HOBART

## DISHWASHERS

# CN SERIES
## (SMARTRONIC)

## INSTALLATION AND OPERATION INSTRUCTIONS

Starting from Serial No.:
**8646 6001**

REV. 03.04.2009

# IMPORTANT NOTES

## Use in Accordance with Regulations

This machine is only intended for cleaning dishes, plates, cups, glasses, cutlery, trays etc.
**Do not use for electrically heated cooking and heat conservation appliances**.

## Safety

Never hose down the outside of the machine.

The "**Attention**" symbol is shown beside instructions that are essential for the **safe operation** of the machine.
**Please read these passages thoroughly.**

## Liability

Installations and repairs which are carried out by **non authorized technicians** or the use of **other than original spare parts**, and any **technical alterations** to the machine, **may affect the warranty set out in the standard conditions of sale**.

## Important

This Instruction manual is written for machines with an operating direction from left to right.
For machines with an operating direction from right to left, the same information applies but with opposite handling directions.

## Machine noise level:

The machine noise level is ≤ 70 dB (A).

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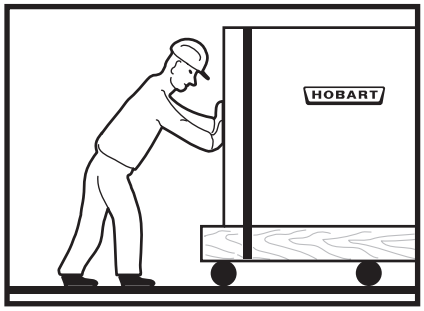
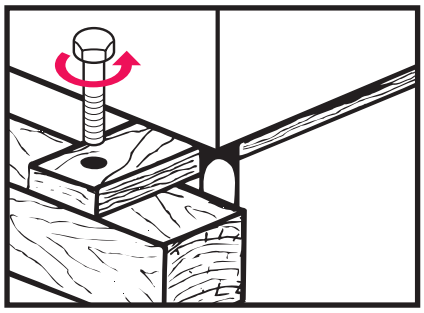
# 1 ASSEMBLY

**SHOULD BE CARRIED OUT BY HOBART TECHNICIANS.**



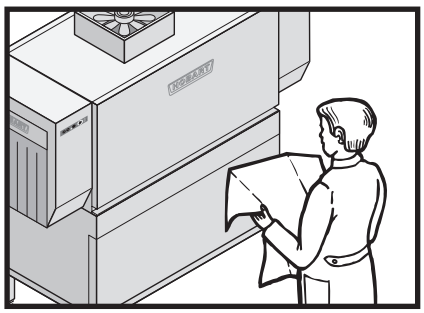

## 1.1 TRANSPORT TO INSTALLATION LOCATION

- If possible in its packing and on skid.
- Push on rollers.
- Avoid damage to floor, doors and to the machine.
- If a fork lift is used, put a wooden frame under the machine.



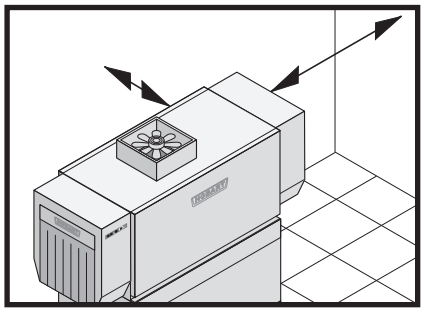
## 1.2 REMOVE PACKING

- Cut steel bands.
- Remove carton.
- Remove wooden skid.
- Remove inside packing material and accessories.

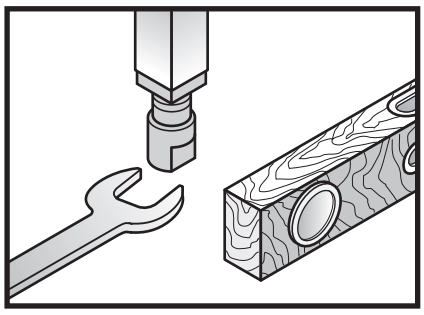


## 1.3 LOCATING

- According to the installation plan.

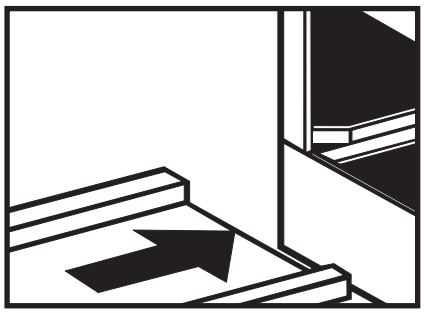


- Consider wall clearance according to the installation plan (normally 44 mm).
- Consider length of tabling, etc.



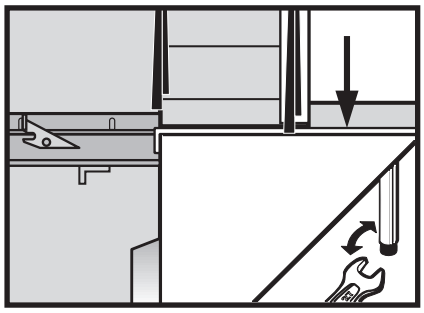
## 1.4 ADJUSTING MACHINE HEIGHT

- Level floor uneveness.
- Distribute machine weight equally onto all feet.

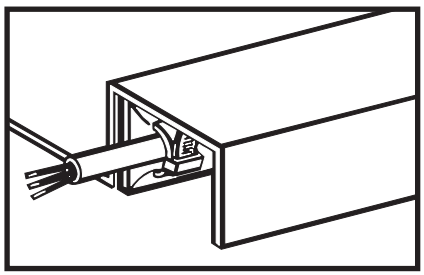


## 1.5 ATTACH DISH RACK TABLES AND ACCESSORIES

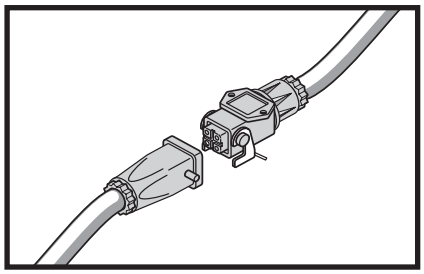
– See separate instructions.
– Seal screw holes.



– Allow a slight inclination to the machine (if needed, adjust level by turning the feet).
– Pay attention that the rack track level of the machine is the same as the table or roller conveyor level.

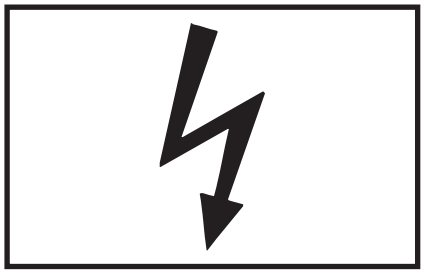


– **TABLE END SWITCH:**
Wiring to control box must be protected.



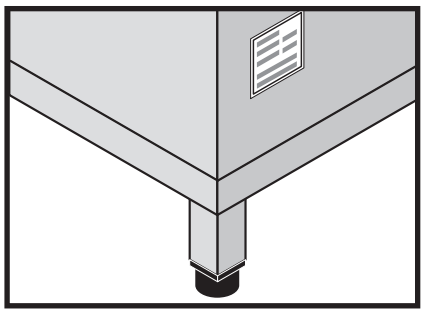
– **TABLES ON ROLLERS INCLUDING END SWITCH:**
Close the connector of the cable and lock it.

