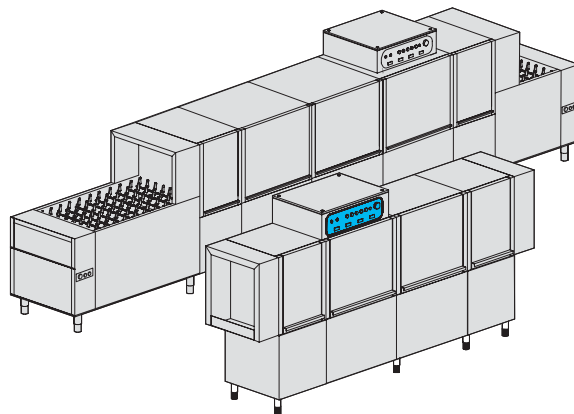


UK

**Instructions for Installation, Use and
Maintenance**

CE



COD.: 3750
Ed. 03 - 06/2008

**APPLICARE ETICHETTA
MATRICOLA**



Thank you for choosing our appliance.

The installation, use and maintenance instructions given in this manual have been prepared to ensure the long life and correct operation of your appliance.

Follow these instructions carefully.

We have designed and manufactured this appliance according to the latest technological developments. Now, it is in your care.

Your satisfaction is our greatest reward.

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READ THE INSTRUCTIONS CAREFULLY BEFORE INSTALLING THE MACHINE.



WARNING: FAILURE TO COMPLY (EVEN PARTIALLY) WITH THE RULES GIVEN IN THIS MANUAL WILL INVALIDATE THE PRODUCT WARRANTY AND RELIEVES THE MANUFACTURER OF ANY RESPONSIBILITY.

INSTRUCTIONS



This instruction booklet must be kept with the dishwasher for future consultation. If the dishwasher is sold or transferred to another user, make sure the booklet always goes with the appliance so that the new owner can have the necessary information on operation and the relevant instructions.

The instruction booklet must be carefully read before installation and first use of the dishwasher. These directions are provided to safeguard the user in observance of guideline 2006/95/CE, 98/37 and subsequent modifications and of the “Harmonized Product Technical Provisions” EN 60335-1 and EN 50416.

- Adaptation to the electrical and hydraulic systems for installing the dishwasher must be done only by qualified operators.
- This dishwasher must be operated only by adults. This is a machine for professional use. It must be used by qualified personnel, and installed and repaired only by a qualified technical assistance centre. The manufacturer declines any responsibility for improper use, maintenance or repair.
- The appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
- Children being supervised not to play with the appliance.
- Accompany the doors when opening and closing.
- Make sure the dishwasher does not rest on the power cable or on the supply and drain pipes. Level the machine by adjusting the support feet.
- **The dishwasher is designed only and solely for washing plates, glasses, trays, baskets and various pots and pans with human food type of residue. Do not wash objects others than those listed, and do not wash objects that are too fragile or made of material not resistant to the washing process.**
- Do not open the dishwasher doors when in operation. The dishwasher is however equipped with a safety device that immediately blocks operation, preventing water from escaping, in case the doors are accidentally opened. Remember to always switch the dishwasher off and empty the tank before accessing the inside for cleaning or any other purpose.
- Do not open the doors too quickly. Wait at least 15 seconds after the motors stop.
- If the towing system stops due to the safety device (torque limiting device) and not because of the limit switch on the outgoing bracket, stop operation before removing the obstacle causing the arrest by cutting off power with the main switch.
- **Following use at the end of the day and for any type of maintenance, it is essential to disconnect the dishwasher from the power mains using the service switch and the main switch on the wall, and close the water supply cock.**
- The user is forbidden to do any repairs and/or perform any maintenance. In any case contact qualified personnel.
- This dishwasher must be serviced by authorised personnel.
N.B.: Only use original replacement parts. Otherwise the product warranty is invalidated and the manufacturer is no longer responsible.
- **Do not use old load pipe, but only new ones.**
- You must observe some important rules when using this appliance:
 - 1) never touch the appliance with damp hands or feet;
 - 2) do not install the appliance in places exposed to water sprays;
 - 3) Do not leave the appliance exposed to atmospheric agents (rain, sun, cold, etc.).
- Do not dip bare hands into water containing detergent. If this should occur, wash them immediately with plenty of water.



- Only follow the instructions given in the manufacturer's booklet for cleaning operations (chap. 7).
- This appliance is designed to work up to the maximum ambient temperature of 35°C, in an appropriate environment with temperature no lower than 5°C.
- Do not use water to put out fires on electrical parts.
- Do not clog the intake or dissipation grids.
- Only qualified personnel can access the control panel after power is switched off.
- The machine has an IPX4 rating of protection against accidental splashes of water. It is not protected against pressurized jets of water, so it is recommended that pressure cleaning systems not be used.
- The machine with drying can overcome the 70dB (A) of acoustic pressure, always maintaining however itself below the 85dB (A).
- **Guarantee, through an aspirator, a minimum ventilation of 500m³/h; if the machine is furnished of a drying, increase the ventilation to 1500m³/h.**

NOTE: The manufacturer declines any responsibility for accidents to people or things deriving from failure to observe the rules stated above.



IMPORTANT: WAIT AT LEAST 10 MINUTES AFTER THE MACHINE HAS BEEN SWITCHED OFF BEFORE CLEANING INSIDE IT.



WARNING: DO NOT PUT YOUR HANDS INSIDE AND/OR TOUCH THE PARTS AT THE BOTTOM OF THE TANK WITH THE MACHINE ON AND/OR HOT.

ATTENTION:

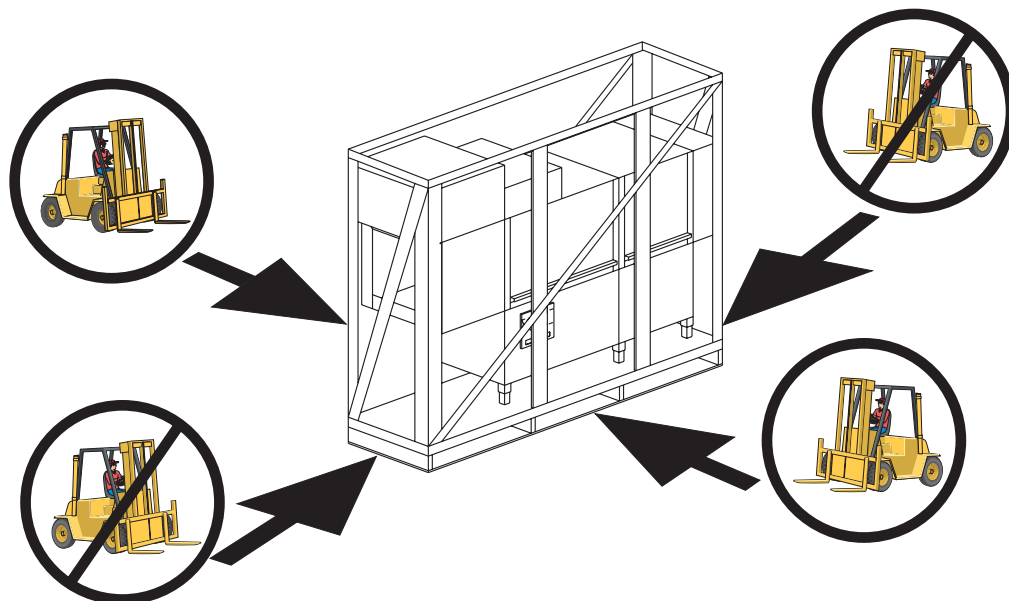
At the end of installation make sure to remove the parts of this booklet relevant to the installer, for future consultation.

1. MACHINE INSTALLATION**1.1 Handling****1.1.1 Handling the product**

The machines must be handled strictly as shown in pict. 3 regarding the grip points indicated for lifting with a lift truck.

Note: Slings with ropes is not envisaged.

pict. 3

**1.1.2 Storage**

Material storage methods must envisage pallets, containers, conveyors, vehicles, and lifting equipment and devices suitable for preventing damage due to vibrations, impacts, abrasions, corrosion, temperature or other conditions that may arise.

Storage temperature: min. +4°C - max +50°C - humidity <90%.

The stored parts should be checked periodically so as to spot any deterioration.

1.1.3 Taking delivery of the product

Pay special attention to choosing the hook-up points and the machine's centre of gravity during loading and unloading operations.

Before proceeding, verify that the data of the dataplate correspond to those of the electric line available.

After unpacking, make sure the appliance has not been damaged due to transport. If it has, notify the reseller of the problem. If it jeopardizes safety, do not install the appliance. See chapter 8 for disposal of the packing material.

1.1.4 Machine equipment

For towed basket machine:

2 Dishes baskets

1 Glasses basket

1 Cutlery basket

Use and maintenance booklet

Plasticized maintenance diagram



For belt machine:

2 Universal wide mesh glasses baskets

1 Universal narrow mesh cutlery basket

Use and maintenance booklet

Plasticized maintenance diagram

1.1.5 Positioning the machine

Position the machine as shown in the installation diagram (lay-out) approved at the time of the offer.

Maintain a distance of about 50mm from the walls so as the motors are ventilated. Install suction hoods so as to assure minimum ventilation of the room, which is able to eliminate excess steam.

Check that the machine is properly levelled with a spirit level and, if necessary, tighten or loosen the feet.

1.1.6 Machine mounting/assembly (if divided into several parts)

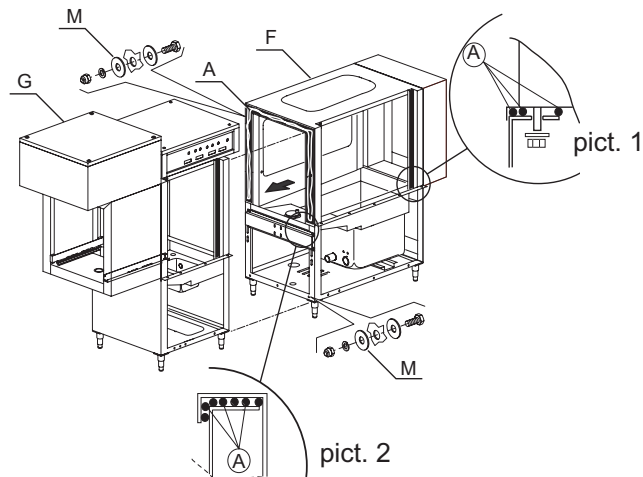
A) Assembly of towed basket versions

1) Apply silicone UNI9610-11 (A) on the gasket found on the washing module (F) and in points (A) pict. 1 and 2.

2) Draw the two premounted modules (G) and (F) close together until they touch and couple any tanks between them. Secure the modules with the screws provided (M).

3) Insert the basket supports and movable frames inside the machine. Lock them in position using the slotted holes of the washing module and splash guard.

4) Fix the frame using the nuts provided.



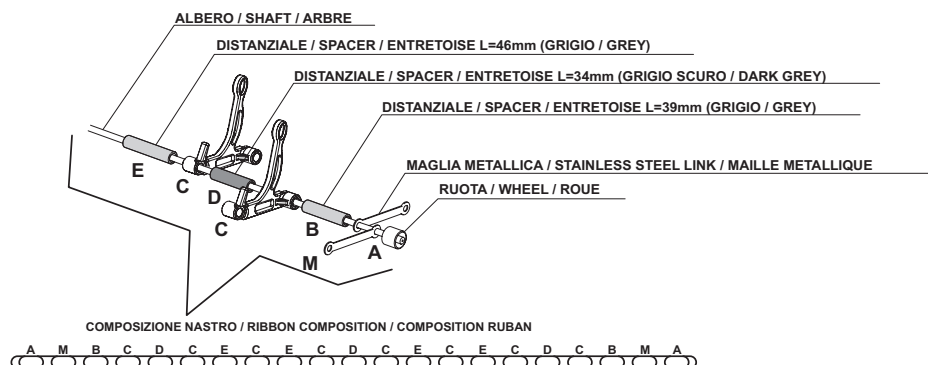
B) Assembly of belt versions

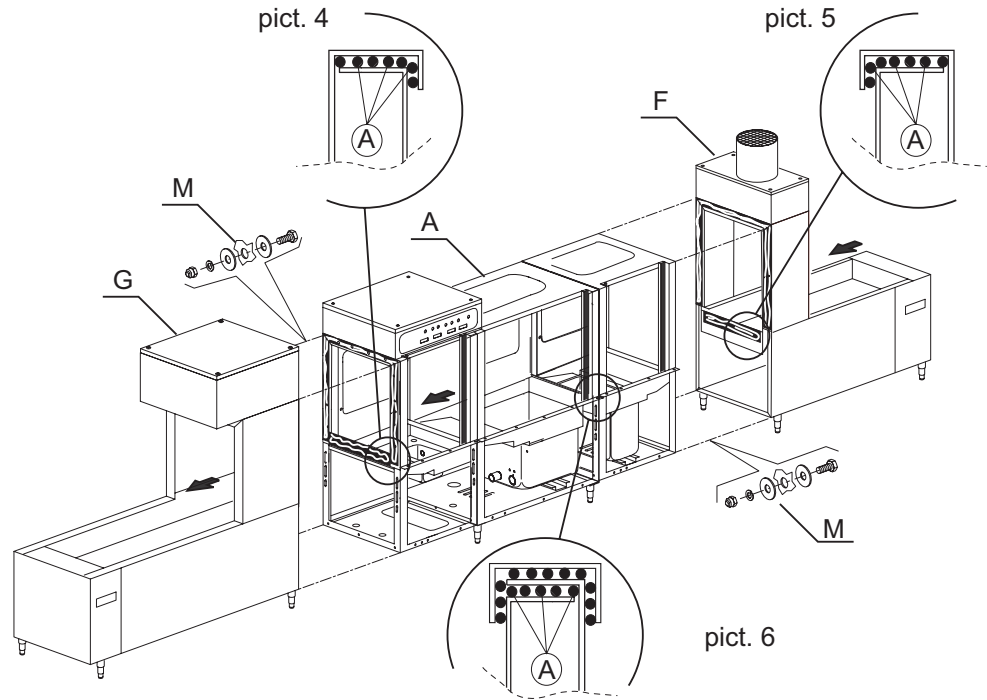
1) Apply silicone UNI9610-11 (A) on the gasket found on the washing module (F) and in points (A) pict. 4, 5 and 6.

