



© ELECTROLUX HOME PRODUCTS  
Consumer Service - EMEA  
Quality & Continuous Improvement  
Technical Support

Publication  
number

**599 80 18 - 23**

EN

**Dishwashers with electronic  
control system**

**DOMODOSSOLA**

**With**

**2<sup>nd</sup> Generation Door lock**

## CONTENTS

1. Purpose of this manual.....	3
2. Precautions .....	3
3. Technical details.....	4
3.1. Product overview.....	4
3.2. Structural Parts .....	5
3.3. Base .....	6
3.4. Bottom tray.....	7
3.5. Water circuit .....	8
3.6. Hydraulic circuit .....	9
3.7. Sump Circ Motor and Heater.....	11
3.8. Sump and drain system.....	14
3.9. Flow controller.....	16
3.10. Pressure sensor .....	17
3.11. Turbidity sensor (High power sensor).....	18
3.12. Automatic Cycle: AutoSense .....	19
3.13. XtraDry option .....	20
3.14. Door Lock with Auto Door Opening – 2nd generation.....	21
3.15. Electronic Main Boards .....	28
3.16. Components check .....	33


# 1. Purpose of this manual

The purpose of this Service Manual is to provide Service Engineers with technical information regarding the new range of “Domodossola” dishwashers and to give a description of the service functionality.

This Manual describes:

- General characteristics
- Technical characteristics
- Guide to diagnostics

# 2. Precautions

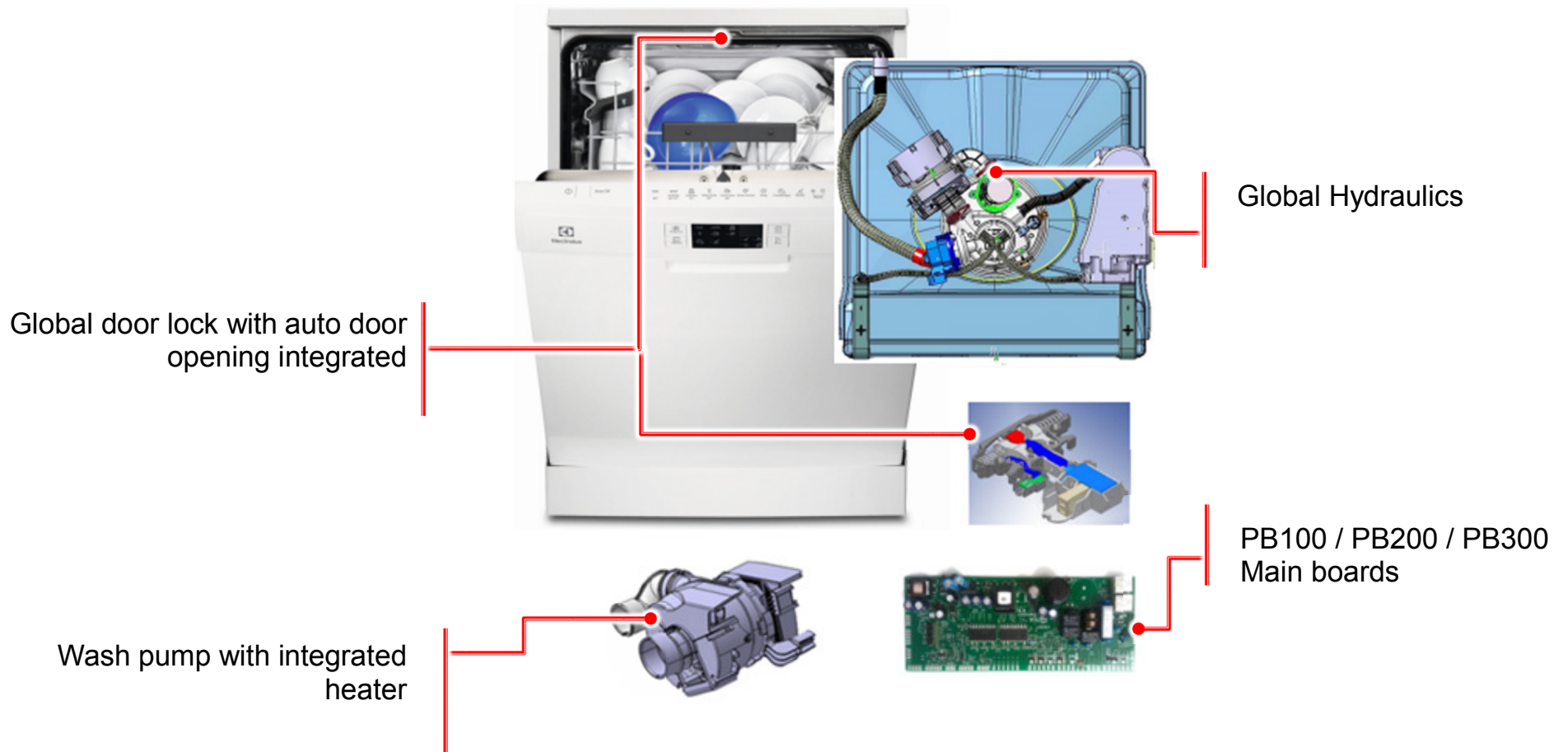
	<ul style="list-style-type: none"><li>▪ <b>Electrical appliances must be serviced only by qualified Service Engineers.</b></li><li>▪ <b>Always remove the plug from the power socket before touching internal components.</b></li></ul>
--	---

## Document Revisions

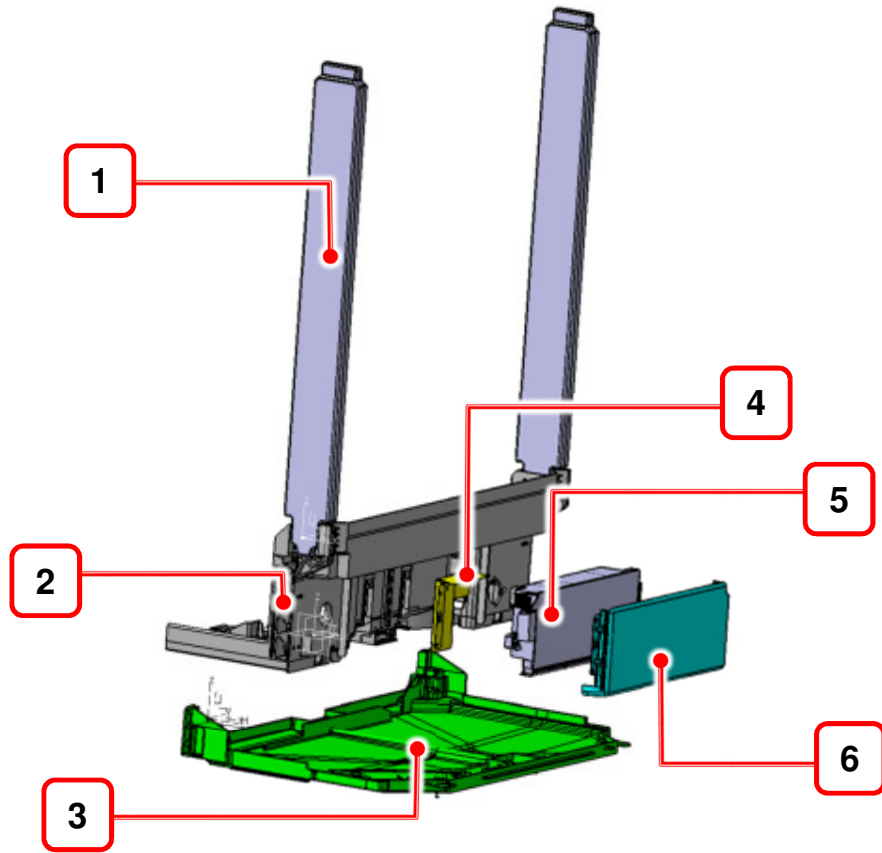
Revision	Date	Description
v0.0	10/2016	Document creation
v0.1	01/2017	Components check table and Global door lock - updated
v0.2	08/2017	PB150 Main board included
v0.3	01/2018	Global door lock - updated

### 3. Technical details

#### 3.1. Product overview

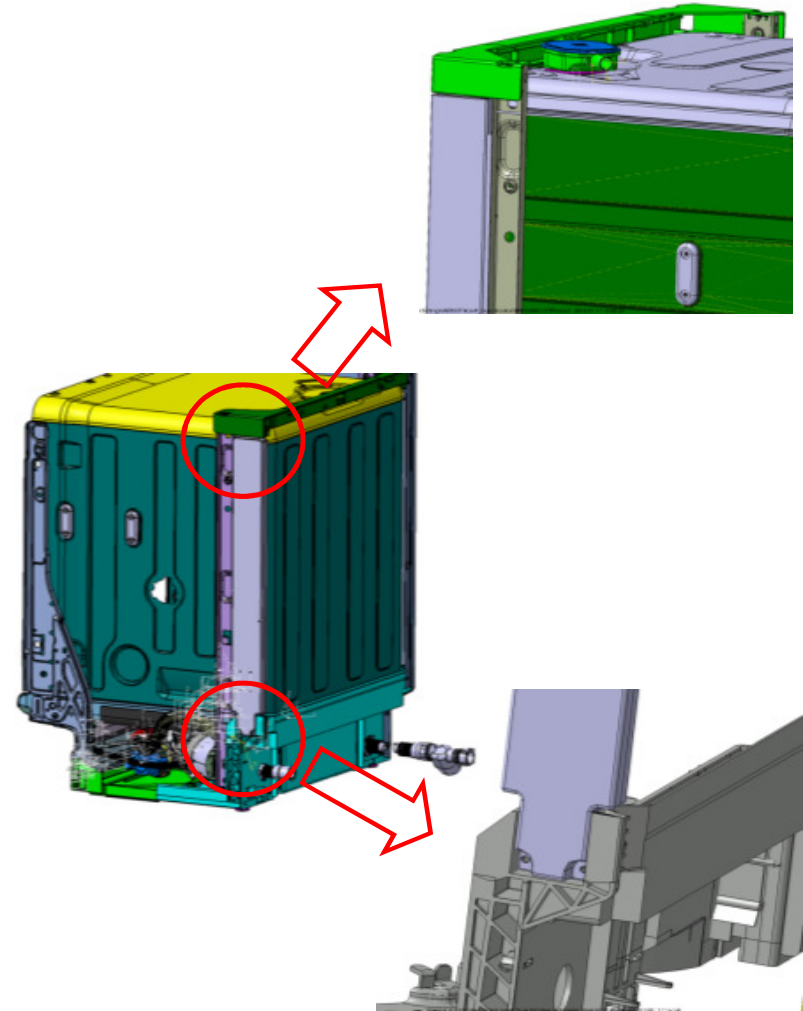


### 3.2. Structural Parts



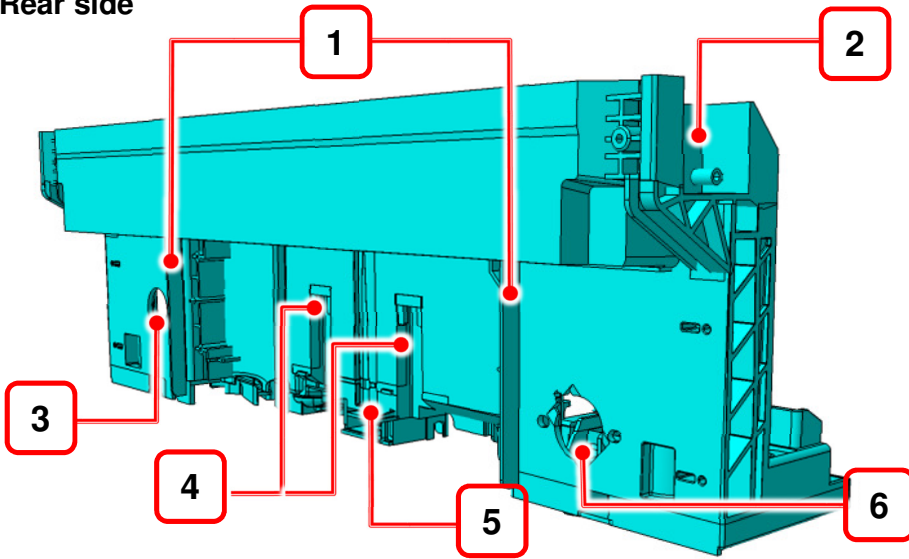
<b>1-</b> Counterweights	<b>2-</b> Base
<b>3-</b> Bottom tray	<b>4-</b> Inner fire shield
<b>5-</b> GMB Box (Covered in Electronic System)	<b>6-</b> Metal cover

The counterweight slides under the rear bar and is attached with 2 screws in the base.

