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EN

Dishwashers with electronic
 control system

Millennium 2G

55 cm

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1. Purpose of this manual

The purpose of this Service Manual is to provide Service Engineers with technical information regarding the new range of “Millennium 2G” 55 cm dishwashers and to give a description of the service functionality.

This Manual describes:

- General characteristics
- Technical characteristics
- Guide to diagnostics

2. Precautions

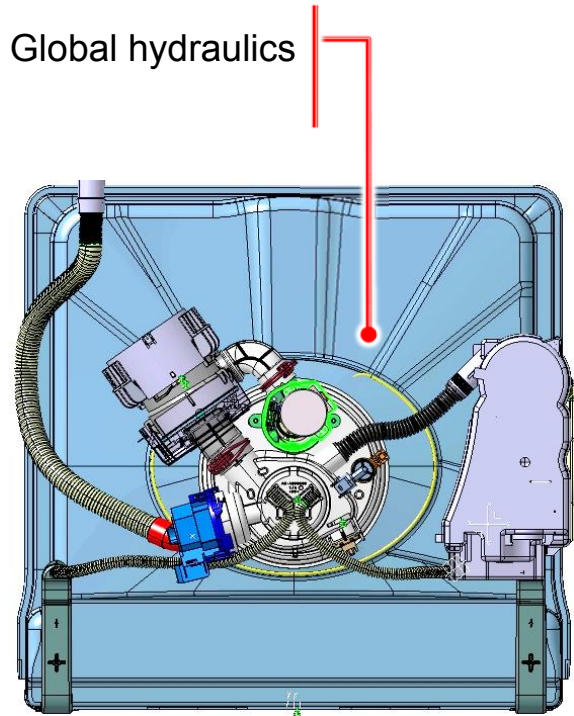
	<ul style="list-style-type: none">▪ Electrical appliances must be serviced only by qualified Service Engineers.▪ Always remove the plug from the power socket before touching internal components.
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Document Revisions

Revision	Date	Description
v0.0	12/2016	Document creation
v0.1	03/2017	Components check table and Global door lock - updated

3. Technical details

3.1. Product overview



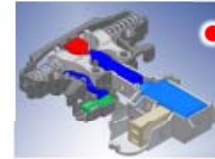
Sidekick connection possible also from the front of the appliance



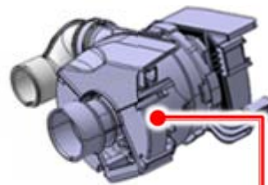
User interface located in the center

Thin inner door with Global low voltage dispenser

Global door lock with auto door opening integrated

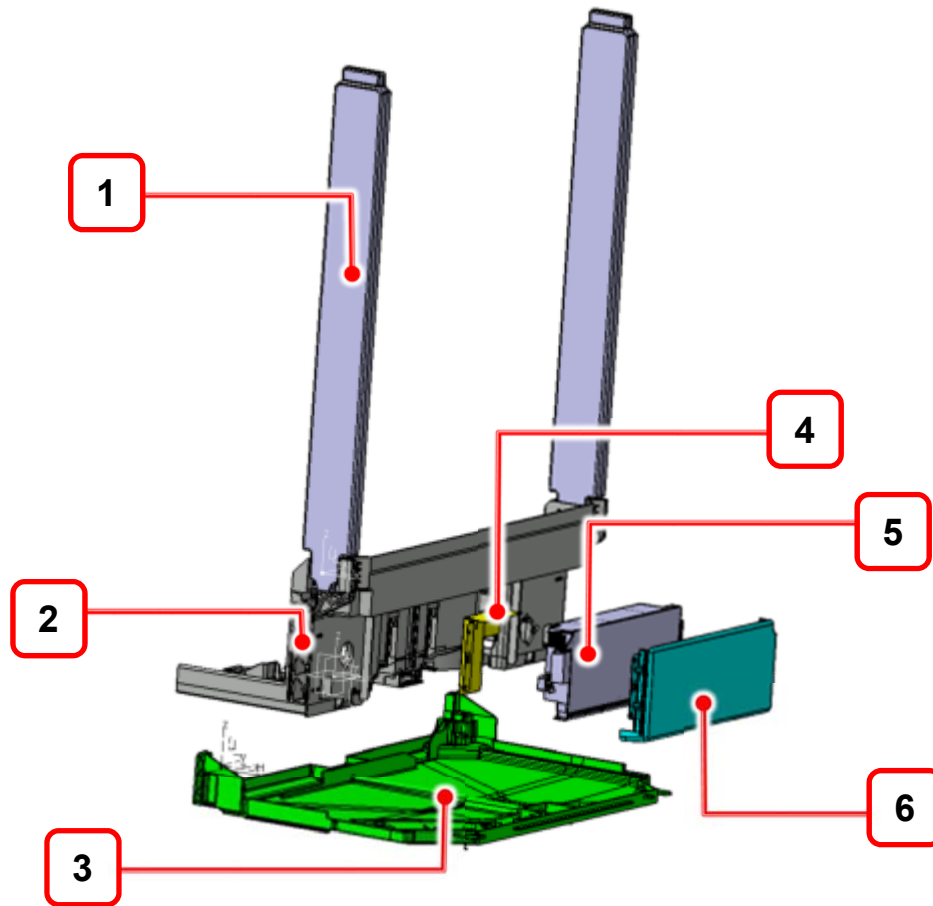


PB100 Main board



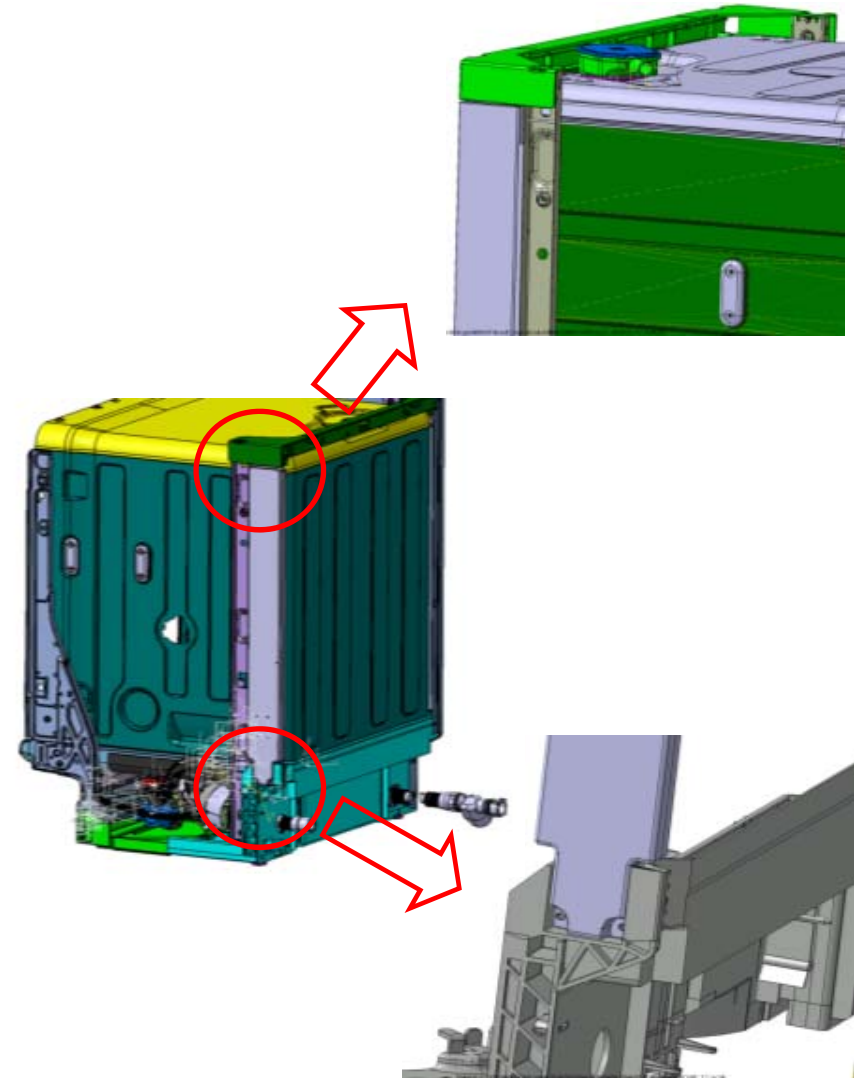
Wash pump with integrated heater

3.2. Structural Parts



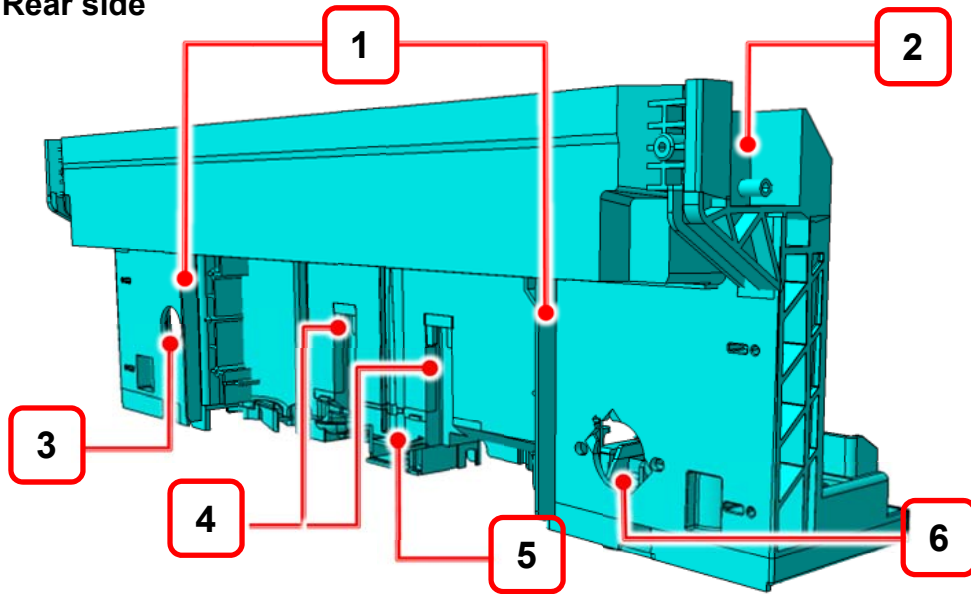
1- Counterweights	2- Base
3- Bottom tray	4- Inner fire shield
5- GMB Box (Covered in Electronic System)	6- Metal cover

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



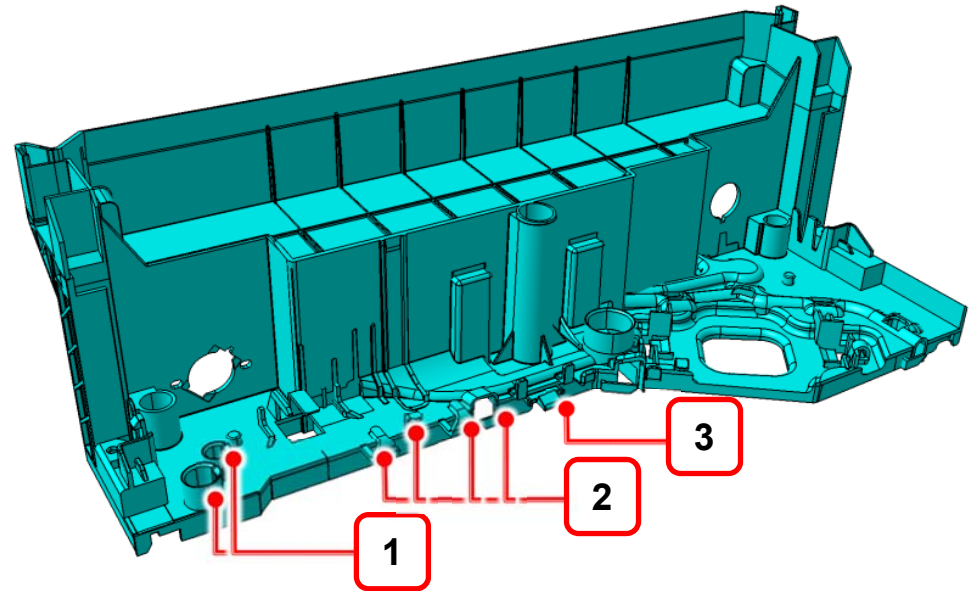
3.3. Base

Rear 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

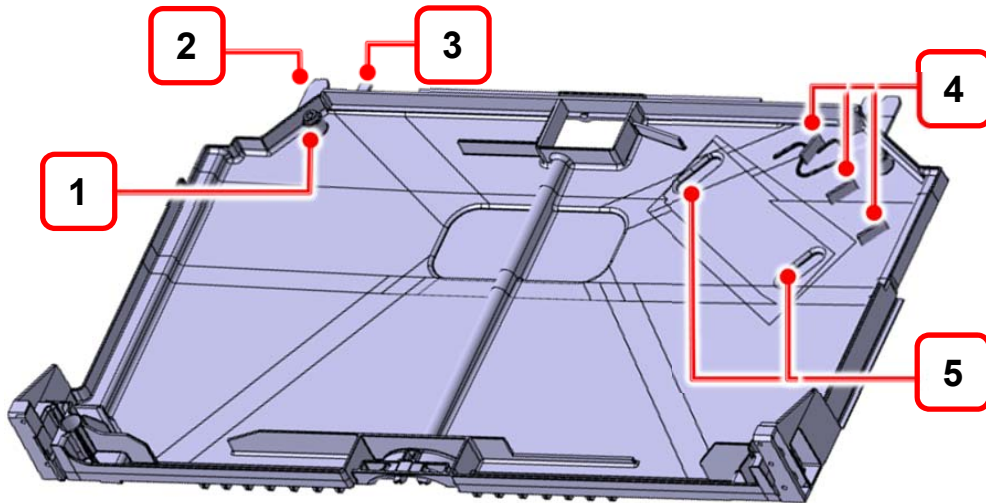
Inner side



1- Holder for active drying hose	2- Cable exit and holders for cables
3- Holder for float switch	

