

# metos

## FLIGHT-TYPE DISHWASHER WD-B 550S - WD-B 950S

(translation of the 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.

## General instructions

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### 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.

## General instructions

### 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.

General instructions

1.4 EU Declaration of Conformity

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



### 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)470 237 52 Email: wexiodisk@wexiodisk.com

2. Representatives of Wexiödisk AB:  
 3. For the EU: Martin Food Equipment Ltd, Moffitt Pty Ltd, M/S Alsiwala's Concoctates Pvt Ltd, Nakanishi MFG Co Ltd, QMB col/PKration, Retail doc, SHS Hygien I Mundflan, TPN Group, Westödisk AB, Wexiödisk UK  
 4. Country of manufacture: Magnus Persson

5. Our machines are manufactured in 2016 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 I/A  
 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 50365 Safety - Particular rules for coffee tests  
 EN 60529 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 55022 EMC - Electromagnetic compatibility (EMC) - Immunity standards for industrial environments  
 EN 55014-1 EMC compatibility - 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.

Direct tools, Part 1 models, Turned - drill machines with accessories: WD-400 (17000000) WD-F38807 & WD-F3 & WD-F5 & WD-F7 (17200000) WD-43 (17000000) WD-F3880001 (17100000) WD-11 & WD-15 & WD-20 (17100000) WD-05181430E & WD-0518133 (0001) & WD-2101 & WD-2201 (17170000) WD-F388000000 (17100000) WD-098180 (17170000) WD-0300 (17170000) WD-900 (17100000) WD-10000 (17100000)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex I/A EN 00205-4 Safety - Particular rules for coffee tests EN 00205-2-50 Safety - Particular rules for coffee tests - Part 2: Safety of electrical parts of coffee machines - Part 2: Safety of electrical parts of coffee machines
Core units, Special machines: WD-0000 & WD-0001 & WD-0002 & ACS-3147 & WD-258R & WD-31T & WD-9020 & WD-9030 (general assembly drawings) WD-01 (17100000)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex I/A EN 00205-4 Safety - Particular rules for coffee tests - Part 2: Safety of electrical parts of coffee machines
Special machines: ACS 40000000 (13140000)	Harmonised standards to: EU's Machinery Directive 2006/42/EG, annex I/A EN 00205-4 Safety - Particular rules for coffee tests - Part 2: Safety of electrical parts of coffee machines

8. Växjö 2016-04-20

Magnus Tjusson  
Managing Director

CE\_16\_2

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.

## Safety instructions

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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.

## Safety instructions

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### 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. 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.

## Installation instructions

### 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.

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

## Installation instructions

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### 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. The machine produces heat and steam when in operation. 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.

## Installation instructions

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### 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. N.B.! 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.
- The machine is supplied in sections with a pallet under each section. Transport each section to the installation site using a handtruck.
- The sections are transported transversely with the forks of the truck inserted from the long side (the side marked "FRONT"). If the space available does not permit transverse transport, each section should be transported using two handtrucks, one at each short end. Do not lift the machine by its legs. These are indicated by labels on the outside of the packaging.



*Label on the packaging marking the position of the legs*



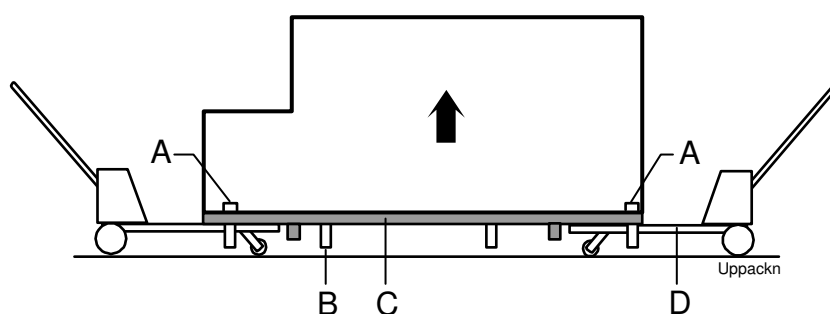
If the machine is not being installed immediately, it must be stored in a frost-free area where the air is dry.

## Installation instructions

### 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.
- Lift the section at both ends using a handtruck. Screw down the legs (B) so that they extend below the bottom of the pallet (C). Lower the section. Split the pallet and remove it.
- If the section should need to be lifted again from the short sides, a wooden runner should be placed under the cross-bar (A) on the section stand.



*A = Stand cross-bar*

*B = Leg*

*C = Pallet*

*D = Handtruck*

#### 3.4.1 Marking of sections

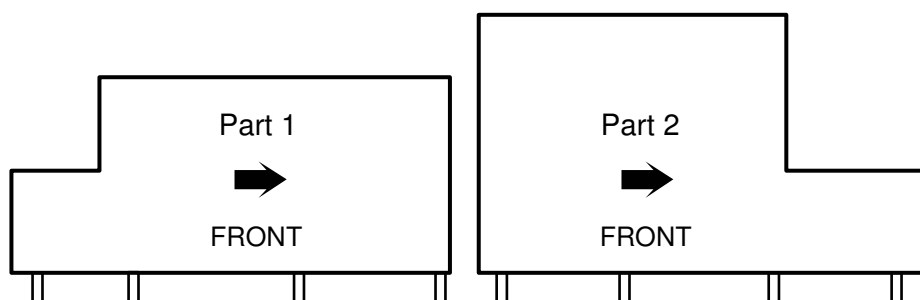
The machine is normally divided into two sections. In some cases, the machine can be delivered in more than two sections. The installation instructions describe the assembly of a machine that has been split into two sections. Regardless of the number of sections, the assembly of all sections is undertaken in the same way. The sections are marked on the outside of the packaging with the following information:

- Part 1 – infeed section with washing zones
- Part 2 – outfeed section with final rinse and drying zone
- Arrows which indicate the feed direction of the machine
- Marking of the front with the text FRONT



## Installation instructions

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35-1-00-007

*Marking of the packaging*

## 3.5 Installation

### 3.5.1 Preparing for the installation

Check that there is sufficient room for the machine at the installation location.



- 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.

### 3.5.2 General information

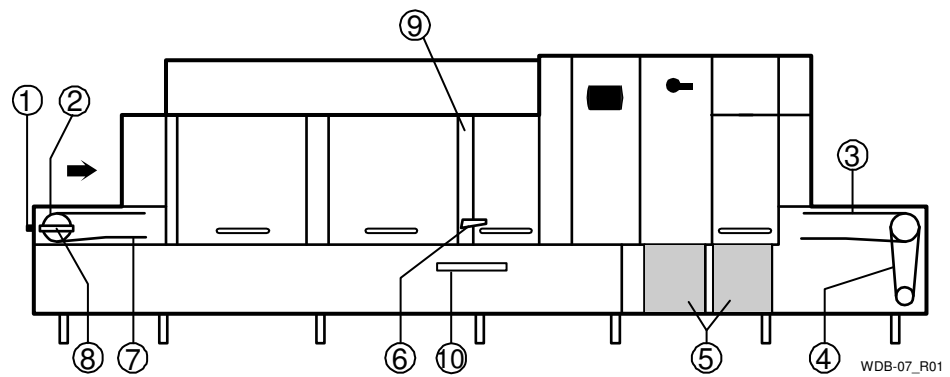
Parts which must be assembled are prepacked inside each machine section together with the necessary bolts, nuts, etc.

Remove all lower cover plates (5).

The final position of the machine is either free-standing in the room or placed with the back against a wall. If the machine is to be placed against a wall, the assembly should be carried out with sufficient space behind the machine for access during the fitting of components on the back of the machine. The fully assembled machine is then pushed into position.

The picture below shows a machine with the feed direction from left to right. The picture shows parts which must be assembled during the installation and the adjusting device for tensioning the washing conveyor. The length of the infeed and outfeed section and the number of zones vary depending on the specific machine. For this reason, the illustration below shows the approximate position of the components in the machine.

## Installation instructions

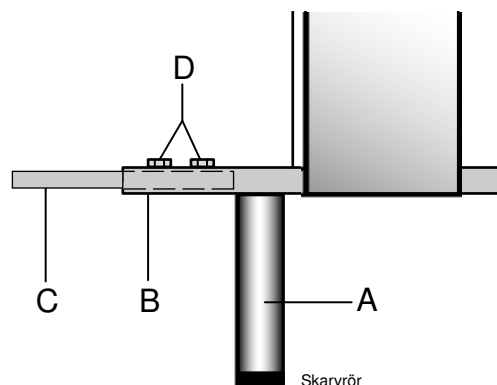


Overview of dishwasher

1. Adjuster screws for the washing conveyor
2. Tension pulley
3. Upper track
4. Chain
5. Cover plate
6. Drainage plate
7. Lower track
8. Belt tensioner
9. Cover plate
10. Overflow pipe

### 3.5.3 Assembly of sections

- Remove any transport supports.
- Position section 2 where you want it and adjust the height (see machine drawing). Check that the section is horizontal using a spirit level on the tank body. Adjust the machine using the legs.
- Fit the lengthening joints to the stand on section 2.



## Installation instructions

### *Mounting the connecting tube*

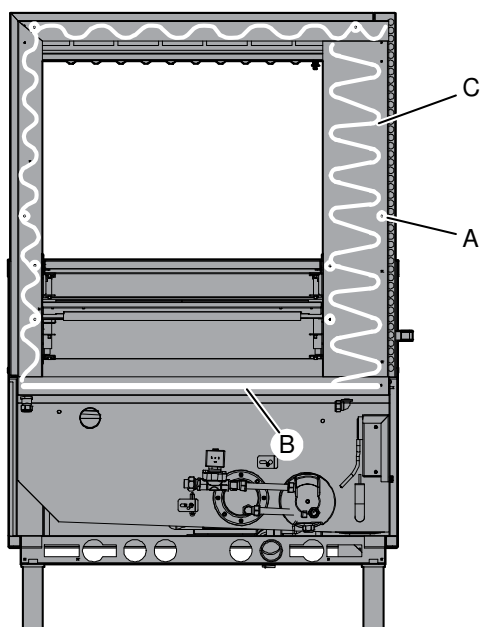
*A = Leg*

*B = Stand*

*C = Lengthening joint*

*D = Screws*

- Position section 1 next to section 2 so that the rectangular metal pieces on the stands of both sections are aligned. Check that section 1 is horizontal using a spirit level on the tank body. Adjust using the legs.
- Push section 1 against section 2 until the rectangular metal pieces on the stand are pushed close to each other, but do not push the sections completely together. There should still be a gap between them in order to apply the silicone around the openings.
- Apply plenty of silicone around the openings of both sections and around all screw holes; see the figure below.



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*The figure shows the application of silicone to section 1*

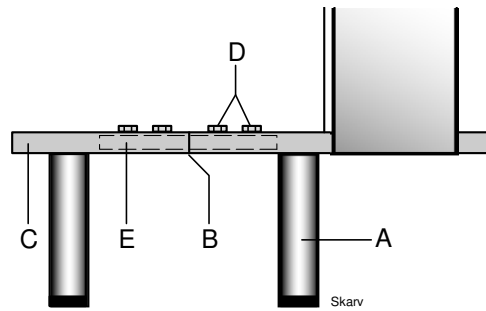
*A: Apply silicone around all screw holes*

*B: Apply a generous line of silicone along the centre of the lower contact surface*

*C: Apply silicone to all contact surfaces*

- Push the sections together. Hold them together with a screw clamp and fit the bolts that hold the hoods together.
- Wipe away any silicone that may have escaped when the sections were pushed together.
- Lock the stand on the front and rear sides of the machine using two screws on each side.

