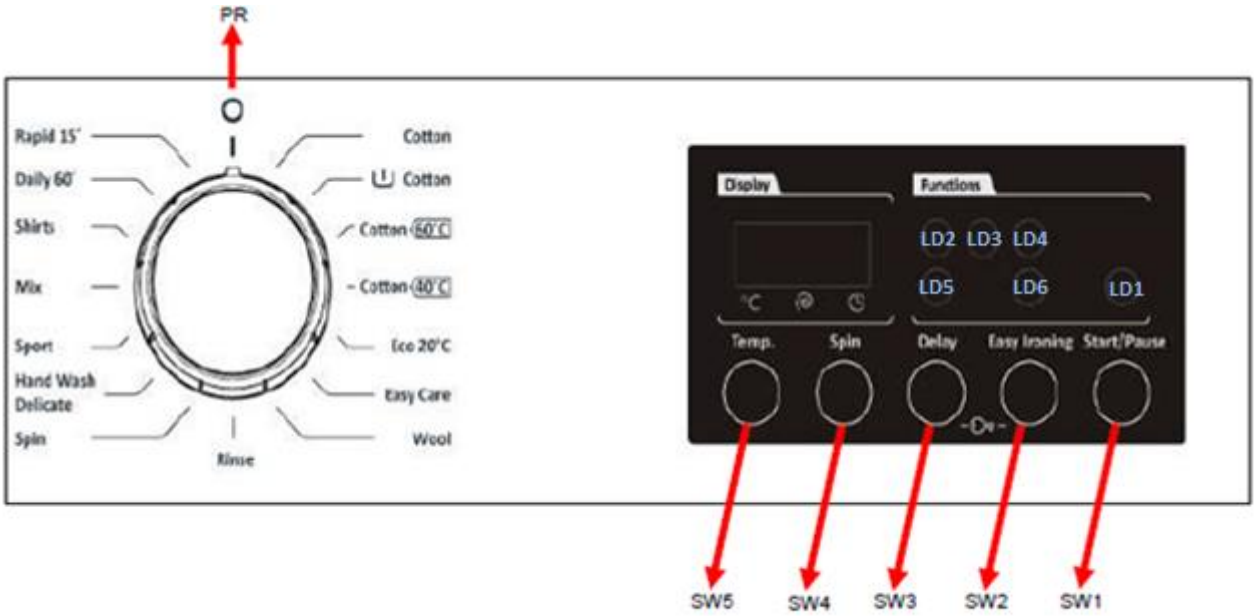
SOGEDIS

ELECTROMENAGER

F4 ALVA

MANUEL DE SERVICE

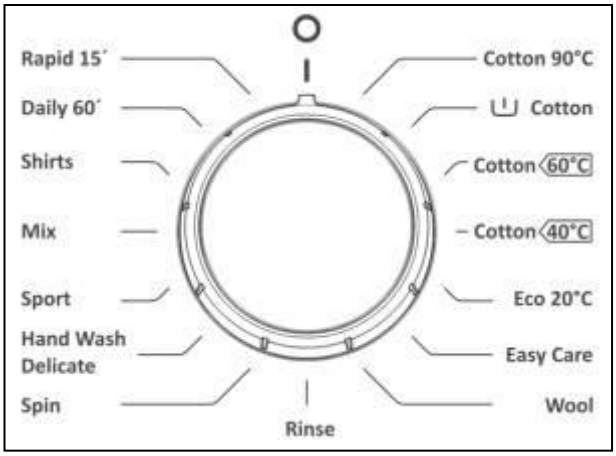
3.1. LCD Screen, Function Buttons & Knobs



PR	ON/OFF
SW1	Start / Pause
SW2	Option Buton
SW3	Delay Mode
SW4	Spin
SW5	Temperature
LD1	Start / Pause
LD2	Rinse
LD3	Spin
LD4	End
LD5	Delay Mode
LD6	Function 1 Led

3.2. Program List

KNOB POSITION	PROGRAM
1	Cotton 90°C
2	Cotton Prewash
3	Cotton Eco
4	Cotton 40°C
5	Eco 20°C
6	Easy Care
7	Wool
8	Rinse
9	Spin
10	Delicate / Hand Wash
11	Sports Wear
12	Mix 30
13	Blouses/ Shirts
14	Daily 60'
15	Rapid 15'
16	STOP