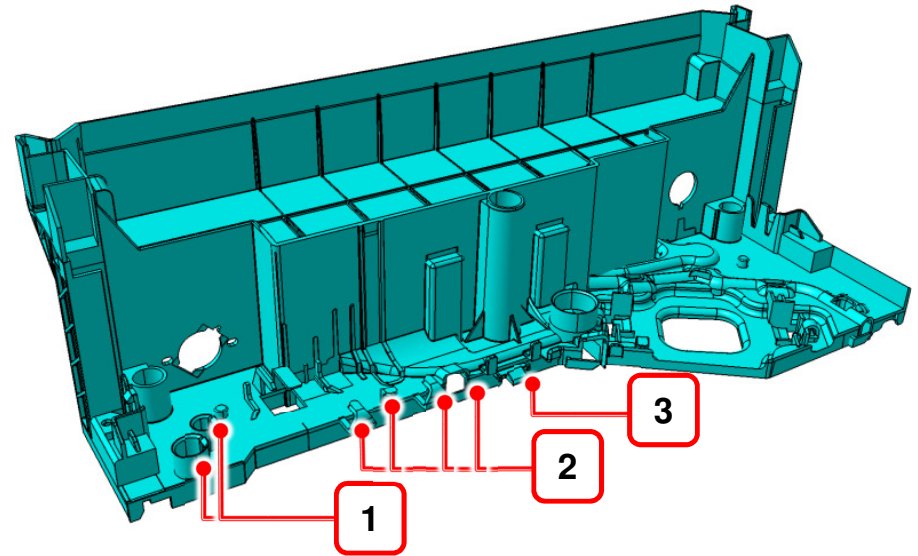


### 3.3. Base

Rear side



Inner side



**1-** Ribs to prevent that water sprays in to the circuit board if the hose is damaged on the outside just after coming out from dishwasher

**2-** Area for swing in and attach the counter weights with screws

**3-** Water outlet

**4-** Channels for inserting the hooks from the mainboard box when assembling

**5-** Ribs to prevent cables from mainboard to fall down

**6-** Water inlet

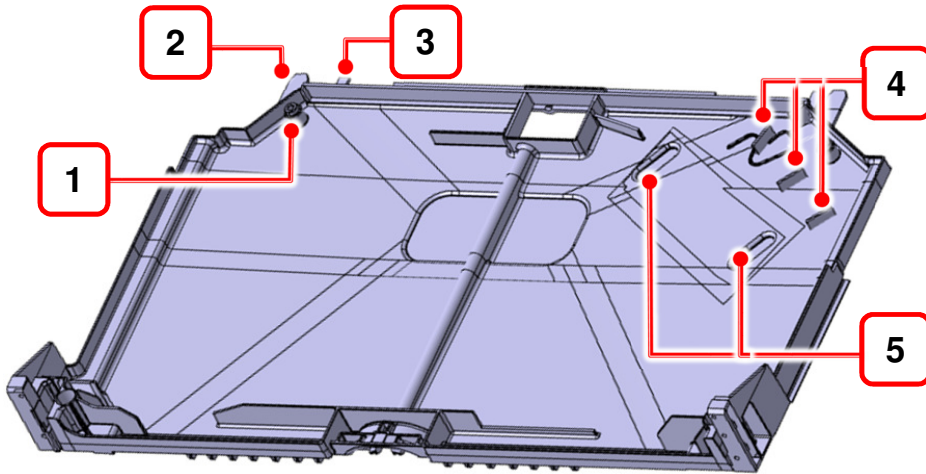
**1-** Holder for active drying hose

**2-** Cable exit and holders for cables

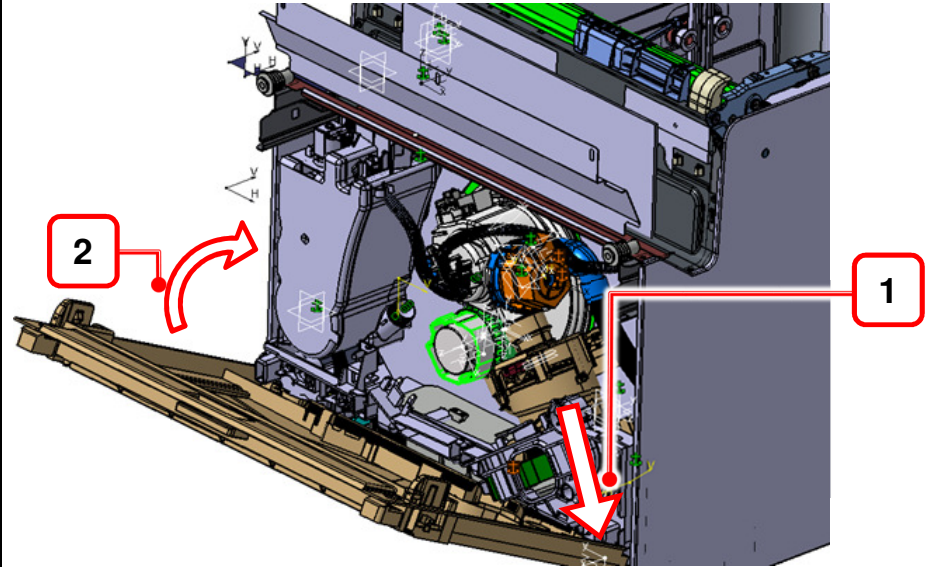
**3-** Holder for float switch

### 3.4. Bottom tray

#### Details



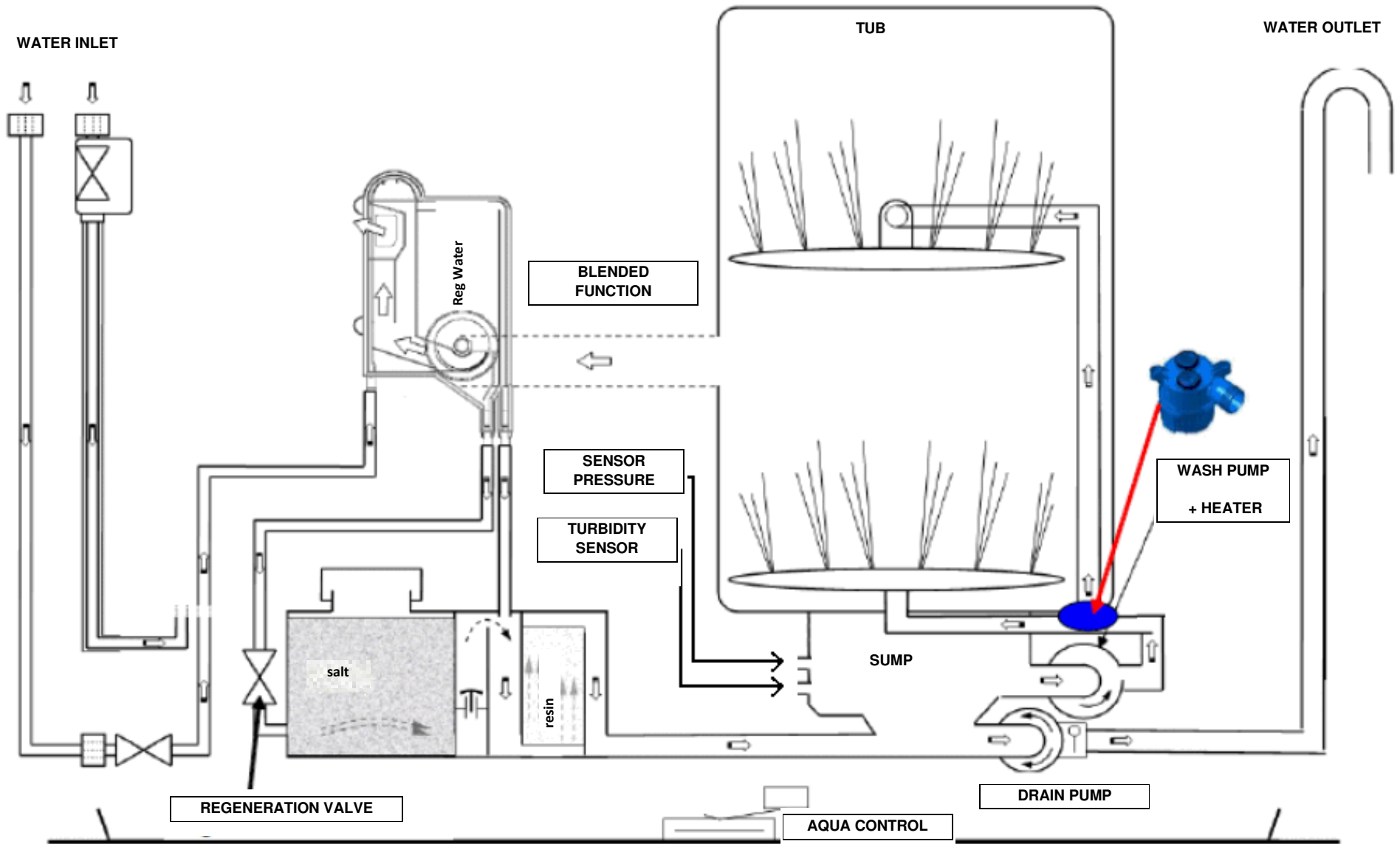
#### Assembly instructions



<p><b>1-</b> Screw bosses that is only planned to be backup if the snaps fails</p>	<p><b>2-</b> Snaps for assembling tray to base</p>
<p><b>3-</b> Ribs to help controlling the movement when assembling the tray</p>	<p><b>4-</b> Ribs to lift cable to prevent them from reaching the water</p>
<p><b>5-</b> Dents for rubber fixation of motor</p>	

<p><b>1-</b> Insert bottom tray (without metal feet), the tabs on the tray must match the slots in the base. The tray should be horizontal if the machine lays on its back</p>	<p><b>2-</b> Keeping bottom tray pushed inwards, rotate it into place</p>
--	---

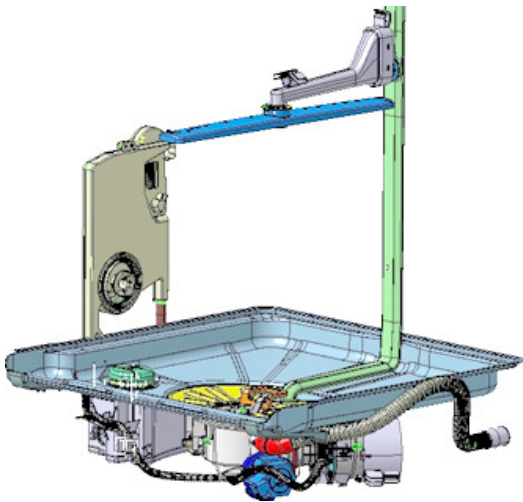
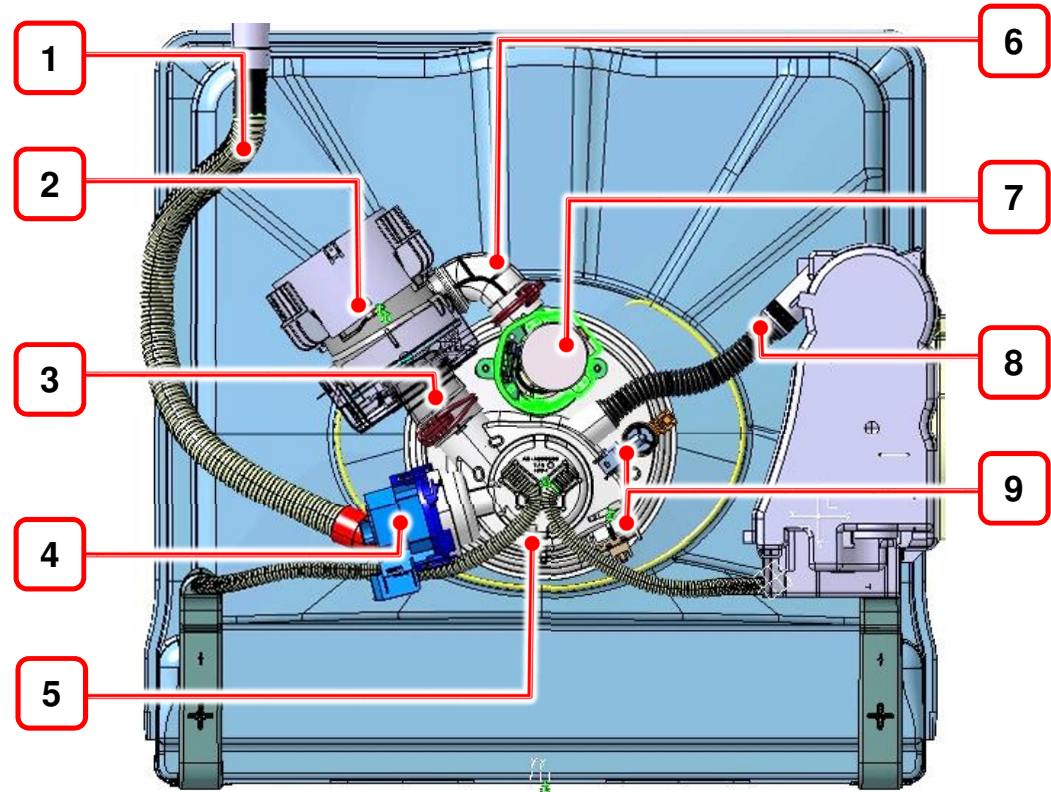
### 3.5. Water circuit

