

Dissolution Tester RC-8DS

User's Manual

Shanghai Lorderan Scientific Instrument Co., Ltd.

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Introduction

Thanks for purchasing RC-8DS Dissolution tester product designed/ manufactured by us. Prior to use, pls. Read user's manual carefully, this will ensure proper use of this tester and improve your job efficiently.

Product registration

Prior to use this product, please fill up attached user registration card and mail to GMY, this will ensure to get our service in future.

Technical service

Pls. contact our marketing department for any service during warranty. And fill up/mail back user's registration card.

If you have any problems, try to find answers in user's manual first, or you can call our marketing department.

Proper operation

Prior to install/use this instrument, make sure you have read this manual carefully, for any concerns pls. Contact with our marketing department.

- Transport with care. Any incline, convert, and hit this product is prohibited
- Check and protect all safety related labels.
- No using damaged product, No using damaged power cord.
- Turn off power supply before maintenance, or moving.

Contact address

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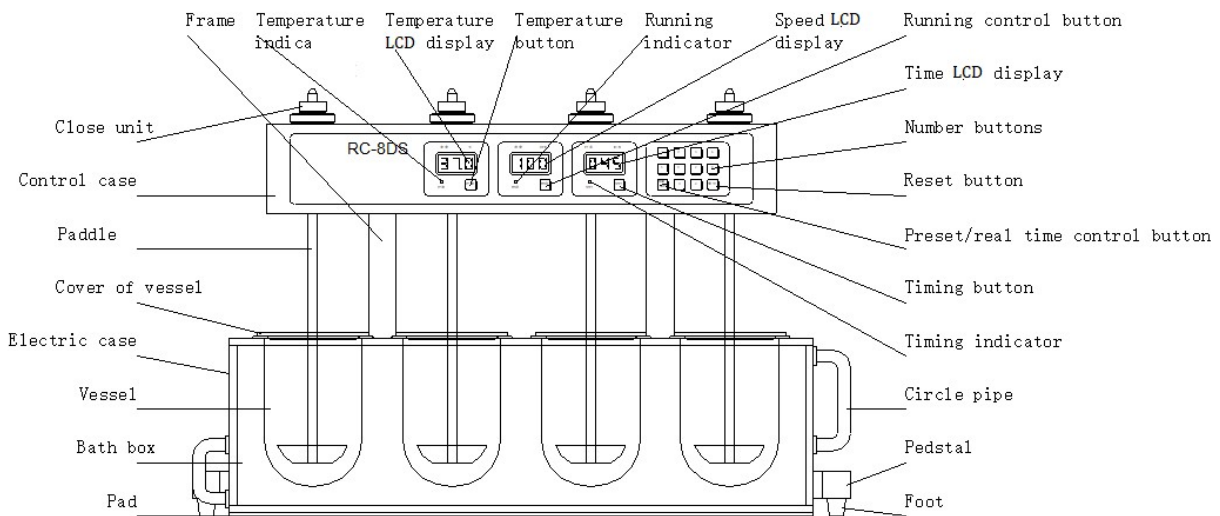
Introduction

Brief introduction

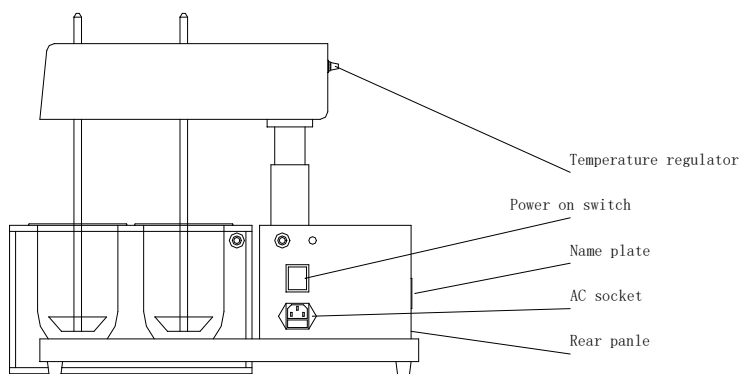
RC-8DS Dissolution tester consist of control system, electric system, water bath system, transmission system, lifting system, transducer unit, paddle unit and rotating basket unit etc. It is mainly controlled by MPU. The features are: reasonable structure, automatic and simplified operation, high accuracy and sensitivity, low noise and errors and stable performance.

The chassis of RC-8DS Dissolution tester is composed of pedestal, foot, electric case, control case, front panel and rear panel.