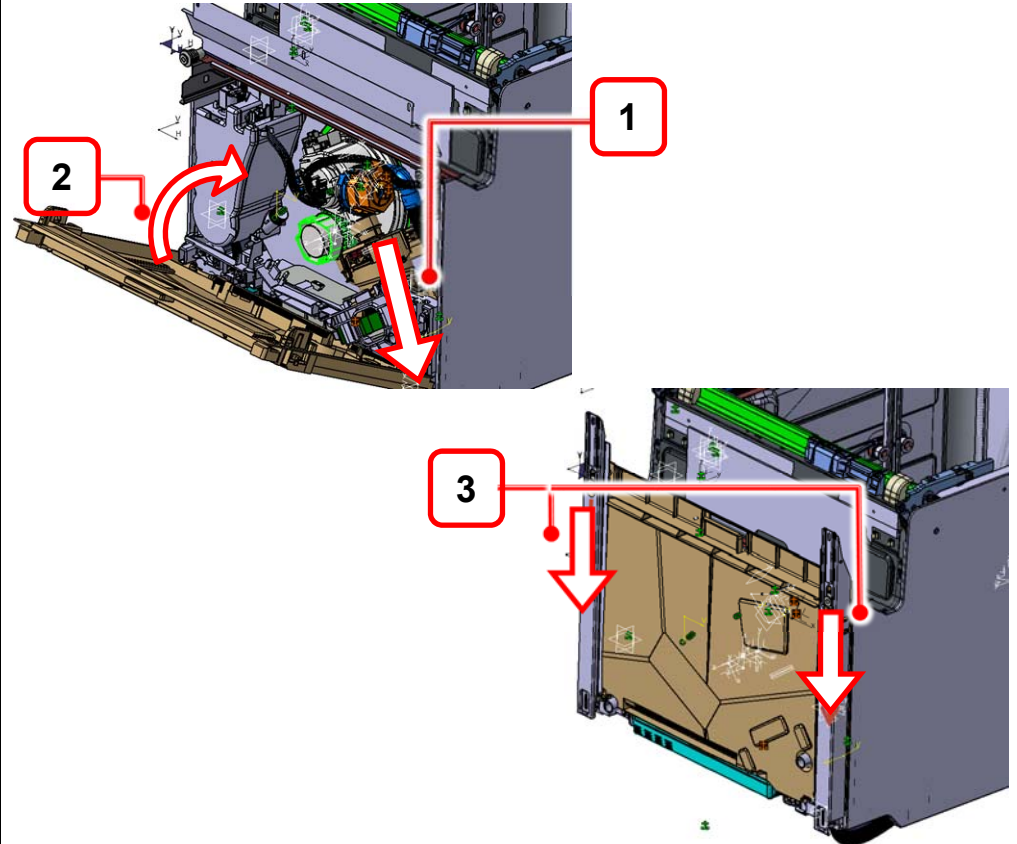
3.4. Bottom tray

Details



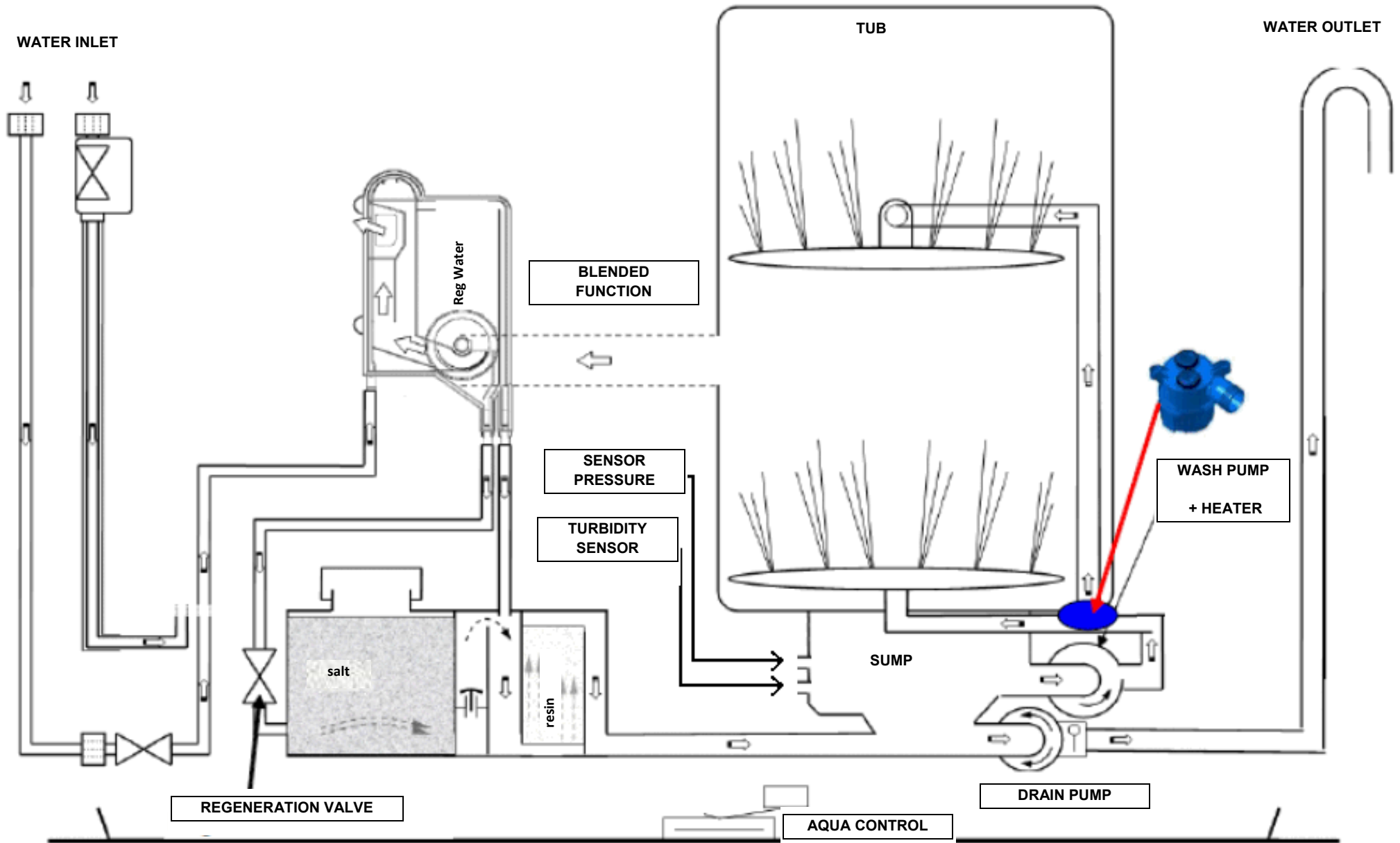
1- Screw bosses that is only planned to be backup if the snaps fails	2- Snaps for assembling tray to base
3- Ribs to help controlling the movement when assembling the tray	4- Ribs to lift cable to prevent them from reaching the water
5- Dents for rubber fixation of motor	

Assembly instructions



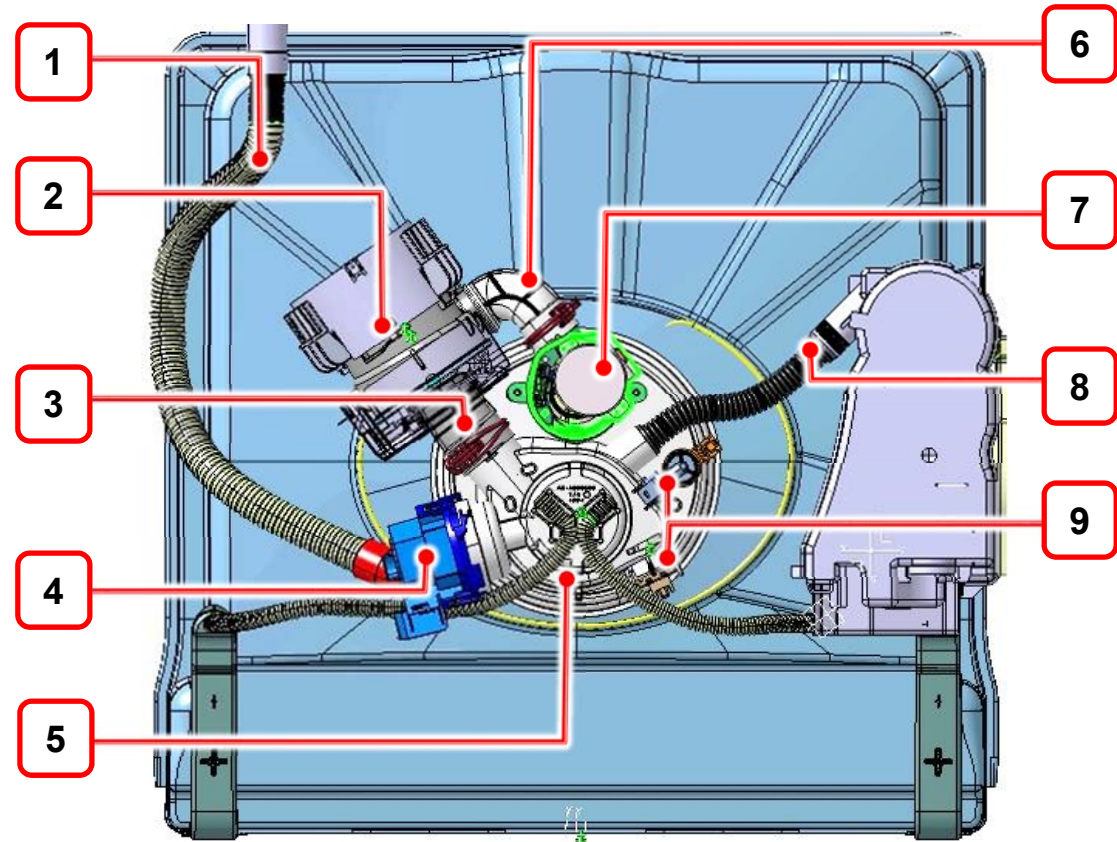
1- Insert bottom tray (without metal feet), the tabs on the tray must match the slots in the base. The tray should be horizontal if the machine lays on its back	2- Keeping bottom tray pushed inwards, rotate it into place
3- Slide on both bottom rails	

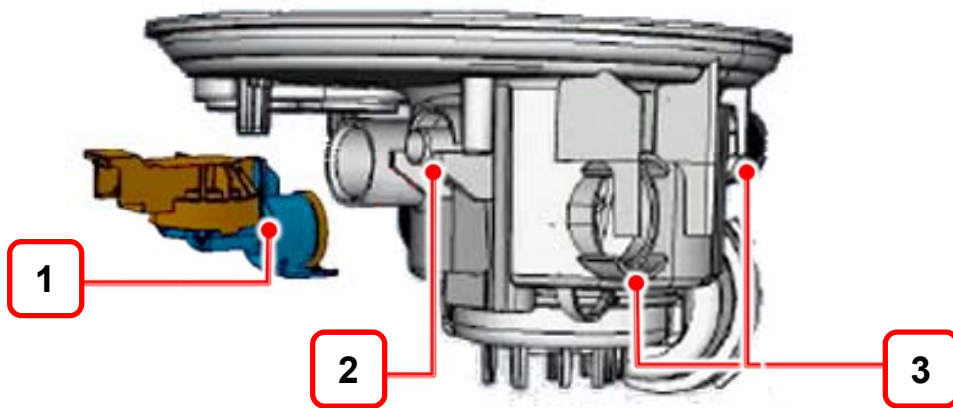
3.5. Water circuit



3.6. Hydraulic circuit

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

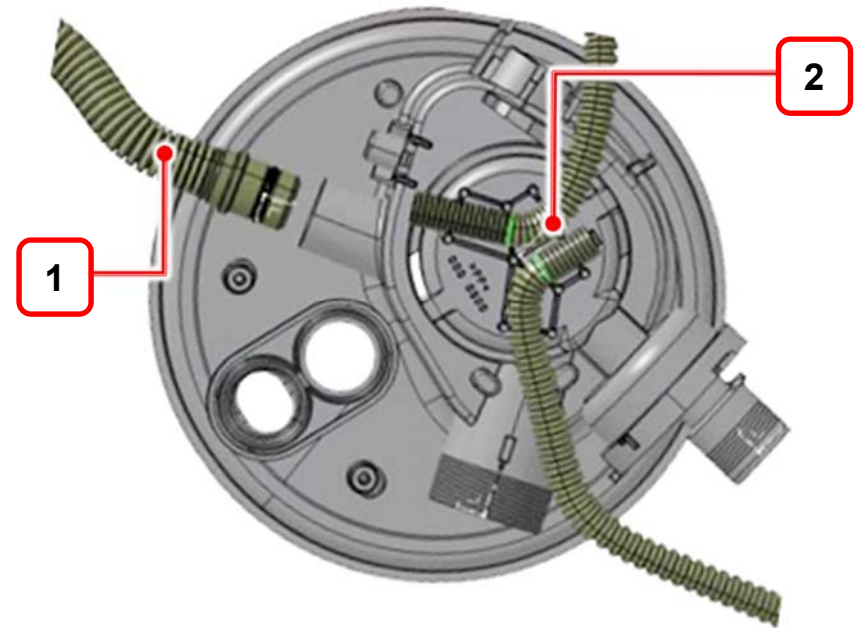




1- Pressure sensor with radial sealing

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.

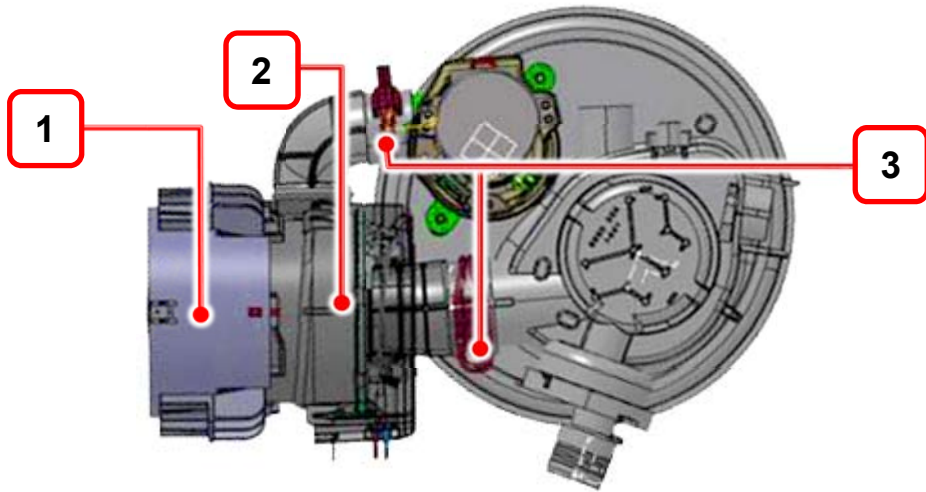
Proper assembly: must put hose to the sump and than to the softener.

