RGZRJ-400 Vacuum Emulsifying Machine
Operation Manual

instructions

A, main purposes and applicable range

SZL emulsifying machine is the collection homogeneous, mixing, emulsification, heating, cooling for the function such as a new type of emulsifying equipment, mainly used in medicine, cosmetics, food industry, has certain liquid viscosity (or colloidal) homogeneous materials, emulsion, stirring, mixing.

This machine is all come in contact with the material of place all use stainless steel materials, nonpoisonous and harmless and ensure the quality of products of the health.

Second, the main technological parameters:

(a) emulsion pot

1, content product: 560 L

2, volume: 400 L

3, allowed to work pressure: clip set of more than 0.09 MPa

4, allowed to work temperature: 100 °C or less

5, box type scraping the wall stirring speed: 0-63 RPM/min (variable frequency speed regulation) power: 3 KW
6, homogenizer can: 3000 RPM at/min (variable frequency speed regulation) power: 11 KW

(2) pan
1, oil content product: 120 L
2, volume: 100 L
3, allowed to work pressure: clip set of more than 0.09 MPa
4, allowed to work temperature: 100 °C or less
5, bottom blender: speed: 950 RPM/min power: 1.5 KW

(3) water pot
1, water pot content product: 400 L
2, volume: 300 L
3, allowed to work pressure: clip set of more than 0.09 MPa
4, allowed to work temperature: 100 °C or less
5, bottom blender: speed: 950 RPM/min power: 2.2 KW

(4) vacuum pump
Water ring vacuum pump power: 2.2 KW

(5) hydraulic system
Hydraulic pump power: 1.5 KW

(6) dump system
Electric dump, power: 1.1 KW

Three, the main structure to profile
This machine is mainly by emulsion pan, spindle, transmission, beams, frame, hydraulic system, platform components, the main structure are as follows:

1, emulsified pot

Structure of head up and down for three layer structure. The head up and down with tanks with flange connection, thermal insulation layer using PU polyurethane foam process. The pot to take two mixing device. The bottom pot body with the material valve, temperature measurement device, etc.

2, spindle and transmission system

(1) homogenizer can

Homogenizer can speed for 3000 RPM/min. Note: no materials prohibited homogenizer can start.

(2) impeller

Impeller box type scraping the wall, and turn the propeller stir speed should work for 20 to 60 RPM/min range. Slow speed reducer easy fever. : Too fast: pot wheel reducer wear to speed up.

(3) scraper

Cover board by ptfe thruough, adjusted to flat pot for the appropriate wall stick heat exchange.

3, hydraulic system

(1) the system is to use a high pressure gear pump, the relief valve adjusting after pressure from the electromagnetic valve control, to control the piston cylinder (column) lift.
(2) the user in the installation use must refill # 20, 30 # hydraulic oil to oil, and often face line check, if hydraulic system added significant unusual phenomenon such as leakage shall immediately overhaul. Change the oil a year one time. The new oil filter, oil tank cleaning should be.

4, temperature control system

Steam on the pan materials heated by the intelligent sensor, the temperature to control box. Work on the control box set temperature control temperature, can achieve a confirmed that automatically or manually control purposes.

Four, use and maintenance

(1) heating

The open when heating heating switches, and set the temperature needed. Input material, start the blender.

(2) cooling

Open the inlet water valve cooling water from the bottom in the upper clip set out from the pot to reduce the temperature of the material.

(3) heat preservation

According to need to start the blender, adjust the temperature, temperature control instrument temperature, and keep its constant temperature thermometer (note) in order to achieve the purpose of heat preservation.

(4) cleaning

Processing, should by washing end as soon as possible, using manual CIP clean way clean or artificial cleaning.
(5) maintenance

To often pay attention to the whole device and blender works, blender lubricating oil shortage shall immediately added, half year a change of oil (# 20-30 # oil). In equipment need not when, must use warm water is rinsed clip set, in order to avoid raw material corrosion, often scrub block, the appearance, the tank to keep clean bright, achieve the purpose of durable. After using should continue power prolong service life.

Note: a) the experiments of powder shape material recommended to open the cover of feeding, or dissolved in solution feeding.

B) the external material pump (user in addition order) open the discharge valve, to finish.

C) the material should start the scraper blender

D) material viscosity is bigger, improve the material for appropriate temperature, lest the material is not easy.