Front panel include:



- Temperature LCD display
- Temperature indicator
- Temperature button(preset temperature / control temperature)
- Speed LCD display
- Running indicator
- Running control button (preset speed / control rotation)
- Time LCD display
- Timing indicating
- Timing button (preset time /timing control)
- Preset/real time control button (preset state/real time state)
- Reset button
- Number button
- Upswing control
- Stop button
- Descent control
- Product model
- Manufacturing



- Power on switch
- AC socket(fuse jack included)
- Temperature regulator
- Name plate

Function description

- Number button

Digits 0~9 on the keyboard is used to input the presetting parameters or the pharmacopoeia parameters.

- Reset button

Reset button is used to reset the system. Press the button, the controlled system resume to initial status.

When power turns on, the system is first in the presetting state and the default parameters are as follows: temperature 37.0°C, speed 100RPM, time 045MIN.

The reset button is pressed with buzzer beep.

- Preset/real time control button

This button is used to repeatedly select state between preset and real time states.

In preset state the LCDs display preset parameters, otherwise, it displays actual values.

- Temperature LCD display

Three LCDs in the temperature display area are used to display the preset temperature or the actual temperature. The unit of temperature is centigrade(°C).

- Temperature indicator

Temperature indicator indicates the working status of the system.

When it light, it means the system in automatic controlled status, otherwise, it means the system in uncontrolled status.

- Temperature button

Temperature button is used to preset temperature or to control the working status of the temperature system.

In preset state, the function of this button is to setup the temperature. Pressing the button will clear the old value and the LCDs, which indicate the temperature, will be zero and flashed. Now you can setup the temperature between RT.~45.0°C . Input the number using the keyboard (for example, 36.5°C input 3,6,5 in series) to get the temperature parameters. The LCDs stop flashing five times later, indicating that the system has received the setup value.

In real time state, this button has the function of controlling the working state of the temperature system. Pressing the button will turn on or turn off the automatic temperature system and the LCDs will display the actual temperature value at this time.

The buzzer in the instrument will beep shorter every time when the button is pressed.

- Speed LCD display

Three LCDs in this area will display the preset speed or the actual rotating speed of the paddle (or the rotating disk).The unit of this parameter is RPM.

- Running indicator

Rotating indicator indicates the working state of the rotation system. It lightening means that the system controls the rotation speed automatically, on the contrary, the system is in none controlling state.

- Running button

This button is used to setup the speed or to control the rotation.

In preset state, the function of this button is to setup the rotating speed. Pressing the button will clear the old value and the LCDs, which indicate the speed, will be zero and flashed. Now you can setup the speed between 20~200RPM. Input the number using the keyboard (for example, 45RPM input 0,4,5 in series) to get the speed you wanted. The LCDs stop flashing five times later, indicating that the system has received the setup value.

In real time state, this button has the function of controlling the rotation of the paddle. Pressing the button will start or stop rotation of the paddle. The LCDs will display the actual rotation speed at this time.

The buzzer in the instrument will beep shorter every time when the button is pressed.

- Time number display

These LCDs is used to display the preset time or the actual surplus time of the rotation. The unit is MIN.

- Timing indicator

Timing indicator indicates the working state of the timing system.

It lightening means that the system is in the automatic controlling state, on the contrary, the system is in none time state.

- Timing button

This button is used to setup the time or to control timing.

In preset state, the function of this button is to setup the time. Pressing the button will clear the old value and the LCDs, which indicate the time, will be 001 and flashed. Now you can setup nine groups of time between 1~999 MIN. The instrument will take a sample at the end of the time. Input the number using the keyboard (note that each group of time has three numbers, for example, input 0,5,0 in series for 50 min) to get the time you wanted. The LCDs stop flashing five times later, indicating that the system has received the setup value. Meanwhile, the time LCDs display 002 and flashes. You can continue setting the second group of time by using the keyboard. Following the above procedures until you have set all nine groups of time. If you need less than nine groups of time, you can press the timing button to finish this course after you have set the last group of time. The time LCDs will display the first group of time after you have finished the setup procedure.

In real time state, this button has the function of setting up the time. Pressing the button will turn on or turn off the automatic timing system. The LCDs will display the actual surplus time at this moment.

The buzzer in the instrument will beep shorter every time when the button is pressed.

- Rising button

This button ▲ is the functional key to control the rising of the control box. The control box will go up when the button is pressed.

- Stop control

This button ● is the functional key to control the lift of the control box. The control box will stop lifting after pressed the button.

