
1. Start button
2. Activity text



- Press the ON/OFF button, located beneath the touch panel, to start the machine. NOTE! At least 10 seconds must have elapsed after the main switch is set in the ON position.
- Press the start button (1) in the activity field to start filling and heating.
- It is possible to follow what is happening now in the machine through "Activity text" (2) on the touch panel.
- The machine has an Autostart function, where a date and time can be entered for the automatic filling and heating of the machine. The function is located under Autostart in the main menu and only works if the level pipe has been set.



NOTE! The time needed to fill and heat the water to the right wash temperature depends on the temperature of the incoming water.



The figure above will be displayed when the machine is ready for washing.

## 4.2 Washing

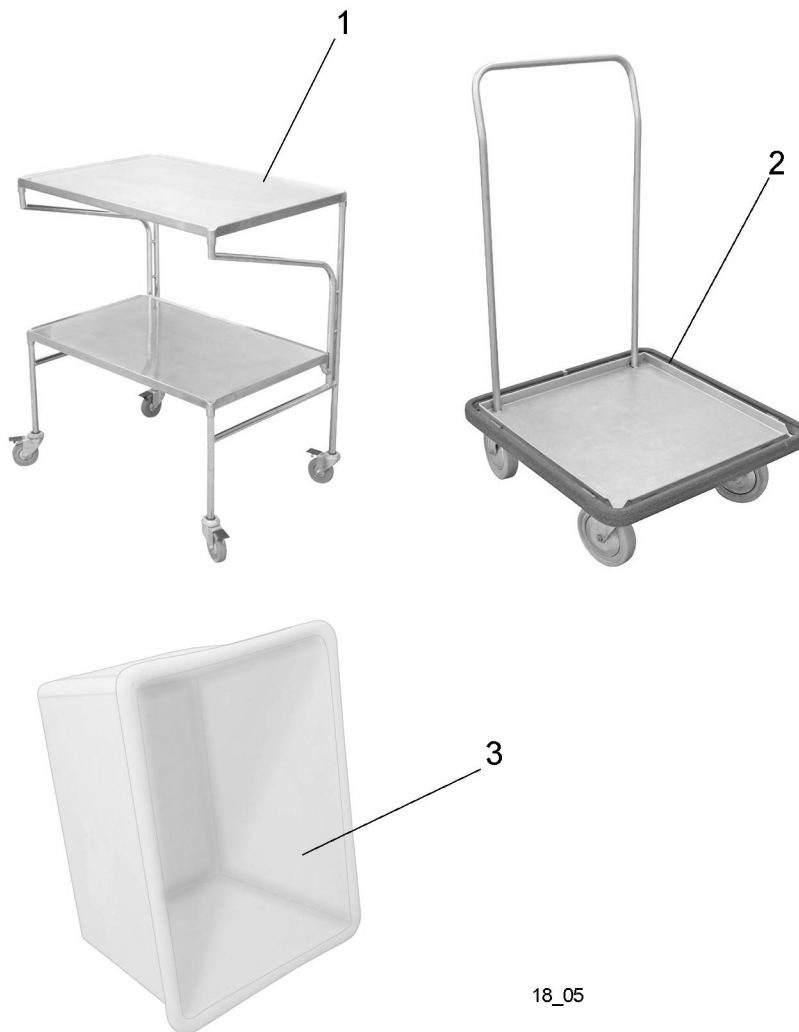
### 4.2.1 Positioning dishware

Examples of the different types of trolleys and other items that can be washed. Note that trolleys and other wheeled items do not need to be secured. All you need to do is wheel the items in and close the gates, locking arms and shutter doors to start the wash.



18\_04

- 1 = Tray trolley
- 2 = Rack trolley
- 3 = Food transport trolley
- 4 = Transport trolley



- 1 = Table trolley
- 2 = Transport trolley
- 3 = Other items

18\_05

## 4.2.2 Selecting a programme



The programmes can be run with or without a spin cycle. The program time can vary somewhat depending on the pressure and flow of incoming water.