# 2 CONNECTIONS



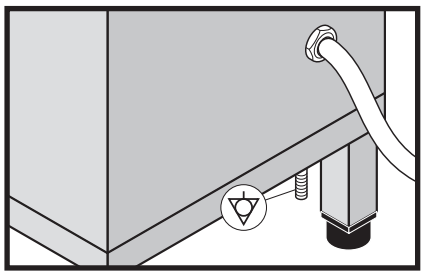
## 2.1 ELECTRICAL CONNECTION

**Must be carried out by an authorized technician according to the national and local codes.**



### 2.1.1 CHECK

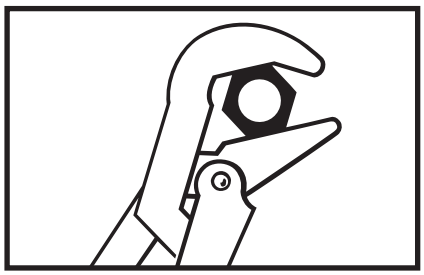
- Remove lower front panel (unscrew), turn control box to front and take out wiring diagram.
- The electrical supply shall comply with the name-plate data and the wiring diagram.
- Line fuses and cable cross section shall comply with the requirements.



### 2.1.2 CONNECTION

- **The appliance is intended for a fixed electrical connection.**
- Draw cable (H07-RN-F) through cable gland in the side panel.
- Connect wires to the built-in main switch.
- Tighten all terminal screws (may be loosened during transport).
- Tighten the cable gland.

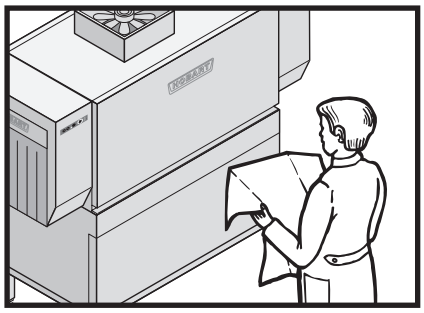
**According to EN 60 335 the appliance must be connected to an equipotential conductor.**
**The connecting screw (⏚) is located beside the cable inlet.**



## 2.2 WATER CONNECTION

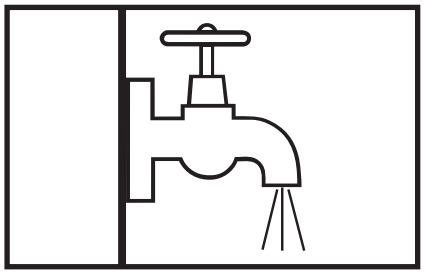
**Must be carried out by an authorized technician according to the national and local codes.**

**The machine must be operated with potable water.**
**For water with an extremely high mineral content an external demineralisation is strongly recommended.**



### 2.2.1 GENERAL

- Connect water supply and drain pipes according to installation plan.
- Class **A** air gap is fitted to the machine as standard.

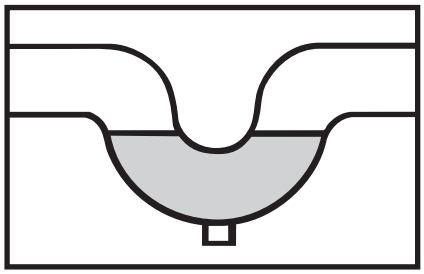


### 2.2.2 FRESHWATER SUPPLY FOR RINSE DN 20 (G3/4")

- Should be soft (up to 4° Clark, resp. 0.5 mmol/l).
- Must be cold if condenser is fitted.
- Line flow pressure 1.5 - 6 bar at ~500 l/hr.
- Provide shut-off valve and line strainer at site.

### 2.2.3 FRESHWATER SUPPLY FOR FILL DN 20 (G3/4") OPTION

- Should be soft and warm (up to 4° Clark resp. 0.5 mmol/l, 50 - 60°C).
- Line flow pressure 1.5 - 6 bar.
- Provide shut-off valve and line strainer at site.



### 2.2.4 DRAIN CONNECTION

To be connected to site drain:

- Tank drain DN 50 (HT Pipe).
- Drip water drains off tabling, sink and other elements.
- All drains must be connected to goose neck (individually or single point).

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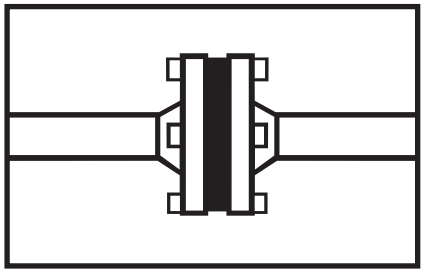
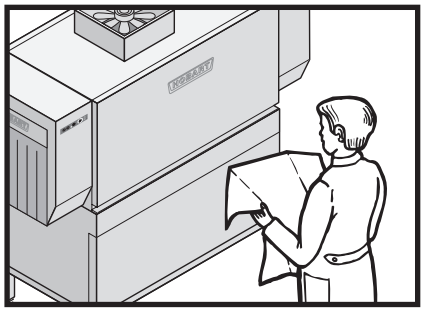


## 2.3 STEAM OR HIGH PRESSURE HOT WATER CONNECTION

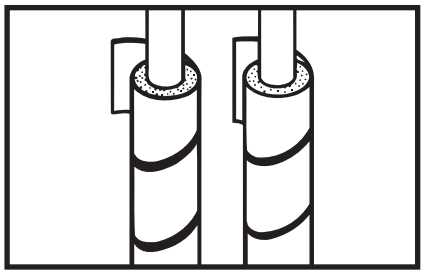
**Must be carried out by a qualified technician according to the national and local codes.**

**NOTE FOR INSTALLATION**
**Make sure that pressure and temperature of the heating medium do not exceed values indicated on the installation plan.**



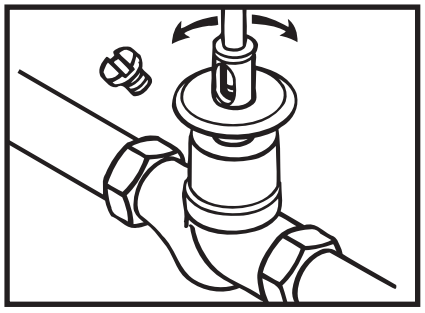
### 2.3.1 GENERAL

- Connect supply and return pipes according to installation plan.
- All connections are equipped with neccessary fittings and valves as standard.



### 2.3.2 INSULATION

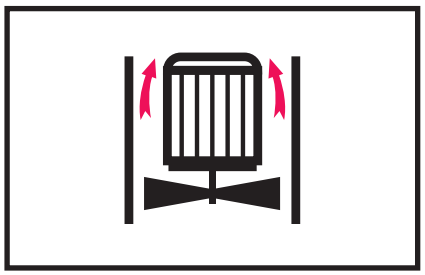
- All pipes should be insulated.
- Insulating material should be water, heat and shock proofed.



### 2.3.3 ADJUSTMENT OF SHUT-OFF VALVE

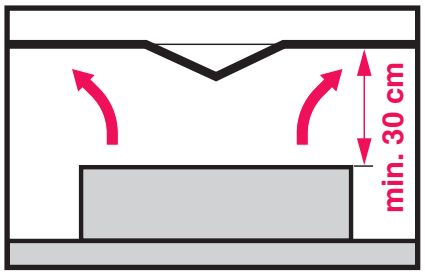
**with flow reducer for steam and hot water supply**

- The built-in shut-off valve is equipped with an adjustment device to limit the heating supply medium.
  A special tool is necessary for adjusting the valve-seat.
- The correct adjustment is very important particulary for higher pressure, and therefore must be done by a **HOBART trained service technician** before first run.
- The optimum adjustment is achieved, when the nominal temperature of the boiler can be held during continuous operation, while the valve is opened to maximum.
- If adjusted too far open pressure shocks may occur when the solenoid valve closes. This could cause damage at the installation.
  If adjusted too far closed the required heating-power cannot be achieved.



