

HOSHIZAKI



HW-320B Service Manual

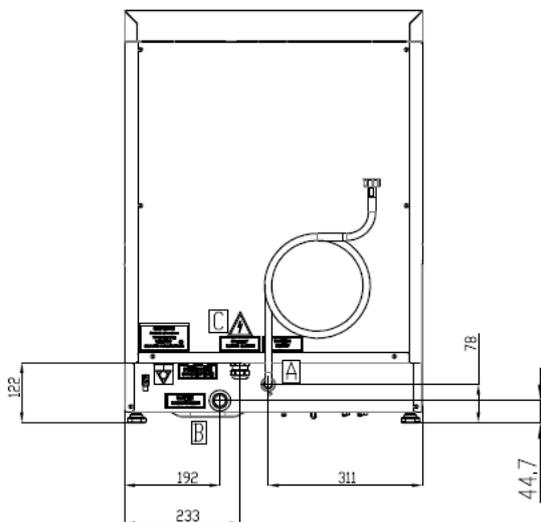
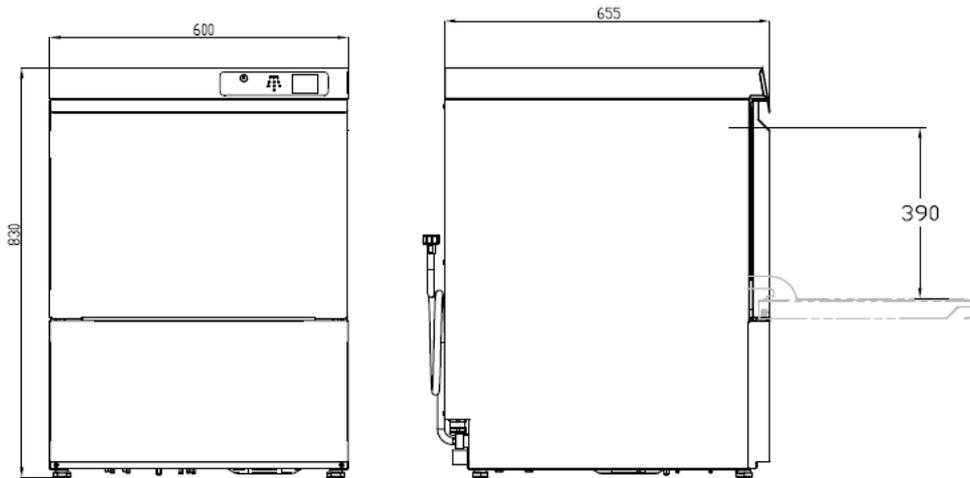


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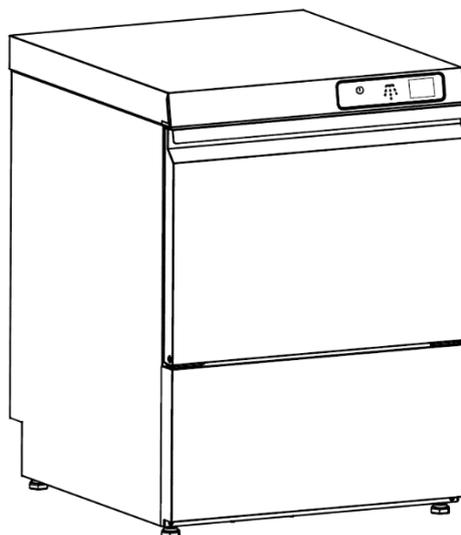
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1-Tecnical features and device dimensions:

MODEL	HW 320B PDRT	HW 320B PDRT	HW 320B PDRT	HW 320B PDRT
Total Rating	220V NPE 50 Hz	240V NPE 50 Hz	220V NPE 60 Hz	240V NPE 60 Hz
Total Rating(kW)	5.01	5.83	5.01	5.83
Washing Capacity (Plate/Hour)	560	560	560	560
Washing Capacity (Basket/Hour)	35/27/23/20/18	35/27/23/20/18	35/27/23/20/18	35/27/23/20/18
Washing/Boiler Tank Capacity	12 / 7 lt.			
Washing Program Number	5	5	5	5
Program Times(sn.)	102/132/152/172/192	102/132/152/172/192	102/132/152/172/192	102/132/152/172/192
Washing Water Temp. (°C)	55-60	55-60	55-60	55-60
Rinsing Water Temp. (°C) max.	80-85	80-85	80-85	80-85
Water Inlet Connection	3/4 "	3/4 "	3/4 "	3/4 "
Water Inlet Pressure (Bar)/Temp.	2-4 Bar / 50 °C			
Heat Power (Washing/Rinsing)	1,8 / 4,35 kW	2,2 / 5,17 kW	1,8 / 4,35 kW	2,2 / 5,17 kW
Dirty Water Discharge Connection	3/4" (Ø 28 mm)			
Gross Weight	70 (±5) kg	70 (±5) kg	70 (±5) kg	70 (±5) kg
Dimensions (WxDxH) (mm.)	600x655x830	600x655x830	600x655x830	600x655x830
Protection Class	IPX5	IPX5	IPX5	IPX5
Rack Dimension (cm.)	50x50	50x50	50x50	50x50
Loading Height	39 cm	39 cm	39 cm	39 cm
Inclination	6°	6°	6°	6°
Washing Pump Power (kW)	0.66	0.66	0.66	0.66
Rinsing Pump Power (kW)	0.25	0.25	0.25	0.25
Rinse Aid Pump	+	+	+	+
Detergent Pump	+	+	+	+
Rinsing Pump	+	+	+	+
Drain Pump	+	+	+	+
Electrical Connection Cable / Flexible Water Supply and Drain Hose	+	+	+	+



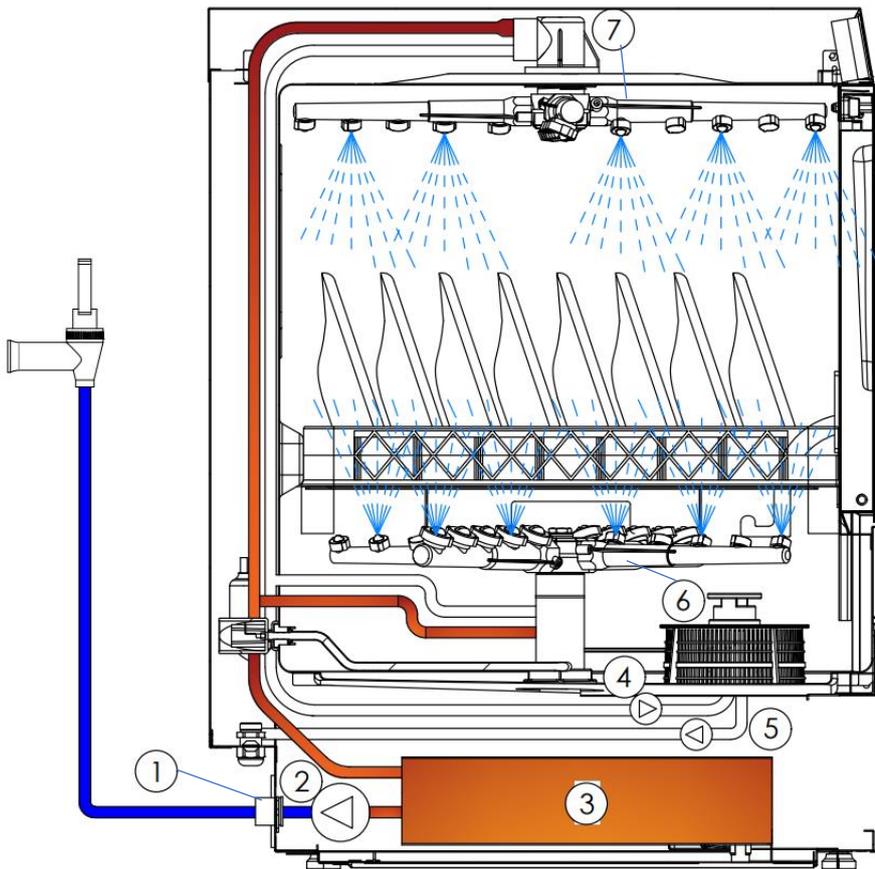
A	Water inlet
B	Water drain
C	Power supply
D	Earthing
E	Loading height



2-Dishwasher Working Principle :

