| E | I | P | Ultrasonic Washing Machine **MC-300** |

User Manual

Versions 1.935 – 1.945

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1 General description and installation

1.1 Description

Photo 1-1 General view

Control panel

Rear power switch

Basket holder axis

Basket

Basket holder

Tank n°4: Rinsing

Tank n°3: Rinsing

Tank n°5: Drying

Tank n°2: Rinsing

Tank n°1: Ultrasonic washing

Characteristics:

77cm

77cm

57cm

kg 105
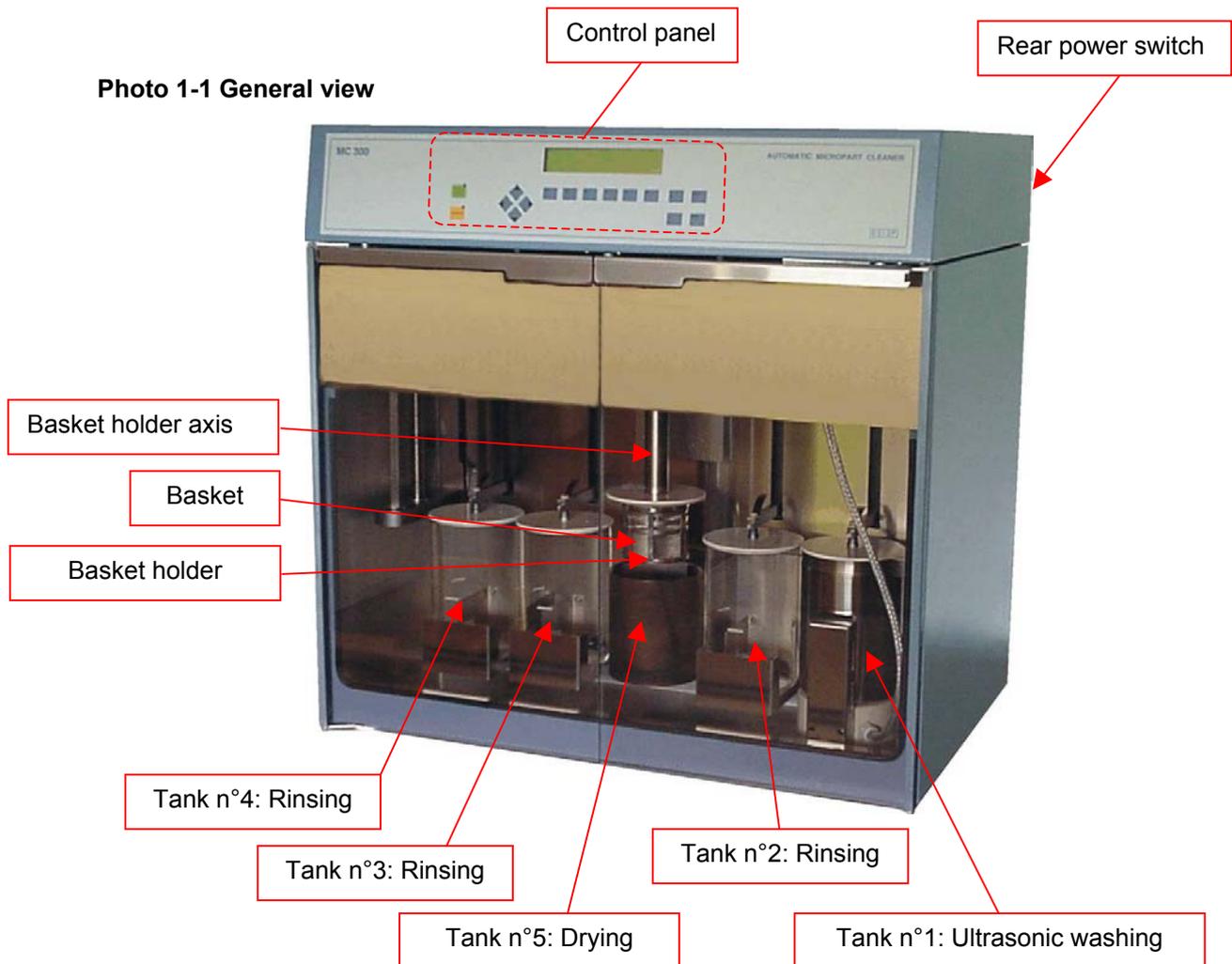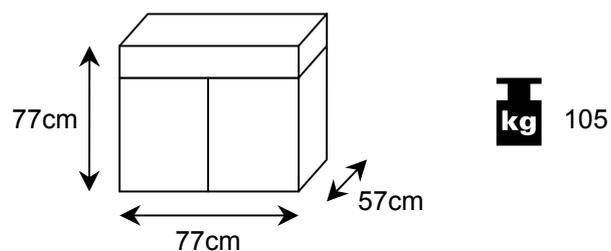
Electrical connection: 230 VAC or 115 VAC 1,5 kW
Fume evacuation connection: diameter 77 mm, outflow 100 m^3/hour