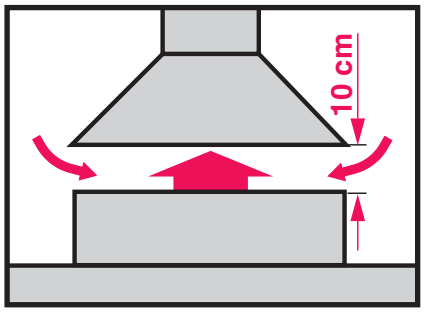
## 2.4 EXHAUST CONNECTION

– Connection must be carried out in conjunction with competent ventilation engineer.
– Please pay attention to notes on the service drawing.




### 2.4.1 EXHAUST INTO THE KITCHEN

– Only possible in connection with Heat Pump System and sufficient room ventilation.
– Avoid condensate damage by mixing exhausts from vent outlet of the machine, directly with room air (air distributor).




### 2.4.2 EXHAUST PIPEWORK

– Leave a distance (approx. 10 cm) between machine exhaust and site channel or connect special exhaust stack (option).

– Use additional ventilation fan, as the built-in ventilator has no compression.
The volume of air to be evacuated from site has to be larger than the volume of air of the machine (see installation plan).

– To prevent corrosion damage, provide exhaust channel in stainless steel or synthetic material.

– **In case of extremely low temperatures:**
Provide insulation and anti-freeze shutter.

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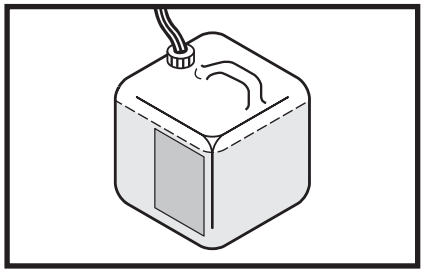
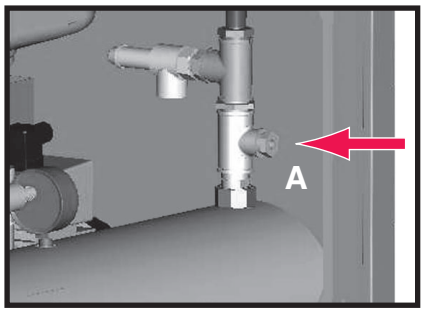


## 2.5 DISPENSERS FOR DETERGENT AND RINSE AID

– Normally dispensers and controls are delivered and installed by the detergent and rinse aid suppliers.

– Install dispensers, controls and containers such that they are easy to handle and do not disturb machine operation.



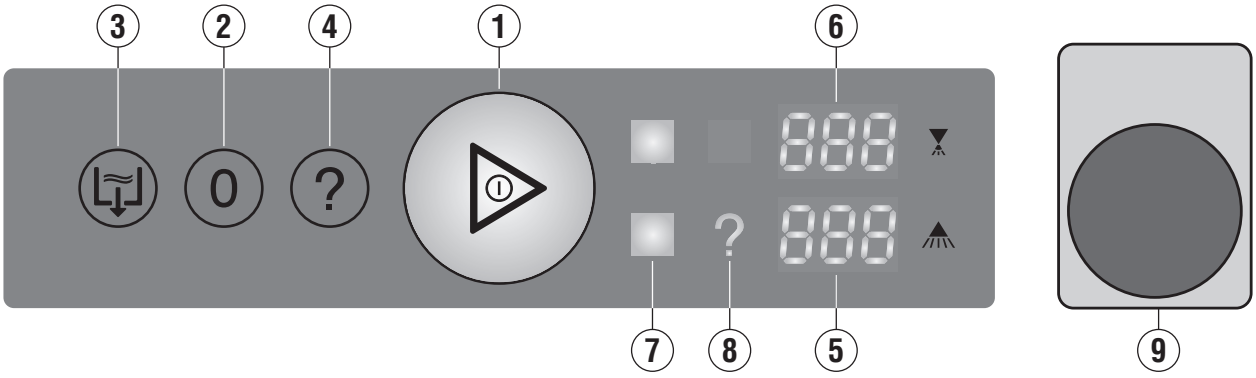

– Rinse aid connection (**A**) is provided above the rinse booster heater (**R 1/8"** inside).

– Terminals (230V~) are provided in the control box (see wiring diagram).

**Please see separate installation instructions.**

**It is recommended that dispensers and their controls are not fitted directly to the machine!** (The panels have thermal insulation.)

**Use only commercial detergent and rinse aid** (suitable for professional and industrial operations).
**Please pay attention to the manufacturers safety instructions.**




① **START** button

**This button has several functions:**

1.) Machine **ON/OFF**

Pushing this button switches the machine on.

It is possible to switch off the machine without drain cycle by pushing the button again (**5 seconds**). Exhaust and dryer will stop with short delay.

**After switch off, the machine is not voltage free!** At the upper display appears a point.

2.) **Conveyor ON** / Conveyor speed selection

Furthermore the button illuminates to indicate the mode of the machine.

| | | | |
|---|---|---|---|
| **GREEN** | flashing | = | Machine fills and/or heats up<br>Maybe restricted operation possible (e.g. in case of failed tank heating). |
| **GREEN** | | = | Machine is ready for operation |
| **BLUE** | | = | Wash cycle is running |
| **BLUE** | flashing | = | Machine draining / switch-off |
| **RED** | | = | Failure indication (see chapter 10) |
| **GREEN/RED**<br>**BLUE/RED** | or<br>alternate flashing | = | Failure indication (see chapter 10) |

② **Conveyor OFF** button
By pushing this button the conveyor will be switched off.

③ **Drain** button
1 second pushed: Only the prewash tank will be drained (Stand-By).
5 seconds pushed: Machine will be drained completely and switches off at the end of the cycle.
**After switch off, the machine is not voltage free!** At the upper display appears a point.

④ **INFO** button
1 second pushed: Temperatures preview / operating hours counter.
3 seconds pushed: Activation of customer menu (option), indicator ⑧ illuminates.

⑤ Temperature indicator **Wash** (°C) (decimal point illuminates = heating on)

⑥ Temperature indicator **Rinse** (°C) (decimal point illuminates = heating on)

With a machine malfunction, the temperature indicators display a code.

⑦ **Conveyor speed** indicator
Indicates the selected speed.

□ = slow ■ = fast

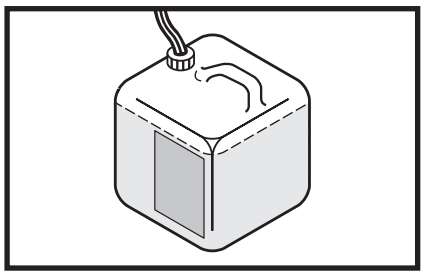
⑧ Illuminates when customer menu is activated.

⑨ **Emergency Stop** button
Switches the machine off. Must be unlocked for operation.