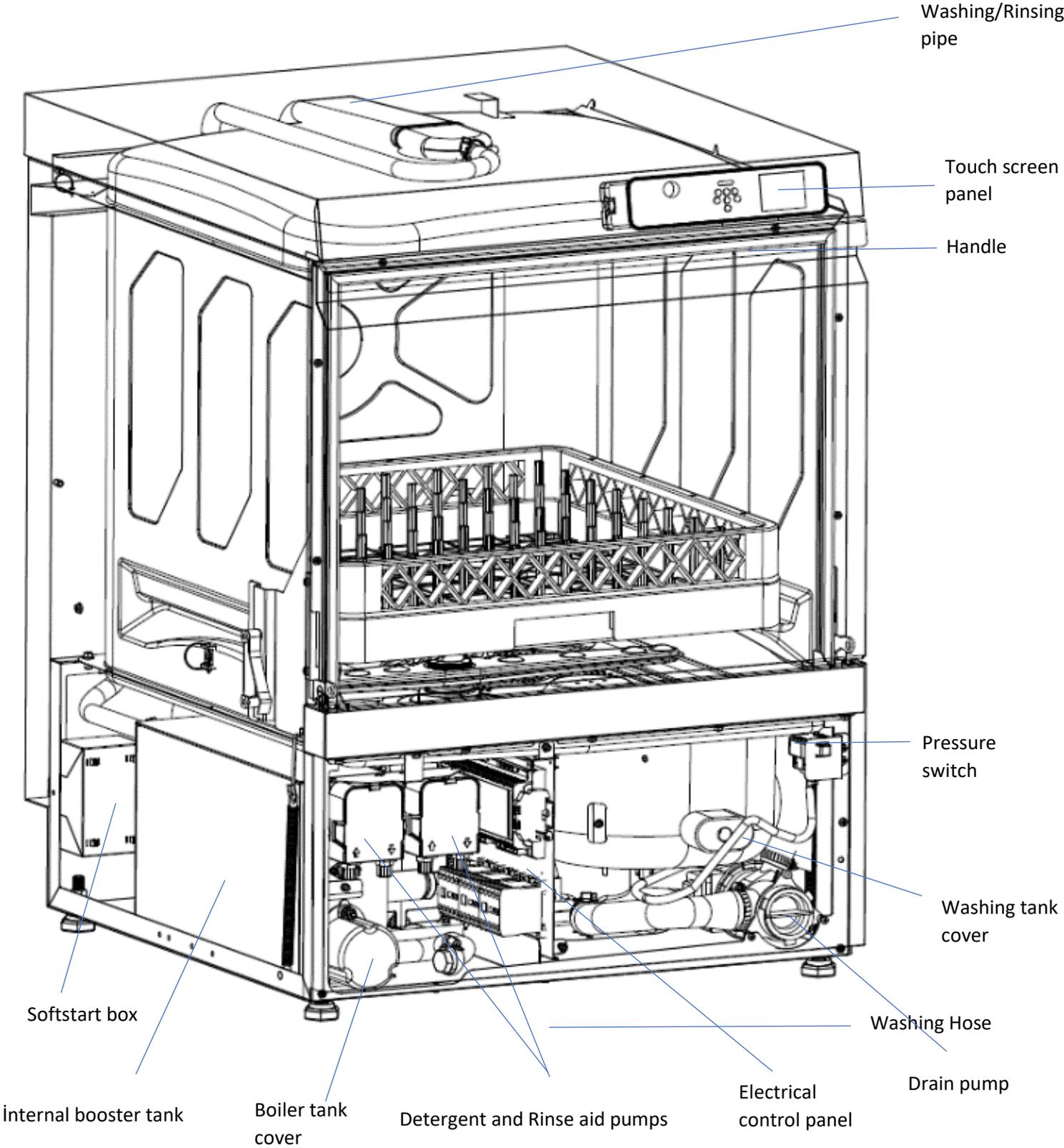
Water Path

- 1-Water inlet valve
- 2-Rinse pump
- 3-Internal booster
- 4-Wash pump
- 5- Drain pump
- 6-Lower spray arm
- 7-Upper spray arm

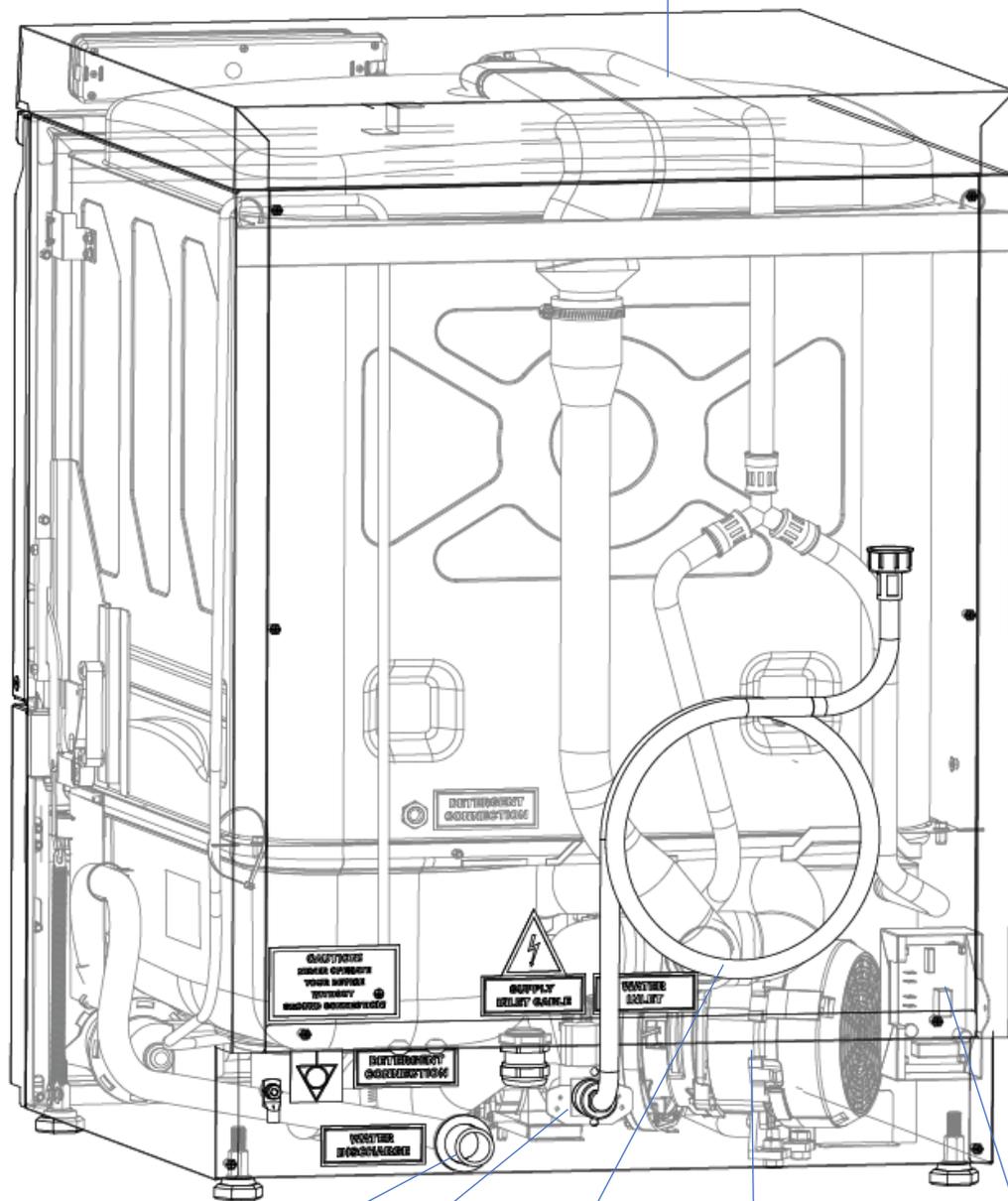


- The wash water is sprayed by the wash pump from the upper and lower wash spray arms into the wash compartment.
- The rinse water is sprayed by the rinse pump from the upper and lower rinse spray arms into the wash compartment.

3-General Information for Dishwasher :



