

INSTRUCTION MANUAL MOD. ST – FOR INSTALLER

- ENGLISH -

INDUSTRIAL GLASS AND DISHWASHER, UNDERCOUNTER

FOR EXCLUSIVE USE OF TECHNICALLY QUALIFIED PERSONNEL

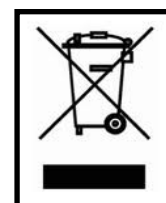
Attention:

CAREFULLY READ THESE INSTRUCTIONS BEFORE PROCEEDING WITH THE INSTALLATION AND OPERATION OF THE MACHINE.
 ANY INSTALLATION, ALTERATION OR MODIFICATION THAT DOES NOT COMPLY WITH THE STANDARDS SPECIFIED IN THIS MANUAL MAY CAUSE A MALFUNCTION OR DAMAGE TO THE MACHINE. THE WARRANTY WILL NOT BE CONSIDERED VALID AND THE COMPANY WILL NOT BE LIABLE IN THE EVENT OF INCORRECT USE OR FOR ANY DAMAGE CAUSED BY NEGLIGENCE OR FAILURE TO FOLLOW THESE INSTRUCTIONS.

- 1.1 Installation:** The Installation of the machine must be performed only by authorized personnel and in compliance with the laws in force and these instructions.
- 1.2 Modifications:** The manufacturer reserves the right to modify the equipment or the content of instructions, without prior notice.
- 1.3 Defects and malfunctions:** In the event of a defect or malfunction, the main electricity supply and water supply **MUST** be disconnected not only from the machine but even from the mains.
- 1.4 Repairs and Spare Parts:** The product must be repaired only by authorized personnel, only using original spare parts.



DECLARATION OF CONFORMITY
 EUROPEAN DIRECTIVE
 2002/95/CE RoHS



SUMMARY

General information		Page 02
Installation and start up		Page 03
Electrical connection		Page 05
Control panel		Page 06
Commissioning		Page 07
Adjusting the dosing		Page 09
Troubleshooting		Page 11

GENERAL INFORMATION

This dishwasher is in compliance with the provisions currently in force concerning safety. Improper use can cause damage to people and / or property. Before starting the machine, carefully read these instructions which contain important information for installation and safety. This manual is an integral part of the dishwasher.

The dishwasher is only intended for professional use. It is designed for washing dishes, glasses (cups, plates, cups, bowls, trays, cutlery) and in similar areas in the field of food and catering and complies with international electrical and mechanical safety and according to EMC standards.

Personnel operating the machine must be regularly trained. Only trained personnel should use it. The dishwasher is not suitable for use by minors and persons with reduced physical or sensory abilities, nor by people with psychological problems. The use of the machine by these people is permitted only under the supervision of a responsible person. Do not allow children play with the dishwasher.

The manufacturer disclaims any liability for damage to persons or property caused by disregarding instructions of this booklet, by incorrect use or by interference with any part of the dishwasher. Replace any defective parts only with new original parts. This is the only way that the manufacturer guarantees the observance of safety standards and the correct operation of the machine.

Do not use the dishwasher as a ladder or to support people, objects or animals. Leaning or sitting on the open door could cause it tipping over and endangering people. Close the door to prevent people tripping over it.

Before installing this appliance, check that there are no damages visible. For your safety, never operate on a damaged machine.

The dishwasher must be installed and repaired only by authorized personnel. Work performed incorrectly can cause serious hazards to the user, for which the manufacturer is not responsible.

Please ensure that earth connection has been done correctly. In case of doubts, have the system checked by a qualified technician. The manufacturer is not liable for any damages due to the interruption or absence of earth connection.

Follow installation instructions indicated in the installation manual. Prior to an electrical connection, it is necessary to compare the technical data, voltage and frequency indicated on the machine nameplate with those indicated on the mains supply. The electrical supply data must match with the machine requirements to prevent damage on the machine. In case of doubt, have the system checked by a qualified electrician.

Do not connect the machine to the mains with extensions because they do not guarantee the sufficient safety.

To perform the installation work or any maintenance or repair, disconnect the machine from the mains. Operate on the machine only when the isolating switch is off.

Be careful when handling chemical products! These products, such as detergent and rinse aid, can be corrosive or irritant. Follow the safety regulations on the packaging! Wear goggles and gloves! Carefully follow the safety instructions provided by manufacturers. Do not inhale powder detergent. Ingesting detergent can cause burns to the mouth and throat and lead to suffocation.

After any work done to the water supply, purge the water pipes to the dishwasher to avoid damaging or clogging the water inlet valve.