Five, installation and adjustment

This machine is generally don't have to install another do, just pad flat base foundation, and how bilge anchor bolts of people, is not high, the user requirements also required if the machine is installed in the upstairs, the main part of the floor bear ability must acuity 4000 nm.

This machine installation can be carried out after completion of water, circuit is connected, the mainframe electrical connections to the transmission parts pay attention to the rotation direction, lest cause an accident.

Six before operation, the matters needing attention
1, first operation should check before pipeline system coupling parts for leaks, damage, and check the hydraulic oil tank # 20-30 # in the hydraulic oil to oil standard above, the transmission parts add lubricating oil or grease, reducer stepless frequency converter or in oil to a surface oil added.

2, check appliances wiring can use check the oil pump spin determine the correct or not always phase, will never be able to be in the phase of the unknown cases start homogenizer can.

3, check the emulsification pot if there is sundry.

4, the pot to add in water and 1/2-two-thirds pot, separately according to the principle of low speed to high speed open impeller, homogenizer can observe its spin to and whether normal (try not to high speed homogenizer can start, also not allowed to no load startup homogenizer can).

5, electric heat pan should check the clip set inside whether filled with water, layer after the outlet water heating switches in open water, not to the level of the unknown cases start heating switches.

Operating rules

A preprocessing, fuel tanks, water tanks

Open the host always the power switch, artificial will release to the fuel tank, water tank matrix pot, start oil tank, water tank pot heating button (heating temperature according to the technical requirement set); Start oil tank, water tank stirring pot button. In the process of dissolved oil tank, water tank pot, stir heating button will light instructions. The pretreatment; Closed oil tank, heat, stirring pot water tank, into the second procedure. Button
(oil tank, water tank pot by dissolving tank temperature thermometer shows)

Second, oil tank, water tank pot matrix material absorption

Matrix dissolving check matrix temperature meet process requirements, start button, vacuum pump 0.6 MPa, vacuum above will head into the tank tank through a straw or pan start feeding the Lord pot filter pneumatic valve; In the vacuum negative pressure under the function of capturing cans, absorb matrix absorption material after the close close pneumatic valves, vacuum pump button, and then start slowly stir (mix at low speed speed, time according to the technical requirement set), into the third process. (timely cleaning suck feed tube, pipe filters, open the dissolved tank bottom valve row over all emission material).

Three, powder suck material

Start button, vacuum pump 0.6 MPa, vacuum above will head into powder straw into outfit powder container, and then in the vacuum negative pressure under the effect of powder through the hose will suck, suck capturing tank after the completion of the material will close the valve, close vacuum pump button, at this time the vacuum valve open, into the fourth process.

Four, homogeneous mixing emulsion

After the completion of the suction material, start the pot heating button (heating temperature according to the technical requirement set), the temperature reaches requirement of process and start after mixing button (emulsion, emulsified
stirring speed, time according to the technical requirement set); The homogeneous;

Five, the material

Positive pressure the material: starting the material pneumatic valve, open into the compressed air valve for the material, or dump the material. Out of the material; Close all start system, into the sixth stage.

Six, cleaning

Stay clean water level to the pot after a third volume; Start mixing button at the same time, emulsified upper CIP clean mouth manually CIP cleaning; After the completion of the cleaning close all open system. Then open the emission valve.

Installation, commissioning and operation procedures

A, installation and adjustment

This machine is generally don't have to install another do, just pad flat base foundation, and how bilge anchor bolts of people, is not high, the user requirements also required if the machine is installed in the upstairs, the main part of the floor bear ability must acuity 4000 nm. This machine installation can be carried out after completion of water, circuit is connected, the mainframe electrical edge is received to the transmission parts pay attention to the rotation direction, lest cause an accident.

The first pot clip set filled with water purification, water injection method: by the POTS of water inlet first department vent so far, liquid level of high and low water by the upper, please note that the electrical heating in any case must open the discharge valve, including in the production period.
Second, after the completion of installation commissioning procedures

1, open sight glass lamp is electricity

2, the start is slow speed mix, pay attention to stir direction for clockwise, if slow speed mix can't start, (see the following emulsifying machine maintenance)

3, start, oil pump up button, oil cylinder rose to limit will automatically stop, then start oil cylinder to limit, this time the button down the pot was basically in airtight state. If meet the oil pump motor can't start, please check: 1) the positive and negative circuit direction; 2) vacuum whether completely destruction; 3) check in the electric pole position on whether the switch card to death.