# 4 FIRST RUN

**Must be carried out by an authorized Service technician to adjust and check machine functions !**

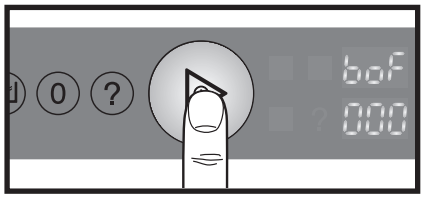
## 4.1 PREPARATION



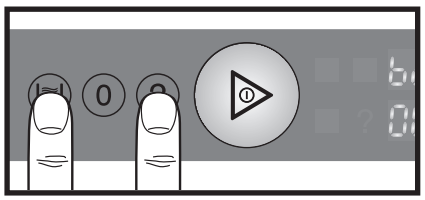
- **Switch off main switch.**
- **Open shut-off valves at site.**
- Make sure, that detergent and rinse aid containers are filled.
- Remove lower front panel.
- Switch on all circuit breakers and motor protection switches in the control box. Put the lower front panel in place.
- Close inspection doors
- **Unlock the Emergency Stop button.**
- **Switch on main switch – <u>but not the machine</u>.**
- Switch on site exhaust extraction (if fitted).

## 4.2 FILLING THE RINSE BOOSTER HEATER

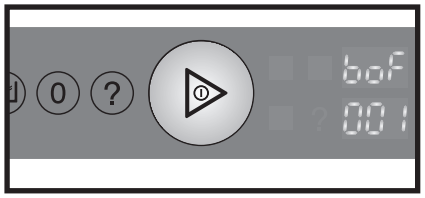
### 4.2.1 PRESSURE BOOSTER




- **Open the door.**
- Push **START** button ① (flashes red).
- At the temperature indicators appear **boF 000** and flashes.
- **Close the door.**

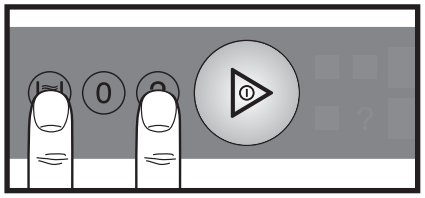


- Push **Drain** button ③ and **INFO** button ④ simultaneously.
- **START** button and temperature indicators change to **red** steady burning light.
- Booster will be filled.

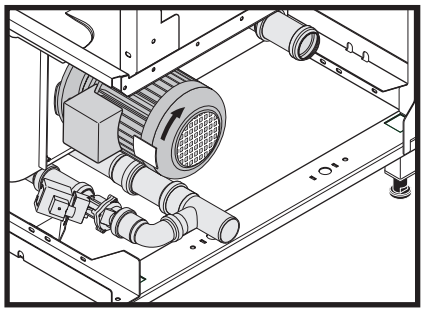



- As soon as **001** is flashing at the lower indicator, filling is completed.
- Open the door and check whether water is splashed out of rinse arm nozzels.

  If not, close the door. Procedure will be repeated automatically.



- When initial booster fill is carried out, push **Drain** button and **INFO** button again with door open.
- The indicators switch off.



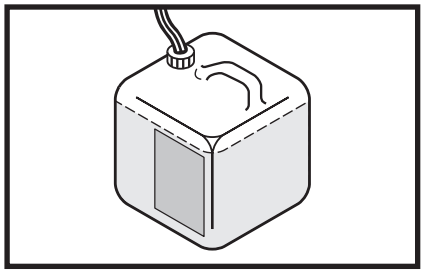
## 4.3 CHECK

– Direction of rotation of motors (see direction sign):
  - Conveyor motor (both speeds)
  - Pumps
  - Dryer fan (if dryer is fitted).

  If motor runs against the indicated direction, interchange 2 of 3 phases at the terminal.

– Check and eliminate potential leakages.
  - Drain
  - Heating pipework and water supply pipework
  - Machine housing, bottom of tanks, exhaust system

– Put all panels back into place.



## 4.4 ADJUSTMENT OF DETERGENT AND RINSE AID

Should be done by the detergent and rinse aid supplier.

## 4.5 AUTOTIMER (OPTION)

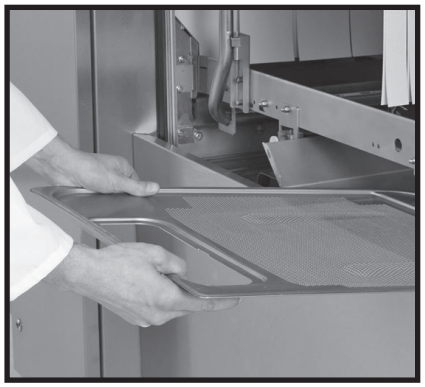
The timer is pre-adjusted at the factory.

Wash, rinse and dryer (if fitted) operate only if racks are passing through the machine.
These functions switch off automatically if no further racks follow.

Exhaust, dryer and conveyor switch off with delay.
The delay times can be adjusted by authorized Service technicians.

# 5 OPERATION

## 5.1 PREPARATION

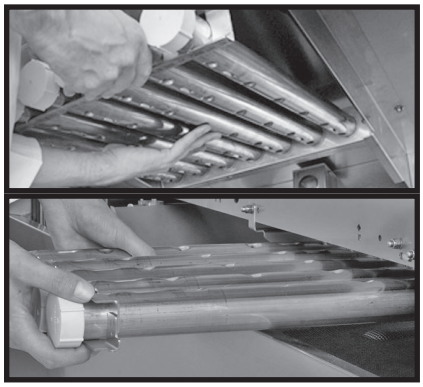


Put the flat strainers in place.

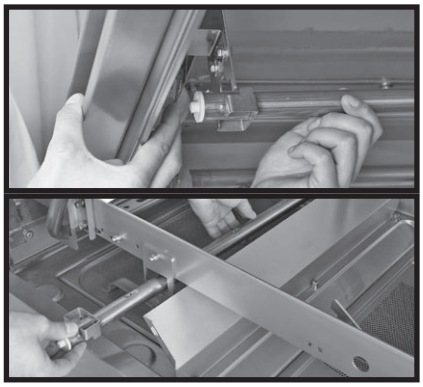
Put the strainer baskets in place.

Place pump intake strainers in position at the bottom of wash tank (rinse section).

Put the rinse strainer in place.



Set wash arms in place:
**Upper:** set wash arm in side guides, move to end position and drop-in over stop unit.
**Lower:** move wash arm in side guides to end position and click into place.

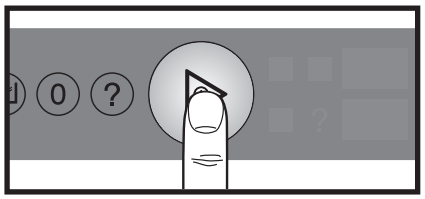


Set rinse arms in place:
**Upper:** set rinse arm in back opening, move from below into guide and click into place.
**Lower:** move rinse arm in guides to end position and click into place.

Put curtains in place
(see chapter 7).

Close inspection doors.
Ensure sufficient detergent and rinse aid is available in the right containers.