The machine and the surrounding area should not be sprayed directly with water.

Do not open the door when the machine is operating. There is a DANGER of splashing with hot water. If you open the door at the end of the cycle, take care not to touch the heating elements located into the wash tank (danger of burns).

INSTALLATION AND START UP

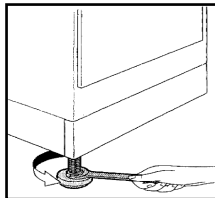
The installation of the machine must be carried out only by qualified technical personnel, in accordance with these instructions and in compliance with the regulations in force.

- ◆ Remove the packing and the polystyrene from the machine and check for damages. In case of damages, they must be notified in writing to the carrier. The packaging components (plastic bags, polystyrene foam, nails, etc.) must be kept away from children and pets, as potential sources of danger. All materials used for packaging are compatible with the environment. They can be stored safely or be disposed of to an appropriate waste disposal center. The components of wood and cardboard can be disposed of in accordance with environmental regulations. When disposing of the machine, avoid dispersion in the environment; dismantling must be in compliance with current standard in force.
- ◆ Check that the place where the machine will be installed allows easy maintenance. In particular, check that there is sufficient ventilation and no heating sources in the surrounding area nearby the machine.

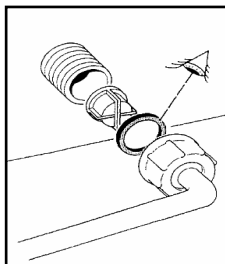
ATTENTION

The Electric system of the places where industrial dishwashers are installed must comply with national and local regulations in force.

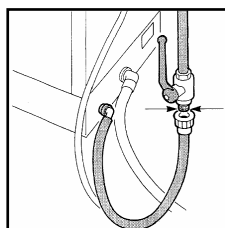
- ◆ The manufacturer disclaims any liability for any direct or indirect damage to people or property for not observing local laws.
- ◆ Before installation of machine, check the surrounding area to check if any objects could be damaged by steam or splashes of washing solution.
- ◆ Open the door and remove the following equipment: basket, cutlery basket, inlet and outlet tubes, rubber feet, user manual and installation manual with a wiring diagram and certificate of conformity.
- ◆ Remove the four rubber feet and screw them in the threaded holes on the bottom of the machine. The dishwasher must be steady and perfectly levelled. Any irregularities in the floor can be compensated using the four adjustable feet.



- ◆ Connect the inlet tube supplied with the machine to the solenoid valve. Check that the gasket seal is installed.



- ◆ Connect the other end of the water tube to the 3/4" BSP male fitting valve. The valve must be installed in an easily accessible place. Make sure that after installing, the pipe is not crimped or crushed.



ATTENTION!

The dishwasher can be connected both to the cold water system (minimum temperature + 5 ° C) or to the hot water system (maximum temperature +50 ° C) with appropriate loading pipe in compliance with the standard EN 61770. For connection to the water mains use only new hoses. Old or used hoses must not be used.

A good wash result will be possible if the machine is filled with good water quality with a max hardness (calcium and magnesium) of 3° to 5° dH (5° to 9°F). Above this value there could be lime scale deposits in the rinse jets, restricting the water flow during rinsing and filling. This can lead deposits of lime scale or detergent remaining on the ware and so bad wash result. In addition to this, lime scale will deposit on heating elements, shortening their life and increasing the amount of energy required to heat the water. Therefore, the use of hard water in the machine will invalidate its warranty. For best results, when installing the machine, if the hardness of water is not suitable, we suggest you to install a water softener (if this is not already installed on the machine).

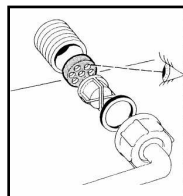
Do not use osmosis water and do not connect the machine to any appliances with osmosis system.

Soft water: up to 3°dH (5°F)

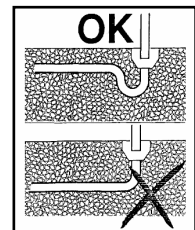
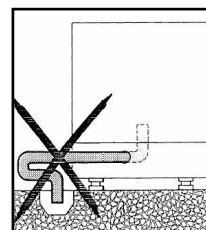
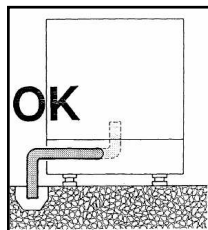
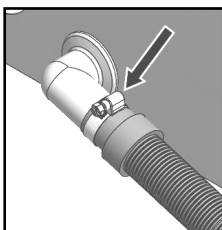
Medium water: 3° to 5° dH (5° to 9° F)