### Wash programs with spin dry



*Program time approx. 1.2 minutes (P1)*



*Program time approx. 1.6 minutes (P2)*



*Program time approx. 2 minutes (P3)*

## Wash programs without spin dry



A program without spin dry should be used if the items being washed are for some reason not suitable for spinning, for example if the items cannot be fixed firmly in place.



*Program time approx. 1 minute (P4)*



*Program time approx. 1.4 minutes (P5)*



*Program time approx. 1.8 minutes (P6)*



### 4.2.3 Starting washing


Check that the arrows on the rotating table and sill plate are exactly aligned (home position).

Place the trolley with the dishware in the cage and lock the trolley's wheels.



When the machine is ready to starting washing, the following display is shown on the touch panel.

Select a suitable programme on the touch panel.

Start the programme by pressing .



- You can see what the machine is doing on the machine's touch panel.
- The shutter door opens automatically when the programme is finished, take the dishware out of the machine.
- Always check the wash result when wash cycle has finished.

#### 4.2.4 Interrupting a wash program

While the machine has still not started the selected wash program, it is possible to interrupt it by pressing the stop button in the activity field.

Once a wash program is under way, it is only possible to interrupt it with the ON/OFF button (24).

#### 4.2.5 Emergency stop

If the machine needs to be stopped during operation for some reason, press button (13) for an emergency stop.

Before the machine can be restarted, the emergency stop button (13) must be reset by turning it in the direction of the arrows. The alarm is reset on the touch panel (14) and the shutter doors are opened. The problem which caused the emergency stop must be rectified.

Turn the rotating table manually to the home position. The arrows on the rotating table and sill plate should now be exactly aligned.

#### 4.2.6 Guaranteed final rinse



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



If there is an error during the final rinse, this is indicated by an alarm and information on what must be done.

#### 4.2.7 Changing the water



A guide to changing the water is displayed on the panel when the function for this has been selected. This is done by pressing the menu button  and then selecting water change .

It is also possible to change the water manually when the machine is switched off.



To achieve the best possible washing results, it is important that the water is changed frequently. However, always change the water in the event of foam problems in the tank.

If 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.

### 4.2.8 Checking the wash result



The dishware should be checked after each wash for:

PROBLEM	CAUSES & MEASURES
Starch spots	<ul style="list-style-type: none"> <li>• <b>Scraping:</b> Important to remove as much food particles as possible before washing. This also means that the water in the machine does not need to be changed as often. Scrape better.</li> <li>• <b>Detergent and drying agent dosage:</b> If using liquid detergent and drying agent, the same make and type should be used. A service technician should be contacted to rinse the equipment with water when replacing the detergent and drying agent. The dosing affects both detergent and drying results of the dishware. The hardness level of the water affects the consumption of detergent. Contact the detergent supplier.</li> <li>• <b>Temperatures:</b> At incorrect temperatures the dishes will not be clean. Contact a service technician if you need to change the set values.</li> <li>• <b>Washing time/contact time:</b> If cleaning is inadequate, the contact time can be increased.</li> <li>• <b>Time/water volume:</b> If starch spots or misting can be seen, or if there is still detergent residue on the item, this may mean that the flow through the wash arms during the final rinse is too low. The final rinse flow can be checked and adjusted by a service technician. The duration of the final rinse may also play a part. Increase the contact time if necessary.</li> <li>• <b>Cleaning the machine:</b> Insufficient cleaning of the machine affects the results of the washing. Ensure better cleaning of the machine.</li> <li>• <b>Positioning items to be washed:</b> Incorrectly placed items can mean that the washing water does not reach the items during washing and rinsing.</li> <li>• <b>Soaking:</b> Items with hard dried food. Soak the items in water. Do NOT use washing-up liquid.</li> <li>• <b>Changing the water:</b> How often the water needs to be changed depends on several factors, such as the number of items being washed, how well food residue is scraped off the item, how much detergent there is in the washing water etc. It is therefore important to continuously check the wash result, which may indicate when it is time to change the water.</li> <li>• <b>Water circulation:</b> If water circulation in the machine is inadequate, 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.</li> <li>• <b>Water hardness:</b> If the water used for washing is hard (&gt;10 °dH), a higher concentration of detergent may be needed to ensure the washed items emerge clean. Contact your detergent supplier!</li> </ul>
Misting	
Protein residues	
Detergent residues	

