

**PHILIPS**

## Service Manual

### **Philips EP**

800 series  
1200 series  
2200 series  
2500 series  
3200 series  
3500 series



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## **Important repair instructions**

- Only skilled personnel should carry out the repair.
- After repair the appliance should function properly.
- After repair the appliance has to meet the regulatory- and safety requirements that were applicable at the time of release of the model.
- After repair the appliance always has to be tested for electrical safety according VDE 0701-0702 and for medical products IEC 62353.

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## **Philips EP Series**

# General information



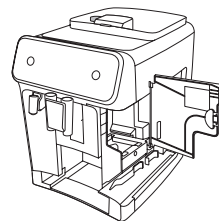
## Technical information

- Voltage : 220 - 240 V
- Frequency : 50 - 60 Hz
- Power consumption : 1450 W
- Standby power consumption: 0.22 W
- Auto shut-off time : 15 min
- Capacity water tank : 1.8 litres removable
- Capacity coffee bean : 275 g
- Capacity LatteGo : 250 ml
- Capacity Coffee grounds : 12 pucks
- Cord length : 1 m
- Pump pressure : 15 bar
- Adjustable spout height : 85 - 145 mm
- Weight and dimensions:
  - Weight of product : 7 - 7.5 kg
  - Dimensions of product : 246 x 372 x 433 mm (WxDxH)

## Maintenance products

- Descaler 996530067222
- Jar of Grease 1Kg 421945054671
- Jar of Grease 250g 421945054681
- Silicone grease 996530045784

## Production date (or serial number)



## Optional (accessories)

- AquaClean water filter CA6903
- Descaling solution CA6700
- Brew group grease HD5061
- Coffee oil remover tablets CA6704

# General information

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## Overview

**CMF (classic milk frother)**



**Latte Go**





# General information

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## Overview

CMF (classic milk frother) 800 series



CMF



# General information

CMF

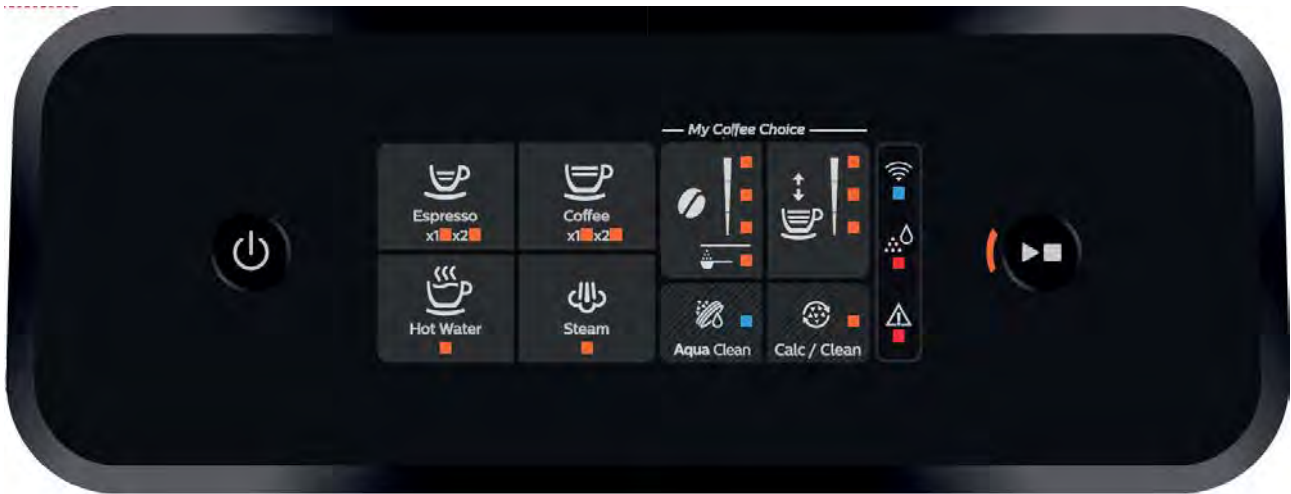


Latte Go



# General information

CMF (Only for Wi-Fi models)



Latte Go (Only for Wi-Fi models)

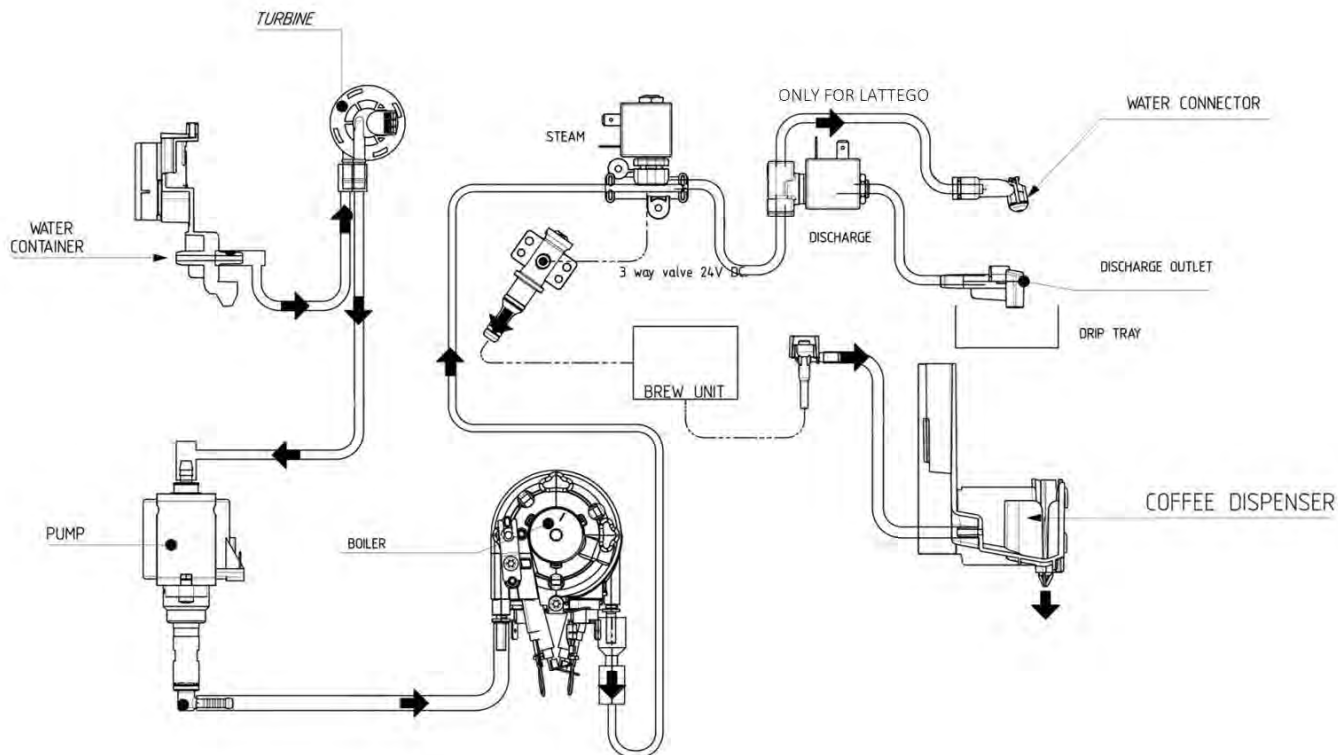


Latte Go (Iced coffee version)

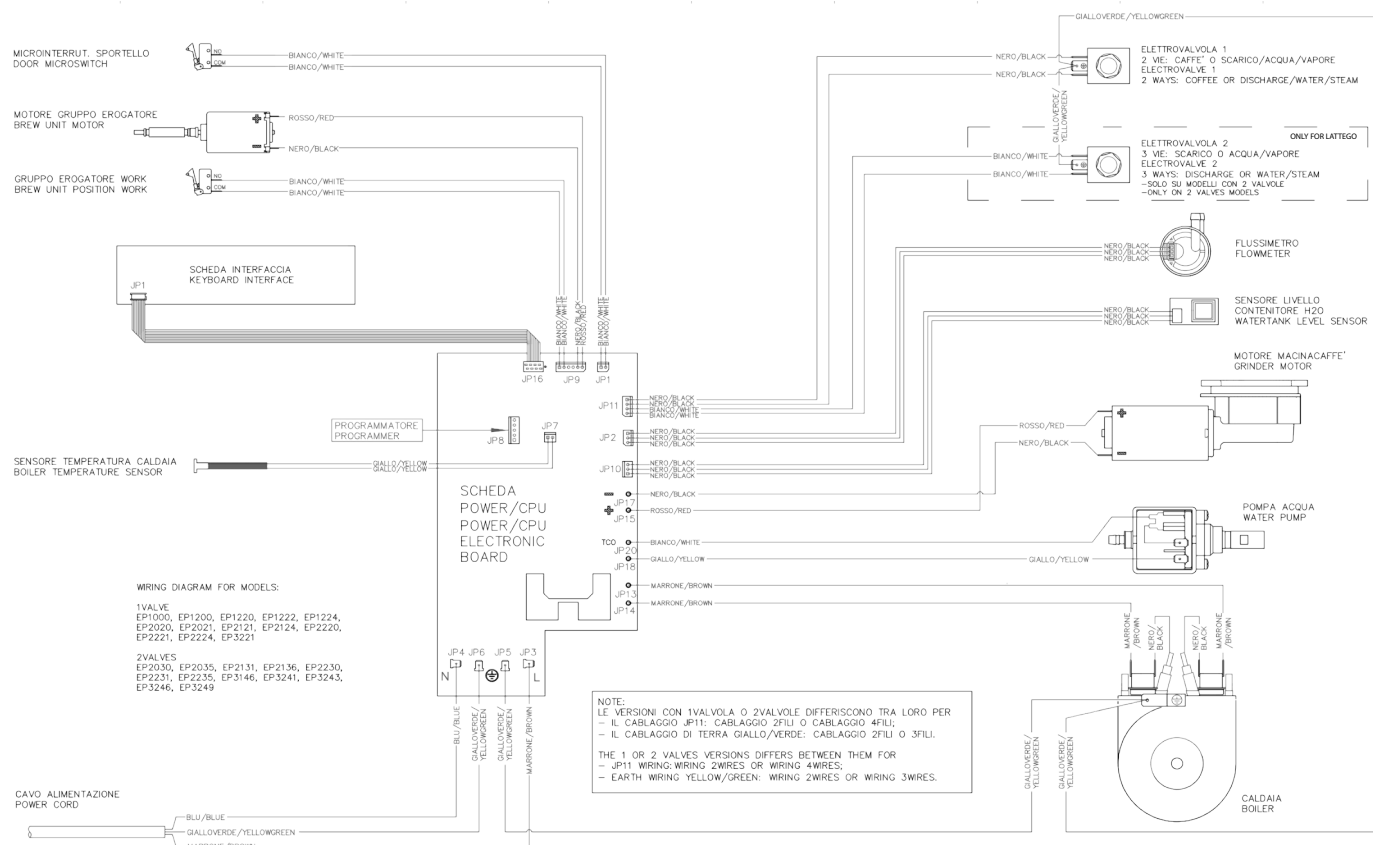


# Technical information

## Water circuit



## Electric circuit





# Technical information

## Coffee and machine specifications

| Drinks                 | Low button (ml) | Medium button (ml) | High button (ml) | Volume adjustment (only at high button - ml) |
|------------------------|-----------------|--------------------|------------------|--|
| Espresso               | 30              | 40                 | 70               | 40-220                                       |
| Coffee                 | 100             | 120                | 200              | 120-220                                      |
| Espresso lungo         | 60              | 80                 | 180              | 80-220                                       |
| Americano (water)      | 40<br>(50)      | 40<br>(110)        | 40<br>(160)      | 40<br>(110-360)                              |
| Cappuccino (milk)      | 30<br>(90)      | 40<br>(120)        | 60<br>(200)      | 40-220<br>(120-340)                          |
| Latte macchiato (milk) | 30<br>(120)     | 40<br>(200)        | 50<br>(340)      | 40-220<br>(200-340)                          |
| Hot water              | 60              | 150                | 360              | 150-360                                      |
| Iced coffee            | 90              | 120                | 150              | 120-220                                      |

| Coffee grounds drawer                                      |  | Description and values  |
|--|--|---|
| Time-out for coffee grounds drawer                         |  | 5 seconds   |
| Reset dreg counter   |  | Dreg emptying alarm, if the coffee grounds drawer is removed for more than 5 seconds. |
| STANDBY  |  | Description and values  |
| Time (default)   |  | 15 minutes  |
| Time programmed by Consumer/Service                        |  | NO  |
| Boiler temperature during Standby                          |  | Boiler OFF  |
| WATER TANK   |  | Description and values  |
| Water reserve (pulses) with water filter                   |  | 125 ml (260 pulses)   |
| Water reserve (pulses) with no water filter                |  | 125 ml (260 pulses)   |
| Water reserve modifiable by Production/Service departments |  | NO  |
| "Fill tank" alarm  |  | YES   |
| Connect to water mains                                     |  | NO  |

## Specific tools and equipment

| Description                            | Notes  |
|--|--|
| Flathead screwdriver                   | # 0, # 2   |
| Torx screwdriver                       | (T10)  |
| Pliers for Oetiker clamps              |  |
| Digital Thermometer                    | Type K (accuracy for temperature of 0,05 % or $\pm 0,3^{\circ}\text{C}$ )                            |
| Temperature probe                      | 80PK-22 (80AK-A Thermocouple adapter required)   |
| Scale                                  | KERN EMB 500-1 or comparable device with a base accuracy of 0,05 % or $\pm 0,5\text{ g}$             |
| Power meter                            | Voltcraft EnergyCheck 3000 or comparable device with a base accuracy of 1 % or $\pm 5\text{ W}$      |
| Stopwatch                              | Basic model  |
| Serkit                                 | Tool needed for programming with our service tool  |
| EP series cable                        | Cable for Philips EP1200-2200-3200 series  |
| EPSC (Espresso Philips Service Center) | Tool used to flash the SW on the machines (for SW upgrade and diagnostics mode). Refer to SDA_114585 |

# Technical information

## Specification for the measurement of the coffee products temperature

Before measuring the in-cup temperature make sure the following conditions will be met:

Conditions:

- Water temperature in tank: 23°C (+/-2°C).
- Use a plastic cup (see picture 1).
- Use a digital thermometer (see picture 2) (e.g. type K probe diameter max 2mm (see picture 3)).
- The coffee machine is tested without any change of parameters or calibrations, which may affect the temperature of products, so the measurement of temperature must be done with machine in default factory setting.

### Procedure:

- Place the plastic cup under the dispensing spout. (picture 1)
- Dispense coffee
- Measure the temperature immediately after coffee has being dispensed, you need to finish the measurement within 12 seconds. The temperature in the cup is measured by placing the probe of the thermometer in the cup near the bottom. Then stir the probe in the cup for 5 to 6 times and read out the thermometer values during stirring. Hold the probe still in the center of the cup.
- Record the highest value.

