



RRM-RİVO'S REACTOR MANUAL



SAFETY INSTRUCTIONS

- Since this machine operates with high voltage, never operate it without technical personnel.
- Remove rings, watches, tags and metal items while operating the machine.
- In case of any mishaps that may arise during operation, turn the emergency stop button on the electric panel to the open position and cut off all electricity to the machine.
- Never put your hand or any other object into the tanks while the machine is running.
- The motors of the machine are working with 380V industrial electrical voltage. If you do not know the 380V working standards, never operate the machine.
- In case of a blockage in the piping of the machine, inform the technical personnel and contact the manufacturer of the machine.
- Since there is high voltage in the electrical panel, never open the panel without technical personnel.
- Do not operate the machine unless the operators who will use the machine are trained by the machine manufacturers.
- Use rubber gloves and shoes.
- After the production process is completed, turn the machine off and wash all tanks thoroughly with purified water or mains water.
- **Warning!!** Electric shock hazard.

Even if the device is turned off, there is high voltage inside the electrical panel.



This machine is manufactured and designed according to TSE and ISO standards.

INTRODUCTION

The liquid fertilizer production machine you have bought is designed to produce organic fertilizers and organomineral fertilizers. The machine consists of six tanks in total. Since a different process is processed in each tank, the tanks are arranged according to the operation of the process in order not to confuse the production process sequence. Make sure to make the distilled water connections after taking the machine. If you do not use distilled water, you will have difficulty in setting the values of the fertilizers you will produce.

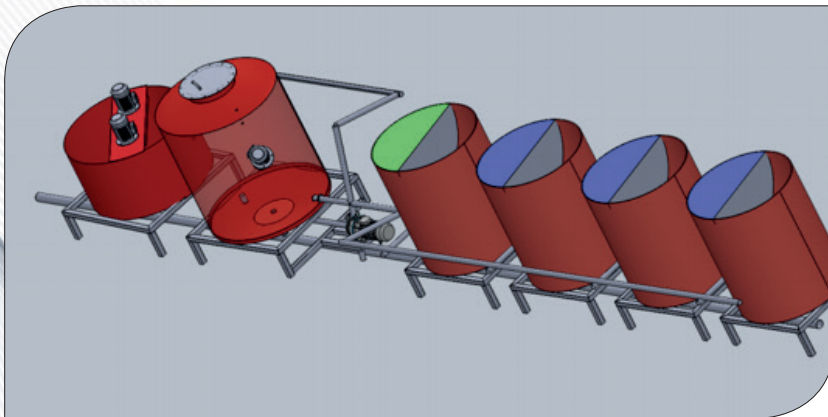
If we briefly introduce the machine, it consists of 4 main tanks and 2 settling tanks in total.

Main tanks;

- Mixer tank and engine assembly,
- Hydrodynamic tank and engine assembly,
- Homogenizer tank and motor assembly,
- Fermentation Tank and Engine assembly,

Resting tanks;

- Pre-filtration and resting
- Final filtration and resting

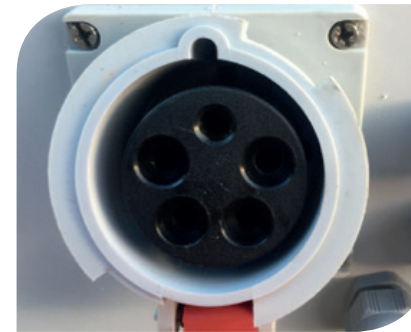


Pic-1

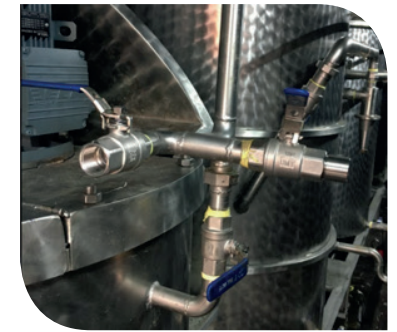
INSTALLATION AND OPERATION

1- Setup

After receiving the machine, the first thing you need to do is to make the electrical connections and to install the water connections on the installation.



Pic-2 - 380V Electric connection input.



Pic-3 - Mains and distilled water connection.

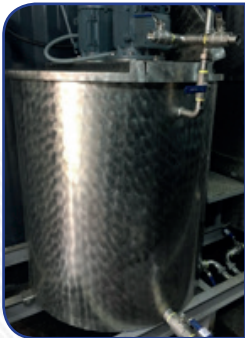
Your machine will be ready to use after making the connections shown in Pic-2 and Pic-3 pictures. After making all the connections, pay attention that there is no leakage especially in the water connections. If you see a leak after making the water connections, contact the manufacturer.