## Installation instructions



### Locking the stand

A = Leg

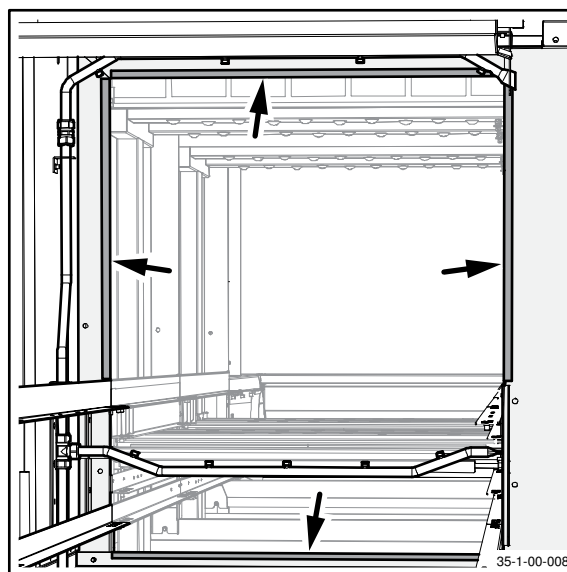
B = Joint in the stand

C = Stand

D = Screw

E = Connecting tube

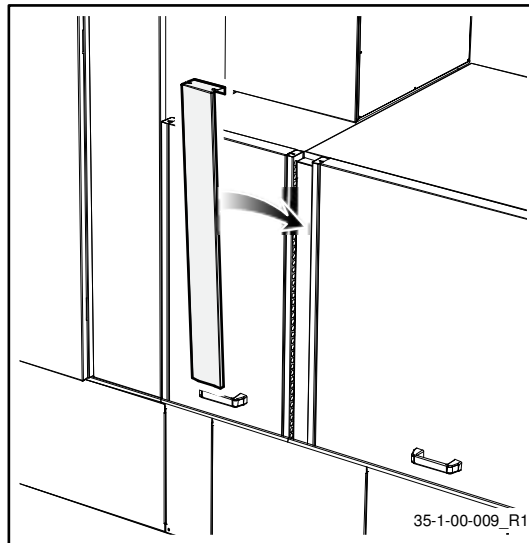
- Check that the section is horizontal using a spirit level against the tank body.
- Fit the stainless steel clamp strips inside the machine above the rim of the hood and tank, and above the joints between both sections (see the arrows in the figure below). Fit the upper clamp strip first. Apply a small amount of silicone to the strips before fitting them into place.



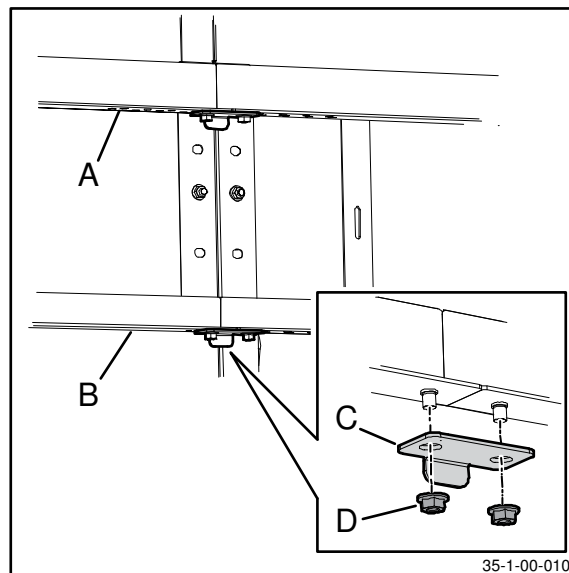
### Positioning of clamp strips in the joints between both machine sections

- Seal the joint between the sections on the outside of the machine (back and top) using silicone. Attach masking tape to both sides of the joint and fill the joint with silicone.
- Fit the upper cover plate between the sections. The bottom section of the cover plate must sit inside the tank body and the upper section must be pushed down behind the door guides.

## Installation instructions



- Fit together all pipes for water, steam, condensation water and drain (pipe for steam and condensation water on steam-heated machines only). The pipes are split at the section join. The necessary parts for joining the pipes together are fitted to the pipes at the joint. The pipes should be lubricated with a sealant before joining.
- Screw the upper and lower tracks of the conveyor belt together at the joint between the sections using the support plates and nuts supplied.



*The track on the dishwasher's rear panel at the joint between sections 1 and 2*

*A = Upper track*

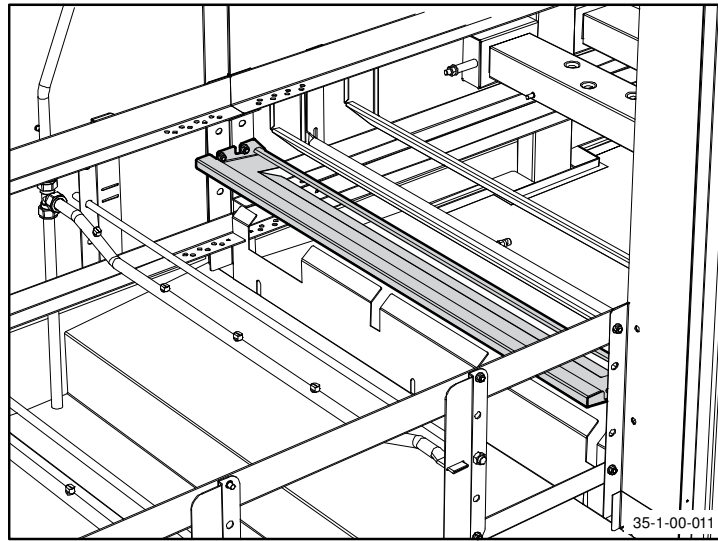
*B = Lower track*

*C = Support plate*

*D = Nuts*

## Installation instructions

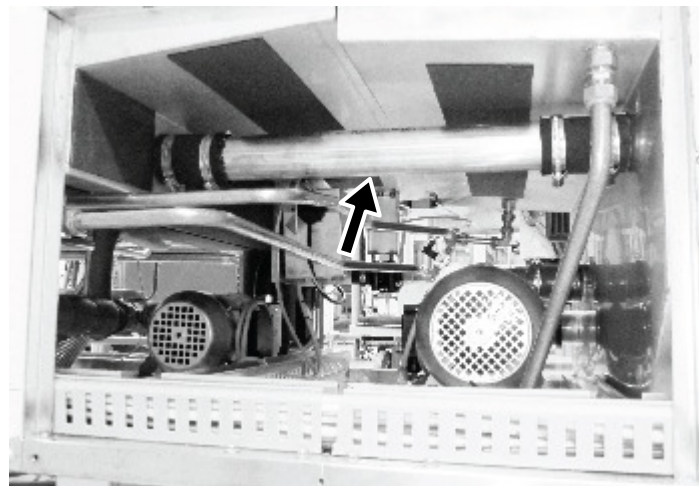
- Fit the drainage plate. N.B.! The drainage plate must be turned so that it slopes down towards the chemical wash tank.



- Fit the overflow pipe between the chemical wash tank and final rinse tank.



The overflow pipe between the pre-wash tank and first chemical wash tank is kinked in the middle. This ensures that water in the dishwasher flows as intended. This is part of its design and not a fault.

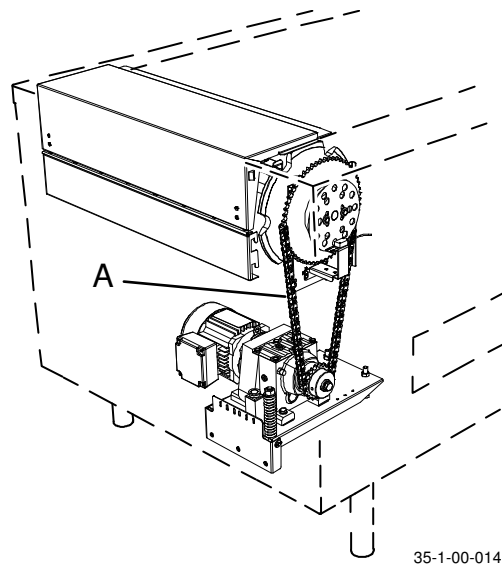


35-1-00-012

*Overflow pipe between the final rinse tank (on the left) and chemical wash tank*

## Installation instructions

- Check that the chain for moving the belt goes around the lower drive wheel (the motor chain wheel).



*Drive unit for the washing conveyor in the outfeed  
A = Chain*

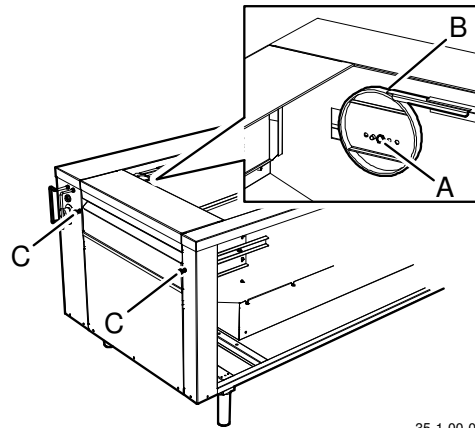
- Join the ends of the conveyor belt if it is in position in the machine on delivery (see drawing of the conveyor belt supplied with the dishwasher documentation).

If the conveyor belt is delivered separately, it is fitted in the machine as follows:

- Push in the belt on the upper track through the machine's outfeed opening. Make sure that the belt is the right way up (see belt drawing).
- Pull the belt through the machine through to the infeed opening and around the tension wheel.
- Tie a piece of rope to the end of the belt and pull the belt towards the outfeed opening.
- Pull the belt around the outfeed drive wheel.
- Join the ends of the belt.

## Installation instructions

- Tension the washing conveyor as follows:



35-1-00-013

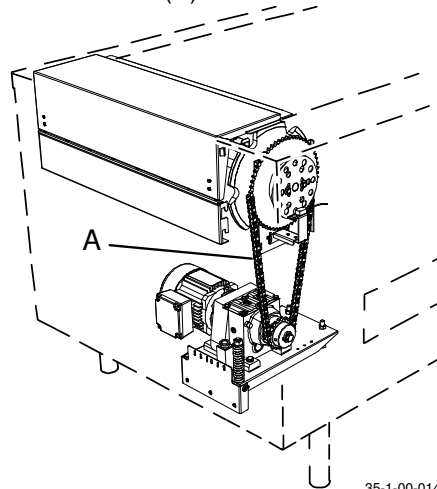
A = Screw which locks the belt tensioner  
 B = Tension pulley  
 C = Adjuster screw

Loosen the belt tensioner screws (A).

– Tension the belt using the adjuster screws (C). When the belt is sufficiently taut, it should be possible to lift it by about 5cm at the centre of the infeed.

– Tighten belt tensioner screws (A).

- Fit the chain (A) to the drive motor.