3.5. Child Lock

Activation

1. Press the SW2 and SW3 buttons simultaneously for 3 sec.

2. L4 and L5 will make fast blink for 2 sec to indicate child lock is activated.

Deactivation

1. Press the SW2 and SW3 buttons simulaneously for 3 sec.

2. L4 and L5 wil make fast blink for 2 sec to indicate child lock is activated.

Child lock during the programme

1. Machine does not respond to any pressing of buttons or changing position of program knob.When the user try to change programme knob during child lock, for F2A, F2B and F2C panels , Led 4 and L5 will make fast blink for 2 sec .

In end condition

1. When cycle is finished child lock is automatically deactivated.

In Error Mode

1. Child lock will be automatically deactivated when error is detected.

4. Test Mode

4.1. Autotest

** This test is for quick checking of the product. You can not see the failure codes.*

1. Press SW5 button and simultaneously position program knob to 1

2. After 3 sec, door will be locked and the auto test starts.

The test steps are as below;

Step1: The pump is activated for 3 seconds and there is EPS check , the frequency value should be between the **46.04 Hz** and **43.40 Hz**. It checks the EPS and if it is OK it continues the autotest; if it is NOK then it should give E10 ERROR & cancels the autotest (goes to the selection mode). Also if any frequency can not be detected, then it means there is problem with connection or EPS, so it gives E10 which is EPS error and cancels the autotest.

Step2: The motor ramps to max spin for 15 seconds. While its speed rising up to the maximum speed the EV1 (prewash valve) is activated for 5 seconds and then the EV2 (wash valve) is activated for 5 seconds.

Step3: The motor reduces speed to stop (depends on the motor stop time) for 5 seconds. While it is slowing down it activates EV1 and EV2 valve, concurrently.

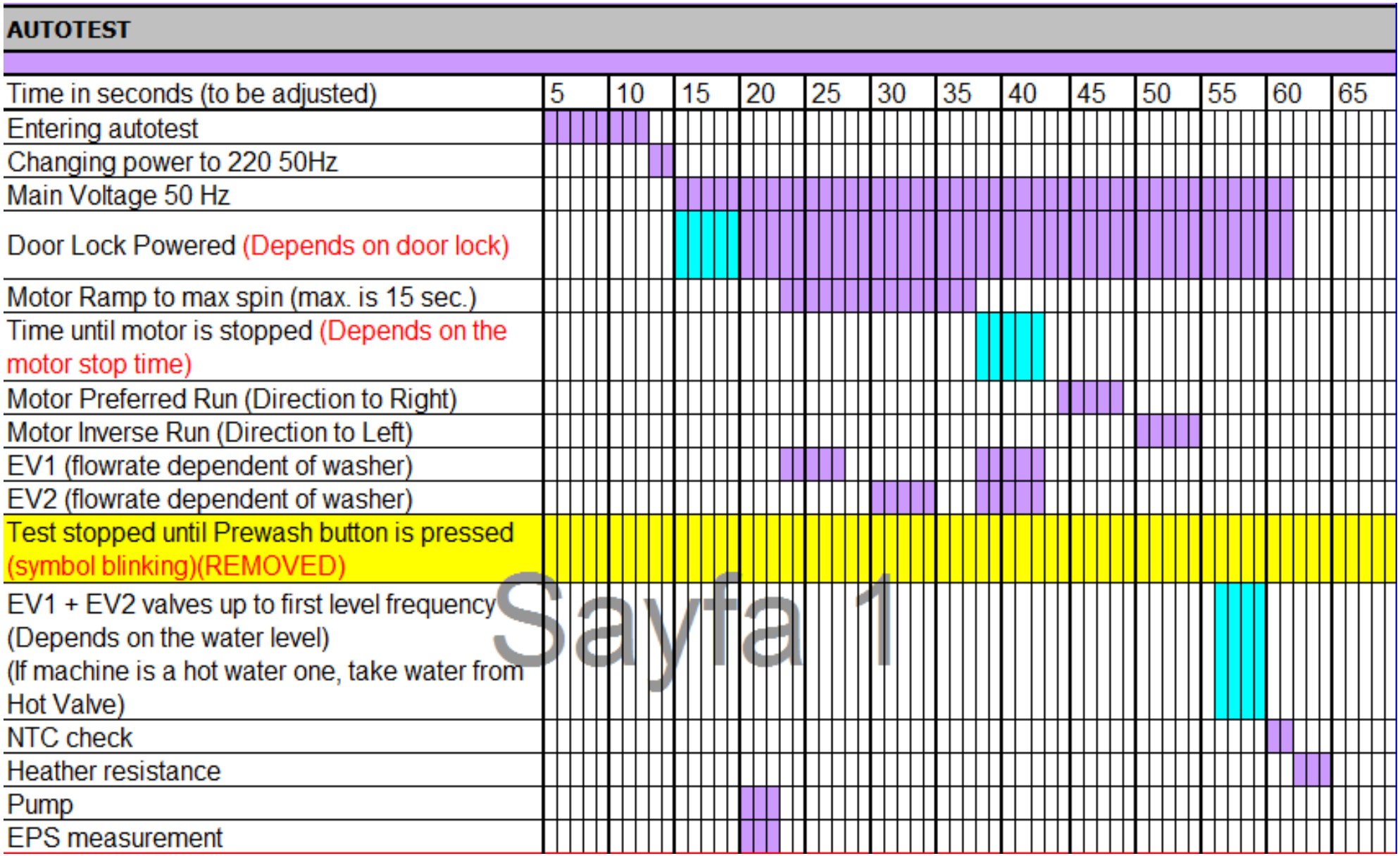
Step4: The motor turns to right.