1.2   Installation

The machine must lie on a table supporting 150 Kg, at approximately 80 cm from the floor. It must be connected to the 230VAC or 115VAC power supply (switchable on the rear side) and to a fume evacuation system with $100m^3$/h outflow.

1.3   Machine power on

Power on switch is located at the rear of the machine. It must stay powered when the tanks contain products, to insure fume evacuation. ON and STANDBY front panel switches allows the daily machine power-on and power-off (see § 1.4).

Photo 1-0 General power switch

MACHINE CYCLE IS NOT ALLOWED WITHOUT LIQUID IN TANK N°1 (ULTRASOUND).

1.4 Control panel

STANDBY mode switch

ESC: key allowing menu escape

READY FOR CARRYING OUT PROGRAMME Nb

START HELP MISC INIT CHB INFO

Arrows: for cursor displacement and parameter selection

F1..F6: display related function keys

+ - : for program number and parameter value changing

ENT: validation key
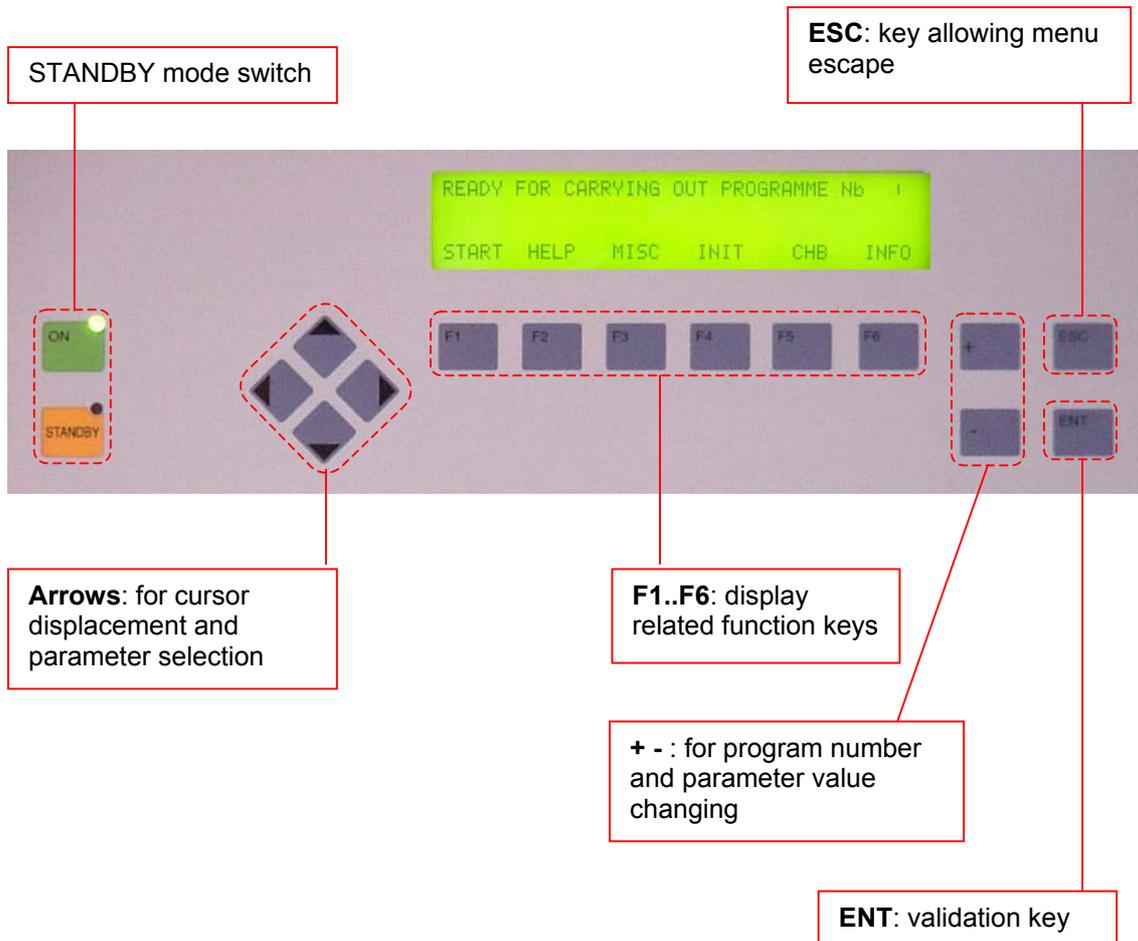
ON and STANDBY keys must be used to set the machine on and off. This allows fume evacuation system to run. In STANDBY mode, display lighting and power elements (heater, ultrasonic generator, motors and fans) are powered off.