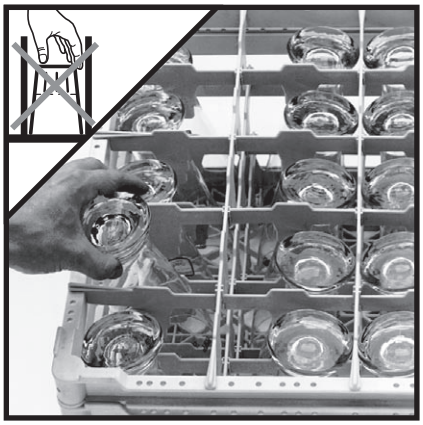
**Switch on main switch.**
**Open shut-off valve at site.**

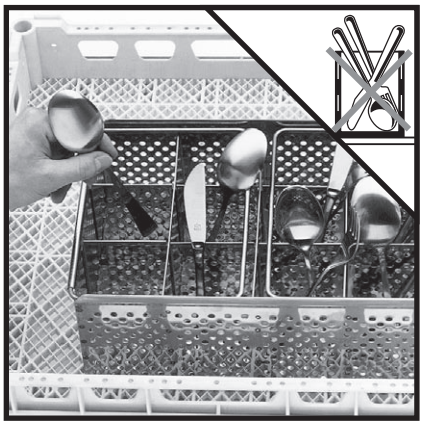


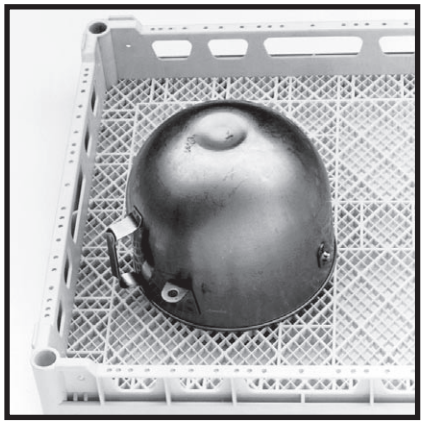
Push the **START** button ①, tank will be filled.
The button flashes green during fill and heating cycle.
This process can take several minutes.

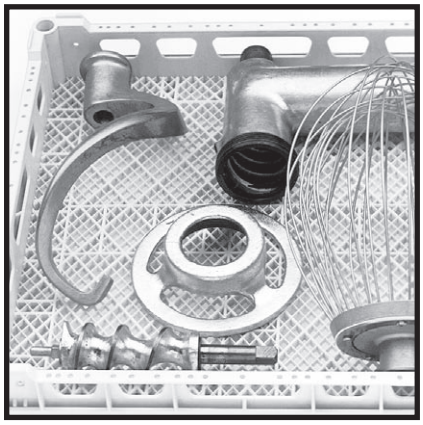
When the START button changes to green steady burning light, machine is ready for operation.

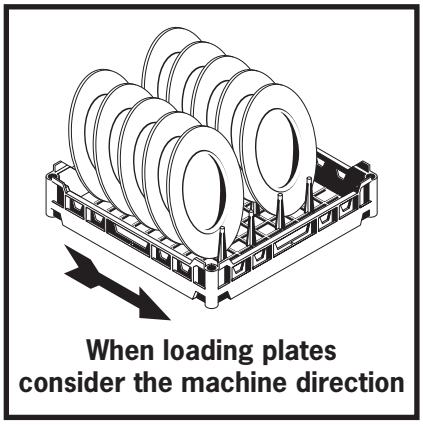
## 5.2 RACKING (Remove coarse food soil before washing.)



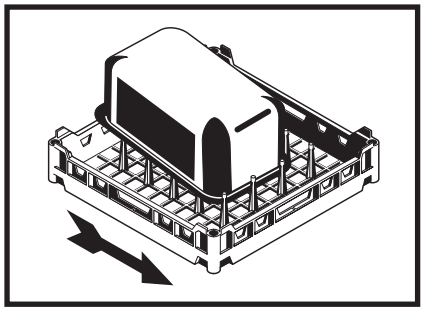








**When loading plates consider the machine direction**



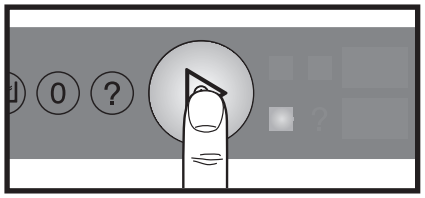
Gastronorm pans and other large containers or boards should ideally be washed in a separate Utensil Washer.

In Automatic Rack Type Dishwashers these items may cause problems such as splash-over leading to low water levels in the tank/s and poor rinsing.

On the occasions when these items are to be washed, they should be loaded sloping towards the direction of machine operation as shown in the picture. This will reduce the problems described above.

GB

## 5.3 WASHING



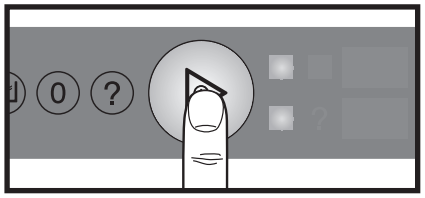
– By short pushing the **START** button the conveyor starts to operate. The button illuminates blue.

– By loading racks into the machine the Autotimer is activated and the prewash, wash, rinse and dryer systems are started.

– **Stand-By**
When no further racks enter the machine, the autotimer switches off all functions except the heaters after a pre-adjusted time.

**Give dishes enough time to dry after washing.**

## 5.4 CONVEYOR SPEED



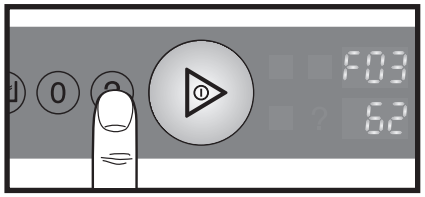
– By pushing the **START** button again, it is possible to select between two pre-set conveyor speeds.

The selected speed will be indicated.

□ ■
■ slow ■ fast

## 5.5 RECALL OF ADDITIONAL INFORMATION

### 5.5.1 PREVIEW OF TEMPERATURES




– To check temperatures push **INFO** button ④.

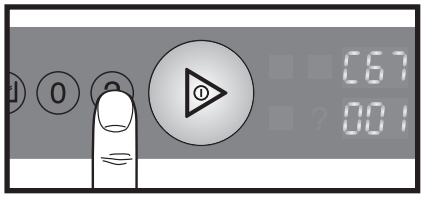
– The temperature indicator Rinse ⑥ shows the selected measuring point, the temperature indicator Wash ⑤ the current temperature.

– The temperatures will be displayed one after the other by repeated pushing the **INFO** button.

**If installed:**

**F03** = prewash
**F04** = dryer
**F05** = wash 2
**F06** = wash 3
**F07** = separate fill booster
**F08** = demi booster or rinse temperature of manifold

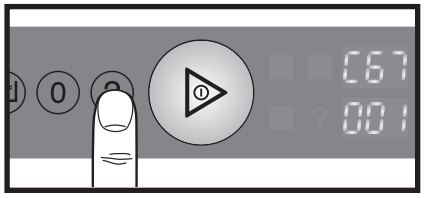
### 5.5.2 OPERATING HOURS COUNTER

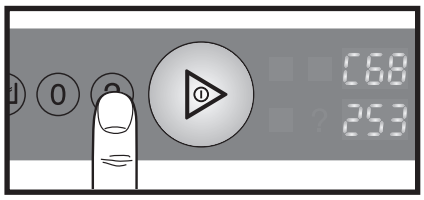



– After temperature values, the operating hours counters will be displayed by pushing the **INFO** button again.