Rinsing Hose



Drain outlet

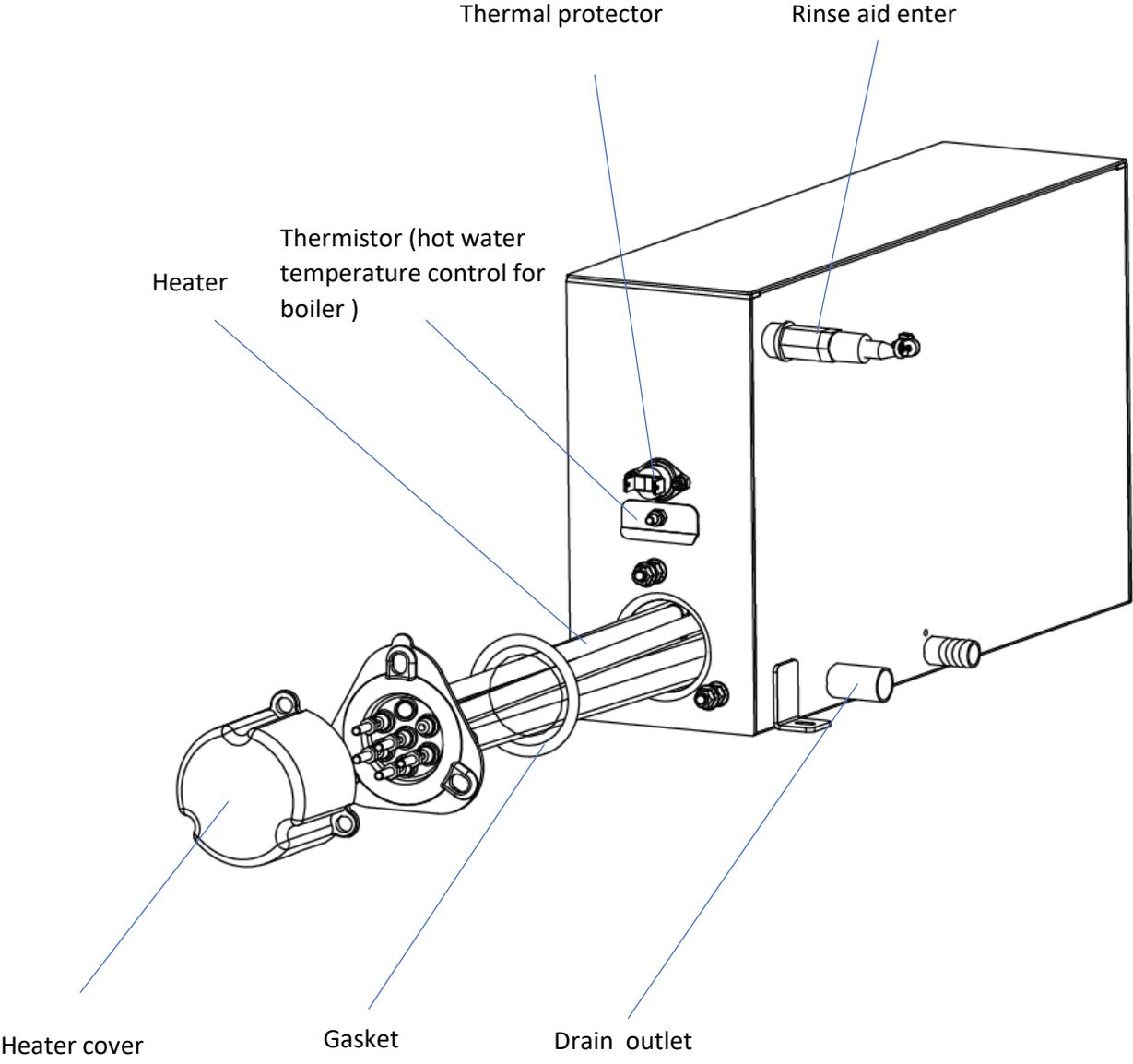
Water inlet valve

Water inlet hose

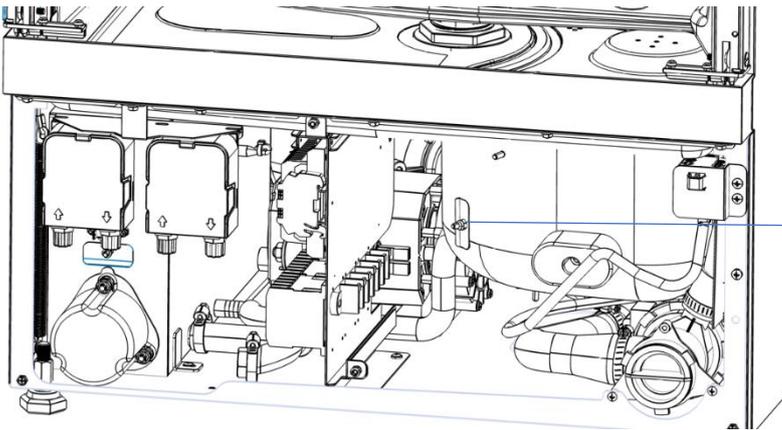
Washing pump

Soft start option

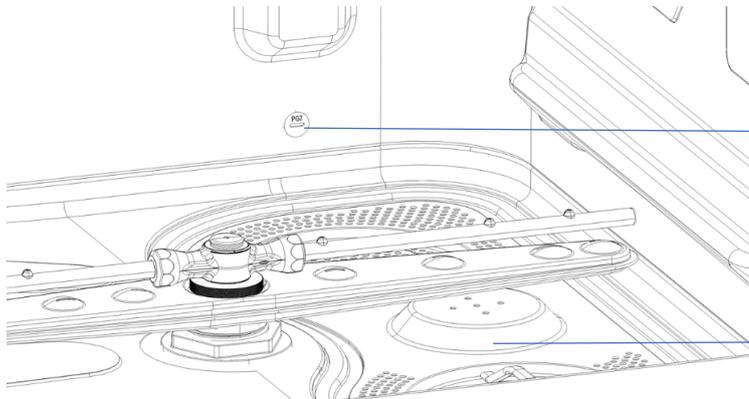
3.a-Internal Booster Tank



3.b Washing tank



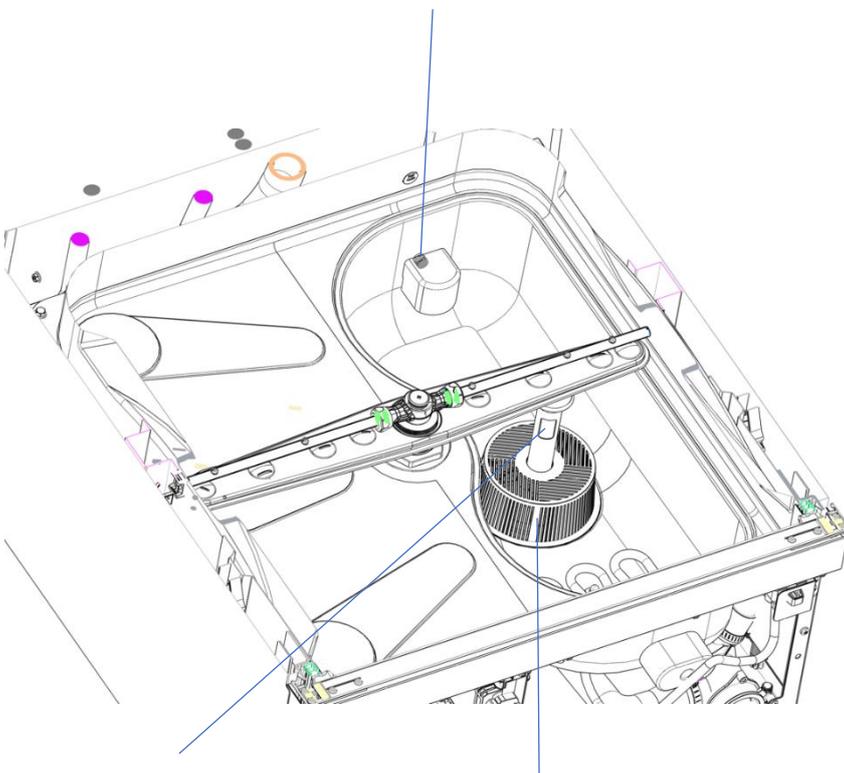
Thermistor (hot water temperature control for washing tank)



Detergent feeding hole

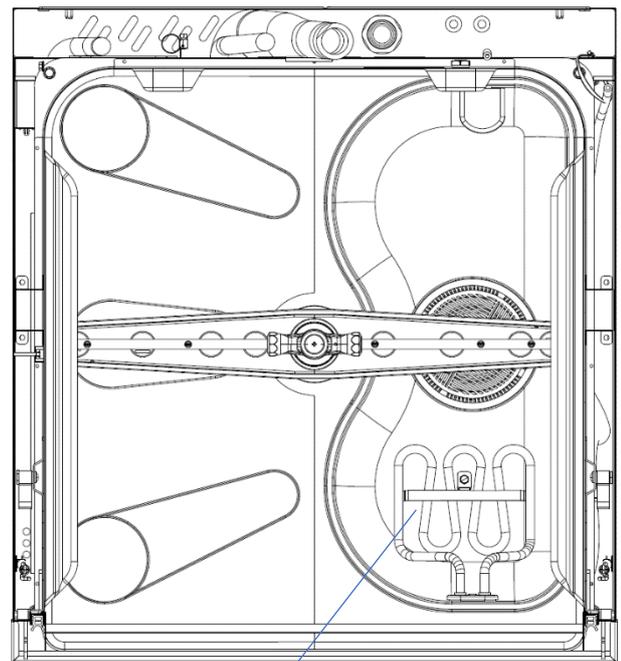
Stainless steel filter

Air Trap,(Pressure Switch Sensing)



Overflow Pipe

Pump Filter

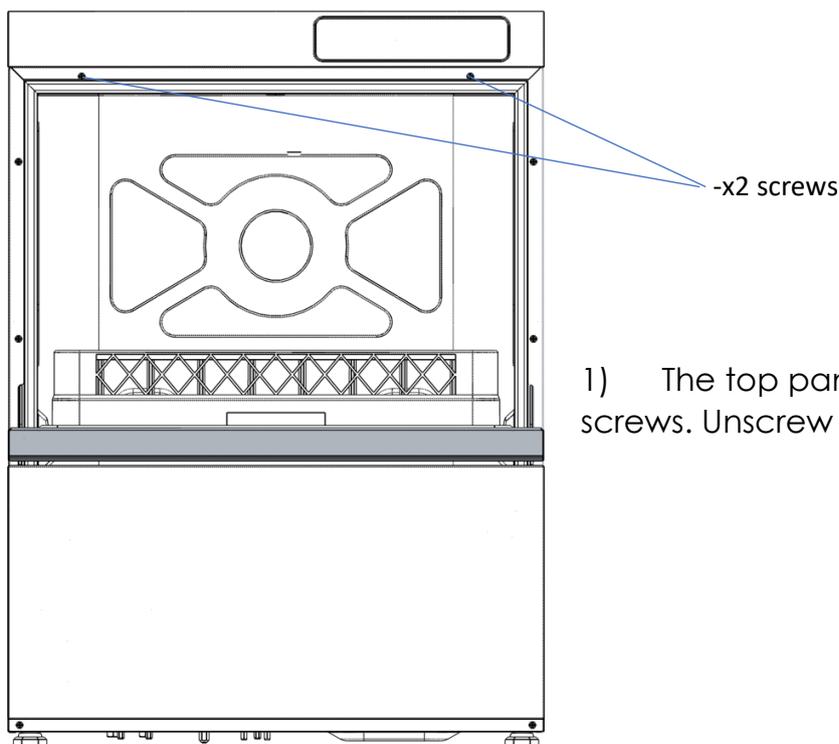


Washing tank heater

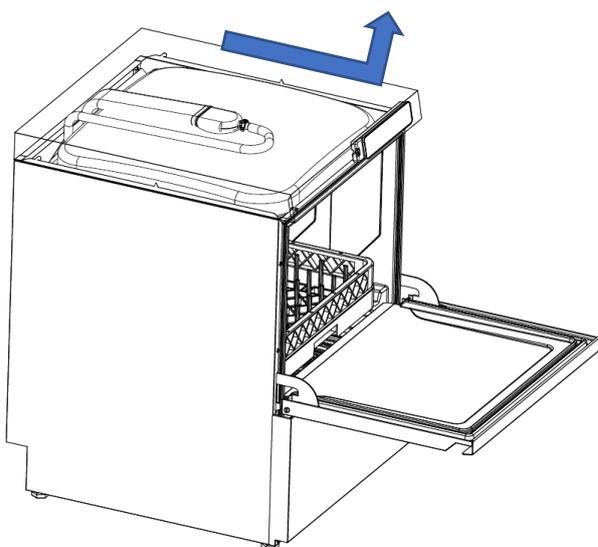
4- Removal and Replacement of Components

1. This unit should be diagnosed and repaired only by qualified service personnel to reduce the risk of death, electric shock, serious injury, or fire.
2. Turn off the power supply before servicing. Lockout/Tagout to prevent the power from being turned back on inadvertently.
3. When draining the internal booster tank, wait until the water temperature falls below 40°C to avoid possible burns.
4. To avoid possible burns and spills, be sure to drain the wash tank and internal booster tank and let the components cool before servicing.
5. When disassembling components that have been in contact with detergent, wear rubber gloves and goggles. Before starting disassembly, thoroughly read the detergent safety instructions. Contact with skin may cause irritation and contact with eyes may cause blindness.
6. When reassembling components, be sure to use new O-rings and gaskets.

4.a. Removal of Top Panel



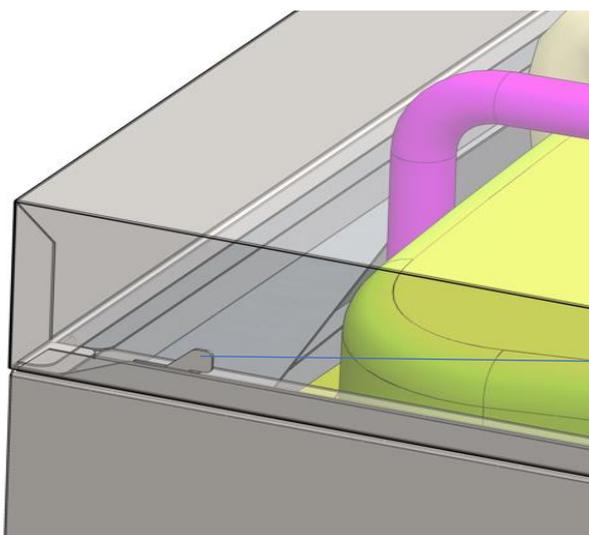
- 1) The top panel is secured with 2 screws. Unscrew the screws.