Depending on the coffee volume selected to measure, you would need to position the probe on several height levels to measure the correct temperature in the plastic cup.

10mm for 35gr - 17mm for 60gr - 35mm for 120gr (see Picture 3).

Espresso Coffee Italy Q.ty 40 gr.

Temperature of 1st product 69°C ≤ 85°C

Temperature of 2nd product 72°C ≤ 85°C

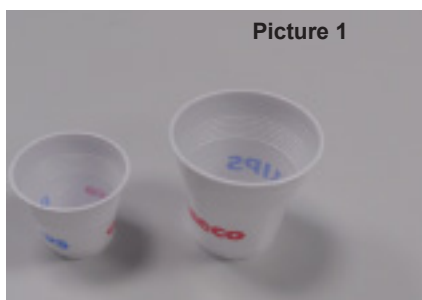
Coffee Q.ty 120 gr.

Temperature of 1st product 72°C ≤ 85°C

Iced coffee Q.ty 120gr.

Temperature of 1st product 54°C ≤ 64 °C

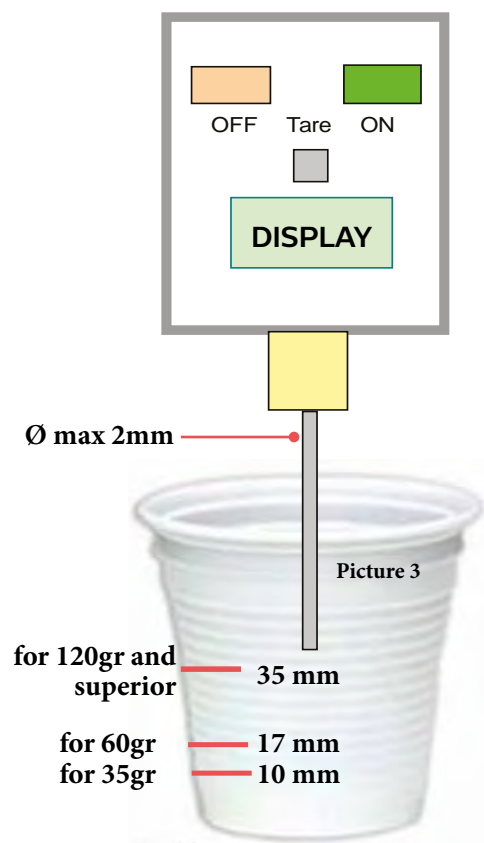
Temperature of 2nd product 54°C ≤ 64 °C



Picture 1



Picture 2



Picture 3

## Philips EP Series

# Technical information

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## Specification for the measurement of the Milk products temperature.

Before measuring the milk froth temperature and milk froth height make sure the following conditions will be met:

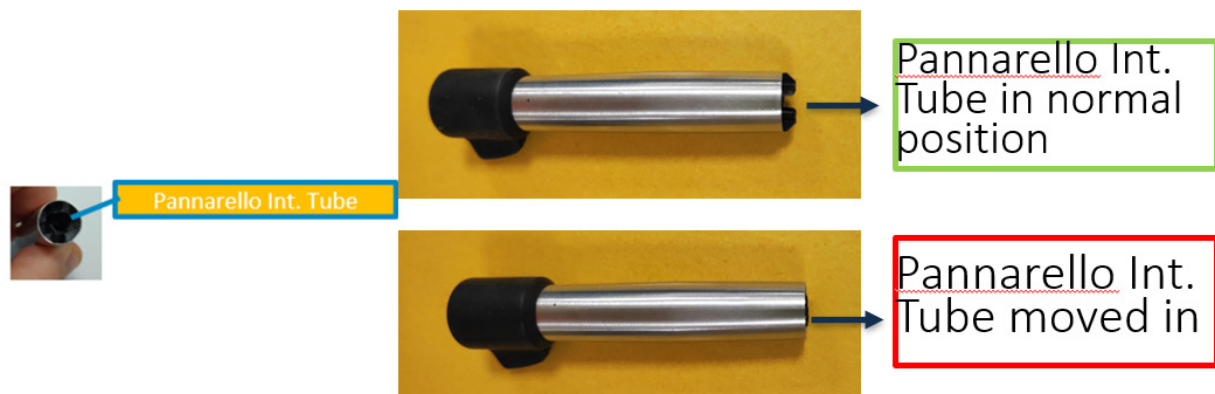
Conditions:

- a) Use semi skimmed UHT milk with a fat percentage between 1.5 – 1.8%
- b) Milk is cooled between 4 – 8°C (refrigerator temperature).
- c) Use a plastic transparent measuring beaker which can hold min 250mL with an inner diameter of 70mm.
- d) Use a digital thermometer (see picture 2, page 8) (e.g. type K probe diameter max 2mm (see picture 3, page 8).

Depending on the frothing system, the applicable specification need to be selected to determine if the appliance is within specification.

### For Pannarello models only:

In case the consumer is complaining due to a poor milk quality check the status of the Pannarello internal tube. If the internal tube was pushed internally up the pannarello proceed with the replacement of the pannarello.



### Available systems:

- Manual system pannarello (CMF)
  - Temperature specification:  $\Delta \geq 45^{\circ}\text{C}$
  - Froth height specification:  $\geq 15\text{mm}$  on 100gr. of brewed milk product
- Automatic system (Latte Go)
  - Temperature specification:  $\Delta \geq 60^{\circ}\text{C}$
  - Froth height specification:  $\geq 15\text{mm}$  on 100gr. of brewed milk product

# Technical information

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## Milk temperature in the beaker:

- System with CMF: With milk at Trefr. (about 4-10 °C):  $\Delta \geq 45$
- System with LatteGo: With milk at Trefr. (about 4-8 °C):  $\Delta \geq 60$

## How does it work:

1. The milk is heated in the first chamber of the carafe thanks to the steam.
2. Then, it is mixed with air and frothed in the middle chamber.
3. Finally, in the outlet chamber, the 'typhoon effect' perfects the milk texture by removing the large bubbles



## Procedure to measure the temperature of the milk.

1. Place the beaker under the milk spout.
2. Dispense 100gr of milk froth.
3. Measure the temperature immediately after milk froth is dispensed, you need to finish the measurement within 5 seconds.
4. The temperature is measured by placing the probe of the thermometer  $\pm 10\text{mm}$  above the bottom of the beaker.
5. Then stir the probe for 3 to 5 times and read out the thermometer values during stirring, values should stabilize.
6. Hold the probe still in the center of the beaker and read out the temperature.



# Technical information

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## Procedure to measure the milk froth height.

### Manual system (CMF)

Pour 100cc. of milk at Trefr. in a beaker of 250 ml of capacity and with a inner diameter of 70 mm; with machine in steam mode:

1. Place the beaker with the frother dipped in milk, dispensing steam and start the chronometer.
2. After about 30 to 60 seconds, stop the steam and check the result on milk.

### Automatic system (Latte Go)

After setting the machine to delivery of 120gr. of product:

1. Launch the “hot milk” function.
2. Collect the product in a beaker with a 250ml of capacity and with an inner diameter of 70 mm, and verify the result obtained on milk. Carry out the test using milk at a Trefr..

In case the machine allows modify of the emulsion through the menu, use the machine with the emulsion set to the default value.

Related to the above testing procedure derives the following table of acceptability:

| Grams of product | Minimun height of the milk cream |
|------------------|----------------------------------|
| ≥ 130            | ≥ 30mm                           |
| 120              | ≥25mm                            |
| 110              | ≥ 22mm                           |
| 100              | ≥ 20mm                           |
| 90               | ≥ 16mm                           |
| 80               | ≥ 13mm                           |
| 70               | ≥ 11mm                           |

To verify the height of the cream, a practical example is to add to dispensed product a small amount of coffee. The addition of coffee immediately highlights the surface of separation between liquid and cream.

# Technical information

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## How to check connectivity board (Only for Wi-Fi models).

### Connecting to Wi-Fi



For a connected experience, you have to connect your coffee machine to your Wi-Fi network with the free Coffee + app. You can download the free Coffee + app\* for iOS® or Android™ from the App Store or from Google Play. Follow the instructions in the app to connect your coffee machine to your Wi-Fi and to pair your coffee machine with the Coffee + app. In this user manual you can find step-by-step instructions for setting up the Wi-Fi connection (see ‘Setting up the Wi-Fi connection for the first time’).

\*The app may not be available in your country.

## Wi-Fi connection

### Setting up the Wi-Fi connection for the first time

Connect your coffee machine to a 2.4 GHz 802.11 b/g/n home Wi-Fi network.

Connecting your coffee machine to your home Wi-Fi network, provides you with an enhanced user experience.

1. Make sure that you have the password of your Wi-Fi network at hand before you start the Wi-Fi set-up process and that your smartphone or tablet, the coffee machine and the Wi-Fi router are within range of each other.
2. Download the Coffee + app on your smartphone or tablet from the App Store or from Google Play.
3. Fill the water tank of your coffee machine with fresh water and place it back into the machine.
4. Make sure that when you start the Wi-Fi set-up process, your smartphone or tablet is connected to the same Wi-Fi network that you want to connect your machine to.
5. Follow the instructions in the app to pair your smartphone or tablet with the coffee machine and connect your coffee machine to your Wi-Fi.
6. When the Wi-Fi light on the user interface of the coffee machine lights up continuously, and the app shows that the machine is connected, the Wi-Fi connection has been successfully established.
  - You can check if Wi-Fi installation has been established successfully by checking the connection status in the app and by switching the machine on and off in the app. If the Wi-Fi light stays off or keeps flashing, you can check the troubleshooting section in this booklet to find a solution.

You are now ready to start your connected experience.

If the network has changed and the connection needs to be re-established, perform the setup again (see ‘Changing the Wi-Fi connection’).

This app supports the latest versions of Android™ and iOS®. Please check the App Store or Google Play for the latest update of supported operating systems and devices.

The Wi-Fi setup process can be cancelled in the app or by exiting the app.

To be able to switch your coffee machine on and off with the app, the smartphone or tablet with the app must be connected to the same Wi-Fi network as your coffee machine.

# Technical information

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## Connecting your smartphone or tablet to the machine that is already connected to the Wi-Fi

When the first user has connected the coffee machine to the Wi-Fi network, all other users don't have to perform the whole Wi-Fi setup process again. They can simply connect a smartphone or tablet to the machine by finding the machine in the Coffee + app and pairing with it.

1. Make sure the smartphone or tablet is connected to the same Wi-Fi network as the machine.
2. Download the Coffee + app on the smartphone or tablet from the App Store or from Google Play.
3. Follow the instructions in the app to pair the smartphone or tablet with the coffee machine.

## Switching the Wi-Fi connection of the machine on and off

### Switching the Wi-Fi connection off

If the Wi-Fi connection is on and you want to turn it off, you can follow the steps below.

1. Switch on the machine and wait until the machine is ready for use.
2. Press and hold the start/stop button until the Wi-Fi light starts flashing several times and then goes off.

### Switching the Wi-Fi connection back on

When you have switched off the Wi-Fi connection and you want to switch it on again, you can follow the steps below.

1. Switch on the machine and wait until the machine is ready for use.
2. Press and hold the the start/stop button until the Wi-Fi light starts flashing several times and then lights up continuously. The machine will reconnect to the Wi-Fi network it was previously connected to.

## Changing the Wi-Fi connection

Change the Wi-Fi connection when the network to which your machine is currently connected has changed or if you wish to connect the machine to a different/new network.

If one of the users changes the Wi-Fi connection, every other user only needs to connect the smartphone or tablet to that same Wi-Fi network to be able to control the machine with the app again.

You can change the Wi-Fi connection by following the steps below.

1. Switch off the machine.
2. Press and hold the hot water icon (for type EP2520) or the cappuccino icon (for type EP3546), until the start/stop button starts flashing.
3. Press the start/stop button to confirm that you want to delete the current Wi-Fi connection.
4. Navigate in the app to machine settings and remove the machine from the app.
5. Follow the steps in the app to set up the Wi-Fi connection.

The instruction above only explains how to connect the machine to a new network or to reconnect the machine to its current network if the network name or password has been changed.

# Technical information

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## Resetting all network settings and connections

If you follow the instructions in this section, all smartphones and tablets and your Alexa device will no longer be connected to the coffee machine. The factory settings will be restored and all personalized settings will be erased.

1. Switch off the machine.
2. Press and hold the espresso icon until the start/stop button starts flashing.
3. Press the start/stop button.
4. Navigate in the app to machine settings and remove the machine from the app.

When you want to reconnect to the Wi-Fi network, follow the steps in the app to setup the Wi-Fi connection again.

After a reset, it can take at least five minutes before the machine is able to perform the Wi-Fi set up again.

### **Note:**

For wi-fi models only: Please note the update of the software is not possible via EPSC. It can be done with wi-fi connection.



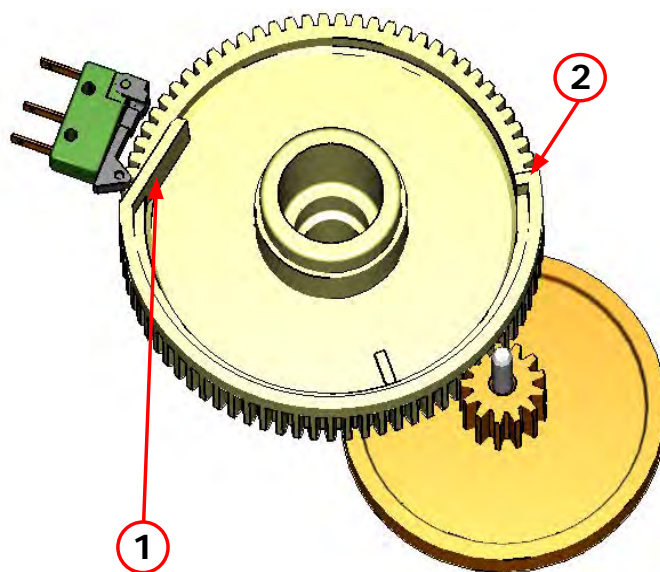
# Technical information

## Operating logic

### Switching on

When the machine is switched on, the gear motor repositions itself as follows:

- It acts on microswitch 1
- The gear motor changes its rotation direction and moves upwards again by approx. 1-2 mm.
- The boiler begins to heat the water for approx. 45 sec, in order to reach the optimal temperature (established by the software).



The gear motor is powered by a direct current motor that engages with the smaller double toothed wheel using a worm screw. The unit is mounted on the axle of the large gear wheel and when a coffee is requested, it moves from the standby position to the dispensing position, and then back to the standby position again. The microswitch indicates to the gear motor when the brew group is in the work position or home position.