- Descending button

This button ▼ has the function of controlling the descent of the control box. The control box will descend automatically when the button is pressed.

- Automatically setup the pharmacopoeia parameter

It storage special dissolution parameter of pharmacopoeia of PRC/2020. Input the numbers based on the code of appendix to automatically setup the pharmacopoeia parameter. It is displayed in windows.

In preset state, key the code, windows display three parameters of dissolution.

Sample: chlorphenamini maleas Code: 03, Key 0,3. Windows display: 30.0℃,050RPM,045MIN.

Press the number button, the beep sound.

- temperature regulator

Temperature regulator adjusts the displayed number. The number is increased by clockwise rotation, and decreased by counterclockwise rotation.

- Power switch

Power on switch is the main power switch. In ON position, tester is in working status, inversely, tester stop working.

Before connecting to AC power, please ensure it's in OFF position!

● AC socket

AC socket is connected to the power supply with power cord offered in this tester.

Fuse is under the AC socket. Attached one 5A fuse and a backup one is offered. This is to prevent damage to this tester in suddenness case.

Please make sure AC power supply is connected properly!

When change fuse, make sure same spec part is used for tester safety!

Specification

Model	RC-8DS
Testing Station	8
Speed Range	20~200 rpm
Speed Accuracy	±2 rpm
Temperature Range	Rt~45.0 °C
Temperature Stability	±0.3 °C
Preset Timing Nine Points	1~999 min
Time Accuracy	±0.5 mm
Paddle Radial Run-Out	±0.5 mm
Basket Radial Run-Out	±1.0 mm
Power Supply	220V/ 50 Hz, 110V/ 60 Hz
Power	1200 W
Dimension	680×540×480 mm
Weight	70 kg

Environment requirement

Usage temperature	+18°C~+28 °C
Store temperature	-10°C~+50 °C
Humidity	20%~80% RH

Checking

Open the package, take out manual, tester, and accessories. And check items according packing list. Any mismatch/damage happened, please contact marketing department immediately.

Tester settle

Tester must be placed on stable work station/table and put damping pad between bath box and tester.

Minimum space required around test is 0.5m, to ensure heat escaping. Clean tester periodically to prevent tester from abnormal operation.

Connect to the power supply

Link the socket & AC power supply source with attached power cord.

Pipe line connection

Connect the bath box and the electric box with attached plastic pipe. The entrance of the bath box is connected to the exit of the electric box, while the exit of the bath box is connected to the entrance of the electric box.

Soak the pipe in hot water to soft it before connecting the pipe.

Cycle liquid

Suggest using distillation water.

Bath box

Constant temperature bath system is composed of bath box, heater and cycle water pump. It used to supply high efficient bath.

Refill cycle liquid

Clean up the bath box and pour into the cycle liquid until it come to the calibration.

Cycle liquid

Gas inside the bath circulation system must be emptied before normally using the instrument, to ensure the effective circulation of the bath liquid.

Put the aspirator into the water inlet of the bath. Turn on power, the power indicator light and pump run. Empty the gas of the system until the liquid pump smoothly.

It is strictly prohibited to revolve the pump in empty conditions.

Empty cycle liquid

Empty the water with aspirator and pipe. Clean up the bath box.

Change cycle liquid

Chang cycle liquid can be completed by repetitively operate the empty, fill and cycle procedures.

Unit conjunctive

● Paddle conjunctive

The drive head is raised on top. Put the paddle in the hole of axle, up it on top, set close unit in head of paddle and close. The drive head is lowered to home position.

● Basket conjunctive

The drive head is raised on top. Put the basket shaft in the hole of axle, up it on top, set close unit in head of basket shaft and close. The drive head is lowered to home position.

Put the specimen in the basket. Set it up underneath of basket shaft.

- Put vessels in hold of bath box and press it with the button.

Temperature adjustment

Turn on the tester and press temperature button, the temperature indicator light, means the system beginning automatic temperature control. After about 30 minutes, the temperature stabilize at $37 \pm 0.5^{\circ}\text{C}$. Insert the thermometer into the bath box and compare the number between the thermometer and the tester after stabilization. Adjust the regulator on the rear panel carefully until the number achieve accordance. After the tester is running in order, repeat above steps till the number is in accordance with each other stably.

Adjust the depth of the rotating lever

The interval between the underneath of blade and the bottom of the vessel is measured with the depth gauge. Adjust the suit of the close unit on the rotating lever, make the range interval with 25 MM.