2 Daily use

2.1 Power-on

If the machine is in STANDBY mode (red led lit), press green key, or in the other case, put the rear general power switch to the ON position.
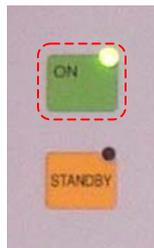

Or

2.2 Motors Initialization

After power on, the display indicates:
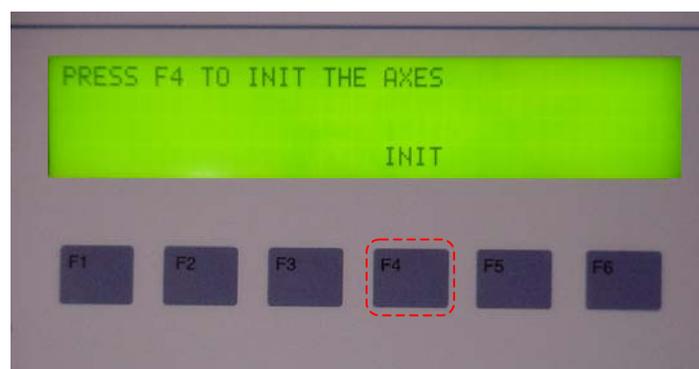
Close the doors and press F4 key (INIT) to allow motor Initialization. The basket holder stops at the charging position, above the drying compartment.

After initialization, the display indicates:
(from 1.94 version with heated ultrasonic bath, the pre-heating function is available)

From 1.94, the INFO function is in MISC menu and is replaced by the pre-heating function (PRECH). This one allows to increase the temperature of the bath until the programmed value is reached. **IT IS IMPERATIVE THAT THE LEVEL OF THE LIQUID STAY ABOVE THE TOP OF THE HEATING ELEMENT. THERE IS NO AUTOMATIC LEVEL DETECTION**.

Numbers separated by a "/" indicates cycle number of the most used tank and the maximal cycle number before the message 'MAX NUMBER OF CYCLES' appears. This maximum cycle number before changing the bathes can be changed in the machine configuration (see § 4.2). The counter (first Number) is reset to zero by the changing bath procedure.

2.3   To hang up the basket

Open the doors, lift the basket holder axis and place the basket holder. Release the axis to lock the holder.
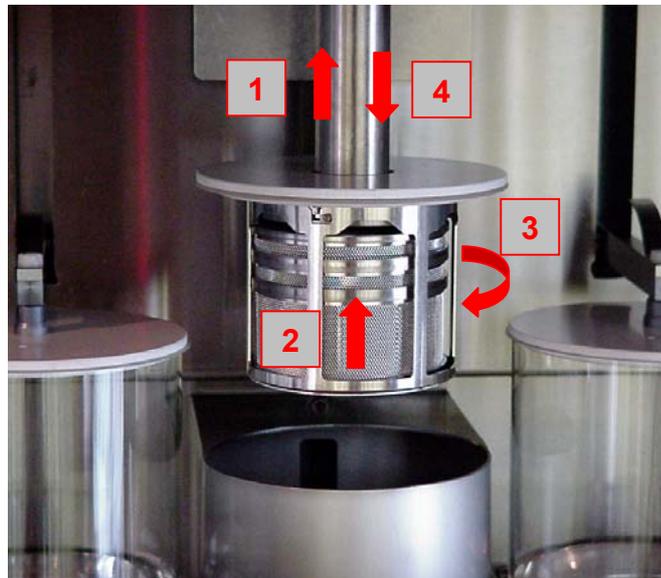
Close the doors. Reverse steps to remove the basket holder.