- Standby position: 1
- Dispensing position: 2

### Temperature sensor (adjustment)

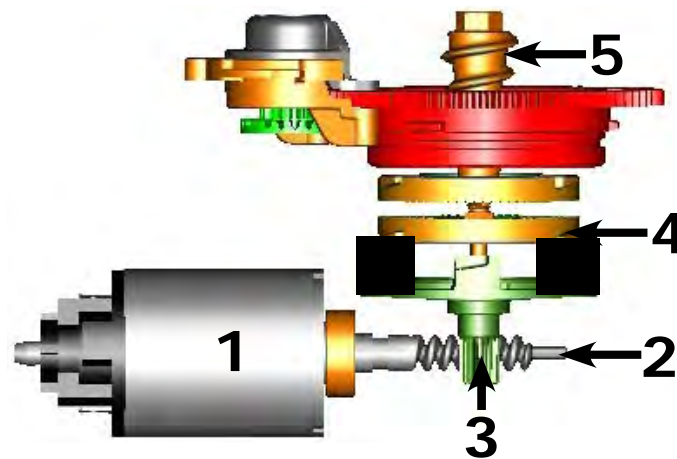
| Temp. (°C) | R nom (kΩ) | ΔR (+/- %) |
|------------|------------|------------|
| 20         | 61.465     | 4.0        |
| 50         | 17.617     | 3.1        |
| 75         | 7.214      | 2.4        |
| 80         | 6.121      | 2.3        |
| 85         | 5.213      | 2.2        |
| 90         | 4.459      | 2.1        |
| 100        | 3.3        | 1.8        |
| 125        | 1.653      | 2.4        |
| 150        | 0.893      | 2.8        |

An NTC is used as a temperature sensor; in the event of overheating this reduces boiler element power consumption. The electronic system detects the current boiler temperature from the drop in voltage of the sensor and adjusts it accordingly. Heating element values and corresponding temperatures: see table.

# Technical information

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## Coffee grinder



The coffee grinder is driven by a direct current motor (1) using a worm screw helicoidal wheel transmission (2). The worm screw (2) drives a plastic gear wheel (3), which turns the lower grinder (4) and the increment pin (5)

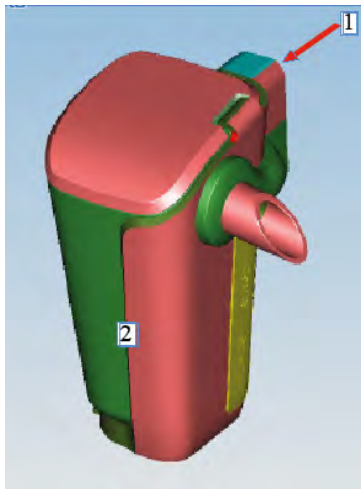
## Coffee grinder blocked

When the coffee grinder is working, the software monitors the current consumption. If the current value is very high, the machine concludes that the coffee grinder is blocked; instead, if the current value is in the middle, the machine concludes that all is ok and it goes on to do the product.

Because the current consumption of grinder changes depending on the situations (motor new or old, cold or hot, coffee blends, etc.), these current targets are not static, but dynamic.

# Technical information

## Milk container



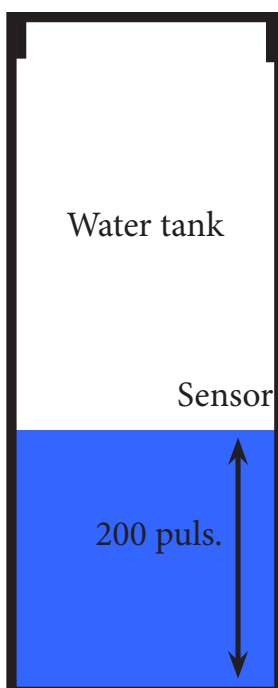
- 1) Steam inlet
- 2) Complete LatteGo milk container assy

Steam flows into the LatteGo



Air, steam and milk are mixed at high speed resulting in a dense silky smooth milk foam

The two LatteGo parts clicked together create a channel in which steam pressure sucks up milk through the hole at the bottom of the container



### “Water low” message (water reserve)

#### Function:

The water level is monitored by a capacitive sensor, located one third of the way up the water tank wall.

If the electronics assembly detects, by means of the sensor, that the amount of water in the tank has dropped below the above mentioned level, a water reserve remains available for the dispensing process underway (this will cover 200 flow meter pulses).

The product dispensing process will then come to an end.

If a dispensing cycle ends after the sensor has been triggered (in the reserve) then the display “Water low” continues to be displayed during the following dispensing cycle.

# Technical information

## AquaClean water filter

The AquaClean filter is designed to reduce limescale deposits in the coffee machine and provide filtered water to preserve the aroma and flavor of each cup of coffee. By using a series of 8 AquaClean filters, there is no need to descale the machine for 5000 cups (It depends both on the type of coffee used, rinsing and cleaning programs).

We recommend installing the water filter AquaClean the first use of the machine to the maximum before using 5 L of water. The machine display will indicate when the filter needs to be replaced. The maximum limit is equivalent to 110 L of water.

The conditions related to the filter work environment (water, therefore, an active environment for bacteria and microorganisms), require the replacement with a minimum frequency (we suggest 3 months from the activation to ensure the best performance). The filter starts working from the time it is filled with water and continues working even with the machine off. It cannot be deactivated manually, as it must end its life cycle.

At the filter activation the display shows the icon with the percentage of use:

- Initially 100% then decreasing.  
When the autonomy of the current filter becomes less than 8 L of water the display shows:
- The icon flashing slowly. It means 10%.  
When the autonomy of the current filter becomes less than 2 L of water the display shows
- The icon flashing quickly. It means 0%.  
After a maximum of 110 L of water supplied the flashing light turns off and the machine needs to be descaled.



## Descaling request

| Descaling frequency in AQUACLEAN  |                 |   |   |  |                                       |
|---|-----------------|---|---|--|---------------------------------------|
| The first activation must make before you've paid up to 5000ml products because mind thinks as if he had the filter |                 |   |   |  |                                       |
| Hardness  | Filter number   | Percentual on display 10% the icon flashes slowly. (encourage the consumer to buy the filter) | Percentual on display 0% the icon flashes quickly. (tell the consumer to change the filter) | MAX Quantity water, the icon turns off. (replace filter) |                                       |
| Indifferent   | From 1/8 to 7/8 | 8050ml  | 2000ml  | 110000ml   | Replace filter (you can not turn off) |
|   | 8/8             |   |   |  | Descaling                             |

**If after descaling or after the use of a filter this is not reactivated, the machine recognizes the water hardness setting and calculates as in the table below**

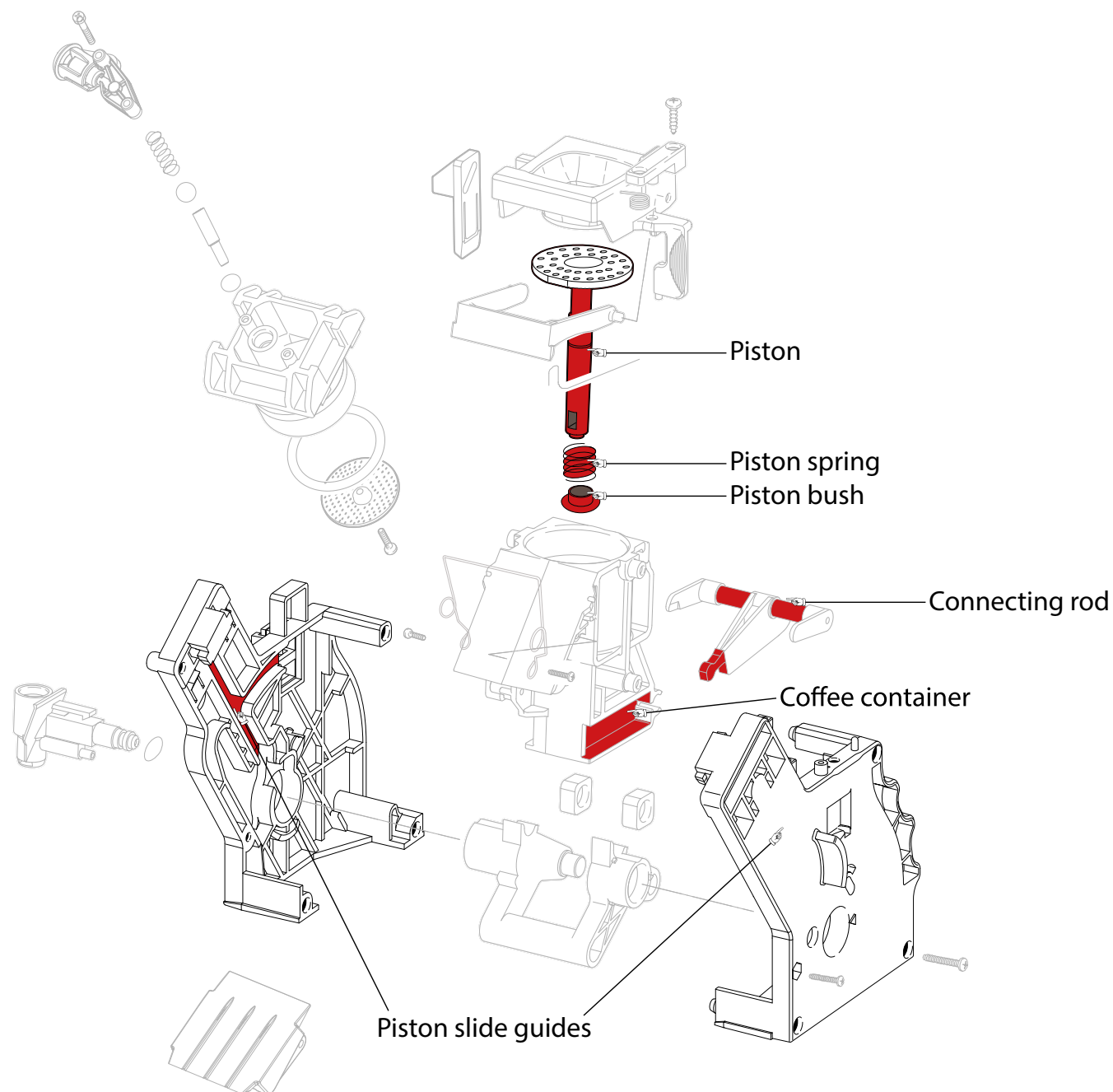
| Descaling cycle frequency   |                        |                             |                              |
|---|------------------------|-----------------------------|------------------------------|
| Hardness  | WATER HARDNESS         | Without water filter        | Not reactivating the filter  |
| 1   | Soft (up to 7°dH)      | 240 litres (480,000 pulses) | 210 litres (420,000 pulses)  |
| 2   | Medium (7° - 14°dH)    | 120 litres (240,000 pulses) | 105 litres (210,000 pulses)  |
| 3   | Hard (15° - 21°dH)     | 60 litres (120,000 pulses)  | 52.5 litres (105,000 pulses) |
| 4   | Very hard (over 21°dH) | 30 litres (60,000 pulses)   | 26.25 litres (52,500 pulses) |
| The default water hardness level is 4. Each litre of water corresponds to approximately 2,000 pulses. |                        |                             |                              |

## Philips EP Series



# Technical information

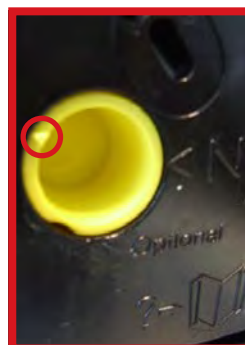
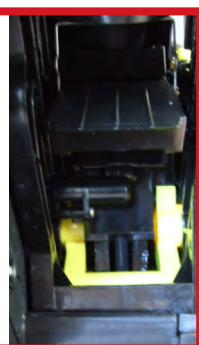
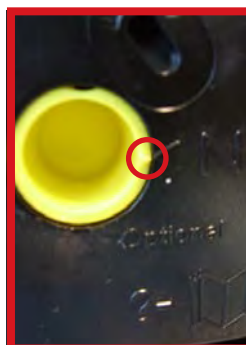
## Brew Unit maintenance - where to grease and positions



Brew Unit

Home Position

Work Position



# Disassembly - and Reassembly advice

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*Before you start dismantling!*



*For your safety be sure the plug is disconnected from the mains!*

*The product is designed for easy access to the internal components. Make sure that all accessories have been removed.*



## **Removal of the housing:**

1. Make sure the power cable is unplugged.
2. Take out the four screws and pull up the upper cover.



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**Philips EP Series**

# Disassembly - and Reassembly advice

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3. When assembly the finger-protection screw:

- Up to SN TW901907111749 use torque force 1.2Nm +/- 0.1
- From SN TW901907111750 use torque force 0.8Nm +/- 0.1

4. Take out the two screws in the back panel and remove it.



5. To remove the two lateral panels take out 3 screws for each of them



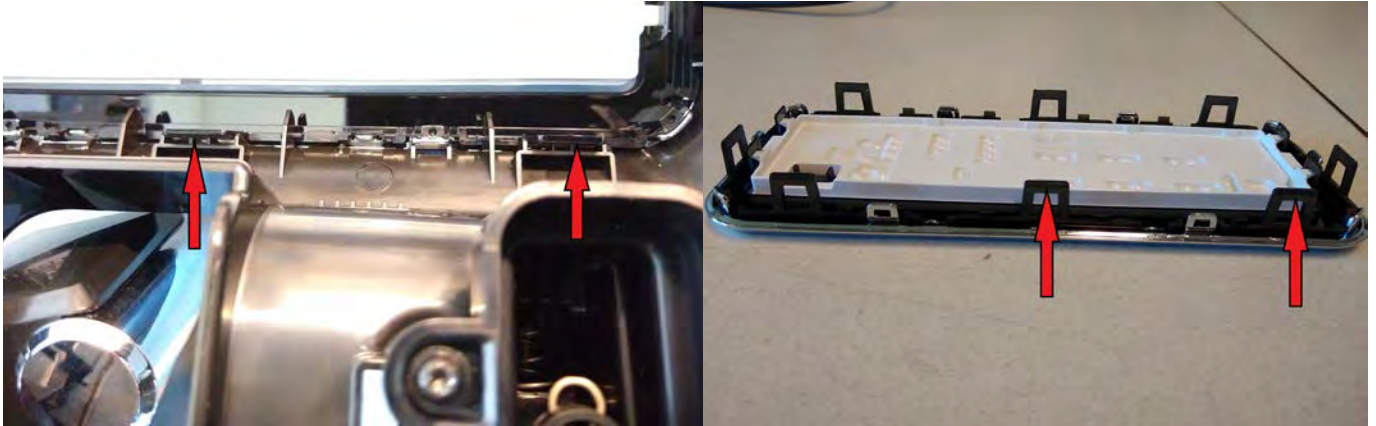


# Disassembly - and Reassembly advice

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## Removal of the UI

1. To remove the UI push the 2 snaps inside (indicated with the red arrows):



2. Then unplug the cable.

Do not use a screwdriver, but pull it keeping the flat cable and not the connector (some force is required)