4, shut off the main valve, all of the Lord on the open road, start vacuum pump valve vacuum tubes, check vacuum table is flexible, vacuum degree table press-rose to 0.85 MPa, stop vacuum pump, open the vacuum valve, pressure return to 0, vacuum table

Three before operation, the matters needing attention

1, the first time before operation should check and pipeline system connections for leaks,

2, check appliances wiring can use check the oil pump to determine the spin is correct or not, and never phase can be in phase of unknown homogenizer can start.

3, check the emulsification pot if there is sundry.

4, the pot to add in water and 1/2-two-thirds pot, separately according to the principle of low speed to high speed open
impeller, homogenizer can (counterclockwise), observe the spin to and whether normal (try not to high speed homogenizer can start, also not allowed to no load startup homogenizer can)

Four, operating procedures (for reference only)

Open the host total power switch, set the pot clip set start clip set of heating temperature switch (heating temperature according to the technical requirement set by the control instrument automatic control). Then start vacuum pump 0.6 MPa, vacuum degree above, open the main cylinder feed pipe, valve on the material with vacuum suction hose negative pressure through capturing pot, after the completion of the suction valve material return immediately clean pipe filters and absorbing materials according to the product, and at the time of the hose process requirements; Start slowly stir, fast mixing, vacuum pump (mixing speed, time, according to product process vacuum request). The processing, destroy vacuum, into the nitrogen, open the discharge valve begin to the material, discharging finished please immediately to clean.

Emulsifying machine maintenance

1, slow start speed mix, if slow speed mix can't start, please check:

1) slow circuit breaker is closed.

2) in the location bar next travel switch card to die if.

3) to stir the time is set.

4) thermal protectors are working, contactor is closed.

5) converter is through.
6) whether the frequency converter have electricity output.

7) motor is damaged.

8) speed reducer is damaged.

9) reducer output shaft axis and the shaft coupling and key is damaged.

10) and stirring shaft connecting parts for damage.

2, quick start mixing, emulsification rotate counterclockwise (head, or check:

1) emulsion breaker is closed.

2) in the location bar next travel switch card to die if.

3) to stir the time is set.

4) heat the device is working contactor is closed.

5) converter is electricity.

6) whether the frequency converter have electricity output.

7) motor is damaged.

8) motor shaft coupling and key is damaged.

9) head nuts and sink emulsified head screw is loose.

3, start, oil pump up button, oil cylinder rose to limit will automatically stop, then start oil cylinder to limit, this time the button down the pot was basically in airtight state. If meet the oil pump motor can't start, please check:

1) oil pump circuit breaker is closed.

2) whether completely destroy that vacuum vacuum protector activity whether stem reset.
3) in the positioning of the stem, under travel switch card to die if.

4) machine end pour material travel switch card in place. If

5) contactor relays among is damaged.

6) whether thermal protector.

7) the oil pump motor is damaged.

8) oil pump is damaged.

9) oil electromagnetic valve coil is damaged.

10) oil from the body of the valve core is jammed.

11) in a tank oil whether oil mark in two-thirds place.

12) whether tubing quartz.

13) hydraulic oil whether ageing or the presence of diesel.

4, open the heating knob, otherwise please pot body heat check:

1) heating temperature, temperature control instrument whether set is damaged.

2) steam heating if electromagnetic valve pneumatic Angle valve check for damage.

3) temperature sensor is damaged, whether the condition of the connection.

5, start fuel, water pot mixing button is turning motor. Otherwise please check:

1) oil, water pot mixing circuit breaker is closed.

2) oil, water pot mixing contactor is closed.

3) oil, water pot mixing thermal protector is damaged.
4) oil, water pot mixing motor is damaged.

6, starting vacuum pump button is began to smoke vacuum. Otherwise please check:

1) vacuum pump circuit breaker is closed.

2) vacuum pump contactor is damaged.

3) the vacuum pump is damaged thermal protector.

4) vacuum pump motor is damaged.

5) vacuum pump water tank whether there is water.

6) vacuum pump is on feed valve.

7) vacuum pump water circulation water is not whether to pump inlet jam.

8) vacuum pump is jammed leaves.