2) Draw the two premounted modules (G) and (F) close together until they touch and couple any tanks between them. Secure the modules with the screws provided (M).

3) Once the machine is assembled, mount the belt guides and insert the belt.

4) Pay attention that the belt's wheels (A) have to be replaced once removed as the inner coupling breaks. This is made so as to withstand only the coupling and to prevent





the wheels from being released.

5) When the belt is installed, you have to tension it using the screw (R) - see photo — of the tensioning system placed in the entry bracket. While working, the belt must not shift and totally rub against one side, but must be pulled so as to freely run between

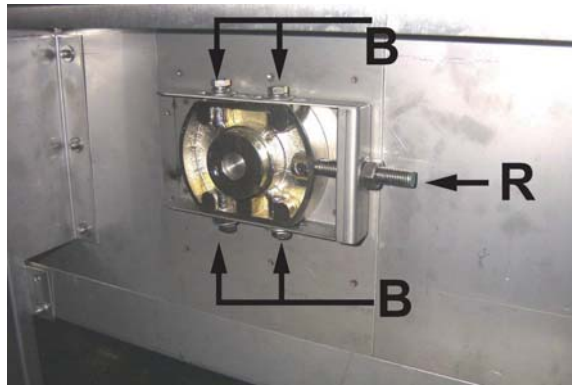


photo 1

the two guides.

6) You will have attained good tension when you are able to pull the belt up with your hands no more than 4-5 cm with respect to the guide next to the splash guard of the entry bracket.

7) After having adjusted it from both sides with the screw (R), lock the supports in this position with the screws (B) from both sides of the entry bracket.

C) Then connect all of the rubber pipes that may be disconnected and numbered. The ends having the same numbers are to be connected to each other, to rebuilt the hydraulic system.

D) Make all of the electric connections on the electric board; the numbered cable is to be connected with the terminal having the same number.



1.2 Hydraulic connection

Pressure table	Min	Max
	KPa	KPa
Static Pressure	200	600
Dynamic Pressure	150	400
Hardness	2°f	10°f

table 1

1.2.1 Connecting the water pipes

Connect the machine water supply to an on/off valve that can rapidly and completely shut off the water inflow.

Make sure the water supply pressure is within the values given in table.1. If it is lower than 2.0 Bar (200 KPa), install a pressure increase pump so as to get optimum machine operation (the machine can be supplied with this pump upon request). If, on the other hand, the pressure is higher than 4 Bar (400 KPa), we recommend you install a pressure reducer (only for versions where it is not standard supply).

Installation of a lime remover is mandatory for water having a hardness greater than 10°f. This way you will get cleaner kitchenware and the machine will last longer. If necessary, test the water's hardness.

It is advisable that you connect the pipe to the pipeline network no higher than 55°C if connected to hot water.

Note: Refer to the nameplate's data of the specific serial number belonging to the purchased machine.

If the machine has a cold and hot water supply, pay attention to the connection of the pipes.

Labels indicating "hot water/cold water" are provided inside the machine, close to the connections.

The pre-wash and steam condensate are always connected to the cold water. Connect the drain pipe while trying to make sure the water flows freely (therefore giving it a minimum amount of incline).

The drain hose must always be connected to a trap to prevent the return of odours from the system.

Maximum height of draining is cm. 15.

1.2.2 Connecting to a steam generator (special versions on request)

Make the connections as per the previously sent lay-out.

Place a steam on-off valve nearby.

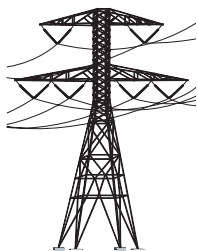
If the steam pressure exceeds 0.7 Bar, add a pressure reducer.

Install a condensate trap with a flow rate of at least what is shown on the part number, chapter 1.7, at the machine's outlet.



Symbols found on the hydraulic diagrams

A1	ENTRATA VAPORE STEAM ENTRY ENTRY VAPOUR DAMPFEINTRITT	1"1/2" G	C	ALLACCIAMENTO ELETTRICO ELECTRICAL-CONNECTION BRANCHEMENT ELECTRIQUE SCHALTPLAN	
SC1	SCARICO VASCA LAVAGGIO WASHING TANK DRAIN VIDAGE CUVE DE LAVAGE WASCHTANKABFLUSS	1"1/4" G		PORTATA ALLO SCARICO (Lt/s) DRAIN FLOW (Lt/s) PRTEE DE LA VIDANGE (Lt/s) ABFLUSSLEISTUNG (Lt/s)	1.5
SC2	SCARICO VASCHE PRELAVAGGIO PREWASHING TANK DRAIN VIDAGE CUVE DE PRELAVAGE VORWASCHUNGTANKABFLUSS	1"1/4" G	D	SCARICO CONDENSA CONDENSER DRAIN VIDAGE DU CONDENSEUR DAMPFABFLUSS	Ø 12
SC3	SCARICO VASCA RISCIAQUO RINSE TANK DRAIN VIDAGE CUVE DE RINCAGE NACHSPULUNGTANKABFLUSS	1"1/4" G	B1	ENTRATA ACQUA CALDA MAX 55° WATER INLET MAX 55° TUYAU DE CHARGEMENT MAX 55° MAX. 70° WARMWASSEREINTRITT	3/4" G
SC4	SCARICO VAPORE/CONDENSA STEAM/CONDENSATION EXIT SORTIE VAPOUR/CONDENSATION DAMPFABFLUSS	3/4" G	B	ENTRATA ACQUA FREDDA MIN 5° WATER INLET MAX 5° TUYAU DE CHARGEMENT MAX 5° MINIMALE 5° KALTWASSEREINTRITT	3/4" G
D1	SCARICO CONDENSA CONDENSER DRAIN VIDAGE DU CONDENSEUR DAMPFABFLUSS				



1.3 Electrical connection

Electrical connection must be carried out in compliance with current standards. Make sure the line voltage matches that given on the special machine dataplate. You have to install a suitable omnipolar, one-way switch sized according to the absorption that is provided with a contact opening of at least 3 mm.

This switch must be dedicated only and exclusively to this circuit and installed in the immediate vicinity at a height compliant with regulations in force. **The machine is to be turned off absolutely with this switch. Only this switch gives the warranty of the totally electric network isolation.**

Ensure that the system has an efficient earth.

The machine also has a terminal marked with the symbol (see pict. 4) on its back that is used for the unipotential connection between different appliances. The value of the maximum power expressed in watts (W) and ampere (A) is given on the relevant dataplate for sizing the line, cable and switches (see chapter 1.7).



Note: in machines you must necessarily use type H07RN-F cables or replace it with another one if different from the regulations of the country where the dishwasher is installed. The reseller/importer/installer is obliged to adapt the insulation class of the power cable depending on the work environment in observance of the Technical Regulations in force.

Connect a cable having the section indicated in the following table to the main switch of the equipment. The cable sections refer to the CEI-EN 60335-1 standard, chap. 26 table 13.

Warning: some versions of this machine may disperse more than 10 mA to earth.

The machine is equipped with three-phase motors, check that their rotation is correct (direction given by the arrows found in the pan).

Note: In the towed basket machines, check that the gearmotor rotation (motion) is clockwise as seen from inside the washing area of the machine.

The arriving cables of the electric power line of the main switch must be marked with the appropriate danger information. Do not remove these references from the cables before having taken all the precautions called for (e.g. cutting off the upline power supply).

Note: Do not modify the protections and remove them only if the machine is stopped and the power supply is cut off from the main supply on the wall (**the switch 0-1 of the machine does not cut off the machine's power supply**).

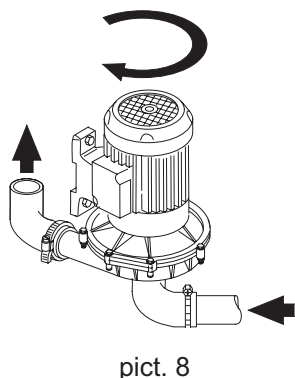


table 2
(ref. EN60335-1 - par. 25.8)

Nominal range of current per phase (AMPERE)	Cable section mm2
0-10	1
10-16	1,5
16-25	2,5
25-32	4
32-50	6
50-63	10
63-90	35
90-110	50
110-150	70
150-180	95



1.4 Setting

1.4.1 Setting the machine



photo 3

After you have made the hydraulic and electrical connections, turn on the machine and press the green key PM2 found inside the sill of the double rinse module. The boilers will be properly filled when water comes out of the rinse nozzles, and it will be possible to activate the circuit breakers.

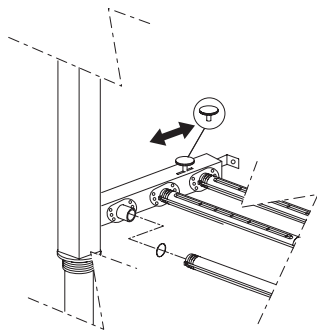


FIRST INSTALLATION: Do not close the circuit breaker before you have filled the boiler (PM2 key close to the safety thermostat - see photo 3). When water comes out of the rinse jets, the boilers are full; at this point deactivate the PM2 key and activate the circuit breakers of the boilers.

The pressure on the washing arms has already been adjusted during the check stage of factory testing.

This adjustment can be modified depending on what is to be washed (see pict. 6). In the models without the pressure reducer, it is necessary to adjust the flow rate of the water using the on-off valve found inside the machine (adjustment depends on the network's pressure) so as to get about 4 l/minute rinse.

In the machines provided with steam condensate, the flow rate of the water to the batteries is adjusted to 3+4 l/minute, and the cock is partially closed (see photo).



pict. 9



In the case the machine is installed beneath a suction hood or if the steam condensate flue is connected to the outside with a pipe, the amount of cooling water can be reduced.

This flow rate can be changed during installation in order to optimise steam condensation, depending on the environmental conditions.

photo 2
Adjustment of flow rate of steam condensate cooling water (optional)

1.4.2 Setting Kit dispensers (optional)

The kit dispensers settings are the following:

Kit dispensers setting	
Initial loading	10s
Set point conditions	20SkU
Rinse-aid speed	50%
Rinse-aid time out	00s

table 3

1.4.3 Setting optional Inverter

The inverter settings are the following:

Inverter setting		
HSP	50	Frequency determining the max speed
LSP	20	Frequency determining the min speed
ACC	3,0	Acceleration during speed change
DEC	0,1	Deceleration during speed reduction
ITH	1,8	Intervention value of overload cutout

table 4

1.4.4 Setting optional Autotimer

The Autotimer is an optional on towed basket machines and it's standard on belt machines.

An electronic timer is placed in the control panel so as to stop the machines about 5 minutes after inactivity if there is nothing to wash; this time can be changed, but we recommend it be kept at the factory-set value.

1.5 Starting

1.5.1 Filling the boiler

Make sure the circuit breakers of the tank and boiler, situated inside the machine, are on the "0" position.

Open the external water feed cock.

Energize the machine with the wall-mounted main switch and turn the machine on with the "0-1" selector or "P10" for electronic version (see page 57 and 58 pict. 12 - 13 - 14); the line indicator lamp (5) (LED 8 for the electronic version) turns on.

Once filled (LED 3 for the electronic version, lamp 6 for the mechanical version), keep the green PM2 switch (photo 3) positioned close to the thermostats, inside the rinse lower-door, connected until water starts to come out of the rinse jets. This operation ensures that the boiler is filled completely.

The operation described above is necessary only with the first installation, and possible after a subsequent emptying of the boiler that may become necessary due to technical or maintenance operations. Activate the magneto-thermics on the control panel only after this operation and regulate the temperatures, if necessary.

1.5.2 Adjusting the thermostats of boiler and tanks

Check that the thermostats of the boiler and tanks are adjusted according to the table, by pressing "SET" for a second; eventually to proceed to the regulation (see chap. 2.2).

TABLE WITH CALIBRATION OF THE THERMOSTATS												
MODELS	PRE-WASH TANK			1ST WASH TANK			2ND WASH TANK			BOILER		
	RECOMMENDED TEMPERATURE RANGE		SET VALUE	RECOMMENDED TEMPERATURE RANGE		SET VALUE	RECOMMENDED TEMPERATURE RANGE		SET VALUE	RECOMMENDED TEMPERATURE RANGE		SET VALUE
	Min	Max		Min	Max		Min	Max		Min	Max	
	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	
1 washing tank* (only some models)	--	--	--	--	--	--	55	65	63	80	90	85
2 washing tanks	--	--	--	50	60	55	55	65	63	80	90	85
3 washing tanks	40	50	45	50	60	55	55	65	63	80	90	85

*: models with digital thermometers and mechanical thermostats

table 5

1.5.3 Checks

Check that the water level in the washing tank is 0.5-1 cm beneath the overflow level after filling is completed.

Check the adjustment of the clutch of the safety reducer of the towing system reducer and check that it is possible to stop the advancement of the baskets or belt with the simple force of your hands.

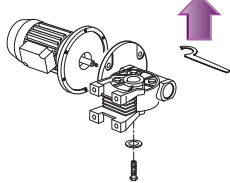
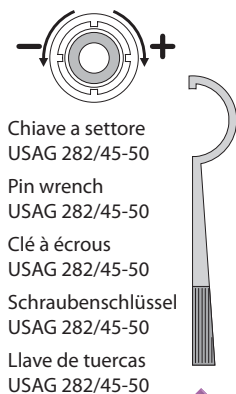
A complete load of baskets filled with dishes must not cause slipping. Check the operation of the automatic dosing device of the surfactant that will in any case be started by the installation technician.

Check that the rinse economizer operates well. It must make the hot water at network pressure supply begin as soon as a basket arrives underneath the rinse nozzles and must make it stop when the basket exits. The same check is to be made for the washing pump economizer (only on the towed basket version).