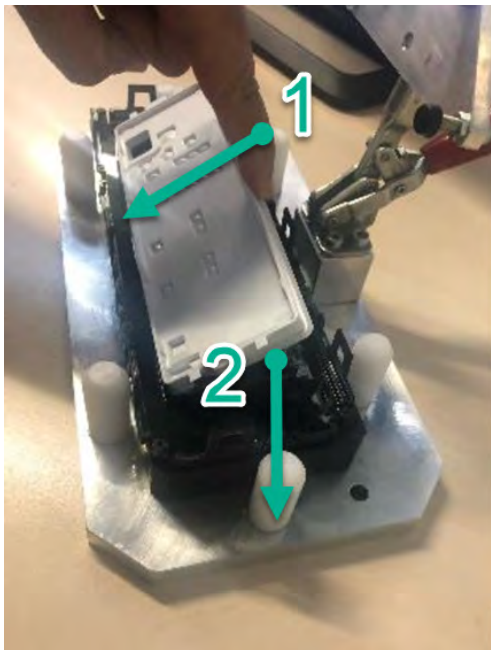


3. Click on the 4 snaps to remove the UI board protection.



# Disassembly - and Reassembly advice

4. To re-mount the UI start keeping inserted first the upper part of the cover, then push it. Make sure the 4 snaps are properly closed

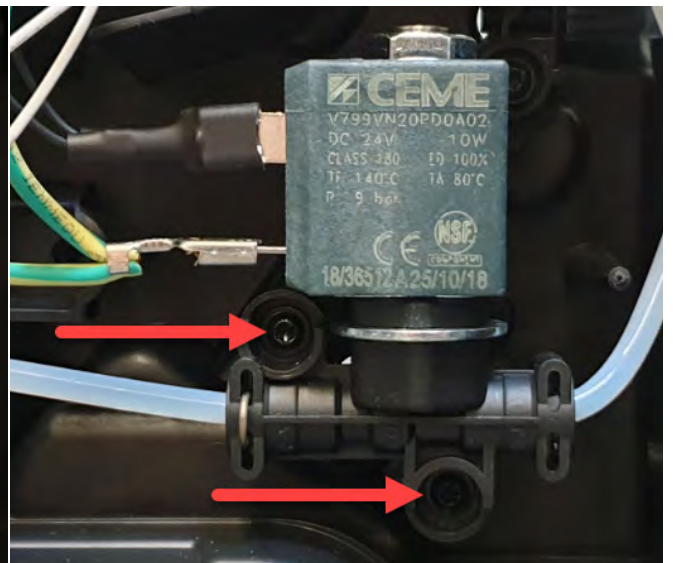
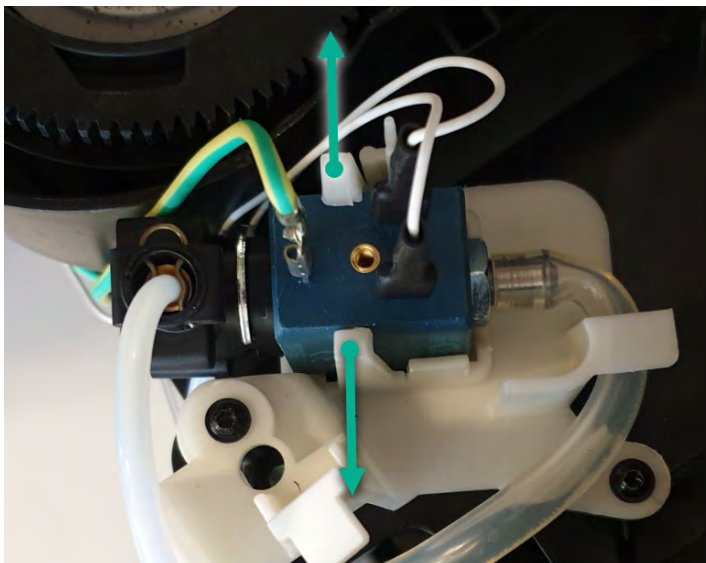


## Removal of the Grinder

1. Pull out the grinder assy
2. Remove the electric connections

## Removal of the Electrovalves

1. For the upper EV pull outwards the valve holder.
2. For the lateral EV take out the 2 screws, then remove the valve.



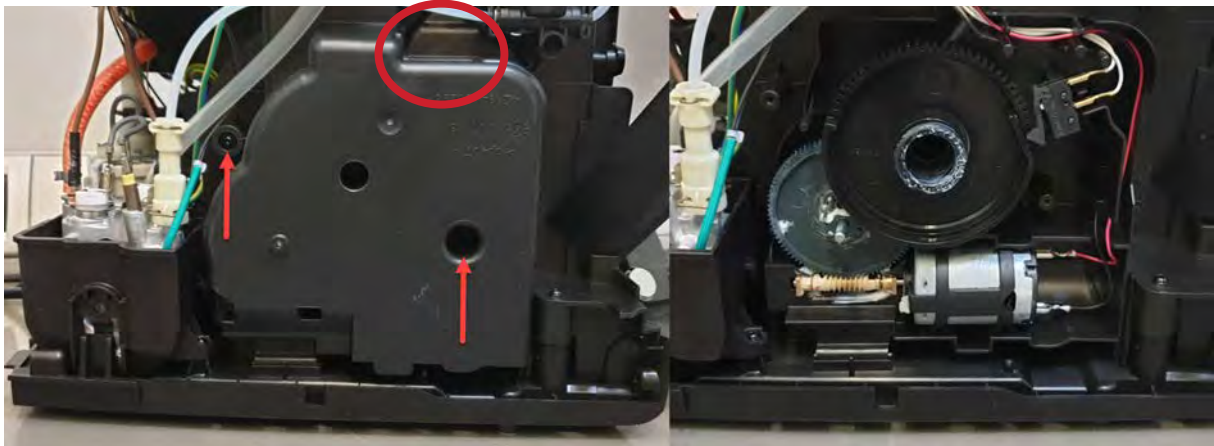


# Disassembly - and Reassembly advice

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## **Removal of the Gear motor**

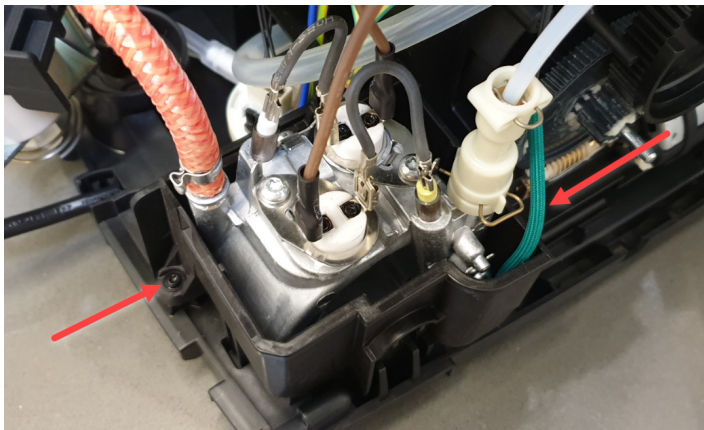
1. Take out the brew unit motor cover removing the 2 screws



Be aware there is an empty hole (in the red circle). Do not insert any screw inside

## **Removal of the Boiler**

1. Remove all the electrical and water circuit connections
2. Take out the 2 screws from the boiler support.



## **Removal of the Flowmeter**

1. Remove the electric connection
2. Press on the holder to pull out the flowmeter, then remove water connections.





# Disassembly - and Reassembly advice

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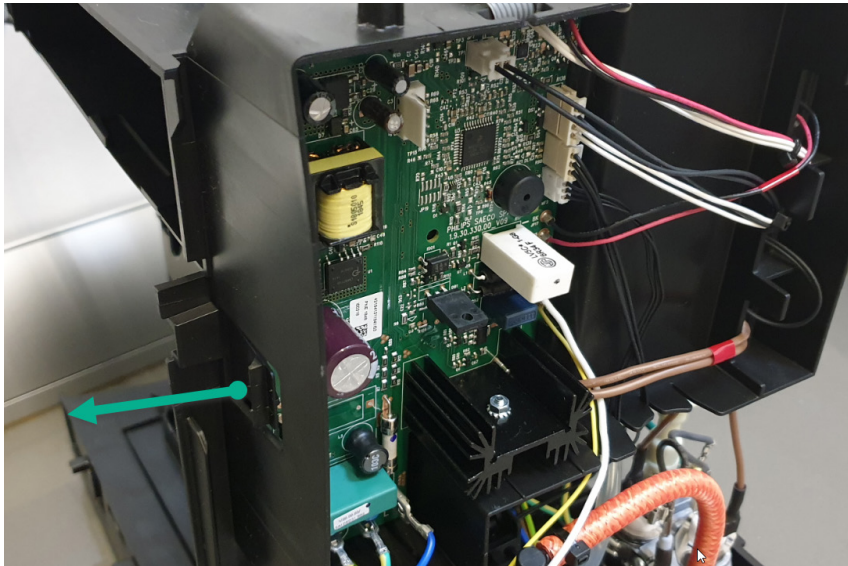
## ***Removal of the Mainboard***

1. Remove all the electric connections
2. Keep pressing on the left holder to be able to release the board.

The mainboard contains several fixed wires which cannot be disconnected from the board.

The UI cable is also fixed to the mainboard.

To completely remove the mainboard from the appliance, disconnect all fixed wires from their destination component.



## ***Removal of the Pump***

1. Pull the pump holder to the right
2. Remove all the connection

When reassembling the pump, ensure to use hot melt to fix the thermal fuse.

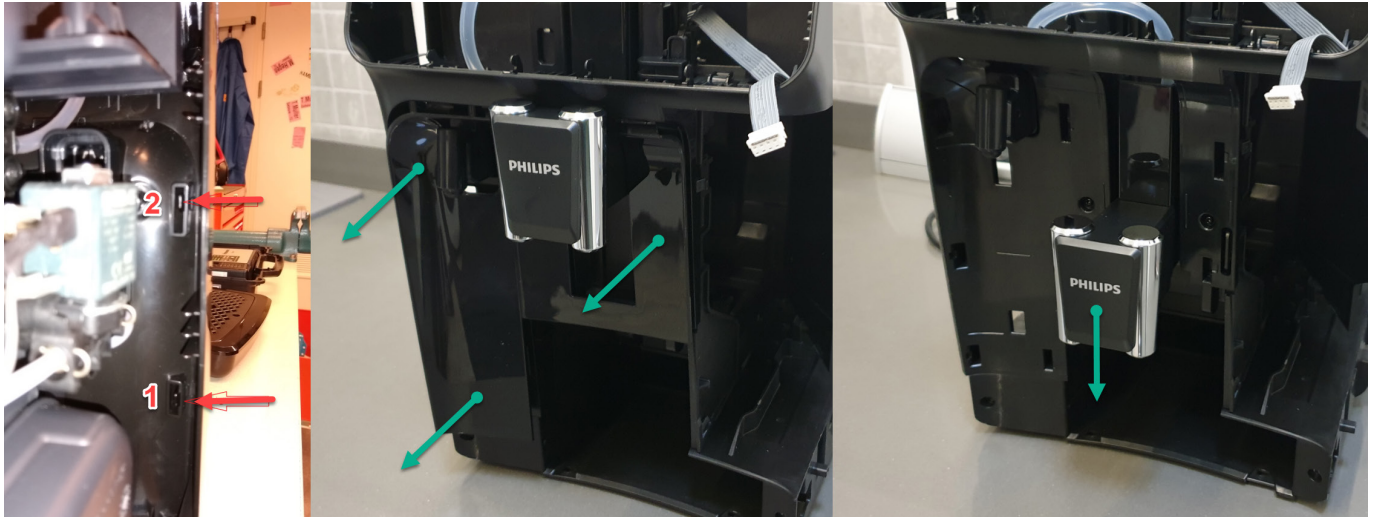


# Disassembly - and Reassembly advice

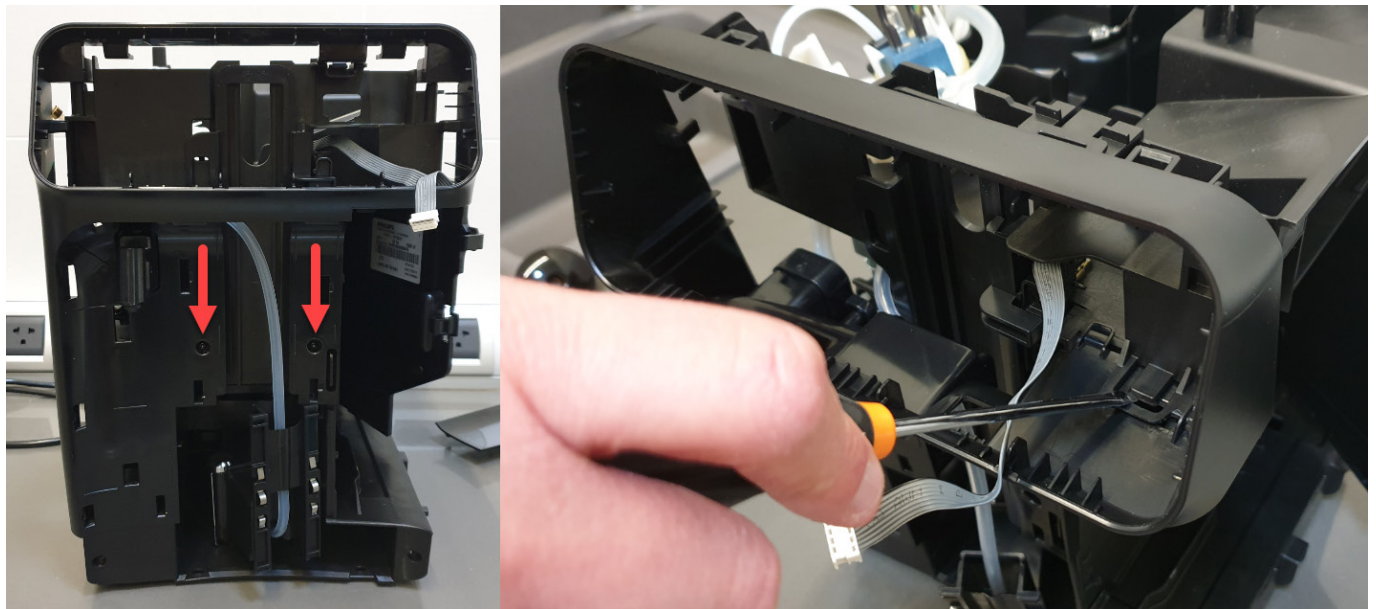
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## ***Removal of the Coffee and Water spout***

1. To remove the front panel start at the lower snap (1). Push to the left and on top of it, then the cover opens at the front side and you can put a finger (nail) in between. Then push on the upper snapnock (2).
2. Pull down the coffee spout, then remove the pipe.