2.4   Selection of the washing programme

The programme number is selected with the plus and minus keys.
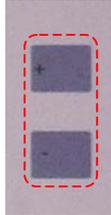
Programme numbers are numbered between 1 and 15. The programme number 0 is reserved for maintenance (see § 3.5 for standard program description and § 3 for programming).

2.5   Programme start-up

Press F1 key (START) to start the program. The display indicates the remaining time for the full cycle. F6 key (STOP) allows cycle interruption. If the basket is under the spin drying position when interruption occurs, spin drying procedure will be done before the basket goes to the loading position.

Note: Opening the doors stops the cycle immediatly. When the doors are closed again, the cycle continues.

When washing is finished, opening the doors is mandatory to test the door switch functionality.

2.6 Bath changing
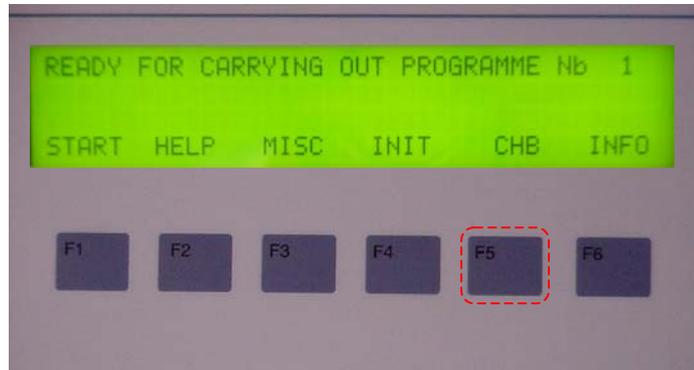
Press the F5 key (CHB), the lids elevate to free the tanks. The machine comes in STANDBY mode. Open the doors.

Change the liquid in the glass tanks. For tank nb 1 (ultrasound) proceed as follow: Unscrew the black connector, unplug the cable and pull up the tank before extracting it from the machine **(Be carefull of the temperature in case of heated tank).**
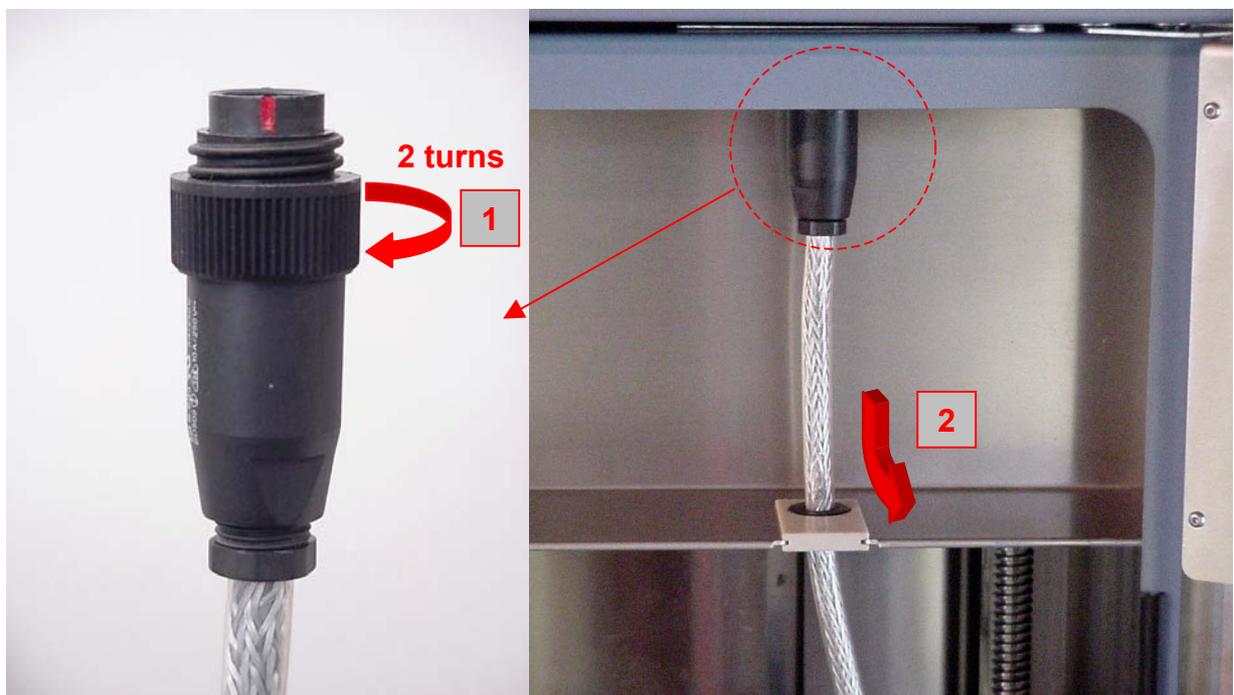
Photo 2-0 Tank 1 connection