## 4.3 After use – Cleaning

### HACCP

HACCP is a preventive inspection system to ensure hygiene requirements are met during the washing process and cleaning of the machine. As a result of its design, the machine meets strict hygiene requirements. Regular, thorough cleaning is also important from a hygiene perspective. A machine that is properly cleaned helps produce a good wash result, reduces the risk of dirt accumulating, increases the service life of the machine and reduces the risk of emergency shutdown.

See the WebTool manual for the HACCP alarm options.



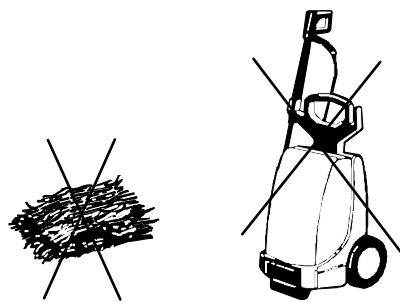
As a user you can get information via the menu on the display about various operating data and also print out an environmental report for the machine. For further info see the WebTool manual.

### 4.3.1 Incorrect cleaning methods



NOTE! An incorrect cleaning method may damage the machine. The following points must be observed:

- Do NOT use steel wool as it will cause corrosion to form on the machine.
- If detergent is used, it must not contain abrasives. Detergents containing abrasives will damage the stainless steel panels.
- The exterior of the machine must not be hosed. Water can enter the machine and damage the touch panel and electrical equipment.
- Pressure washers and steam can damage the machine and must NOT be used for cleaning purposes. Never use a pressure washer to clean the floor within 1 metre of the machine. The supplier cannot be held liable for any faults caused by the use of pressure washers on the machine and any such use may invalidate the warranty. There is a risk of splashing even if the floor is hosed down.



WD9\_07

*Steel wool and pressure washers must not be used for cleaning*



### 4.3.2 Emptying

Go to the menu icon and select the program "Empty tank". Follow the instructions on the machine's touch panel.

It is also possible to empty the tank manually when the machine is switched off.

### 4.3.3 Daily cleaning



A guide to daily cleaning is displayed on the panel when the relevant function has been selected. This is done by pressing the menu button  and then selecting cleaning .

The machine should be cleaned at least once a day when in normal operation.



Once it has been cleaned, it is a good idea to leave the machine open if no washing is due for a while, e.g. overnight (see 4.3.5 Night mode).

### 4.3.4 Weekly cleaning or as required

Once the daily cleaning is complete, you have the option of proceeding to the weekly cleaning and can also follow the instructions on the touch panel for this.

Weekly cleaning is more extensive and is more thorough than daily cleaning.

### 4.3.5 Night mode

In night mode, the shutter door first comes down and goes up a little, leaving the machine "ajar", before it is switched off.

When switching off the machine, a pop-up notification is displayed on the touch panel with the question whether you want to activate night mode.

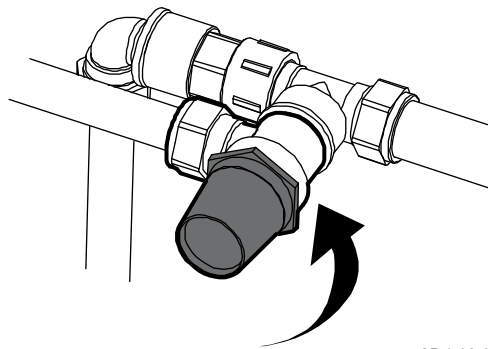
### 4.3.6 Cleaning the heat recovery unit in the event of an alarm or once / year



NOTE! When rinse cleaning the heat recovery unit and the base of the battery box, do not use more water than the drain under the battery can remove from the machine. The battery must be cleaned with hot water at normal pressure. Do not aim the water directly at the fan motor. The electric motor may be damaged if it is rinsed with high-pressure water.