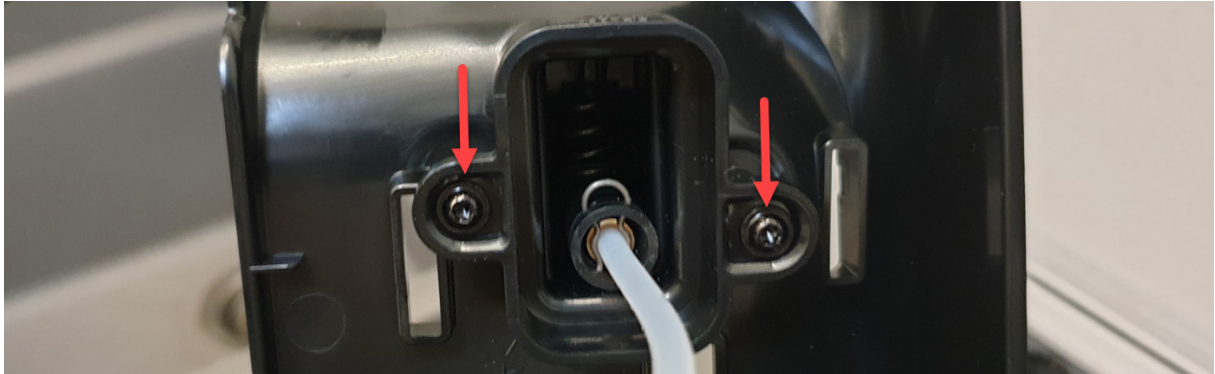
3. Take out the 2 screws
4. Unsnap the click (as shown in picture) and pull the front case cover to remove it (some force is needed).



# Disassembly - and Reassembly advice

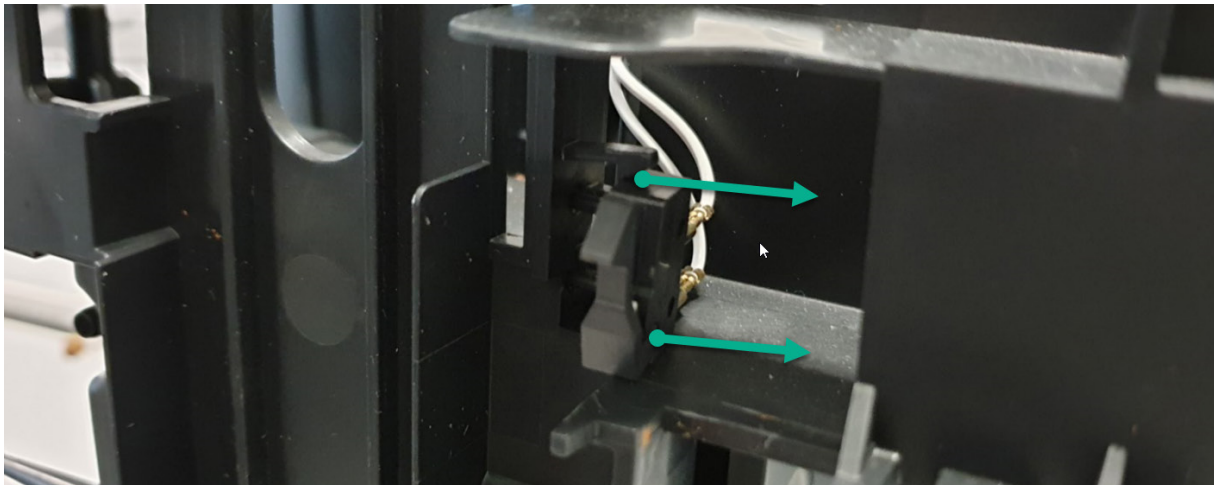
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5. Remove the two screws to release the water spout.



## ***Removal of the Microswitch***

1. To remove the microswitch please take extra care, slowly pulling it out from its place, then remove the connections.





# Test mode

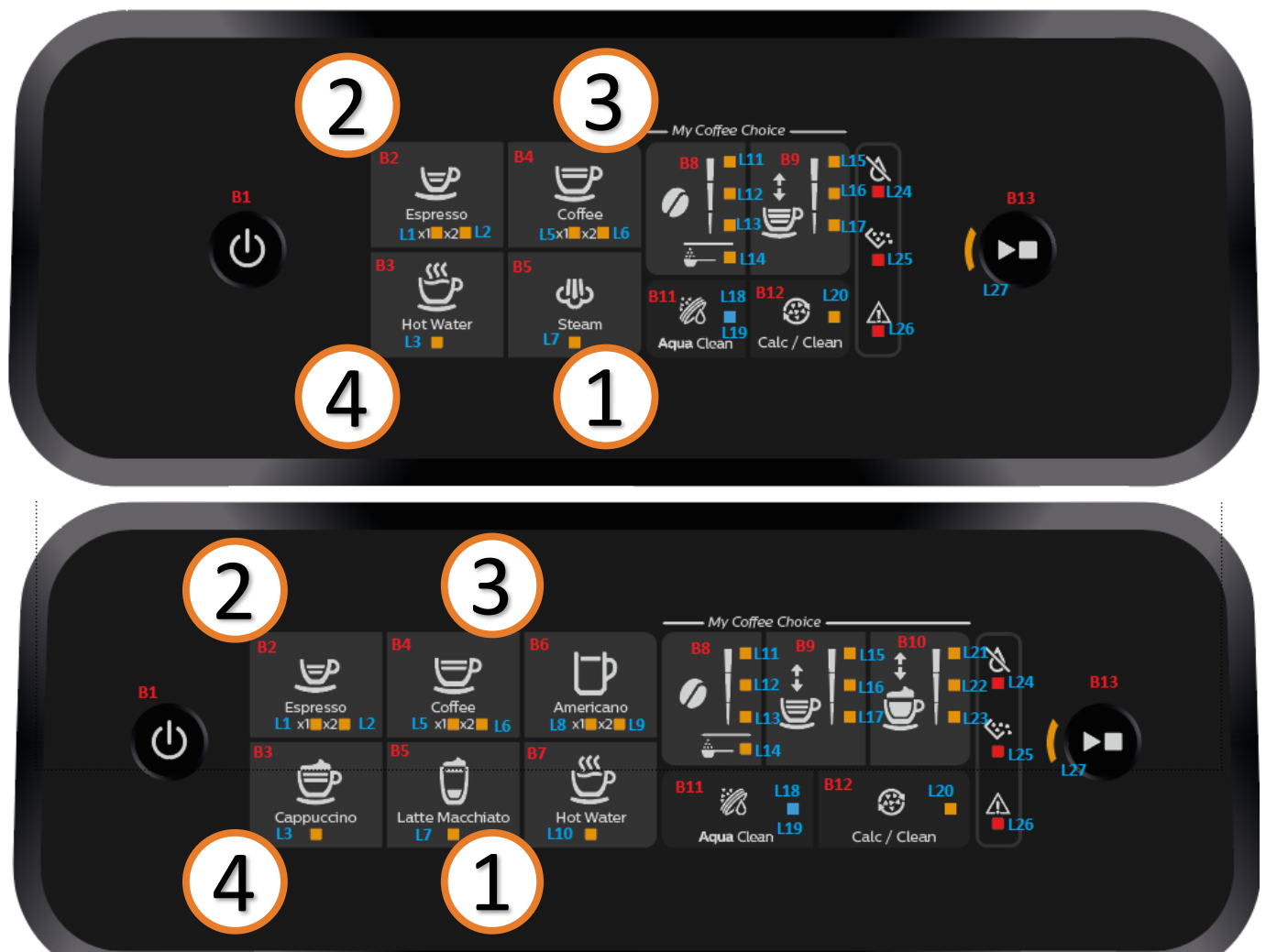
## Introduction

Test mode is used to test the machine in its mechanics and electronic components

## How it works

The machine enters in test mode by pressing in sequence **B5 - B2 - B4 - B3** in the first two seconds after switching on the machine, by connecting the power cable to the mains.

Once entered the machine shows led L1 and L2 flashing in series (Level 0).



# Test mode

---

There are 3 different levels, in each level the coffee-machine can execute different commands,

- **Level 0:** Entry Level; in this level the operator can
  1. execute the Reset of the error log by pressing B3 for 3s (L24-L25-L26 will flash to confirm)
- **Level 1:** In this level the operator can
  1. test all the Buttons and Leds activation and color:
    - a. Buttons : B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13.
    - b. Leds :L1(O), L2(O), L3(O), L4(O), L5(O), L6(O), L7(O), L8(O), L9(O), L10(O), L11(O), L12(O), L13(O), L14(O), L15(O), L16(O), L17(O), L18(O), L19(B), L20(O), L21(O), L22(O), L23(O), L24(R), L25(R), L26(R), L27(O)
  2. Check the buzzer sound.
- **Level 2:** In this level the operator can:
  1. Test all the loads:
    - a. Move the Brew Unit upward and downward.
    - b. Open/Closed the EVs.
    - c. Start the Pump.
    - d. Start the Heater
    - e. Start the Grinder
  2. Test all the sensors:
    - a. Microswitch door activated/not activated.
    - b. Microswitch BU position (work/home) activated/not activated.
    - c. Hall sensor water level activated/not activated.
    - d. Flowmeter
    - e. NTC

The user can switch the level by pressing the Button B1, while pushing the button the machine shows the level of the test:

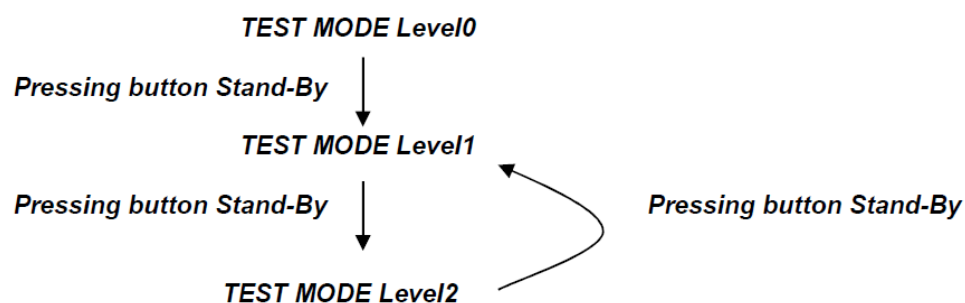
- a) Level 1 : Led L1 ON (O),
- b) Level 2 : Led L1 ON (O), Led L2 ON (O)

Legend:

(O) = Orange

(B) = Blu

(R) = Red



At the start up all loads are turned off. The software allow to have multiple loads active at the same time.

# Test mode

## Level 0 (Start test mode)

|  |                             |  |
|--|-----------------------------|--|
| Start condition: NO BU, NO drag drawer,<br>Door open, No Water | LED INDICATION              |  |
|  | L1 and L2 Blink Alternately |  |

## Level 1 (Keys, Buzzer, Leds)

|  |                |  |
|--|----------------|--|
| Start condition: NO BU, NO drag drawer,<br>Door open, No Water | LED INDICATION |  |
|  | All Leds OFF   |  |

| Sequence of actions by user  | Reaction of the appliance                           |                                     |  |                   |
|------------------------------|---|-------------------------------------|--|-------------------|
|                              | PASS  | FAIL                                | Cause of failure   | Solution          |
| Press button B2              | L1(O) ON, It's possible to hear the feedback sound. | L1 OFF                              | L1 damaged   | Change UI board   |
|                              |   | L1(IO) ON                           | L1 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
|                              |   | It's not possible to hear the sound | The drive of the Buzzer or the Buzzer in the Main is damaged | Change Main Board |
|                              |   | The sound is persistent             | The drive of the Buzzer or the Buzzer in the Main is damaged | Change Main Board |
| Press button B2              | L1(O) & L2(O) ON                                    | L2 OFF                              | L2 damaged   | Change UI board   |
|                              |   | L2(IO) ON                           | L2 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
| Press button B2 (optional)   | L1 & L2 OFF   |                                     |  |                   |
| Press button B4              | L5(O) ON  | L5 OFF                              | L5 damaged   | Change UI board   |
|                              |   | L5(IO) ON                           | L5 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
| Press button B4              | L5(O) & L6(O) ON                                    | L6 OFF                              | L6 damaged   | Change UI board   |
|                              |   | L6(IO) ON                           | L6 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
| Press button B4 (optional)   | L5 & L6 OFF   |                                     |  |                   |
| Press button B6 (only 3B&3C) | L8(O) ON  | L8 OFF                              | L8 damaged   | Change UI board   |
|                              |   | L8(IO) ON                           | L8 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
| Press button B6 (only 3B&3C) | L8(O) & L9(O) ON                                    | L9 OFF                              | L9 damaged   | Change UI board   |
|                              |   | L9(IO) ON                           | L9 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |
| Press button B6 (optional)   | L8 & L9 OFF   |                                     |  |                   |
| Press button B3              | L3(O) ON  | L3 OFF                              | L3 damaged   | Change UI board   |
|                              |   | L3(IO) ON                           | L3 wrong color   | Change UI board   |
|                              |   | Other Lx toggle                     | Short circuit in Leds or Buttons                             | Change UI board   |



# Test mode

|                                  |                                      |                        |                                  |                |
|----------------------------------|--------------------------------------|------------------------|----------------------------------|----------------|
| Press button B3<br>(only 2A)     | L3(O) & L4(O) ON                     | <b>L4 OFF</b>          | L4 damaged                       | Change UI boad |
|                                  |                                      | <b>L4(!O) ON</b>       | L4 wrong color                   | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B3 (optional)       | L3 & L4 OFF                          |                        |                                  |                |
| Press button B5                  | L7(O) ON                             | <b>L7 OFF</b>          | L7 damaged                       | Change UI boad |
|                                  |                                      | <b>L7(!O) ON</b>       | L7 wrong color                   | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B5 (optional)       | L7 OFF                               |                        |                                  |                |
| Press button B7<br>(only 3B&3C)  | L10(O) ON                            | <b>L10 OFF</b>         | L10 damaged                      | Change UI boad |
|                                  |                                      | <b>L10(!O) ON</b>      | L10 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B7 (optional)       | L10 OFF                              |                        |                                  |                |
| Press button B8                  | L11(O) ON                            | <b>L11 OFF</b>         | L11 damaged                      | Change UI boad |
|                                  |                                      | <b>L11(!O) ON</b>      | L11 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B8                  | L11(O) & L12(O) ON                   | <b>L12 OFF</b>         | L12 damaged                      | Change UI boad |
|                                  |                                      | <b>L12(!O) ON</b>      | L12 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B8                  | L11(O) & L12(O) & L13(O) ON          | <b>L13 OFF</b>         | L13 damaged                      | Change UI boad |
|                                  |                                      | <b>L13(!O) ON</b>      | L13 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B8                  | L11(O) & L12(O) & L13(O) & L14(O) ON | <b>L14 OFF</b>         | L14 damaged                      | Change UI boad |
|                                  |                                      | <b>L14(!O) ON</b>      | L14 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B8 (optional)       | L11 & L12 & L13 & L14 OFF            |                        |                                  |                |
| Press button B9                  | L15(O) ON                            | <b>L15 OFF</b>         | L15 damaged                      | Change UI boad |
|                                  |                                      | <b>L15(!O) ON</b>      | L15 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B9                  | L15(O) & L16(O) ON                   | <b>L16 OFF</b>         | L16 damaged                      | Change UI boad |
|                                  |                                      | <b>L16(!O) ON</b>      | L16 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B9                  | L15(O) & L16(O) & L17(O) ON          | <b>L17 OFF</b>         | L17 damaged                      | Change UI boad |
|                                  |                                      | <b>L17(!O) ON</b>      | L17 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B9 (optional)       | L15 & L16 & L17 OFF                  |                        |                                  |                |
| Press button B10<br>(only 3B&3C) | L21(O) ON                            | <b>L21 OFF</b>         | L21 damaged                      | Change UI boad |
|                                  |                                      | <b>L21(!O) ON</b>      | L21 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |
| Press button B10<br>(only 3B&3C) | L21(O) & L22(O) ON                   | <b>L22 OFF</b>         | L22 damaged                      | Change UI boad |
|                                  |                                      | <b>L22(!O) ON</b>      | L22 wrong color                  | Change UI boad |
|                                  |                                      | <b>Other Lx toggle</b> | Short circuit in Leds or Buttons | Change UI boad |