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

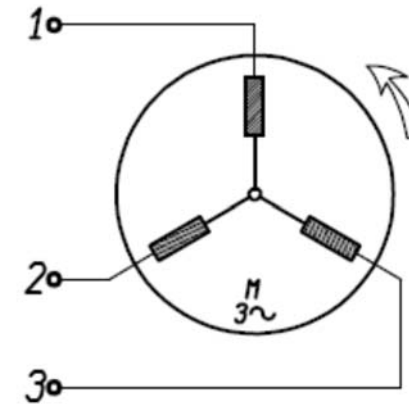
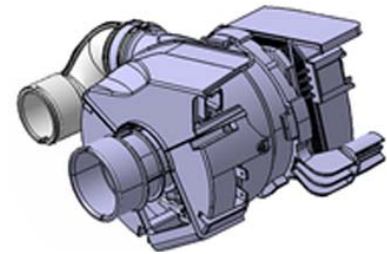
Main Pump assembly:

- 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



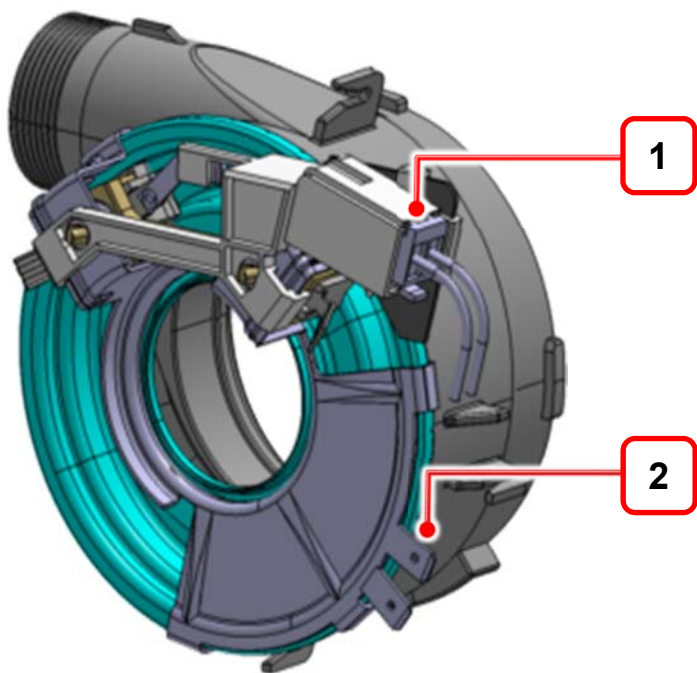
1- BLDC motor	2- Omega heater
3- Clamps	

Three phase washing pump BLDC



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

Omega heater:

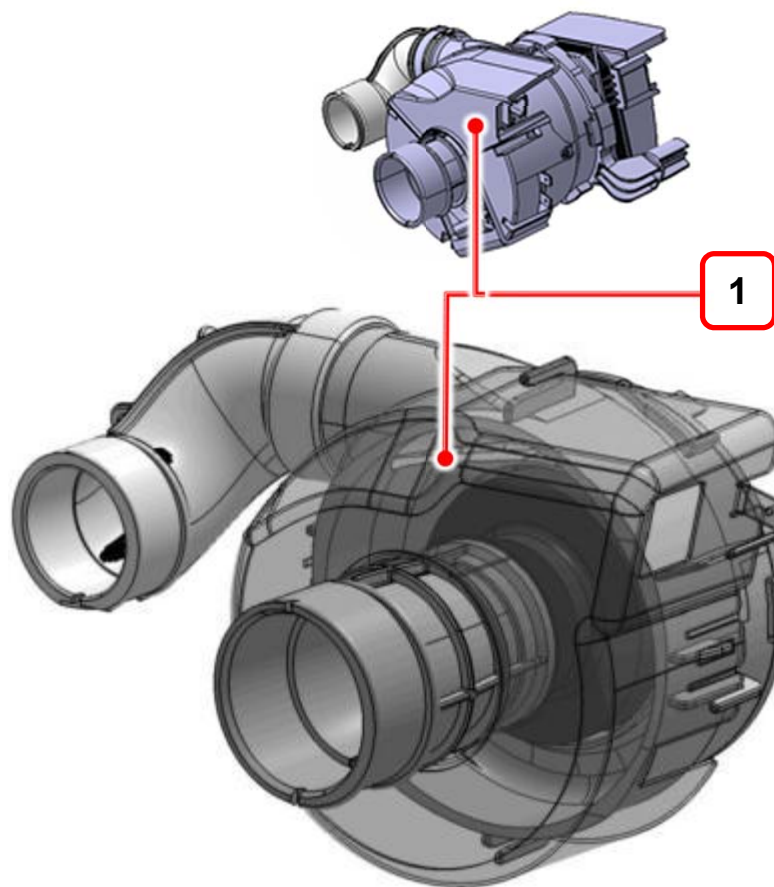


1- Electric connection of the heater

2- Ground connection

Voltage EU 220-240 V,

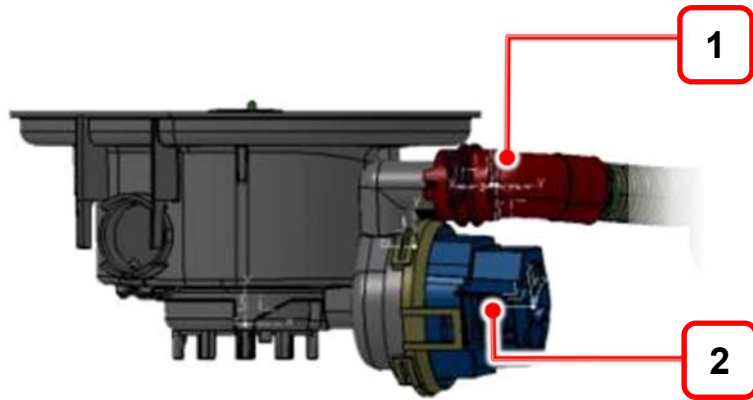
Power: 1800 W



1- Heater Cover

3.8. Sump and drain system

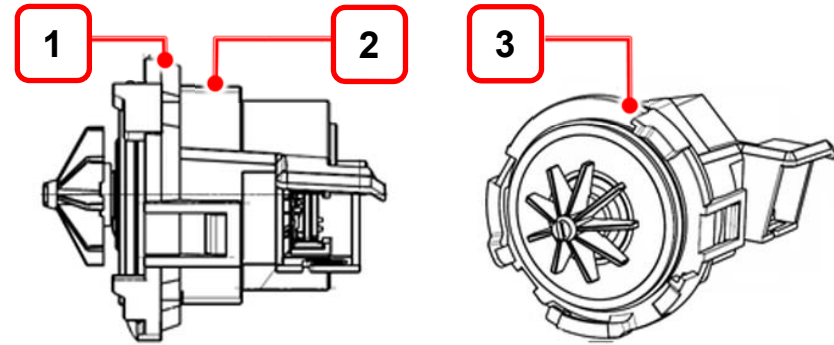
Details



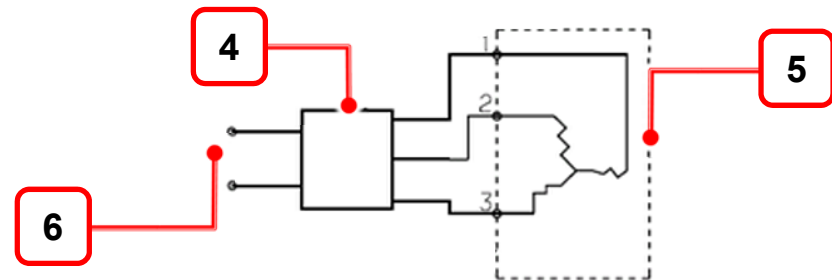
- 1- New Cuff on drain hose:
 - Clamped to drain outlet.
 - Positioned by rib in sump and ribs in cuff.

- 2- Drain pump (BLDC Motor)
 - Fixed directly in sump built-in volute using
 - Bayonete system
 - Back of protection hook provided for motors

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

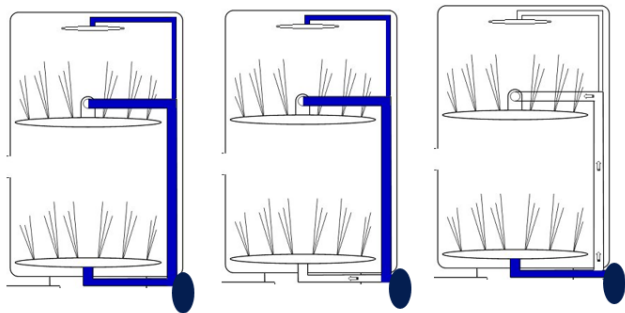
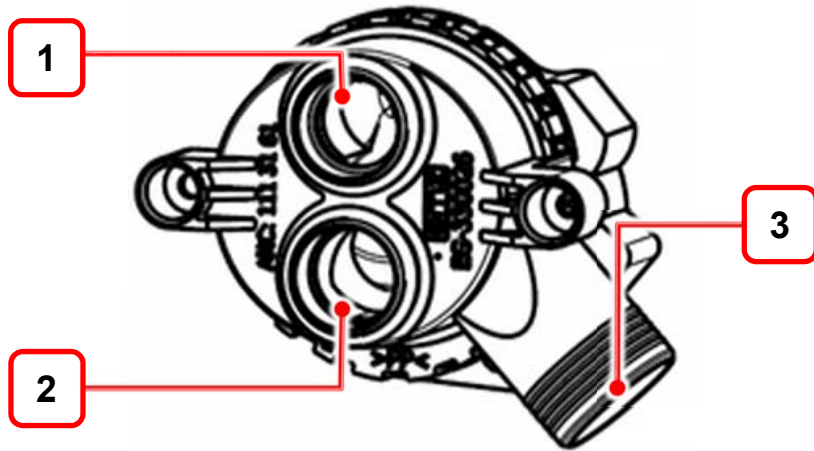


1- Cover	2- Housing
3- Triple bayonet fixation aligned into sump connector	4- Motor driver (not incl. in assembly)
5- Motor	6- Power supply

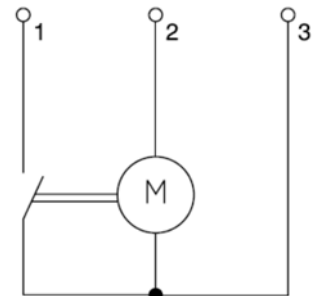
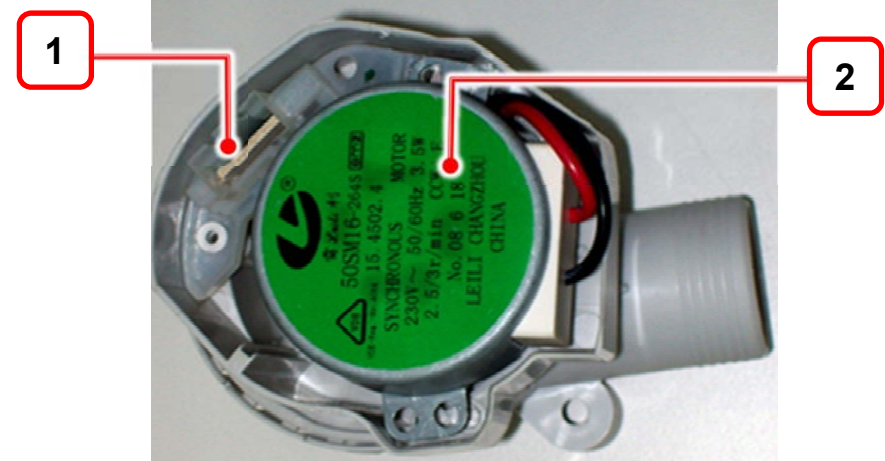
3.9. Flow controller

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.



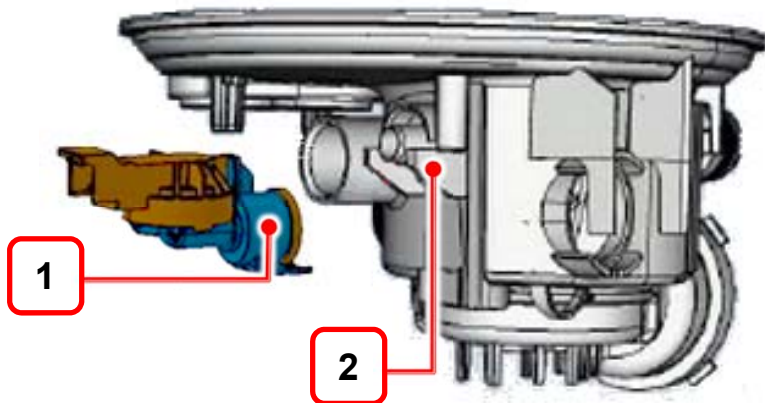
1- Water outlet to lower spray arms	2- Water outlet to upper spray arms
3- Water inlet from wash pump	



1- Micro switch	2- Synchronous motor 230V AC, 50/60Hz 2.5/3 rounds/minute Counterclockwise direction
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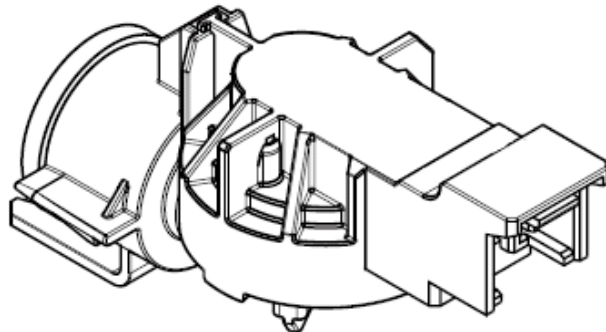
3.10. Pressure sensor

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.

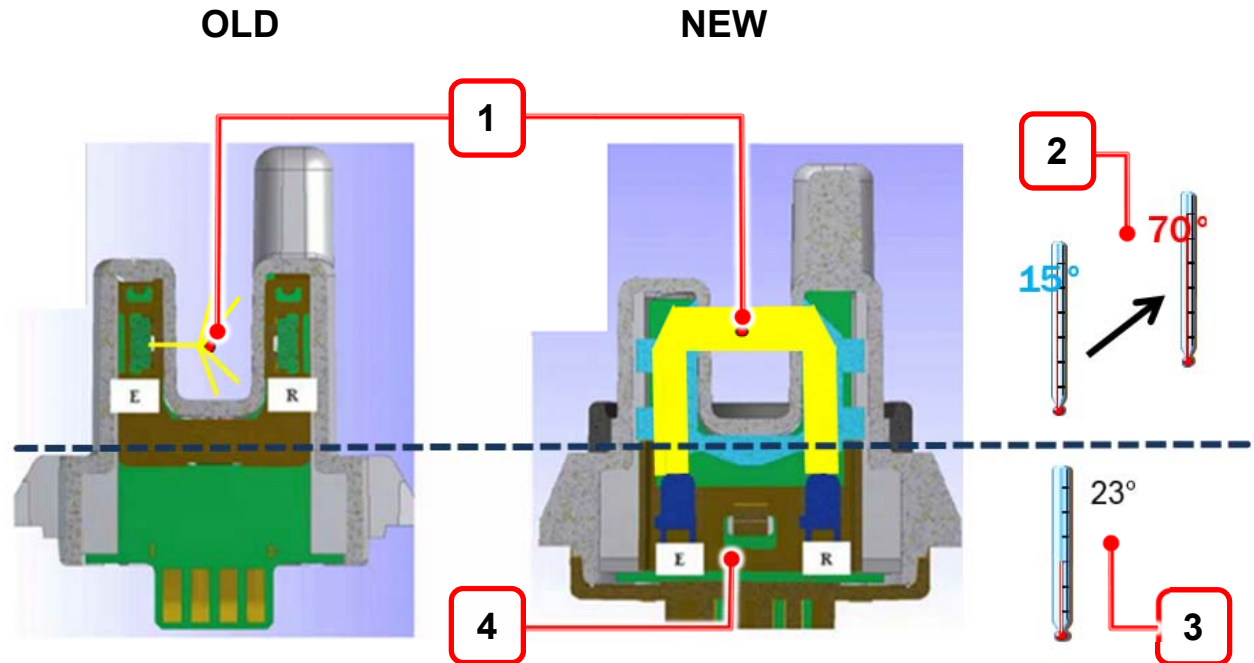
Fitted with an infra-red system for control of the turbidity of the water (i.e. the quantity of dirt in the water).