9) buffer tank whether the valve closed

The 10) whether the valve locked

11) vacuum valve is on
**RGZRJ-400L Emulsifying Machine Control System Manual**

**Summarize**
The Control system of RGZR-400L is use Mitsubishi PLC, Panasonic inverter, GOT 1000 touch screen for automatic control. Set and save all parameters on the screen. Automatic temperature which make good accuracy for temperature.

**Operation Instruction of Controlling system**

1.1 Enter into system

(1) : Turn on main power, and turn on the power lock, turn on the program.

Screen go to Initialization page, about 15 seconds later turn to home page (as pic.1)
(2): Click Password, come out password input page

(3): Input password by the number keys (Initialization pass word: 1234), click ENTER, go to main operation page.

Instruction: || Enter-enter key, Del-Delete key, AC-All Clear key

Pic. 2

(4): This is main page, by clicking the keys on the right side or click the corresponding tank turn to sub-page, details is as following (as pic 2)
1.2 Operate Process

1. Parameter setting

Before running the machine, need set parameter first, input proper data into input box.

![Image of Speed/Time setting]

**Pic. 3**

(1): Homogenizer speed setting: can input 0~3000 rpm according to the requirement of process.

(2): Homogenizer running time: can set from 0~30 min.

(3): Main mixer speed: can set from 0~65 rpm.

(4): Mixer jog speed: can set 0~20 rpm.

2. System control
Click main pot pic. or the key on the right, go to main pot control page (as pic. 4)

2-1. Main pot control

(1): Mixing key—Click it, when the mixer is running, it display “mixing running”, and background color of the key is green. Click it again, display “Stop mixer”, background color of the key turns to red.

(2): Start mixing key—Click it, mixer run by setted time, when get to the setted time, mixer stop automatically.

(3): Jog Mixer key—Need keep on pressing this key, loosen it mixer stop.
(4): ③; Homogenizer start/stop: Operate as steps (3).

(5): Up/Down—See ▲ ▼ button on the right side of tank pic. Loosen the button till the oil tank start moving, then the oil tank will go up or go down till limit position. The middle button is stop button.

⚠️ Note!

1. When vacuum on, do not press UP/Down button, before press this button, must break vacuum, tank lid buckle is took off, then ok to press UP button. If operate by mistake when vacuum, there is alarm " Can not lift up when vacuum on "

2. When tank don’t reset properly, can not lift down, also have alarm.

3. Can not turn over tank to dump product until it go up to limited height, and have alarm.

(6): Tilt down/title up: ---When dump product, press tilt down button (keep on pressing), when loosen this button, tank stop turning; Tank reset (return back) need press tilt up button, tank turn back to original position.

⚠️ Instruction: Can not turn over tank to dump product until it go up to limited height

(7): Temp. control—Click it go to temperature control page (see Pic. 7)
(8): Trend Display - Click it, go to trend display page to see mixing, temperature, homogenizer status of main pot. (See pic. 5)

(10): Historical records: Click it, go to machine record page to see machine running records.

(11): Speed/time setting: Click it, go to speed / time setting page (As Pic. 3).

Pic. 5
Pic. 6

2-2. Main pot temperature control

Click Temp control button on main pot screen turn to temperature control page (as pic. 7). Set temperature first before heating, input data in the box.

⚠️ Instruction ⚠️

①: Main pot heating temperature setting range 0~100 degree celsius; ②: Main pot cooling temperature setting range 100 degree celsius; ③: Main pot blow down time setting range 0~9999 seconds; ④ Cold water dump time setting range 0~9999 seconds.
Pic. 7

1. Heating—Click it start heat up the main pot, and the button background color turns to green.

⚠️ Instruction ⚠️ All valves are pneumatic valve, controlled by solenoid valves. The valve turn on sequence is: Air in valve and Chilled water blowdown valve open, air in valve and chilled water blowdown delay N seconds and closed automatically (N, you set the data you need), Steam in valve and blow down valve open, blowdown valve delay 5 seconds to close. At the same time, steam out valve open to heat up main pot. When reach to setted temperature, Steam in and out valve closed at the same time,
and come out message box says: reach to setted temperature, heating stop” This message display till the temperature go down to setted temperature, during this time, the heating button can not work. The heating can be set in 5 steps. The setting parameter please refer to pic.8.