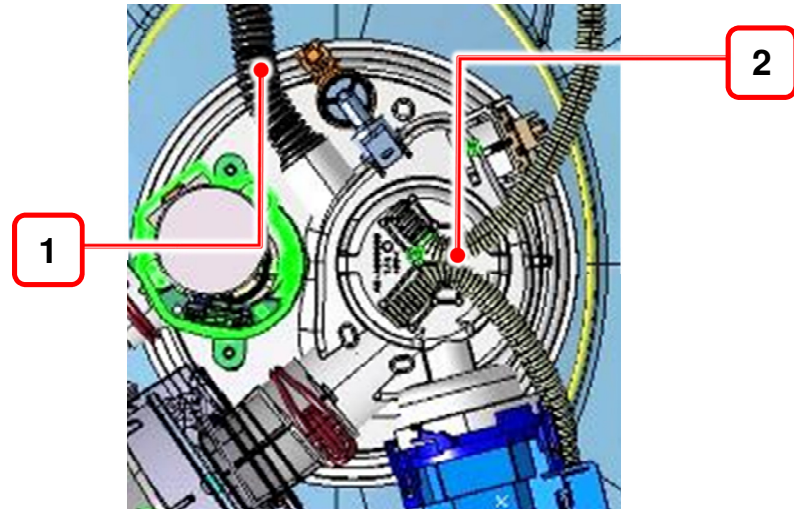
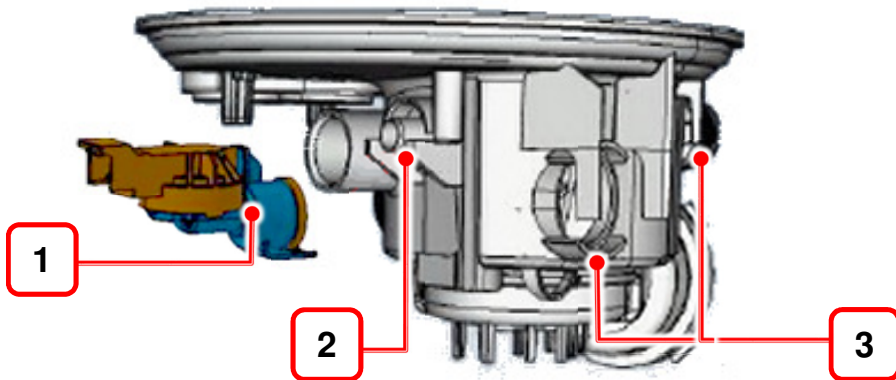




### 3.6. Hydraulic circuit

<b>1-</b> Drain hose.	<b>2-</b> Wash pump with integrated heater
<b>3-</b> Hose pump-sump (included with sump)	<b>4-</b> Drain pump
<b>5-</b> Sump	<b>6-</b> Hose pump-FC/FD (included with pump)
<b>7-</b> Flow controller (FC) or Flow distributor (FD)	<b>8-</b> Hose softener-sump
<b>9-</b> Sensors	





**1-** Pressure sensor with radial sealing

**2-** Pressure sensor snap:  
 - robust snap from bottom  
 - ribs in sump to limit rotation  
 - half round rib to limit move upward

**3-** Harness snaps

**1-** Softener-sump hose:  
 Corrugated pressed and sealed using o-ring compression. Symmetrical connectors from sump and softener side.

Proper assembly: must put hose to the sump and than to the softener.

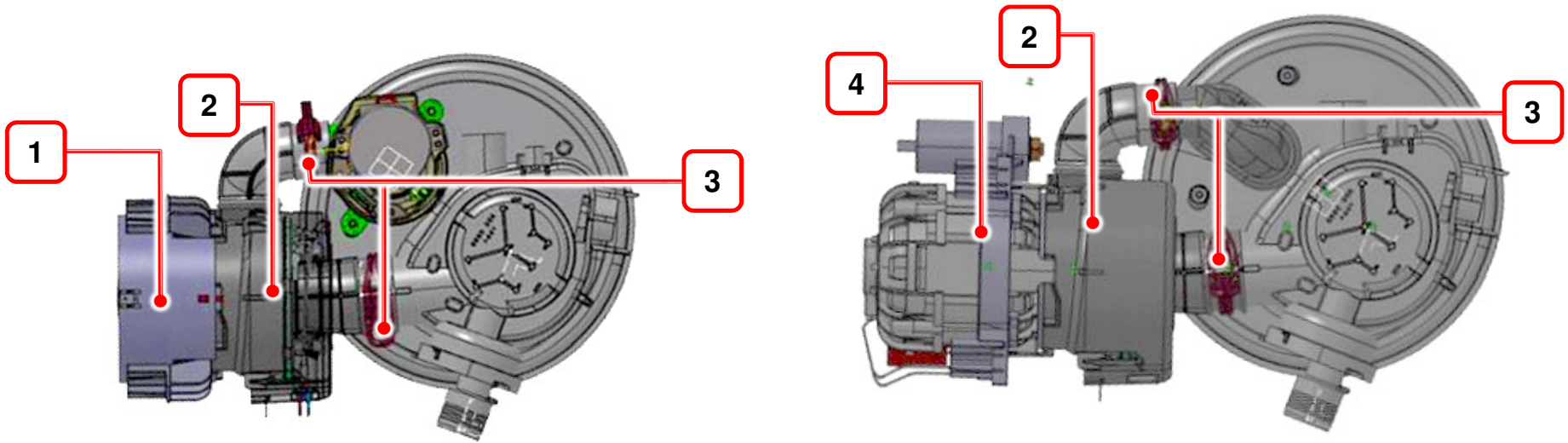
**2-** Overflow hoses:  
 The same parts for both sides. Position provided by friction with sump ribs. Ribs are indicating correct assembly position

### 3.7. Sump Circ Motor and Heater

**Main Pump assembly:**

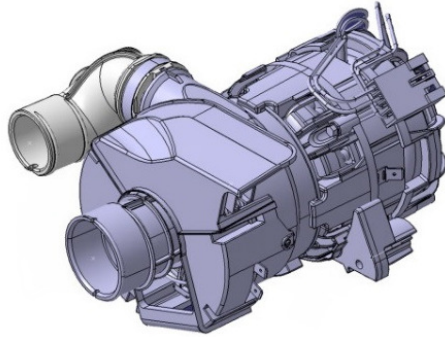
- Common interface with new volute
- Basement fixation same has D2
- Includes hose to flow controller
- Includes pump-sump hose
- Includes Omega heater
- Includes steel shield around

For both motors the heater is available as separate spare part

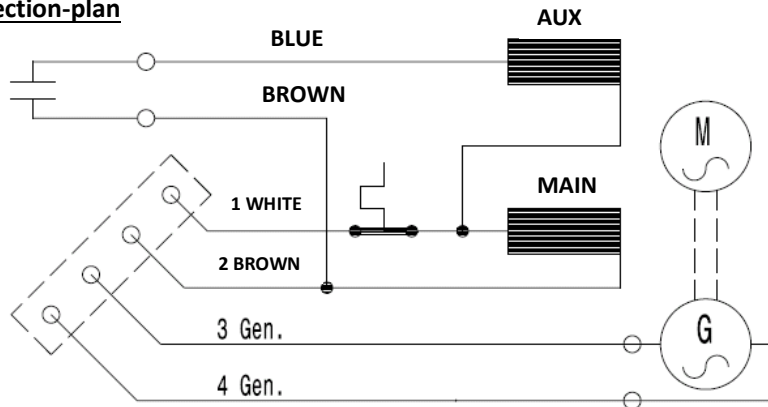


<b>1-</b> BLDC motor with FC	<b>2-</b> Omega heater
<b>3-</b> Clamps	<b>4-</b> Asynchronous motor with FD

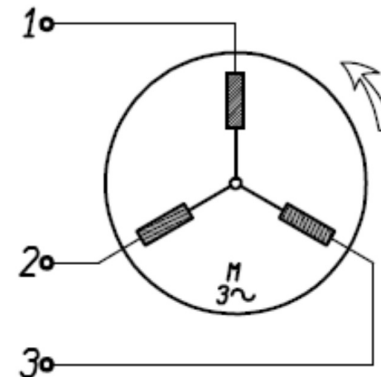
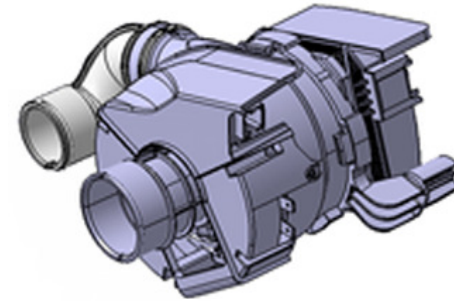
**Single phase asynchronous washing pump motor with FD**