Step5: The motor turns to left for 5 seconds. Test is stopped. In that period, the **option 1 led** makes fast blink.

Step6: The option 1 button is pushed

Step7: The EV1 and EV2 are activated concurrently until it reaches pressure sensor's first level frequency (Hz) for 5 seconds.

Step8: Software will detect NTC's resistance value and will check if the temperature is between 5°C < Tdetected < 40°C . If it is inside the range, heating step will be done. If temperature value is outside the range, then it means NTC is detecting the temperature in a wrong way and heating step will be skipped.
For F1A, F1B, F2A,F2B and F2C "End" led will be fix on.


AUTOTEST
Time in seconds (to be adjusted)
5
10
15
20
25
30
35
40
45
50
55
60
65
Entering autotest
Changing power to 220 50Hz
Main Voltage 50 Hz
Door Lock Powered (Depends on door lock)
Motor Ramp to max spin (max. is 15 sec.)
Time until motor is stopped (Depends on the motor stop time)
Motor Preferred Run (Direction to Right)
Motor Inverse Run (Direction to Left)
EV1 (flowrate dependent of washer)
EV2 (flowrate dependent of washer)
Test stopped until Prewash button is pressed (symbol blinking)(REMOVED)
EV1 + EV2 valves up to first level frequency (Depends on the water level)
(If machine is a hot water one, take water from Hot Valve)
NTC check
Heather resistance
Pump
EPS measurement

5. Service Mode

5.1. Service Autotest

End users can only see E1-E2-E3-E4. During service autotest, other failures can be seen.

1. To activate service autotest, Press SW4 button and simultaneously position program knob to 1.
2. After 3 sec, door will be locked , after door is locked, all leds will be fix OFF and machine will get into service autotest mode.

	Selector Position 1	Selector Position 2	Selector Position 3
	Result	Result	Result
	HEATER ON	PUMP ON	TEST PROGRAM ON
Comments :	When entering in service test, door will be locked.		Test is over Door will be unlocked, machine will go to ENS state.

The test steps are as below ;

Step 1 :

Selector Position 1 will be “HEATER ON”

Before heating it should take water till first level frequency then start heating.

Heater will be on max. 8 minutes. If temperature doesn’t increase 2 ◦ C in 8 minutes, machine will give NTC failure. (E05).

Or if the NTC connection is broken then it should give again E05 NTC failure.

At the end of heating, “SAU” visualization should make slow blink to indicate that the step is over.

Note : If user changes the selector position, machine will do what is defined for the new selected position.