MIXER UNIT

2- Operating

- After the installation, wash the tank [see Pic-4] thoroughly with distilled water.
- After completing the washing process, turn the valve number 8 to open position, drain the waste water and turn the valve back to the closed position [See valve no. 8, Pic-5].

- After completing these processes, take distilled water into the tank and continue this process until you hear the warning sound [see Pic-6].
- After the warning beep, close the distilled water [see Pic-7] valve.
- Press the emergency stop [see Pic-8] button from the main control panel to turn off the warning sound.
- After closing the distilled water valve, add the ingredients of the fertilizer recipe into the mixer tank and start the mixing process by pressing the green mixer start button [see Pic-9] on the control panel. The mixing process varies between 15 and 25 minutes depending on the ingredients used.
- After the mixing process is completed, press the red Mixer Stop button on the control panel to stop the mixing rods.



Pic-4



Pic-5



Pic-6



Pic-8



Pic-9



Pic-10

3- The Mixture Transfer Process to Hydrodynamic Tank

To start the transfer process the mixture we have prepared to the main tank, you need to turn some valves to open position:

- First of all, you need to open the valve number 1 [see Pic-10] in the direction of the "ON"
- Then open the valve number 10 [see Pic-11] in the direction of the "ON"
- After opening these two valves, start the main engine by pressing the green Main Motors Start [see Pic-12] button.

In this process, we will transfer the mixture in the mixer tank to the main tank. Check the mixture in the mixing tank until the transfer is completed. When the process is completed,

- Close the valves number 1 and 10
- Turn off the main engine by pressing the red Main Motors Stop button on the control panel.

***Do not forget to close the open valves after all operations.

*** Note: Make sure that a mixture of 1000 kg in total is prepared by dividing the formula of the mixture made in the mixing tank into two. When you hear the warning sound, the mixer tank will take 500lt / kg of liquid. Do not forget that the amount of raw materials written in the recipe is also included in 1000kg. Her operasyonun sonunda vanaları kapalı konuma getirmeyi unutmayınız.



Pic-10



Pic-11



Pic-12

HYDRODYNAMIC CAVITATION UNIT

Before starting work on this unit, we will turn some valves on and off.

- First, open the valve numbered 2 [see Pic-13] and the valve number 12 [see Pic-15] by turning it in the direction of the ten mark,
- Then open the valve number 10 [see Pic-11] and the valve number 11 [see Pic-14] by turning them half way in the direction of the “ON” mark.
- Then, start the main motor by pressing the green Main Motors Start [see Pic-12] button on the main control panel. The working time in the hydrodynamic cavitation unit may take 1 - 2 hours depending on the recipe.
- Start the vacuum pump by pressing the green Vacuum Pump Start button [see Pic-v] on the main control panel. The analog clock connected on the vacuum pump will continue to work until it reaches the appx. to 400 ~ 500mb, then it will be fixed between these values.
- After the processing time is over, stop the engine by pressing the red Main Motors stop [see Pic-12] button on the main control panel.
- Stop the vacuum pump by pressing the red Vacuum Pump Stop [see Pic-12] button on the main control panel.
- Close the valves number 2,12,10 and 11.

*** Do not forget to close the open valves after all operations.



Pic-13



Pic-11



Pic-14



Pic-12



Pic-15



Pic-24

4- The Transfer Process from Main [Hydrodynamic] Tank to Homogenizer Tank

The procedure to transfer the liquid prepared in the main tank to the homogenizer tank:

- Turn the suction valve no. 2 [see Pic-13] at the bottom of the main tank to open position.
- Then, turn on the valve number 13-14 [see Pic-16 / Pic-18].
- Start the main motor by pressing the green Main Motors Start [see Pic-12] button on the control panel.

- After the transfer process is completed, stop the main motor by pressing the red button of the Main Motors stop button on the control panel.
- Turn all the open valves [number 2, 13 & 14] to the “OFF” position again.

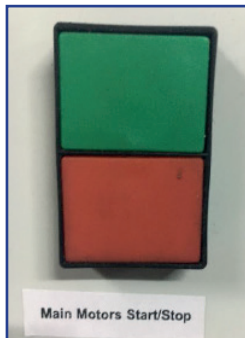
HOMOGENIZER UNIT

The procedure to be done in this unit is to make the mixture that we have prepared in the main tank homogeneous.

After closing the open the valves, start the homogenizer motor by pressing the green Homogenizer Start [see Pic-17] button on the main panel. The homogenization process takes approximately between 45 minutes ~ 1 hour depending on the ingredients of the recipe.