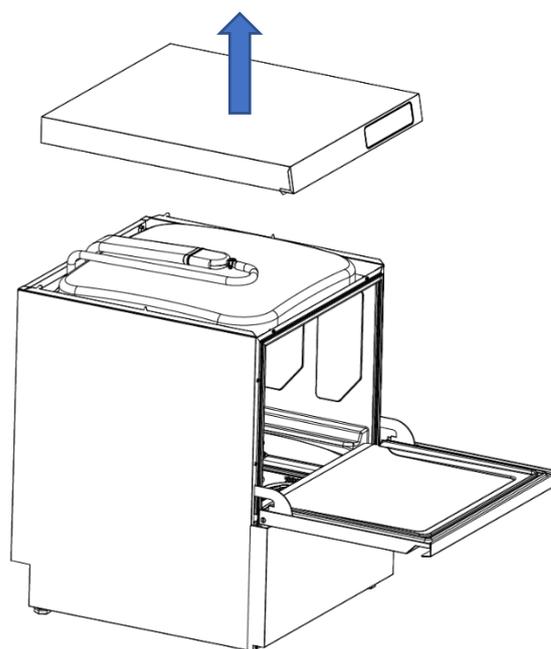
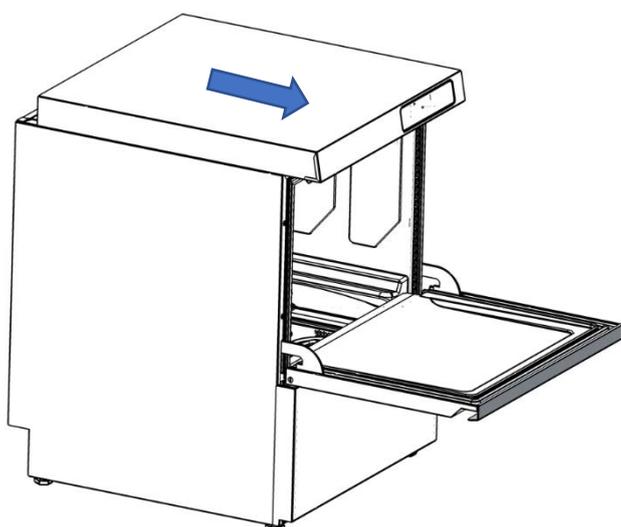
2) forward the top plate and remove the top panel from the side panels hook.

3) To replace, reverse the above procedure.

Bye removing the top panel you can reach the Touch screen panel.

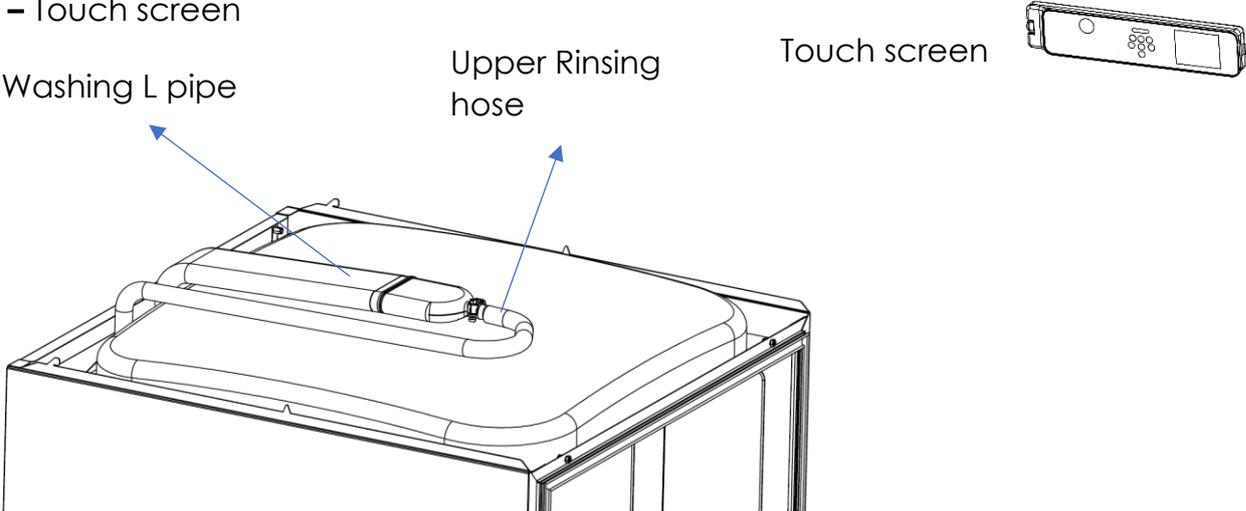


The hooks on side panels

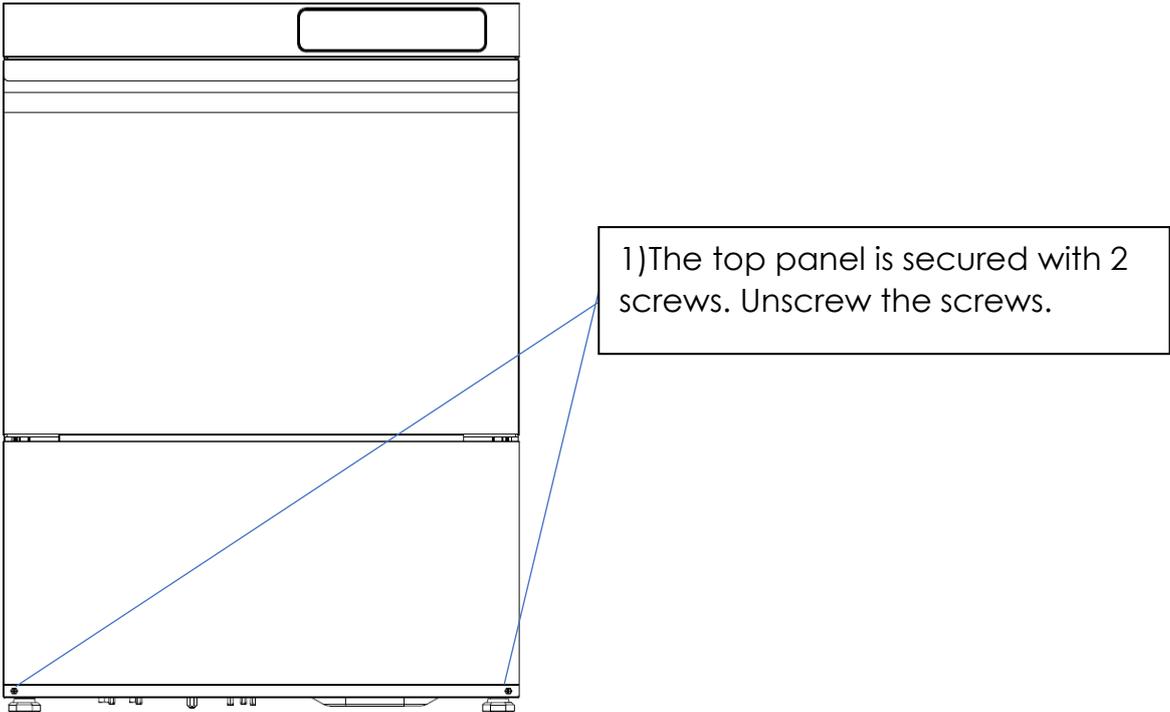


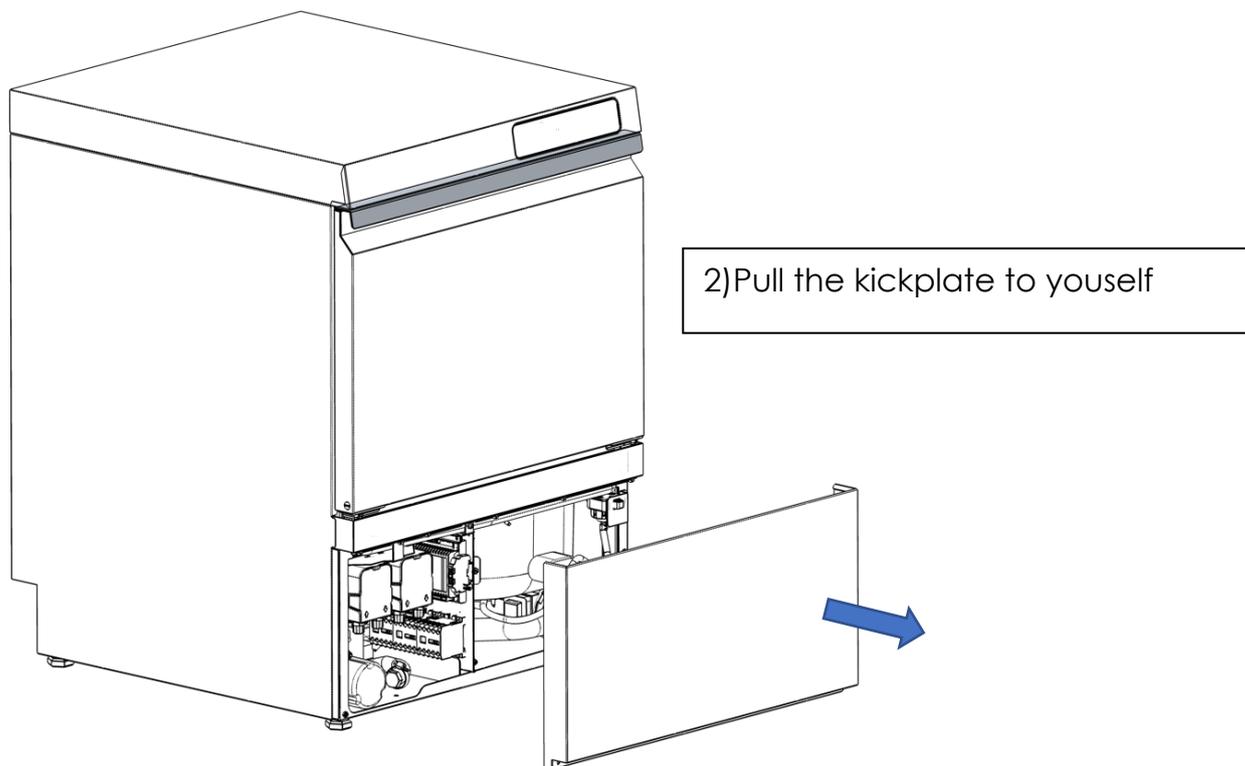
By Removing the top panel you can Access