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

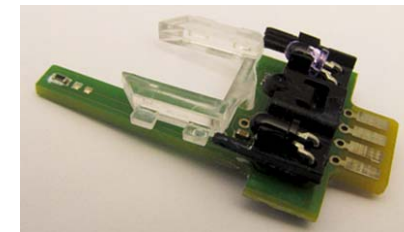
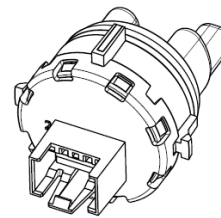
By correctly combining the signals received from the two sensors (NTC and turbidity), enables the appliance to perform "automatic" washing cycles which automatically optimize the washing cycle according to the type of load, the quantity of the load and the degree of soiling.

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



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



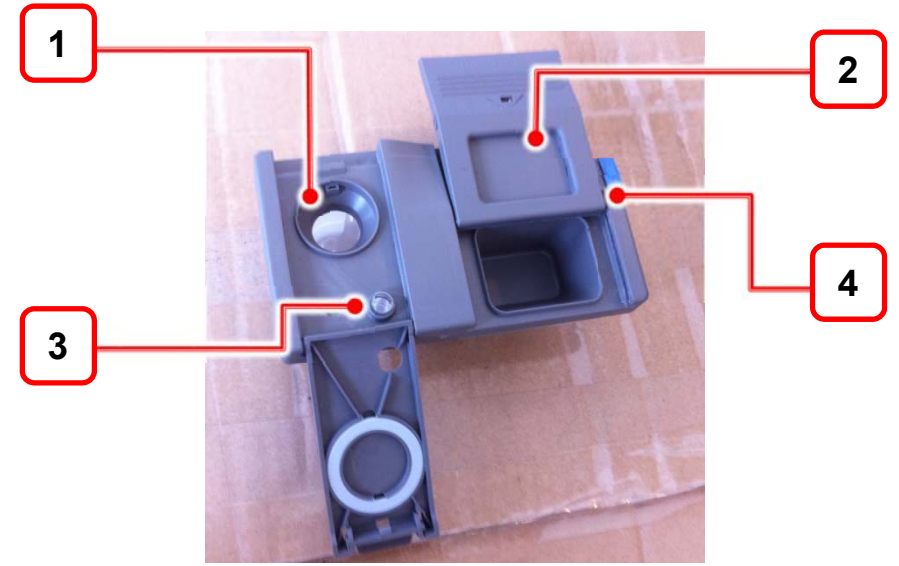
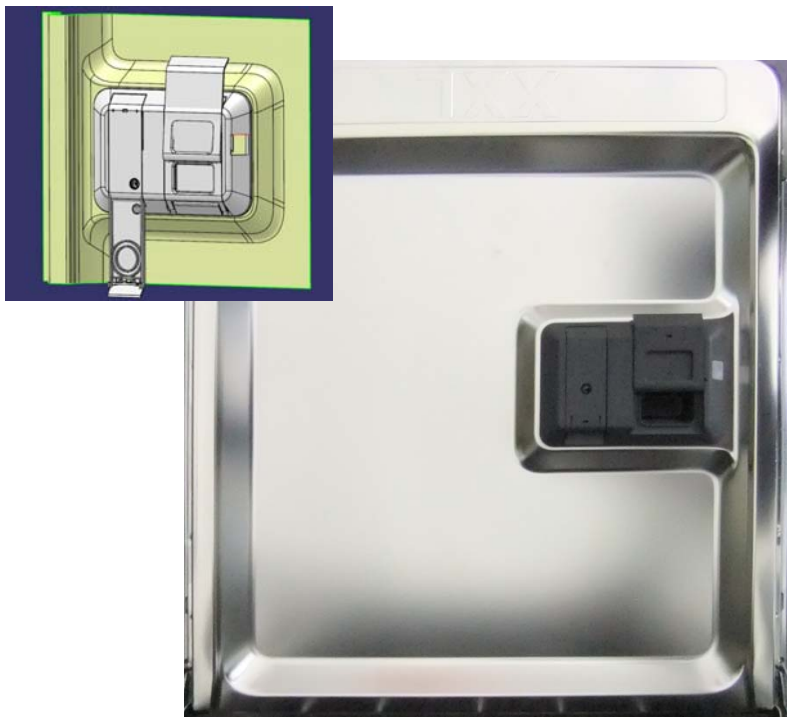
3.12. Global Dispenser

Details

The new dispenser have the following main features:

- Low voltage driving - 5VDC => Safety improvement
- Multiple dosage => Performance/Quality improvement
- Sliding lid => Performance/Quality improvement

It's present on dishwashers with "Thin inner door".
 Assembly process as today. It is screwed in to door cut out in an automated line.



1- Multi dosage -> No knob	2- Sliding door. Improved access to wash compartment and no interaction with basket.
3- Rinse aid level detection variants - Optical (Shown on picture) - Electrical (For signal to MB)	4- Activation button on side

3.13. Multi Dosage – Specification

▪ PERFORMANCE

The dosage of the rinse-aid has to be independent of the filling status of the container, as long as the refill indication isn't reached. After indicating the refill minimum for another 2 dosage cycles the nominal volume has to be guaranteed.

▪ Dosage procedure – Multiple dosage

The first activation impulse opens the detergent lid, no rinse aid should be dosed into the tub.

With each further activation impulse a dosage volume of 1,5 ml has to be dosed into the tub.

The allowed dosage time for 4 dosage cycles is max. 7 minutes.

The nominal dosage volume with 4 dosage cycles is 6 ml.

The maximum number of dosage cycles is 6.

The maximum dosage volume with 6 dosage cycles is 9 ml.

▪ Rinse aid volume

The rinse aid container must have an available volume of 120 ml \pm 3%. All dead volumes in the container have to be minimized. The design has to avoid air chambers in the container, which might influence the available volume or the exactness of the dosage.

The control LED goes on by \pm 40 ml rest of rins aid into the container.

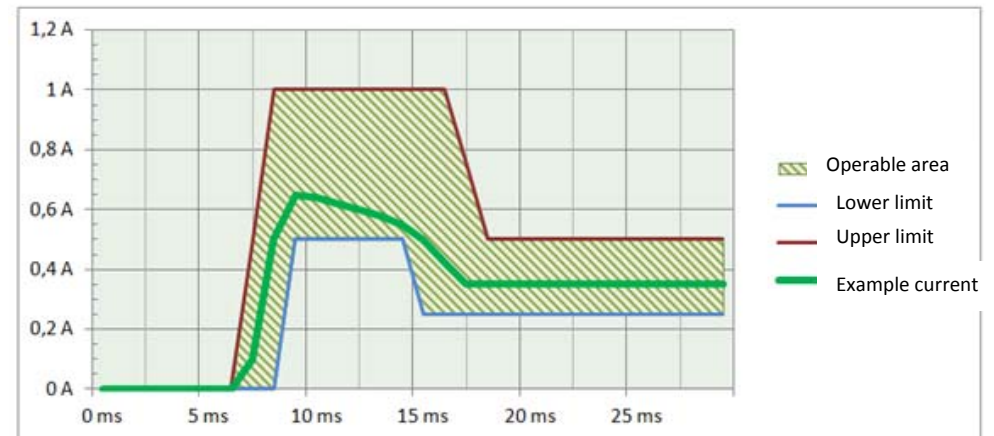
During main wash phase – Detergent lid opening:

Step	Action	Time	Purpose
1	Activation of coil	0,3 s	Opening the detergent lid to release detergent

During hot rinse phase – Rinse aid delivery:

Step	Action	Time	Purpose
1	Dosage check	-	Check if rinse aid should be delivered If 0 → no delivery the rinse aid delivery process should be stopped.
2	Activation of coil	5 s	Delivery of dose of rinse aid – 1,5ml nominal
3	Pause	10 s	Refill of dosage chamber
4	Repeat from step 2	-	Number of dosages according to set level.

Rise time	$0.5 \leq T_r \leq 4$	ms
Pulse amplitude	$0.5 \leq P_A \leq 1.0$	A
Pulse width	$5 \leq P_w \leq 15$	ms
Holding current	$0.25 \leq I_h \leq 0.5$	A

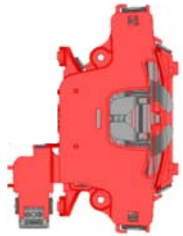


Visualization of current pulse specification

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

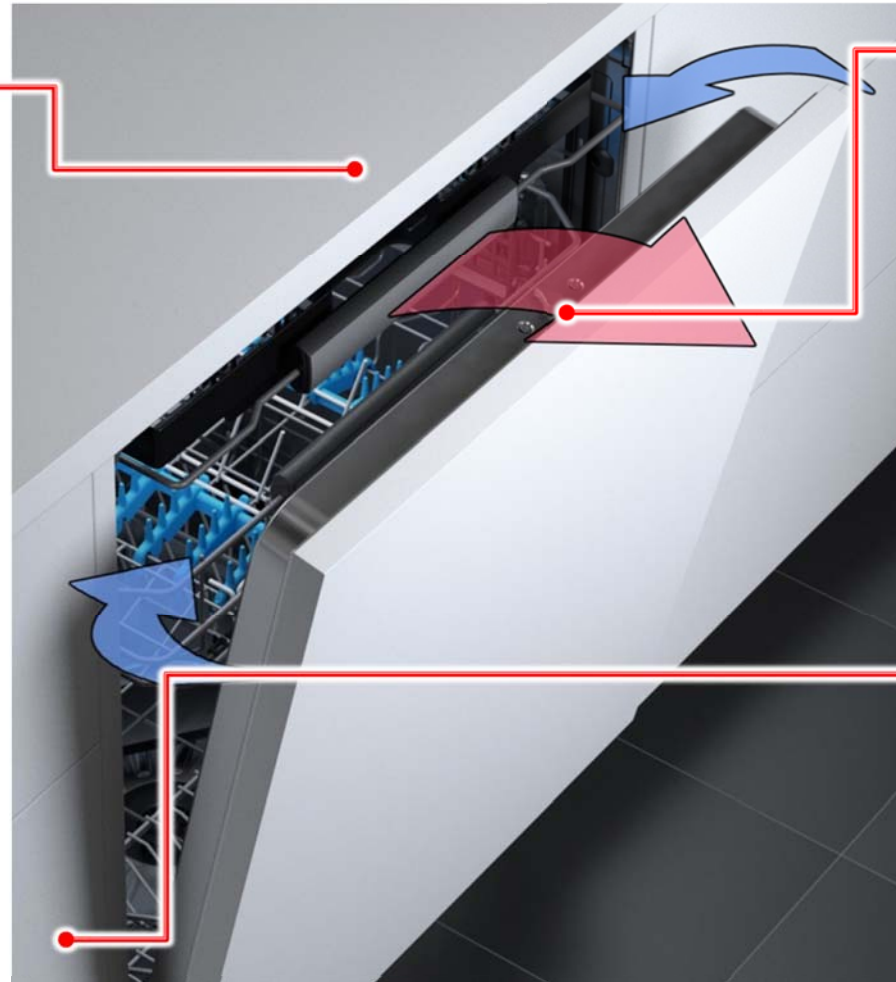
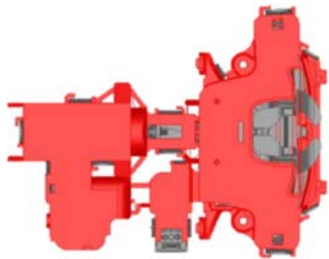
Doorlock

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



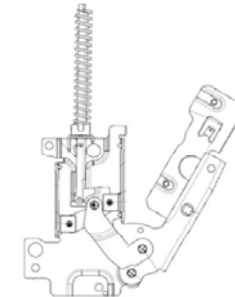
Diamond

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



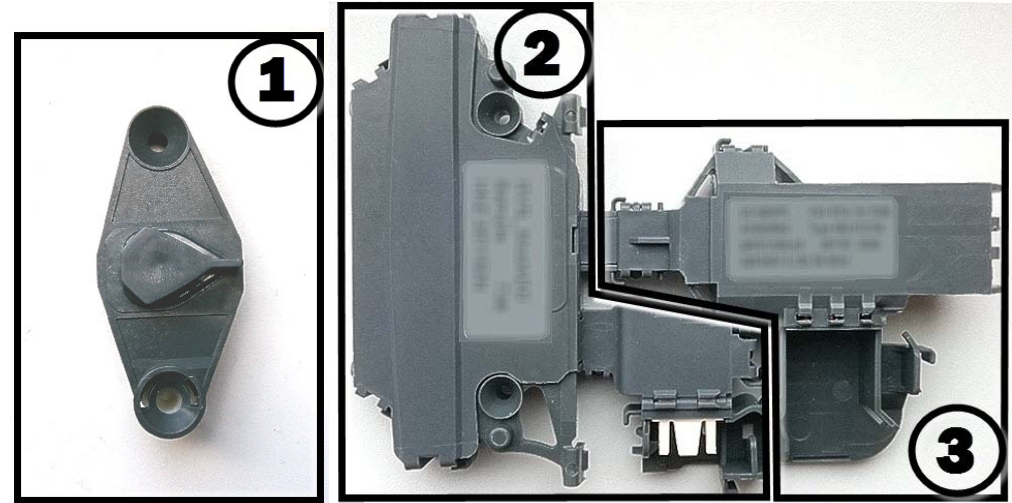
Hinges

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

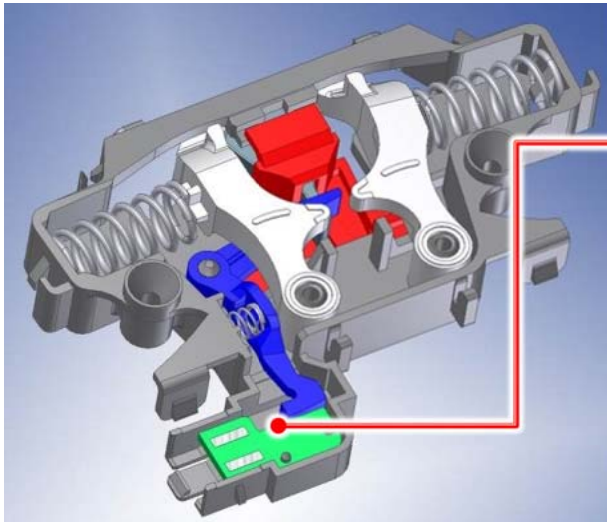


The door lock will have in the same part also the auto door opening. The door will open because of the new door hinges. The door lock, auto door opening and door hinges allow this new integrated system for better drying performance.