Hard water: above 5°dH (9°F)

- ◆ The machine must be connected to water mains in accordance with current local regulations in force. The water must at least meet the requirements for drinking water provided by the regulations. A high iron content in the water can cause rust on the dishes and in the machine. If the chloride content in the water is greater than 100mg / l, it will significantly increase the risk of corrosion. In certain areas the impurities of water can cause mechanical problems, so we suggest to check the water quality. The water inside the dishwasher is not drinkable.
- ◆ Verify that the mains pressure is not less than 2 bar (200 kPa) or greater than 4 bar (400 kPa).
- ◆ If the mains pressure is below 2 bar (200 kPa) a booster pump should be installed.
- ◆ In case that the mains pressure is greater than 4 bar (400 kPa), it may be appropriate to install a water flow reducer (which is provided with the machine) before the solenoid. With a flow reducer inserted, the maximum pressure is the one indicated on the inlet pipe.



- ◆ Use clamps to connect the drain discharge pipe to the drain outlet. Make sure there are no kinks or bottlenecks in the tubing before and after installation; also check that the drain point is at an height lower than the external connector of the dishwasher.



- ◆ If the point of discharge is located the same height or higher than that one of the bottom of the machine, a drain pump should be installed.

ATTENTION

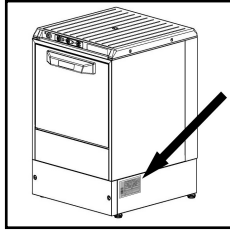
- The drain pipe must be fitted with a TRAP to avoid the possible return of unpleasant smell.
- The flow capacity of outflow of the waste system must be higher than that one of the waste system of the machine.

ELECTRICAL CONNECTION

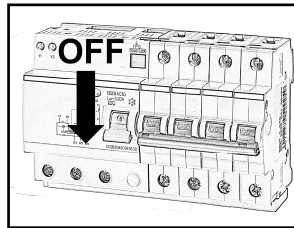
ATTENTION

The electrical connection of the machine and of any additional equipment should be undertaken only by licensed and qualified technicians in accordance with current regulations.

- ◆ The machine must be serviced with the values of power, voltage, frequency and protection as specified on the name plate.



- ◆ Verify that the wiring network is designed with grounding device and that an overvoltage category III isolating switch is installed (see EN 60204). This switch should be for the exclusive use of the dishwasher and positioned closed to the machine, for an easy access.
- ◆ Disconnect power from the main switch by switching it "OFF".



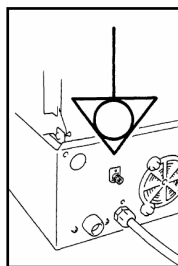
- ◆ Connect the power cable of the machine.

ATTENTION

**The neutral wire must be correctly installed to the switch.
The connection of the power cable to the dishwasher is "Y" type.**

The power cable can be replaced only by authorized and qualified personnel or by the manufacturer.

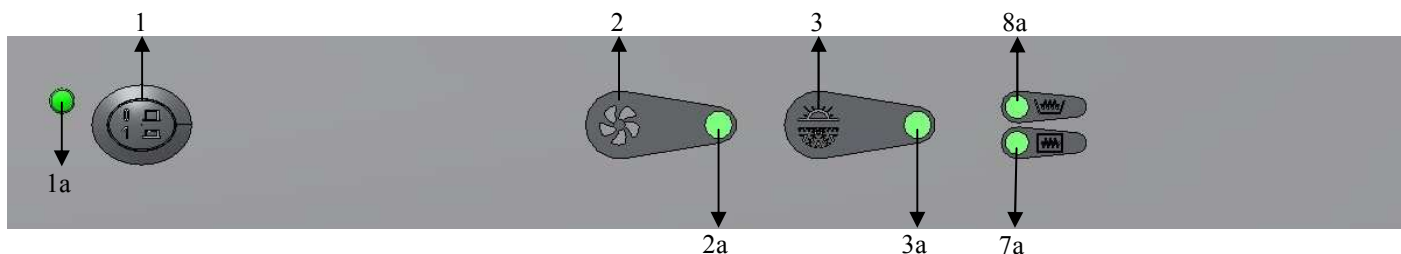
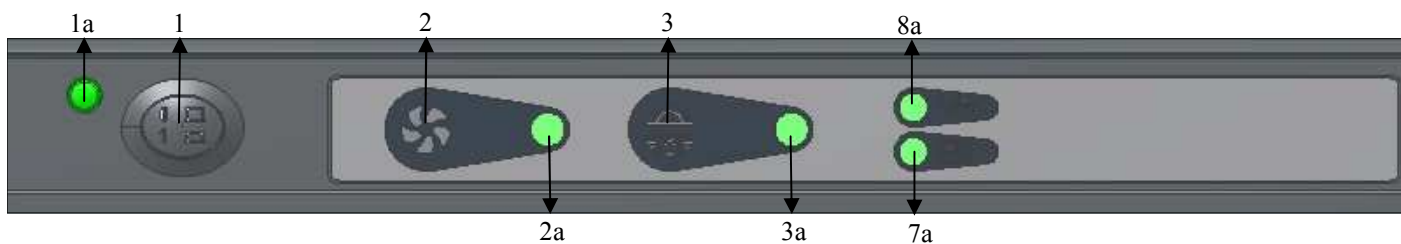
- ◆ Connect the earth wire of the power cable to an efficient earth. The electrical safety of the machine is ensured only by a correct earth connection.
- ◆ The equipment must also be included in an equipotential system whose effectiveness needs to be properly verified as required by legislation in force. The connection is made by a screw marked with "EQUIPOTENTIAL" positioned at the back of the frame.