Upper indicator = Counter
Lower indicator = Operating hours

– The counters are displayed one after the other by pushing the **INFO** button repeatedly.




| | | |
|---|---|---|
| **EXAMPLE:** | Wash = **1253** operating hours | |
| **C67** = Wash | Thousands | = **001** |
| **C68** = Wash | Values 1 to 999 hours | = **253** |

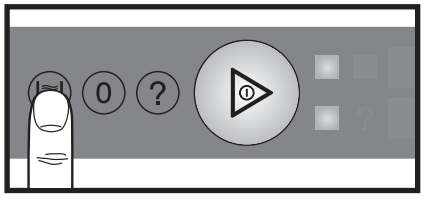
**C69** = Final rinse Thousands
**C70** = Final rinse Values 1 to 999 hours

**If installed:**

**C71** = Demi rinse Thousands
**C72** = Demi rinse Values 1 to 999 hours

If **INFO** button is not pressed for **30 seconds**, displays will return to standard indication.

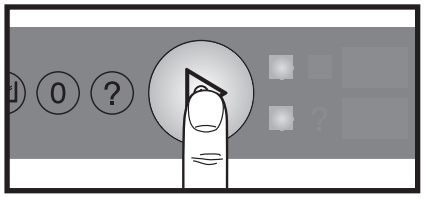
## 5.6 DRAIN – PREWASH



**Should be done if the prewash tank becomes heavily soiled.**

- By short pushing (**1 second**) the **Drain** button ③, only the prewash tank will be emptied and automatically refilled.
- The **START** button is flashing during drain cycle / refill. As soon as the button illuminates green, the machine is ready for operation again.

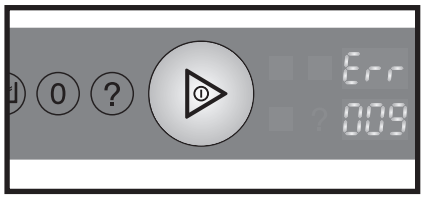
## 5.7 MACHINE OFF



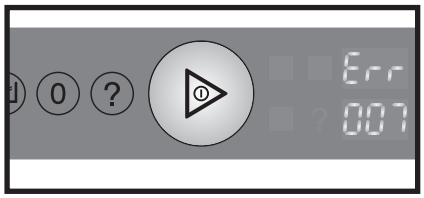
- The machine can be switched off also without previous draining of the tanks by pressing the **START** button for **5 seconds**.

  Exhaust and dryer switch off with delay.
- **After switch off, the machine is not voltage free!**

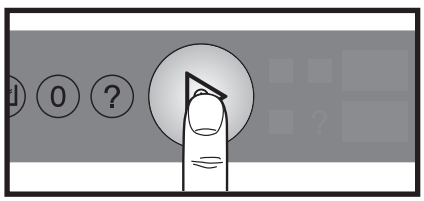
## 5.8 GENERAL MESSAGES




- When the End Stop Switch is activated, conveyor and rinse will stop directly. Wash and dryer system will stop after a few seconds.
- The **START** button ① is flashing **blue/red** alternately and **Err 009** is displayed.




- When a door is opened during the wash process, conveyor, wash and rinse will stop directly. The dryer system will stop after a few seconds.
- The **START** button illuminates red and **Err 007** is displayed.

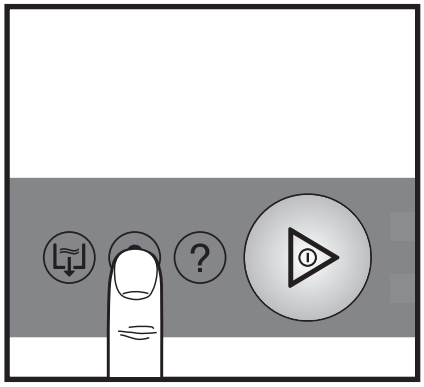


- After closing the door, the machine has to be re-started by pushing the **START** button.

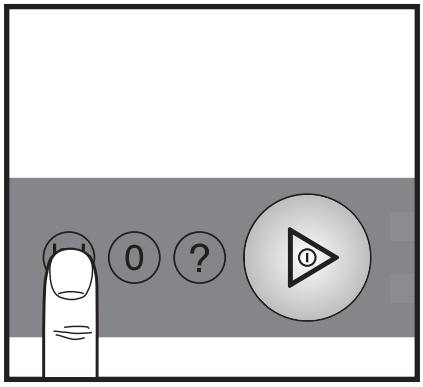
## 5.9 EMERGENCY STOP

- In case of emergency, the machine can be switched off completely by pushing the **Emergency Stop** button ⑨.

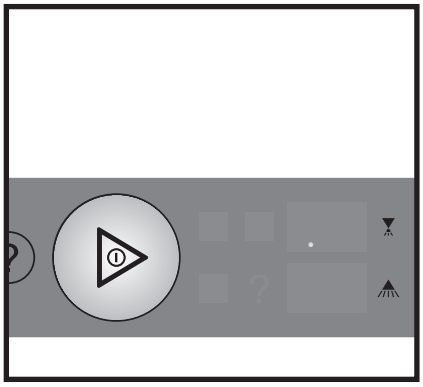
# 6 CLEANING THE MACHINE



Push the **Conveyor OFF** button, conveyor and wash stop.
Exhaust and dryer switch off with delay.



Push the **Drain** button for minimum **5 seconds** to empty the machine.
Heating will stop automatically.



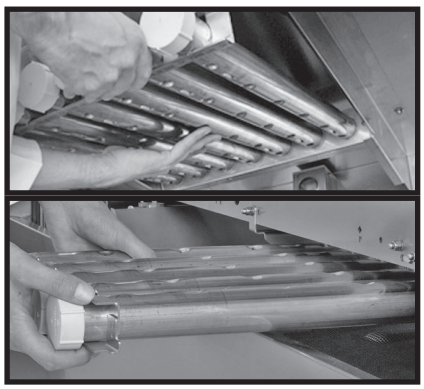
The drain valves close.
At the temperature indicator **Rinse** appears a point.
The machine is switched off **but not voltage free!**

**Switch off main switch.**

Open the inspection doors.

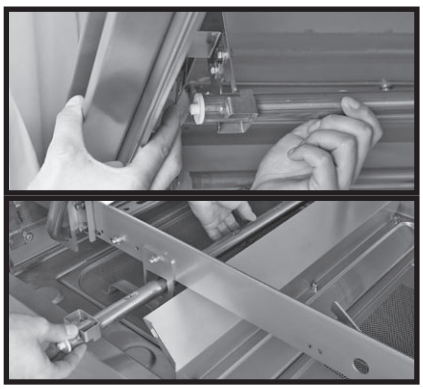
Take out an clean curtains.

**To clean the machine do not use any chloric, acidic or abrasive products and no metallic brushs.**
**Never hose down the exterior of the machine.**



Remove wash arms:
**Upper:** Llift wash arm over stop unit and pull out.
**Lower:** Lift wash arm to pull out.

Remove end caps and clean wash arms accurately.



Remove rinse arms:
**Upper:** pull spring towards front and remove rinse arm.
**Lower:** lift rinse arm and pull out.
Control nozzle openings and clean if necessary.

# CLEANING THE MACHINE

Remove strainer baskets.

Remove flat strainers.

Remove rinse strainer.

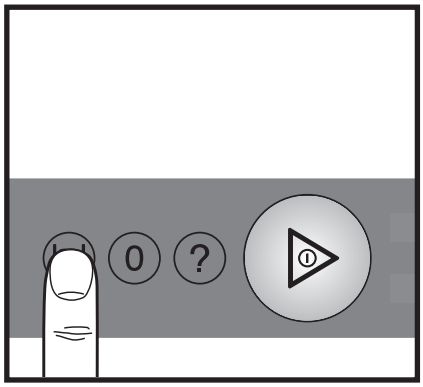
**Hose down and brush the strainers – do not knock them to dislodge food soil! They could be damaged.**

Remove pump intake strainer (rinse section).