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



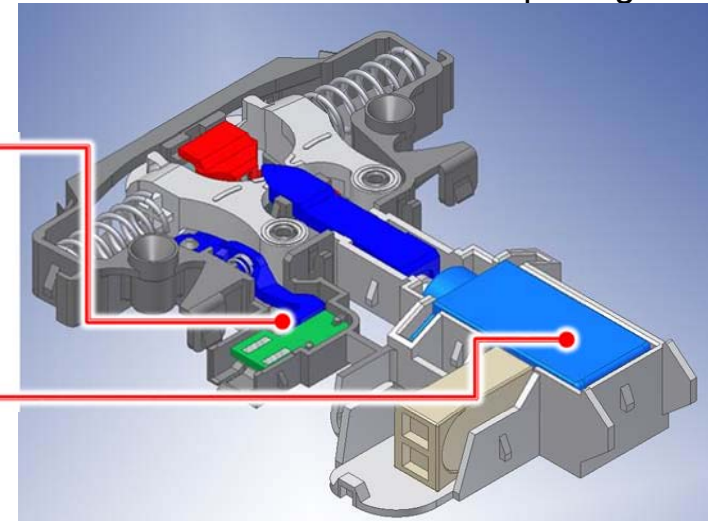
Door lock



28V DC micro switch

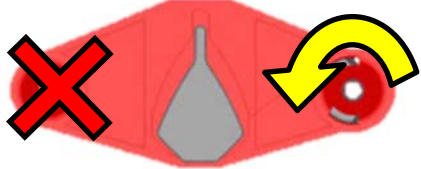
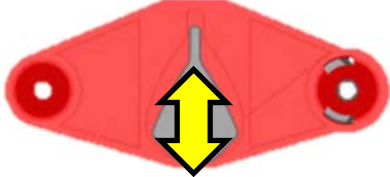


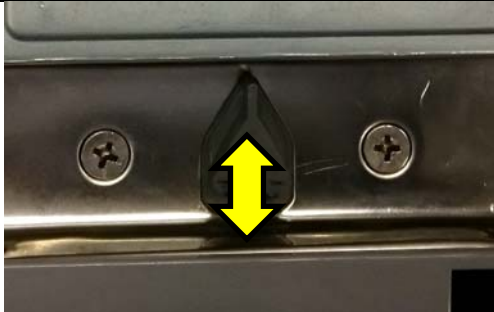

220/240V AC Wax actuator

Door lock with auto door opening



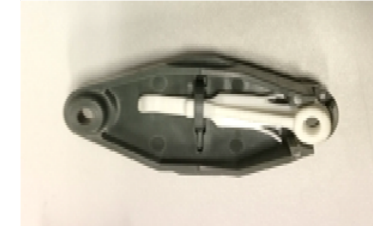
The diamond is fixed on the door, and it's possible to adjust the diamond position.

How to adjust the Diamond position

<ul style="list-style-type: none">- 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.	<ul style="list-style-type: none">- Lift up the diamond between 2 fingers.- Push forward or backward (according to needed adjustment)- Push down until locked in position.	<ul style="list-style-type: none">- Fix the right screw again to lock the diamond.
		
		

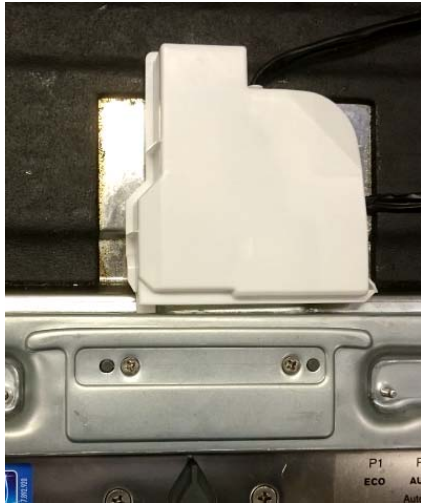
Detail of the lever on the Diamond.

If door is hard to keep closed: adjust diamond forward into the dishwasher.
If door is closing too much: adjust out of the dishwasher.

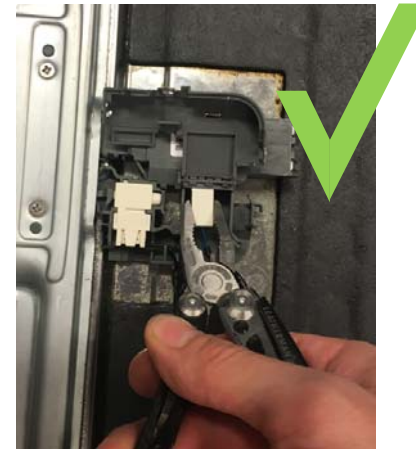


Disassembly:

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 plyers to pull off connector.



Cover of Door lock with Auto door opening

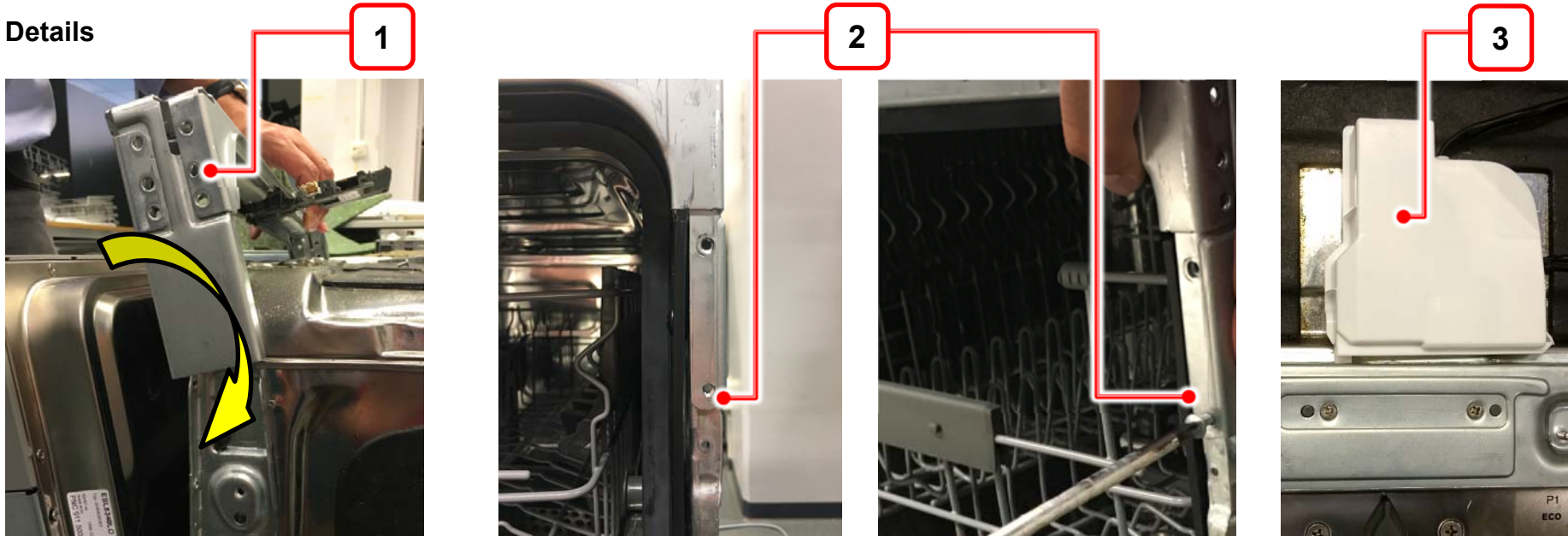


Detail of the snapped fixation with 2 screws on the upper front cross bar

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.**

Auto door opening (ADO) – working description

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

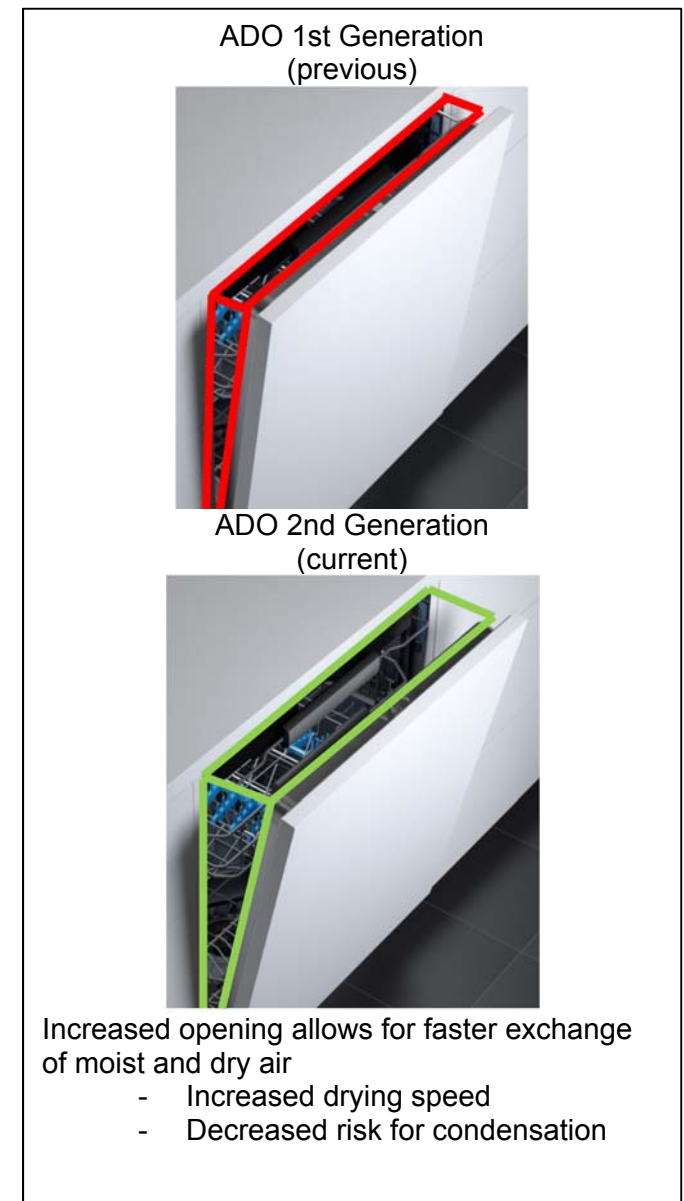
- The Wax motor in the auto door opening (ADO) is activated
- Latest 2min later the door lock release the door.
- The door falls through the weight of the door itself to 10cm opening, because the hinges are balanced for 10cm opening.
- The 10 cm opening allows for faster exchange of moist and dry air.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

The Auto door opening (ADO) is default on (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.

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



How to check the Auto door opening (ADO)

- Open the door
- Activate service mode
- Go to actuator position 10
- Close door
- Wait 2 minutes for the door to open
- Check if the door opens 10cm between the upper front cross bar and inner door

Door not closing

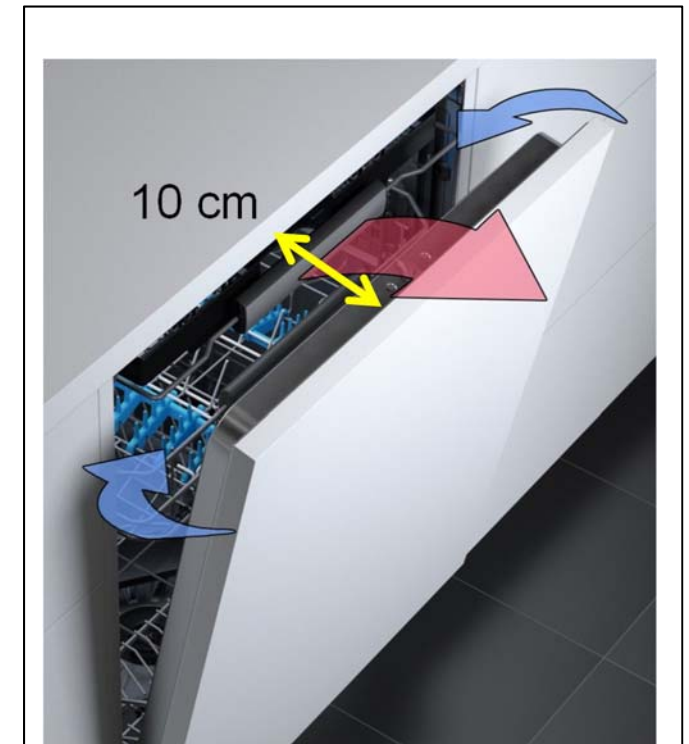
Probably the Auto door opener is still active.

The Wax motor is still warm, because it take about 3 min for cooling and allow the door to close.

Resume Table on AirDry and XtraDry time:

Program	AirDry		AirDry & XtraDry	
	Time with AirDry [min]	Idle time open door [min]	Time with XtraDry [min]	Idle time open door [min]
Intensive	183	6	205	36
Eco	239	75	239	62
Quick 30 min	38	-	76	2
Glass Care	80	6	108	35
Flexi Wash	154	5	188	35
Night Cycle	227	5	228	34
Auto Flex	51-163	3-5	160-195	35-34

On this table, only AirDry and XtraDry are considered. For information with other combined options like sanitize and time saver go to the table available on "Program Management"



Door opens:

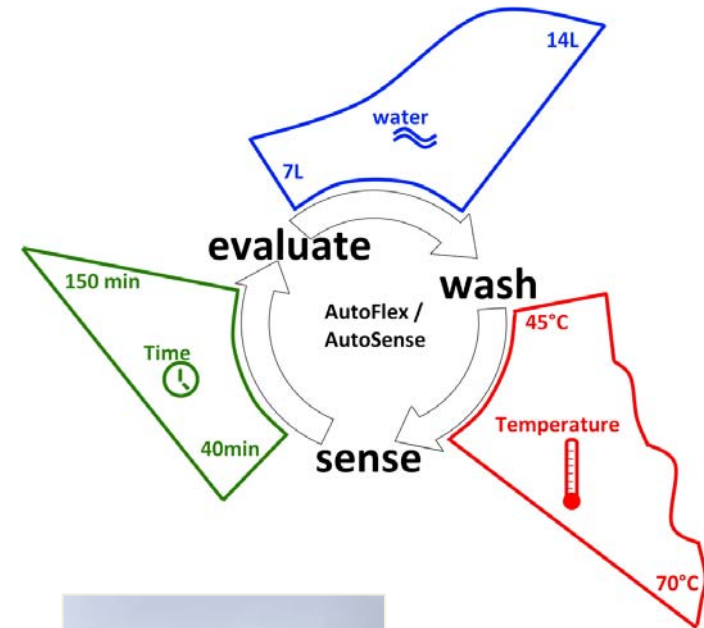
5 to 10cm - Drying results are as expected.