**Connection-plan**

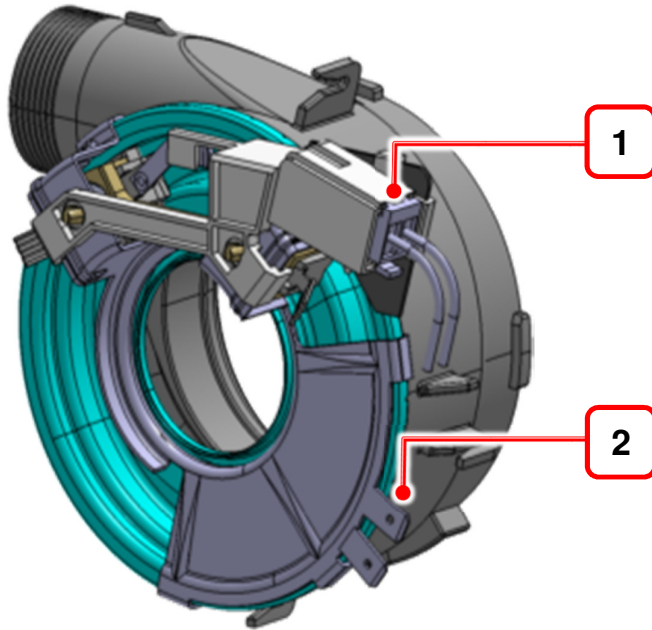


**Three phase washing pump BLDC motor with FC**



230/240 V 50/60 Hz Class F  
Resistance: 1-2: 56 ohms/2-3: 56 ohms/3-1: 56 ohms

**Omega heater:**



**1-** Electric connection of the heater

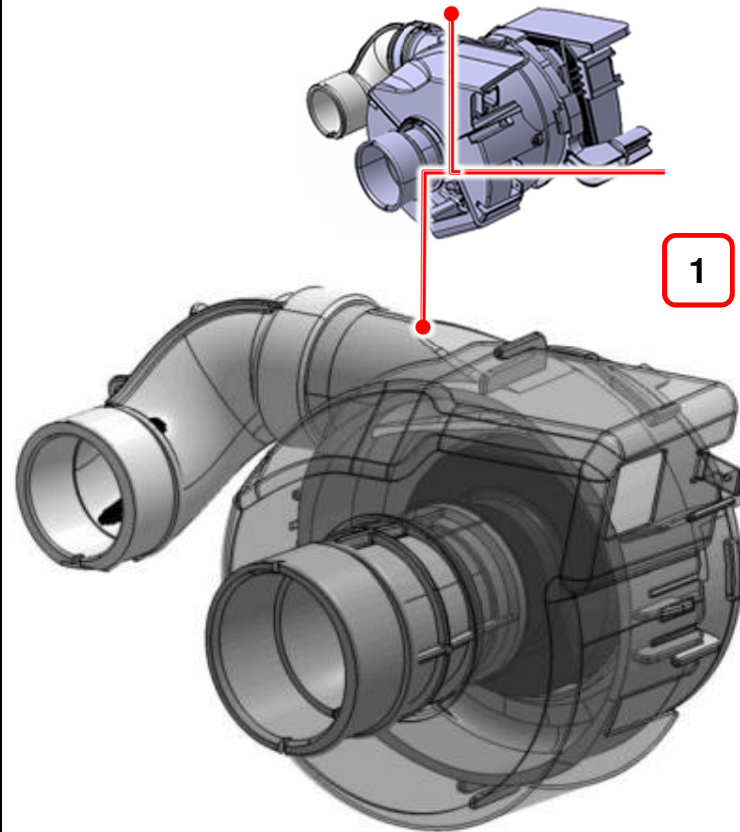
**2-** Ground connection

Voltage EU 220-240 V,

Power: 1800 W

Voltage EU 220-240 V,

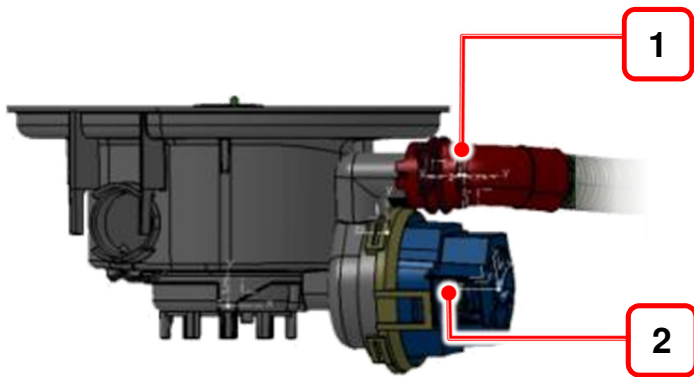
Power: 2040 W



**1-** Heater Cover

### 3.8. Sump and drain system

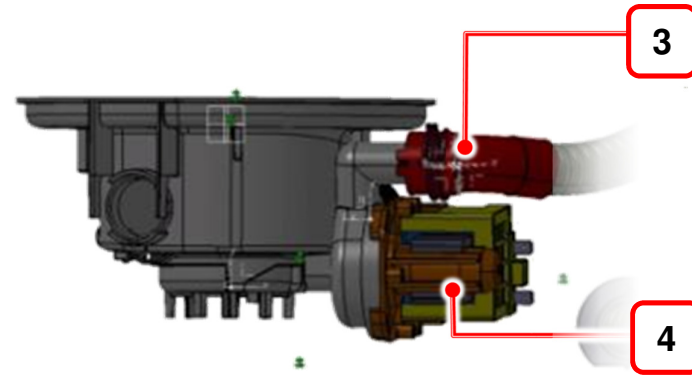
#### Three-phase Synchronous BLDC motor



- 1-** Cuff on drain hose:
- Clamped to drain outlet.
  - Positioned by rib in sump and ribs in cuff.

- 2-** Drain pump (Three-phase Synchronous BLDC motor):
- Fixed directly in sump built-in volute using
  - Bayonete system
  - Back of protection hook provided for motor

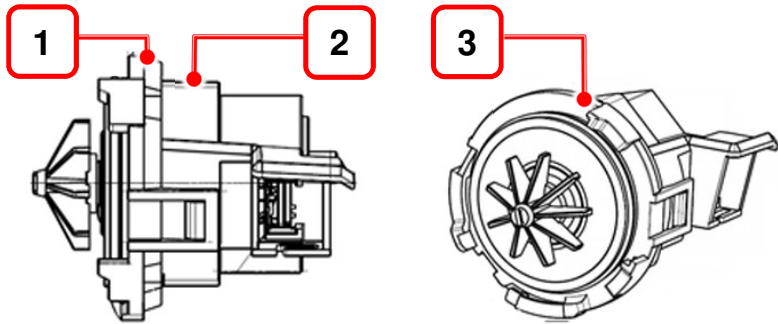
#### Single-phase Synchronous motor



- 3-** Cuff on drain hose:
- Clamped to drain outlet.
  - Positioned by rib in sump and ribs in cuff.

- 4-** Drain pump (Single-phase Synchronous motor):
- Fixed directly in sump built-in volute using
  - Bayonete system
  - Back of protection hook provided for motor

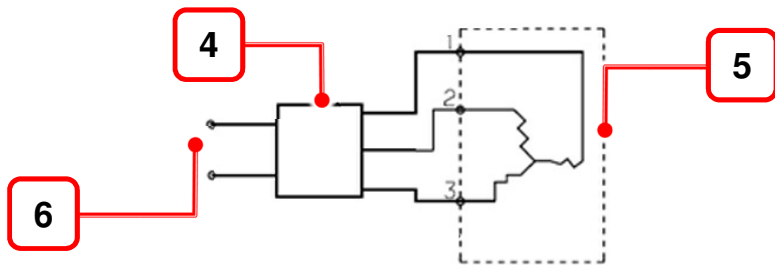
### Drain pump - Three-phase Synchronous BLDC motor



Voltage 230 V 50 Hz

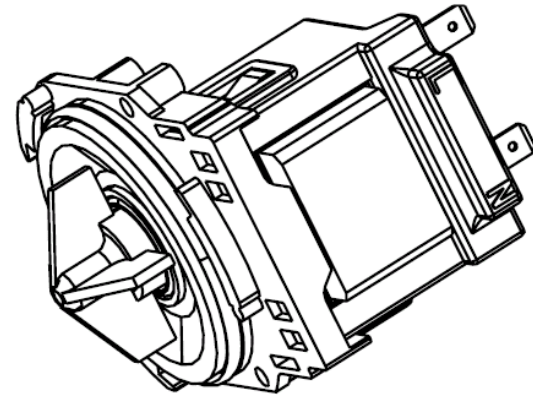
Power: 21 W → resistance 93 ohms +/- 10%

Max flow rate: 15 litre/min



<b>1-</b> Cover	<b>2-</b> Housing
<b>3-</b> Triple bayonet fixation aligned into sump connector	<b>4-</b> Motor driver (not incl. in assembly)
<b>5-</b> Motor	<b>6-</b> Power supply

### Drain pump - Single-phase Synchronous motor



Voltage 230 V 50 Hz

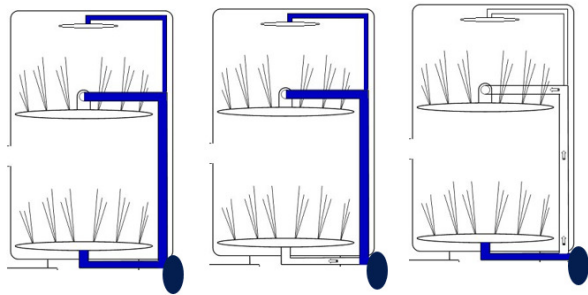
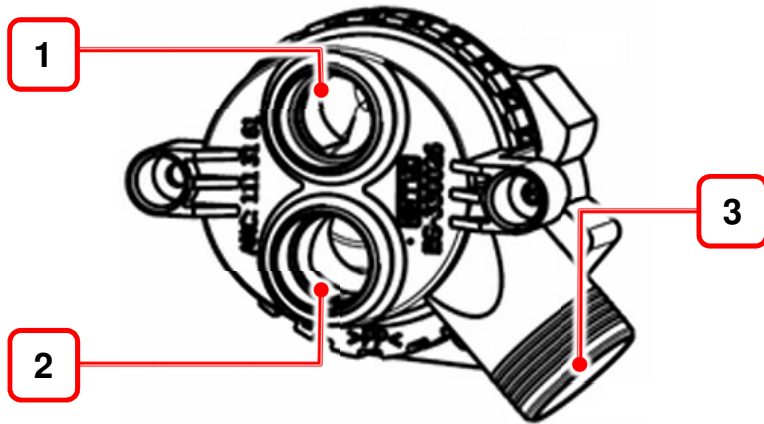
Power: 30 W → resistance aprox 225 ohms

Max flow rate: 15 litre/min

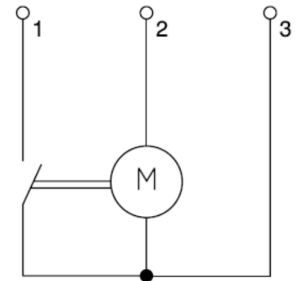
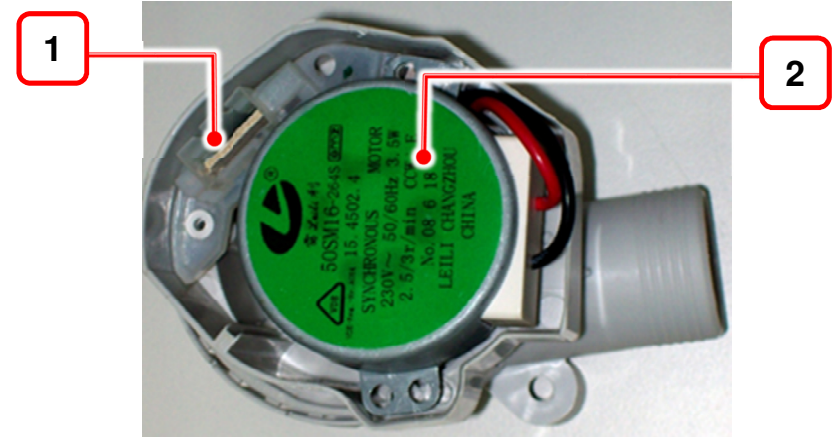
### 3.9. Flow controller

#### Details

The flow controller is designed to control the water flow towards the top spray arm only, bottom spray arm only or towards both spray arms.



<b>1-</b> Water outlet to lower spray arms	<b>2-</b> Water outlet to upper spray arms
<b>3-</b> Water inlet from wash pump	

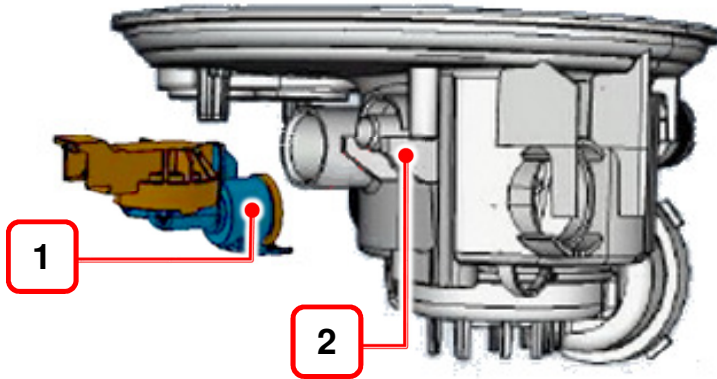


<b>1-</b> Micro switch	<b>2-</b> Synchronous motor 230V AC, 50/60Hz 2.5/3 rounds/minute Counterclockwise direction
------------------------	--



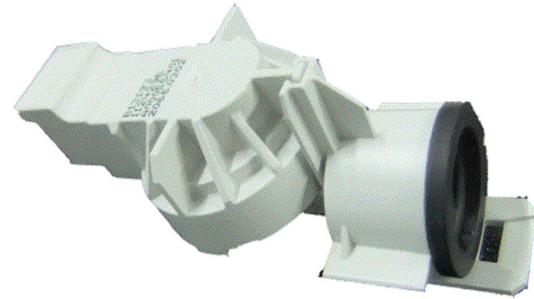
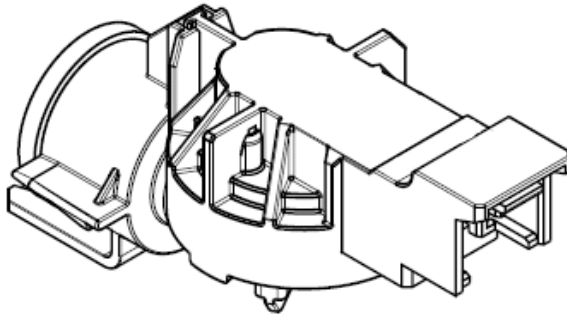
### 3.10. Pressure sensor

#### Details



**1-** Pressure sensor with radial sealing

**2-** Pressure sensor snap: robust snap from bottom ribs in sump to limit rotation half round rib to limit move upward



Frequency output (0-5V Signal),  
Range: 0-300mm  
Connection: 3 connectors RAST 2.5mm

Pressure mmWc/PA	Frequency	Tolerance 20°C	Tolerance 70°C
-	44.3	+/- 3mmWC / 1%	+/- 5mmWC / 1.7%
75	42.16	+/- 3mmWC / 1%	+/- 5mmWC / 1.7%
150	40.0	+/- 6mmWC / 2%	+/- 8mmWC / 2.7%
225	37.77	+/- 9mmWC / 3%	+/- 11mmWC / 3.7%

### 3.11. Turbidity sensor (High power sensor)

Control both the temperature and the turbidity of the washing water.