The safety valve should be checked in connection with cleaning. This is carried out as follows:

- Turn the plastic dial on the valve anti-clockwise for approximately a quarter turn until a faint click is heard



35-1-09-002

- Let the water flow through for a short period
- Turn the dial again for approximately a quarter turn until a louder click is heard and the valve closes.

### 4.3.7 Periodic servicing



If the machine is not being used for a long period, cooking oil should be sprayed into the pump housings. The oil will prevent rust from forming in the pump housing and jamming the impeller. The cooking oil is sprayed into the pumps' inlet pipes. (Carried out by authorised engineers).

If the machine is not being used for a long period, the machine should be disinfected with chlorine.

### 4.3.8 Operating problems

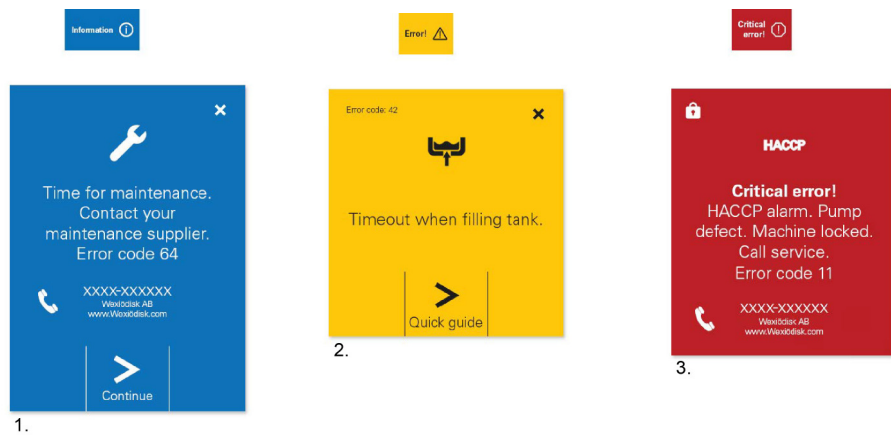


Check:

- Has the appliance been used according to the instructions?
- Are all the removable parts in their correct place?
- Is the main switch in the ON position?
- Are there any error messages on the display?
- Are the fuses in the electrical cabinet still intact? Ask service personnel to check the fuses.

### Troubleshooting

The figure on the touch panel will change when an error or an alarm is presented. There are three different levels.



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

The majority of these alarms can be remedied by the operator. Some blue alarms that have been dealt with by the operator a number of times will eventually change to yellow or red alarms, meaning that service personnel must be contacted.

Depending on previous settings, the machine may be stopped but not restarted until the cause of the alarm has been addressed. The operator is assisted by guides presented on the touch panel to perform measures or alternatively contact details for a service provider will be displayed.

In addition to the faults shown on the touch panel, other faults can occur. The table below shows some faults which can be rectified by the operator.

Troubleshooting		
Problem	Cause	Action
Noise from the washing pump.	Foam in the tank.	Change the water.
The machine is not cleaning properly.	For causes and actions, see "4.2.8 Checking the wash result".	
The shutter doors are sticking.	Detergent concentration too high.	Reduce the amount of detergent.
Dishware does not dry.	The rinse nozzles are blocked.	Check and clean the nozzles.

All errors displayed on the touch panel have an error code, which is displayed in the alarm. This error code must be specified when contacting service personnel.