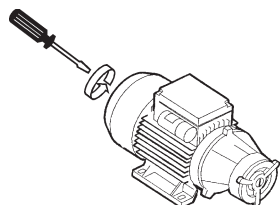
Note: It is advisable to perform this check when the boiler water is cold.

Note: If rinsing does not stop, check the position and/or operation of the magnetic reed. **If it works out of range, the rinse solenoid valve stays open.** Check if the PM2 boiler





pict. 10



pict. 11

filling switch has been turned off (see pict. 3).

So as to better control the rinse's effectiveness, it will be advisable to release the rubber shutter coupled to the machine's outlet.

Check operation of the machine's limit switch, which must block operation of the feed motor and rinsing when a basket reaches the end of the plane. Operation must resume by removing the basket.

(Limit switch to be connected on the two wires no. 115 and 117 - NC contact - arranged on the lower basket outlet panel in the towed basket versions).

Reclose the door/electric panel by tightening the fixing screws and cable on the cable fastener.

Check the correct position of the shutters by following the attached plasticized maintenance diagram.

Replace the front panel.

1.6 Pressure increase pump (optional)

Following periods of inactivity of the dishwasher, check that the supplementary pressure increase pump turns freely. To do this, insert a screwdriver in the notch provided on the motor shaft on the ventilation side (see pict. 11).

In case of blocking, move the motor shaft by inserting the screwdriver in the notch, turning it clockwise and anticlockwise.

1.7 Dataplate

Code DW 999XXXXXX
 Model DESCRIPTION
 S/N DWA 1015770

CL/Part

400V 3N 50HZ 8A 500W
 3500W 16A

IPX3

TECHICAL SPECIFICATION

200-500 kPa

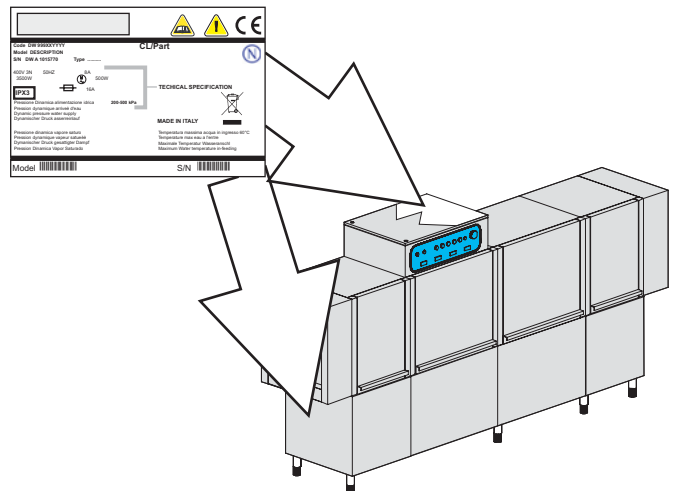
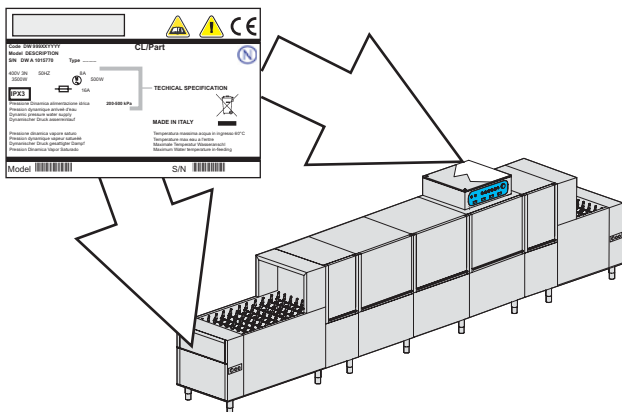
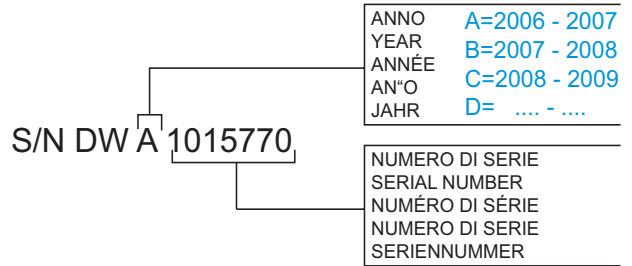
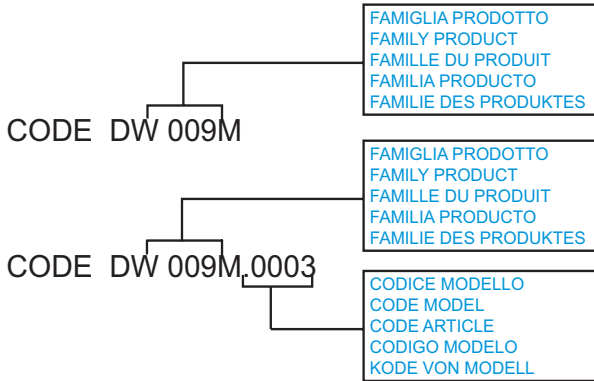
MADE IN ITALY

Pressione Dinamica alimentazione idrica
 Pression dynamique arrivèe d'eau
 Dynamic pressure water supply
 Dynamischer Druck asserreinlauf

Pressione dinamica vapore saturo
 Pression dynamique vapore satueèe
 Dymanscher Druck gesattigter Dampf
 Pression Dinamica Vapor Saturado

Temperatura massima acqua in ingresso 60°C
 Temperature max eau a l'entre
 Maximale Temperatur Wasseranschli
 Maximum Water temperature in-feeding

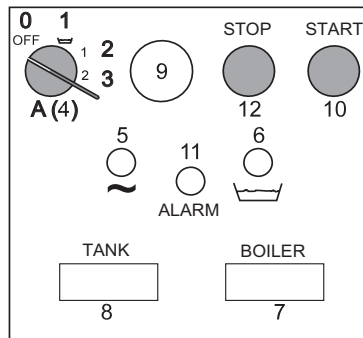
Model [Barcode] S/N [Barcode]



2. CONTROL PANEL AND RELATIVE SYMBOLS

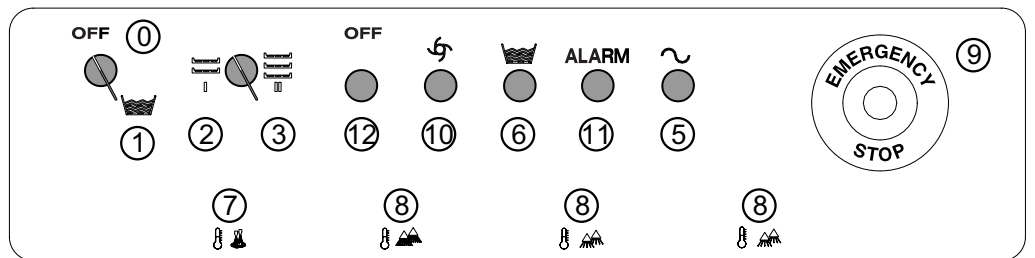
2.1 Control panel of mechanical version

pict. 12



- 0 - (OFF) Machine off position
- 1 - () Tank filling
- 2 - (1) Slow wash
- 3 - (2) Fast wash
- 4 - Control selector
- 5 - Line indicator lamp
- 6 - Loading indicator lamp
- 7 - Boiler thermometer
- 8 - Tank thermometer
- 9 - Emergency push-button
- 10 - Start push-button
- 11 - Alarm indicator lamp
- 12 - Machine stop (the heating is active)

pict. 13



2.2 Instructions for setting the working temperature of the digital thermostat

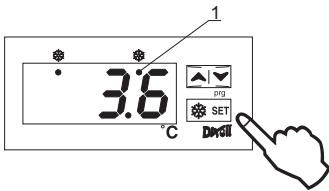


table 6

Instructions for setting the working temperature of the digital thermostat code 3006120.

- Press and continue pressing (about 2 s) key "SET" and wait for the dot (1) on the display to blink
- Set the desired temperature by pressing the arrows.
- Once the temperature is set, press key "SET" again until the set value blinks on the display.

The set temperature has now been stored by the thermostat.

N.B.: You can make another check of the set temperature by pressing key "SET"

ALARM INDICATIONS AND CURES		
Message	Cause	Cures
"EE"	Memory problem	In case of multiple alarm, please call the Service.
"P1"	Probe broken	Check the connections. If the alarm continues, replace the probe
"HA"	High temp. alarm	They automatically switch off as soon as the temperature of the thermostat returns to normal. Check the working temperatures of the thermostat.
"LA"	Low temp. alarm	

2.3 Control panel of electronic version

By pressing the “P10” key (indicated by the blinking stand-by LED 7), the machine turns on and off.

When LED 8 turns on, the displays relative to the tanks and boilers display the temperatures read by the probes.

When the machine turns on, it starts to load water in the tank; once this phase has ended, the yellow LED 3 turns on to show tank loading is complete, giving consent to heating (load the boilers the first time it turns on - green PM2 key - see starting chap. 1.5.1).

By pressing the P9 start key, the machine starts with relevant green LED 4 turning on. You can select the two tow/belt rates speed before and after the START command using the “P7” and “P8” keys. During the washing the LED1 or the LED2 flash for pointing out the selected speed.

If the machine has the speed variator (inverter), you can select 10 distinct speeds with the same keys; the relevant speed will be displayed for 5 seconds on the “T1” display.

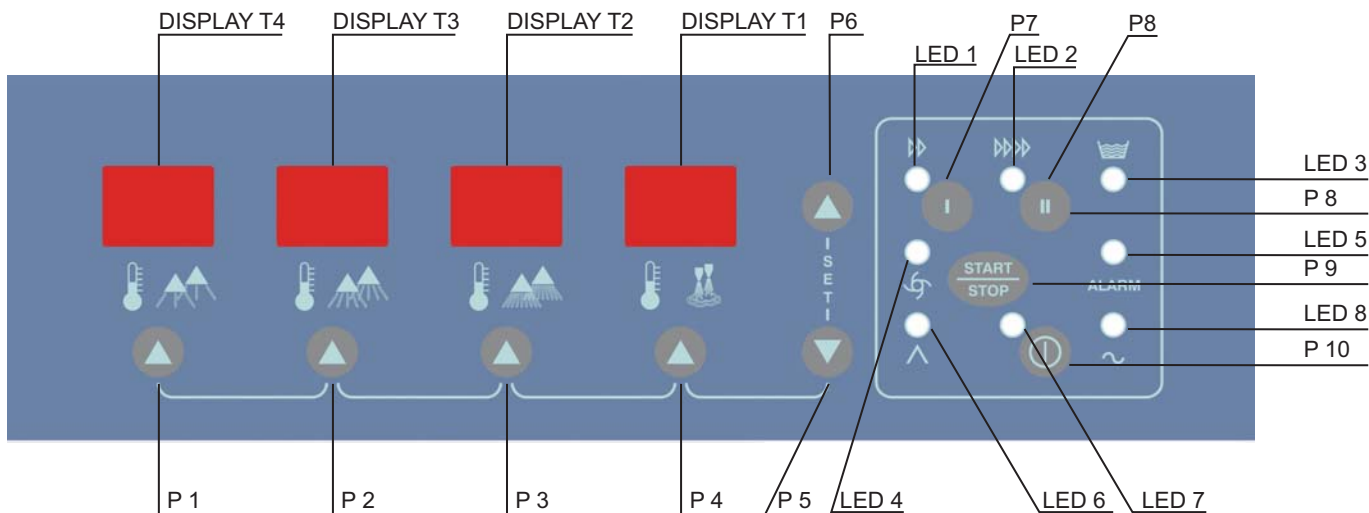
The red 5 ALARM LED turns on every time you press the mushroom-shaped emergency button(s) or if one of the overload cutouts inside the electric board trips.

By pressing the individual keys “P1”, “P2”, “P3” and “P4” placed beneath the respective displays for about 5", you can adjust the temperature of each module (set point).

When the display starts blinking, you can set the desired temperature using the “P6” (increase) and “P5” (decrease) keys while in any case remaining within a safety margin (factory setting). After you have chosen the most appropriate value, press the “P1”, “P2”, “P3”, “P4” key of the relevant display to confirm.

The green LED 6 turns on every time the machine entry is free of baskets and ready for a new insertion (option enabled only in machines with corner entry and with towed basket).

pict. 11



Tunnel push-button panel diagram
 The T - T2 - T3 - T4 displays refer to the left machine sequence
 Display T1= boiler
 Display T2= tank 1
 Display T3= tank 2
 Display T4= tank 3
 P1 - P2 - P3 - P4= set point
 P5 - P6= increase/decrease
 P7= 1 speed/decrease speed
 P8= 2 speed/increase speed
 P9= start
 P10= on/off

LED1= speed1
 INTENSIVE WASHING (with the optional inverter it decreases the speed)
 LED2= speed2
 SPEED WASHING (with the optional inverter it increases the speed)
 LED3= filled tank
 LED4= in cycle

ALARM LED5= alarm
 LED6= load basket with machine with advancing racks with entrance with angle)
 LED7= Stand-By
 LED8= machine on

3. CHARACTERISTICS

3.1 Characteristics of control panel

The control panel controls:

- loading the tanks with water;
- boiler temperature;
- temperature of tanks;
- operation of the wash/rinse sequence;
- detection of low/high temperature of tanks alarms.

3.2 General characteristics

The microprocessor-managed control unit controls the following:

- adjustment of the boiler temperature;
- adjustment of the temperature of the tanks;
- wash and rinse operation cycles;
- water filling;
- control of the pipeline network pressure (where foreseen);
- displays and programming;
- detections of low/high temperature alarms;
- detection and display of problems.

4. MACHINE PROGRAMMING (only electronic version)

To enter programming:

- press keys (Δ P5) (∇ P6) simultaneously for about five seconds, after which the symbol (\equiv) will be displayed;
- set the value of the password to (55) with keys (Δ P5) (∇ P6);
- confirm password by pressing the key (P9 start); if the password is correct, you will enter parameter choice, otherwise the message (Err) will be displayed for about 4 seconds.

N.B.: to enter programming the machine must not be washing; if you try to enter programming during washing, the message (no Pr) will be displayed and the dishwasher will continue the cycle.