- 1 – Washing L pipe
- 2 – Upper rinsing hose
- 3 – Touch screen



4.b. Removal of the kick plate

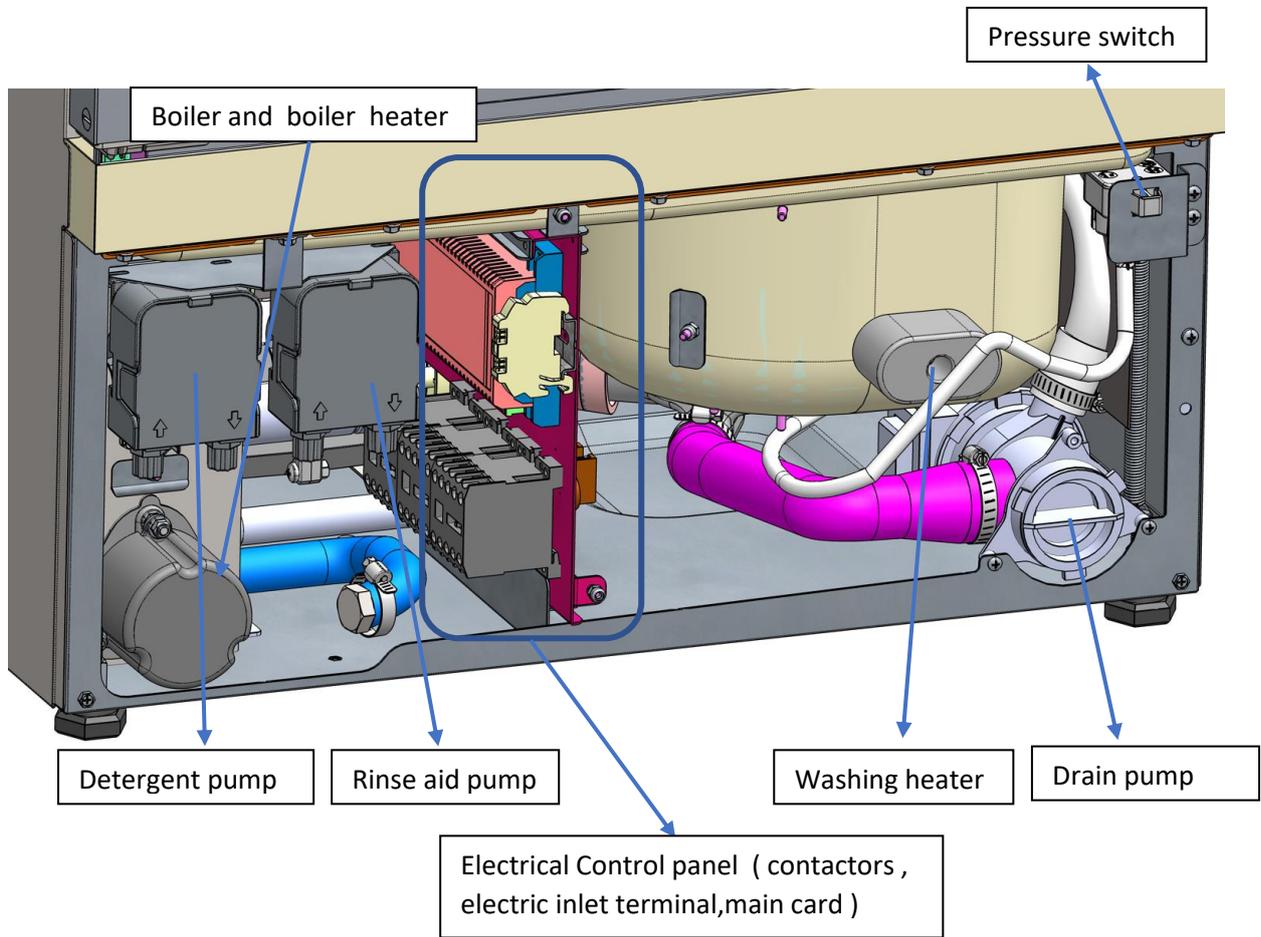




HW-320 B is a service friendly product because by removing kickplate you can reach lots of components.

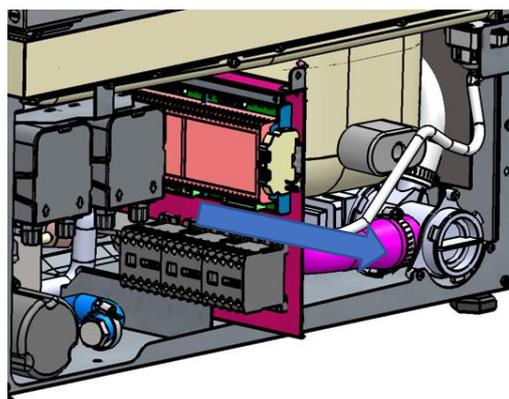
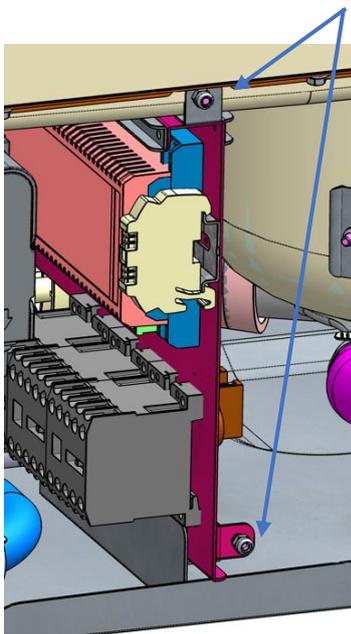
By Removing the kick plate you can access

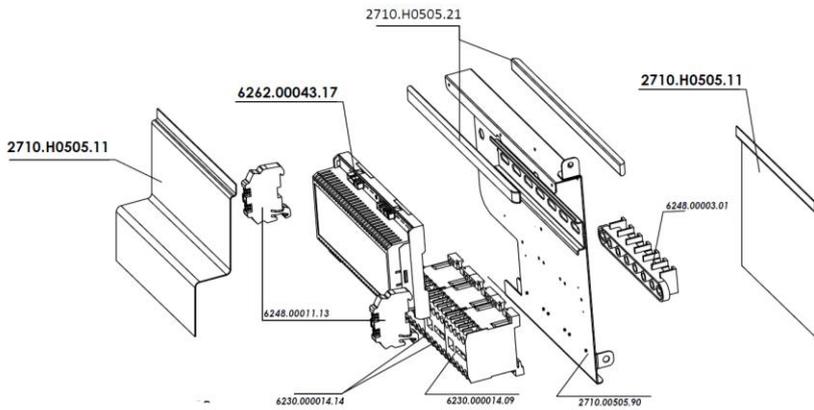
- 1) Control panel (contactors , electric inlet terminal,main card)
- 2) Drain pump
- 3) Pressure switch
- 4) Rinse aid pump and Detergent pump
- 5) Washing tank heater
- 6) Boiler Heater
- 7) Boiler / Washing tank probs
- 8) Safety limit thermostats
- 9) Boiler



4.b1. Electrical control panel

- 1) Turn off the power supply. Lockout/Tagout to prevent the power from being turned back on inadvertently.
- 2) Remove the kick plate.
- 3) Unscrew the nuts and pull the electrical control panel through to yourself.





Item names/Codes		Quantity
6230.00014.09	Contactor	1
6230.00014.14	Contactor	2
6248.00003.01	Electric inlet terminal	1
6262.00043.17	Power box	1
6262.00043.041	Touch screen panel	1
2710.00505.90	Electrical pano plate	1
6248.00011.13	Terminal stopper	2

4b2. Removal and Replacement of Internal Booster Tank

- 1) Turn off the power supply. Lockout/Tagout to prevent the power from being turned back on inadvertently.
- 2) Close the water supply line shut-off valve.
- 3) Remove the kickplate.
- 4) Drain the internal booster tank from the drain outlet (prepare a container)

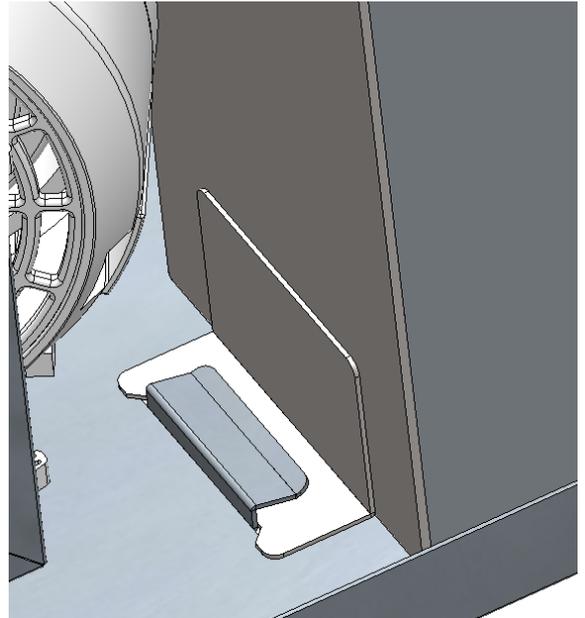
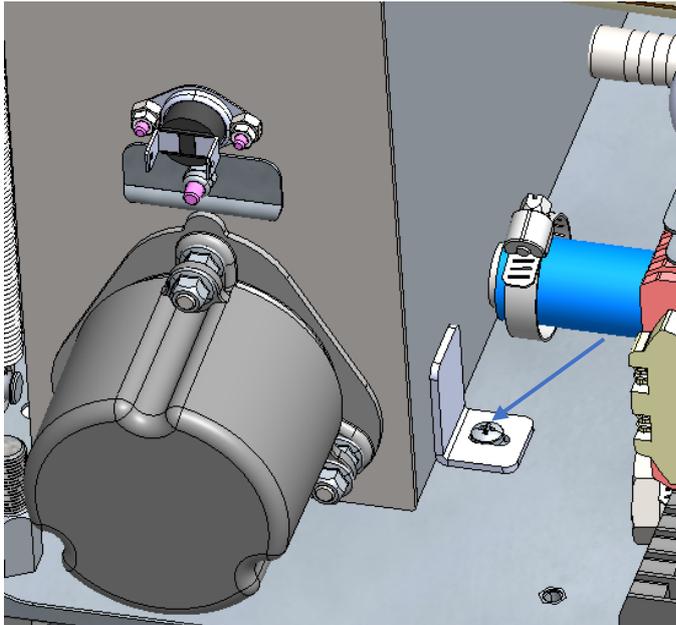
⚠ WARNING

To avoid possible burns, allow the internal booster tank water temperature to fall below 40°C before draining.

5) Loosen the hose bands, and remove the water supply and overflow hoses.

6) Remove the heater , bi metal thermostat switch and thermistor wires.

7) Remove one screw, and pull out the internal booster tank.(there is a hook at the back of the boiler tank)



8) To replace, reverse the above procedure.

9) Make a trial run, and check for water leaks.