Positioned externally on the sump in direct contact with the water.

Fitted with an NTC sensor for control of the temperature.

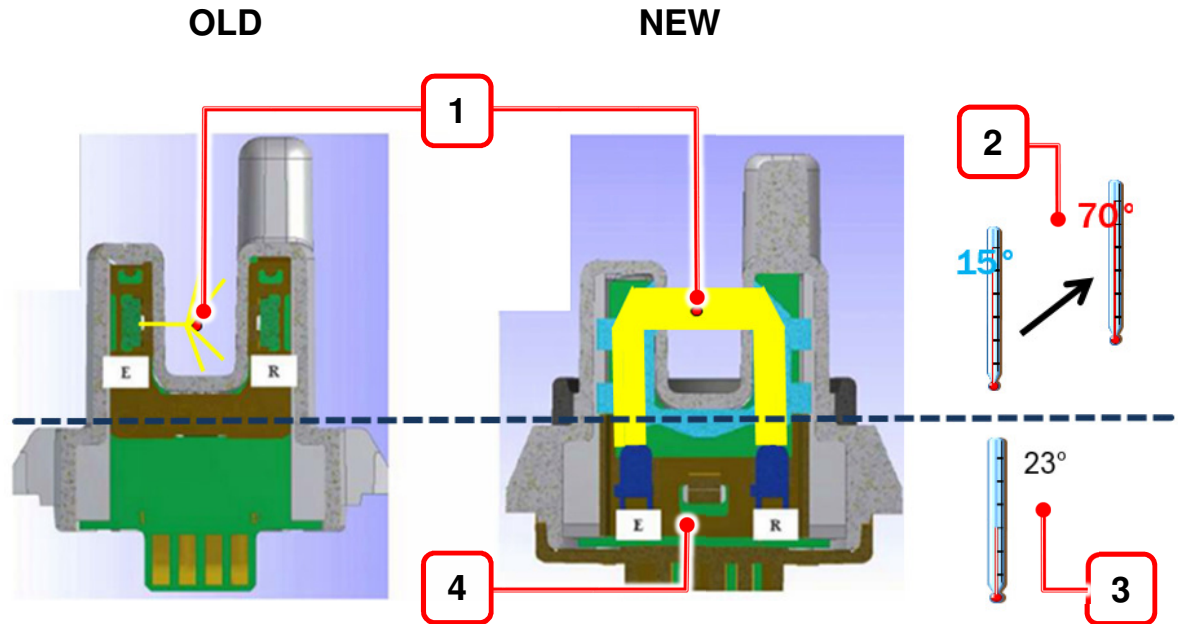
Fitted with an infra-red system for control of the turbidity of the water (i.e. the quantity of dirt in the water).

Constantly transmits the two signals to the electronic control system for processing.

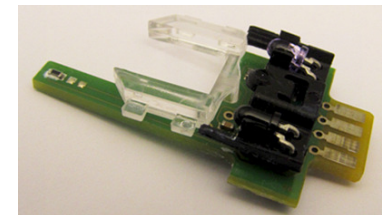
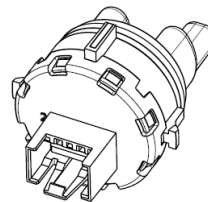
By correctly combining the signals received from the two sensors (NTC and turbidity), enables the appliance to perform "automatic" washing cycles which automatically optimize the washing cycle according to the type of load, the quantity of the load and the degree of soiling.

The light is collected by a new technology and guides the light into the measurement zone.

- Use of larger LEDs
  - the light area increases from 3 to 20sqmm
  - small dirt pieces cannot block the light beam anymore
- LEDs are located in a colder area
- less temperature fluctuations around the LED's
- higher precision during measurement
- improved signal stability
- measurement during higher pump speed is possible

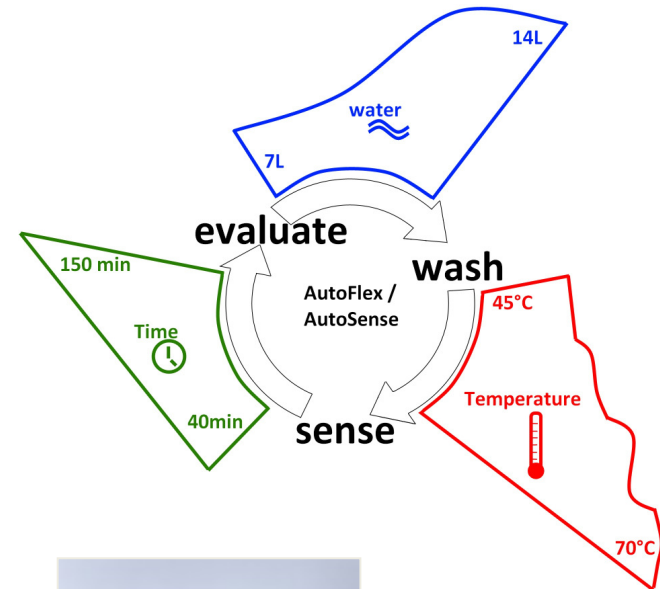


<b>1-</b> Dirt pieces	<b>2-</b> Temperature between 15-70°C in water
<b>3-</b> Constant 23°C measured, because LEDs are outside the hot water area	<b>4-</b> The temperature sensitive electrical components are out of the water zone, where the temperature is colder and more constant



### 3.12. Automatic Cycle: AutoSense

- The AutoSense software
  - Washes the dishes and detaches the dirt continuously
  - In this way the turbidity sensor can detect the degree of dirtiness
  - And will define, if additional rinses are necessary.
  - The measurements will be done continuously during the cycle.
- Temperature, water consumption and duration is adjusted to the degree of dirtiness.



#### Comparison Auto 45-70 vs AutoSense 45-70

**AUTO  
SENSE  
45°-70°**



0.6 ... 1.4kWh



7 ... 14 l



40 ... 150min

**AUTO  
45°-70°**



0.9 ... 1.6kWh



8 ... 15 l



90 ... 160min

### 3.13. XtraDry option

The XtraDry option increases drying performance and impact the following:

- Extension of the drying phase
- Higher temperature in the rinse cycle
- Increase adding of rinse aid

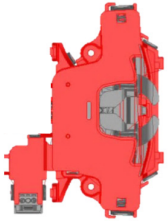
PROGRAM	DRYING PHASE	TEMPERATURE HOT RINSE	RINSE AID
Intensive 70 °C	+30min	+1 °C (70 °C)	+3 ml
Auto 45 °C - 70 °C	+30min	+1 °C (70 °C)	+3 ml
Eco 50 °C	+0min	+15 °C (70 °C)	+1,5 ml
Glass 45 °C	+30min	+5 °C (60 °C)	+3 ml
30 Min. 60 °C	+30min	+10 °C (70 °C)	+3 ml

The XtraDry option (extending time for better drying) and Time Saver option (reducing time) are not compatible.

### 3.14. Door Lock with Auto Door Opening – 2nd generation

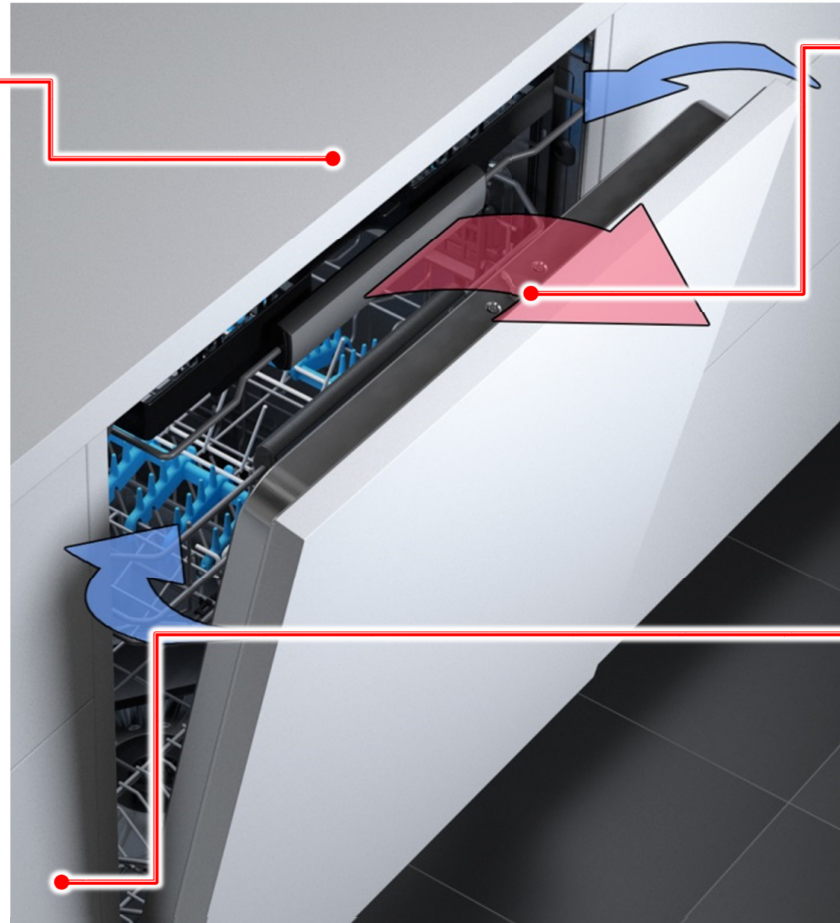
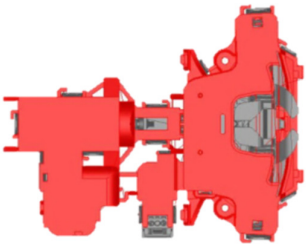
#### Doorlock

The door lock is fixed on the upper front cross bar, springs are adjusted to 50/60N.



#### Doorlock with Auto door opening

The mechanism to open the door is integrated in the locking device to guarantee process control



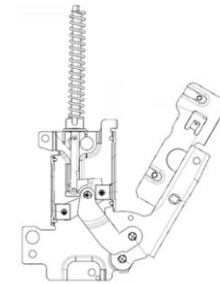
#### Diamond

Opening and Closing feeling are defined by the shape of the diamond sitting in the door



#### Hinges

After the locking is disengaged the hinges balance the door at 10 cm opening, to guarantee air flow for drying efficiency and furniture protection.



## Auto door opening (ADO) – working description

When the machine is done with the washing cycle, the door will open:

- The Wax motor in the auto door opening (ADO) is activated
- Latest 2min later the door lock release the door.
- The door falls through the weight of the door itself to 10cm opening, because the hinges are balanced for 10cm opening.
- The 10 cm opening allows for faster exchange of moist and dry air, and provides better drying performance.
- When the drying is done, the machine beeps. The door remains open even after the cycle is finished.

The door opens during the program at the drying phase. The cycle when the door opens is not finish yet. The time from the moment the door opens until the end of the program depends on the selected program. For most of the programs it is 5min, for quick cycle it is 2min, and for Eco program it is 80min. On the Auto program it is from 0 to 5 min.

The Auto door opening (ADO) is default on with option AirDry enabled.

The consumer may deactivate AirDry option on user mode for:

- Child safety feature
- Protection of the kitchen furniture, if customer is unsure.