The machine will automatically exit programming if no key is pressed for about 20 seconds.

4.1 Choosing and changing the parameter

Once you have entered parameter choice the message (Pr) will be displayed; press the key (P5 or P6) several times to define the parameter (Pr) number (0, 1, ... H).

- select the number of the parameter to be changed by pressing keys (Δ P5) (∇ P6);
- select the number of the parameter to be changed by pressing keys (P10 on/off);
- return to parameter choice without changing the data by pressing key (P10 on/off);
- exit programming by pressing key (P10 on/off).

Once you have entered parameter programming the message (Pr) and the number of the parameter followed by the parameter value will be displayed.

At this point it will be possible to:

- enter parameter programming by pressing key (P9 start);
- modify the parameter value with keys (Δ P5) (∇ P6);
- confirm the value and go on to the next parameter programming by pressing key (P9 start/stop);
- return to the parameter choice without changing the data by pressing key (P10 on/ off).

4.2 Description of the modifiable parameters

Parameter 0:

Fixes the minimum temperature threshold that the customer can set (boiler)

Parameter 1:

Fixes the maximum temperature threshold that the customer can set (boiler)

Parameter 2:

Fixes the minimum temperature threshold the customer can set (tank1)

Parameter 3:

Fixes the maximum temperature threshold the customer can set (tank1)

Parameter 4:

Fixes the minimum temperature threshold the customer can set (tank 2)

Parameter 5:

Fixes the maximum temperature threshold that can be set by the customer (tank 2)

Parameter 6:

Chooses the thermostat operation mode (tank 2) off/normal/cooling

Parameter 7:

Fixes the minimum temperature threshold that the customer can set (tank 3)

Parameter 8:

Fixes the maximum temperature threshold that the client can set (tank 3)

Parameter 9:

Chooses the thermostat operation mode (tank 3) off/normal/cooling

Parameter A:

Sets the value in degrees referring to the thermostat operation differential.

Parameter B:

Fixes the minimum temperature alarm threshold of tank 2.

After 30' have elapsed from turning on the machine, if the temperature drops below the set value the card makes 5' go by, after which if the temperature does not go back up above the alarm value set on display T2 **MI (minimum)** is displayed with the respective acoustic alarm. The alarm switches off as soon as the temperature returns to normal values.

Parameter C:

Fixes the minimum temperature alarm threshold of tank 3. After 30' have elapsed from turning on the machine, if the temperature drops below the set value the card makes 5' go by, after which if the temperature does not go back up above the alarm value set on display T3 **MI (minimum)** is displayed with the respective acoustic alarm. The alarm switches off as soon as the temperature returns to normal values.

Parameter D:

Enables and disables the tank 2 and 3 minimum alarms, parameter necessary in the case one of the two or both are operating with the reversing system (cooling)

Parameter E:

Disables or sets the time regarding the rise in ramps of the boiler thermostat so as to prevent dangerous heating inertias.

After the tanks are filled, the boiler remote control switch stays pressed (if the boiler temperature requires it) until reaching 60°, after which it disconnects for about one minute (time fixed by parameter E), continues intermittently until reaching the set temperature (rise in ramps). The card reconnects the remote control switch at maximum power every time the rinse solenoid valve trips.

Parameter F:

Enables or disables operation with the inverter and pipeline network pressure switch (both optional).

If network pressure is lacking with parameter F at 2 or 3 (pressure switch enabled) while the machine is rinsing, H2 appears on the display+acoustic alarm+wash cycle stop after 5'. Check that there is pressure, then turn off and turn back on the machine in order to switch off the H2 alarm.

Parameter G:

Set the delta value of reference to the boiler set temperature so that if the temperature drops below delta, the **Lo** (low temperature) alarm with relevant acoustic alarm immediate goes off.

Parameter H

Chooses right and left thermostat sequence display operation by reversing the reading direction:

Left= tank 4 - tank3 - tank1 - boiler

Right= boiler - tank1 - tank3 - tank 4

Outputs (relays) and inputs (probes) remain unaltered.



4.3 Table of summary of the parameters

The following table groups together all of the parameters that can be enabled or modified with the program:

param.	Meaning	Min	Max	Notes	Default	PROGRAM FOR MACHINE WITH RINSE MODULE AND 1 TANK	PROGRAM FOR MACHINE WITH RINSE MODULE AND 2 TANKS	PROGRAM FOR MACHINE WITH RINSE MODULE AND 3 TANKS	PROGRAM FOR MACHINE WITH RINSE MODULE AND 4 TANKS	PROGRAM FOR MACHINE WITH RINSE MODULE AND 5 TANKS
0	minimum thermostat 1 - T1	60	80	°C	70	70	70	70	70	70
1	maximum thermostat 1 - T1	60	90	°C	90	90	90	90	90	90
2	minimum thermostat 2 - T2	40	60	°C	50	50	50	50	50	50
3	maximum thermostat 2 - T2	50	80	°C	70	70	70	70	70	70
4	minimum thermostat 3 - T3	5	50	°C	30	30	20	45	45	45
5	maximum thermostat 3 - T3	20	60	°C	60	65	45	65	65	65
6	operation mode thermostat 3	0	2	0= excluded	1	0	2	1	1	1
				1= normal						
				2= reversing						
7	minimum thermostat 4 - T4	5	50	°C	20	20	20	20	45	45
8	maximum thermostat 4 - T4	20	60	°C	45	45	45	45	60	60
9	operation mode thermostat 4	0	2	0= excluded	2	0	0	2	1	1
				1= normal						
				2= reversing						
A	thermostat differential	1	9	°C	1	1	1	1	1	1
B	minimum alarm T2	30	70	°C	50	45	45	45	45	45
C	minimum alarm T3	30	70	°C	30	35	35	35	45	45
D	enabling minimum alarms	0	3	0=min.al. T2 OFF and T3 OFF	3	1	1	3	3	3
				1=min.al. T2 ON and T3 OFF						
				2=min.al. T2 OFF and T3 ON						
				3=min.al. T2 ON and T3 ON						
E	boiler rise to ramps time value	0	3	0= ramps disabled	1	3	3	3	3	3
				1=15" ramps						
				2=30" ramps						
				3=60" ramps						
F	exclusion/enabling inverter/pressure switch	0	3	0= inverter OFF - Pressure switch OFF	0	0	0	0	0	0
				1=inverter ON - Pressure switch OFF						
				2=inverter OFF - Pressure switch ON						
				3= inverter ON - Pressure switch ON						
G	setting boiler delta set temperature	1	40	°C	10	10	10	10	10	10
H	setting right-left thermostats	0	1	0=left 1=right	1	0	0	0	0	0

table 7

Regulation temperatures	Default	MACHINE WITH RINSE MODULE AND 1 TANK	MACHINE WITH RINSE MODULE AND 2 TANKS	MACHINE WITH RINSE MODULE AND 3 TANKS	MACHINE WITH RINSE MODULE AND 4 TANKS	MACHINE WITH RINSE MODULE AND 5 TANKS
Temperature rinsing	85	85	85	85	85	85
Temperature washing 1	60	55	55	60	65	70
Temperature washing 2	55	-	-	55	60	65
Temperature washing 3	55	-	-	-	55	60
Temperature washing 4	55	-	-	-	-	55
Pre-washing	45	-	45	45	45	45

5. MACHINE DESCRIPTION

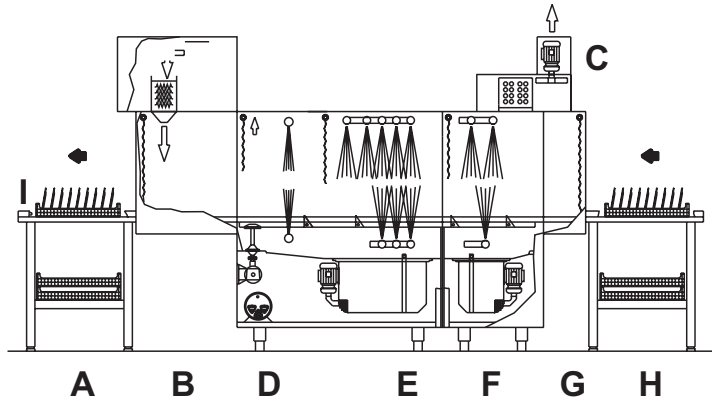
5.1 Description of the machine, its accessories and its guards

5.1.1 Machine description

Refer to annexes for the technical data of the machines.

MACHINE IN RIGHT EXECUTION

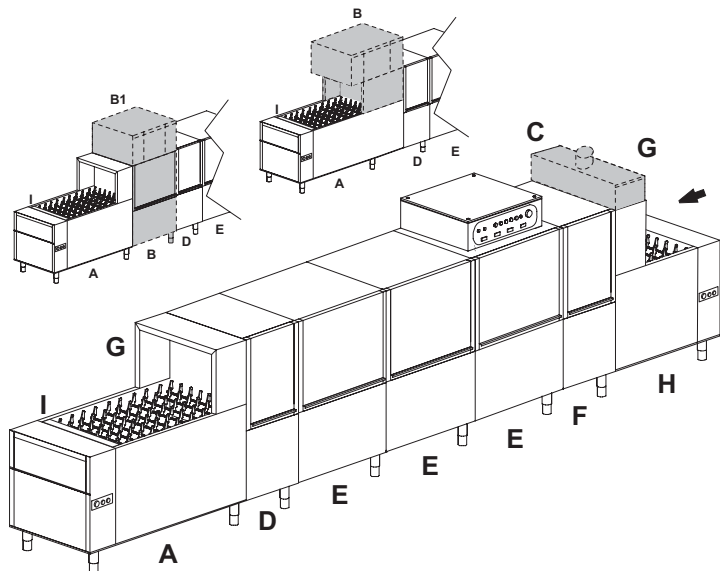
- A - BASKET EXIT
- B - DRYING
- C - STEAM CONDENSER
- D - RINSE
- E - WASH
- F - PRE-WASH
- G - SPLASH GUARD
- H - BASKET INSERTION
- I - LIMIT SWITCH



pict. 15

MACHINE IN RIGHT EXECUTION

- A - EXIT BRACKET
- B - STAGE DRYER - see chap. 5.1.3
- B1 - SHELF DRYER - see chap. 5.1.3
- C - STEAM CONDENSER - see chap. 5.1.3
- D - DUAL RINSE
- E - WASH
- F - PRE-WASH
- G - SPLASH GUARD
- H - ENTRY BRACKET
- I - LIMIT SWITCH



pict. 16

The machines are built with high quality materials, AISI 304 stainless steel and boiler and tanks in AISI 316, and in sturdy thicknesses so as to ensure a longer lifetime. They are made up of a rinsing section to which a pre-wash, steam condensate assembly and drying assembly may be added upon request.

The basket towing system runs automatically through the sections.

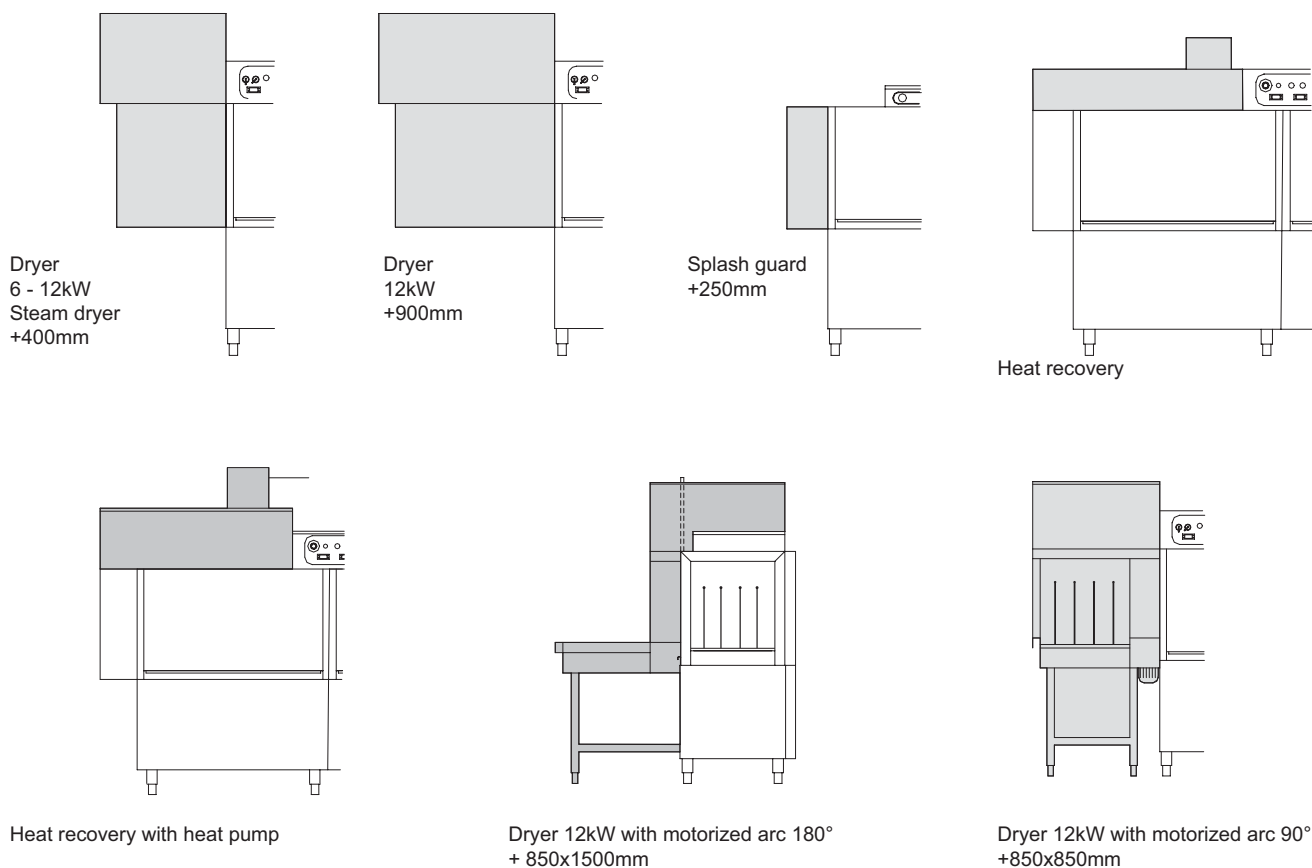
Temperature is thermostatically controlled in the pre-wash section at 40-45°C, and a preliminary rough washing of the kitchenware is carried out.