3. Cooling—It is used to cool down the product in main pot. Click Cooling button, the back ground color turns to green and start cooling.
Instruction: The sequence to open the valves: Chilled water in and out valve open at the same time to cool down the main pot. When reach to setted cooling temperature, the chilled water in and out valve closed at the same time, come out message box: reach to setted cooling temperature”, during this time, heating button can not work.

2-3: Oil pot control

Click oil pot on main page, go to oil pot control page (as pic.9)

Instruction: ||①: Heating temperature of oil pot can be set from 0 to 100 degree ②: The waste out time can be set from 0 to 9999 seconds.
1. Heating—Click this button, start to heap up oil pot, back ground color of this button turns to green.

Instruction || Steam in valve and blowdown valve open, blowdown valve delay 5 seconds to close automatically. At the same time, steam out valve open and start to heat up oil pot (The manual valve can be used to control the steam volume). When reach to setted temperature, steam out and in valve close at the same time, come out message box: reach to setted temperature, heating stop. This message display till temperature go down below setted temperature. Can set to heat up in 5 steps. Refer to Pic.10
2. Start Mixer—Click it, start to heating up the oil pot, background color of this button turns to green.

2-4. Oil Pot Control

Click water pot control on main page, go to water pot control page (as pic.11)

Instruction ①: Water pot heating temperature 0 to 100 degree②: Water pot blow down time setting range 0-9999 seconds.

Pic.11

1. Heating—Click this button to heat up the water pot. Back ground button
turns to green.

Instruction

Steam in valve, blow down valve open, blow down valve delay 5 seconds to close automatically. Steam out valve open at the same time to heat up oil pot (can control the steam volume by the manual valve). When reach to setted temperature, steam out and in valve close at the same time, come out message box: reach to setted temperature, heating stop. This message display till temperature go down below setted temperarure. Can set to heat up in 5 steps. Refer to pic.12.

Pic.12
2.; Start mixer—Click it, start mixing the water pot, back ground color of the button turns to green. Click it again, stop mixing.

2-5. Historical Records
Click this button go to page as pic.6.

2-6. Accumulated Run Time
Click this button go to page as pic.13.

![Accumulated Run time](image)

Oil Pot run time (min): 123456  Main POT Mixer run time (min): 123456

Water pot run time (min): 123456  Main Homogeneous run time (min): 123456

Pic.13

It shows total working time of machine for maintain.

2-7. Formula and Reset Recipe
Formula ——Click this button go to page as pic.14
Reset recipe—Click this button go to page editing current formula as pic. 15
### Formula Editing

<table>
<thead>
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<th>Parameter</th>
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<th>Parameter</th>
<th>Value</th>
<th>Parameter</th>
<th>Value</th>
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<tbody>
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<td>D303</td>
<td>Mixer run time</td>
<td>D309</td>
<td>Homogenizer speed</td>
<td>D302</td>
</tr>
<tr>
<td>Jog speed</td>
<td>D302</td>
<td>Jog time</td>
<td>D330</td>
<td>Main pot heating</td>
<td>D340</td>
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<td>D305</td>
<td></td>
<td></td>
<td>lower limit set</td>
<td>D341</td>
</tr>
<tr>
<td>Main pot steam</td>
<td>D307</td>
<td>Blow down time</td>
<td>D310</td>
<td>Main pot cooling</td>
<td>D342</td>
</tr>
<tr>
<td>Blow down time</td>
<td>D309</td>
<td></td>
<td></td>
<td>upper limit set</td>
<td>D344</td>
</tr>
<tr>
<td>Light time (sec)</td>
<td>D310</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pic. 15**

### 2-8. Reset Password

The initial password of the machine is 1234, can reset the password. On main page, click “password” button, go to password setting page (as pic. 15), input new password and click ENTER is ok.

⚠️ Note: When reset password, please remember the password, otherwise can not enter the machine operation system.
Function of panel button.

1: Main Control Switch

It control main power supply. Turn on this switch first to run the machine, and when turn off the machine, must turn off this switch. If something emergency or machine trouble, must turn off main control switch timely in case any accident.

2: Emergency Stop Switch

If machine have problem or something emergency, press this button, and on touch screen display alarm (pic.16) and screen is locked, can not operate any button. Only when solve the problem and loosen emergency stop
button, screen back to work.

Pic. 16

3: Power Lock

It controls the power supply for touch screen. Turn on the machine, then turn on this power lock, it is with power indicator, can check the power supply status timely.

Statement

Before operating machine, please ready the operation manual first.