ATTENTION

The dishwasher is without tension, so in safe position only when the mains switch is turned off.

CONTROL PANEL



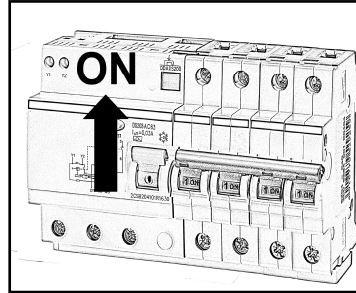
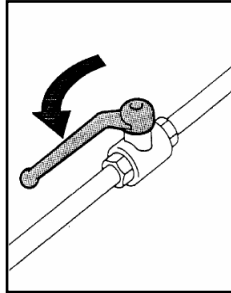
DESCRIPTION		N°
SWITCH 0/1	0  1 	1
LIGHT 0/1		1a
WASH CYCLE SWITCH		2
WASH CYCLE LIGHT		2a
COLD RINSE SWITCH		3
COLD RINSE LIGHT		3a
BOILER ELEMENT LIGHT		7a
WASH ELEMENT LIGHT		8a

OPERATION

ATTENTION

The first operation of the dishwasher MUST be performed by authorized and qualified personnel who will also give instructions concerning the machine.

- ◆ Open the water supply and switch on the main electrical supply.



- ◆ Open the dishwasher door and check that the wash arms are installed. Verify that the suction filter pump is fastened in the correct position and that the "overflow" is installed. Close the door.
- ◆ Pressing the switch 0/1 (1) to 1, the indicator light will turn on (1a) and the machine will make a check on the lights. After that, the machine will be set into a stand-by mode (the wash cycle light - 2a - blinks).
- ◆ Pressing the wash cycle button (2), the machine will start to fill with water. During the filling the cycle light will blink.
- ◆ When the filling of the machine is completed, all lights will be off, unless the 0/1 light.
- ◆ In this state the machine has full control over the tank and boiler temperatures, so if the temperature of the boiler is lower than the pre-set temperature, the machine will activate the boiler heating element, until when the correct temperature will be reached. The boiler heating light (7a) will be on.
- ◆ Once the boiler has reached the set temperature, the heating element will turn off and accordingly the corresponding light (7a) will turn off. Then the machine will check the wash tank preset temperature and in case it's lower, the heating element will activate until the correct wash temperature is reached. The wash tank heating elements is indicated by the corresponding light on the control panel (8a). When both temperatures, boiler and tank, will be reached, both lights (7a and 8a) will be off.

ATTENTION

**The temperatures of the tank and boiler CAN'T BE modified.
They are already set at 80°C for the boiler and at 53°C for the tank.
If the temperature of the tank is higher than 65°C,
then some cold water will enter into the tank in order to reduce the temperature at the set temperature.**

- ◆ When the machine is in the status of "full machine", wash cycle or cold rinse can be started.

ATTENTION

**The dishwasher usually has no detergent dispenser.
In this case you can fill manually the tank with solid or liquid detergent.
Use only industrial dishwasher detergent, preferably liquid one.**

◆ WASHING:

ATTENTION

To achieve a good washing result, it is essential to wait until the machine reached the correct temperatures, so when light 7a and 8a off.

1. Press the cycle button (2); the corresponding indicator light (2a) will turn on.
2. Wait until the machine has finished the cycle / hot rinse.
3. At the end of the cycle (light 2a off), open the door and remove the rack.