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.

3.15. 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

3.16. 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.

The additional time on the drying phase is a reference for precise values go to the table available on “Program management“

3.17. Program management MIIG 55cm

Program Name	Available option						Combination with option				pre wash			main wash					cold rinse			final rinse			drying			Program
	*ADO	***time saver	sanitize	Extradry	**Half Load	***Rinse +	*ADO	time saver	sanitize	Extradry	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	Circulation with temperature	Circulation time after temperature	total time	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	total time	Idle time door closed	Idle time door open	total time	Total time [min]
Intensive	1	1	1	1	1	1	0	0	0	0	-	16	21	50°C	15	68°C	36	81	-	10	14	69°C	12	30	24	-	24	170
							0	0	0	1												70°C	30s	25	54	-	54	194
							0	0	1	0												69°C	11(69°C)	43			182	
							0	0	1	1												70°C	30s	37	54	-	54	206
							0	1	0	0	4min (<68°C)	-	9	69°C	10	-	-	45	-	3	5	69°C	1	24	7	-	7	87
							0	1	0	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	
							0	1	1	0	4min (<68°C)	-	9	69°C	10	-	-	45	-	3	5	70°C	11(69°C)	36	7	-	7	99
							0	1	1	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	
							1	0	0	0														30 (50°C)	6	36	183	
							1	0	0	1														30 (50°C)	36	66	205	
							1	0	1	0												69°C	11(69°C)	43	30 (50°C)	6	36	195
							1	0	1	1												69°C	11(69°C)	36	30 (50°C)	30	66	217
							1	1	0	0	4min (<68°C)	-	9	69°C	13	-	-	42	-	3	5	69°C	1	23	30 (50°C)	4	36	115
							1	1	0	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	
							1	1	1	0	4min (<68°C)	-	9	69°C	13			42	-	3	5	69°C	11(69°C)	35	30 (50°C)	4	36	127
							1	1	1	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	

Program Name	Available option						Combination with option				pre wash			main wash					cold rinse			final rinse			drying			Program Total time [min]	
	*ADO	***time saver	sanitize	Extradry	**Half Load	***Rinse +	*ADO	time saver	sanitize	Extradry	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	Circulation with temperature	Circulation time after temperature	total time	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	total time	Idle time door closed	Idle time door open	total time		
Elabel A+++ -10%	1	1	1	1	1	1	0	0	0	0	-	10	15	55°C	66	-	-	100	-	7	10	43°C	13	22	92	-	92	239	
							0	0	0	1												70°C	30s	29	92	-	92		
							0	0	1	0												69°C	11(69°C)	51				266	
							0	0	1	1												70°C	11(69°C)	39	92	-	92	249	
							0	1	0	0	4min (< 68°C)	1	9	60°C	7	-	-	37	-	-	1	69°C	1	22	35	-	35	105	
							0	1	0	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																		
							0	1	1	0	4min (< 68°C)	1	9	60°C	7	-	-	37	-	-	1	69°C	11(69°C)	38	35	-	35	121	
							0	1	1	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																		
							1	0	0	0																17	75	92	
							1	0	0	1												69°C	30s	29	30 (50°C)	62	92		
							1	0	1	0												69°C	11(69°C)	50	30 (50°C)	62	92	267	
							1	0	1	1												69°C	11(69°C)	37	30 (50°C)	62	92	246	
							1	1	0	0	4min (< 68°C)	1	9	60°C	9	-	-	37	-	-	1	69°C	2	27	30	4	35	110	
							1	1	0	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																		
							1	1	1	0	4min (< 68°C)	1	9	60°C	9	-	-	37	-	-	1	69°C	11(69°C)	34	30	4	35	115	
							1	1	1	1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																		

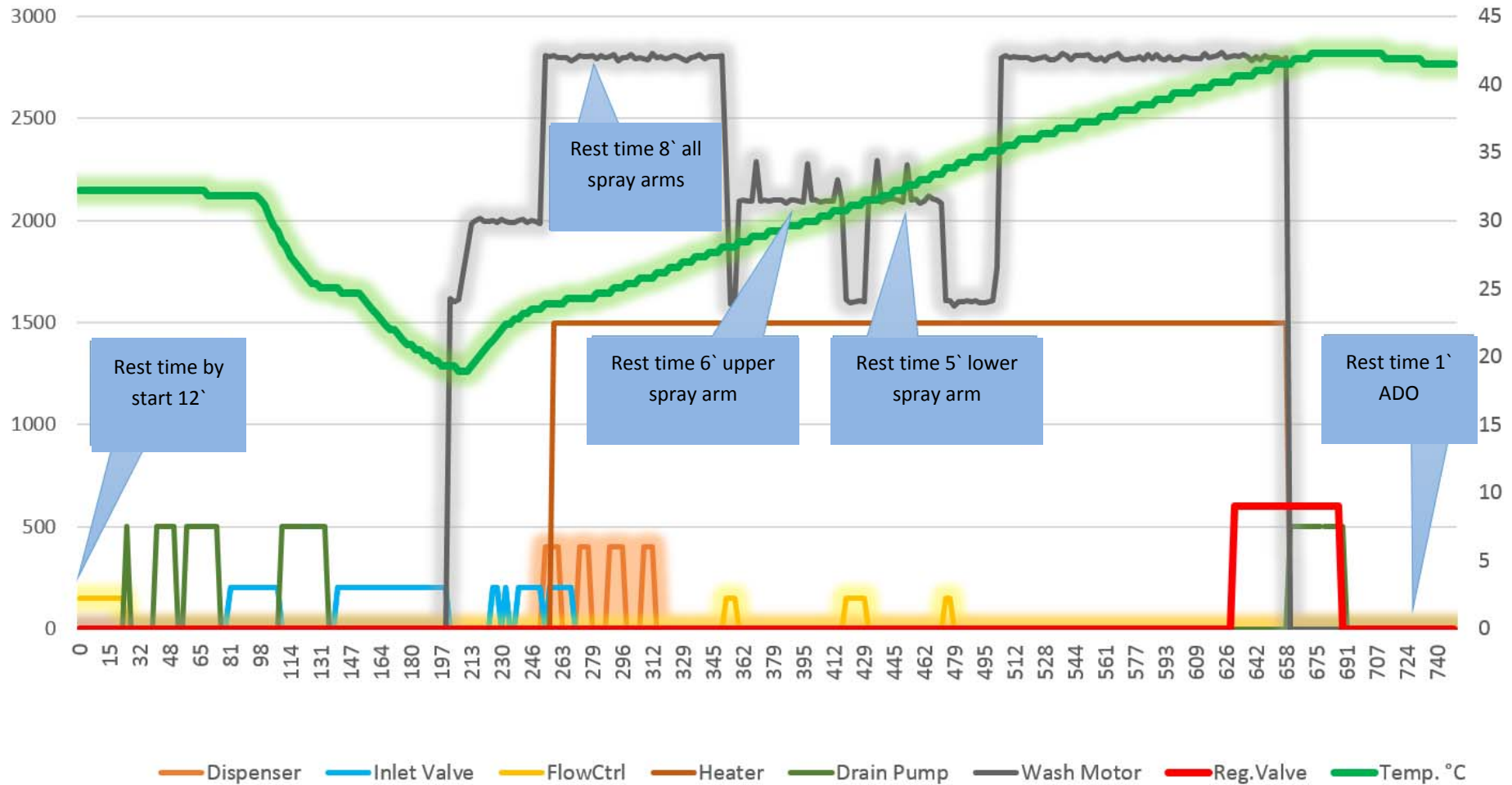
Program Name	Available option						Combination with option				pre wash			main wash					cold rinse			final rinse			drying			Program		
	*ADO	***time saver	sanitize	Extradry	**Half Load	***Rinse +	*ADO	time saver	sanitize	Extradry	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	Circulation with temperature	Circulation time after temperature	total time	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	total time	Idle time door closed	Idle time door open	total time	Total time [min]		
Quick 30min	1	0	1	1	0	1	0	0	0	-	-	-	~1120s (<69°C)	-	-	-	24	-	-	1	~490s (<69°C)	-	13	-	-	-	38			
							0		0	1												65°C	20s	20	14	-	14	60		
							0		1	0													69°C	11(69°C)	36				61	
							0		1	1				~1180s (<69°C)				25					69°C	11(69°C)	34	14	-	14	74	
							1		0	0													~355s (<69°C)	-	10	2	-	2	38	
							1		0	1				~1180s (<69°C)				25					65°C	20s	23	25	2	27	76	
							1		1	0													69°C	11(69°C)	35				60	
							1		1	1				~1180s (<69°C)				25					69°C	11(69°C)	34	30	1	31	91	
Glass care	1	0	0	1	0	1	0		0	-	-	-	45°C	4	-	-	32	(<55°C)	1	7	60°C	1	21	23	-	23	83			
							0			1																53	-	53	114	
							1			0																11	6	17	80	
							1			1																11	35	46	108	
Night Cycle	1	0	0	1	1	1	0		0	-	17+(2 5 brake)	44	47°C	41	-	-	83	-	7	10	31 min break + 69°C	-	57	24	-	24	217			
							0			1													70°C		30	53	-	53	221	
							1			0																30	5	35	227	
							1			1													70°C	30s	29	30	34	64	228	
AutoFlex soft path	1	0	1	1	1	1	0		0	<35°C	-	11	55°C	1	-	-	23	-	-	-	50°C	~1	9	0	-	0	44			
							0		0	1				47°C	25	-	-	42	-	-	14		70°C	30s	29	53	-	53	149	
							0		1	0				69°C	11(69°C)									69°C	11(69°C)	32				69
							0		1	1				47°C	25	-	-	42	-	-	14		70°C	11(69°C)	40	53	-	53	158	
							1		0	0													~3	12	0(50°C)	3	3	51		
							1		0	1				47°C	25	-	-	42	-	-	14		69°C	30s	29	30	35	65	160	
							1		1	0				69°C	11(69°C)								69°C	11(69°C)	35	30	3	35	104	
							1		1	1				47°C	25	-	-	42	-	-	14		69°C	11(69°C)	39	30	35	65	169	

Program Name	Available option						Combination with option				pre wash			main wash					cold rinse			final rinse			drying			Program
	*ADO	***time saver	sanitize	Extradry	**Half Load	***Rinse +	*ADO	time saver	sanitize	Extradry	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	Circulation with temperature	Circulation time after temperature	total time	Circulation with temperature	Circulation time after temp	total time	Circulation with temperature	Circulation time after temp	total time	Idle time door closed	Idle time door open	total time	Total time [min]
AutoFlex strong paths	1	0	1	1	1	1	0		0	0	<35°C	-	26	47°C	11	65°C	20	69	-	-	14	69°C	-	20	24	-	24	153
							0		0	1												70°C	-	25	53	-	53	187
							0		1	0												69°C	11(69°C)	32				163
							0		1	1												70°C	11(69°C)	36	53	-	53	197
							1		0	0														30	5	35	163	
							1		0	1												69°C	-	23	30	34	64	195
							1		1	0												69°C	11(69°C)	34	30	5	35	176
							1		1	1												69°C	11(69°C)	35	30	35	66	211
Flexi Wash	1	1	0	1	1	1	0	0		0	-	12	17	45°C	11	65°C	20	61	-	15	20	69°C	1	22	23	-	23	143
							0	0		1												70°C	1	26	53	-	53	176
							0	1		0	4min (< 68°C)	6	8	68°C	2	-	-	30	-	1	4	69°C	-	18	7		7	68
							0	1		1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	
							1	0		0														30	5	35	154	
							1	0		1														30	35	65	188	
							1	1		0	4min (< 68°C)		8	68°C	2	-	-	32	-	1	4	69°C	-	19	30	5	36	100
							1	1		1	TimeSaver (reducing time) and ExtraDry (extending time for better drying) is not compatible																	
Rinse & Hold	0	0	0	0	0	0	0	0	0	0	-	8	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

3.18. Line test program

It's possible to check the spray system, the flow control, the water and hydraulic circuit by using the line test program and the transparent door.

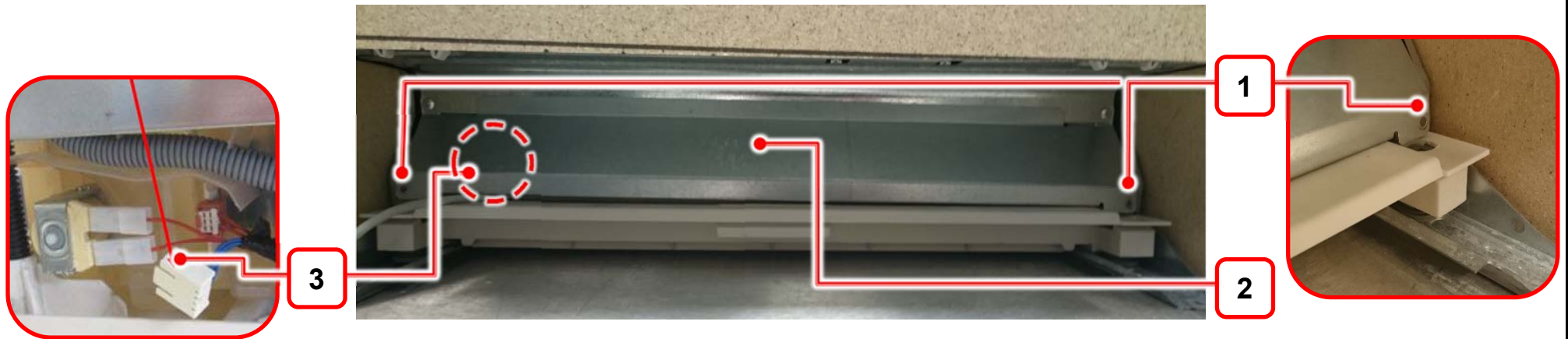
The behavior of the spray arms depends on the position of the flow control and the turn speed of the circulation pump. As reference from the chart below, 5 minutes after start of the line test, all spray arms have to turn with full speed.