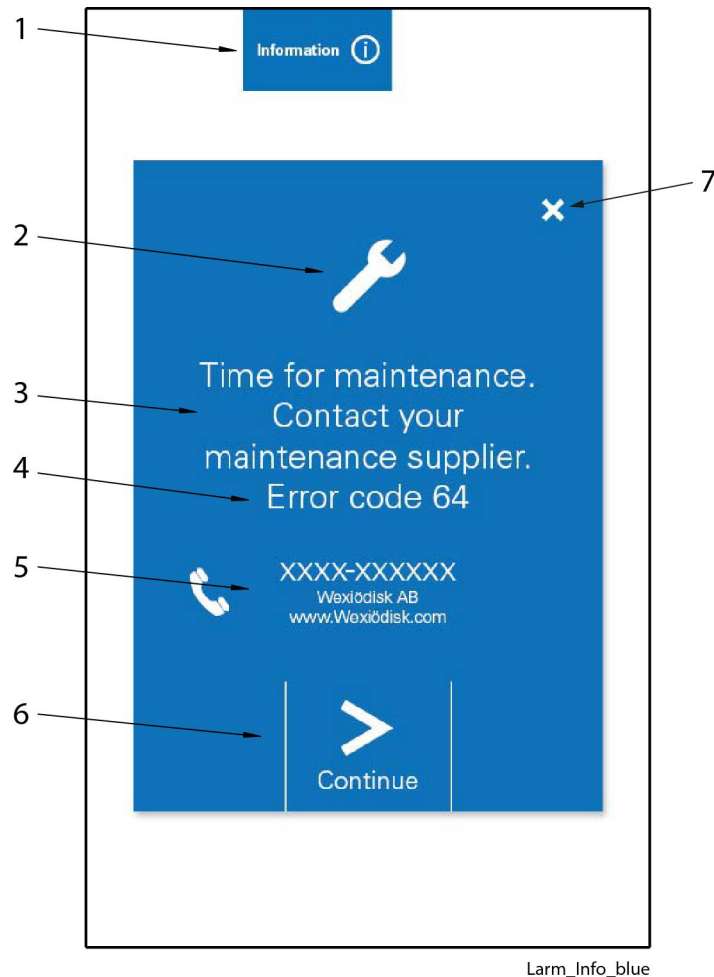
When you contact service personnel, you will need to provide the following information:

- Machine type and model.
- Machine serial number and date when the machine was installed.
- A brief description of the problem. Are any error codes shown on the touch panel?
- What happened/was being done immediately before the fault occurred?



## Information alarms (blue)

An information alarm is generated, e.g. because a predetermined number of wash cycles has been reached.



1. Type of alarm and minimise / maximise
2. Symbol for type of alarm (maintenance)
3. Descriptive text
4. Error code
5. Name and contact details of service personnel
6. Continue to next screen
7. Reset alarm



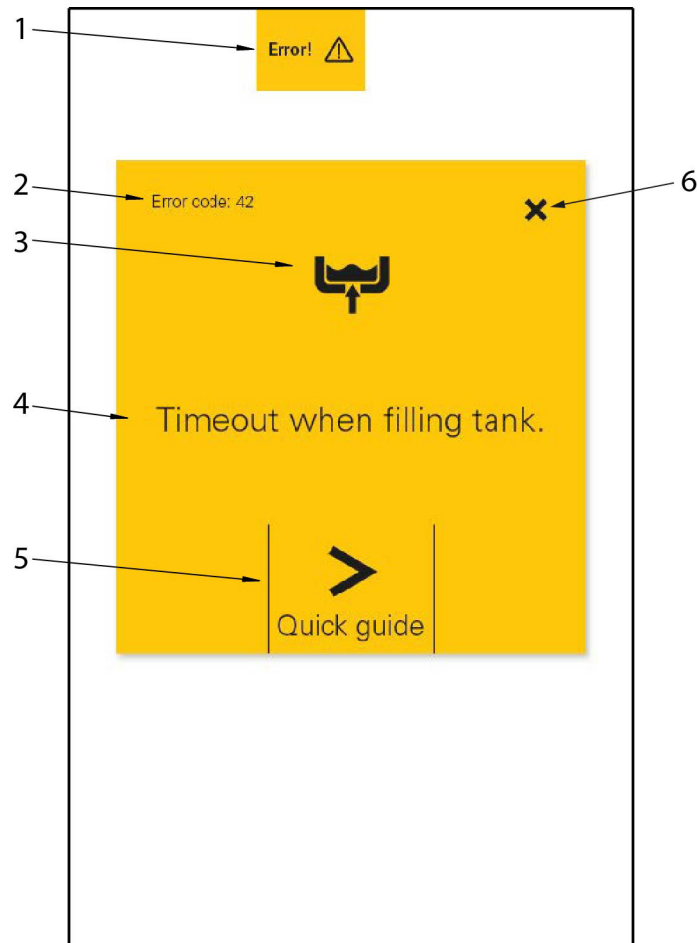
The information alarm can be minimised and then maximised by clicking on the button (1)

Follow the instructions on the touch panel, which are displayed by clicking on the symbol (6).