ATTENTION

All machines are equipped with Interlock function. This device allows the machine to perform the rinse at the end of wash cycle only when the preset temperatures have been reached.
If the wash cycle has started before the rinse boiler heating lamp (7a) has switched off, then the wash cycle will be longer and will continue until when the set temperature is reached.
It is possible to deactivate the Interlock function by modifying the DEEP SWITCH positioned on the electronic board (see page 15 - DEEP 4 ON).

ATTENTION

Do not open the door until the machine has finished the cycle. In case the door is opened during the cycle, the cycle will stop. Closing the door, the cycle will continue from the point where it was interrupted.

◆ COLD RINSE BUTTON

1. Press and hold the cold rinse button (3). The indicator light (3a) will turn on. The machine will now rinse with cold water.
2. Switch off the cold rinse button (3). The corresponding indicator light will turn off.

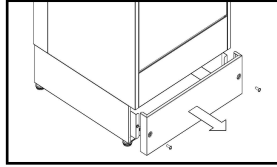
ADJUSTING CHEMICAL DOSING

ATTENTION

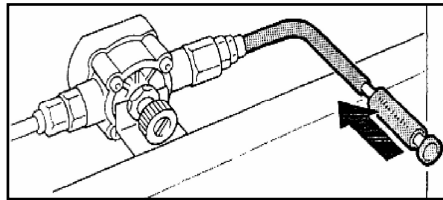
It is important to respect safety regulations when using corrosive products. We recommend the use of gloves and glasses

RINSE AID DISPENSER—HYDRAULIC PUMP

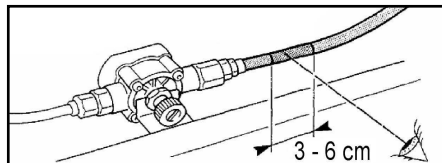
- ◆ Remove the front panel by loosening the screws. This will give access to the dispenser.



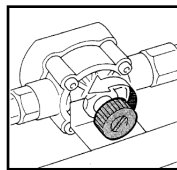
- ◆ Fill the silicone tube of the rinse-aid pump with water, using a water pistol.



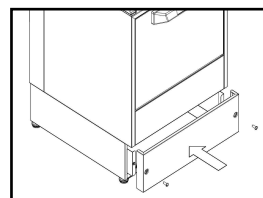
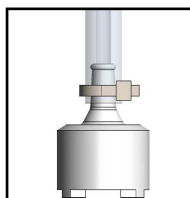
- ◆ Press the cycle button (2). This will start the wash cycle (pump will start washing), the indicator light will turn on (2a).
- ◆ Wait for about 20 seconds and open the door slightly. This will **stop the wash cycle**.
- ◆ Visually check that the amount of liquid in the silicone tube is correctly sucked. We recommend to use aprox 0,3g of product for each cycle when water hardness is soft and 0,6 g when medium. Anyway, please refer to the technical sheet of the used product.



- ◆ Adjust the pump sucked volume by regulating the screw.

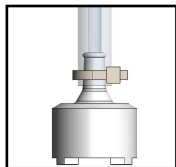


- ◆ Restart the machine by closing the door and wait again for 20 seconds. Then re-open the door slightly.
- ◆ Check again the amount of liquid sucked; if it is not correct then adjust again with the screw.
- ◆ Repeat again the operation closing door / opening and regulating the screw until when the required amount of product is sucked.
- ◆ Re-install the filter at the end of the silicone tube and insert it into the rinse aid bottle. Re-assemble the front panel of the machine.

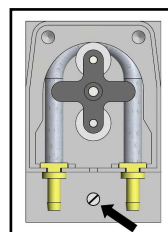
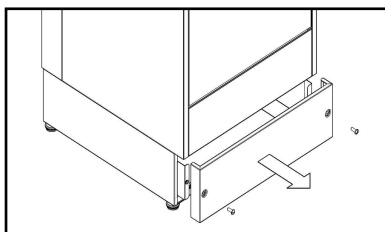


PERISTALTIC DETERGENT PUMP (OPTIONAL - ONLY ON SOME VERSIONS)

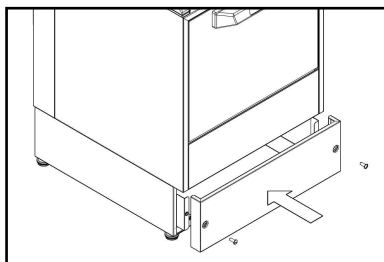
- ◆ Insert the filter at the end of the detergent tube and place it into the bottle of detergent.