The temperature in the wash section is thermostatically adjusted to 55-65°C, and the kitchenware is washed.

Final rinsing at the temperature of 85°C is performed in the rinse section. It is thermostatically controlled and dual rinsing is available as a standard feature in some versions with dedicated pump.



5.1.2 Optionals available for towed basket machines



pict. 17

Drying:

The drying sections are made up of a 6 or 12kW heating bank or steam with a large-capacity powered fan.

The temperature is controlled by two thermostats, one for service and one for safety. In order to increase drying efficiency, the model with 900mm splash guard was designed, in which the kitchenware stays in contact with the hot air for a longer time.

Steam Condenser:

The steam condenser section is made up of a cooled battery that condenses the steam by using the cold water of the network.

The amount of water can be adjusted with the cock placed close to the solenoid valve assembly according to the degree of residual humidity you want to get.

Heat regenerator:

The following types of heat regenerators are available:

Compact battery heat regenerator, exchanging steam heat with water at the boiler inlet; contained in its dimensions, with a max. output of 6kW, with heating at outlet until 35°C; it allows an energy saving until 6kWh.

Its functions are:

- energy recovery;
- exceeding humidity condensation;
- lowering of outlet steam temperature.

Standard battery heat regenerator (B), with functions similar to the previous one (water saving) but with a greater battery; recovery until 12kWh with outlet water heating until 45°C.

Its functioning is similar to the previous item: rinse cold water enters the upper side of the battery and comes out from the lower side, thus performing a very efficient thermal exchange in counter current.

Outlet water is added with rinse aid and enters the boilers to complete final heating.

The limit of this heat recovery is that it succeeds in surrendering heat to the water up to max 45°C (the maximum temperature steams), the heat in more made available by the machine, comes left to steams in exit from the battery.

Heat recovery with heat pump, that allows a great energetic saving and it is recommended only on machines with more than two tanks: this recovery uses a heat pump to absorb the maximum energy of the exhausted steam of the machine and to pre-heat the rinse water up to 65°C with a surrender max of 21kW in phase of rinse while it work as conditioner in the cases in which rinse is not active condensing and cooling the air in exit. The steam in exit from recovery reaches a temperature of 15-18°C of air with low damp that goes to refresh and to decrease the damp of the environment.

Operation of the hydraulic circuit: the cold water in entry enters a first battery of exchange water-steam where it heats itself up to 35-40°C and then it enters the condenser of the heat pump, plates exchanger, where it heats him up to 65°C. This circuit is fed by two lines: one with reduction gear of pressure, that is activated in phase of rinse and one with pressostatic valve that is activated in phase of conditioning of the environment, the pressostatic valve modulates the consumption of the water so that to have the maximum benefit with the least waste of water.

Operation of the gas circuit : the gas R134A that arrives from the evaporator is compressed, in this phase the gas compressing heats itself and pushed in the condenser it transfers in totally the absorbed heat. After having crossed the condenser, realized with a plates exchanger, the gas is to the liquid state, it passes a reservoir of compensation of the liquid, a filter and then flows in a valve of expansion, this valve begins to expand the gas that decreases its temperature up to 2°C, the gas enters the evaporator and starts to absorb heat from the steam that enters this battery to 40°C and it goes out to 14-18°C. In this phase the cooling gas passes from the liquid state to the state of steam. The gas goes out of the evaporator full of energy but with a low temperature, it enters the blower that enhances the pressure now increases also the temperature for thermodynamic effect (up to around 65°C) flowing in the condenser succeeds in surrendering heat to the water.

This recovery with difference to the others, succeeds in surrendering heat to the water up to 65°C and therefore its efficiency results great.

5.1.3 Optionals available for the belt machines

Compared to the towed basket model, we have other optionals available for this type of machine:

Drying module: Depending on the washing capacity and degree of drying required, several drying modules can be installed on belt machines in order to achieve the desired result.

Neutral zone: In the case where you have to wash baskets, trays and objects having large surfaces, it is advisable (and in some cases mandatory) to add some neutral zones between washes in order to prevent the dirty pre-wash water from polluting that of the subsequent washes and of the dual rinse and between rinsing zone and drying.

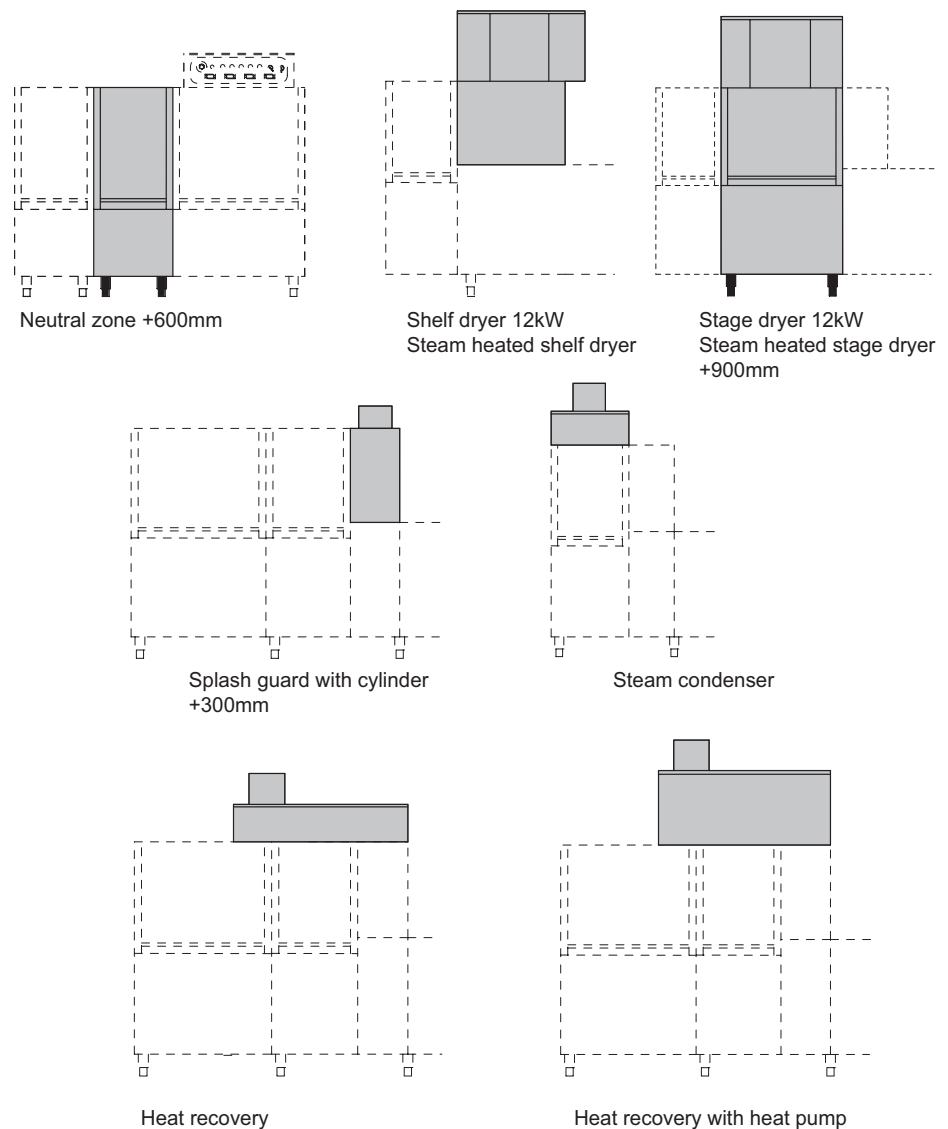
Turbines: Utilisation of pressurized air for vaporizing the drops from the gaps becomes necessary for drying thermal trays or plastic baskets.

In this situation use of at least 2-3 turbines that generate a low air delivery, but at high pressure, is recommended so as to optimize drying and reduce residual water.

Steam condenser and heat recovery:

See **steam condenser and heat recovery with heat pump** previous specifications.





pict. 18

5.2 Safety device

- Some magnetic microswitches are mounted on the machines on the doors that interrupt the pre-wash, wash, rinse and basket towing functions as soon as they are opened.
- A limit switch is mounted, or prepared for installation, on the exit surface. It is operated by the basket when it exits and stops towing and rinsing.
- Emergency push-button situated on the control panel "9" (large red button) and in the belt machines on the entry and exit brackets.
- Thermal protections with circuit breakers, overload cutouts for motor pumps and motors.
- Protections with fuses or circuit breakers for every heating element.
- Boiler safety thermostats.
- Torque limiting device on the towing system.
- Alarm display.

5.3 H.A.C.C.P. (optional)

5.3.1 Notes about H.A.C.C.P.

Dishwashers are machines that not only wash, but also disinfect kitchenware. The dishwasher equipped with “HACCP supervision” is provided with instrumentation for monitoring the following parameters:

- temperature of the tanks and boiler;
- basket transit speed (only for rack conveyor machines);
- flows of water.

The “HACCP supervision” module permits automatic monitoring of the parameters listed above with automatic indication and recording of any problems. It is also possible to view and print:

- the individual monitored parameters;
- the chronology of the problems for subsequent analysis and decision on which actions to take.

This HACCP supervision device is made up of:

- a datalogger (device connected to the machine’s electronic control unit). It is installed inside the machine and is accessible through an external USB socket. Its job is to record the dishwasher’s problems;
- a PC software application for monitoring, recording and printing the monitored parameters and problems;
- a 5-m-long USB cable for connecting the PC to the datalogger inside the dishwasher.

The “HACCP supervision” module also operates with the PC turned off or disconnected since the datalogger automatically records the problems in this condition.

The manufacturer recommends you use the dishwasher with the “HACCP supervision” module enabled so that you can:

- take action promptly and properly depending on the problem indicated;
- file (in electronic or paper format) the data recorded while using the machine;
- print the systematic print-out of the problems detected so as to be able to indicate the actions later taken on the print-out.

This is entirely for the purpose of demonstrating to the control authorities that the dishwasher is used in compliance with what the provisions in force prescribe.

5.3.2 Installation H.A.C.C.P.

Minimum requirements:

PC P2, 2GHz, RAM 256MB, HD 4GB

SO WIN 98 or higher

To install the program, insert the CD-ROM in the computer’s CD drive. The installation procedure will start automatically.

Or click on: START - Run - [Letter of the CD-ROM drive]:\Setup.exe.

Follow the steps of the installation program to the very end.

These will be created:

- a desktop link (if selected during installation);
- a link in: START - Programs - Supervisor – Supervisor

You can launch the program from both links.

The connection between the PC and dishwasher is made with the USB cable provided.

Connect the ends of the USB cable to the datalogger (USB socket) and a USB port on the PC.

The new peripheral device is automatically detected and you will be asked to install the drivers.

They have been already installed by the installation program, and are found in the directory “C:\Programs\Texas Instruments\TI USB3410 Winxx Driver Installation Files Setup”.

A message telling you to check whether or not the default settings are correct based on the regulations in force in the country where it is being used will be shown the first time it is started.

To view the settings, press the ‘settings’ button located on the lower right of the main



screen.

The program will immediately start to search for the connection with the machine. Once the connection is made, a check whether the datalogger contains recorded data is made and if there are data, it will dump them so as to clear the memory.

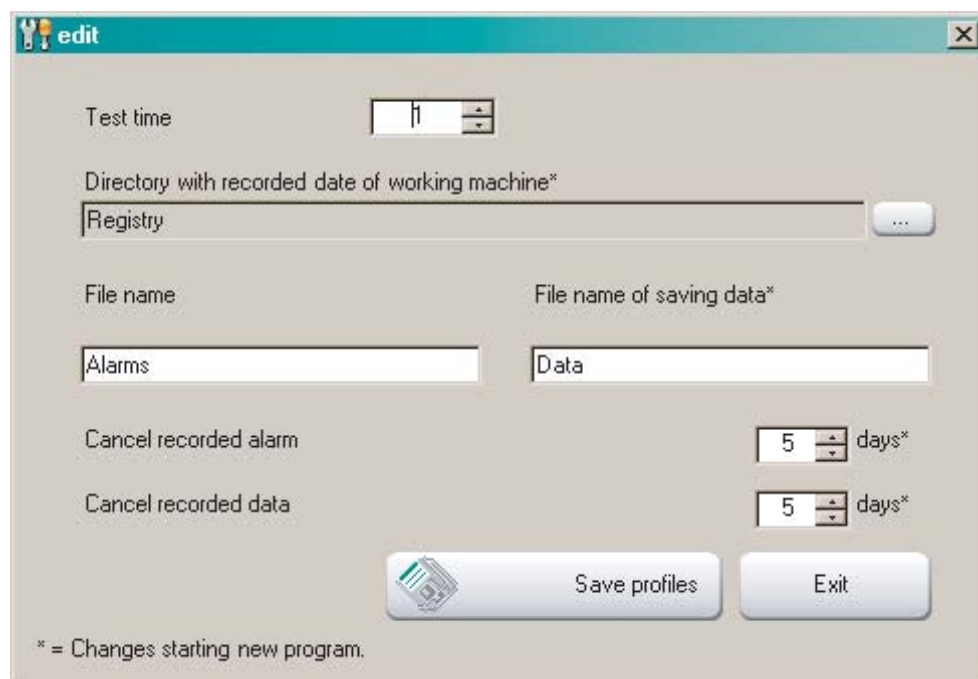
Date and time can be set directly by the PC's operating system.

From here it is possible to change the default values as far as the following are concerned:

- sampling time;
- directory where the files that will keep track of the data read by communication with the electronic card and the alarms and events that occur are localized;
- names of the single files containing the recorded data;
- direction of the data in the computer, after which they will be deleted.