Step 2 :

Selector Position 2 will be “PUMP ON”

Temperature will be measured, if it is higher than 50 ° C, it should take 60 sec. cooling water, and then make “Drain + 5 sec.”

At the end of pump activation, “SAU” visualization should make slow blink to indicate that the step is over.

Step 3 :

Selector Position 3 will be 15 minutes test program.

So machine will make exactly the same algorithm of 15 minutes test program.

At the end of 15 minutes test program “END” is visualized and door is unlocked. During test pressing other buttons makes no change.

LD1 Start / Pause button Led → ON
LD6 Wash Phase Led → Off
LD7 Rinse Phase Led → Off
LD8 Spin Phase Led → Off
LD9 Door Lock Led → When the door is unlocked it will be off
LD2, LD3, LD4 → Off
Display → “END”

5.2. Failure Codes

Error Code	Error Code Definition	Showing to User			Possible causes	Behavior of machine
		During Program	Autotest (AU)	Service Autotest (SAU)		
E01	Door Lock Error	Yes	Yes	Yes	Door is not closed Door lock defect Connector defect / connection problem Motor socket connection problem (just for R series) Mainboard defect	After starting the program, within 1-2 sec with solenoid / floating door lock, after 30 seconds with PTC door lock, it gives error.
E02	Water Inlet Error	Yes	Yes	Yes	Water connection is closed Low water pressure Valve socket connection problem Valve defect Eps hose is stuck or drilled Mainboard defect	If the valve does not complete the quantity of water that should be taken within 3 minutes after it started to operate, it applies the water cutoff algorithm and gives an error 18 minutes after valve activation. AU and SAU also give water failure error after 7 minutes.
E03	Pump Error	Yes	No	Yes	Pump defect Pump socket connection problem Stuck pump hose Stuck filter Mainboard defect	If the water level in the drum cannot be reduced to the drain level within 10 minutes, machine gives an error.
E04	Excess Water Error	Yes	Yes	Yes	Valve defect EPS defect Eps hose is stuck or drilled Mainboard defect	If the machine takes too much water, it applies the "over water" algorithm. It drains the water in the machine and gives error after 3 minutes.
E05	Washer NTC Error	No	Yes	Yes	Socket connection problem on PCB or component side / defect / short circuit / open circuit Resistance defect NTC or resistance cable defect	During the program, it skips the heating steps and continues the program. AU and SAU also shows error when it comes to heating step.

E06	Motor/Tacho Error	END	Yes	Yes	Tacho open/short circuit	When the motor comes to the working step, it try to work then machine goes to end. AU and SAU also shows an error.
					Stator/rotor open circuit	
					Stator/rotor short circuit (if tacho cannot detect motion)	
					Heat protector defect	
					Motor/card socket disconnection	
					Collector short circuit	
E07	Configuration Error	No	No	No	If mainboard is without software	No showing the error. It can be checked with special equipment.
E08	Motor Triac Error	END	Yes	Yes	Stator/rotor short circuit (If PCB damage happened because of high current)	When the motor comes to the working step, it try to work then machine goes to end. AU and SAU also shows an error.
					Leakage curent on motor+ reverse plug	
					Motor card triac short circuit	
E09	Voltage Error	F1/F2/F4/FL: No FG:Yes	F1/F2/F4/FL: No FG:Yes	F1/F2/F4/FL: No FG:Yes	If voltage value is out off limits (min: 170V, maks: 260V)	F1/F2/F4/FL: The program continues FG: It gives a warning when machine is working out off limits.
E10	EPS Error	END	Yes	Yes	EPS connector is disconnected or defected	If EPS does not detect frequency within 10s, it goes to end; AU and SAU also shows an error.
					Eps hose is stuck or drilled	
E11	Dryer Card Communication Error	END	Yes	Yes	Dryer card connector is disconnected	When it detects an error, it applies a cooling algorithm for 10 minutes and goes to the end.
					Dryer modul defect	
E12	3D Communication Error	Selection:END Program mode: No	Yes	Yes	3D connector is disconnected or wrong assembly	The program does not fail during operation and the program continues. If an error is detected before the program starts, it goes to end.
					3D magnet or sensor is defected	
E13	LCD Communication Error	No	No	No	Display cable is disconnected	After 1 min the error is displayed but the cable is not connected because it is not displayed. It can be seen in Muncher device
					Yellow cable is cut	The machine workd with the display light off.
					Blue, white and red cables are cut	No energy in display
					LCD screen does not work when 3D sensor is defected	No energy in display