Reverse the above steps to put the tanks in place. Place connector's red mark in front of you before plugging. Close the doors and press the F4 key (INIT), the machine is ready again. Go to § 2.2.

3   Programming

3.1   Access code

Main menu:
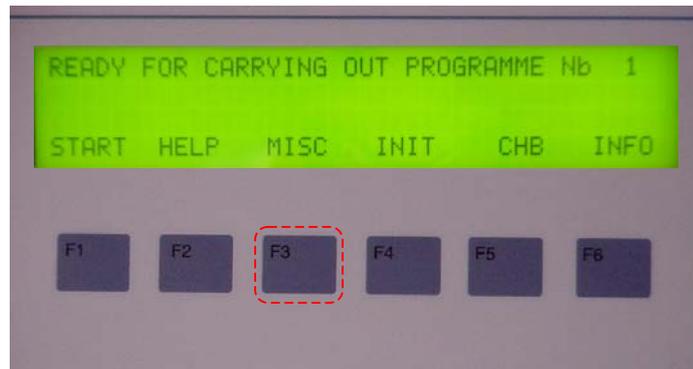
Press F3 key (MISC), the display shows:
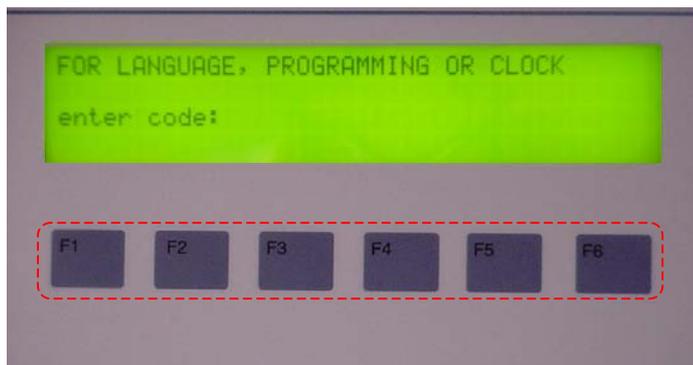
Enter the access code with the F1 to F6 keys and press the ENT key to confirm. If the code is correct, the display shows:
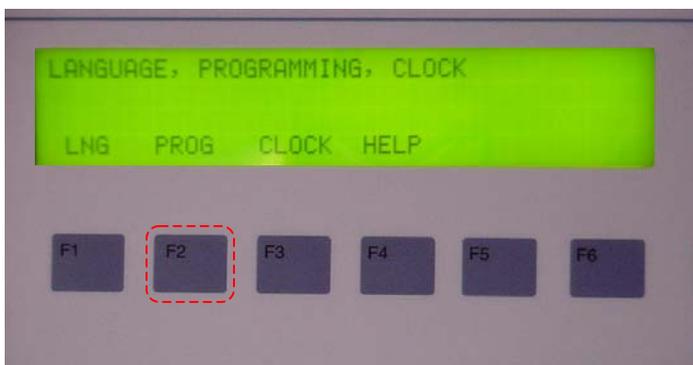
Press F2 key (PROG).