35-1-00-014

Drive motor with drive shaft in outfeed section

A = Chain

- Pull out and connect the electric cables for the pumps and other components. The cables are located at the section joint. Each cable is marked with the same designation as the component to which it must be connected. The marking for each component is on the component itself and on the machine's stand. The cables are positioned in existing cable runs.



## Installation instructions

---

### 3.5.4 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.
- The distance between the wall and machine should be at least 50 mm.

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

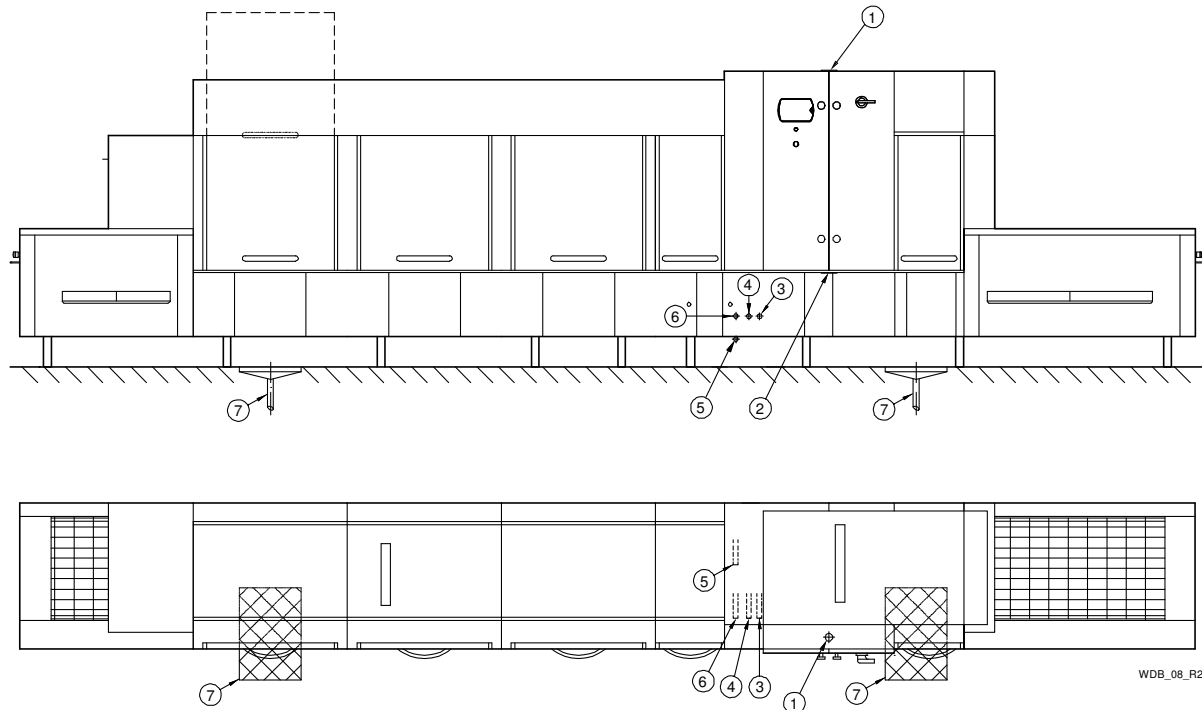
- Lateral tilt: Place a spirit level on the body of the machine at the infeed and outfeed.
- The machine's longitudinal direction: Place the spirit level across the body of the machine.

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

## Installation instructions

### 3.6 Connections

The picture below shows a machine with the feed direction from left to right. The length of the infeed and outfeed and the number of washing and drying zones vary depending on the size of the machine. The machine can also operate in the opposite feed direction. For the exact location of the various connection points, see the machine drawing located in the electrical cabinet.



1. Electrical connection from ceiling
2. Alternative electrical connection from floor
3. Hot water connection (connection from floor or ceiling)
4. Cold water connection (connection from floor or ceiling)
5. Condensing water connection (option)
6. Steam connection (option, connection from floor or ceiling)
7. Floor drain 400x600 mm



Check that the overheating protection device on booster heaters and tank heating elements is reset to zero.

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

## Installation instructions

### 3.6.1 Electrical connection

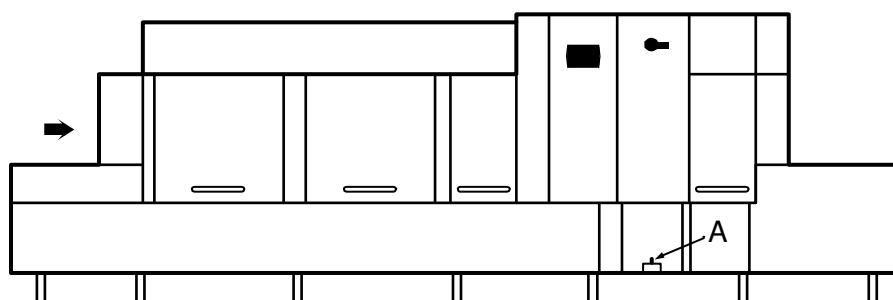
Information about electrical connections (1 or 2) is available on the machine's wiring diagram which is provided on delivery. Store the diagrams in the plastic pocket, located in the electrical cabinet, even after installation.



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.



- The machine is designed for quick electrical installation.
- The machine has a built-in main switch.
- An earth cable for potential equalisation is connected to the earth bolt (A) on the stand.



35-1-00-015\_R1

*Positioning of earth bolt  
A = Earth bolt*

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.
- The machine is equipped with a break-tank including booster pump as standard to obtain the correct flow of water to the machine. The required water flow and pressure can be found in the TECHNICAL SPECIFICATIONS.

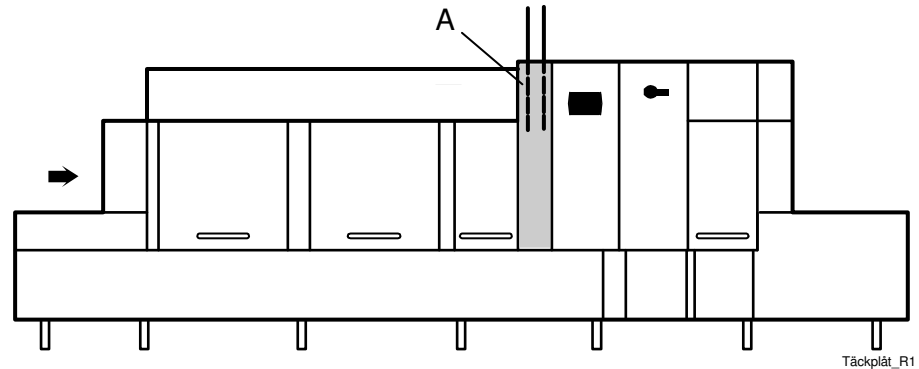
Connect the cold and hot water pipes according to the labels by the connection points (3, 4). If the machine is connected with a hose, this should be steel braided and have an internal diameter of at least 12 mm.

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 Break tank.

## Installation instructions

When installing a connection from the ceiling, the pipes must be fed from above down through the cable duct behind the cover plate (A) next to the electrical cabinet. Remove the cover plate, break away the perforated plate on top of the cover plate and deburr any sharp edges.



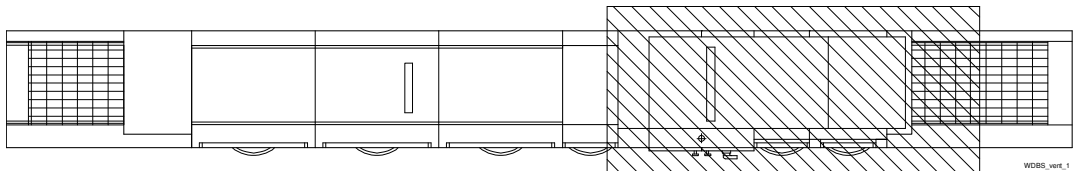
Connection from ceiling  
A = Cover plate

### 3.6.3 Ventilation



The machine's ventilation requirements are determined by:

- The heat load of the room as specified in the TECHNICAL SPECIFICATIONS.
- The material and handling of the dishware in the machine.



WD-B 800S with recommended space for extraction canopy

The image above shows a dashed area, which is the recommended location for an extraction canopy to remove energy from outgoing dishware. The canopy must be located above the machine so that the doors can open freely.

## Installation instructions

---

### 3.6.4 Steam (optional)



A shut-off cock must be installed on the incoming pipe (6). The required steam pressure can be found in the TECHNICAL SPECIFICATIONS.

The connection is fitted with a 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.

#### **Condensing water**

A condensation connection (5) is only provided on steam-heated machines. The pipe is connected to the system's steam boiler.

### 3.6.5 Drain/waste pipe

The waste water system connected to (7) 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.

## Installation instructions

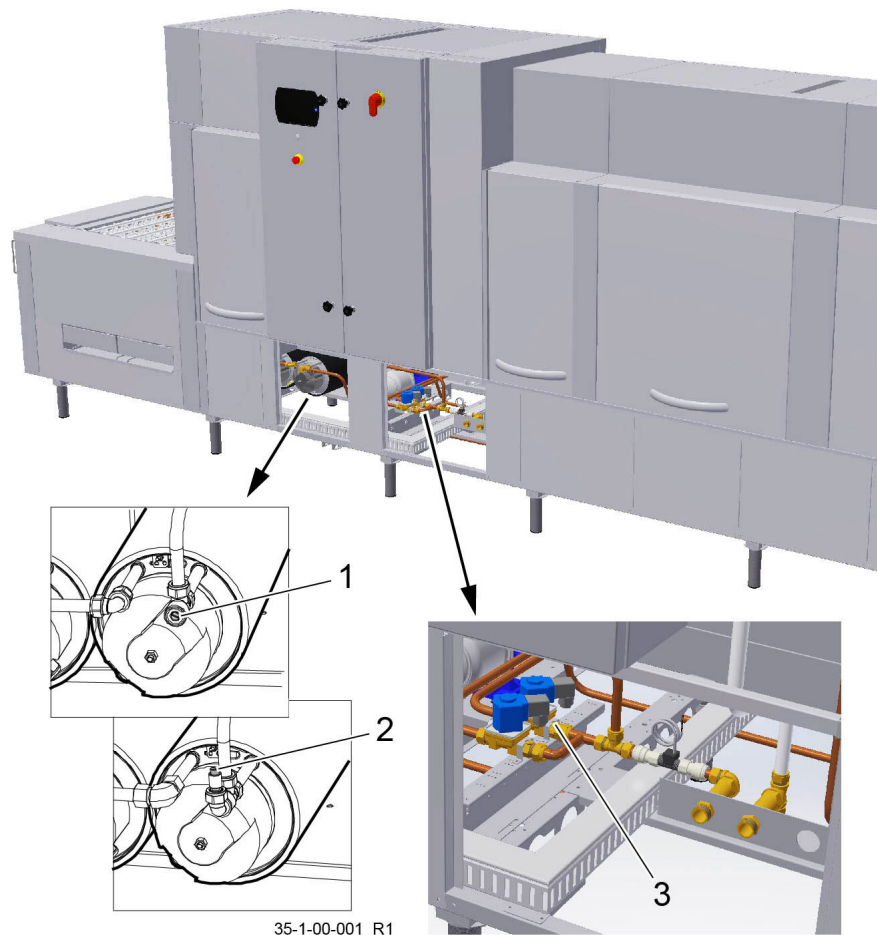
### 3.6.6 Detergent and drying agent



- The machine has a drying agent connection and a water outlet for a detergent device. The water outlet for detergent is located on the incoming hot water pipe. The drying agent connection is on the pipe leading to the booster heater for the final rinse water.
- Use the same make and type of detergent and drying agent.
- With machines connected to cold water, the water pipe temperature may be too low for use of powder or paste type detergents.
- It is important that detergent is dosed in all chemical wash tanks to ensure the washing result on start-up of the machine.