- ◆ The detergent dispenser works during the filling up of the machine and during the rinsing at the end of each wash cycle. Perform a series of washes and check the soil removal on the dishes. Determine if it is necessary to increase or decrease the quantity of product. If it's necessary, open the front panel of the machine and regulate with the adjusting screw.



- ◆ Finally reassemble the front panel on the machine.

**ATTENTION - GENERAL NOTES**

It is important to respect the safety regulations for the use of corrosive products. We recommend the use of gloves and glasses.

During the installation of the machine, the chemical dosing pumps must be correctly adjusted.

Please remember that the quantity of detergent and rinse aid depends on the quality of products and the hardness of the water. Refer to the instructions of the chemical manufacturer.

Every time you change the products (detergent or rinse aid) it is NECESSARY to clean both systems by making the tubes sucking some water for some cycles.

ONLY USE PRODUCTS FOR SPECIFIC INDUSTRIAL DISHWASHER USE.

We recommend to replace either rinse and detergent tubes at least every 12 months.

Failure to comply with these instructions will void the warranty granted on the machine.

TROUBLESHOOTING

PROBLEM	SOLUTION
The machine doesn't start	1) Make sure the electrical power is "ON".
	2) Check that power is ON at the ON/OFF switch.
	3) Check that the door is properly closed and that the micro switch is correctly operating.
	4) Check that the tank water level pressure switch and the solenoid valve are working.
Water in the wash tank does not stop filling	1) Check tank water level pressure switch.
	2) Check that the air pressure switch is not obstructed.
The wash tank doesn't fill or machine is not rinsing	1) Check that the water inlet tap.
	2) Check that the "ON - OFF" switch is ON.
	3) Check that the "0-1" switch is on position 1.
	4) Check that the water overflow is installed correctly.
	5) Check that the wash jets and wash arms are not blocked by lime scale or soil.
	6) Check if there is some water in the air gap. Remove the drain overflow and drain tank completely. If the fault is not solved, replace the pressure switch.
	7) Check that the water solenoid valve opens and closes correctly. If it not replace it.
The wash tank fills very slowly	1) Check the water inlet tap is correctly open.
	2) Check that the inlet water supply pressure is at least 2 bar. If not, we suggest to install a booster pump.
	3) Remove the water supply hose, check that the solenoid valve filter is not clogged with dirt or sand.
	4) Check that the rinse jets are not restricted with lime scale or soil.
	5) Check that the overflow is properly inserted.
	6) Remove the flow reducer.
The water is not heating	1) Let water enter into the tank while ensuring that the overflow is properly inserted.
	2) Check that the tank and boiler heating elements are properly working.
	3) Check that safety thermostats have not interrupted current.
The tank doesn't drain	1) Drain pipe can be blocked by a solid body. Remove it from the drain pipe or, if required, replace the pipe.
The washing results are not good	1) If the filter basket (in front of the wash pump) is dirty, clean it thoroughly.
	2) Check that the wash arms and jets are not restricted by soil.
	3) Verify that the detergent container is not empty and detergent is being taken into the wash tank.
	4) The wash cycle may be too short when washing heavily soiled ware. Repeat wash cycle.
	5) Verify that the wash tank water is at the right temperature.
	6) Verify that the wash arm rotates freely.
Glasses and plates do not dry well	1) Check manufacturer instructions for the correct dosage of rinse aid product.
	2) Check the amount and quality of product used. (Results are improved when using softened or demineralized water).
Condensation on the glassware	1) The glassware must be racked correctly in the basket.
	2) Check quality and quantity of rinse aid product.
	3) Insufficient detergent or low quantity of product used. We suggest to check and if necessary, to adjust it.

PROBLEM	REMEDY
Glassware does not sparkle	1) Use only defoaming detergent and rinse aid for industrial appliances. Check the quality of product used. 2) Too much detergent or too much rinse aid may be used. Please check.
Presence of too much foam in the tank	1) Verify that the water temperature in the wash tank is not lower than 50 °C. Check the quality of the detergent. Use only industrial products. 2) Too much rinse aid and also low wash tank temperature can generate foam. 3) Check that the wash tank has not been cleaned with incorrect products. If it has, drain, rinse and refill the tank. 4) In case a foaming product was wrongly used, drain and refill the tank with water, several times until the foam disappears, then use an any roaming product. 5) Check that the tank and boiler elements are correctly working.
Glassware streaked or spotted	1) Check the amount of rinse aid per cycle. Follow the instructions recommended by the manufacturer, referring to the hardness of water.
Wash arms turns with difficulty or do not turn	1) Remove and clean wash arms (see user manual). 2) Verify that the inlet pressure exceeds 2 bar (200 kPa). If not, we suggest to install a booster pump. 3) Check that the central disk below the wash arm assembly is the correct position.
Rinse aid dispenser does not work	1) Verify the water level in the tank; in case it's empty, fill and start. 2) If the tank is full, follow instructions at point no. 3. 3) We suggest you to unlock the valves, in order to allow the correct flow of liquid. Using a water syringe of 100 cc press some water into the rinse aid suction tube (see page, 10 of this handbook).