3.2   Tank selection

The display shows:
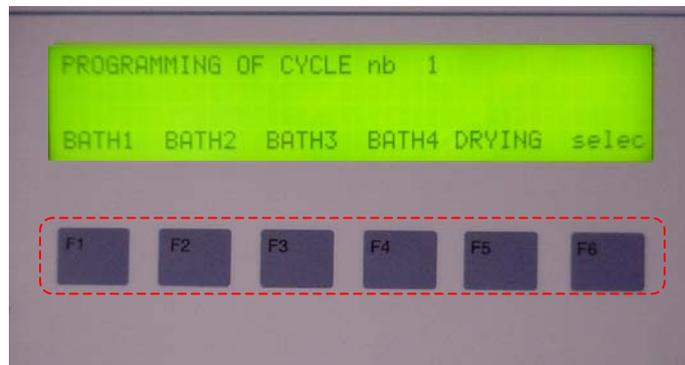
Choose the cycle number (program number) with the + and – keys (program number 0 is reserved for maintenance, programmes 1, 2 and 3 are locked). When BATH1, BATH2, ... DRYING is displayed on the second line this means that corresponding tank is included in the cycle. In the above example all the tanks are present, included drying. To delete a tank, press the F6 key (selec) and press the corresponding function key (F1 .. F5). The tank name disappears. To select the tank again, press the F6 key then the corresponding function key (F1 .. F5).

Note:

After pressing the F6 key (selec), it's designation become "def". This means that a new depression on the F6 key will introduce automatically default parameters in the current cycle.

3.3   Parameter Change

To change bath parameters press the corresponding key F1 .. F5 (without pressing F6 key). The display shows:
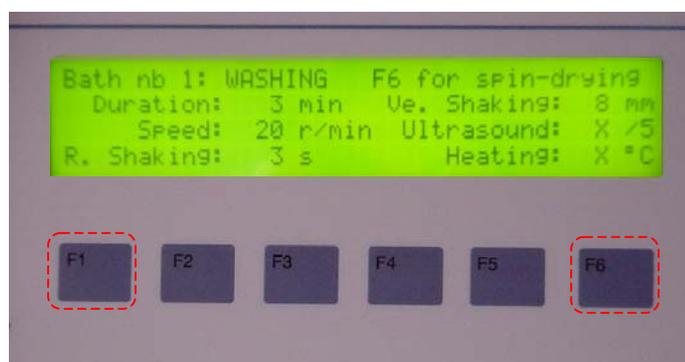
The bath number is displayed at the top left of the screen. Use the up and down arrows to choose one parameter (the cursor moves) and the "+" and "–" keys to change a parameter value. To fast value change, keep pressing the "+" or "–" keys. To choose the minimal value, press the F1 key. To display the spin drying parameters, press the F6 key. The display shows:

To come back to the washing parameters press F6 key. To come back to the preceding menu, press the ESC key. At the question "save the programmes ?", answer "Yes" to store the modifications, or "No" to restore the preceding values.

3.4 Allowed parameter values

Washing parameters can have the following values:

Parameter	Min. value	Max. value	Default value
Washing time	0 sec	60 min	2 min
Rotation speed	0 r/min	500 r/min	200 r/min
Rotation time in one direction[1]	0 sec	120 sec	3 sec
Amplitude between two direction changing	0 mm	10 mm	0 mm
Ultrasonic power[2]	0	5/5	5/5
Heating temparature for ultrasonic bath	20°C	70°C	20°C

The spin drying parameters can have the following values:

Parameter	Min. value	Max. value	Default value
Spin drying time	0 sec	5 min	1 min
Rotation speed	0 r/min	800 r/min	800 r/min
Rotation time in one direction[1]	0 sec	120 sec	10 sec

Drying parameters can have the following values:

Parameter	Min. value	Max. value	Default value
Drying time	1 min	30 min	2 min
Rotation speed	0 t/min	500 t/min	50 t/min
Rotation time in one direction[1]	0 sec	120 sec	10 sec
Temperature	20 °C	65 °C	60 °C

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[1] When time is "0", the direction is not changing.
[2] 0 = no ultrasound; 5 = 25 W/l. If the tank is not detected, display indicates X/5.