The equipment should preferably be mounted on a wall near the machine to avoid unnecessary holes being drilled in the machine.

Contact your detergent supplier to arrange for the equipment to be installed.



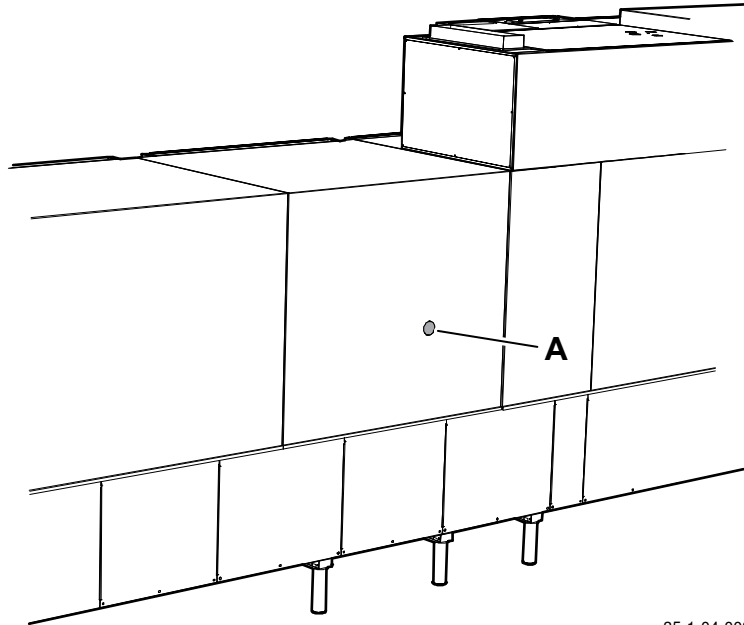
1. Connection for drying agent
2. Drying agent connection for dishwasher equipped with demineralised water (option)
3. Water outlet for detergent

For information about electrical connections, see the wiring diagram.

## Installation instructions

### Drilling holes to connect the equipment

Detergent paste:

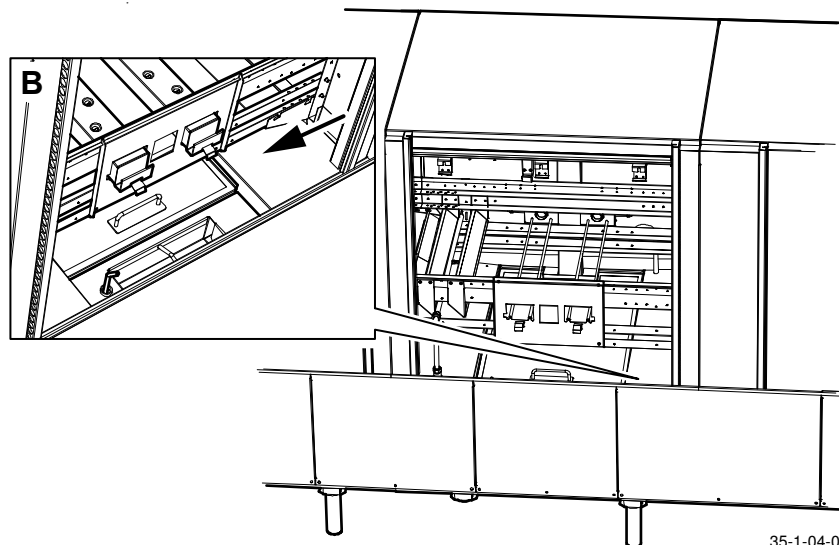


35-1-04-003

*Back panel, chemical wash zone*

Holes must be drilled through the back and rear hood panel of the chemical wash section for a detergent device for this type of detergent. The chemical wash sections are prepared for drilling by equipping the back panels with a breaker block (A). This block is removed and holes are drilled into the back panel in the inner hood. Seal suitably.

**Liquid detergent:**



35-1-04-002\_1

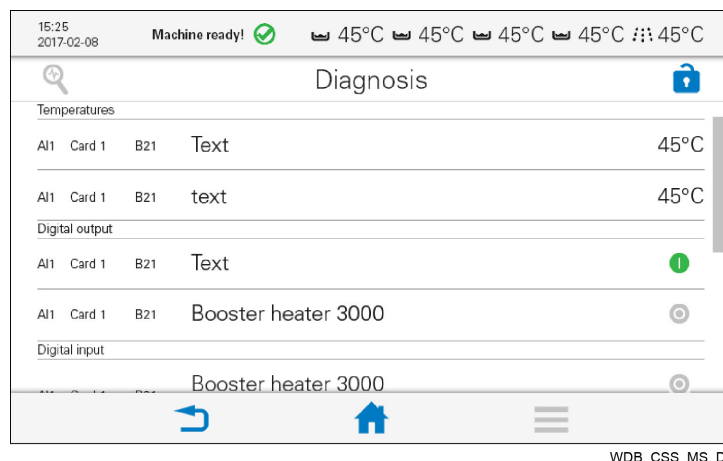
## Installation instructions

Holes must be drilled for grommets in the sloping panel by the filters in the section for a detergent device for liquid detergent. Drill the hole as close to the belt track as possible (see B in the figure above).

### Electrical connection of the equipment

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

## 3.7 Checking and setting the final rinse flow



#### *“Diagnosis” tab*

The final rinse flow is set in the factory but should be checked after the machine has been installed. In order to access “Diagnosis”, the user must log in with access level S1. The password for S1 is “wd”

- Prepare the machine for use in accordance with the INSTRUCTIONS FOR USE.
- Start feed.
- Tape over the photocell on the infeed and wait until the final rinse starts.
- Go to Menu - Change service settings - a login page will be displayed where you log in.
- Select the “Machine status” tab, and under this select the “Diagnosis” tab.
- Scroll down to the text “DI16 Card 1 BV02 Water meter”. The final rinse flow is displayed in litres/min.
- Adjust the flow using the needle valve located next to the water meter. The flow, which depends on the size of the machine, should be approximately 2.8-4 litres/min. The exact flow can be found on the machine's flow diagram which is in the electrical cabinet.
- Exit the “Diagnosis” tab using the home key. Remove the tape from the photocell.



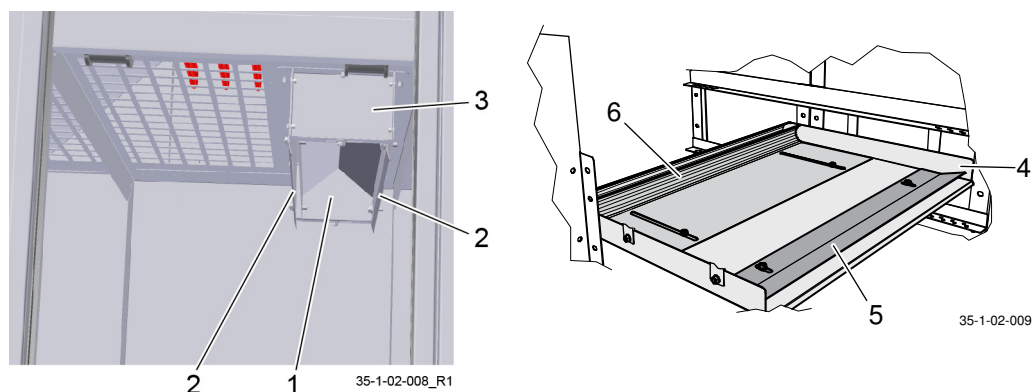
### 3.8 Adjusting the air flow in the drying zone

The air flow through the machine is dependent on a number of factors, e.g.:

- machine size
- type of heating in the dishwasher
- conditions in the dishwashing room (ventilation, temperature, etc.)
- type of items being washed in the machine
- curtain placement etc.

As many different factors affect the air flow through the machine, for best results each machine must be adjusted according to the conditions that apply in the case in question. When the machine is set so that the air flow is balanced, there will be no leakage of steam from the machine's infeed or outfeed. All steam will then be evacuated via the heat recovery unit, where the steam's energy will be used to heat the final rinse water.

The most important part of the machine for achieving this balanced air flow is the drying zone. Here, it is possible to affect the air flow by adjusting the spreader plate, guide plates and the adjustable deflector plate.



*Fan outlet, guide and deflector plates below the washing conveyor (drying zone)*

1. Spreader plate
2. Guide plates (reversible)
3. Fan outlet
4. Deflector plate (non-adjustable)
5. Guide plate
6. Deflector plate (adjustable)

When adjusting the drying zone:

- the machine must be running,
- all curtains in the machine must be in position,
- the spreader plates, guide plates and adjustable deflector plate must be loose but in position, i.e. the screws holding the plates must be tightened so that the plates are held in position but must not be torque-tightened. It must be possible to adjust the plates.

## Installation instructions

---

If the dishwasher has more than one drying zone, always adjust the drying zone closest to the rinse zone first. Also adjust the next drying zone if the desired result is not achieved after adjusting the first.

Throughout the adjustment process, it will help to check the temperature level and the change in temperature in the pre-wash zone (this can be read on the machine's touch panel). Strong fluctuations in temperature in the pre-wash zone (e.g. if the temperature falls from 50 °C to 47 °C in three minutes) indicate that the air flow through the machine is not in balance. If the machine is set correctly, the temperature in the pre-wash zone should be stable at 48-49 °C. If the machine is equipped with an infeed with pre-rinse, the temperature in the pre-wash zone should be 5-7 °C higher.

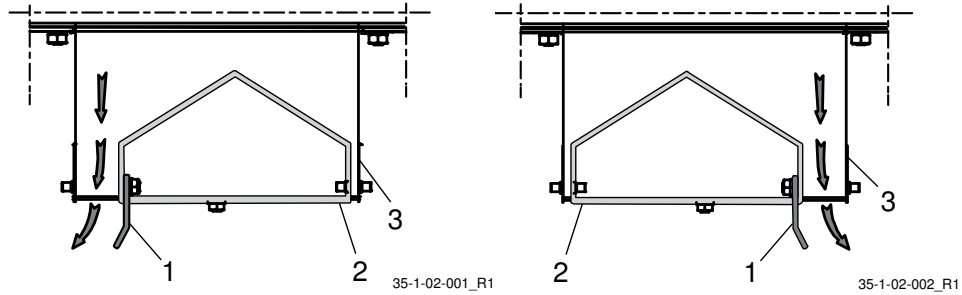
Begin by adjusting the spreader plate in the roof of the drying zone. The guide plates must be turned so that the straight part faces downwards.