ADO 1st Generation  
(previous)



ADO 2nd Generation  
(current)



Increased opening allows for faster exchange of moist and dry air

- Increased drying speed
- Decreased risk for condensation

## How to check the Auto door opening (ADO)

- Open the door
- Activate service mode
- Go to actuator position 10
- Close door
- The step test 10 must be called twice, because the test time is 60 seconds, and in most cases that's not enough time to open the door
- Check if the door opens 10cm between the upper front cross bar and inner door

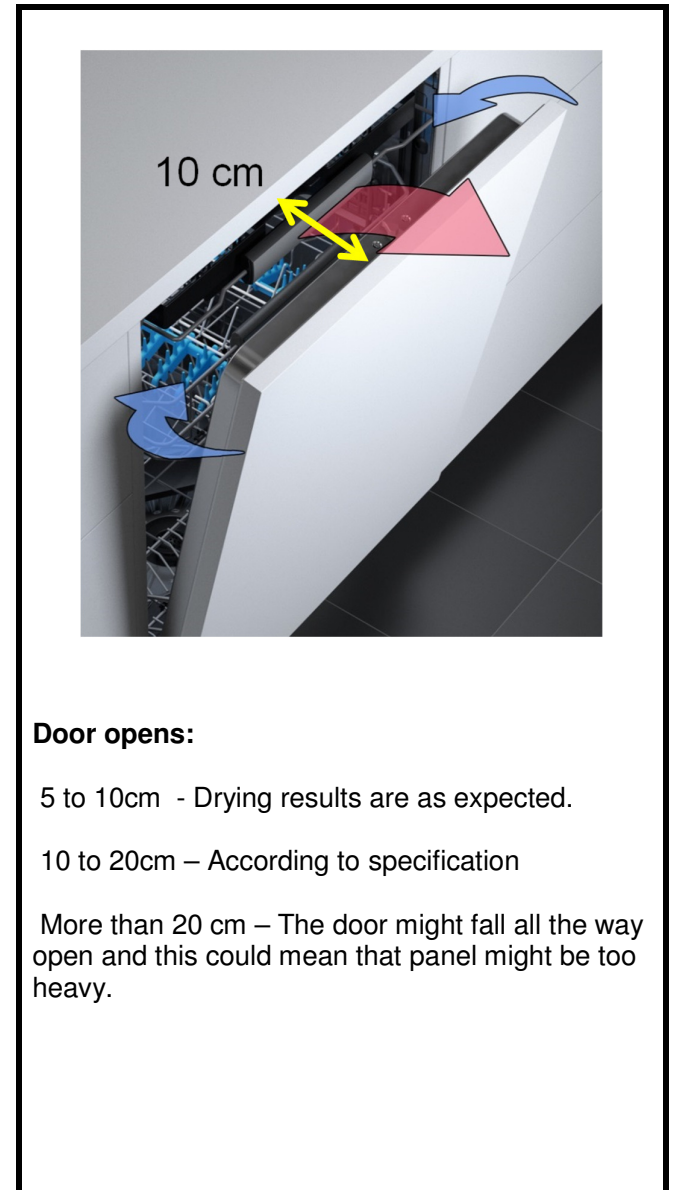
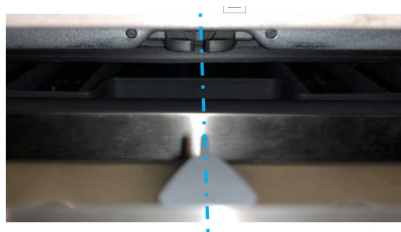
## Door not opening

- For a correct door opening the dishwashers must be installed straight and leveled.
- Check that the installed door panel or the fixation screws of it do not hit or interfere with the top or side panels of the kitchen.

## Door not closing

- Probably the Auto door opener is still active.  
The Wax motor is still warm, because it take about 3 min for cooling and allow the door to close.
- For a correct door closing the dishwashers must be installed straight and leveled.

Make sure that after installation the diamond on the top of the door is aligned with the center of the door lock of the machine.



### Door opens:

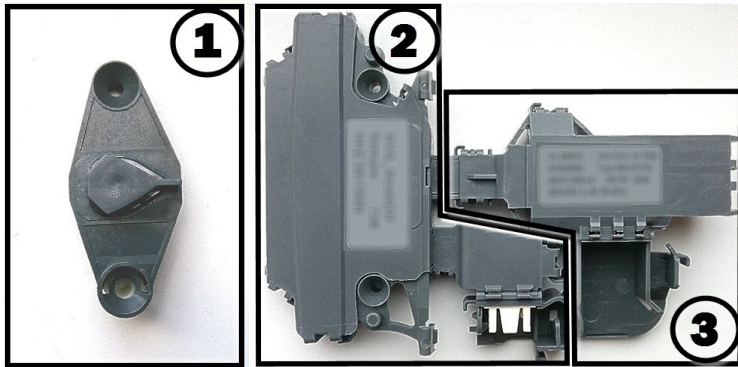
5 to 10cm - Drying results are as expected.

10 to 20cm – According to specification

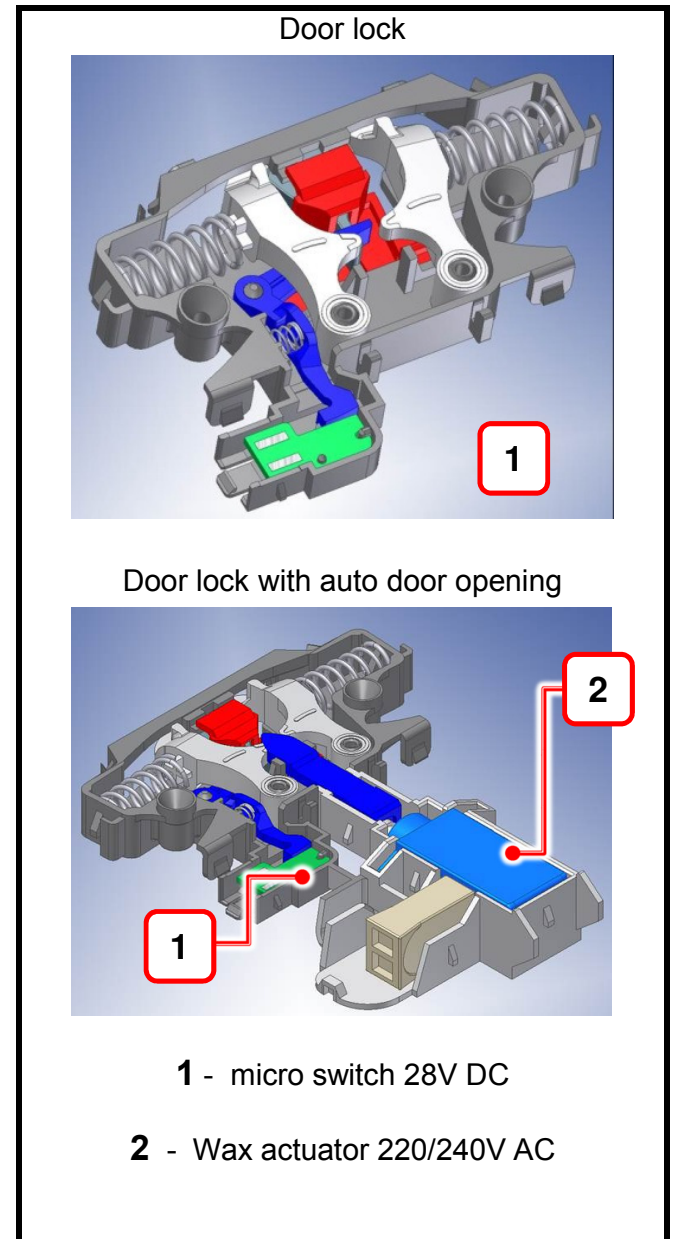
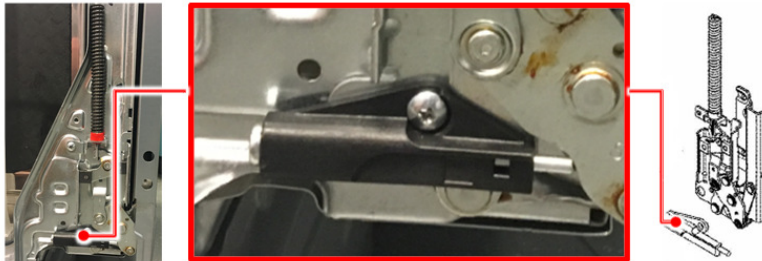
More than 20 cm – The door might fall all the way open and this could mean that panel might be too heavy.

The door lock will have in the same part also the auto door opening. The door will open because of the new door hinges. The door lock, auto door opening and door hinges allow this new integrated system for better drying performance.

- 1 – Diamond
- 2 – Door lock
- 3 – Auto door opening



On fully integrated models there is a “pusher” (damper) located on the hinge to assure that the door goes open.



Door lock with auto door opening

1 - micro switch 28V DC

2 - Wax actuator 220/240V AC



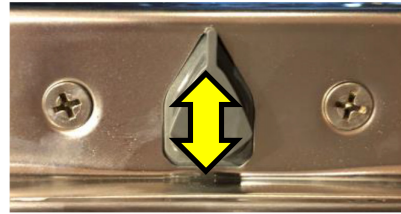
The diamond is fixed on the door, and it's possible to adjust the diamond position.

### How to adjust the Diamond position

- Loosen the right screw of the diamond until it spins.
- Do **not** loosen the left screw at the same time.
- Push downwards with the screwdriver on the screw to loosen the clamping lever.



- Lift up the diamond between 2 fingers.
- Push forward or backward (according to needed adjustment)
- Push down until locked in position.



- Fix the right screw again to lock the diamond.



If door is hard to keep closed: adjust diamond forward into the dishwasher.

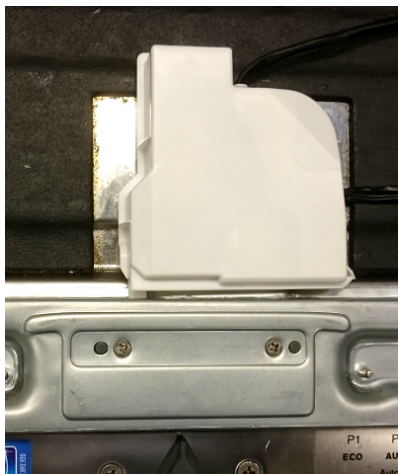
If door is closing too much: adjust out of the dishwasher.

Detail of the lever on the Diamond

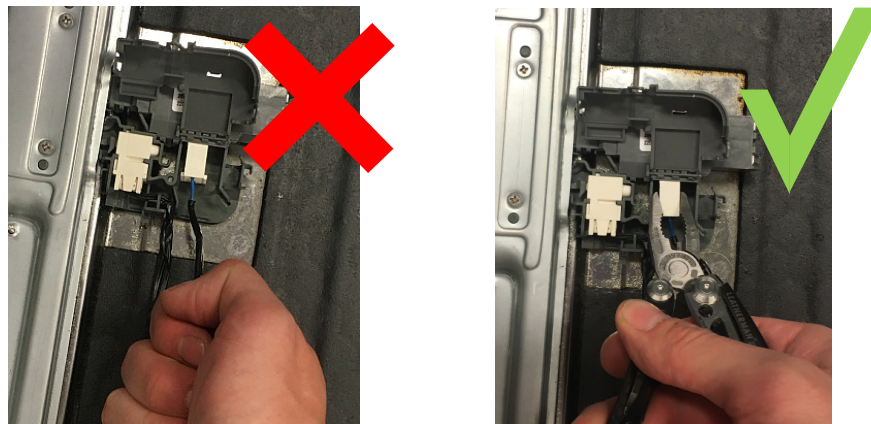


## Disassembly:

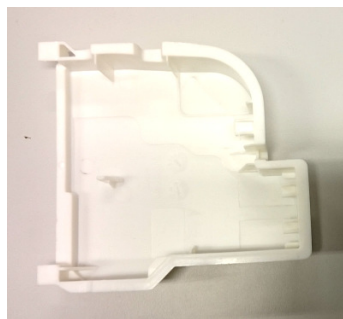
The door lock is snapped and fixed with 2 screws on the upper front cross bar, to exchange it, the crossbar has to be taken.



Door lock with Auto door opening assembly



When replacing the Door lock or Door lock with Auto door opening do not Pull on the wire's – use pliers to pull off connector.