Note: The settings marked with an asterisk will become operative the next time the program is launched.

pict. 19



5.3.3 Removal

You can uninstall the program from the menu: START - Programs - Supervisor - Uninstall Supervisor.

The directory containing the recorded data is excluded from automatic removal; they will remain in the computer. To remove them, you have to manually delete the files.

6. USING THE MACHINE

Check that the following elements are in the proper position before starting the machine.

6.1 Dataplate

Code DW 999XXXXX
Model DESCRIPTION
S/N DW A 1015770 Type

400V 3N 50HZ 8A 500W
3500W 16A

IPX3

TECHICAL SPECIFICATION

200-500 kPa

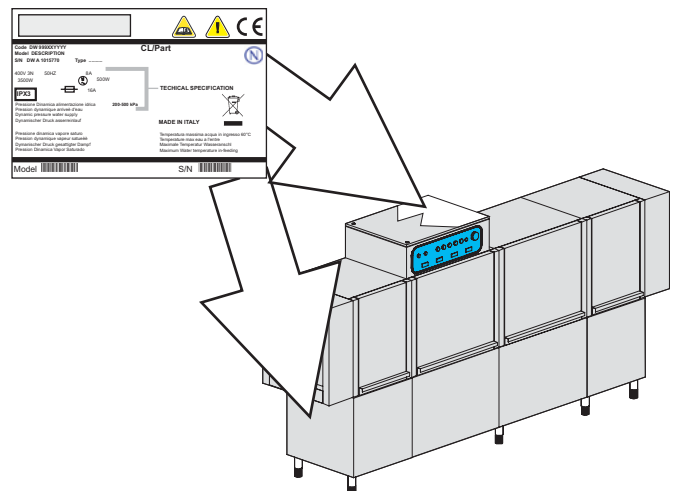
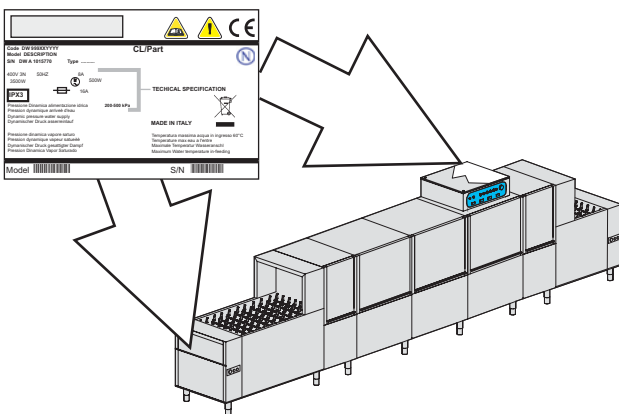
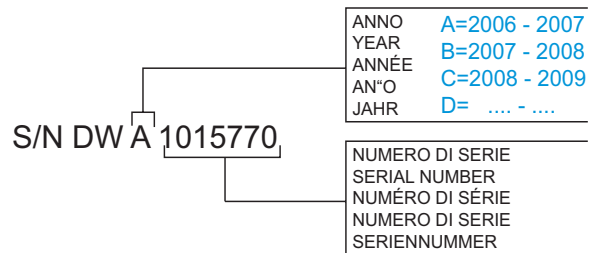
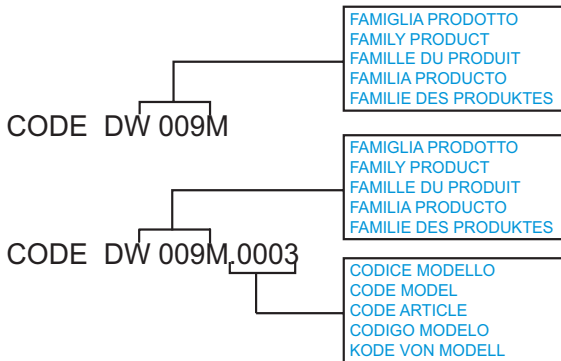
MADE IN ITALY

Pressione Dinamica alimentazione idrica
Pression dynamique arrivèe d'eau
Dynamic pressure water supply
Dynamischer Druck asserreinlauf

Pressione dinamica vapore saturo
Pression dynamique vapeur satueeè
Dymanischer Druck gesattigter Dampf
Pression Dinamica Vapor Saturado

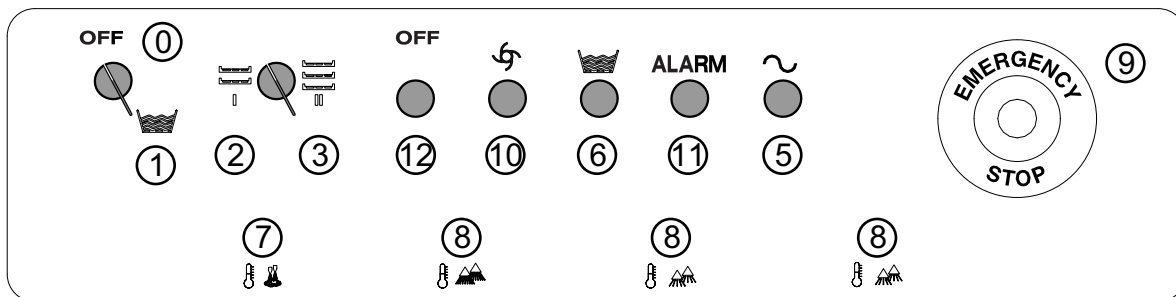
Temperatura massima acqua in ingresso 60°C
Temperature max eau a l'entre
Maximale Temperatur Wasseranschl
Maximum Water temperature in-feeding

Model S/N

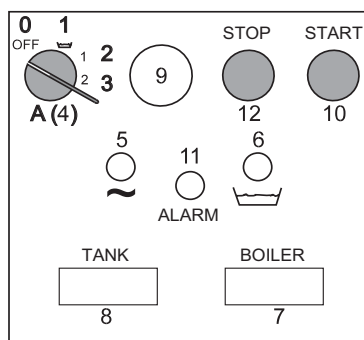


6.2 Machine preparation

- a) Check that the overflows are properly inserted in the drain and that the pump filters and surface filters are in their seats. Check that the washing and rinsing arms are properly inserted, as well as the curtains.
 Note: the long and narrow curtains are to be put at the entry and exit; the wide and short ones go inside the machine.
- b) Close the doors.
- c) Open the cock.
- d) Turn on the wall-mounted main switch; the LED 7 (in electronic versions) turns on.
- e) Energize the machine by turning on three-way switch A by putting it in position (1) tank filling (or by pressing key P10 in the electronic version); indicator lamp no. 5 turns on (or LED8 in the electronic versions).
- f) If the tank is empty, it will automatically be filled. Once filled, the filling indicator lamp (6) (or LED 3 in the electronic versions) turns on. Once filling has ended, the water inside the rinsing boiler and in the washing tank will start to heat.
 The working temperatures can be seen on the respective thermostats (7-8) or on the displays (T1/T4).
- g) If the machine is not equipped with an automatic dosing device, put the detergent into the washing tank by hand. See chapter 6.6 for the amounts.
 In order to determine the exact amount of detergent, remember that the tank capacity is about 100 l.
 Carefully follow the product manufacturer's instructions while bearing in mind the local water hardness characteristics. Add detergent every 10-12 minutes of continuous operation so as to maintain the correct concentration.
- h) If the machine is provided with a detergent dosing device, do not alter the adjustment made by the installation technician at the time the system was put into operation. The above is also true regarding the rinse surfactant dosing device. Check the availability of product for your daily requirement.

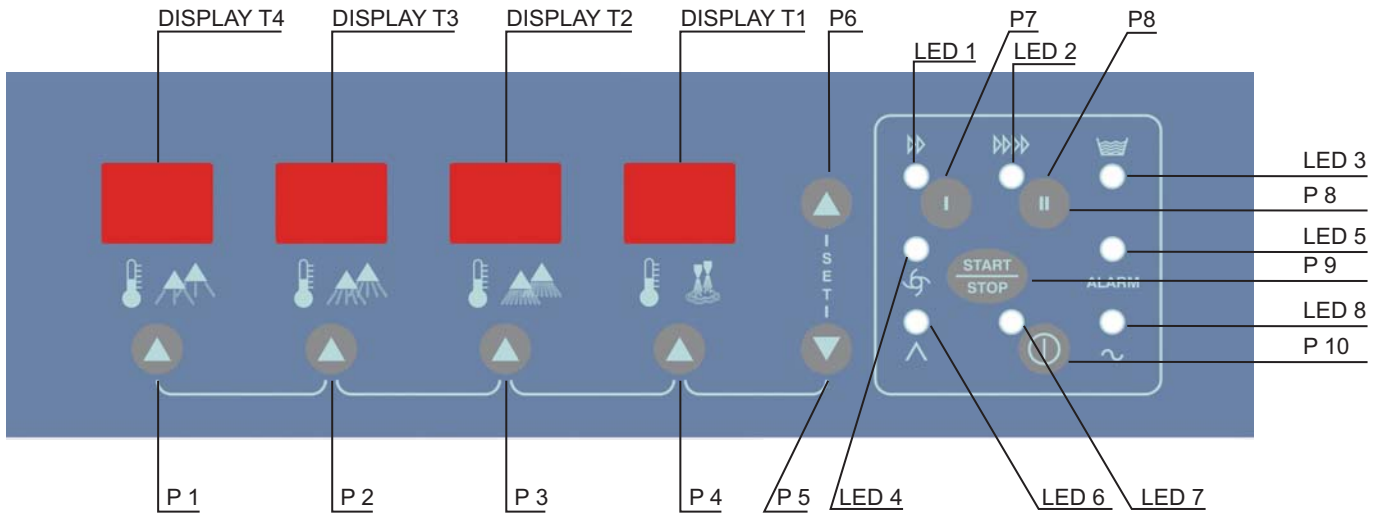


pict. 20



pict. 21

- 0 - (OFF) Machine off position
- 1 - (☞) Tank filling
- 2 - (1) Slow wash
- 3 - (2) Fast wash
- 4 - Control selector
- 5 - Line indicator lamp
- 6 - Loading indicator lamp
- 7 - Boiler thermometer
- 8 - Tank thermometer
- 9 - Emergency push-button
- 10 - Start push-button
- 11 - Alarm indicator lamp
- 12 - Machine stop - service and conveyor



pict. 22

Tunnel push-button panel diagram

The T - T2 - T3 - T4 displays refer to the left machine sequence

Display T1= boiler

Display T2= tank 1

Display T3= tank 2

Display T4= tank 3

P1 - P2 - P3 - P4= set point

P5 - P6= increase/decrease

P7= 1 speed/decrease speed

P8= 2 speed/increase speed

P9= start

P10= on/off

- LED1= speed1 INTENSIVE WASHING (with the optional inverter it decreases the speed)
- LED2= speed2 SPEED WASHING (with the optional inverter it increases the speed)
- LED3= filled tank
- LED4= in cycle

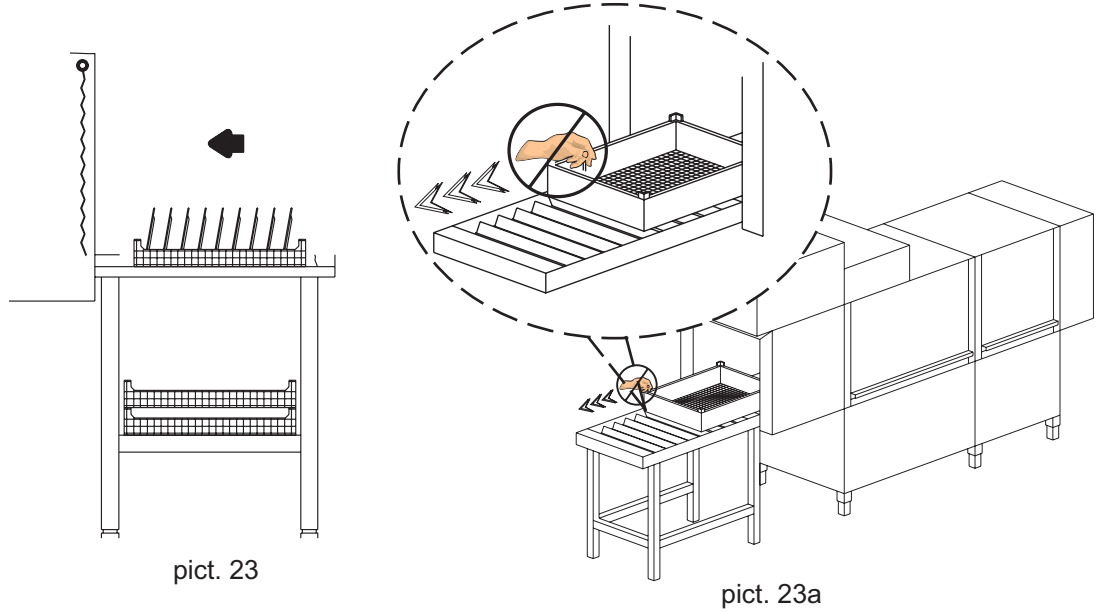
ALARM LED5= alarm

- LED6= load basket with machine with advancing racks with entrance with angle)
- LED7= Stand-By
- LED8= machine on

6.3 Washing

6.3.1 Washing (towed basket version of machines)

- a) Put three-way switch 4 on the washing position (2 or 3).
In the electronic version, press button (P7) or (P8) for intensive or fast wash.
- b) Press START (10) or (P9) if electronic only when the machine has reached the temperature.
- c) Choose the basket suitable for the kitchenware to be washed and load it as follows (see pict. 23):
 - dishes and trays with their interiors facing the machine;
 - glasses and cups upside-down;
 - cutlery in the special containers with handle at the bottom.
- d) Start washing by pushing the loaded baskets until they become coupled with the towing system.
- e) If a basket arrives at the end of stroke position, its advancement stops and can be re-started by removing the basket.
It is forbidden to remove the basket from the machine before it has come out of the tunnel and to put hands or arms inside the machine when it is in movement.
N.B.: Always stop the machine before putting your hands or arms inside the tunnel.
- f) To stop the washing phase, press the STOP button (12) or (P9) if electronic.
To re-start, press START (10) or (P9) if electronic again.