# Test mode

|   |                                |                        |                                     |                |
|---|--------------------------------|------------------------|-------------------------------------|----------------|
| Press button B10<br>(only 3B&3C)            | L21(O) & L22(O)<br>& L23(O) ON | <b>L23 OFF</b>         | L23 damaged                         | Change UI boad |
|   |                                | <b>L23(!O) ON</b>      | L23 wrong color                     | Change UI boad |
|   |                                | <b>Other Lx toggle</b> | Short circuit in Leds<br>or Buttons | Change UI boad |
| Press button B10 (optional)<br>(only 3B&3C) | L21 & L22 & L23<br>OFF         |                        |                                     |                |
| Press button B11                            | L18(O) ON                      | <b>L18 OFF</b>         | L18 damaged                         | Change UI boad |
|   |                                | <b>L18(!W) ON</b>      | L18 wrong color                     | Change UI boad |
|   |                                | <b>Other Lx toggle</b> | Short circuit in Leds<br>or Buttons | Change UI boad |
| Press button B11                            | L18(O) OFF &<br>L19(B) ON      | <b>L19 OFF</b>         | L19 damaged                         | Change UI boad |
|   |                                | <b>L19(!B) ON</b>      | L19 wrong color                     | Change UI boad |
|   |                                | <b>Other Lx toggle</b> | Short circuit in Leds<br>or Buttons | Change UI boad |
| Press button B11 (optional)                 | L18 & L19 OFF                  |                        |                                     |                |
| Press button B12                            | L20(O) ON                      | <b>L20 OFF</b>         | L20 damaged                         | Change UI boad |
|   |                                | <b>L20(!O) ON</b>      | L20 wrong color                     | Change UI boad |
|   |                                | <b>Other Lx toggle</b> | Short circuit in Leds<br>or Buttons | Change UI boad |
| Press button B12 (optional)                 | L20 OFF                        |                        |                                     |                |
| Press button B13                            | L27(O) ON                      | <b>L27 OFF</b>         | L27 damaged                         | Change UI boad |
|   |                                | <b>L27(!O) ON</b>      | L27 wrong color                     | Change UI boad |
|   |                                | <b>Other Lx toggle</b> | Short circuit in Leds<br>or Buttons | Change UI boad |
| Press button B13 (optional)                 | L27 OFF                        |                        |                                     |                |

|  |  |
|--|--|
| <b>Finish condition:</b> NO BU, NO drag drawer,<br>Door open, No Water | <b>LED INDICATION</b>                              |
|  | All Leds OFF (in case that also optional was done) |

## Legenda

| Text                       | Group                       | Description   |
|----------------------------|-----------------------------|---|
| Press button Bx            | Sequence of actions by user | Press the button Bx. Valid in all models  |
| Press button Bx (only X&Y) | Sequence of actions by user | Press the button Bx. Valid only in the model X & Y  |
| Press button Bx (optional) | Sequence of actions by user | Press the button Bx. Not requested but if the operator will do it the machine will react in the described way.        |
| Lx (y) ON                  | Reaction of the appliance   | The led Lx switches On with the color y. Color code:<br>y=W -> color White<br>y=R -> color Red<br>y=O -> color Orange |
| Lx OFF                     | Reaction of the appliance   | The led Lx switches Off.  |
| Lx (!y) ON                 | Reaction of the appliance   | The led Lx switches On with a different color from the expected y. FAILURE MODE.                                      |

# Test mode

## Level 2 (Loads and sensor)

|   |                       |
|---|-----------------------|
| <b>Start condition:</b> NO BU, NO drag drawer,<br>Door open, No Water | <b>LED INDICATION</b> |
|   | L24 & L26 ON          |

| Sequence of actions by user                | Reaction of the appliance |               |  |  |
|--|---------------------------|---------------|--|--|
|  | PASS                      | FAIL          | Cause of failure                                       | Solution   |
| Check the start condition                  | L24(R) & L25(R)<br>ON     | L24(!R) ON    | L24 wrong color  | Change UI board                                  |
|  |                           | L25(!R) ON    | L25 wrong color  | Change UI board                                  |
|  |                           | L24 OFF       | L24 damaged  | Change UI board                                  |
|  |                           |               | Water level sensor damaged (short circuit)             | Change Water level sensor                        |
|  |                           |               | Connector JP14 in Main damaged (short circuit)         | Change Main board                                |
|  |                           |               | uP U2 in Main damaged (short circuit in Pin9)          | Change Main board                                |
|  |                           | L25 OFF       | L25 damaged  | Change UI board                                  |
|  |                           |               | The Microswitch is not well placed                     | Check assembly of microswitch                    |
|  |                           |               | Microswitch damaged (short circuit)                    | Change microswitch                               |
|  |                           |               | Connector JP3 in Main damaged (short circuit)          | Change Main board                                |
|  |                           |               | uP U2 in Main damaged (short circuit in Pin26)         | Change Main board                                |
| Insert BrewUnit & Close Door (No Dump Box) | No changes                | L25 OFF       | Assembly issue of the microswitch or mechanical lever. | Check microswitch position and mechanical lever. |
| Insert a full water tank                   | L24(R) OFF                | L24 remain ON | The floater in the Water tank is blocked or missing    | Check the floater in the Water Tank              |
|  |                           |               | Water level sensor not in position                     | Change the position of Water level sensor        |
|  |                           |               | Water level sensor damaged (open circuit)              | Change Water level sensor                        |
|  |                           |               | Wiring of the water level sensor not connected         | Check the wiring                                 |
|  |                           |               | Wiring of the water level sensor damaged (open)        | Change the wiring                                |
|  |                           |               | uP U2 in Main damaged (open circuit in Pin9)           | Change Main Board                                |
| Insert Dreg drawer and drip                | L25(R) OFF                | L25 remain ON | The Microswitch is                                     | Check assembly of                                |

# Test mode

|   |   |   |  |                                  |
|---|---|---|--|----------------------------------|
| tray  |   |   | not well placed  | microswitch                      |
|   |   |   | Microswitch damaged (open circuit)                     | Change microswitch               |
|   |   |   | Wiring of the microswicth not connected                | Check the wiring                 |
|   |   |   | Wiring of the microswicth damaged (open)               | Change the wiring                |
|   |   |   | uP U2 in Main damaged (open circuit in Pin26)          | Change Main boad                 |
| Brew Unit   |   |   |  |                                  |
| Press and release B2 to move BU to work.<br>N.B:<br>* If the BU is already moving to home then stop the movement and change the direction into work.<br>* If the BU is already moving to work then stop the movement. | L1(O) ON while BU is moving.                          | BU not move                                     | Wiring of the BU motor not connected                   | Check the wiring                 |
|   |   |   | Wiring of the BU motor damaged (open)                  | Change Main Board                |
|   |   |   | Motor of BU damaged                                    | Change the BU motor              |
|   |   |   | The drive of the motor in the Main is damaged          | Change Main Board                |
|   |   |   | BU blocked   | Check the BU                     |
|   |   | Gears or motor not well assembled               | Check the assembly of the gear and motor               |                                  |
|   |   | BU move to Home                                 | Wiring of BU motor are inverted                        | Check the Motor BU wiring        |
|   | L26 ON  | The absorbed current exceed the limit (200ma).  | Check the assembly of the gear and motor, check the BU |                                  |
|   | L1(O) Blink when BU has reached work position, BU OFF | L1 OFF & L26 Blink and BU OFF. Work not reached | The BU Microswitch is not well placed                  | Check assembly of BU microswitch |
|   |   |   | BU Microswitch damaged (open circuit)                  | Change BU microswitch            |
|   |   |   | Wiring of the BU microswitch not connected             | Check the wiring                 |
|   |   |   | Wiring of the BU microswicth damaged (open)            | Change the wiring                |
|   |   |   | uP U2 in Main damaged (open circuit in Pin26)          | Change Main boad                 |
| Press and release B3 to move BU to home.<br>N.B:<br>* If the BU is already moving to work then stop the movement and change the direction into home.  | L3(O) ON while BU is moving.                          | BU not move                                     | Wiring of the BU motor not connected                   | Check the wiring                 |
|   |   |   | Wiring of the BU motor damaged (open)                  | Change the motor BU wiring       |
|   |   |   | Motor of BU  | Change the BU motor              |

# Test mode

|  |  |  |  |  |
|--|--|--|--|--|
| * If the BU is already moving to home then stop the movement.                                    |  |  | damaged  |  |
|  |  |  | The drive of the motor in the Main is damaged          | Change Main Board                        |
|  |  |  | BU blocked   | Check the BU                             |
|  |  |  | Gears or motor not well assembled                      | Check the assembly of the gear and motor |
|  |  | <b>BU move to Work</b>                                     | Wiring of BU motor are inverted                        | Check the Motor BU wiring                |
|  | <b>L26 ON</b>  | The absorbed current exceed the limit.                     | Check the assembly of the gear and motor, check the BU |  |
|  | L3(O) Blink when BU has reached home position, BU OFF  | <b>L3 OFF &amp; L26 Blink and BU OFF. Home not reached</b> | The BU Microswitch is not well placed                  | Check assembly of BU microswitch         |
|  |  |  | BU Microswitch damaged (open circuit)                  | Change BU microswitch                    |
|  |  |  | Wiring of the BU microswicth not connected             | Check the wiring                         |
|  |  |  | Wiring of the BU microswicth damaged (open)            | Change the wiring                        |
| uP U2 in Main damaged (open circuit in Pin26)  |  |  | Change Main board                                      |  |
| EV1  |  |  |  |  |
| Press and release B5 to toggle the EV. If it was closed, then will be open.                      | L7(O) OFF -> ON.<br>It's possible to hear the "click". | <b>The "click" is no audible. The EV remain closed</b>     | Wiring of the EV1 not connected                        | Check the wiring                         |
|  |  |  | Wiring of the EV1 damaged (open)                       | Change Main Board                        |
|  |  |  | EV1 damaged  | Change the EV1                           |
|  |  |  | The drive of the EV1 in the Main is damaged            | Change Main Board                        |
| Press and release B5 to toggle the EV. If it was open, then will be closed.                      | L7(O) ON -> OFF.<br>It's possible to hear the "click". | <b>The "click" is no audible. The EV remain open</b>       | EV1 damaged  | Change the EV1                           |
|  |  |  | The drive of the motor in the Main is damaged          | Change Main Board                        |
| EV2  |  |  |  |  |
| Press and release B12 to toggle the EV. If it was closed, then will be open.<br>ONLY FOR LATTEGO | L20(O) OFF -> ON. It's possible to hear the "click".   | <b>The "click" is no audible. The EV remain closed</b>     | Wiring of the EV2 not connected                        | Check the wiring                         |
|  |  |  | Wiring of the EV2 damaged (open)                       | Change Main Board                        |
|  |  |  | EV2 damaged  | Change the EV2                           |
|  |  |  | The drive of the EV2 in the Main is damaged            | Change Main Board                        |
| Press and release B12 to toggle the EV. If it was open, then will be closed.                     | L20(O) ON -> OFF. It's possible to hear the "click".   | <b>The "click" is no audible. The EV remain open</b>       | EV2 damaged  | Change the EV2                           |
| Pump and Flowmeter   |  |  |  |  |

# Test mode

|  |  |  |  |  |
|--|--|--|--|--|
| Press and release B4 to switch on the Pump (100 impulses). With the EV open the water goes out from the HotWater spout. With the EV closed the water goes out from the Coffee spout. | L5(O) ON & L19(B) BLINK followig the impulses of the flowmeter | <b>L5 ON &amp; L19 remain OFF, Pump ON and after 5sec. L5 OFF &amp; L26 ON, Pump OFF.</b>                                    | Wiring of the Flowmeter not connected          | Check the wiring   |
|  |  |  | Wiring of the Flowmeter damaged (open)         | Change the wiring  |
|  |  |  | Flowmeter damaged                              | Change the Flowmeter                                       |
|  |  |  | Connector JP20 in Main damaged (short circuit) | Change Main Board  |
|  |  |  | uP U2 in Main damaged (short circuit in Pin18) | Change Main Board  |
|  |  | <b>L5 ON &amp; L19 remain OFF, Pump OFF, and after 5sec. L5 OFF &amp; L26 ON , Pump OFF.</b>                                 | Wiring of the PUMP not connected               | Check the wiring   |
|  |  |  | Wiring of the PUMP damaged (open)              | Change Main Board  |
|  |  |  | PUMP damaged                                   | Change the PUMP  |
|  |  |  | The drive of the Pump in the Main is damaged   | Change Main Board  |
|  |  | ThermoBlock and NTC  |  |  |
| Press and release B8 to toggle the ThermoBlock. Check the absorbed current. In this case we suppose that was OFF, then will be ON 100%.  | L11(O) OFF->ON   | <b>L26 ON</b>  | Wiring of the NTC not connected                | Check the wiring   |
|  |  |  | Wiring of the NTC damaged (open)               | Change the wiring  |
|  |  |  | NTC damaged                                    | Change the wiring  |
|  |  |  | Connector JP15 in Main damaged (short circuit) | Change Main Board  |
|  |  |  | uP U2 in Main damaged (short circuit in Pin24) | Change Main Board  |
|  |  | <b>The current is out of range</b>   | TB damaged                                     | Change the TB  |
|  |  |  | The drive of the TB in the Main is damaged     | Change Main Board  |
|  |  | <b>L11(O) OFF &amp; L26(R) Blink</b>   | The TB has reached the max temperature.        | Brew water to reduce the temperature. And repeat the test. |
|  |  | <b>The current is very low &lt;0,5A.</b>   | Wiring of the TB not connected                 | Check the wiring   |
|  |  |  | TCO open                                       | Change theTCOs   |
|  |  |  | Wiring of the TB damaged (open)                | Change the wiring  |
|  |  |  | TB damaged                                     | Change the TB  |
|  |  |  | The drive of the TB in the Main is damaged     | Change Main Board  |
|  |  | Press and release B8 to toggle the ThermoBlock. Check the absorbed current < 0,5A. In this case we suppose that was ON. then | L11(O) ON->OFF                                 | <b>The current is still present&gt;0,5A.</b>               |