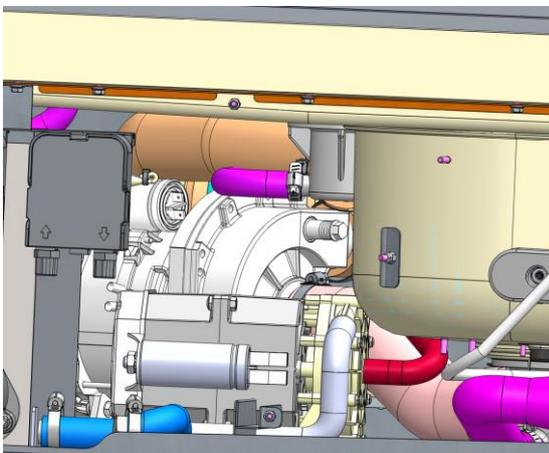
4b3. Removal and Replacement of Internal Rinse Pump

- 1) Turn off the power supply. Lockout/Tagout to prevent the power from being turned back on inadvertently.
- 2) Close the water supply line shut-off valve.
- 3) Remove the kickplate.
- 4) Drain the internal booster tank from the drain outlet (prepare a container)

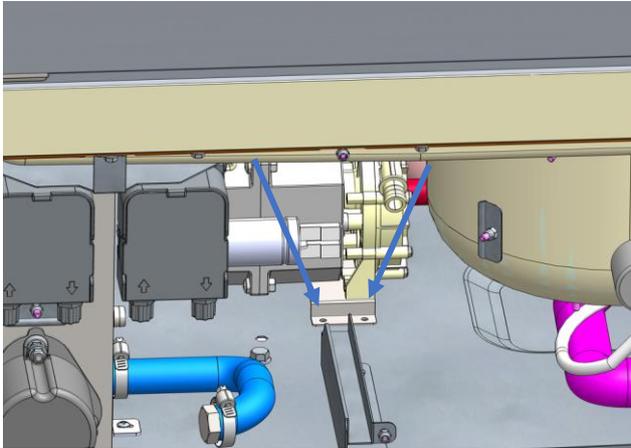
⚠ WARNING

To avoid possible burns, allow the internal booster tank water temperature to fall below 40°C before draining.

- 5) Remove the Electrical control panel
- 6) Loosen the hose bands and remove hoses between boiler and water inlet valve.

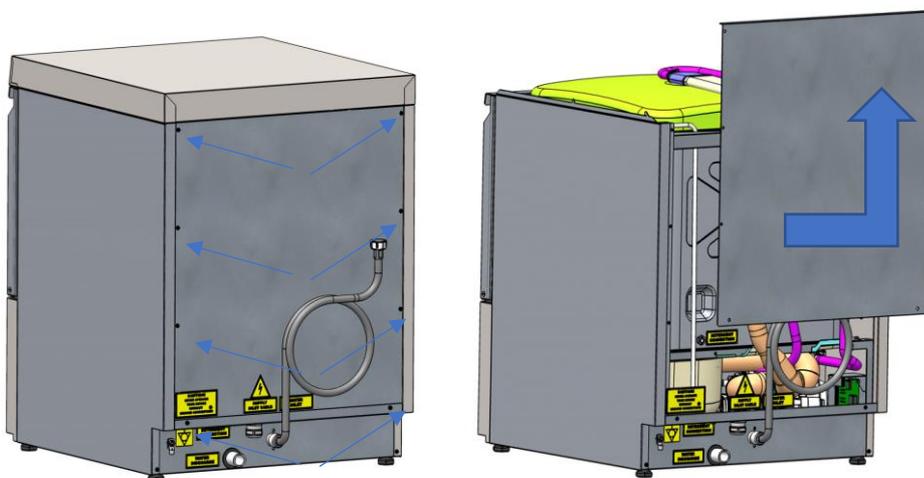


7) Unscrew the two screws that connect the rinse pump to the basement. Then remove the rinse pump.



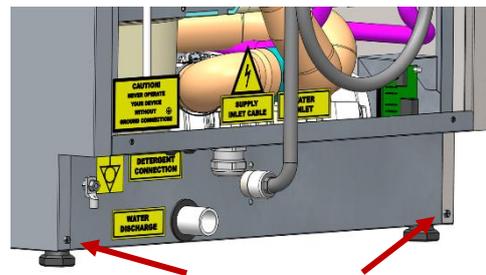
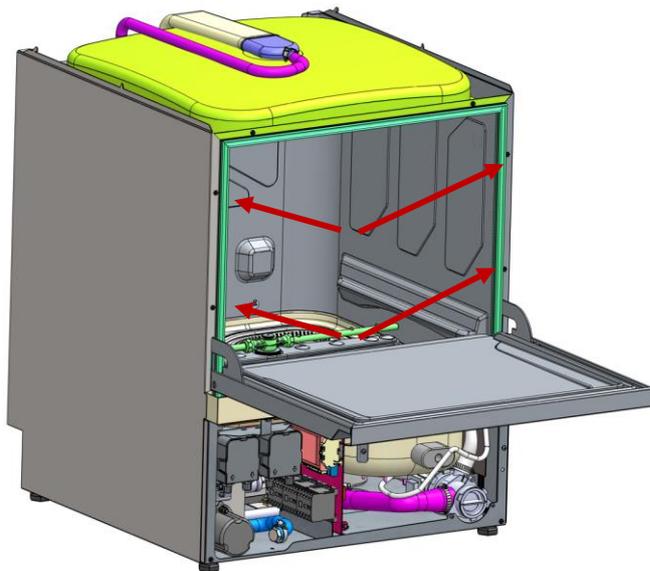
4.c. Removal of the back panel.

- 1) Remove the top panel
- 2) Unscrew the 8 screws that is at the back of the Dishwasher.
- 3) Pull back panel up and through to you and remove.



4.d. Removal of the side panels.

- 1) Remove the top panel.
- 2) Remove the back panel.
- 3) Remove the kickplate.
- 4) Unscrew 4 screws in front of the machine and then unscrew two screws at the back of the machine and remove side panels.



By removing the side panels; You can reach ;

Door spring

Stopper flat spring

4d1. Removal and Replacement of Wash Pump Motor

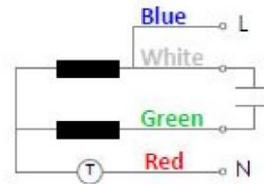
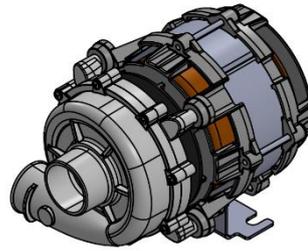
- 1) Turn off the power supply. Lockout/Tagout to prevent the power from being turned back on inadvertently.
- 2) Close the water supply line shut-off valve.
- 2) Pull out the drain pipe to drain water from the wash tank.
- 3) Remove the side panels
- 4).Remove the boiler.

- 5) tilt the machine to its right side
- 5) Loosen the hose bands, and remove the suction and discharge hoses.
- 6) Remove the two screws, and disconnect the wash pump motor.
- 7) To replace, reverse the above procedure.
- 8) Make a trial run, and check for water leaks.



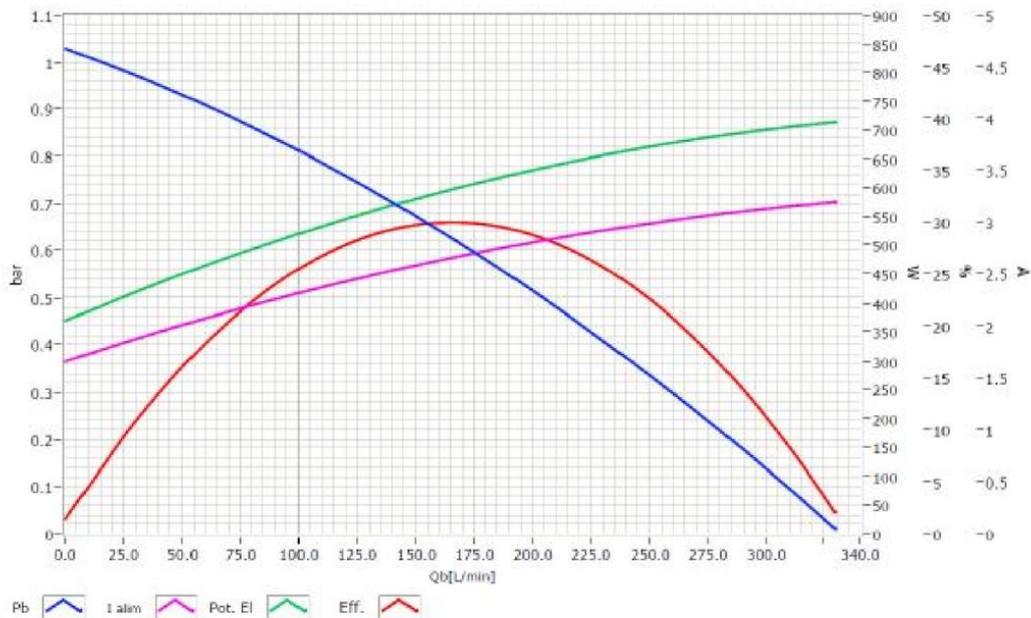
Washing Pump technical info :

DATI TECNICI / TECHNICAL DATA		
Power supply		monofase single-phase
P1 input	[kW]	0.66
Voltage	[V]	230
Frequency	[Hz]	50
Current	[A]	2.9
Speed	[RPM]	2800
Capacitor	[uF]	12.5
Insulation class		F
IP protection		IP00
Duty		S1
n° poles		2
Thermal protection	[°C]	160 S05-160.05 THERMIK



CONNESSIONI / CONNECTIONS		
Blu/Blue	350mm	
Rosso/Red	350mm	
Bianco/White	350mm	
Verde/Green	350mm	

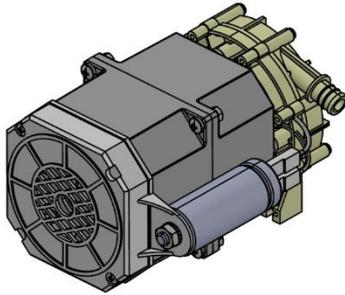
NB: All fastons with protection covers



Test eseguito a 230V 50Hz con acqua pulita a 20°C
 Performance test at 230V 50Hz with clean water at 20°C

Rinsing Pump technical info :