- Adjust the spreader plate so that it lies in the centre and there is an equal-sized air gap on both sides. Check the direction in which the steam is passing!
- Increase the gap between the spreader plate and the fan outlet on the side facing the **outfeed** if:
  - any steam is leaking from the infeed
  - the visible curtain at the outfeed is being drawn inward
  - the air inside the drying zone is dry
  - the temperature in the drying zone is lowIncreasing the gap on this side will increase the air pressure against the outfeed.
- Increase the gap between the spreader plate and the fan outlet on the side facing the **infeed** if:
  - any steam is leaking from the outfeed
  - the visible curtain at the infeed is being drawn inwardIncreasing the gap on this side will increase the air pressure against the infeed.

Once the air flow has been optimally adjusted in accordance with the above, continue the adjustment using the guide plates at the fan outlet. Use the angled side of the guide plates to strengthen the air flow in one direction or the other as required. Attach the plates at the weld bolts, either on the fan outlet or on the spreader plate. A greater or lesser strengthening of the air flow in one direction or the other can be obtained by turning the guide plates in various directions and placing them either on the fan outlet or the spreader plate.

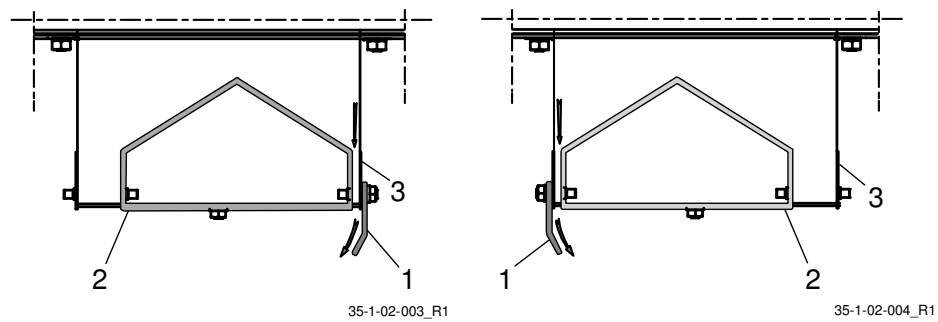
- The biggest strengthening of the air flow can be achieved by placing the guide plate on the side where the gap between the fan outlet and spreader plate is widest, with the angled side facing downwards and turned so that the tip points in the direction in which the increase in air flow is required, i.e. away from the centre of the fan outlet. The guide plate must be positioned so that the air flow blows onto the plate and is then angled in the direction required. In this case, place the guide plate on the spreader plate.

Installation instructions



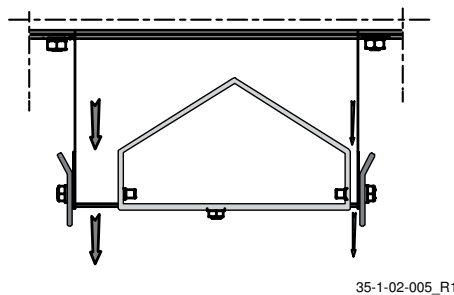
- 1 = Guide plate (reversible)
- 2 = Spreader plate
- 3 = Fan outlet

- A somewhat lesser strengthening effect on the air flow is achieved by placing the angled plate on the side where the gap between the fan outlet and the spreader plate is narrowest. For optimum effect, the plate must be placed on the fan outlet and “point” in the direction in which the air flow is to be strengthened (i.e. here it must point towards the centre of the fan outlet).



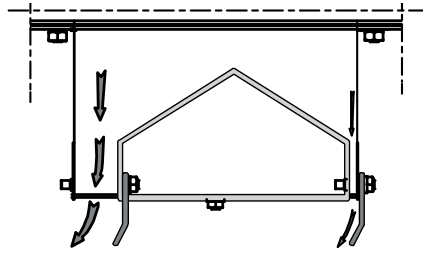
- 1 = Guide plate (reversible)
- 2 = Spreader plate
- 3 = Fan outlet

- By combining the above in varying ways, it is possible to strengthen the air flow to different degrees or leave it unchanged. See the examples below:



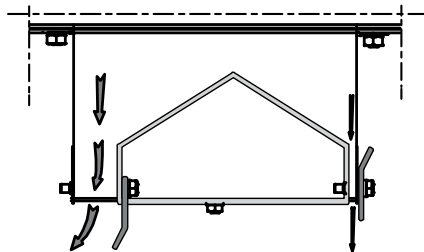
*The straight side of the guide plates faces downwards. The effect on the air flow through the dishwasher is minimal*

## Installation instructions



35-1-02-006\_R1

*The angled side of the guide plates faces downwards and points in the direction in which a stronger air flow is required. This provides maximum strengthening of the air flow in the required direction*



35-1-02-007\_R1

*The strength of the air flow can be adjusted by turning the guide plates in various ways. In this example, the directed air flow will not be as strong as in the example above*

The air flow can be fine-tuned by adjusting the guide plate and adjustable deflector plate located below the machine's washing conveyor.

The spreader plate, guide plates and adjustable deflector plate should be torque-tightened once everything has been set.

### 3.9 Installation and connection of auxiliary equipment and options



- Once the machine is in place and has been adjusted horizontally and vertically, the auxiliary equipment can be fitted.
- The machine can be equipped with a number of options. Check what your machine is equipped with, which depends on the model, machine type and country.

The various options normally place no specific requirement on the installation.

## Installation instructions

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### 3.10 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.

#### 3.10.1 Commissioning protocol

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 the dishwasher:

- water and drain connections.
- the overheating protection device has been reset.
- the dishwasher is connected with the correct phase sequence.  
N.B.! If the direction of rotation is wrong, phase inversion of the relay is required
- that the dishwasher is level.
- that the mini switches for tank heaters (FU22 - FU24), booster heaters (FU41 - FU43) and drying zone (FU31 - FU33) are in the OFF position (other mini switches must be turned on).
- the equipment for detergent and drying agent are correctly connected.
- that the filters, outlet seals, level pipes, curtains and filter tray are in place.

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

- Start the dishwasher.
- Check the direction of rotation of the pumps.
- Close the doors.
- Fill the dishwasher with water.
- Check the temperature of the incoming hot water and cold water during filling.
- Check the water flow and water pressure for the incoming hot water
- Check that the times for the filling of tanks, heating of tanks and detergent mixing are correct (see "Adjustment instructions").
- Turn on the mini switches for the tank heater, booster heater and drying zone heater once the fill check for the booster heater is complete and the dishwasher starts.

## Installation instructions

---

### 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 (in the wash tanks and booster heater, etc.) are reached as per the reference values.

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

- that there are no water leaks.
- that the steam valves open and close (for steam-heated dishwashers).
- that the condensate drains open and close (for steam-heated dishwashers).
- that there is no steam leakage (for steam-heated dishwashers).
- that the switch for the doors is working.
- that the temperature in the washing and final rinse tanks, booster heaters and heat recovery unit is maintained.
- that the water level in the washing and final rinse tanks is maintained.
- that the water flow and water pressure for the final rinse (cold water) are correct.
- that the setting for the airflow through the machine is adjusted optimally.
- that the time delay for the drying zone fan is correct.
- the washed items are clean.
- the washed items are dried.
- the overload switch for the washing conveyor works.
- the coordination between the infeed and outfeed automatic function works.
- the limit switch for the outfeed works.

### 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 the connections on the circuit breakers and relays.
- Check that all circuit breakers are in the ON position.

### 6. Train and inform personnel concerning:

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

## 3.11 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

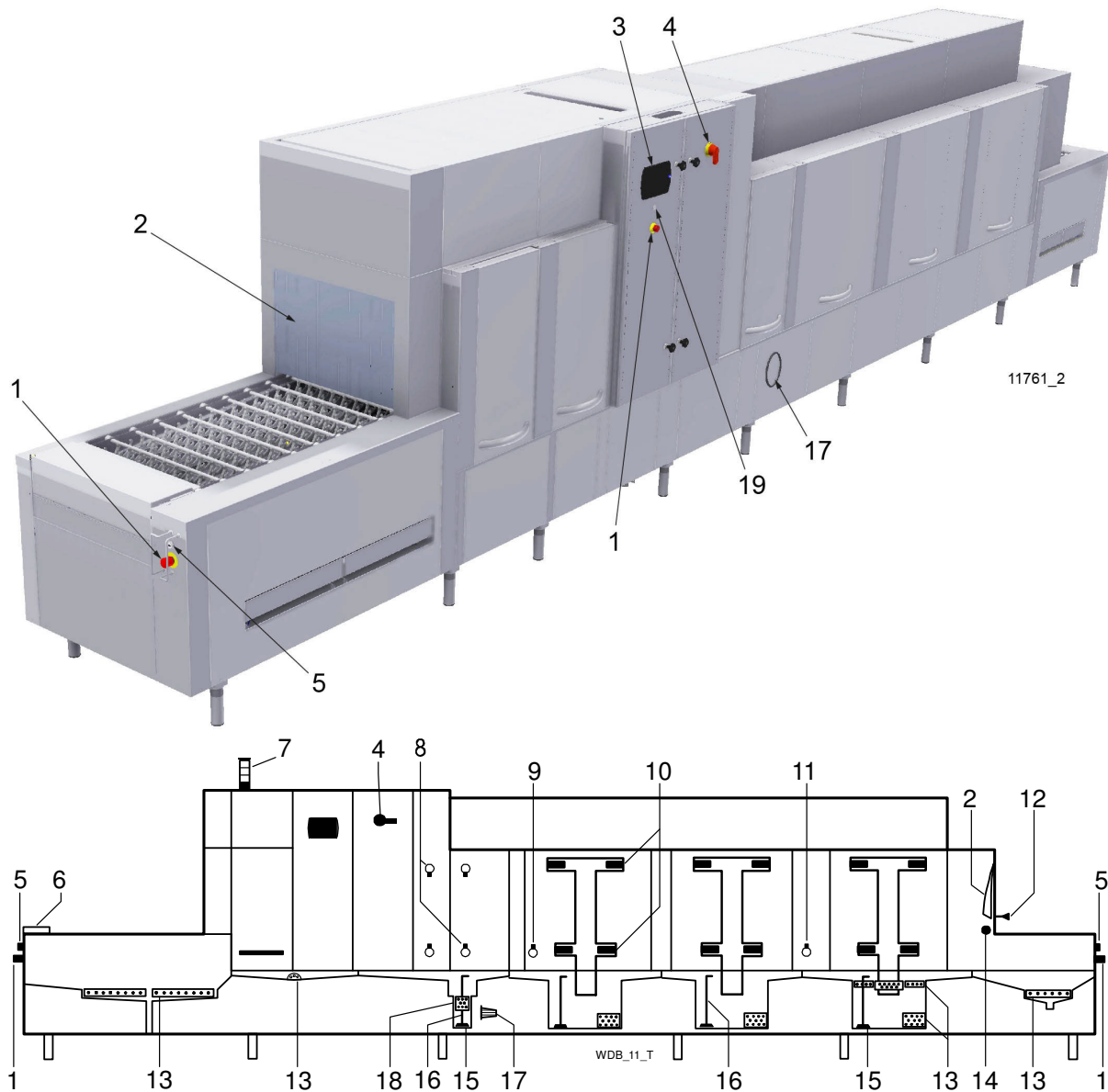


When the machine is not in use for an extended period of time, e.g. overnight, over a weekend or similar, the machine's power supply must be isolated, the water supply shut off and the machine left open.