Cover of Door lock with Auto door opening

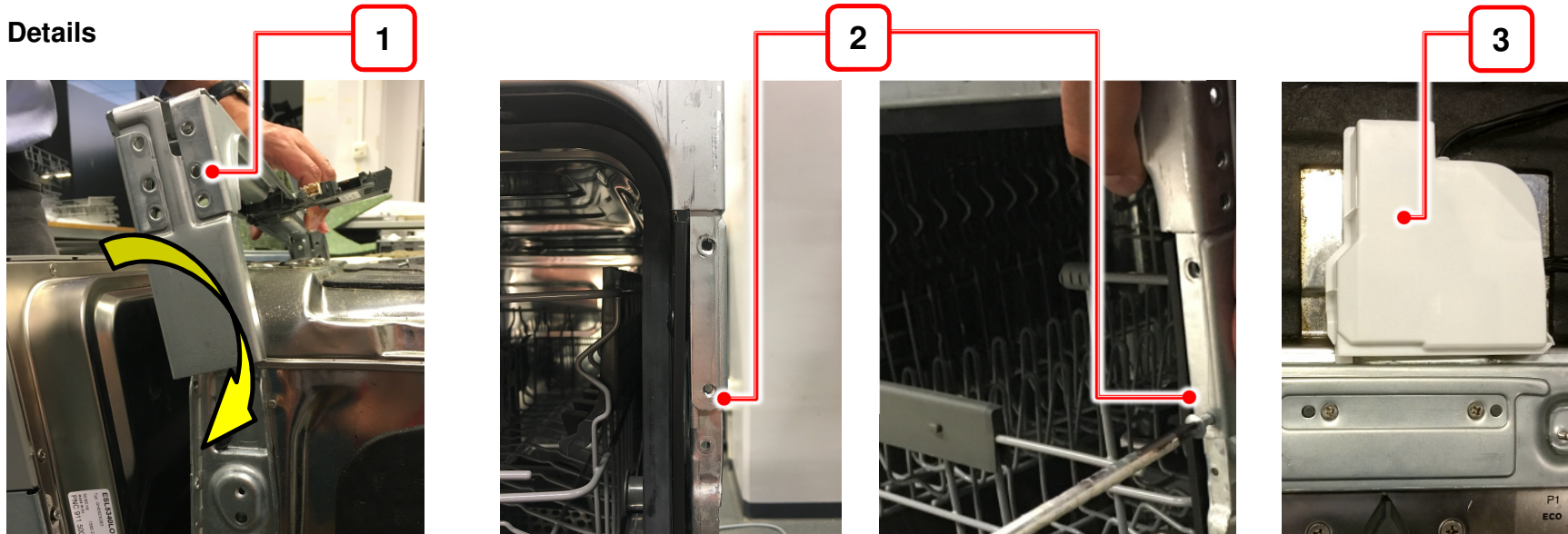


Detail of the snapped fixation with 2 screws on the upper front cross bar

## Assembly:

- Use manual screw driver to avoid overturning and damaging the screws
- Make sure wires are not twisted or damaged
- Regarding the Wax motor – polarization does not matter
- Put the wires in the cable channel
- Put the new cover of the door lock
- Functional test with Service menu after assembly

### Details



**1-** When assembling the crossbar needs to be rotated from the hingebar / tub

**2-** When assembling the crossbar, start with the front, lower screws for positioning

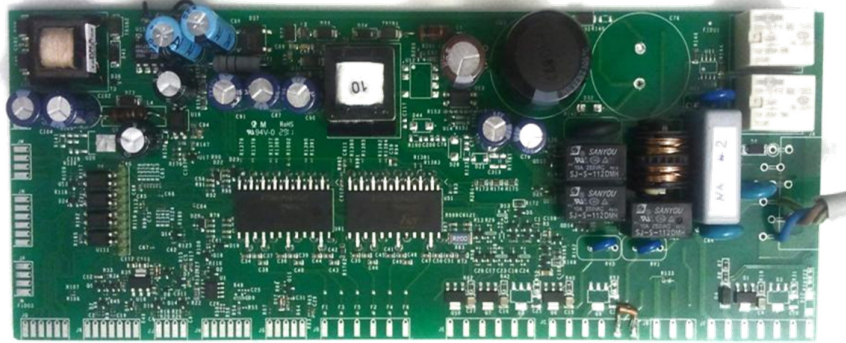
**3- Always assemble a new cover of the door lock.**

When disassembling the ADO Cover there is a risk of breaking the fixation snaps, or at least bending them, and thereby reducing the fixation force of this safety relevant component. Therefore, it is mandatory to replace the ADO Cover, once it has been disassembled, with a new part. Careful assembly is necessary to ensure the safety function of this protective cover and be aware that the snaps in the rear do not break. **Covers with broken snaps may not be assembled.**

### 3.15. Electronic Main Boards

- The main board is placed on the rear side of the appliance in the basement area.
- The electronic board is assembled in a fire protected area.
- The metal cover works as fire protection and avoids mechanical damages on the main board.

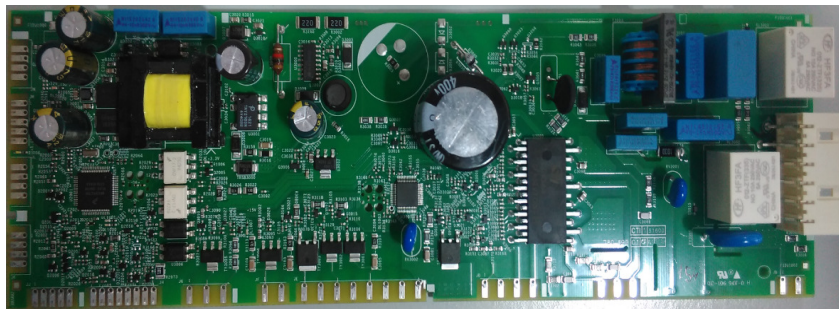
**PB 100**



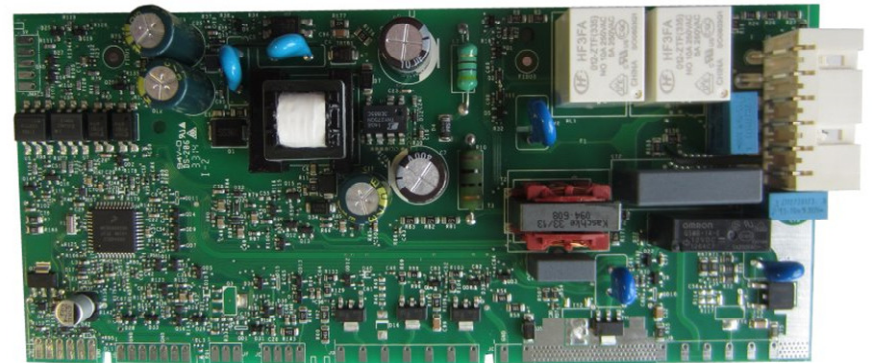
**PB 200**



**PB 150**



**PB 300**



Features possible to support (Depending on mounting option)	PB100	PB150	PB200	PB300
Existing HV main switch	Y	N	Y	N
Existing LV main switch	Y	Y	Y	N
Auto-off functionality	Y	Y	Y	Y
Future logic main switch	Y	Y	Y	Y
BLDC Wash pump	Y	Y	N	N
BLDC Drain pump	Y	N	N	N
Async Wash pump	N	N	Y	Y
Sync Drain pump	N	Y	Y	Y
Wash pump Taco input	N	N	Y	Y
Safety isolated low voltage UI interface	Y	Y	Y	Y
Auto Door Opener (ADO)	Y	Y	N	Y*
Integrated main filter	N	Y	Y	Y
Integrated LV tub lights driver	Y***	Y***	N	N
Leakage Switch	Y	Y	Y	Y
Flow control	Y	Y	Y	N
Existing HV dispenser	Y	Y	Y	Y
Low voltage dispenser	Y	Y	Y	Y
Inlet valve	Y	Y	Y	Y
Regeneration valve	Y	Y	Y	Y
Pressure sensor	Y	Y	Y	Y
Salt sense	Y	Y	Y	Y
Rinse sense	Y	N	Y	N
Display on Floor (DOF)	Y	Y	Y	N
Beam on Floor (BOF) 2-colour	Y	Y	Y	N
DAAS	Y	Y	Y	Y
Extra MACS connector for future modules	Y	Y**	Y**	N
JTAG IF to microcontroller for development	Y	Y	Y	Y
*= PB300 updated with ADO support Q4 2016				
** = Can not be combined with DOF				
***= Only in North American variant				

## PB100

- High and Mid range covering all platforms. Supports both EU and NA via population options.
- BLDC wash and drain motors.

## PB150

- Mid and Low range. Supports EU and NA.
- BLDC wash and SINC drain motors.

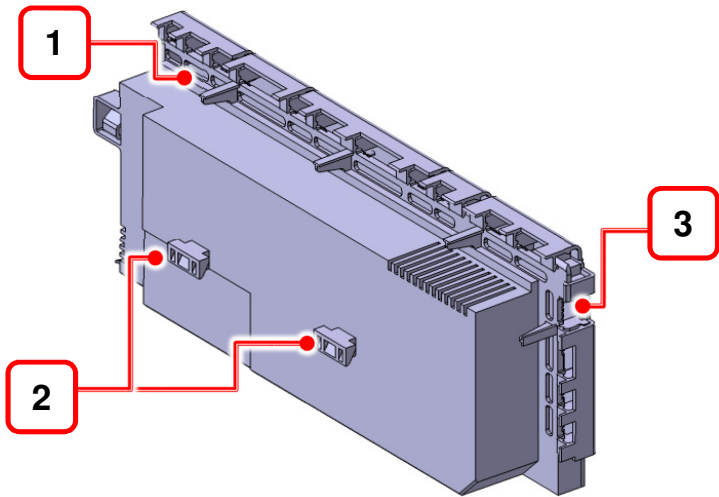
## PB200

- Mid and Low range. Supports EU.
- ASYNC wash and SINC drain motors.

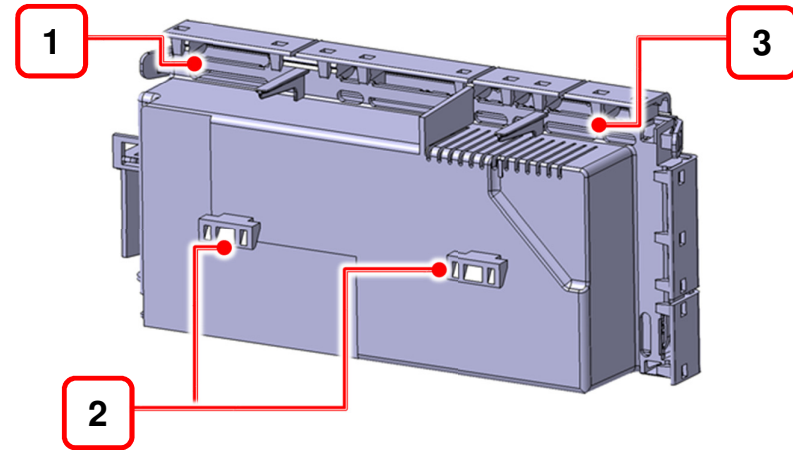
## EDW-PB300

- Low range. Supports EU.
- ASYNC wash and SINC drain motors.

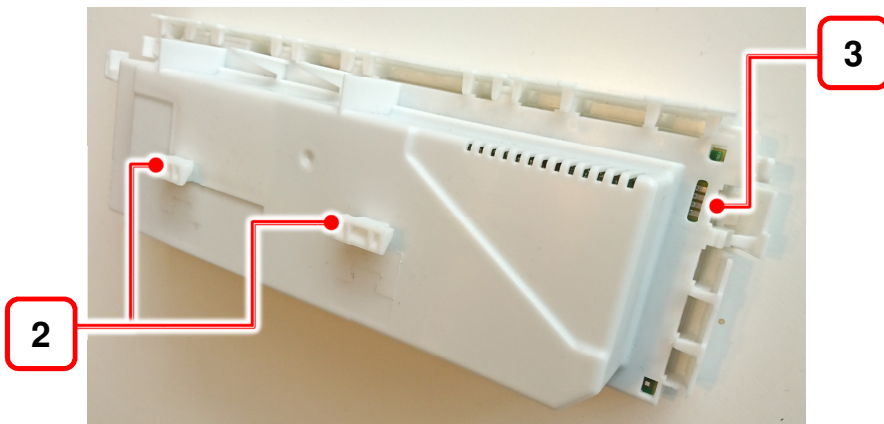
**Electronic Box for Main Board PB100 / PB200**



**Electronic Box for Main Board PB300**



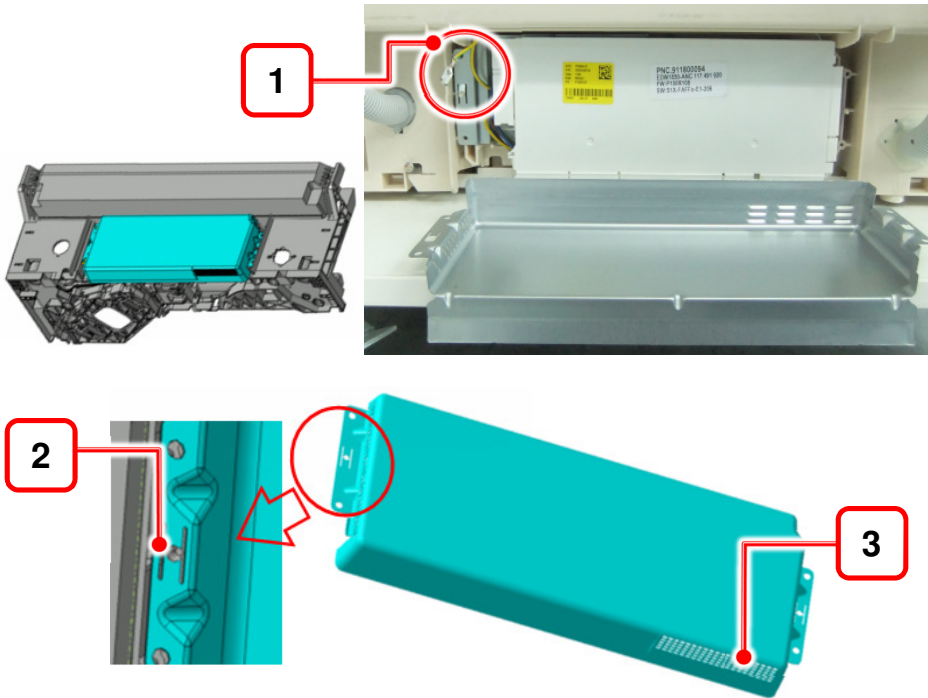
**Electronic Box for Main Board PB150**



<p><b>1-</b> Probe-slots for testing PCB One for each connector</p>	<p><b>2-</b> Fastening hooks goes into the base and locked by ribs in lower edge of the base</p>
<p><b>3-</b> DAAS-connector position Open interface due to easy access for service and programming</p>	

## Metal cover for Main Board

The metal cover is a fire shield and protects the electronics from mechanical stress.