E14	Dryer Resistance Error	END	Yes	Yes	Dryer resistance connector is disconnected or defected	During the program, it skips the heating steps and continues the program. AU and SAU also shows an error when it comes to heating step.
					Thermostat defect	
					Fan motor disconnection or defect	
					Dryer resistance connector defect	
E15	Twinjet Error	No	No	No	Twinjet defect	No showing an error. It completes the test.
					Circulation pump and circulation hose stuck	
E16	High Temperature Error	END	Yes	Yes	If temperature of drum is high (>140°C)	When it detects an error, it applies a cooling algorithm for 10 minutes and goes to the end.
					Dryer resistance fuse defect	
					Dryer NTC defect	
E17	Flowmeter Error	END	Yes	Yes	Flowmeter is disconnected or defected	If the flowmeter cannot count the pulse within 30s, it goes to the end.
					EPS hose is stuck	
					Eps defect	
					Valve socket disconnection	
E18	Dryer NTC Error	END	Yes	Yes	Dryer NTC is disconnected / defected / open circuit / short circuit	When it detects an error, it applies a cooling algorithm for 10 minutes and goes to the end.
					Mainboard defect	
E19	BLDC Error	END	Yes	Yes	BLDC motor connector is disconnected or defected	If there is no motor movement within 2 minutes, it goes to the end.
					Communication/Power cord between mainboard and BLDC card is disconnected or defected	
					BLDC Motor defect	
					BLDC card defect	
E20	Pyrojet Error	END	Yes	Yes	Pyrojet heater connector is disconnected or defected	During the program, it skips the heating steps and continues the program. AU and SAU also shows an error when it comes to heating step.
					circulation pump is stuck	
					circulation hose is stuck	
					Pyrojet modul defect	
E21	Detergent Dosage Pump Error	No	No	Yes	Detergent dosage pump is disconnected or defected	No error showing during the program, the cycle continues. error is displayed during service autotest.
E22	Softener Dosage Pump Error	No	No	Yes	Softener dosage pump is disnonnected or defected	No error showing during the program, the cycle continues. error is displayed during service autotest.

E23	Communication Loss Error	END	Yes	Yes	Communication/Power cord between mainboard and BLDC card is disconnected or defected	This error will occur if there is a loss of communication between the motherboard and the IO card for 30 seconds due to connector dislocation or IO card failure. Error is not displayed during the program, it goes to END. It shows the error during service autotest. Error E23 appears on the display during the autotest and service autotest.
E50	Incompatibility of interface software	END	Yes	No	Uncompatibility of mainboard software and LCD software	If there is a problem, the autotest will stop, the door will be open and machine shows an error.
E51	Incompatibility of BLDC software	No	Yes	No	Uncompatibility of mainboard software and BLDC software	If there is a problem, the autotest will stop, the door will be open and machine shows an error.

6. Troubleshooting Guide

All repairs which must be done on the machine should be done by authorized agents only. When a repair is required for machine or you are unable to eliminate the failure with the help of the information given below:

- Unplug the machine.
- Close the water tap.