	CYCLE LIGHT	COLD RINSE LIGHT	HEATING LIGHT	STATUS	CAUSE
PHASE:					
POWER (stand-by)	Fixed for 3 seconds. Then blinks	Fixed for 3 seconds. Then off	Fixed for 3 seconds	correct	
	Fixed for 3 seconds. Then blinks	Fixed for 3 seconds. Then blinks	Fixed for 3 seconds. Then blinks	fault	At least one temperature probe is faulty probe is faulty or boiler safety thermostat open (clickson type)
FILLING	Blinking until filling finished	Off	Off	correct	
	Blinks	Off	Off	fault	Door is open
	Blinks	Blinks	Blinks	fault	The solenoid is activated for more than 7 minutes (low pressure) or the pressure switch does not work.
WASHING	Fixed	Off	1 on and 1 off or both off	correct	
	Blinks	Off	1 on and 1 off or both off	fault	Door is open
	Blinking and cycle doesn't start	Off	1 on and 1 off or both off	fault	Press the button 2 seconds after closing the door
	Blinks	Blinks	Blinks	fault	At least one temperature probe is faulty probe is faulty or boiler safety thermostat open (clickson type)
COLD RINSE	Off	Fixed	1 on and 1 off or both off	correct	
	Blinking and cold water enters for 10 seconds	Off	Off	correct	
OTHERS					

When all the leds blinks then the machine is on an alarm condition. The alarm status is indicated by the led's.

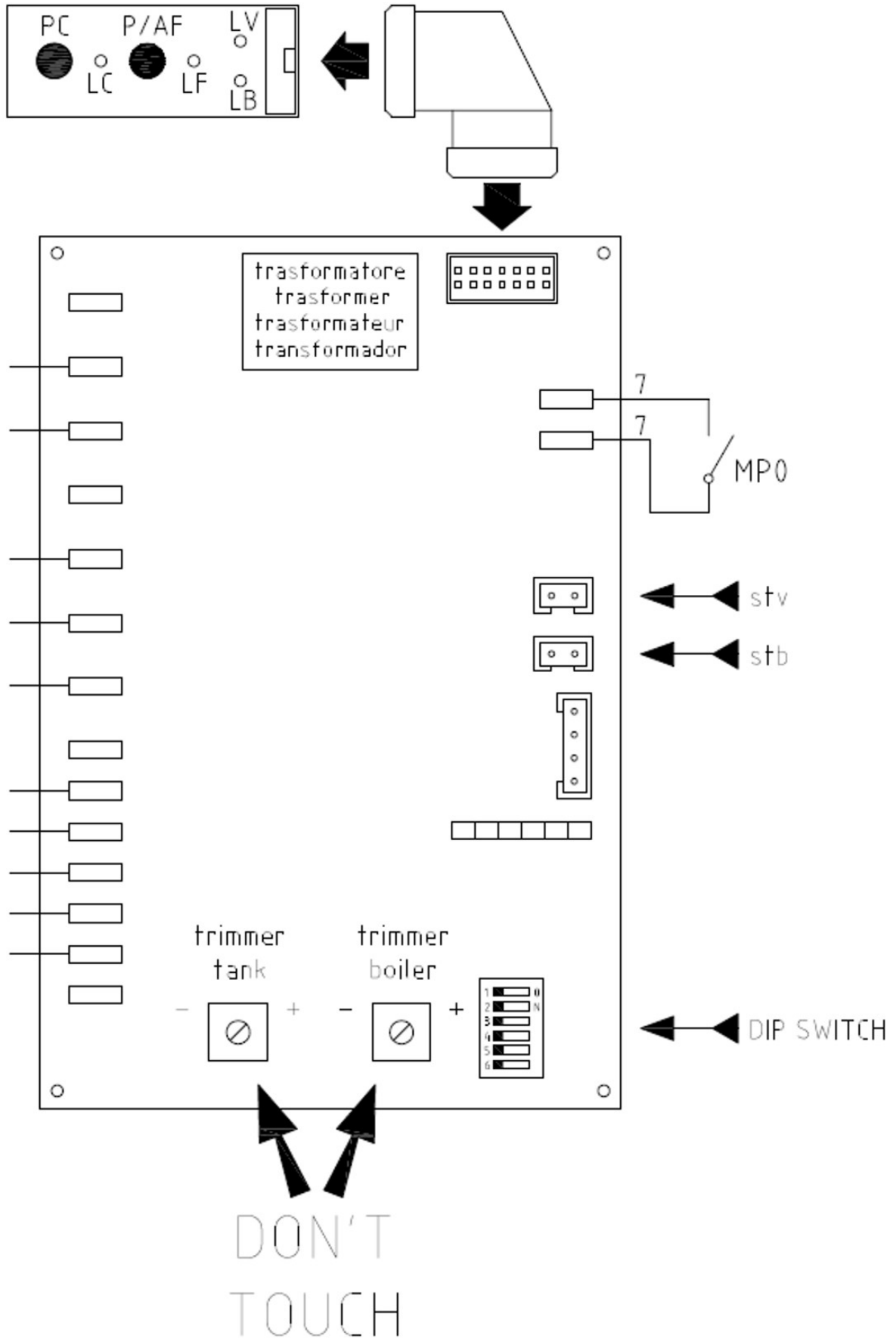
NORMAL OPERATION IS RESTORED BY TURNING THE MACHINE OFF AND ON AGAIN.