3.19. DAAS / Sidekick connector

Details

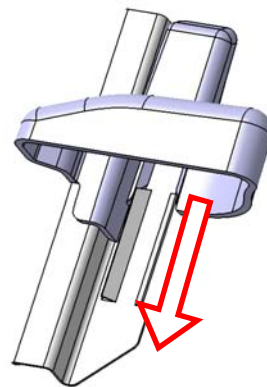
The Sidekick can connect from the front of the appliance. The DAAS connector is available behind the lower front cover on the dishwasher. By removing the two bottom screws, it's possible to remove the metal cover and the DAAS connector is reached.



1- Remove the two lower screws	2- Remove the metal cover	3- DAAS Connector
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3.20. Bridge

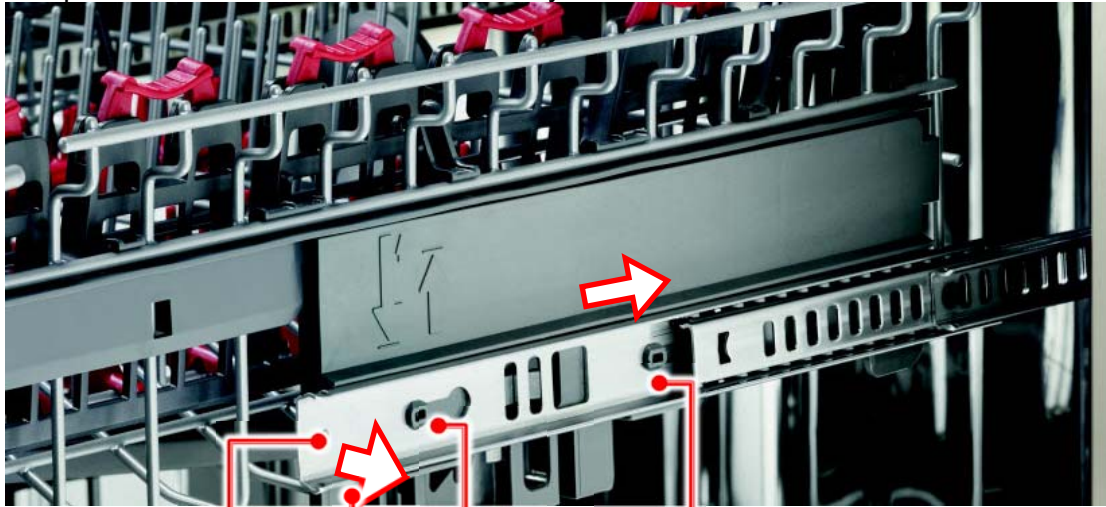
Details



3.21. Comfort rails

Basket disassembly

The procedure is done with the basket fully out.



1

3

2

1- Remove the screws fixing the basket to the rails

2- Press the snap and slide the basket while holding the rail.

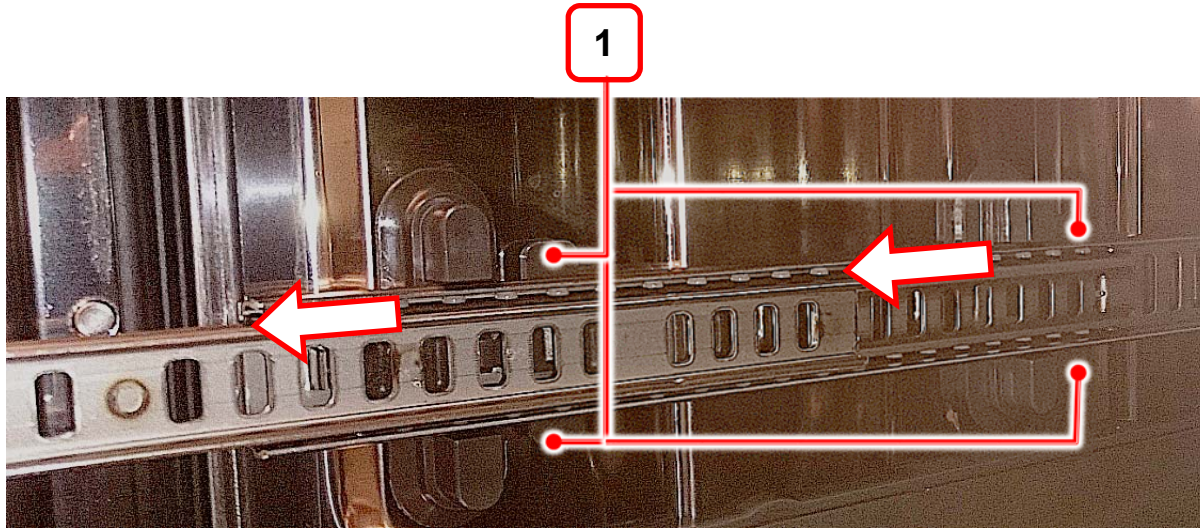
3- While holding the basket move one rail at a time apart from the basket
This movement should be small enough just to release the basket from the rails



Detail of the snap to press and movement on step 2



Top rails disassembly



1- Press the four snaps and slide the rail in direction to the front of the dishwasher. This movement should be small enough just to release the rails from the tub

It's also possible to disassemble the rails by removing the side panels, and removing the plastic part fixed to the tub.



Pictures representing the left side rails

3.22. Electronic Main Board – PB100

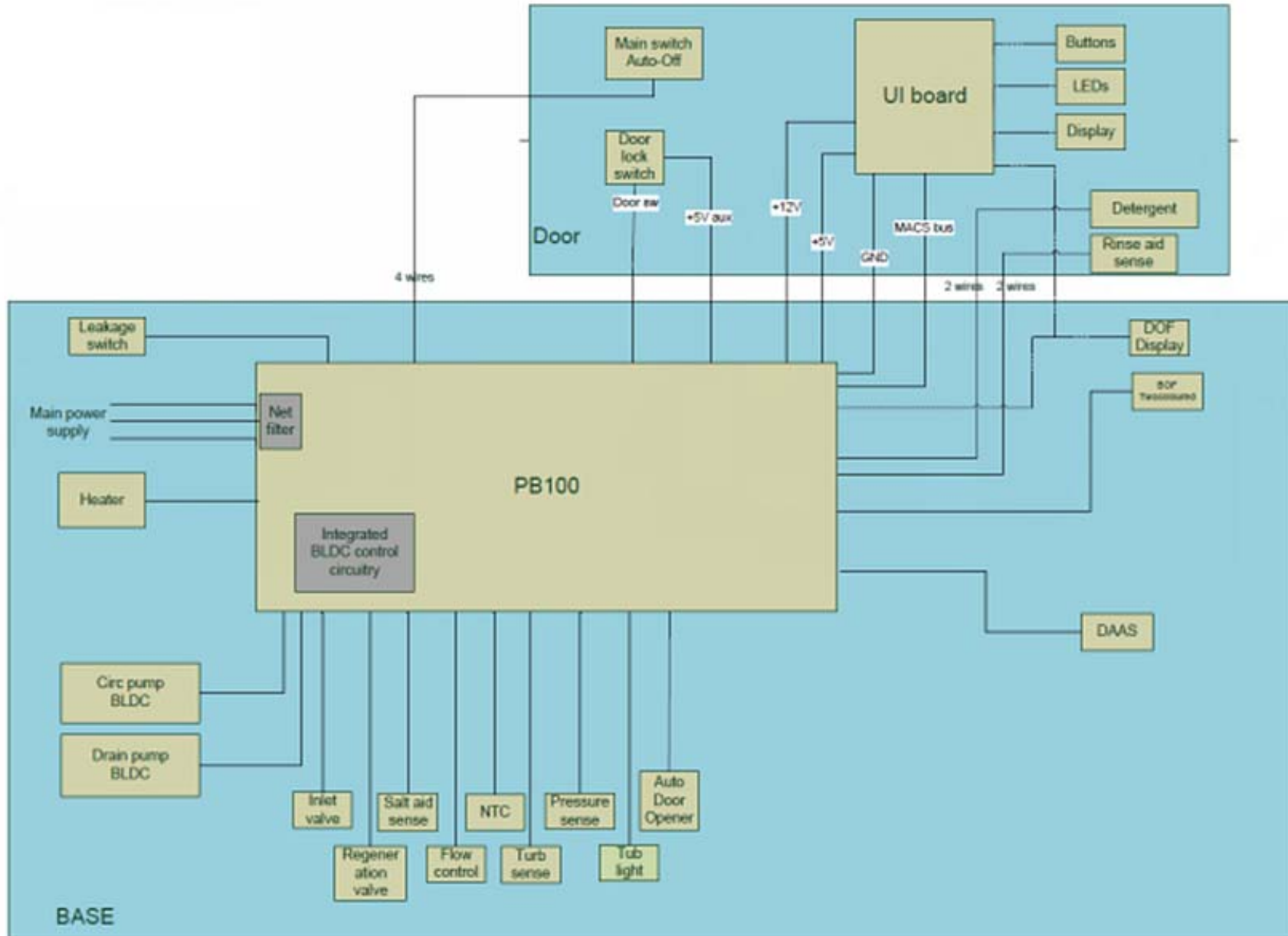
PB 100 - High and Mid range main board covering all platforms. Supports both EU and NA requirements via population options and BLDC wash and drain motors.

- 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.

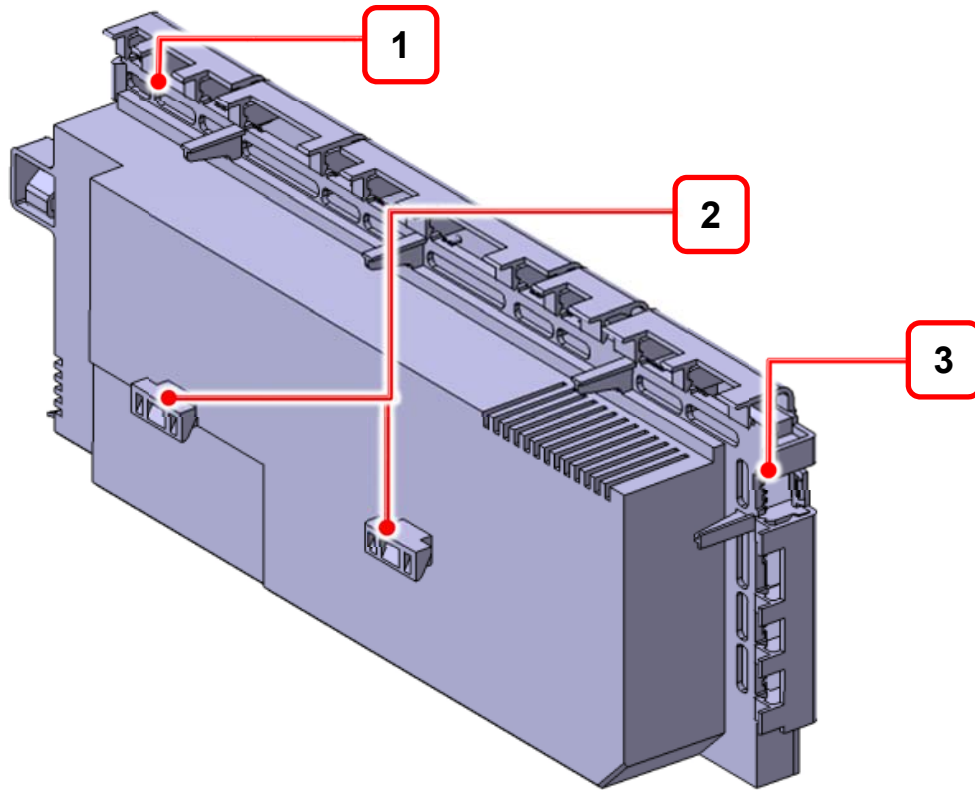


Features possible to support (Depending on mounting option)	PB100
Existing HV main switch	Y
Existing LV main switch	Y
Auto-off functionality	Y
Future logic main switch	Y
BLDC Wash pump	Y
BLDC Drain pump	Y
Async Wash pump	N
Sync Drain pump	N
Wash pump Taco input	N
Safety isolated low voltage UI interface	Y
Auto Door Opener (ADO)	Y
Integrated main filter	Y
Integrated tub lights driver with up to 3x1W LEDs	Y
Leakage Switch	Y
Flow control	Y
Existing HV dispenser	Y
Future Low voltage dispenser (TBD)	Y *
Inlet valve	Y
Regeneration valve	Y
Pressure sensor	Y
Salt sense	Y
Rinse sense	Y
Display on Floor (DOF)	Y
Beam on Floor (BOF) Two-colored	Y
DAAS	Y
Extra MACS connector for future modules	Y
JTAG IF to microcontroller for development	Y
* = Depends on the LV Dispenser solution	
** = Can not be combined with DOF	

PB100 With existing EU User Interfaces



Electronic Box for PB100



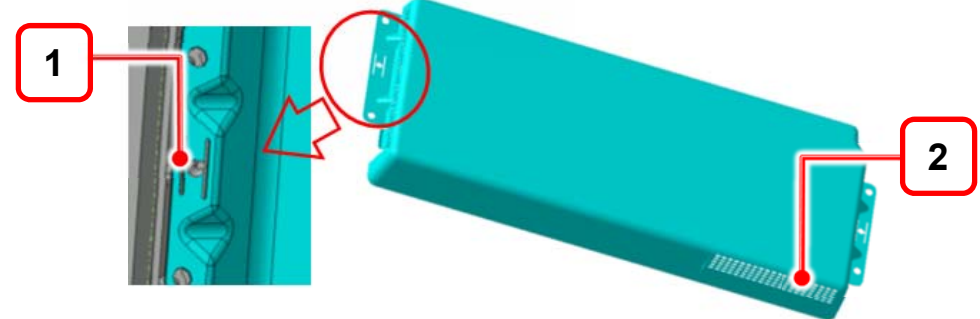
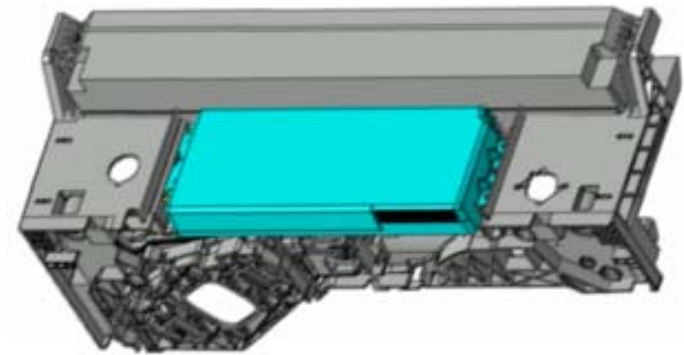
1- Probe-slots for testing PCB
One for each connector

2- Fastening hooks goes into
the base and locked by ribs
in lower edge of the base

3- DAAS-connector position
Open interface due to easy
access for service and
programming