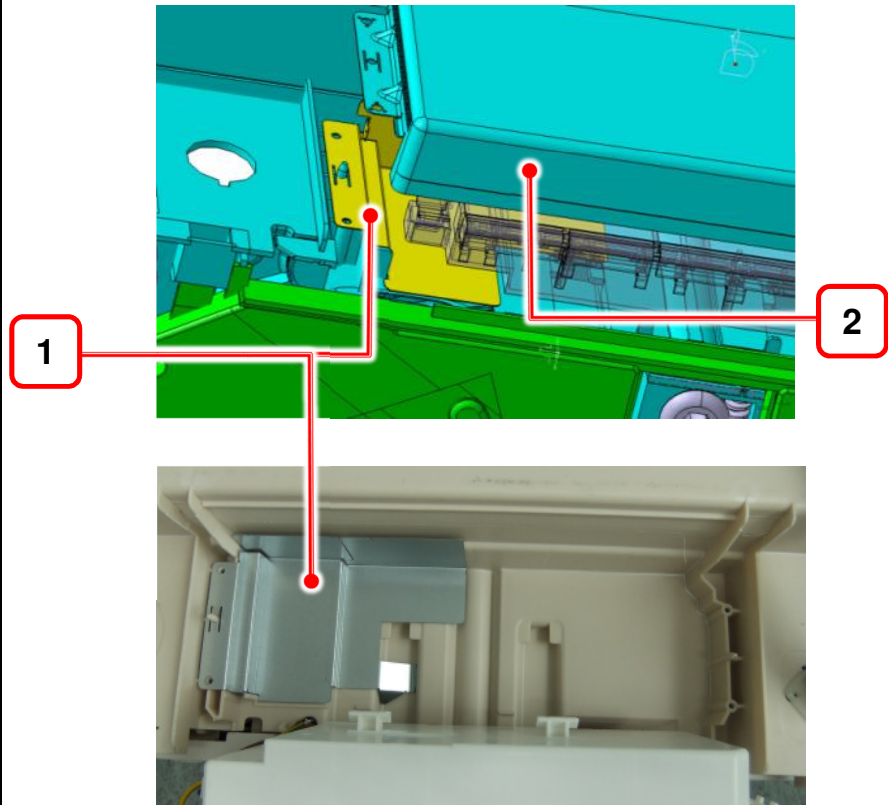


**1-** The yellow/green wire must be connected to the metal cover when the part is put back in position

**2-** Hole for pin, holding cover in place before screwing it to the base

**3-** Holes for ventilation

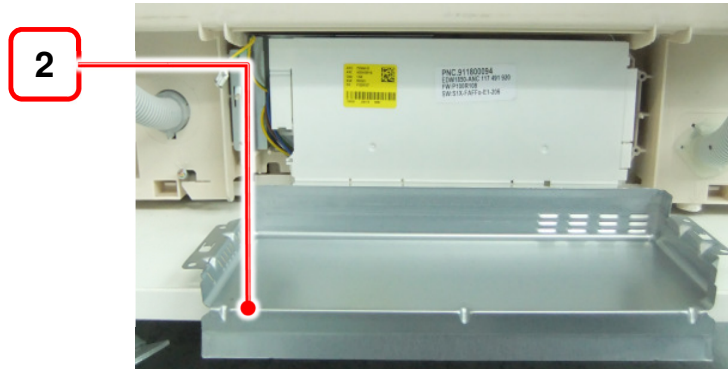
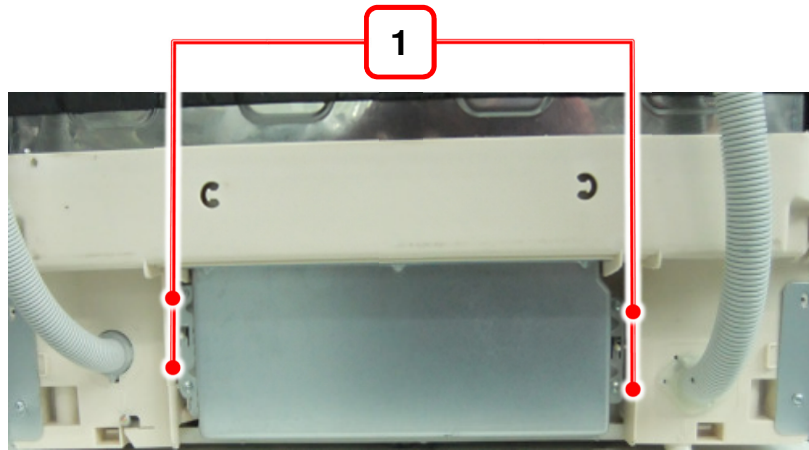
## Inner fire shield



**1-** Inner fire shield

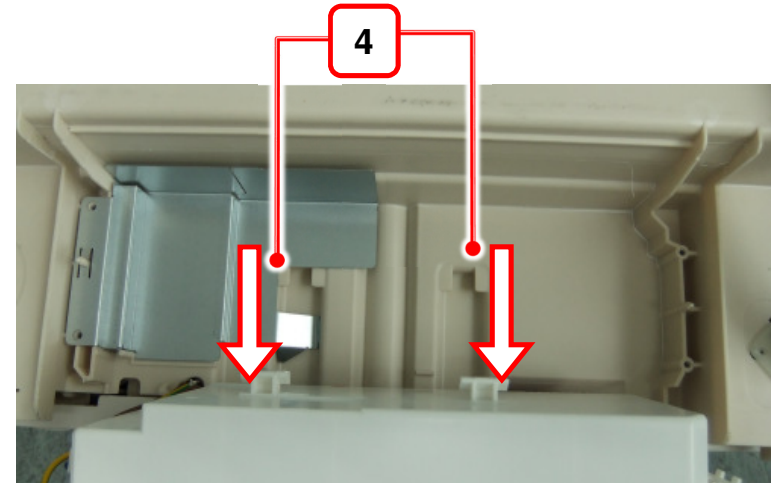
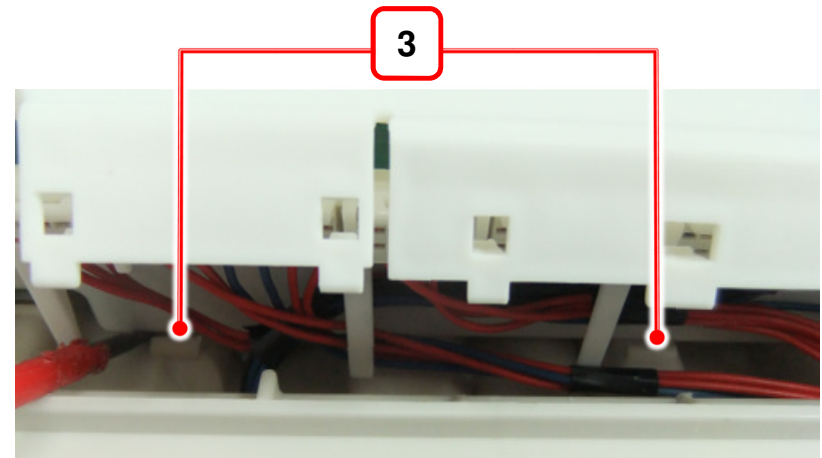
**2-** Metal cover to be assembled on top of electronic box

## Main board disassembly



**1-** Remove 4 screws from the cover

**2-** Remove the metal cover



**3-** Unlock the 2 hooks

**4-** Pull the main board box downwards



### 3.16. Components check

PARTS	PB100 BLDC LEAD CONNECTIONS	PB150 BLDC LEAD CONNECTIONS	PB200 ASY LEAD CONNECTIONS	PB300 ASY LEAD CONNECTIONS	CORRECT VALUE	REMARKS
POWER CABEL	A5 ↔ L	A5 ↔ L	A5 ↔ L	A5 ↔ L	0 Ω	
	A6 ↔ N	A6 ↔ N	A6 ↔ N	A6 ↔ N	0 Ω	
ON/OFF SWITCH	E5 ↔ E6	↔	D5 ↔ D6	↔	0 Ω	
AUTO OFF COMMAND	E3 ↔ E4	↔	D3 ↔ D4	↔		
					130 Ω ± 8%	DW off
Heating ELEMENT <b>2040W</b> + Safety THERMOSTAT	A2 ↔ A1	A2 ↔ A1	A2 ↔ A1	A2 ↔ A1	25.9 Ω + 11.1% - 4.7%	Serial connection 2040W
Heating ELEMENT <b>1800W</b> + Safety THERMOSTAT	A2 ↔ A1	A2 ↔ A1	A2 ↔ A1	A2 ↔ A1	28,7 Ω +/- 5%	Serial connection 1800W
DOOR SWITCH	N5 ↔ N6	↔	M5 ↔ M6	↔	0 Ω	Door closed
DISPENSER	E1 ↔ E2	( F1 ↔ F2 )	D1 ↔ D2	D1 ↔ D2	3900 8%	PB150 -> AC dispenser
RINSE AID SENSOR	J1 ↔ J2	↔	J1 ↔ J2	↔	0 Ω	Without Rinse Aid
					INFINITE	With Rinse Aid
SALT SENSOR	J4 ↔ J3	H8 ↔ H7	J4 ↔ J3	E1 ↔ E2	0 Ω	Without Salt
					INFINITE	With Salt
TEMPERATURE SENSOR	L4 ↔ L5	H1 ↔ H2	K4 ↔ K5	G4 ↔ G5	4836 Ω ± 2.5%	At 25 °C
					915 Ω ± 4%	At 70 °C
TACHO SENSOR			G3 ↔ G1	E4 ↔ E3	223 Ω ± 5%	The motor has stopped
REGENERATION solenoid valve	G4 ↔ G3	E4 ↔ E3	F4 ↔ F3	D7 ↔ D6	3800 Ω ± 8%	
FILL solenoid valve	G1 ↔ G2	E5 ↔ E6	F1 ↔ F2	D4 ↔ D5	4100 Ω ± 10%	solenoid valve in fill pipe
					3750 Ω ± 10%	solenoid valve in base
<b>ASY</b> WASHING MOTOR			B4 ↔ B3	B6 ↔ B5	95 Ω ± 7%	ASY Motor
<b>BLDC</b> WASHING MOTOR	H4↔H5↔H6	C1↔C2↔C3			56 Ω +5/-10%	BLDC Motor (phase-to-phase)
<b>ASY</b> DRAIN MOTOR + Anti-flooding		E7 ↔ E8	B1 ↔ B2	B1 ↔ B2	230 Ω ± 8%	Serial connection
<b>BLDC</b> DRAIN MOTOR	H1↔H2↔H3				93 Ω ± 10%	BLDC Motor (phase-to-phase)
FLOW CONTROLLER	F1 ↔ F2	G1 ↔ G2	E1 ↔ E2	↔	10400 Ω ± 8%	Motor
	F1 ↔ F3	G1 ↔ G3	E1 ↔ E3	↔	0 / INFINITE	Micro-switch