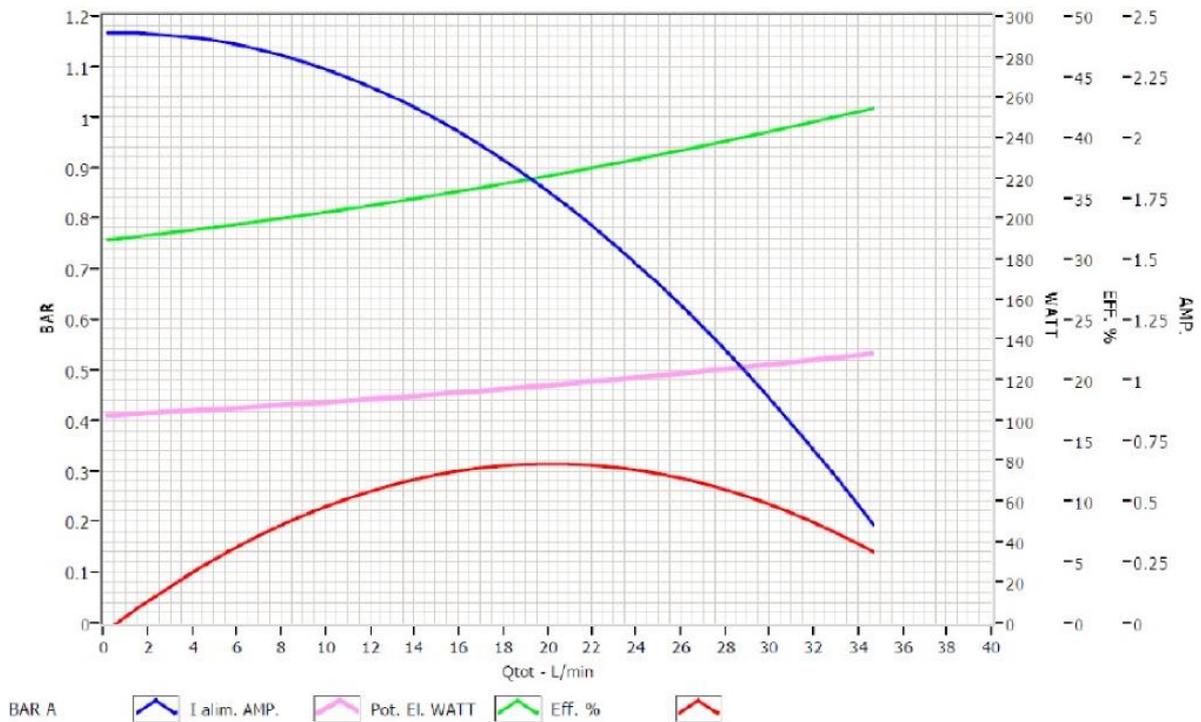
Technical data R63.T33PRSM												
Ø Inlet (mm)	Ø Outlet 1 (mm)	Ø Impeller (mm)	Power (kW) - (HP)	Voltage (V)	Current (A)	Frequency (Hz)	(rpm)	Insulation Class	Protection Class	Duty	Thermal protection	Weight (kg)
15	14	90 (Closed)	0,25 - 0,33	230±10%	1,25	50	2800	F	IP20	S3	150±5 °C	3,1



Connessioni Connection			
Rosso Red	L	L=350	
Blu Blue	N	L=370	
Bianco White	Condensatore Capacitor	L=200	
Verde Green		L=200	
Giallo-verde Yellow-green		L=370	

**Condensatore
Capacitor**

8 µF ±5% 425V 10000h cl.B
475V 3000h cl.C P2



6. CLEAN-UP AND MAINTENANCE

6.1 Periodical Maintenance and Clean-up

Daily maintenance should be carried out by people informed about the safety instructions as following, after disconnecting power supply and water connections.

6.1.1 Daily Maintenance:

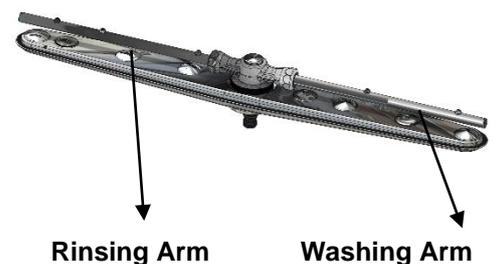
Daily maintenance should be carried by the user. In order to clean up the machine within the day following should be carried out periodically after the washing operation:

1. Wash and rinse arms should be disconnected and the scraps remaining in those arms should be removed away using pressure water, brush, fine wire etc. and reinstalled back to their places.
2. Scraps remaining in the washing tank should be removed and cleaned up. (Do not carry out washing operation without installing scrap filters)
3. If the period between two washing operations exceeds "5 Hours" water outlet pipe should be disconnected and all of the water should be drained out fully.
4. Suction filter should be disconnected and cleaned up with plenty of water.
5. Inside of the tank should be cleaned up with a sponge or cloth and plenty of water.
6. After cleaning operation is finished suction filter, water outlet pipe, scrap filters and washing and rinsing arms should be reinstalled.
7. Scale formed on the carriers of the device after certain period of use, must be wiped away. If it is not cleaned up for a long time, scale formed on the carriers of the device, hinder the free movement of the hood.

6.1.2 Periodical Maintenance:

Periodic maintenance should be carried out by the user at least once in a month, after the cleanup and maintenance that must be conducted after each washing operation is completed. This should be done when the machine is ready for operation and before the dishes are set up in the machine. After ½ kg's of decalcination substance is added to the washing tank, the machine is operated for ½ hours so that it cleans itself up. Afterwards the water within the machine is disposed and then refilled with fresh water. This time the machine is operated without any additive substance only with water for ½ hours and after the water inside is disposed, the machine will be ready for operation.

If the device is not used for long period of time, you must drain the water left inside the boiler. For this purpose, let the water drain out after opening the tap (boiler tank tap) at the lower part of the devices body. Other wise, water staying inside too long, may harm the resistances.



7- Touch user manual

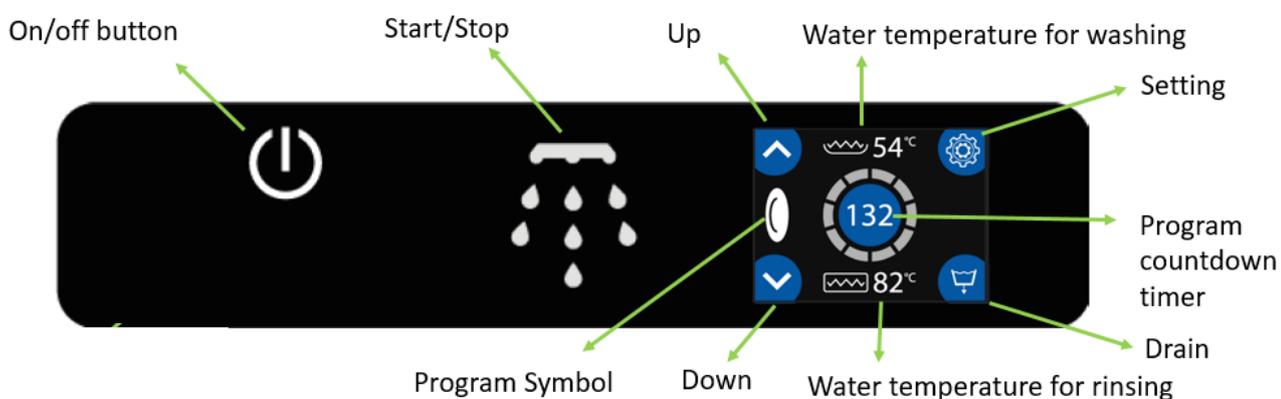
7- Operation:

7.1 Description of the Appliance

Unlike domestic appliances, industrial dish and glass washers are designed for almost uninterrupted operation.

7.2 Control Panel

Before starting the appliance, first get familiar with the control buttons and symbols on the front panel. In addition, get familiar with the location of power and water cut-off switches.



Make sure that power, water and drain connections are installed. Press the “On-Off Switch” on the front panel when the White back light activated. LCD screen will turn on. Press on the ‘Washing Start’ switch for intake the water.



Appliance will automatically start to take water. Once the set water amount is reached, heating will start automatically.



Appliance heats first the boiler and then the washing tank water. Washing operation will not start until washing temperature reaches 'Factory Settings'.



7.3 Initial Preparation for Use:

At initial start of the appliance everyday, wait 25-30 min (depending on the dishwasher model) for the supplied water to warm up. After the water temperature reaches 'Factory Settings', warning sound will ring. Appliance is designed to function efficiently when proper temperatures are reached. If the temperatures are decreased, wait for the appliance to reach proper temperature before starting a new wash cycle.

7.4 Starting a Wash Cycle

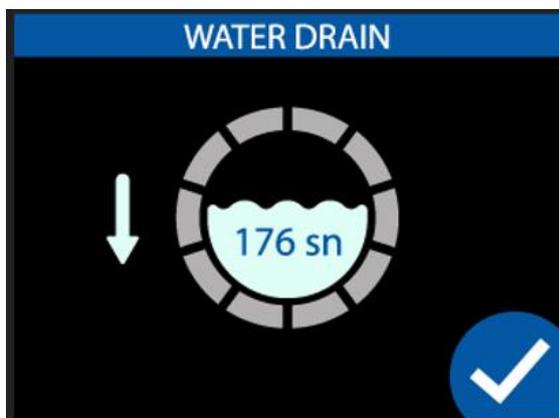
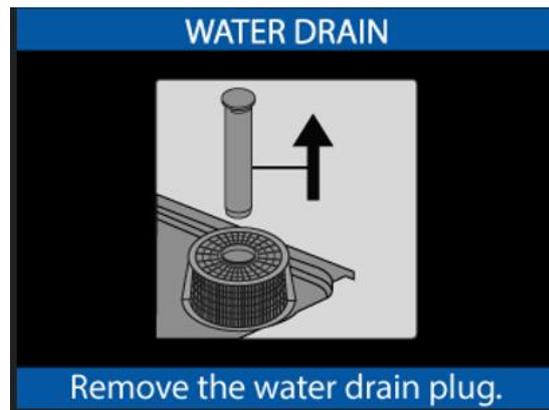
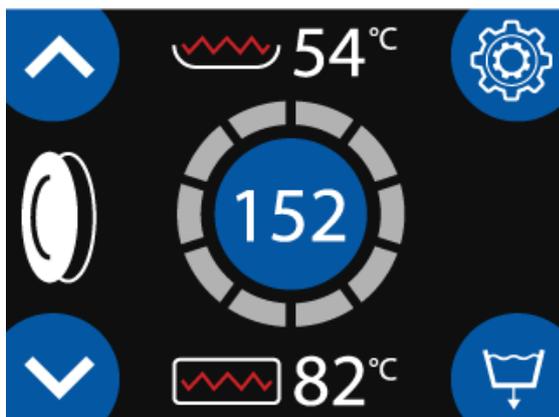
Open the door, load the first basket and check that upper and lower arms turn freely. For selecting the program, press the 'Start/Stop' switch. After, use the "Program Selection Key" to select a program (102 sec, 132 sec, 152 sec, 172 sec or 192 sec) considering the dish type and dirt level, and press the "Washing Start" button to run the program selected. Washing process time will countdown on LCD screen. Once washing cycle is complete, rinsing cycle is started. If the cover of the machine is opened for the any reason, washing operation will stop. After closing cover the washing program will resume. After finishing of the washing operation warning sound will ring. Open the door, pull out the basket accommodating washed dishes and load a new basket. Close the door and start a new wash cycle.