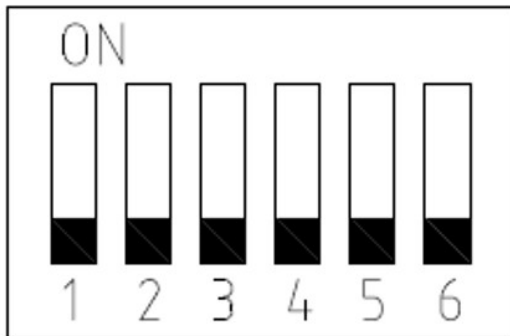
If the cause of the alarm is a temperature probe, when restarting the machine in the stand-by mode, the alarm will occur again.

If there is a problem on the pressure switch, as soon as the filling start, the alarm will occur again.

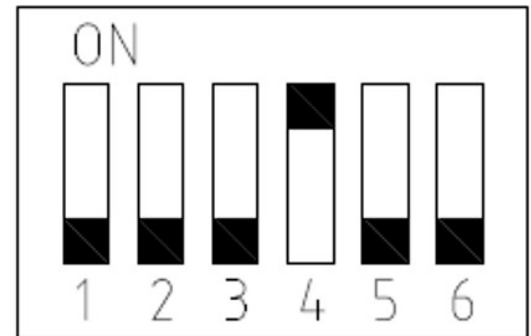
If the timer for filling the tank is longer than 7 minutes, the machine stops and goes in alarm.

CARD MODEL ST

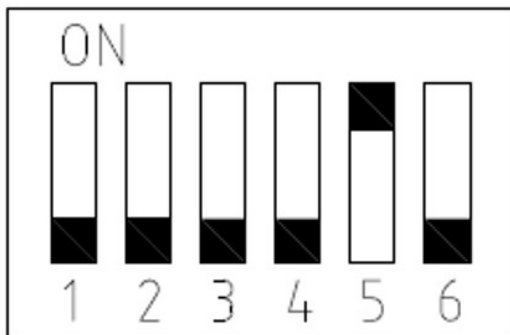


DEEP POSITION CARD MODEL ST

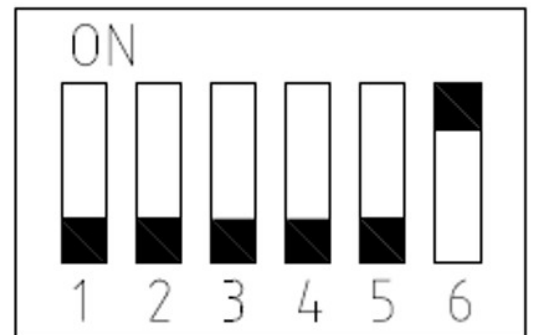
Deep on the standard
position
(interlock working, wash
cycle 120")



Deep 4 ON
Interlock not working



Deep 5 ON
The wash cycle starts only
when the temperature of the
machine is attempted (so
when the elements are off)



Deep 6 ON
The length of the wash
cycle is increased of 30
seconds.