Hose down and clean the interior of the machine (particulary the bottom of wash and prewash tank) to avoid any waste remaining.

**Clean once a month:**
Remove the front panel of the condenser hood.

Hose down condensers.




To drain the tanks, switch on main switch and push the **Drain** button. The drain valves will be opened again.
Wait until the tanks are completely emptied.

**Switch off the main switch and close shut-off valve(s) at site.**

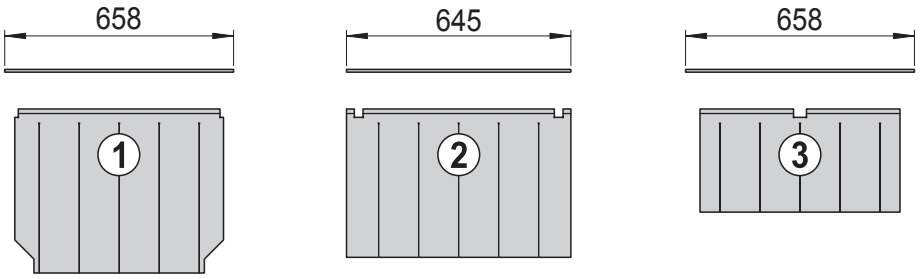
Leave the inspection doors open for ventilation.

# 7 POSITION OF CURTAINS

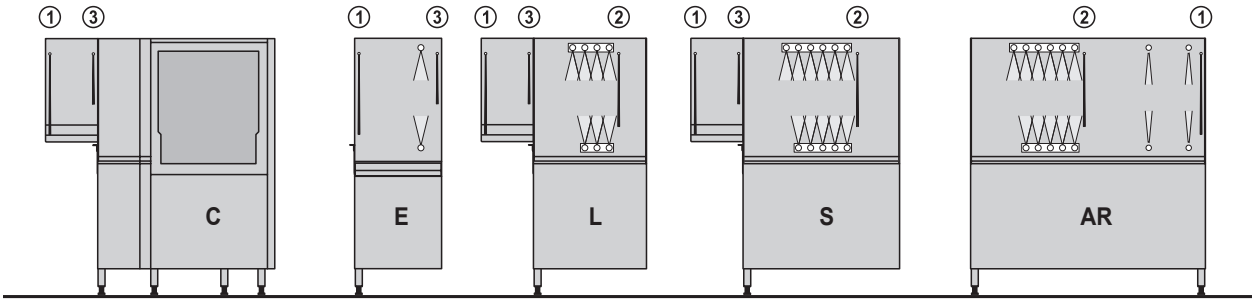
GB

**The working direction as shown is left/right.**
**On working direction right/left the position of curtains is reversed.**

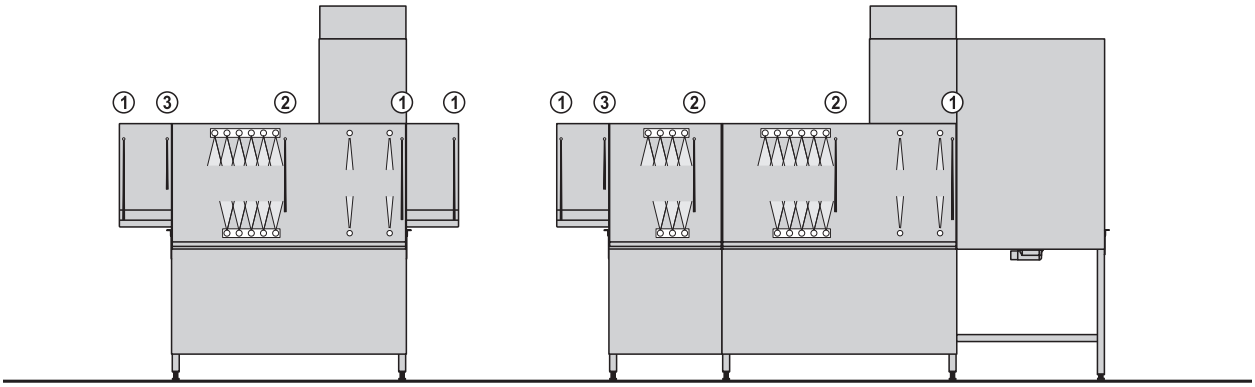
## CURTAINS



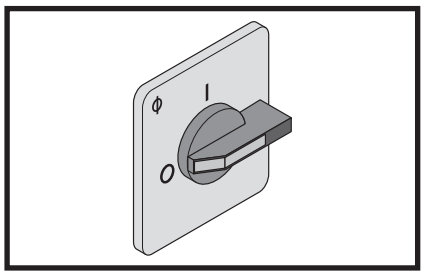

## MODULES




## EXAMPLES CN



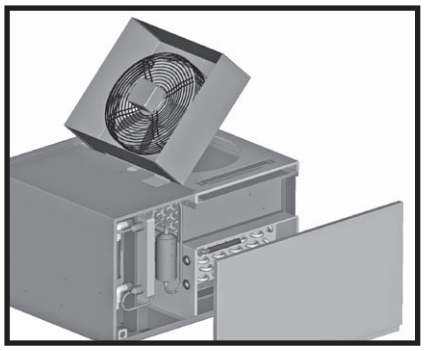
# 8 HEATPUMP CHP 18 (OPTION)




## CLEANING (half-yearly)

**Should be carried out by an authorized technician!**

**Switch off main switch !**



– Open the top cover and remove the front panel of the heat pump.

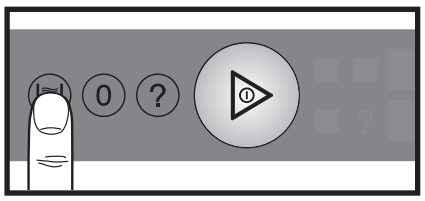
**ATTENTION !**
**Parts of the heat pump can be hot.**

– Hose down condensers and evaporator!
**Do not use steam or high pressure cleaner.**
**Avoid damages!**

**Fins are sharp!**
**Danger of injury – use protective gloves!**

– After cleaning put the front panel back into place and close the top cover.

# 9 FROST PREVENTION




**Must be carried out by an authorized Service technician!**

– Drain machine (start drain cycle).
– Set counter **C60** to "**0**" and save.
– **Set main switch to "0".**
– Close shut-off valve(s) at site.

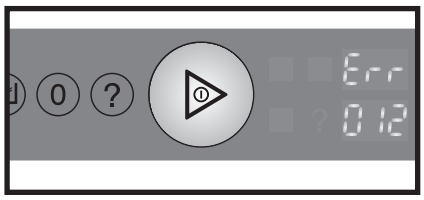
All tanks, water pipework and armatures must be totally drained.

– Remove plug at the bottom of the break tank.
– Remove plug at the bottom of the rinse booster heater.
– Loosen the union behind the non-return valve.
– Drain site water pipework.
– Drain traps of drain system.
– **Steam or hot water heated machines:** drain all heating coils and pipes.
– **The condenser** if fitted, must be blown out with compressed air.

– **Reset for operation according to chapter 4.**

# 10 | FAULTS

GB




– The **Start** button is flashing alternately green/red or blue/red or illuminates constantly red.
– The temperature indicators display a code:
e.g. "Err 012" = drain fault.