Note: It is recommended to operate the appliance at an ambient temperature range of 5°C - 40°C, and ambient moisture of 65%.

5.8 5.8 Draining:

Excess water will automatically be drained during the operation. At the end of the day, leave the appliance with its door open for draining and drying. At the end of the cycle, always bleed the boiler water before switching off the appliance.

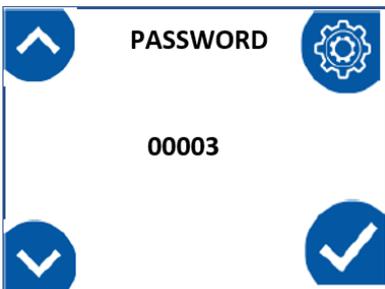


8-Accessing The Settings Menu of Touch Panel

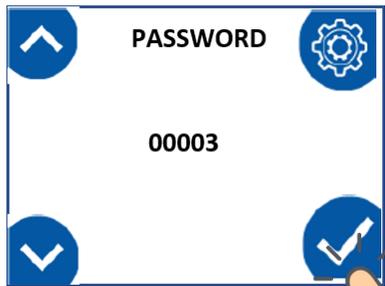
Press and hold the settings icon for 3 sec.



➤ You will see the password screen. Enter "3" for password.



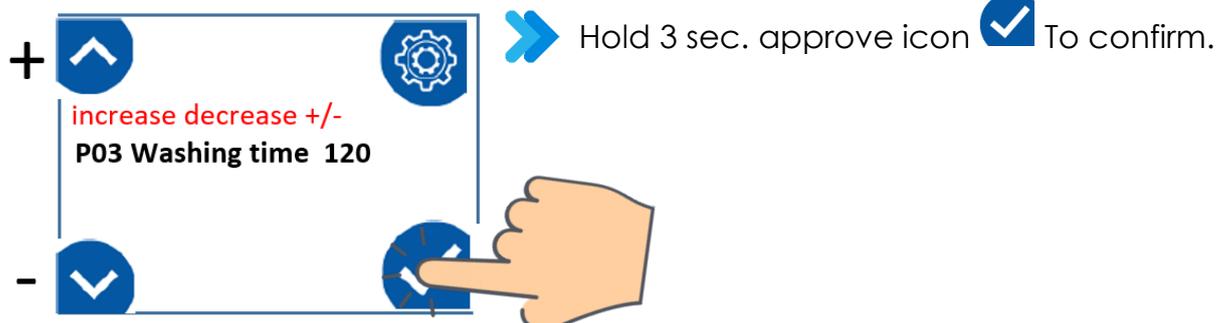
➤ Use up and down buttons to enter "3".
will see the password screen. Enter "3" for password.



➤ Hold 3 sec. approve icon To confirm.

Changing Parameters

- Access the setting menu.
- Choose the program that you want to change.
- Use settings icons up, down to change the parameters



Service Menu Chart

By using the settings menu you can reach the below values.

Service Menu Chart									
Service Menu	Item and details	Setting range	Display	Factory Default					
P01	Tank Temperature Set	4 to 100x1 degree	4 to 100	55 °C	55 °C	55 °C	55 °C	55 °C	
P02	Boiler Temperature Set	4 to 100x1 degree	4 to 100	80 °C	80 °C	80 °C	80 °C	80 °C	
P03	Washing Time	1 to 250x1 second	1 to 250	40 Sec.	90 Sec.	120 Sec.	140 Sec.	180 Sec.	
P04	Rinse Time	1 to 250x1 second	1 to 250	10 Sec.	10 Sec.	10 Sec.	10 Sec.	10 Sec.	
P05	Waiting Time After Washing	1 to 250x1 second	1 to 250	2 Sec.	2 Sec.	2 Sec.	2 Sec.	2 Sec.	
P06	Evacuation Time During Rinse	1 to 250x1 second	1 to 250	40 Sec.	40 Sec.	40 Sec.	40 Sec.	40 Sec.	
P07	Max Water Level	1 to 100	1 to 100	30%	30%	30%	30%	30%	
P08	Getting Detergent Time	1 to 250x1 second	1 to 250	10 Sec.	10 Sec.	10 Sec.	10 Sec.	10 Sec.	
P09	Getting Polish Time	1 to 250x1 second	1 to 250	10 Sec.	10 Sec.	10 Sec.	10 Sec.	10 Sec.	
P10	Evacuation Time	1 to 250x1 second	1 to 250	150 Sec.	150 Sec.	150 Sec.	150 Sec.	150 Sec.	
P11	Dirfiness Counter	1 to 250x1 times	0 to 250	15 Times	15 Times	15 Times	15 Times	15 Times	
P12	Temperature Hysteresis	1 to 10x1 degree	1 to 10	1 °C	1 °C	1 °C	1 °C	1 °C	
P13	Extra Time For Water Filling	1 to 250x1 second	1 to 250	25 Sec.	25 Sec.	25 Sec.	25 Sec.	25 Sec.	
P14	Pressure Level	3 levels	1 to 3	3	3	3	3	3	
P15	Tank Preheating	0 : Tank preheating is off	0 or 1	1	1	1	1	1	
		1 : Tank preheating is on							
P16	Temperature Unit	Celsius or Fahrenheit can be choosen	Celsius or Fahrenheit	Celsius	Celsius	Celsius	Celsius	Celsius	
P17	Start By Door	0 : Stand by / Cleaning button	0 or 1	1	1	1	1	1	
		1 : Doorswitch							
P18	Water Level Set	2 to 100	2 to 100	10	10	10	10	10	
P19	Water Level Hyst	1 to 10	1 to 10	1	1	1	1	1	
P20	Less water detection time	1 to 120x11 second	1 to 120	5	5	5	5	5	
OP0	Factory Default	0 : standard	0 or 1	0	0	0	0	0	
		1 : Restore factory settings							
OP1	Service Counter	0 to 1000000 times	0 to 1000000	0 Times	0 Times	0 Times	0 Times	0 Times	
OP2	Factory Counter	0 to 1000000 times	0 to 1000000	0 Times	0 Times	0 Times	0 Times	0 Times	
OP3	Buzzer On	0 : Buzzer is on.	0 or 1	1	1	1	1	1	
		1 : Buzzer is off.							
OP4	Password	0 to 1000000 number	0 to 1000000	3	3	3	3	3	
OP9	Diagnostic	0 to 1000000	0 to 1000000	0	0	0	0	0	

P01 Tank Temperature set :

Tank temperature value can be adjusted from settings menu. The value can be between 4 °C and 100 °C. This setting is made separately for each program.

P02 Boiler Temperature set :

Boiler temperature value can be adjusted from settings menu. The value can be between 4 °C and 100 °C. This setting is made separately for each program.

P03 Washing Time :

Washing time can be adjusted from settings menu. The value can be between 1 second and 250 second. This setting is made separately for each program.

P04 Rinse Time :

Rinsing time can be adjusted from settings menu. The value can be between 1 second and 250 second. This setting is made separately for each program.

P05 Waiting Time After Washing:

Waiting Time After Washing can be adjusted from settings menu. The value can be between 1 second and 250 second. This setting is made separately for each program. The default value of this setting is "2"seconds. The reason why there is a waiting period before the rinsing time is to prevent the droplets from the washing process from falling on the dishes after the rinsing process has started.

P06 Evacuation Time During Rinse:

Evacuation Time During Rinse can be adjusted from settings menu. The value can be between 1 seconds and 250 seconds. This setting is made separately for each program. A washing program includes 3 steps ;

1- Washing period (changes according to programme) 2 - Waiting period (2 seconds)

3- Rinsing period (usually 10 seconds)

Machine gets extra water in every rinsing period and this extra water drains from overflow pipe. With this setting drain pump starts to run during rinse period as the time that is setted.

P07 Max Water Level:

With this setting, you can adjust max water level point. When this setting is reached, the drain pump in the machine starts to work to drain the excess water.

P08 Getting detergent time - P09 Getting Rinse aid time :

Detergent and rinse aid pumps are timed. It can be adjusted between 0 and 250 seconds. This means that the rinse aid / detergent is given to the system as much as the set value (seconds) you entered.

(rinse aid to boiler, detergent to washing tank). Detergent and rinse aid pumps start working during the rinsing process and work until they are set and then stop.

P10 Evacuation (drain) time :

When the draining process is started to drain all the water in the machine, the drain pump operates for the time entered value.

P11 Dirtiness Counter :

It reminds that the water in the washing tank should be changed. It counts the entered value, and when the entered value is filled, the icon “” appears on the screen, when all the water in the machine is drained, the icon “” on the screen disappears.

P12 Temperature Hysteresis :

Precision of temperature measurement control.

P13 Extra Time For Water Filling :

Apart from the required amount of water, it takes water for the extra time entered. This setting is set at the factory. (When the machine takes the first water, the desired amount of water is collected in the washing tank in the first run, since the washing hoses are empty, less water returns while returning to the washing tank, therefore, during the first washing program, the machine may stop working and try to take water, this setting prevents this)

P14 Pressure Level :

This feature is not active now

P15 Tank preheating :

If you set “0” tank preheating ;

If you start your machine the washing programme that you have selected will run without not waiting set temperature values. (boiler and wash tank temperature values).

If you set “1” tank preheating ;

If you start your machine the washing programme that you have selected will not run without reaching the set temperature values. (boiler and wash tank temperature values).

P16 Temperature unit :

If changes the temperature unit of your machine, you can use either Fahrenheit or Celcius units.

P17 Start bye door :

If you set "0" this value ;

To start washing programme you should touch the drop icon on control panel screen.

If you set "1" this value ;

To start the washing program, it will be sufficient to close the door/hood of the machine.

P18 Water Level set :

Water level is adjusted , this value is entered in the factory.

P19 Water level Hysteresis :

Precision of water measurement control.

P20 Less Water detection time:

The minimum amount of water required in the machine can be adjusted. In order for the water to remain above the washing tank resistance.(for safety)

OP0 Factory Default	If the factory default is set to 1, all settings made on the machine will return to the factory settings.
OP1 Service Counter	When the service performs an operation on the machine, it resets this field and if the machine has a problem again, it is seen how long the machine has worked between the two service times.
OP2 Factory Counter	It shows how many times the machine has been operated during its lifetime.
OP3 Buzzer on	You can make "off" or "on" the buzzer.
OP4 Password	You can change the password as you will.
OP9 Diagnostic	This is done in production line , to introduce the water zero point to the digital pressure switch.