FAILURE	PROBABLE CAUSE	METHODS OF ELIMINATION
Machine does not operate.	It is unplugged.	Insert the plug into the socket.
	Fuse is defective.	Change fuse.
	Start / Pause button has not been pressed.	Press the start / pause button.
	The program knob is in 0 (off) status.	Bring the program knob on the desired status.
	The door is not shut properly.	Shut the door properly. You should hear the click.
	Child lock is active.	See page 9.
Machine does not receive water.	Water tap is closed.	Open water tap.
	The water inlet hose may be bent.	Check the water inlet hose.
	The water inlet hose is obstructed.	Clean the filters of water inlet hose.
	The water inlet filter is obstructed.	Clean the valve inlet filters.
	The door is not shut properly.	Shut the door properly. You should hear the click.
Machine is not draining water.	The drain hose is obstructed or bent.	Check the drain hose.
	The pump filter is obstructed.	Clean the pump filter.
	The clothes are not placed inside the machine in a well-balanced manner.	Spread the clothes inside the machine in an orderly and well-balanced manner.
Machine is vibrating.	The feet of machine are not adjusted.	Adjust the feet.
	Transportation screws are not removed.	Remove transportation screws.
	There is a small amount of clothes in the device.	It does not prevent operation of the machine.
	Excessive amount of clothes are filled in the machine or the clothes are not placed in a well-balanced manner.	Do not exceed the recommended quantity of clothes and spared clothes in the machine in a well-balanced manner.
Excessive foam in the detergent drawer	Too much detergent has been used.	Press the start/pause button. In order to stop the foam, dilute one table-spoon of softener in half liter of water and pour it in the detergent drawer. Press the start/pause button after 5-10 minutes. Arrange the amount of the detergent properly in the next washing process.
	Wrong detergent has been used.	Use only the detergents produced for full automatic machines.
The washing result is bad.	Laundry too dirty for the program you have selected.	Select a suitable program.
	The amount of detergent used is not sufficient.	Use more detergent according to the detergent.
The washing result is not good.	Clothes exceeding the maximum capacity has been filled in machine.	Put the clothes in machine in a manner not to exceed its maximum capacity.
	Water may be hard.	Use the amount of detergent according to the declaration of the detergent producer.
	Distribution of the clothes in machine is not well-balanced.	Spread the clothes inside the machine in an orderly and well-balanced manner.
The water is seen in the drum during washing.	No failure. The water is at the lower part of the drum.	
There are residues of detergent on the clothes.	The pieces of some detergents which do not dissolve in water may stick to clothes as white stains.	By calibrating machine for “Rinsing” program, make an additional rinsing or eliminate the stains After drying with the help of a brush.
There are grey stains on the clothes.	These stains may be caused by oil, cream or ointment.	In the next washing operation, use the maximum detergent amount declared by the detergent producer.
The spinning process is not done or starts with delay.	No failure. The unbalanced load control works in that way.	The unbalanced load control system will try to distribute clothes in a homogenous manner. After clothes are distributed, passage to spinning process will be realized. In the next washing process, place clothes into the machine in a well-balanced manner.

8. Component Specifications

8.1. Drain Pump

Drain pump is both a mechanical and elektrical component which is used to drain water inside the washing machine. It has an synchronous motor inside. For better performance maintanance, pump filter should be cleaned regularly.

8.1.1. Technical Features

Nominal voltage	220 - 240 V
Nominal current	0.28 A (±10 %)
Nominal power	37 W
Frequency	50 Hz
Resistor (coil)	130 Ω (±5%)
Water flow:	17 L/min(to 1 m height)
Thermal protector	YES

8.1.2. Checking of Component

Check the resistance value on the component with multimeter as shown in belows figures.

Resistance value should be between 125- 140 Ω

Checking the component

8.2. Resistance

Heating element (Resistance) is a component which is desingned to regulate temperature of water inside the drum. It has three connections: Phase, notral and ground connections.

8.2.1. Technical Features

Kind of heating	Tubular heating element with NTC – sensor
Nominal voltage	230 V
Nominal power	2000 W (±5%)
Resistance	24,8 ±5% Ω
Thermal fuse	2 – sided

8.2.2. Checking of Component

Check the resistance value on the component with multimeter as shown in below pictures.

Checking the component

8.3. NTC

Component which sends signals to PCB about the water temperature inside the tub.

The Resistance (Ohm) value of the NTC decreases as the temperature increases.