**Please report the error code to the service technician.**

| CODE | POSSIBLE CAUSE | MEASURES |
|---|---|---|
| **Err 001** | Shut-off valve is closed. | Open shut-off valve at site and switch on machine again. |
| | Fill valve or fill system defective. | Call the after sales service. |
| **Err 002** | Low flow rate. | Check water supply at site. |
| | Fill valve or fill system defective. | Call the after sales service. |
| **Err 003** | Fault in the booster control loop. | Call the after sales service. |
| **Err 004** | Booster temperature below set value. | Start transport to quit the message. In case of recurrence call the after sales service. |
| **Err 005** | Shut-off valve is closed. | Open shut-off valve at site and switch on machine again. |
| | Fill valve or fill system defective. | Call the after sales service. |
| **Err 006** | Tank temperature below set value. | Start transport to quit the message. In case of recurrence call the after sales service. |
| **Err 007** | Door open. | Close door. |
| | Transport blocked. | Remove blockage. |
| | Control circuit fault. | Call the after sales service. |
| **Err 009** | Rack jam, table end switch is activated. | Remove racks. |
| **Err 010** | Heatpump – High pressure fault | Switch off machine via main switch and restart. In case of recurrence call the after sales service. |
| **Err 011** | Heatpump – Low pressure fault | Switch off machine via main switch and restart. In case of recurrence call the after sales service. |
| **Err 012** | Drain system defective. | Switch off main switch and clean the drain valve. Then restart machine and start anew drain cycle. In case of recurrence call the after sales service. |
| **Err 013** | Autotimer defective. | Call the after sales service. |
| **Err 020** | Internal communication error. | Call the after sales service. |
| **Err 021** | Internal communication error. | Call the after sales service. |
| **Err 101** | Temperature probe Booster defective. | Call the after sales service. |
| **Err 102** | Temperature probe AR-Tank defective. | Call the after sales service. |
| **Err 103** | Temperature probe Prewash tank defective. | Call the after sales service. |
| **Err 104** | Temperature probe Dryer defective. | Call the after sales service. |
| **Err 105** | Temperature probe B-Tank defective. | Call the after sales service. |
| **Err 106** | Temperature probe C-Tank defective. | Call the after sales service. |

# 11 | TROUBLESHOOTING



| FAULT | CAUSE | REMEDY |
|---|---|---|
| Initial booster fill not possible. | Shut off valve at site closed. | Open the shut off valve at site and restart. |
| | Fill system defective. | Call the after sales service. |
| Tank fill too slow. | Line strainer of fill clogged. | Clean line strainer. |
| | Solenoid valve defective. | Call the after sales service. |
| | Shut off valve at site not correctly open. | Open shut off valve completely. |
| Tank not filled to correct level. | Fill cycle too short. | Call the after sales service. |
| Steam escapes from loading or exit section. | Exhaust extraction too low. | Call the after sales service. |
| | Wrong position of curtains. | Check curtains (see chapter 7). |
| Temperatures too low. | Too much exhaust extraction. | Call the after sales service. |
| | Heaters defective. | Check heaters, steam or high pressure hot water supply systems.<br>If necessary, call the after sales service. |
| Washware soiled after dishwashing. | Strainers wrongly positioned. | Check strainers. |
| | Curtains not fitted or wrongly placed. | Check curtains (see chapter 7). |
| | Wash arm nozzles clogged. | Clean the wash arms. |
| | Too low detergent concentration. | Increase detergent dispensing. |
| | Too much foam. | Use non-foaming detergent only. |
| | Excessive food debris entering machine. | Check pre-scrapping procedure. |
| | Temperatures too low. | Check heating system. |
| | Wash / Rinse fault. | Call the after sales service. |
| | Conveyor speed too high. | Select lower speed. |
| Streaks and spots on washware. | Strainers wrongly positioned. | Check strainers. |
| | Wash water splashes into rinse section. | Check curtains (see chapter 7). |
| | Rinse nozzles clogged. | Clean rinse nozzles. |
| | Incorrect rinse aid dispensing. | Adjust rinse aid dispenser. |
| | Too high mineral content of rinse water. | Use of demineralized water recommended. |
| Washware do not dry. | Incorrect temperature or humidity of drying air. | Check heater and blower of drying unit. |
| | Conveyor speed too high. | Select lower speed. |
| | Inadequate rinse aid concentration. | Increase concentration. |
| Drops on washware. | Wrong rinse aid or inadequate concentration. | Check rinse aid / adjustment. |
| Dishes tilt over. | Water pressure from below too high. | Call the after sales service. |
| | Upper wash arms clogged. | Remove wash arms and clean. |
| Machine out of order, display switched off. | Main switch switched off, power supply completely cut-off. | Switch on main switch, re-start machine. |
| | Emergency stop button pressed, power supply completely cut-off. | Unlock Emergency Stop button, re-start machine. |
| | Power failure. | Check fuses at site. |
| | | |

# 12 MAINTENANCE


## 12.1 GENERAL

For trouble free operation we recommend an inspection or maintenance contract by qualified Service technicians.

## 12.2 DISHWASHERS WITH HEAT PUMP

The heat pump built-in in your dishwasher **contains fluorinated greenhouse gases covered by the Kyoto Protocol** and therefore it falls within the scope of the EC Regulation 842/2006.

As this is not a hermetically sealed system and the refrigerant charge is more than 3kg, you are obligated as operator of the refrigeration equipment to carry out following measures:

- At suspicion of refrigerant charge loss a leakage check by certified personnel has to be arranged as soon as possible and if necessary the repair.
- Equipments containing the refrigerant has to be checked for leakage by certified personnel at least once every 12 months.
- Any detected leakage must be repaired immediately by certified personnel.
- After a leak has been repaired, the equipment has to be checked again for leakage within one month.
- When putting the equipment out of operation, you are responsible that the refrigerant contained in the equipment is proper disposed of by certified personnel.
- The above mentioned determinations and/or measures must be recorded.
  These records have to be kept at least 5 years and submitted to the competent authority on request.

For the recording of checking, determinations and measures we recommend to use the following forms.

## RECORDS ABOUT THE RESULTS OF THE LEAKAGE CHECKS

**MANUFACTURER'S DATA:**

**HOBART GmbH, Robert-Bosch-Straße 17, 77656 Offenburg, Germany**

Heat pump Manufacturer, Type: HOBART CHP _____

Year of manufacture: _____ Serial-No: _____

Refrigerant: R134a

Refrigerant charge heating circuit tank: _____ kg

Refrigerant charge heating circuit final rinse water: _____ kg

Leakage check done at manufacturer: Date: _____ Inspector: _____

**OPERATORS DATA:**

Name: _____

Postal address: _____

_____

Installation location: _____ Telephone: _____

**Leakage checks** and results of all regular routine tests, if necessary longer downtimes, final decommissioning / scrapping:

| Inspection date | Detected defect | checked | | | Next inspection |
|---|---|---|---|---|---|
| | | Company | Name | Signature | |
| | | | | | |
| | | | | | |
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**ATTENTION:** These records have to be kept at least 5 years after the last entry and be submitted to the competent authority on request.

## Noticed defects and their repairing

| Inspection date | Detected defect | Repair – If necessary modification / replacement of components | *Refrigerant R134a refilled, recovered, discharged (kg) |
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* If necessary detailed information about refilled refrigerant: Kind of the refrigerant (new / reused / recyceltes). If necessary analysis of the reused refrigerant; if necessary origin of the reused refrigerant.

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As continued product improvement is a policy of HOBART, specifications are subject to change without notice.

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