Adjust the center of the rotating lever

Move the vessel to adjust the exact centering of the vessel in relation to each shaft.

Power on

Turn the power switch to ON position, the indicator light, initialize the tester for 10 minutes, then it's readiness.

Lift control

The control box will go up when the button ▲ is pressed and it will descend automatically when the button ▼ is pressed. The control box will stop lifting after pressed the button ● when it is raising or descending.

Preset common parameter

When power turns on, the system is first in the presetting state and the default parameters are as follows: temperature 37.0°C , speed 100RPM, time 045MIN.

Preset arbitrary parameter

In the presetting state:
Press temperature button to preset temperature.
Press RUN button to preset the speed of rotate.
Press TIME button to preset the time.

Automatically setup the pharmacopoeia parameter

To press number buttons can automatically preset the pharmacopoeia parameter in presetting state.

Temperature control

Pressed P/R button, the system is in real state after parameters were preset. Pressing button TMP. will turn on the automatic temperature system. Repeat pressing button to turn off it.

Rotation control

Pressed P/R button, the system is in real state after parameters were preset. Pressing button RUN will rotate the shaft. Repeat pressing button to stop it.

Timing control

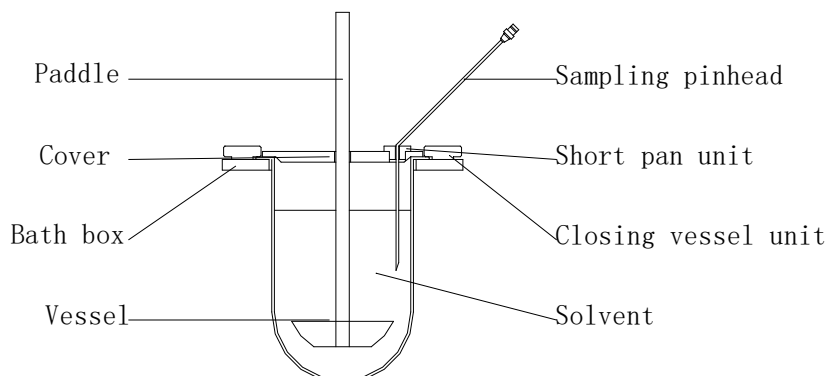
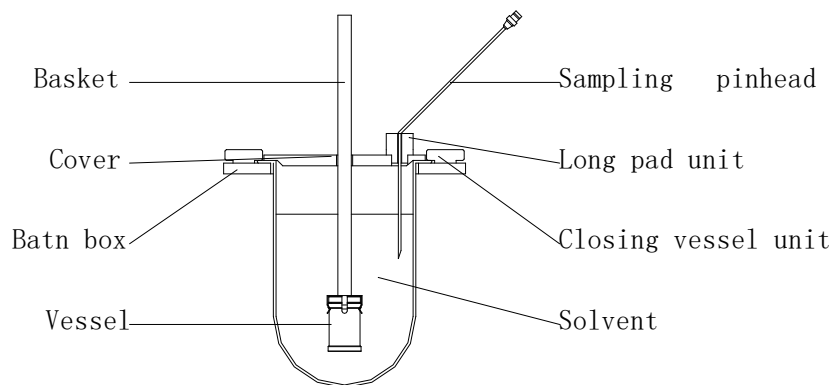
Pressed P/R button, the system is in real state after parameters were preset. Pressing button TIME will turn on the automatic time system. Repeat pressing button to turn off it.

Test

Choose basket or paddle based on the specimen's name and test method. Turn on power, preset parameters and press button P/R. Fetch quantum solvent without gas, put it in each vessel. The solvent's temperature is stabilized with preset temperature. Sample eight specimens, put them in eight baskets or vessels separately.

Down baskets or paddles in vessels, turn on rotating and timing. Sample quantum solvent after timing end and filter it with 0.8u filtration film. Fetch and test it. Each specimen's dissolution is figured out.

Sampling



Power off

Turn switch to OFF position, the indicator is off and tester stop working.

Demonstration

- (1) Power on.
- (2) Preset parameter.
- (3) In real state.
- (4) Put in solvent.
- (5) Controlling temperature.
- (6) Put specimen in.
- (7) Controlling rotating.
- (8) Controlling time.
- (9) Timing end, sample, filter, test.
- (10) Same measurement can be completed by carry out (2)~(9) repetitively.
- (11) Clear test, please press reset button.