3.5 Locked programmes nb 1, 2 and 3

Programmes nb 1, 2 and 3 are locked and can not be modified. The parameter value are as follow: (only washing time of tank 1 is different)

Programme nb 1. Total time 22 min

	Bath nb 1 Washing	Bath nb 2 Rinsing 1	Bath nb 3 Rinsing 2	Bath nb 4 Rinsing 3	Pos nb 5 Drying
Time	3 min	2 min	1 min	1 min	10 min
Speed	20 r/min	300 r/min	300 r/min	300 r/min	50 r/min
Time in 1 direction	3 sec	3 sec	3 sec	3 sec	10 sec
Amplitude	8 mm	8 mm	8 mm	8 mm	-
Power	5/5	X	X	X	-
Temperature	X	X	X	X	62 °C
Spin drying time	1 min 30	1 min	30 sec	30 sec	-
Spin drying speed	800 r/min	800 r/min	800 r/min	800 r/min	-
Spin drying time in 1 direction	10 sec	10 sec	10 sec	10 sec	-

Programme nb 2. Total time 26 min

	Bath nb 1 Washing	Bath nb 2 Rinsing 1	Bath nb 3 Rinsing 2	Bath nb 4 Rinsing 3	Pos nb 5 Drying
Time	7 min	2 min	1 min	1 min	10 min
Speed	20 r/min	300 r/min	300 r/min	300 r/min	50 r/min
Time in 1 direction	3 sec	3 sec	3 sec	3 sec	10 sec
Amplitude	8 mm	8 mm	8 mm	8 mm	-
Power	5/5	X	X	X	-
Temperature	X	X	X	X	62 °C
Spin drying time	1 min 30	1 min	30 sec	30 sec	-
Spin drying speed	800 r/min	800 r/min	800 r/min	800 r/min	-
Spin drying time in 1 direction	10 sec	10 sec	10 sec	10 sec	-

Programme nb 3. Total time 32 min

	Bath nb 1 Washing	Bath nb 2 Rinsing 1	Bath nb 3 Rinsing 2	Bath nb 4 Rinsing 3	Pos nb 5 Drying
Time	13 min	2 min	1 min	1 min	10 min
Speed	20 r/min	300 r/min	300 r/min	300 r/min	50 r/min
Time in 1 direction	3 sec	3 sec	3 sec	3 sec	10 sec
Amplitude	8 mm	8 mm	8 mm	8 mm	-
Power	5/5	X	X	X	-
Temperature	X	X	X	X	62 °C
Spin drying time	1 min 30	1 min	30 sec	30 sec	-
Spin drying speed	800 r/min	800 r/min	800 r/min	800 r/min	-
Spin drying 1 dir	10 sec	10 sec	10 sec	10 sec	-

4   Maintenance

4.1   Access code

To reach the following menu see procedure at § 3.1:

Press the F6 key, enter the maintenance code then press the ENT key. The configuration and maintenance menu appears.

4.2   Machine configuration

Warning:

Change the OFFSET parameters means that the setting procedure must be done again (doesn't need factory return)

Press F1 key to access to the list of the machine configuration parameters. Use up and down arrows to select the parameter and "+" and "–" keys to change parameter value.

The parameters are:

1. MAXIMUM NUMBER OF CYCLE PER BATH
   Min value: 1   Max value: 999   Units: -   Default value: 50

It is the maximum bath number before a liquid changing. A message is displayed when changing is needed. The most used tank is taken as reference.

2. MAXIMUM EVAPORATION TIME [min]
   Min value: 0   Max value: 60   Units: minutes   Default value: 5 min

Maximum time with opened doors during bath changing. After this an acoustical warning occurs.

3. MAXIMUM NON-EXTRACTION TIME [min]
Min value: 0   Max value: 60   Units: minutes   Default value: 10 min

In STANDBY mode, the fan to extract fumes runs periodically. This parameter indicates the time during the fan is stopped. The running time of the fan is 40 seconds.

4. COOLING TIME [min]
Min value: 0   Max value: 60   Units: minutes   Default value: 1 min

At drying end, this is the time during which the drying fan is running to cool the basket.

5. MAXIMUM BATH TEMPERATURE [°C]
Min value: 0   Max value: 99   Units: °C   Default value: 45 °C

This is the maximum temperature of the ultrasonic tank. If overridden, the machine cycle stops and a warning is displayed.

6. NIP CODE
Min value: 0   Max value: 9999999   Units: -

Access code for the programming menu. It must be composed with number between 1 to 6.

7. VERTICAL OFFSET [0.1mm]
Min value: -150 Max value: 150   Units: $^1/_{10}$ of mm   Default value: -

Vertical axis offset.

8. HORIZONTAL OFFSET [0.1mm]
Min value: -150 Max value: 150   Units: $^1/_{10}$ de mm   Default value: -

Horizontal axis offset.