Metal cover for Main Board

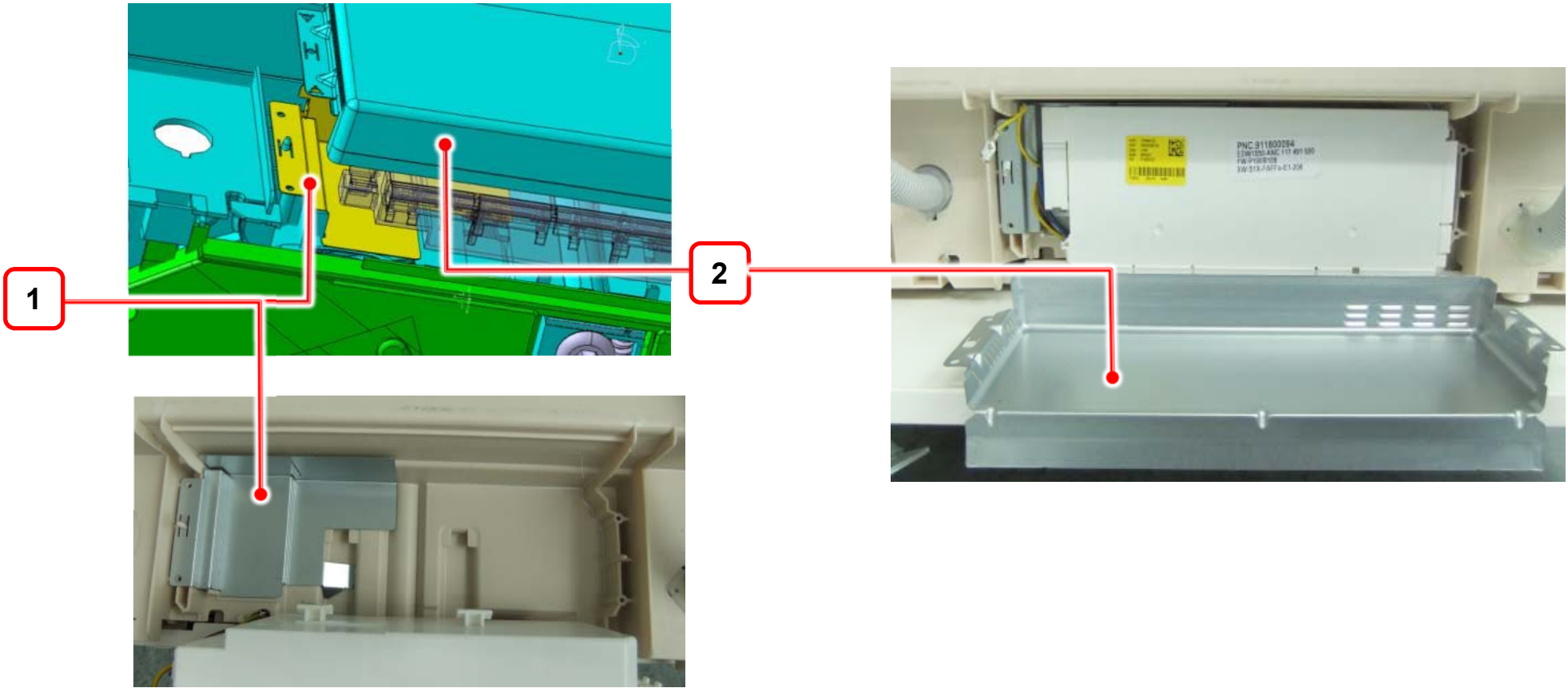
The metal cover is a fire shield and protects the electronics from mechanical stress.



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

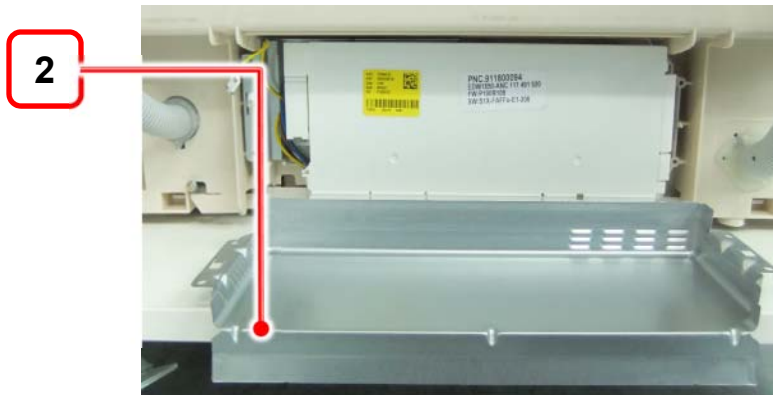
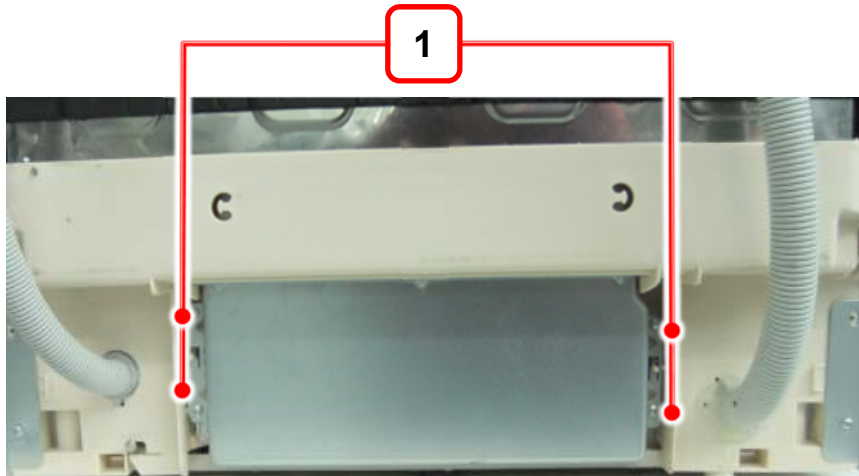
5- Holes for ventilation

Inner fire shield



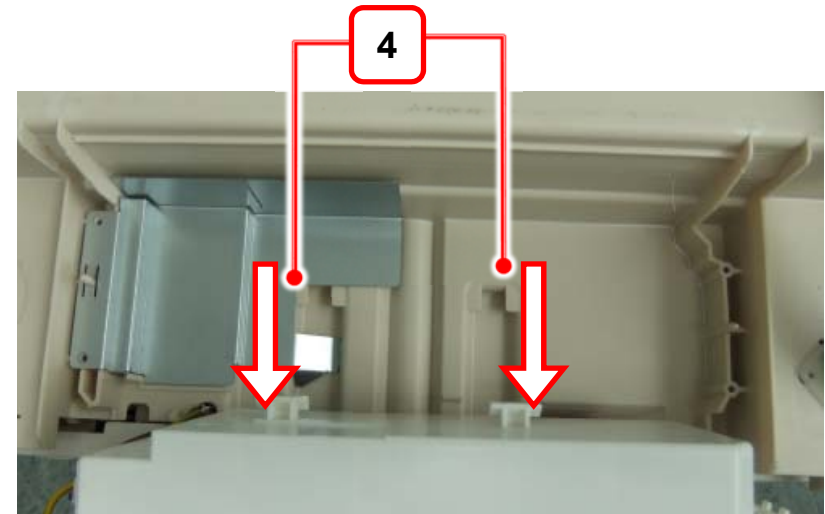
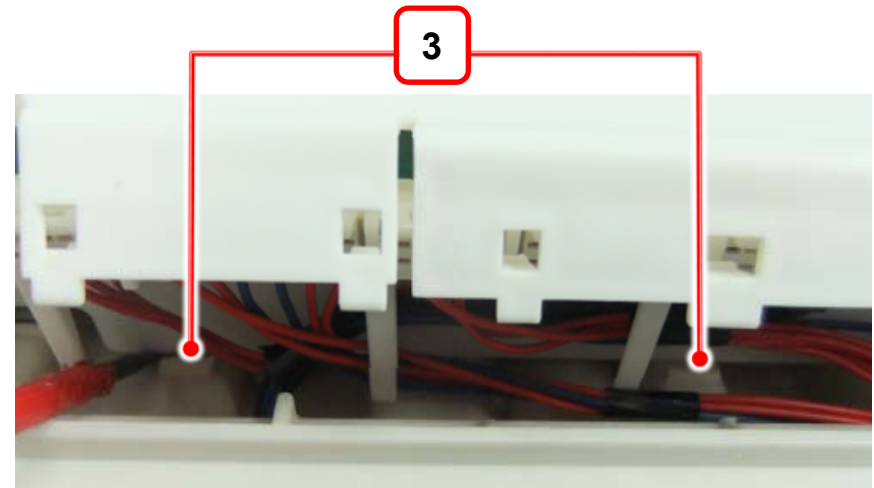
1- Inner fire shield	2- Metal cover to be assembled on top of electronic box
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Main board disassembly



1- Remove 4 screws from the cover

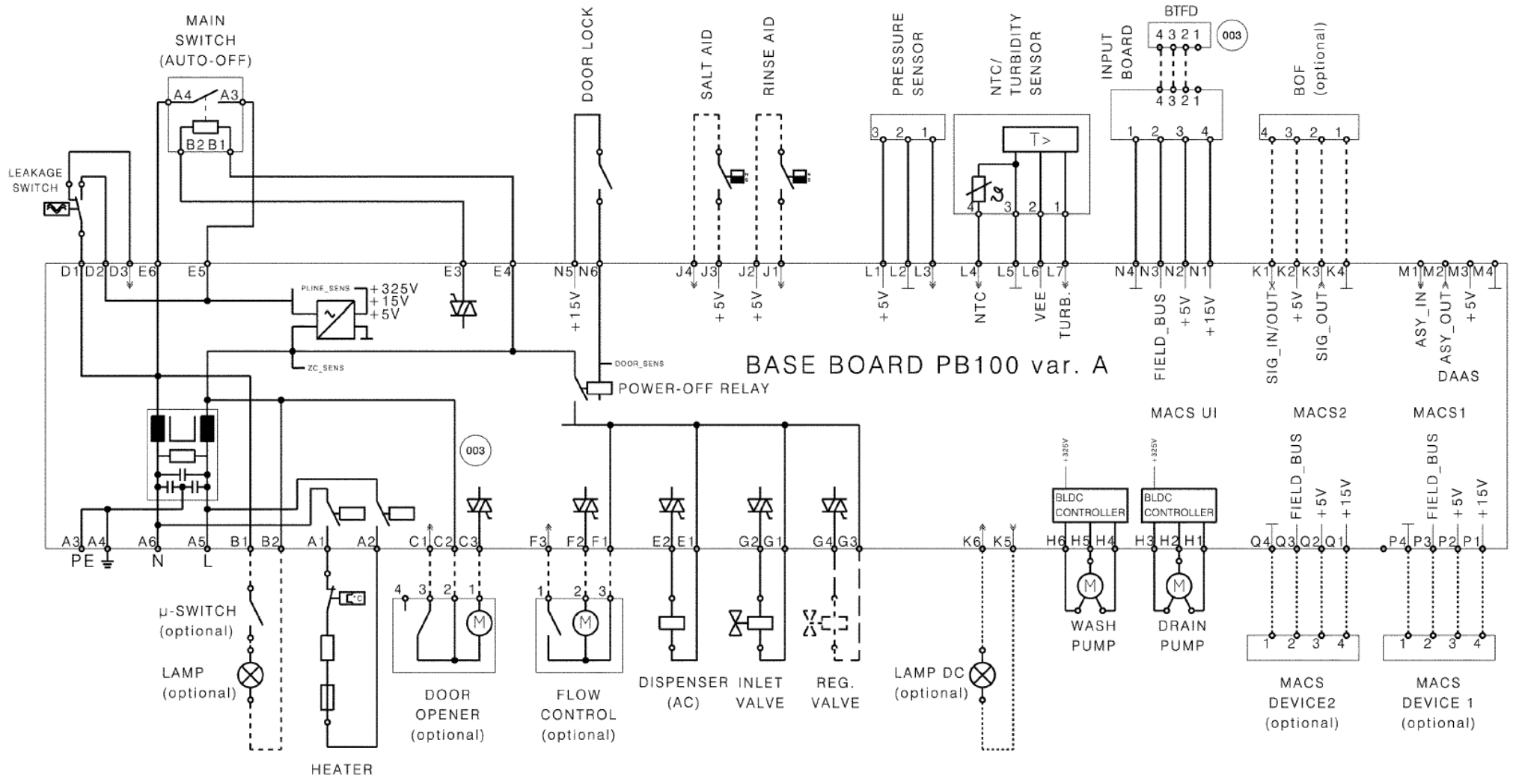
2- Remove the metal cover



3- Unlock the 2 hooks

4- Pull the main board box downwards

Operation Diagram PB100



3.23. Components check Inverter Motor BLDC

PARTS	PB100 BLDC LEAD CONNECTIONS	CORRECT VALUE	REMARKS
POWER CABEL	A5 ↔ L	0 Ω	
	A6 ↔ N	0 Ω	
ON/OFF SWITCH	E5 ↔ E6	0 Ω	
AUTO OFF COMMAND	E3 ↔ E4		
		130 Ω ± 8%	DW off
Heating ELEMENT 2040W + Safety THERMOSTAT	A2 ↔ A1	25.9 Ω + 11.1% - 4.7%	Serial connection 2040W
Heating ELEMENT 1800W + Safety THERMOSTAT	A2 ↔ A1	28,7 Ω +/- 5%	Serial connection 1800W
DOOR SWITCH	N5 ↔ N6	0 Ω	Door closed
DISPENSER	E1 ↔ E2	3900 Ω ± 8%	
RINSE AID SENSOR	J1 ↔ J2	0 Ω	Without Rinse Aid
		INFINITE	With Rinse Aid
SALT SENSOR	J4 ↔ J3	0 Ω	Without Salt
		INFINITE	With Salt
TEMPERATURE SENSOR	L4 ↔ L5	4836 Ω ± 2.5%	At 25 °C
		915 Ω ± 4%	At 70 °C
REGENERATION solenoid valve	G4 ↔ G3	3800 Ω ± 8%	
FILL solenoid valve	G1 ↔ G2	4100 Ω ± 10%	solenoid valve in fill pipe
		3750 Ω ± 10%	solenoid valve in base
BLDC WASHING MOTOR	H4↔H5↔H6	56 Ω +5/-10%	BLDC Motor (phase-to-phase)
BLDC DRAIN MOTOR	H1↔H2↔H3	93 Ω ± 10%	BLDC Motor (phase-to-phase)
FLOW CONTROLLER	F1 ↔ F2	10400 Ω ± 8%	Motor
	F1 ↔ F3	0 / INFINITE	Micro-switch