# Test mode

|  |  |                                       |   |                    |
|--|--|---------------------------------------|---|--------------------|
| will be OFF.   |  |                                       |   |                    |
| Grinder  |  |                                       |   |                    |
| Press and release B9 to toggle the Grinder. If it was OFF, then will be ON and will move in clockwise direction. | L15(O) OFF->ON   | <b>L15 OFF &amp; L26 ON</b>           | Wiring of the Grinder not connected             | Check the wiring   |
|  |  |                                       | Wiring of the Grinder damaged (open)            | Change the wiring  |
|  |  |                                       | Grinder damaged                                 | Change the Grinder |
|  |  |                                       | Grinder blocked                                 | Change the Grinder |
|  |  |                                       | The drive of the Grinder in the Main is damaged | Change Main Board  |
|  | <b>The rotation direction is wrong: anti-clockwise</b> | Wirings of Grinder are inverted       | Check the Grinder wiring                        |                    |
| Press and release B9 to toggle the Grinder. If it was ON, then will be OFF.                                      | L15(O) ON->OFF   | <b>The grinder is still rotating.</b> | The drive of the Grinder in the Main is damaged | Change Main Board  |

N.B:

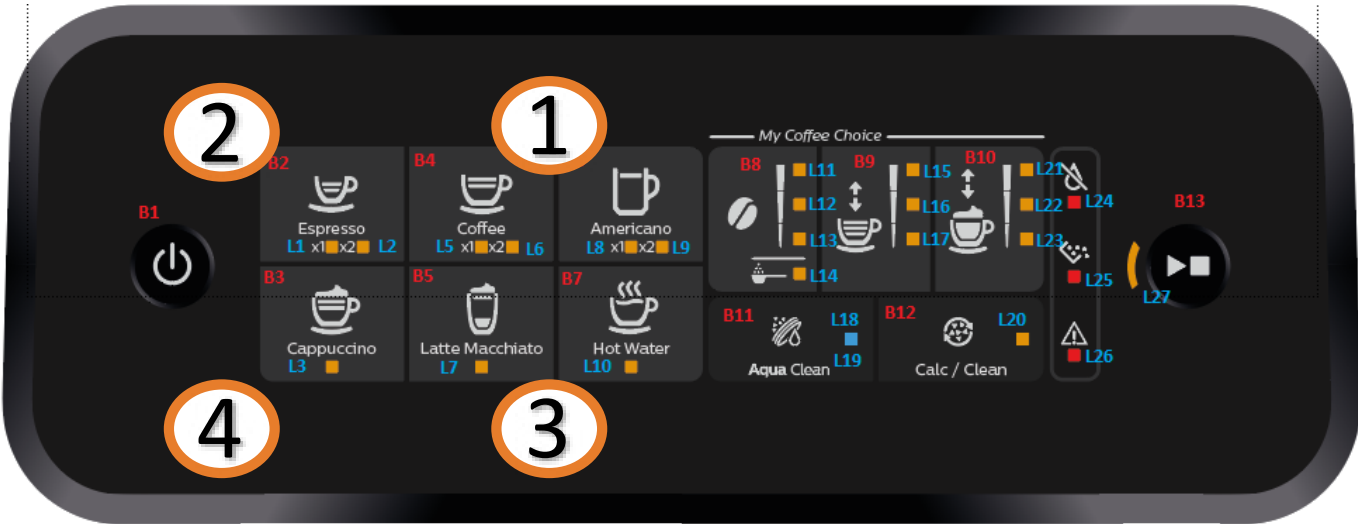
If the Dreg drawer is not inserted or the Service door is not closed the following loads cannot be tested:

1. BU
2. EV

# Functions/features explanation

## Steam out

The machine enters in Steam-Out mode by pressing in sequence B4, B2, B5, B3 (drawing like an “S”) in the first two seconds after inserting the plug into the socket. (Please make sure to avoid any serial connection on Main board white connector).



Once entered the machine checks the following conditions:

The Ntc sensor must work correctly; if there is a failure on NTC (Ntc disconnected or in short circuit) the operation cannot be performed and the L26 will blink (turn off the machine and repair before do Steam-out operation).

The DREGDRAWER must be in place and the DOOR must be closed; if someone is not in place the operation cannot be performed and the L25 will blink. To start again the operation insert drag drawer and close service door.

If these 2 conditions are respected the machine will start automatically the Steam Out process showing L18 and L20 flashing in series.

If, during the Steam Out, the Door is opened or drag drawer is removed L25 will be switched on. To start again the operation insert drag drawer and close service door.

At the end of the procedure L25 and L26 turns on.

When the Steam-Out is complete the following parameters are reset to their default values:

| Parameters                             | Default values     | Descriptions                             |
|--|--------------------|--|
| Qty Espresso Custom (ml)               | See specifications | Length “Espresso” product                |
| Qty Coffee Custom (ml)                 | See specifications | Length “Coffee” product                  |
| Qty Hot Water Custom (ml)              | See specifications | Length “HotWater” product                |
| Qty Espresso Lungo Custom (ml)         | See specifications | Length “Espresso Lungo” product          |
| Qty Americano Custom Coffee (ml)       | See specifications | Length “Americano” product, coffee       |
| Qty Americano Custom Water (ml)        | See specifications | Length “Americano” product, water        |
| Qty Capuccino Custom Coffee (ml)       | See specifications | Length “Cappuccino” product, coffee      |
| Qty Capuccino Custom Milk (ml)         | See specifications | Length “Cappuccino” product, milk        |
| Qty Latte Macchiato Custom Coffee (ml) | See specifications | Length “Latte Macchiato” product, coffee |
| Qty Latte Macchiato Custom Milk (ml)   | See specifications | Length “Latte Macchiato” product, milk   |

## Philips EP Series

# Functions/features explanation

| Parameters                                     | Default values  | Descriptions  |
|--|-----------------|---|
| Temperature setting                            | Medium          | Temperature setting   |
| Coffee Grounds                                 | Reset counter   | Number of grounds in dregs drawer   |
| Aroma (all drinks)                             | Medium          | Aroma for all drinks  |
| Pre selected quantity (coffee, water and milk) | Medium          | Restore the default length (medium)   |
| Error log [i]                                  | 0               | Array Error saved in machine resetted   |
| BU Unloaded Current Array[i]                   | 150             | Array of last 4 brew unit effort during rinsing cycle (in milliamperes). → Autozero for new autodose system                   |
| Gr_time_aroma [Light]                          | 3000            | Grinding time for aroma 1 (ms)  |
| Gr_time_aroma [Medium]                         | 3500            | Grinding time for aroma 2 (ms)  |
| Gr_time_aroma [Strong]                         | 4000            | Grinding time for aroma 3 (ms)  |
| Filter_autonomy                                | 0               | Autonomy of last Aqua clean filter actived  |
| Filter_counter                                 | 0               | Number of Aqua clean filter actived in aqua-clean chain   |
| Filter_startup_qty                             | See requirement | Counter of water for enable first Aqua Clean filter; if expire, the machine need a descaling action to activate a new filter. |

## Coffee

| Drinks                    | Low button<br>( ml) | Medium button<br>(ml) | High button<br>(ml) | Volume adjustment<br>(only at high button - ml) |
|---------------------------|---------------------|-----------------------|---------------------|---|
| Espresso                  | 30                  | 40                    | 70                  | 40-220  |
| Coffee                    | 100                 | 120                   | 200                 | 120-220   |
| Espresso lungo            | 60                  | 80                    | 180                 | 80-220  |
| Americano<br>(water)      | 40<br>(50)          | 40<br>(110)           | 40<br>(160)         | 40<br>(110-360)                                 |
| Cappuccino<br>(milk)      | 30<br>(90)          | 40<br>(120)           | 60<br>(200)         | 40-220<br>(120-340)                             |
| Latte macchiato<br>(milk) | 30<br>(120)         | 40<br>(200)           | 50<br>(340)         | 40-220<br>(200-340)                             |
| Hot water                 | 60                  | 150                   | 360                 | 150-360   |
| Iced coffee               | 90                  | 120                   | 150                 | 120-220   |

# Functions/features explanation

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## **Descaling**

Please use Philips descaler only. Under no circumstances should you use a descaler based on sulfuric acid, hydrochloric acid, sulfamic or acetic acid (vinegar) as this may damage the water circuit in your machine and not dissolve the limescale properly. Not using the Philips descaler will void your warranty. Failure to descale the appliance will also void your warranty.

***When the Calc / Clean light starts to flash slowly, you need to descale the machine.***

1. If attached remove LatteGo or milk frother.
2. Remove the drip tray and the coffee grounds container, empty them and put them back into place.
3. Remove the water tank and empty it. Then remove the AquaClean water filter.
4. Pour the whole bottle of Philips descaler in the water tank and then fill it with water up to the Calc/ Clean indication. Then place it back into the machine.
5. Place a large container (1.5 l) under the coffee dispensing spout and the water spout.
6. Press the Calc / Clean icon for 3 sec. and then press the start/stop button.
7. The first phase of the descaling procedure starts. The descaling procedure lasts approx. 30 minutes and consists of a descaling cycle and a rinsing cycle. During the descaling cycle the Calc / Clean light flashes to show that the descaling phase is in progress.
8. Let the machine dispense the descaling solution until the display reminds you that the water tank is empty.
9. Empty the water tank, rinse it and then refill it with fresh water up to the Calc / Clean indication.
10. Empty the container and place it back under the coffee dispensing spout and the water spout. Press the start/stop button again.
11. The second phase of the descaling cycle, the rinsing phase, starts and lasts 3 minutes. During this phase the lights on the control panel go on and off to show that the rinsing phase is in progress.
12. Wait until the machine stops dispensing water. The descaling procedure is finished when the machine stops dispensing water.
13. The machine will now heat up again. When the lights in the drink icons light up continuously, the machine is ready for use again.
14. Install and activate a new AquaClean water filter in the water tank
15. When the descaling procedure is finished, the AquaClean light flashes for a while to remind you to install a new AquaClean water filter.

### ***What to do if the descaling procedure is interrupted***

You can exit the descaling procedure by pressing the on/off button on the control panel. If the descaling procedure is interrupted before it is completely finished, do the following:

1. Empty and rinse the water tank thoroughly.
2. Fill the water tank with fresh water up to the Calc / Clean level indication and switch the machine back on. The machine will heat up and perform an automatic rinsing cycle.
3. Before brewing any drinks, perform a manual rinsing cycle. To perform a manual rinsing cycle, first dispense half a water tank of hot water by repeatedly tapping the hot water icon and then brew 2 cups of pre-ground coffee without adding ground coffee.

If the descaling procedure was not completed, the machine will require another descaling procedure as soon as possible.

# Functions/features explanation

## Temporary solutions

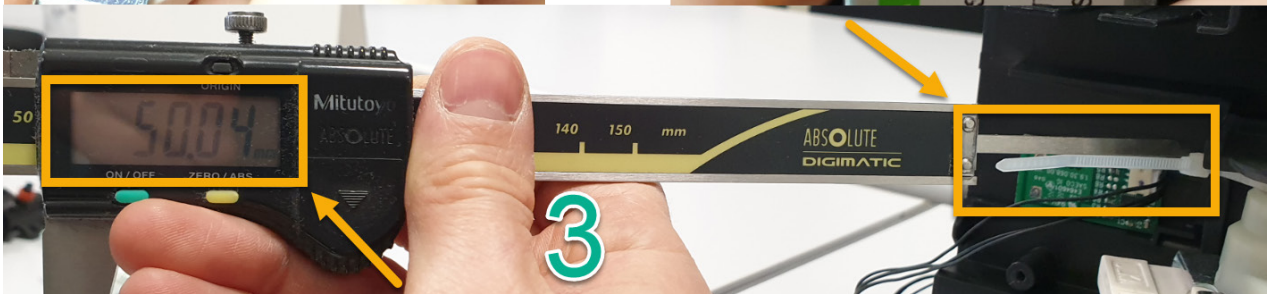
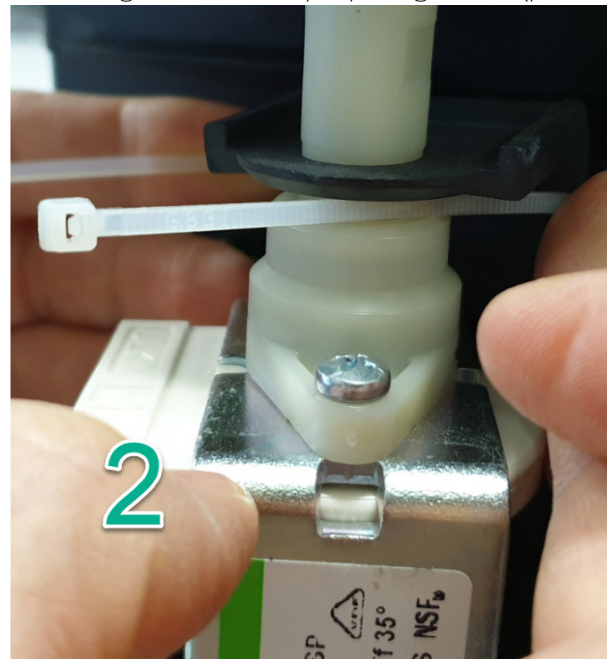
### Cable tie for the pump

To make sure the pump won't move from its place. The pump will be assembled with a cable tie. In case a swap is needed, please follow these step to place it back:

1. Start inserting a cable tie (20cm x 1,2mm) in the empty space of the pump holder, then keeping both pull them inside:



2. In pictures 1 and 2 you can see the exactly position where to place the cable tie.
3. Don't close it too much: the leftover cable needs to be 5cm to guarantee the proper tightness (picture 3)