## Operating instructions

### 4.1 Before washing

#### 4.1.1 Machine design



1. Emergency stop
2. Curtain
3. Touch panel
4. Main switch
5. Start / Stop of conveyor belt
6. Limit switch
7. Light bar for alarm signals (option)
8. Final rinse nozzle



## Operating instructions

---

9. Nozzle, intermediate rinse
10. Wash arm
11. Nozzle, intermediate rinse (option)
12. Lever for switching between normal and heavily soiled loads (option)
13. Filter
14. Photocell
15. Rubber sleeve
16. Outlet seal
17. Filter
18. Filter for the final rinse
19. 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 light on the ON/OFF button indicates the following:

- Off - the machine's main switch is in the OFF position or there is no power supply to the machine.
- Blue light – machine in standby mode. The machine's main switch is in the ON position.  
N.B.! When the main switch is set to the ON position, it will take up to 25 seconds before the ON/OFF button illuminates blue.
- Green light – machine in operation. The touch panel display illuminates and can be used.  
N.B.! When the ON/OFF button with a blue light is pressed, it will take up to 10 seconds before the button turns green and the touch panel illuminates.
- Red light - an emergency stop has been pressed or other error. Follow the instructions on the touch panel display for measures.

## Operating instructions

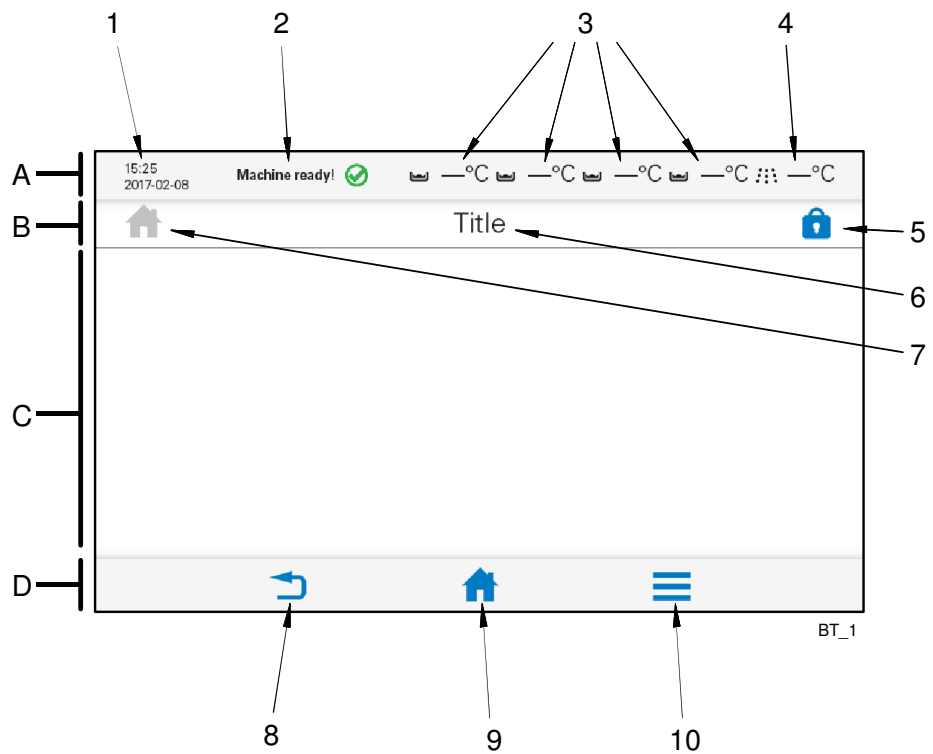
### 4.1.3 Touch panel

#### 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

## Operating instructions

---

### 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)*



































## Operating instructions

### 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 costs
	Contact details		Warning
	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

## Operating instructions

Symbol	Explanation	Symbol	Explanation
	Logged in		Logged out
	Low flow		Machine status
	No / Cancel		No flow
	Other		Alarm for operator
	START / ON		Protocol
	Glass		Plates
	Pots		Relay test
	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		See service settings
	Return / Back		Menu

## Operating instructions

---

### 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 no dirt is in the wash arms' (10) or in the rinse pipes' (8, 9, 11) nozzles.
- that removable parts are correctly in place.
- the amount of detergent and drying agent.
- that the stopcock for the water to the machine is open.
- that the main switch (4) is in the ON position. When the main switch is set to the ON position, it will take up to 25 seconds before the ON/OFF button (19) illuminates blue and the machine switches to standby mode.

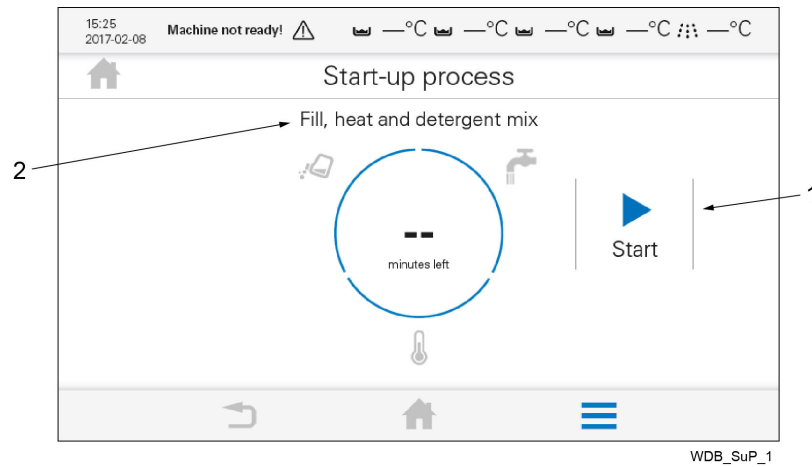
Remember:



- 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.

## Operating instructions

### 4.1.5 Filling and heating the machine



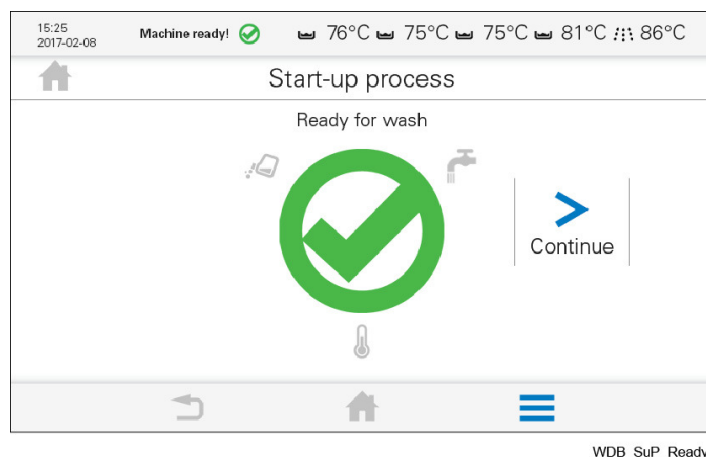
1. Start button
2. Activity text



- Check that the ON/OFF button beneath the touch panel is illuminated blue and the machine is in standby mode.
- Press the ON/OFF button to start the machine. It may take up to 10 seconds before the screen on the touch panel illuminates and the ON/OFF button illuminates green.
- Press the start button (1) in the activity field to start filling and heating.
- Then follow the instructions on the touch panel. The activity text (2) describes what is happening or what must be done.
- 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 all level pipes have been set and all the doors are closed.



N.B.! The time it takes for the machine to fill and heat up to the right washing temperature varies between 5 and 30 minutes and depends on the temperature of the incoming water.



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

## 4.2 Washing

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

Proceed as follows:

- When washing is to start, the dishwasher must be prepared, i.e. the washing tanks must be filled, the water in them heated and the conveyor belt started. The conveyor belt must be started the first time by pressing the start button on the dishwasher's touch panel. Starting and stopping can subsequently be initiated using the button (5) on the machine.
- If the dishwasher is equipped with quick setting (12) of the washing pressure (option):  
set the dishwasher for normal or heavily soiled loads.
- Select the contact time / washing time on the touch panel in the activity field.
- Scrape off food residues. Items with dried-on food residue may need to soak.
- Position the items on the belt at the infeed.
- If the belt has stopped, press button (5) to restart it (the belt will then continue to move as long as there are items in the machine).
- Remove the washed item from the belt at the outfeed side.  
If the item is not removed quickly before it reaches the limit switch (6), the item will press the limit switch panel and the belt will stop. (Certain machines are equipped with photocells at the outfeed (option) instead of limit switches. Both have the same function.) When the items have been removed, the belt will restart automatically
- Check the wash result when the item is removed from the belt.
- In the event of a fault on the dishwasher during operation (machine fault or human error), an alarm will be shown in the display on the dishwasher's touch panel. Certain machines can be equipped with lights to indicate whether any alarms are active in the dishwasher.
- Before washing starts, you should make sure that you know where the dishwasher's emergency stop (1) is located.





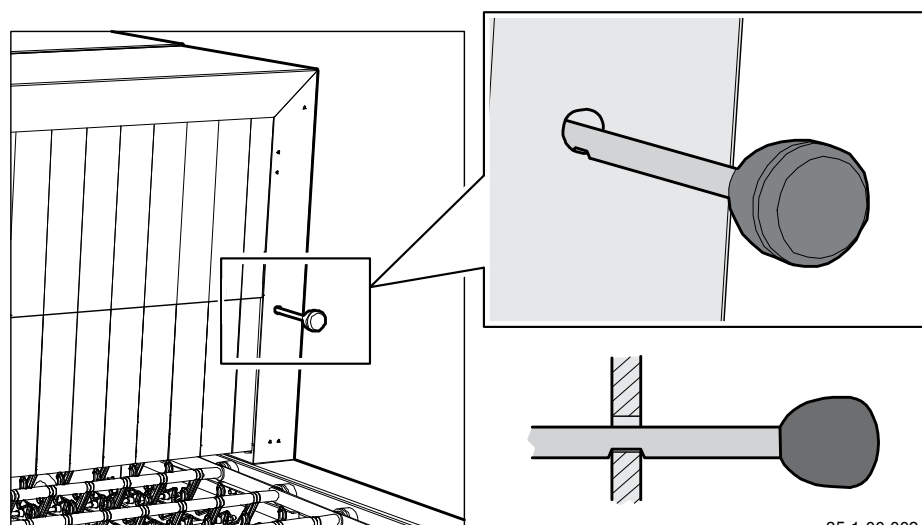
## Operating instructions

### 4.2.1 Quick setting, washing pressure (option)

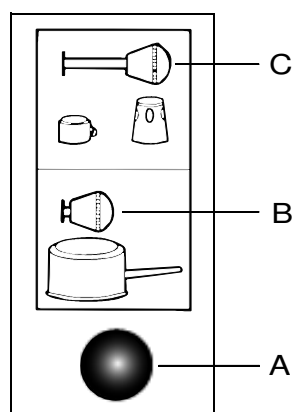
The dishwasher can also be equipped with the option to adjust the washing pressure depending on whether you are washing normally or heavily soiled loads. This is done using a lever (12) next to the infeed. When the lever is pushed forward, the machine is set to wash heavily soiled items (high pressure). When the lever is pulled back, the machine is set to wash normally soiled items (low pressure). The position of the lever when washing normally or heavily soiled loads is illustrated on a label on the machine next to the lever.