8.3.1. Technical Features

Tem (°C)	R min (kΩ)	R max (kΩ)
-10	54,9	62,6
-5	43,0	48,6
0	33,9	38,1
5	27,0	30,1
10	21,6	23,9
15	17,4	19,1
20	14,1	15,4
25	11,5	12,5
30	9,4	10,2
35	7,8	8,3
40	6,4	6,9
45	5,4	5,7
50	4,5	4,7
55	3,8	3,9
60	3,2	3,3
65	2,7	2,8
70	2,3	2,4
75	1,9	2,0
80	1,7	1,8
85	1,4	1,5
90	1,2	1,3
95	1,1	1,1
100	0,9	1,0

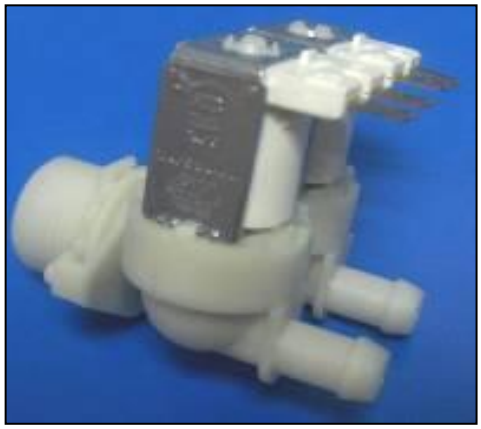
NTC Tempure – Resistance Values

8.3.2. Checking of Component

Check the resistance value on the component with multimeter as shown in below pictures.

Checking the component

8.4. Valve



Valve is an electrical and mechanical component which is designed to take water from the network system into the washine machine. It is operated by PCB card.

8.4.1. Technical Features

Nominal voltage	220 – 240 V
Nominal power	8 VA
Frequency	50-60 Hz
Rated flow:	7 lt/min (±15 %)
Operating water pressure	0.0,3 – 1 Mpa

8.4.2. Checking of Component

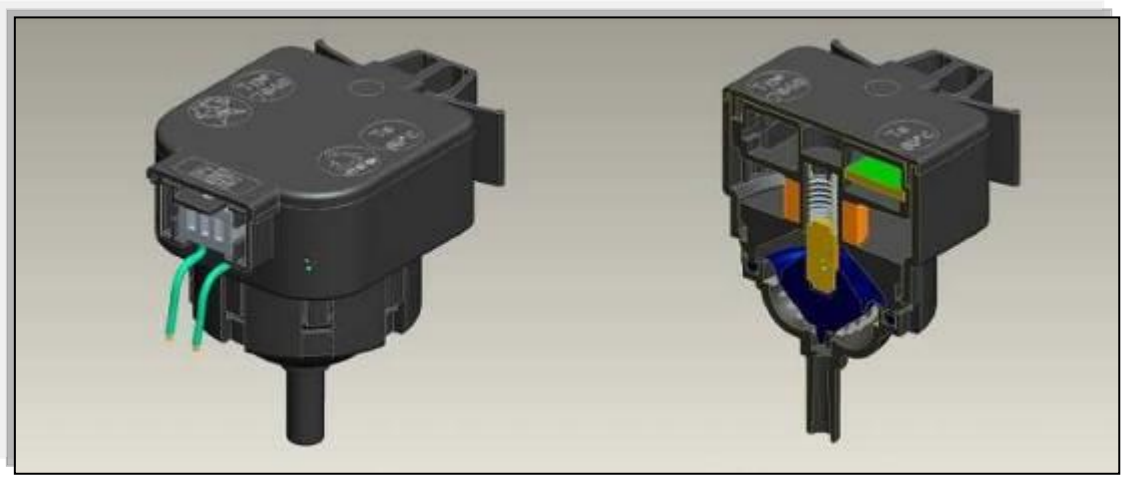
Check the resistance value on the component with multimeter as shown in below pictures.

Valve water flow rate should be between 6 lt/min - 8 lt/min.

Each valve bobbin resistance values should be between 3,3 - 4.2 kohm .

Checking the component

8.5. Electronic Pressure Switch (EPS)



8.5.1. Technical Features

Electromagnetic field occurs as a result of the vibration of the membrane which is under pressure in the coil. The nucleus part is moved up and down by the electromagnetic field. The water level is regulated by the frequency which is controlled by the PCB and changes according to the movement of the nucleus part.