6.3.2 Washing (electronic belt version of machines)

- a) Press button (P7) or (P8) to choose the washing speed (LED 1 or LED2 turns on).
- b) Press the START (P9) button when the washing tanks reach the right temperature. LED 4 turns on and LED 1 or LED 2 blinks to indicate the active speed.
- c) Press the START white button on the brackets panel to enable belt movement.
- d) Put the dishes/trays inside the conveyor belt with their interiors facing the machine in such a way that they couple with the belt's teeth.
- e) Glasses and cups are placed upside-down in a basket put above the belt.
- f) Place the cutlery in the dedicated basket.

braket panel

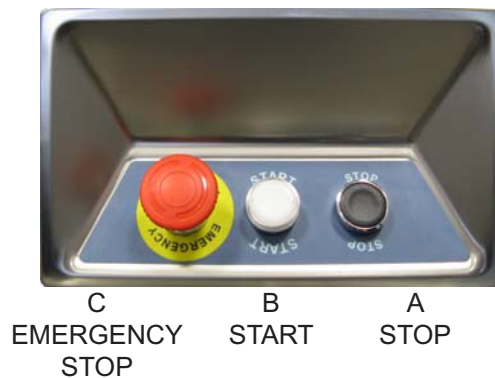


photo 4a
exit view



photo 4b
entry view

If an object reaches the end of stroke position, advancement stops and can be re-started by removing the object.

It is forbidden to remove dishes/objects from the machine before they have come out of the tunnel.

N.B.: Always stop the belt before putting your hands in the tunnel.

g) To stop/re-start the machine, press the button (P9).

Note: Some models (on request) of the towed basket versions and all of the models of the belt versions have the AUTOTIMER installed, or rather, if the machine does not wash objects for more than 5 minutes (adjustment can be changed by the installer), the machine stops to cut down power consumption.

Press the START key on the electric board to re-start it.

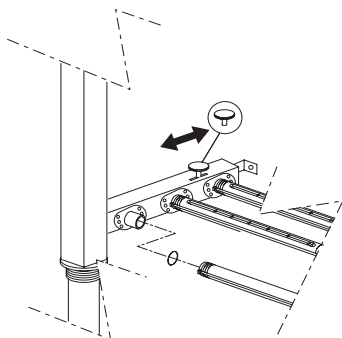
Note: Replace the water of the tanks with new water every time it becomes necessary and at least after every 2-4 hours of operation with a full load. Follow the instructions in chapter 6.2/6.4.

IMPORTANT: adjust the capacity of the ramps with the opportune shutters installed according to the objects to be washed (pict. 24).

If you wash very light kitchenware/dishes/glasses, slightly close the lower wash/pre-wash, otherwise the glasses can turn upside-down with the risk of breaking them.

If the conveyor had to jam because of an obstacle, activate the emergency button (red mushroom-shaped) and then remove the obstacle.

In electronic belt version, to facilitate the removal of the belt, you can draw it back.



pict. 24

6.4 End of wash operations

- a) Put the three-way switch A (4) on the initial "0" position or press the key (P10 - electronic version). Close the cock of the water.
- b) Disconnect the wall-mounted main switch and open the doors.**
- c) Extract the overflows and let the tanks empty.
- d) Lift the vertical drawer filter and empty its contents.
- e) Extract the horizontal filters while being careful to not allow food residue drop inside the wash and pre-wash tank. Rinse both the horizontal filters and the drawer filter with a stiff brush, under a throw of water.
- f) Remove the safety filters of the pumps and wash them underneath a jet of running water. Then thoroughly wash the bottom of the tank with a jet of running water. Also thoroughly wash the entry and exit shutters.
- g) The exterior of the machine is to be cleaned when its surfaces are cold with non-foaming, non-acid, non-abrasive and above all non-chlorine-based products.
- h) Replace the overflows and filters, replace shutters with the short side toward the kitchenware exit.

It is advisable to leave the doors open so as to prevent unpleasant odours from forming.

6.5 Observance of the rules of hygiene and H.A.C.C.P.

- The machines are equipped with temperature gauges that indicate the boiler and tank temperature. Make sure to wait until the set temperatures are reached. The electronic versions come standard with acoustic and blinking alarms:
- failure to reach temperature if within 30 minutes from starting the machine the tank and boiler do not reach the set temperatures;
- low temperature alarm appears if the temperature is below this value for more than 5 minutes (during washing);
- high temperature alarm if the tanks exceed the set temperature by more than 15°C or the boiler exceeds 99°C, thermostat malfunctioning;
- Thoroughly clean off the kitchenware so as to not clog filters, nozzles and pipes.
- Drain the washing tank and clean the filters at least twice a day.
- Check that detergent and rinse aid dosing is correct (as recommended by the supplier). In the morning, before starting the machine make sure the quantity of product in the tanks is sufficient for the daily requirement.
- Keep the kitchenware support surface clean.
- Remove the basket from the dishwasher with clean hands or gloves so as to not contaminate the cutlery.

- Do not dry or polish the kitchenware with unsterile cloths, brushes or rags.
 - In order to meet the correct H.A.C.C.P. procedure, remember to prepare a sheet with tables where the shift operator enters the date and time washing starts, the time washing ends, the tank and boiler temperatures and any other notes/alarms that have tripped and what he/she has done to ensure sanitary safety.
- Example:

Date	Time	Phase	Tank Temperature	Boiler Temperature	Alarms or dangers	Solutions or notes	Signature
16/12/2004	10.30	START	63°C	87°C	none	star of day	ROSSI
16/12/2004	11.40	STOP	58°C	85°C	none	-----	ROSSI
16/12/2004	11.50	START	63°C	87°C	none	-----	BIANCHI
16/12/2004	13.30	STOP	48°C	87°C	tank temperature below 50°C	Machine stopped and waiting for tank to heat	BIANCHI
16/12/2004	13.35	START	55°C	85°C	none	-----	BIANCHI
16/12/2004	15.00	STOP	56°C	87°C	none	end of time	BIANCHI

6.5.1 H.A.C.C.P. optional

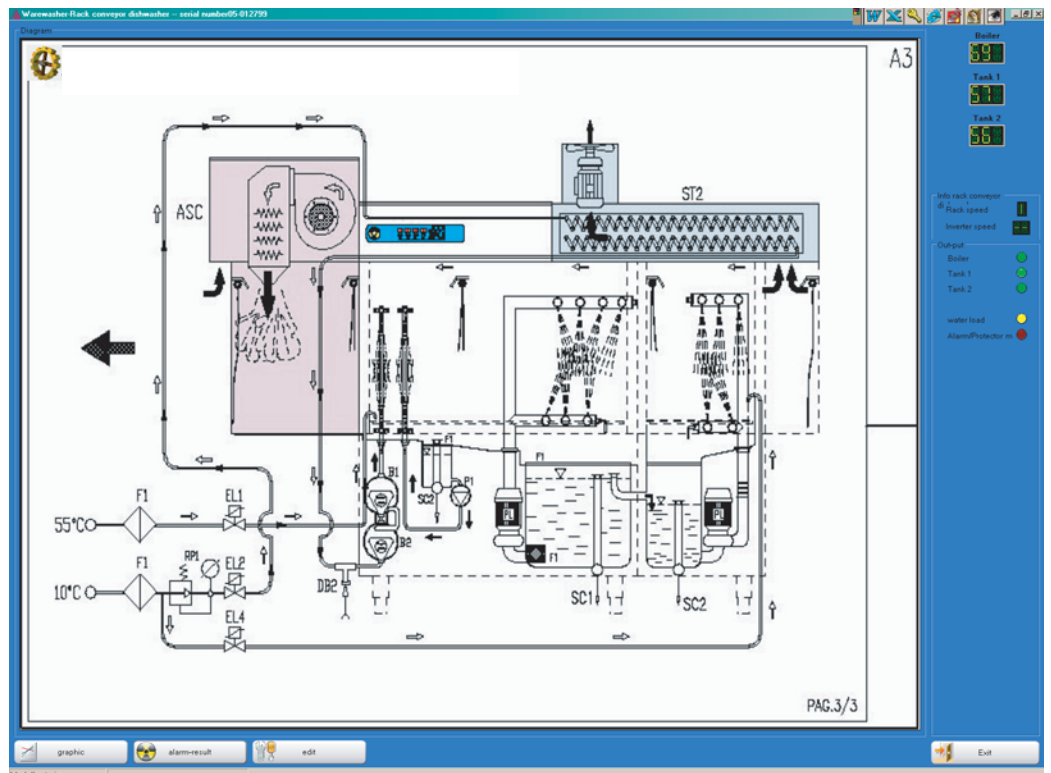
Upon request, the H.A.C.C.P. optional providing a software program and electronic card memory available. It is possible to simply install it in electronic machines and automatically store all of the temperatures, alarms and machine state (on and washing) and consult them or print them once a week/month so as to verify that all the kitchenware have been washed and rinsed at the correct temperatures.

6.5.2 Use of optional H.A.C.C.P.

Launch the program with a double click on the icon. The features of the main screen are:

- Display of the dishwasher’s layout with indication of the temperatures in °C of boiler and tanks
- Display of the output statuses (boiler, tanks, alarms, water load made)
Green = OK
Yellow = warning
Red = alarm
- Conveyor information (only in the case of a rack conveyor dishwasher).

pict. 25



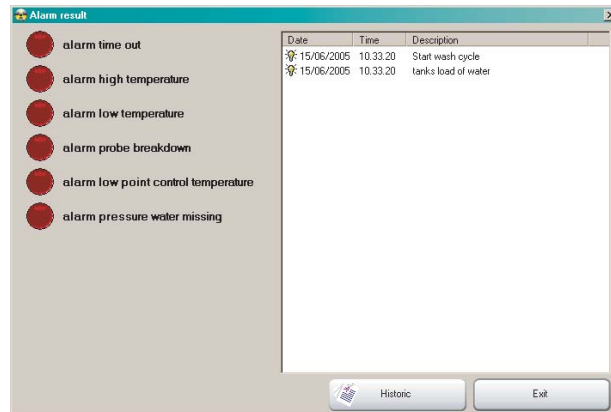
6.5.3 Alarms

If there is an alarm, an “Alarms” window indicating the type of alarm detected will automatically open.

The indication will remain active until:

- the operator confirms the alarm by clicking on the relevant “close” button;
- all of the alarms have been cancelled (in this case the window disappears but the alarms button will continue blinking to indicate the previous presence of alarms).

The alarms button will stop blinking when the “Alarms” window is opened using the “Alarms” button located on the main screen and the “Close” button on the “Alarms” window is pressed.



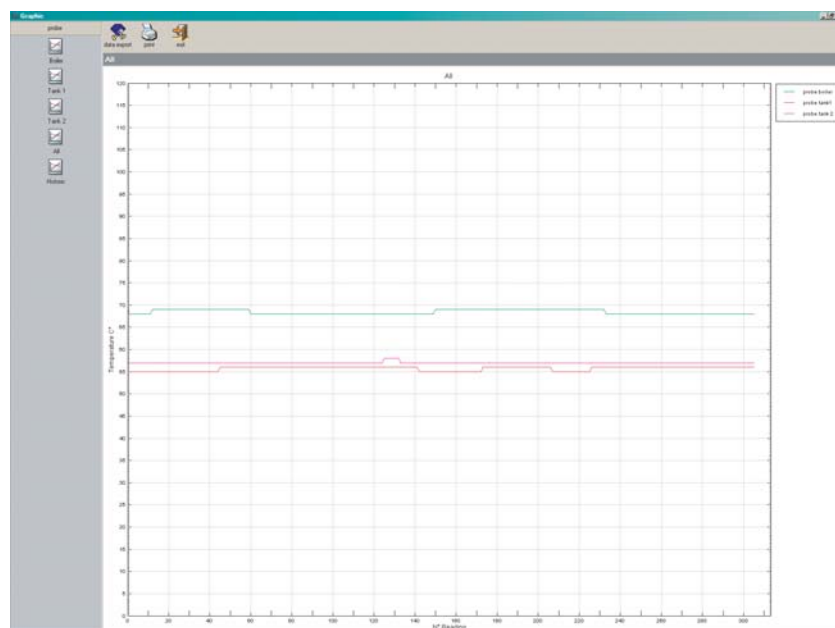
pict. 26

6.5.4 Charts

The charts can be viewed by clicking on the “Charts” button located on the main screen. You can select display of the state of a single probe or of all of them at the same time in the window that appears.

Note: The graphic state will be visible only during a washing cycle; otherwise the screen will appear the same as the one illustrated (see pict. 27).

Moreover, by pressing the “Historic” button, you can open the window that will display the historic data of the probes’ states, sorted chronologically in folders.



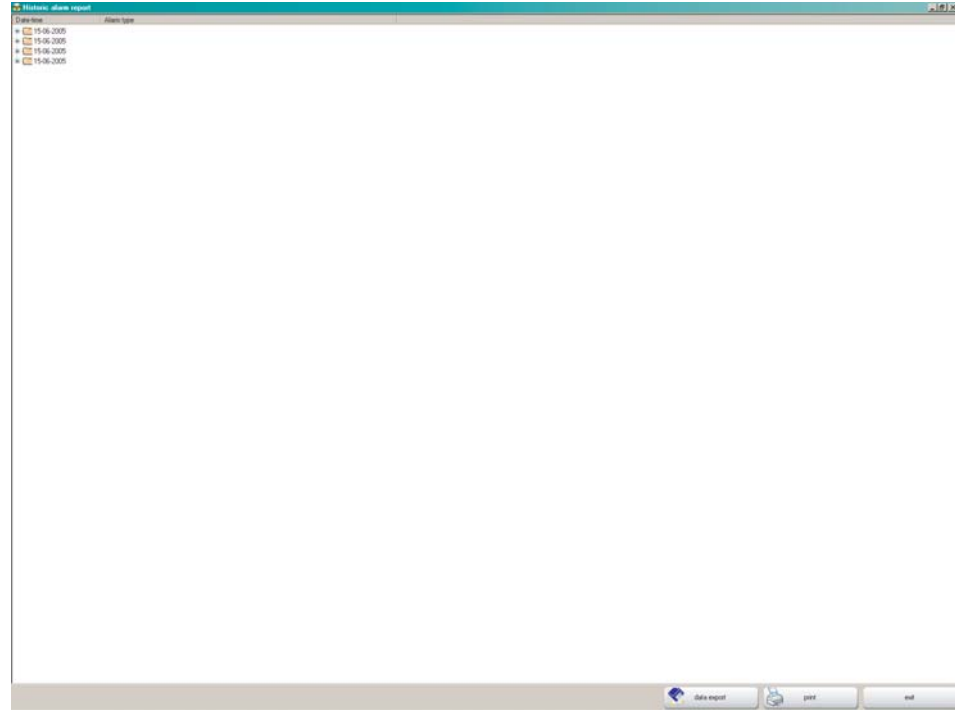
pict. 27

6.5.5 Alarms historic data

The alarms historic data allows you to view all of the alarms that occurred during the machine's operation.