Maintenance

Clean box and parts periodically. Do not use steel brush, it will result in damage to the tester

Troubleshooting

- Can not power on

Check whether the voltage is OK and fuse is OK, please refer to the rating marked in nameplate while installation.

- Water dose not loop

Check the pump and it's wire is OK.

- Water's temperature dose not raise

Check the heater and it's wire is OK.

- Water's temperature dose not constant

Check the sensor and it's wire is OK.

- Rotating units don't rotate

Check the motor and it's wire is OK.

If the tester does not work after checking above items, please don't repair it by yourself, contact our market department please.

Appendix—Code in pharmacopoeia

Special dissolution parameter of pharmacopoeia of PRC/2020

CODE	PHARMACEUTICAL	TEMP °C	SPEED RPM	TIME MIN
00	Acidum salicylicum	37.0	050	010
				015
				020
				025
				030
01	Acidum salicylicum	37.0	100	010
				015
				020
				025
				030
02	Tsbellae acidi acetylicylici	37.0	100	030
03	Chlorphenamini maleas	37.0	050	045
04	Tsbellae methotrexati	37.0	050	045
05	Tsbellae digoxini	37.0	120	060
06	Capsulae danazoli	37.0	080	030
07	Tsbellae diazepami	37.0	100	020
08	Tsbellae amobarbitali	37.0	100	030
09	Tsbellae isoniazidi	37.0	100	030
10	Tsbellae furosemidi	37.0	050	030
11	Tsbellae acidi pipemidici	37.0	100	030
12		37.0	100	120
13	Tsbellae reserpini	37.0	100	030
14	Tsbellae theophyllini modeste liberantes	37.0	050	120
				360
				720
15	Tsbellae hydrocortisoni	37.0	050	030
16	Tsbellae hydrochlorothiazidi	37.0	150	030
17	Tsbellae levamisoli Hydrochloridi	37.0	100	030
18	Tsbellae tetracyclini hydrochloridi	37.0	100	060
19	Tsbellae diltiazemi hydrochloridi modeste liberantes	37.0	050	060
				120
				180
20	Tsbellae doxycyclini hydrochloridi	37.0	050	045
21	Tsbellae chlorpromazini hydrochloridi	37.0	100	030
22	Tsbellae dapsoni	37.0	100	060
23	Tsbellae aminophyllini	37.0	100	010
24	Tsbellae vitamini b2	37.0	100	020
25	Tsbellae calcii gluconatis	37.0	050	045
26	Tsbellae chlordiazepoxidi	37.0	100	030
27	Tsbellae lithii carbonatis	37.0	100	030
28	Tsbellae sulfadiazini	37.0	100	060
29	Tsbellae codeini phosphatis	37.0	100	020

RC-8DS Packing list

RC-8DS Dissolution tester include following items typically:

● Tester	1
● Bath box	1
● Vessels	8
● Water box pad	1
● Attachment box	1
● Vessel Covers	8
● Paddle unit	8
● Rotating basket unit	8
● Locking unit	8
● Power cord	1
● Deep ruler	1
● Center ruler	1
● Filter head	8
● Filter membrane	1
● Sample needle	8
● Big pad	8
● Small pad	8
● Plastic pipe	2
● Soft pipe	1
● User's manual	1
● Product quality guarantee	1
● User registration card	1
● Product certificate	1

Product quality guarantee

- This quality guarantee covers the scope of RC-8DS Dissolution tester.
- Start from purchasing date; warranty period is one year.
- This quality guarantee is effective from receiving registration card filled by users.
- During warranty, we offer free charge service for troubleshooting under normal operation, but for any cases caused by flood, fire, earthquake, or other calamity, is excepted.
- During warranty, under the one of the following cases, we will consider to charge material/service fee to users:
 - No product quality guarantee, mismatch with this guaranty or wrong record/remark.
 - Not follow the using environment required in users manual.
 - Disassembly, install, extend, move or modify this tester without our permission.
 - Unqualified technician repairing without permission.
 - Keep this guarantee in proper place and no reissue is promised.

Using instruction

- Proper operation & maintenance will ensure instrument usage life, please follow users manual's instruction.
- When the power supply is unstable, pls. Use AV regulator, and special notices the information related to power supply, temperature, humidity in the manual.
- Always keep instrument clean. Disassembly/move any parts of this tester is prohibited.
- In case of trouble found, pls. Stop using, inform dealer or company with model, S/N, and phenomenon.

Registration card

Name	_____
Address	_____
ZIP	E-mail
Tel	Fax
Product	_____
Model	S/N