Make sure that the edge of the hole ends up in the lever rod indent when the lever is reset. Otherwise, there is a risk of the lever moving out of position.



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Spoltryck V-H

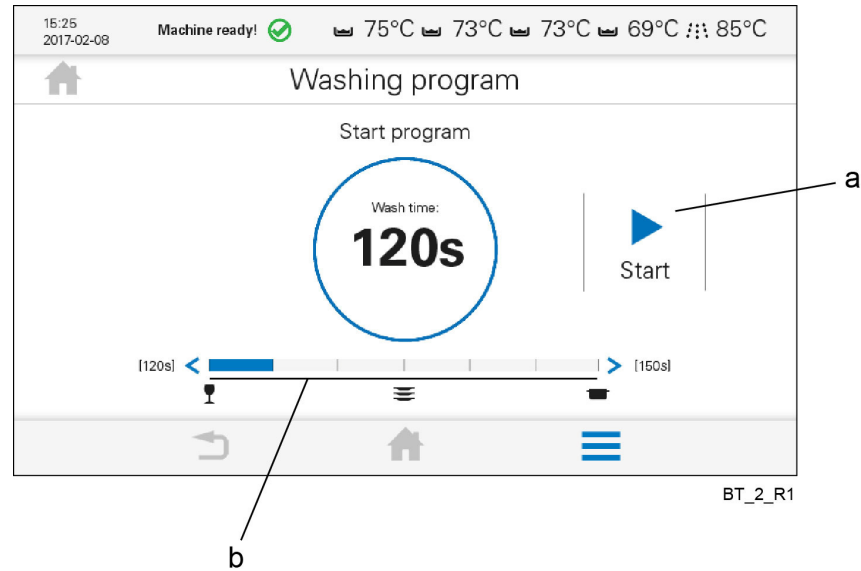
*The position of the lever when washing normally and heavily soiled loads*

- A. Lever to select normal or heavily soiled loads
- B. Lever pushed forward – heavily soiled loads
- C. Lever pulled back – normally soiled load

## Operating instructions

### 4.2.2 Selecting the contact time/washing time

When the machine's feed has started, it is indicated on the display that the machine is ready to wash and specifying a contact time in seconds.



The contact time is the total period during which the load is washed while being transported through the various washing zones. There are six different times that can be selected.

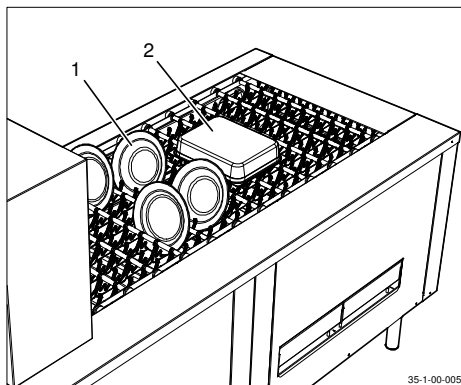
Select the contact time on the "bar" (b) of the touch panel. You should select a contact time on the basis of how heavily soiled the load is. In the case of heavily soiled items, select the longest contact time, and for lightly and normally soiled items, select a shorter contact time.

The most recently selected contact time will be saved for the next time the machine is turned on.

## Operating instructions

### 4.2.3 Feeding loads into the machine

- Before feeding the item into the machine, soak dried-on food and remove large food particles. Ordinary washing-up liquid must not be used for soaking or pre-washing.
- The item must be placed on the belt such that there is space for the washing and rinsing water to move in and around the item. The item should not be placed such that the washing water remains within it.



*Infeed – placing items on the washing conveyor*

- Plates, trays and pans should be placed upright with as much space as possible between them, so that the washing and rinsing water can flow around the items
- Canteens and bowls, etc. should be placed upside down so that the washing water can drain out of them. Make sure that the canteens are placed so that there is space between them. Otherwise, the washing water may overflow between the canteens, which may impair the wash result.
- Cutlery and smaller items should be laid in a wash basket placed directly on the belt. Cutlery should then be stood in special cutlery baskets which are placed in a normal wash basket and run through the dishwasher once more. Certain machines are equipped with washing conveyors that have cutlery baskets beside the washing conveyor. If these are available, the cutlery should be placed in these
- Check that large bowls can pass freely through the machine. The machine is equipped with a height limiter located on the infeed hood, which prevents items taller than approx. 450 mm (approx. 550 mm in elevated machines) to pass through.

### 4.2.4 Starting washing

Press start button (a) in the activity field on the touch panel when a suitable contact time has been selected to start the conveyor belt and commence washing.

### 4.2.5 Cancelling washing

It is possible to stop the conveyor belt and cancel the washing by pressing Start / Stop (5) on the machine or using the stop button in the activity field on the touch panel.

## Operating instructions

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### 4.2.6 Emergency stop

The machine has three emergency stop buttons. One of the emergency stop buttons (1) is located beneath the touch panel. The other emergency stops (1) are located at the infeed and outfeed.

If an emergency stop button is pressed during operation, the reason for the emergency stop must be rectified. The emergency stop is then reset by turning the emergency stop button in the direction indicated by the arrows on the emergency stop button. You must reset the alarm on the touch panel before you can restart the belt.

### 4.2.7 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.

### 4.2.8 Changing the water

Use the menu button on the touch panel to access the menu. Select the program for changing the water and follow the instructions on the touch panel.



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.

#### Recommendations

- Change the water if a large amount of foam forms.
- If a large number of items need washing before lunch and relatively few during the afternoon, change the water directly after the lunchtime wash.
- If a large number of items need to be washed after breakfast and after lunch, change the water twice, both after breakfast and after lunch.

## Operating instructions

### 4.2.9 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 or the nozzles are clogged. 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 on the conveyor:</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

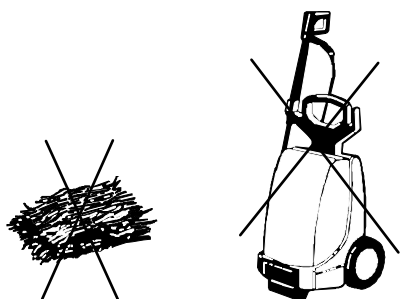
HACCP is a preventive inspection system to ensure hygiene requirements are met during the washing process and cleaning of the machine. As a result of its design, the machine meets strict hygiene requirements. Regular, thorough cleaning is also important from a hygiene perspective. A machine that is properly 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.

### 4.3.1 Incorrect cleaning methods



N.B.! 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.

## Operating instructions

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### 4.3.3 Daily cleaning

#### Internally

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

Go to the menu icon and select "Cleaning". Follow the instructions displayed on the machine's touch panel.



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.

#### Externally

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

#### Rinse cleaning functions

- The machine is equipped with a rinse cleaning function for the heat recovery unit, which runs on start-up and once every hour.
- The machine can be equipped with a rinse cleaning function for the washing zones and heat recovery unit as an option. This is carried out daily as follows:  
Go to the menu icon and select "Cleaning". Follow the instructions displayed on the machine's touch panel.

### 4.3.4 Cleaning and checking each week or as required

When the daily cleaning has been performed via the machine's touch panel, there is an option to continue to the weekly cleaning by following the instructions on the touch panel.

Weekly cleaning should be more thorough than daily cleaning.

## Operating instructions

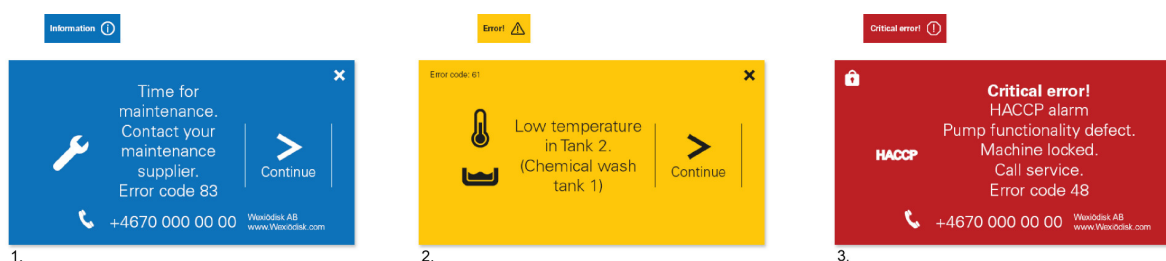
### 4.3.5 Operating problems

#### Troubleshooting

If the touch panel screen gives no indication of whether the ON/OFF button has been pressed, check the main switch to see whether it is turned on.

When the main switch is set to the ON position, it will take up to 25 seconds before the ON/OFF button illuminates blue. When the ON/OFF button with a blue light is pressed, it will take up to 10 seconds before the button turns green and the touch panel illuminates. If the problem persists, contact authorised service personnel.

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.



## Operating instructions

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 dishware tips over.	The dishware is too light.	Put the dishware in baskets. Use a mesh grid to hold the items in place.
	Washing pressure is too high.	If the machine is equipped with Quick setting for washing pressure (option): Check that the lever is set to the position for "Normal loads".
	The upper wash arms in the chemical, pre-wash or final rinse sections are clogged.	Clean the wash arms!
Dishware does not dry.	The rinse nozzles are blocked.	Check and clean the nozzles.
	Too little drying agent.	Check the quantity of drying agent.

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.



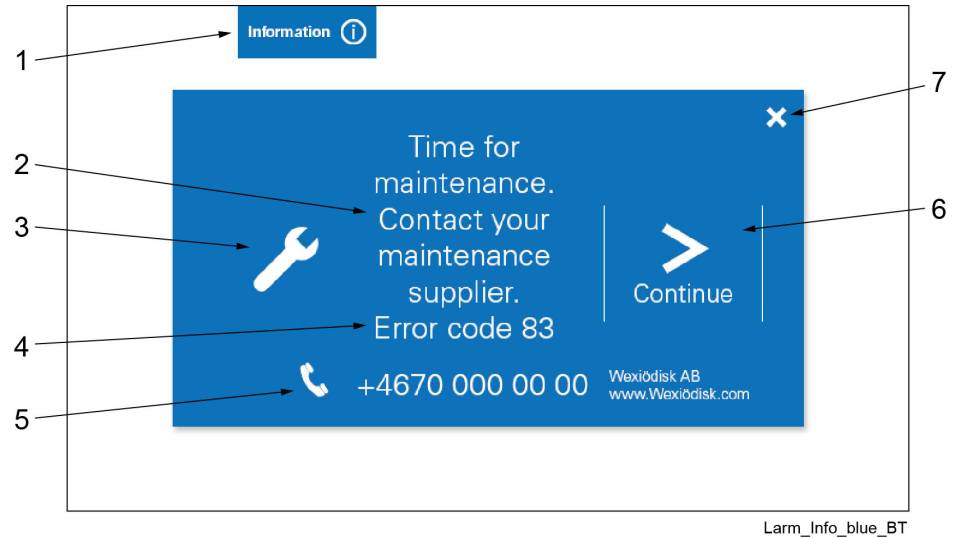
When you contact service personnel, you will need to provide the following information:

- 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?

## Operating instructions

### 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. Descriptive text
3. Symbol for type of alarm (maintenance)
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).