It is possible to print the list of alarms or export it into a .CSV format file (which MS Excel can import directly).

pict. 28



6.6 Detergents and rinse aids

6.6.1 Using detergent

It must be of the NON-FOAMING type and suitable for industrial dishwashers. The use of liquid detergents is recommended.

The detergent is put inside the washing tank. For manual dosing, remember that the washing tank contains about 100 litres of water. The amount is recommended by the manufacturers. At the time of ordering, the dishwasher can be provided with an automatic electric detergent dosing device (capacity probe - always advisable).

6.6.2 Using rinse aid

Correct dosing of the rinse aid is very important in order to get quick drying and polishing.

N.B.: too much product or foam drastically reduces the effectiveness and lifetime of the washing pump.

6.7 Operation of heat recovery with heat pump(optional)

Heat pump functions as heat recovery when rinse is active, while when rinse is disarmed for lack plates/ baskets the operation passes as conditioner, from the chimney in both cases goes out dehumidified air to 15-18°C that conditions the environment where it is installed.

The operation of the heat pump is disarmed after 3-5 minutes of operation without baskets / plates(autotimer) this to limit the the electric consumptions.





7. MAINTENANCE

ATTENTION: The machine is not protected against pressure water jets, therefore not do use such cleaning systems on the cabinet.

It is also advisable to contact cleaning product dealers for detailed information on methods and products for periodical sanitizing of the machine.

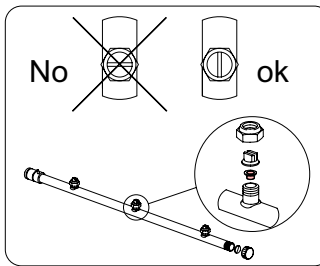
Use of bleach or chlorine-based detergents for cleaning the dishwasher is forbidden.

7.1 Routine maintenance



Perfect machine operation depends on careful cleaning, which must be carried out at least once a day, in the following way:

- Turn off the switch (0-1) or (P10) and **the wall-mounted main switch**.
- Drain the water removing the overflow hose.
- Extract the filters and clean them with a brush underneath a strong jet of water.
- Extract the washing/rinsing arms and carefully clean the nozzles and the dome-shaped filters of the rinsing nozzles underneath running water (reassemble correctly - see pict. 29).
- Reassemble all of the parts and replace the arms in their seats.
- Very carefully clean the tank while avoiding use of chlorine-based detergents.
- Clean the shutters (long on the outside, short on the inside).
- It is advisable to leave the hood of the machine open at the end of the day.



pict. 29

N.B.: It is recommended to replace the tank's water by filling when it is very dirty or, at least, twice a day.

Do not use a metal scouring pad and/or corrosive products for cleaning the dishwasher.

7.2 Extraordinary maintenance

Once or twice a year have the machine checked by a qualified technician, to:

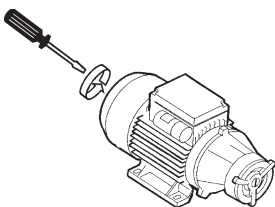
- Have the solenoid valve filters cleaned and the steam filter on machines equipped with heating coil from steam system;
- Remove deposits from the heating elements;
- Check the state of wear of the gaskets;
- Check the perfect state and/or wear of the components;
- Check the functionality of the dosing devices;
- Have the terminals of the electrical connections tightened at least once a year by technical assistance;
- To make to clean the filters of the turbines;
- Have the state of the safety devices of the doors/boilers, limit switch checked;
- Check the calibration of the clutch. If the steam condensate battery is dirty, clean it between the gaps with a get of water in a downward flow so as to make the water flow into the tank.
- If present heat recovery as optional, clean recovery's battery 4/5 times during a year, as attached practice to optional.

Pay attention to not getting the motor and electric parts wet (perform maintenance with the wall-mounted main switch off).

7.3 Pressure increase pump (optional)

After periods of dishwasher inactivity, make sure the supplementary pressure increase pump rotates freely. To do this, insert a screwdriver in the notch provided on the motor shaft on the ventilation side (see pict. 30).

In case of blocking, move the motor shaft by inserting the screwdriver in the notch, turning it clockwise and anticlockwise.



pict. 30



8. ENVIRONMENTAL ASPECTS

8.1 Packing

The packing consists of the following:

- a wooden crate;
- extensible belt in nylon (LDPE);
- a multilayered board;
- polystyrene foam (PS);
- strap in polypropylene (PP).

Please dispose of the materials listed above, according to the current regulations

8.2 Disposal

The symbol WEEE used on this product indicates that it cannot be treated as domestic waste. Proper disposal of this product contributes to protecting the environment. For more information on product recycling, contact the local authorities, domestic waste authorities or the shop where the product was purchased.

For product or part disposal, follow the Council directives 2002/95/EC and 2002/96/EC as amended and/or application legislative decrees.

The present product or parts can not be disposed of as urban waste but shall be collected in separate containers (see the waste bin on wheels symbol with an "X" on the product).

At the time of product disposal, the user shall refer to the waste electrical and electronic equipment (WEEE) specification.

The manufacturer guarantees the absence of dangerous substances in the EEA used in conformity to the directive 2002/95/EC.

If the user does not comply with the regulations he/she shall be subject to the penalties foreseen by each member state.

Disconnect electricity and water before disposal.

Cut the electrical cable to ensure that further use is impossible.

All metal parts are recyclable as they are made of stainless steel.

Recyclable plastic parts are marked with the plastic material symbol.



9. ECOLOGICAL ASPECTS

9.1 Recommendations for optimum use of energy, water and additives

If possible, use the machine at full load.

This will avoid wasting detergent, rinse aid, water and energy.

Detergents and rinse aids

Use detergents and rinse aids having the highest biodegradability so that the environment is better respected. Have the correct dosage according to the water hardness checked at least once a year. An excess of product pollutes rivers and seas, whereas an insufficient amount compromises dish washing and/or hygiene.

Tank and boiler temperatures

The temperatures of the tank and boiler are set by the manufacturer so as to get the best washing results with the majority of detergents on the market. These can be reset by the installer according to the detergent used.

Cleaning off

Carefully clean off the kitchenware using water at ambient temperature with moderation so as to make removal of animal fats easier. To remove encrusted matter, soaking in hot water is recommended.

Notes: Wash the objects as soon as possible in order to prevent the deposits from drying and jeopardizing the effectiveness of the washing.

To get an efficient wash, it is advisable to regularly clean and maintain the dishwasher (see chapter 7).

Non-compliance with the above points and all the information described in this manual could determine a waste of energy, water and detergent, with consequent increase in operating costs and/or decrease in performance.



10. ALARMS

10.1 Mechanical control panel alarms

INDICATOR PHASE DESCRIPTION OF ALARM	LAMPS		
	GREEN LAMP 5	RED LAMP 11	YELLOW LAMP 6
MACHINE ON DURING LOADING PHASE	ON	OFF	OFF
END OF LOADING/BEING HEATED	ON	OFF	ON
MACHINE ON MOTOR ALARM	ON	ON	ON
EMERGENCY PUSH-BUTTON PRESSED		ON	
MACHINE OFF	OFF	OFF	OFF

table 8

10.2 Electronic control panel alarms

ALARM INDICATIONS AND CURES		
Message	Cause	Cures
EE	Memory problem	In case of multiple alarm, please call the Service.
P1	Probe broken	Check the connections. If the alarm continues, replace the probe
HA	High temp. alarm	They automatically switch off as soon as the temperature of the thermostat returns to normal. Check the working temperatures of the thermostat.
LA	Low temp. alarm	
TO	Missed heating alarm	Check magnetothermics and heating elements. If the alarm continues, replace heating elements

table 9

The electronic card has the following visual and acoustic alarms:

- A) Boiler high temperature acoustical alarm - T1 displays Hi.
Alarm enabled from turning on and fixed at 99'
- B) Boiler low temperature acoustical alarm - T1 displays Lo.
The alarm trips if 30' have passed from starting and the boiler temperature is or goes below the delta defined by parameter G.
- C) Hi high temperature acoustical alarm for wash/pre-wash thermostats.
If the temperature is 15°C above the relevant thermostat setting.
- D) MI low temperature acoustical alarm for wash/pre-wash thermostat.
When at least 30' have elapsed from starting, if the temperature drops below the values set by parameters B and C the card lets 5' go by, after which MI (minimum) appears with the respective acoustical alarm if the temperature does not go back above the alarm value set on display T3. The alarm switches off as soon as the temperature returns to normal values.
- E) Acoustical probe break alarm.
Er is displayed on the relevant display indicated the broken probe.
- F) Acoustical alarm and turning on of LED 5 - no alarm on the display.
The mushroom-shaped emergency button has been pressed or the pump overload cutouts have tripped (machine operation is not blocked).
- G) Water pressure switch opening acoustical alarm (optional).
H2 is displayed in the displays and the acoustical alarm is enabled, blocking machine operation. This occurs if relevant parameter F is enabled and if 5' have elapsed since rinsing has started.

11. MACHINE PROBLEMS, CAUSES AND CURES

Type of problem	Possible causes	Cure
The machine does not start	Main switch turned off	Turn switch on
	Card transformer fuse blown	Replace fuse
The machine does not load water	Water supply cock closed	Open the water cock
	Shortage of supply water pressure	In the electronic card versions, turn off and turn back on when the pressure increases, or have a pressure increase pump installed
	Solenoid valve filter clogged with sand	Clean the filter
Inadequate washing results	The washing nozzles are clogged	Clean the nozzles and correctly mount the arms in the proper seats
	Detergent concentration too low	Change the amounts of detergent
	Filters too dirty	Remove and clean the filters with a brush under a jet of water, then refit them in their seats
	Presence of foam	Use a non-foaming detergent or reduce the amounts of that used. Check amounts of rinse aid
	Check the tank temperature (it must be between 50°C and 60°C)	Adjust the thermostat or check correct operation of the heating element
	During wash, insufficient for the type of dirt	Select the lowest speed or repeat the wash cycle
	Washing water too dirty	Drain the water from the tanks and clean the filters. Reload the tank and properly replace the filters.
Pots and dishes are not properly dried	Insufficient rinse aid dosage	Increase the dosage (see paragraph "Rinse aid dosing device")
	Basket unsuitable for the pots and dishes	Use a basket suitable for glasses (wide mesh) and for cutlery (narrow mesh)
	Rinse water temperature below 80°C	Check the boiler thermostat temperature (4). If necessary, contact Technical Assistance for adjustment. Check the water entry temperature of the system if supplied with hot water (min 50°C - max 70°C)
Streaks or smears on pots and dishes	Rinse aid concentration too high	Reduce rinse aid concentration (see paragraph "Rinse aid dosing device")
	Water too hard	Check the quality of the water. The water hardness must not be more than 10°f
During operation the machine suddenly stops	The machine is connected to an overload system	Connect the machine separately (call the authorized personnel).
	A machine safety device has triggered	Check the safety devices (call the authorized personnel)
During the wash phase the machine stops and replenishes water	The previous day's water was not changed	Empty the tank and carry out a new filling
	Temperature of water in tank too high	Have the thermostat and pressure switch checked by the Assistance Centre
	Faulty pressure switch	
	Overflow incorrectly positioned	Remove and correctly position the overflow
	A tank has emptied due to excess foam or lack of shutters/splash guards	Reduce rinse aid/detergent concentration or properly reposition the shutters or other guards that may have been removed
	Wash arms incorrectly positioned	Check and correctly position the wash arms

Type of problem	Possible causes	Cure
The machine does not wash and the wash pump is noisy on machines with three-phase pump	The pump direction is inverted due to incorrect power cable connection	Check and correctly connect the cable wires

12. OPTIONALS PROBLEMS, CAUSES AND CURES

12.1 Heat regenerator

Type of problem	Possible causes	Cure
Compressor attach/detach	Operating time of safety pressure switch	Verify water capacity and cleaning of battery
	Water temperature supply too high	Verify water temperature supply included between 10-25°C
	Water capacity not sufficient	Verify statics pressure $p > 250 \text{ kPa}$
	Dirty steam battery	Remove steam conveying hood and clean all condensed fat; in necessary, remove also the battery to clean the fins inside
Rinse water temperature $< 70^\circ\text{C}$	Dirty steam battery	Remove steam conveying hood and clean all condensed fat; in necessary, remove also the battery to clean the fins inside
	Heat pump has lost gas	Make a recharge with R134a emptying/recovering all gas and charge 2600g. Verify before recharge that there are not escapes from tubings/ connections tightened
Pots and dishes are not properly dried	Scarce dosage of rinse-aid product	Increase dosage (see chapter "Rinse aid dispenser")
	The basket is not suitable to pots and dishes	Use basket suitable for glasses (large mesh) and for cutlery (narrow mesh)
	Rinse water temperature below 80°C	Check the boiler thermostat temperature (4). If necessary, contact Technical Assistance for adjustment. Check the water entry temperature of the system if supplied with hot water (min 50°C - max 70°C)

N.B.: For any other problems, contact Technical Service. The Manufacturer reserves the right to modify the technical characteristics without prior notice