Pic-13



Pic-12



Pic-16



Pic-17



Pic-18

FERMENTATION TANK

The fermentation tank is one of the most important tanks in bacterial fertilizer production. The blower on the tank blows air to the diffuser of the tank, causing the liquid in the tank to meet with oxygen and start bacterial action. The population of bacteria reaches its maximum between about 12 hours and 24 hours. If you are going to make bacterial fertilizer, you have to start the process by preparing the mixture in the fermentation tank. [see Mixer Unit]

5- The Mixture Transfer Process to Fermentation Tank

The transfer process of the mixture we have prepared to the main tank:

- Open the valves number 1, 14 and 17 [see-Pic-10 / Pic-18 / Pic-19]
- Start the main engine by pressing the green Main Motors Start button on the control panel.
- After transferring the liquid you have prepared in the mixing tank completely, turn all the open valves back to their previous closed positions.
- Stop the main motor by pressing the red Main Motor Stop button on the control panel.
- Since 500 liters of product is prepared at a time in the mixing tank, repeat this process twice and fill the fermentation tank until it is 1000 liters.
- After the filling process is completed, start the blower motor by pressing the green Blower Start [see Pic-20] button on the main panel.



Pic-10



Pic-18



Pic-19



Pic-20

BACTERIAL FERTILIZER FORMATION PROCESS

At the end of 24 hours, you can go to the process of mixing the bacteria-containing liquid that reaches the desired population with the liquid prepared in the homogenizer tank.

6- The Transfer Process from Homogenization and Fermentation Tanks to Resting Tanks

To transfer bacterial fertilizer liquids into the resting tanks by mixing them:

- Open the number 3 and number 4 suction valves [see Pic-20 / Pic-21] of both tanks
- Turn the inlet valves of the resting tanks [see Pic-22 / Pic-23] to open position
- Start the main engine by pressing the green Main Motors Start button on the control panel.

As a result of these processes, the liquid gathered from the fermentation tank and the homogenization tank together will fill the first resting tank and then the second resting tank in order.

- After the resting tanks are filled, turn the open valves (Number 3, 4 and resting tank inlet valves) to the off position.
- Stop the main engine by pressing the red Main Motors Stop button on the control panel.

Liquid fertilizer is prepared as a result of the processes have been done so far. You can take the fertilizer to the packaging stage, after resting of minimum 6 hours to maximum of 24 hours in the resting tanks.



Pic-20



Pic-21



Pic-22



Pic-23

TROUBLESHOOTING

You can solve minor problems using the table below. Please contact technical service for problems not listed in the table below.

PROBLEM	POSSIBLE CAUSE	TECHNICAL SOLUTION
I cannot start the main engine.	Emergency stop on the control panel is in open position.	Turn off the emergency stop.
Main engine made air.	Liquid ran out in suction tank.	Check the tank you are sucking liquid where suction is applied has run out, turn off the main motor from the control panel.
The vacuum pump does not work.	Fuses in the control panel.	Check the fuses in the panel, if any of them are off, turn them on.

No liquid comes into the tank where we will transfer liquid.	The valves are positioned incorrectly.	First, verify that the valves are positioned correctly by reviewing the instruction manual again. If there is no problem in the valves, notify the technical service.
Water leaks from pipe connections.	Connection fittings may be loose.	If you have suitable tools, you can tighten the connections. If not, call the technical service.
The shredder bars do not break the ingredients well.	Shredder blades are deformed.	Replace or re-grind shredder blades
I cannot turn off the alert sound.	Button malfunction.	There are two ways to turn off the warning sound, the first is on the circuit button to which it is connected, the second is on the emergency stop button on the main panel. However, if your problem is not solved, contact the technician service.
The lights on the control panel are not lit.	Power failure.	Contact the technical service.

The rest tanks' filters are full.	Incomplete product.	Remove the blue-colored transparent container with strainer in the liquid inlets of the resting tanks and clean the strainer inside with water and replace it, if the problem still persists, contact the technical service.
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TECHNICAL SPECIFICATIONS

Homogenization motor	[A.C. 380V 6,3kW]
Centrifugal Pump	[A.C. 380V 7,5kW]
Vacuum Pump	[380V 0,55kW]
Blower pump	[380v 0,5kw]
Standart motor	IE2, 1.50 kW, 3000 d/d, 230/400 V [D/Y], 50 Hz
Standart motor	IE2, 1.50 kW, 3000 d/d, 230/400 V [D/Y], 50 Hz



Manufacturer Title

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