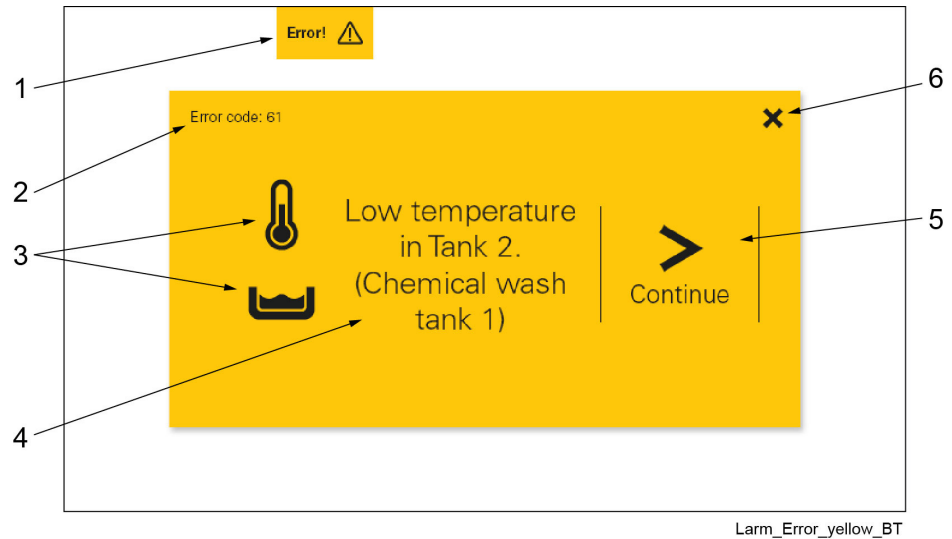
Follow the instructions on the touch panel, which are displayed by clicking on the symbol (6).

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

## Operating instructions

### Error alarms (yellow)

An error alarm is generated, e.g. because of a low temperature in one of the tanks.



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



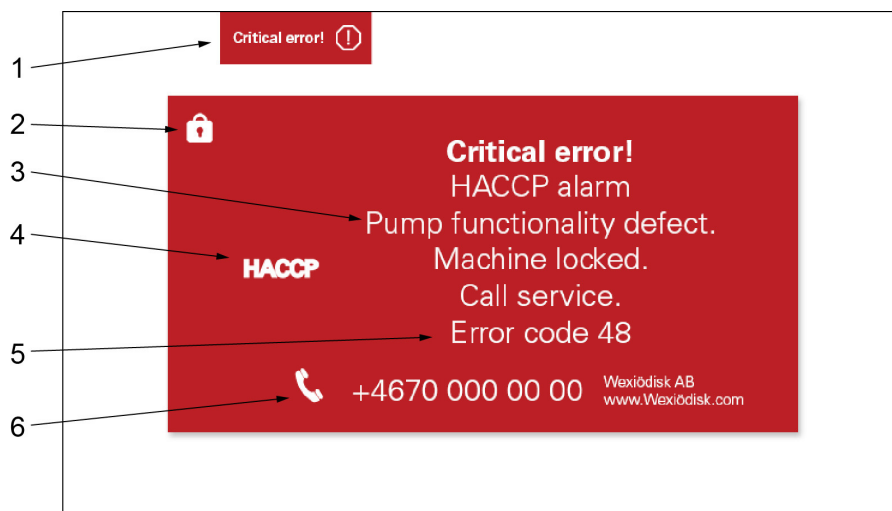
The alarm can be minimised and then maximised by clicking on the button (1)

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\_BT

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



Call the service company (6) and state the following:

- Machine type and model.
- Machine serial number and date when the machine was installed.
- The error code (5) displayed on the touch panel.
- What happened/was being done immediately before the fault occurred?

## Lights to indicate alarms (option)

The light bar shows the following:

- Green light – machine in operation.
- Yellow light – alarm. Follow the instructions on the touch panel display and remedy the cause of the alarm.
- Red light – serious fault. Follow the instructions on the touch panel display for measures.

## Technical specifications

### 5. Technical specifications

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

TECHNICAL DATA	550S	600S	650S	700S	750S	800S	850S	900S	950S
Pump motor, pre-rinsing (kW)	0.74	-	0.74	-	0.74	-	0.74	-	0.74
Pump motor, pre-wash (kW)	-	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Pump motor, chemical wash 1 (kW)	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Pump motor, chemical wash 2 (kW)	-	-	-	2.35	2.35	2.35	2.35	2.35	2.35
Pump motor, chemical wash 3 (kW)	-	-	-	-	-	-	-	2.35	2.35
Pump motor, recirculating rinse (kW)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Pump motor, break tank & final rinse (kW)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Pump motor, cleaning heat recovery unit (kW)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heat recovery fan (kW)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Fan, drying zone 1 (kW)	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Fan, drying zone 2 (kW)	-	-	-	-	-	0.37	0.37	0.37	0.37
Drive motor, belt (kW)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Booster heater 1, final rinse (kW)	9	9	9	9	9	9	9	9	9
Booster heater 2, final rinse (kW)	3	3	3	3	3	3	3	3	3
Tank heater, chemical wash 1 (kW)	15	15	15	15	9	9	9	9	9
Tank heater, chemical wash 2 (kW)	-	-	-	9	9	9	9	9	9
Tank heater, chemical wash 3 (kW)	-	-	-	-	-	-	-	12	12
Drying zone 1, heater (kW)	3	3	3	3	3	3	3	3	3
Drying zone 2, heater (kW)	-	-	-	-	-	3	3	3	3
Heat recovery, cooling surface (m <sup>2</sup> )	25	25	25	25	25	25	25	25	25
Tank volume, pre-rinse tank (litres)	70	-	70	-	70	-	70	-	70
Tank volume, pre-wash tank (litres)	-	104	104	104	104	104	104	104	104
Tank volume, chemical wash tank 1 (litres)	120	120	120	120	120	120	120	120	120
Tank volume, chemical wash tank 2 (litres)	-	-	-	120	120	120	120	120	120
Tank volume, chemical wash tank 3 (litres)	-	-	-	-	-	-	-	120	120
Tank volume, final rinse tank (litres)	21	21	21	21	21	21	21	21	21
Weight, machine in operation (kg)	1250	1480	1480	1770	1770	1930	1930	2280	2280
Enclosure protection class	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55

## Technical specifications

CAPACITY AND OPERATING DATA	550S	600S	650S	700S	750S	800S	850S	900S	950S
Capacity, HC conveyor, normal wash (plates/h)	3017	3516	4349	4848	5681	4848	5681	6180	7013
Capacity, HC conveyor, as per DIN 10510 (plates/h)	2514	2930	3624	4040	4734	4040	4734	5150	5844
Capacity, standard conveyor, normal wash (plates/h)	2609	3041	3761	4193	4913	4193	4913	5345	6065
Capacity, standard conveyor, as per DIN 10510 (plates/h)	2174	2534	3134	3494	4094	3494	4094	4454	5024
Contact length in accordance with DIN 10510 (mm)	2265	2640	3265	3640	4265	3640	4265	4640	5265
Belt speed in accordance with DIN 10510 (m/min)	1.13	1.32	1.63	1.82	2.13	1.82	2.13	2.32	2.63
Cold water consumption, normal final rinse (litres/h)*	160	170	170	190	190	190	190	210	210
Regeneration during chemical wash (litres/h)	75	75	75	75	75	75	75	75	75
Steam consumption at 150–250 kPa (kg/h)**	44	44	44	48	48	48	48	56	56
Steam consumption at 50–140 kPa (kg/h)**	45	45	45	49	49	49	49	58	58
Surface temperature at a room temperature of 20°C (°C)	35	35	35	35	35	35	35	35	35
Sound pressure level, LPA (dB(A))***	69	69	69	69	69	69	69	69	69
Sound power level, LWA (dB(A))***	83	83	83	83	83	83	83	83	83

\* Water consumption depends on local conditions. Fine adjustments can be made upon delivery.

\*\* When the machine is steam-heated.

\*\*\* 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 1 m from the edges of the front at a height of 1.6 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	550S	600S	650S	700S	750S	800S	850S	900S	950S
Total connected load (kW)	33.3	33.7	34.4	39.6	40.3	43	43.7	57.3	58
Main fuse 400-415 V 3N~ (A) *	63	63	63	80	80	80	80	100	100
Max. connection area 400-415V 3N~ (L1-L3, N, PE) (TN-S) Cu (mm <sup>2</sup> )	70	70	70	70	70	70	70	70	70
Maximum short-circuit current I <sub>cu</sub> (kA)	10	10	10	10	10	10	10	10	10

\* Other voltages on request.

## Technical specifications

CONNECTION, STEAM-HEATED MACHINE	550S	600S	650S	700S	750S	800S	850S	900S	950S
Total connected load (kW)	9	10	11	13	14	16	17	18	18
Main fuse 400-415 V 3N~ (A) *	25	25	25	35	35	35	35	50	50
Max. connection area 400-415V 3N~ (L1-L3, N, PE) (TN-S) Cu (mm <sup>2</sup> )	70	70	70	70	70	70	70	70	70
Maximum short-circuit current I <sub>cu</sub> (kA)	10	10	10	10	10	10	10	10	10
Steam connection (external thread)	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"	R1"
Condensing water connection (internal thread)	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "

\* Other voltages on request

WATER, DRAIN AND VENTILATION CONNECTIONS	550S	600S	650S	700S	750S	800S	850S	900S	950S
Water quality, hardness (°dH)	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7
Cold water connection 5-12°C (internal thread)	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "
Hot water connection 50-65°C (internal thread)	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "	R <sup>3</sup> / <sub>4</sub> "
Waste pipe connection, PP pipe (ø mm)	50	50	50	50	50	50	50	50	50
Water capacity, cold water, flow (litres/minute)	18	18	18	18	18	18	18	18	18
Water capacity, hot water, flow (litres/minute)	12	12	12	12	12	12	12	12	12
Water capacity, pressure (kPa)	300-600	300-600	300-600	300-600	300-600	300-600	300-600	300-600	300-600
Floor drain, capacity (litres/sec.)	3	3	3	3	3	3	3	3	3
Heat load to room, latent / sensible / total (kW)	4 / 6 / 10	4 / 6 / 10	4 / 6 / 10	4.5 / 7 / 11.5	4.5 / 7 / 11.5	4.5 / 7 / 11.5	4.5 / 7 / 11.5	6 / 9 / 15	6 / 9 / 15

SIZE AND WEIGHT FOR TRANSPORT *, **	550S	600S	650S	700S	750S	800S	850S	900S	950S
Size part 1 L x B x H (m)	2.9 x 1.1 x 1.9	3.4 x 1.1 x 1.9	3.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	5.4 x 1.1 x 1.9	5.4 x 1.1 x 1.9
Size part 2 L x B x H (m)	3.4 x 1.1 x 1.9	3.4 x 1.1 x 1.9	3.4 x 1.1 x 1.9	3.8 x 1.1 x 1.9	3.8 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9	4.4 x 1.1 x 1.9
Weight part 1 (kg)	780	550	550	750	750	770	770	1000	1000
Weight part 2 (kg)	440	700	700	700	700	820	820	820	820

\* Normal delivery in two parts; delivery in more parts available as option.

\*\* Including packaging.