The information alarm can normally be reset using the X button (7), if you do not wish to click through the entire guide.

## Error alarms (yellow)

Error alarm is generated e.g. for low water flow in the machine.



Larm\_Error\_yellow\_R1

1. Type of alarm and minimise / maximise
2. Error code
3. Symbol for type of alarm
4. Descriptive text
5. Continue to next screen
6. Reset alarm



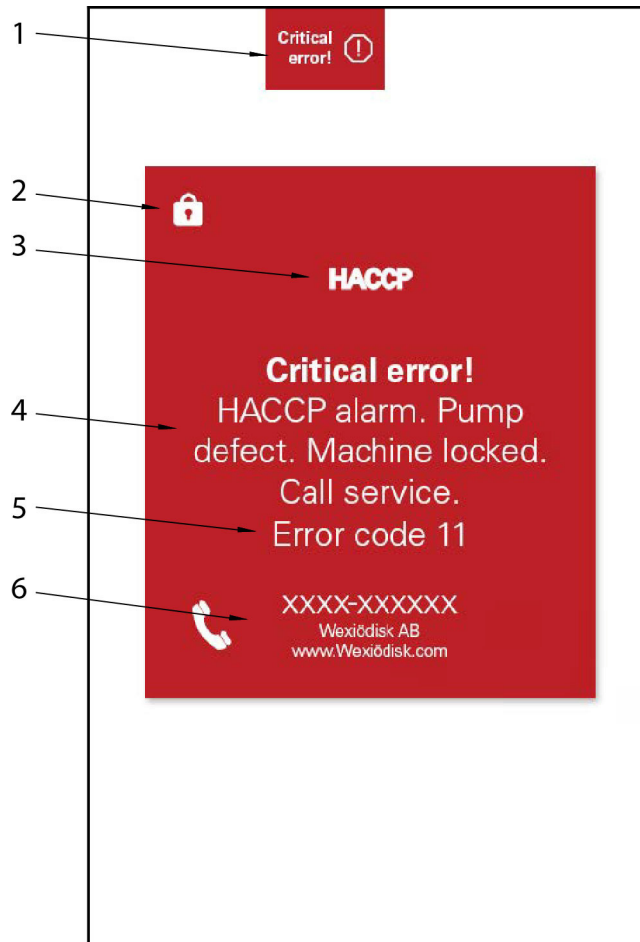
The alarm can be minimised and then maximised by clicking on the button (1)

Follow the instructions on the touch panel, which are displayed by clicking on the symbol (5).

The alarm can normally be reset using the X button (6) if you do not wish to click through the entire guide. Some alarms cannot be reset, and the alarm will then remain active until the reason for the alarm ceases to exist.

## Critical error alarms (red)

A critical error alarm is generated because a serious error has occurred. The majority of these alarms cannot be reset by the operator, and service personnel must be contacted.



Larm\_Critical error\_red\_R1

1. Type of alarm and minimise / maximise
2. Login symbol
3. Symbol for type of alarm
4. Descriptive text
5. Error code
6. Name and contact details of service personnel

## 5. Technical specifications

The manufacturer reserves the right to make changes to the technical data.