# Functions/features explanation

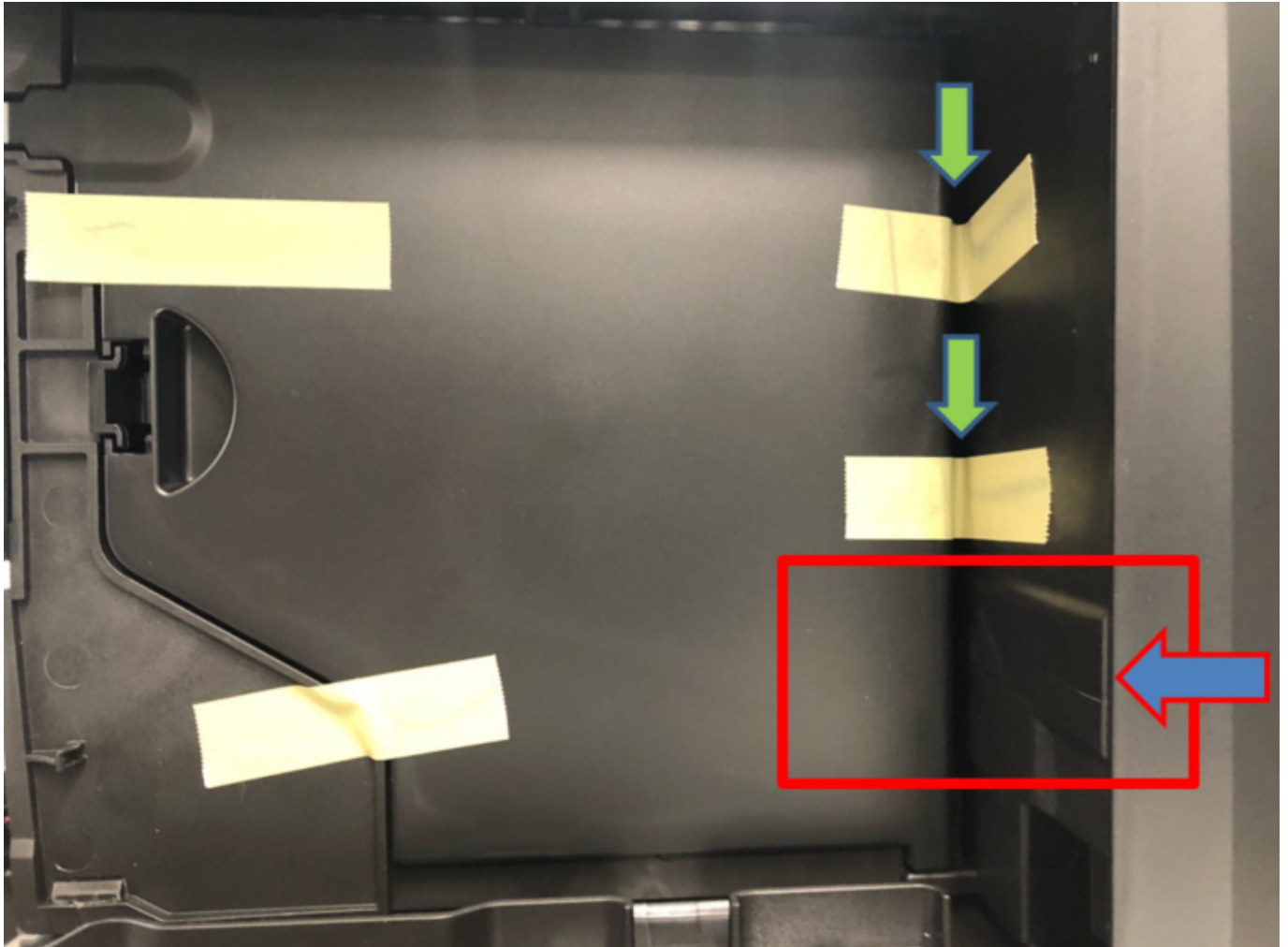
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## Temporary solutions

### *Tape for service door*

Before the shipment of the appliances, is required to apply 4 pcs of adhesive tape as shown in picture.

1. Do not cover the water sensor area (in red)
2. Do not leave any gap between the tape and the corner (green arrows)





# Functions/features explanation

## Espresso Philips Service Center (EPSC)

EPSC is the Service tool to upload the software on the machine and run the diagnostic mode.

It can be downloaded from the following link: <https://www.epsc.versuni.com/ServiceCenterPortal>

The application can be used only in combination with the Saeco Programming Device:

Cod. **996530009845** “**KIT PROGRAMMER SERKIT SSC2**”.

A new cable **421946047151** “**WIRING SERPROG OMN PROGRAMMER ASSY.**” is required.

They can be ordered as spare parts.

All details related to the registration and operation are explained in the enclosed Quick start guide (QSG).

### Espresso Philips Service Center– Quick Start Guide

Press the icon to view the document

To open the attached document is necessary to save the service manual on your PC.

The main Diagnostic Parameters description is available on the GDA\_114331.



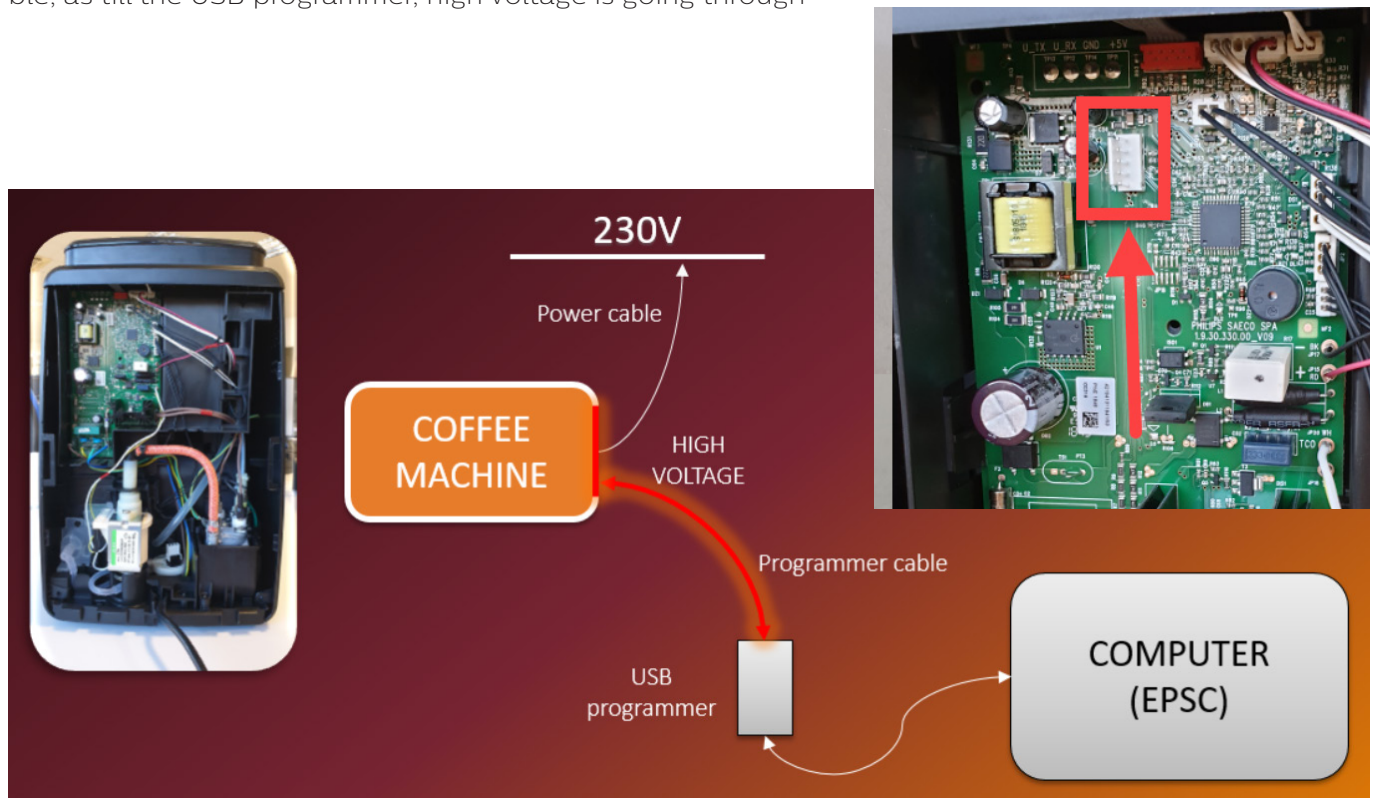
**For your safety, be sure the plug is disconnected from the mains!**

In order to connect the machine to the PC, we need to remove the back panel, which will expose the complete mainboard

**REMEMBER: The board is working at 230V**

Only for connected models: EP2520/10 and EP3546/70 in order to connect the machine to the PC, remove the wi-fi cable and connect the programmer cable. It's only possible to run the diagnostic read. The software update will be run via wi-fi.

Please take extra care before you start to open the machine or connect/disconnect the programmer cable, as till the USB programmer, high voltage is going through



# Functions/features explanation

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## ***Deactivate AquaClean filter reminder***

If you would like to deactivate or turn off the AquaClean filter reminder on your Philips 1200/2200/3200 espresso machine, follow the steps below.

1. Switch OFF the machine
2. Press and hold the AquaClean button for 3 seconds until the AquaClean icon light is on and the start/stop button starts blinking
3. Press the start/stop button again to turn off the AquaClean icon light
4. Your AquaClean filter reminder is now deactivated

Note: Once deactivated, you will not receive any notification after you descale your machine. If you wish to use AquaClean filter in the future, can activate it again by pressing the AQ filter icon for 3 seconds

## ***Deactivate the beeping sound of the buttons***

It is possible to deactivate the beeping sound, please follow the instructions below:

1. Press the ON/OFF button to switch OFF the machine
2. Press and hold the Coffee icon (or Espresso Lungo icon for Philips EP3221 model) for 3 seconds
3. The x1 cup light of the Coffee icon is light up and START/STOP light starts to blink. This indicates that the sound setting is set to ON.
4. Press the Coffee icon again to switch the x1 cup light icon off. The sound setting is now set to off.
5. Press the start/stop button to save the setting
6. Press the ON/OFF button to switch the machine back ON.

Note: Deactivating the beeping sound is not possible for the on/off button and the start/stop button

## ***Reset drinks settings to default setting***

1. Switch OFF the machine
2. Press and hold the Espresso icon for 3 seconds
3. The screen will show the default settings on the aroma strength/pre-ground coffee icon, drink quantity icon, milk quantity icon (specific models only), coffee temperature icon (specific models only)
4. Start/stop button will start to pulse, indicating that the settings are ready to be restored
5. Press the start/stop button to confirm you want to restore to the default settings
6. Press the ON/OFF button to switch the ON again

# Functions/features explanation

## Repair Flow

| Proces stap           | Saeco no. | Action   |
|-----------------------|-----------|--|
| Intake                | 1         | Visual inspection (transport damage) <a href="#">take care for pictures</a>  |
|                       | 2         | Check Type/serialnumber  |
|                       | 3         | Log all available accessory, counter check with info from consumer   |
| Diagnosis             | 4         | <b>Check product for consumer complaint and main function</b> (NFF contact consumer)   |
|                       | 5         | <a href="#">Run Diagnostic to get error codes and relevant set statistics (EPSC) refer SDA_114585</a>  |
|                       | 6         | Opening machine  |
| Repair                | 7         | Repairing the fault(s) encountered (view Symptom Cure)   |
|                       | 8         | Checking any modifications (view Symptom Cure, new software, etc.)<br><b>Refer Annex tabs per family (if available)</b>  |
|                       | 9         | <b>Basic Functional test while the appliance is open</b> (linked to consumer complaint or what you may have detected)  |
|                       |           | <i>Make e 2 cups at the same time. Are the volumes equal</i>   |
|                       |           | <i>Blow on the coffee. Does the crema come back together</i>   |
|                       |           | <i>Is the crema colour correct (Hazelnut)</i>  |
|                       |           | <i>Is the coffee temperature within spec refer SDA_97832</i>   |
|                       |           | <i>Does the steam work</i>   |
|                       |           | <i>Does the hot water work</i>   |
|                       |           | <i>(if applicable)</i>   |
|                       |           | <i>Does the cappuccinatore produce good froth</i>  |
|                       | 10        | check water circuit for any leakage, such as Oetiker clamps, boiler and valve connection and hoses   |
|                       | 11        | Check mechanism for good movement and unexpected noise   |
|                       | 12        | Assembly   |
| Inspection            | 13        | Do cabinet parts fit well together   |
|                       | 14        | Check for damages  |
|                       | 15        | Will the set switch on   |
|                       | 16        | Do the accessories match with the intake   |
|                       | 17        | Check the product for the consumer complaint   |
| Quick Functional test | 18        | Make 2 cups at the same time. Are the volumes equal  |
|                       | 19        | Is the sound normal ?  |
| Leakage               | 20        | Did the product leak during the testing  |
| Steam Out             |           | <b>Steam out</b> before shipping out, if temperature is below 0° to prevent any damaged due to frozen water.<br><b>No need for those families</b> Minuto Family (all platform); Incanto Family New .; Pico Baristo ; Gran Baristo; Intelia V2 ; Philips 2000 – 2100 ; Incanto Executive; Xelsis-New; Moltio Family (all Platform) <b>Please also</b> |
|                       | 21        | <b>check for GDA_113455</b>  |
| Reset Error code      |           | New devices like Xelsis-New have the possibility to reset the error code, once captured it need to be reset  |
|                       | 22        | to see if it appear afterwards again   |
| Claim Administration  |           | <b>Provide precise IRIS code, according dedicated code table for Garment Care products. The location code from the part you have worked on MUST be completed always with the part reference from exploded view !</b>   |
|                       | 23        | <b>Primary fault and corresponding IRIS code should be claimed first.</b>  |
| Cleaning              | 25        | Clean water reservoir, bean reservoir, brew chamber and conveyor   |
|                       | 26        | Clean and dry brew unit, coffee bin and drip tray  |
|                       | 27        | External cleaning (housing surface)  |
| Safety check          | 28        | Earth leakage, Isolation test, resistor of earth wire grounding, as requested in certain country's (VDE, ISO) or H-POT TEST  |
|                       | 29        | Check the mains cord for damages   |
| Packing               | 30        | Packing  |
|                       | 31        | Check completeness (accessories) according income log refer #3   |
|                       | 32        | Neatly pack the product  |
| Documentation         | 33        | Info for Consumer by packed ? e.g. service brochure, FAQ, NFF letter, s/c etc....  |
|                       | 34        | Descaling instruction with changed procedure (S/C) if available  |
| Repair report         | 35        | Is there an answer to <b>ALL</b> consumer questions/complaints (see complaint)   |
|                       | 36        | add set statistic and give, if needed clear instruction towards consumer   |
|                       | 37        | Is it indicated which documents are added  |
|                       | 38        | Are there tips how to prevent issues   |

# Version history

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28/03/19 Version 1.0 : Initial release.

04/06/21 Version 1.1 : On page 06: Under General Information, added pictures of front panel for flash WI-Fi models.

On page 14: Under Technical Information, added How to check connectivity board (Only for WI-Fi models).

17/05/22 Version 1.2 : On page 06: Under General Information, added pictures of front panel for Latte Go Iced coffee Version.

On page 08: Under Technical Information, added Iced coffee specifications.

On page 09: Under Technical Information, added Specification for the measurement of the coffee products temperature for Iced coffee.

14/06/22 Version 1.3 : On page 04: Under General Information, added picture for 800 series model.

On page 05: Under General Information, added picture of front panel for 800 series model.

On page 07: Under Technical Information, added specification of Lattego EV.

07/07/22 Version 1.4 : On page 45: Under Functions/features explanation, added information on how to connect the programmer cable on the connected models EP2520/10 and EP3546/70.

13/04/23 Version 1.5 : On page 11: Under Technical information, in Specification for the measurement of the Milk products temperature added information about the replacement of the Pannarello.

On page 45: Under Functions/features explanation, updated EPSC link to new server environment and QSG guide.



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