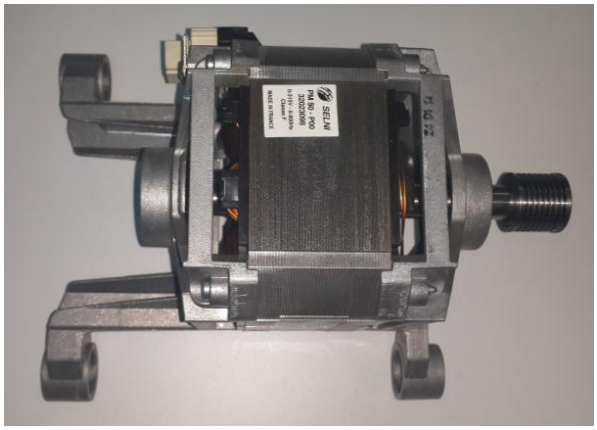
8.5.2. Checking of Component

1. Make sure there are no laundry in washing machine, tap is connected and opened, power cord is plugged. Put no detergent in drawer.
2. Bring porgram knob to position 1 (Cotton 90°C program)
3. Press start button.
4. Wait for water intake step to finish. You can recognise it by listening the water sound or slightly opening and observing detergent drawer.
5. As soon as water intake is over turn program knoc to position 0 (Off position)
6. Check water level from door glass. The water level should be just below door glass as seen in the picture below: (There is a %10 tolerance with this level)

8.6. Motor

The washing machine has an asynchronous motor. It is controlled by the PCB. It is essential to check the motor for correct diagnosis and quick servicing. In the below picture, socket points on the motor is shown to measure with multi meter.

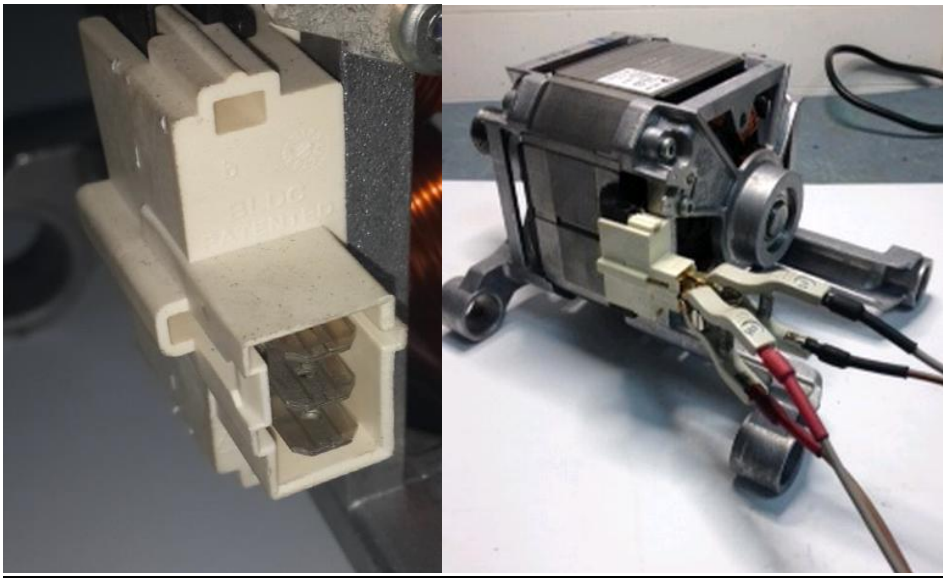
ÜNİVERSAL MOTOR BLDC MOTOR



Motor

3 phase brushless DC Motor.
Ferrite Magnet
Stator resistance (phase- Neutral) 2,38 ± 7% Ω

Motor socket terminals



Measurement of resistance and inductance are done between the terminals.

Tacho and stator (full field-half field) ohm resistance values for the motor types are listed in the below table.

8.7. Door Lock

Door lock is activated at the beginning of the program in order to prevent the door from opening. It can be unlocked approximately after 2 minutes of the program end. This time delay is caused by the PTC which is assambled in the door lock.

8.7.1. Technical Features

Lock Time (20 °C)	2” – 6”
Unlock Time (20 °C)	35” – 75”
Nominal voltage	220 V
Nominal current	16 (4) A

8.7.2. Checking of Component

Check the resistance value on the component with multi-meter as shown in below figures.
Resistance value on the PTC should be 1000 Ω ±50% at 25 °C. That resistance value can be measured from terminal 3-4 (See wiring diagram page 51 below).

9. Wiring Diagram