TECHNICAL DATA	
Washing pump (kW)	2.2
Return pump (kW)	1.3
Booster pump (kW)	0.58
Rotating table motor (kW)	0.55
Condenser fan (kW)	1.1
Drive motor for shutter door (kW) (Single door)	0.18
Drive motor for shutter doors (kW) (Through-feed)	2 x 0.18
Electrical cabinet fan (kW)	0.019
Compressor (kW) *	0.34
Booster heater (kW)	12
Booster heater (kW) *	24
Tank heater (kW)	36
Tank heater (kW) *	27 / 36 / 48
Heat recovery, cooling surface (m <sup>2</sup> )	51
Heat recovery fan, flow (m <sup>3</sup> /h)	1400
Tank volume (litres)	200
Weight, machine in operation (kg)	1450
Enclosure protection class (IP)	55

\* Option

CAPACITY AND OPERATING DATA	
Total wash cycle, program ECO (min) * P1 / P4	1.2 ** / 1.0 ***
Total wash cycle, program Medium (min) * P2 / P5	1.6 ** / 1.4 ***
Total wash cycle, program Heavy (min) * P3 / P6	2.0 ** / 1.8 ***
Max. size of dishware with A cage (LxWxH) (mm)	L=1040 W=1070 / 1020 **** H=1820
Max. size of dishware with B cage (LxWxH) (mm)	L=1150 W=940 H=1820
Max. size of dishware with C cage (LxWxH) (mm)	L=1260 W=940 H=1820
Max. size of dishware with D cage (LxWxH) (mm)	L=1330 H=1820 W=940
Max. weight of dishware to be washed using standard fittings (kg)	250
Rinsing water consumption/program (litres)	6
Compressed air consumption (litres/min)	50
Steam consumption***** (kg/h)	90
Sound pressure level, LPA (dBA) *****	68
Sound power level LWA (dBA) *****	82

\* Factory setting, the washing time can be adjusted.

\*\* With spin dry

\*\*\* Without spin dry

\*\*\*\* Through-feed machine

\*\*\*\*\* For steam-heated machine.

\*\*\*\*\* in accordance with EN 60 335-2-58, §ZAA.2.8 with instruments that satisfy class 1.

Measurements of the sound pressure level on site are performed in three places 20 cm from the edges of the front at a height of 1.55 m using a microphone. When measuring sound power level, create an imaginary measurement area consisting of five sides at a distance of 1 m from all edges of the machine.

CONNECTION, ELECTRICALLY HEATED MACHINE	
Total connected load (kW)	52.5
Main fuse 400-415 V 3N~ (A) *	80
Max. connection area 400-415V 3N~ (L1-L3, N, PE) (TN-S) Cu (mm <sup>2</sup> )	70
Maximum short-circuit current Icu (kA)	10

\* Other voltages on request

CONNECTION, STEAM-HEATED MACHINE 150–250 kPa *	
Total connected load (kW)	4.5
Main fuse 400-415 V 3N~(A) **	20
Max. connection area 400-415V 3N~ (L1-L3, N, PE) (TN-S) Cu (mm <sup>2</sup> )	35
Maximum short-circuit current I <sub>cu</sub> (kA)	10
Steam connection (internal thread)	R1¼"
Condensing water connection (internal thread)	R¾"

\* Other pressures available on request

\*\* Other voltages on request

WATER, DRAIN AND VENTILATION CONNECTIONS	
Water quality, hardness (°dH)	2–7
Cold water connection 5-12°C (internal thread)	R¾"
Hot water connection 50-65°C (internal thread)	R¾"
Compressed air 600kPa (internal thread)	R½"
Waste pipe connection, PP pipe (ø mm)	50
Water capacity, cold water, pressure (kPa) *	300
Water capacity, cold water, flow (litres/minute)	30
Water capacity, hot water, min./max. pressure (kPa)	100 / 600
Floor drain, capacity (litres/sec.)	3
Ventilation, connection (ø mm)	160
Heat load to room, latent / sensible / total (kW)	4.5 / 6.5 / 11

\* At lower pressures, the machine should be supplemented with a break tank

SIZE AND WEIGHT FOR TRANSPORT *	
Overall machine size (LxWxH) (m)	2.6 x 2.0 x 2.75
Overall machine weight (kg)	1350
Size part 1 (LxWxH) (m) **	2.6 x 2.0 x 2.25
Size part 2 (LxWxH) (m) **	2.2 x 2.0 x 0.8
Weight part 1 (kg) **	850
Weight part 2 (kg) **	580

\* Including packaging

\*\* Delivery in 2 parts. If necessary, delivered in smaller components.

