

# INSTRUCTION MANUAL

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## Microplate Vacuum Manifold and System

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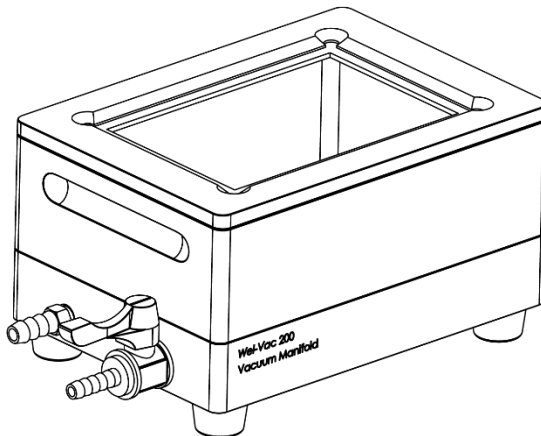
### Model No.

WelVac 200

WelVac 210



Instruction Video



# **ROCKER**

Please read this instruction manual before using this product.

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# 1. Important Notice

This instrument is designed for laboratory usage only. Please read this manual carefully before installing and operating. The instrument shall not be modified in any way. Any modification will void the warranty and may result in potential hazard. We are not responsible for any injury or damage caused by any non-intended purposes and modifying the instrument without authorization.

## ● Instruction

WelVac 200 / 210, the microplate extraction manifold and system, is designed to take vacuum instead of time-consuming centrifugation for parallel and simultaneous preparation of up to 24 spin columns. In this system, vacuum is used to pull samples through membrane and hence not only saving time but also simplifying process by eliminating the repetitive works, such as dispensing solution, running and stopping centrifugation.

The applications of WelVac extraction system includes extraction of plasmid DNA, single-stranded phage DNA, RNA, genomic DNA, viral nucleic acids, DNA cleanup from PCR and other enzymatic reactions. It is especially ideal for the laboratories requiring saving time and space.

- ◆ The instrument can process up to 24 mini columns, 8 midi or maxi columns, and 96-well extraction plates.
1. Check the voltage specified on the name plate and ensure it matches the line voltage in your location.
  2. Install the instrument in a clean, dust-less and ventilated area under 40°C.
  3. Never use the instrument with any corrosive, chemical, flammable gas or toxic material.
  4. Do not smear any silicone oil or vacuum grease to the gaskets or other parts of the WelVac 200 manifold.
  5. Please connect the pump with high-pressure hose or tubes.
  6. The Prote™ filter cartridge can prevent a large amount of liquid from overflowing into the pump. Please ensure the liquid in the moisture trap not exceed safety level.
  7. To ensure proper function of the Prote™ protection device, the pump must be installing on a flat level surface and should not be moved when operation. If the buoy closes during operation, it must be manually reset by uninstalling and reinstalling the filter cartridge.
  8. The filter cartridge of the vacuum pump is used to absorb moisture and dust. Please replace the cartridge to maintain pumping efficiency when it becomes dirty or color-changing.

9. The pump is not designed to start against applied vacuum. To prevent damage, verify that the inlet of pump is at atmospheric pressure before each start. If necessary, the inlet can be vented to atmosphere by partially unscrewing the vacuum regulator knob.
10. This pump has a thermal protection device that automatically shuts-off when it becomes overheated.
11. The temperature of the surface of pump is very high after use or during work, please don't touch it to avoid being burnt.
12. The instrument must not be used to create vacuum and pressure simultaneously.
13. Do not use any lubricant, which may damage the pump.
14. If the supply cord is damaged, please contact the manufacturer or your service agent for replacement to avoid hazard.
15. Please discard packing material according to local related regulations.
16. Operating condition
  - (a) Ambient temperature: 5~ 40°C
  - (b) Relative humidity: 80% RH Max.
  - (c) Power supply: 100-120V~, 50/60Hz or 200-240V~, 50/60Hz
  - (d) Altitude: up to 2000 m
  - (e) Pollution degree: II
  - (f) IP30
  - (g) Indoor use

## 2. Unpacking

Please check if the package is complete without any damage before unpacking. When unpacking, please make sure you have all accessories that indicated on the list. If there is any problem, please keep the serial number along with packing case and contact your local distributor immediately for assistance.

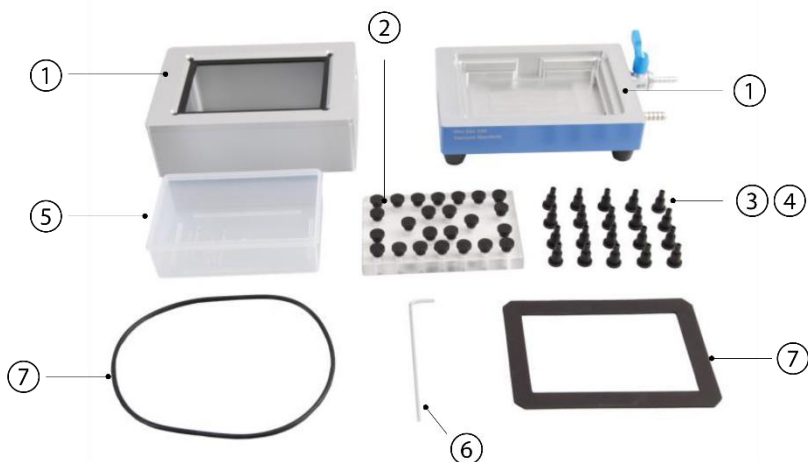


WelVac 200



WelVac 210

Model		Standard Package Includes:	
WelVac 200		1	WelVac 200, Microplate Vacuum Manifold
		2	Spin Column Adaptor Board
		3	Luer Connector (25/pk)
		4	Luer Stopper (25/pk)
		5	Waste Tray
		6	Allen Wrench
		7	Sealing Kit (O-ring x 1, Gasket x 1)
		8	Instruction Manual
WelVac 210		9	Silicone Tube
		10	Rocker 300, Oil Free Vacuum Pump



### 3. Main Part Diagram

(1). WelVac 200 Microplate Vacuum Manifold



Position	Designation	Position	Designation
1	Lower Chamber	5	Switch
2	Upper Chamber	6	Vent Valve
3	Gasket	7	Vacuum Connector
4	Top Ring		

(2). WelVac 210 Microplate Vacuum Manifold System



Position	Designation	Position	Designation
1	Power Switch	4	Vacuum Regulator
2	Muffler	5	Vent Hose
3	Inlet	6	Vacuum Connector

## 4. Installation and Operation

For quick & easy instruction, please refer to [p.7 graphical instruction](#) or instruction video on the cover.

### (1) Installation

- A. Ensure the surface of gasket and O-ring are free from dirt or debris. Unclean gasket and O-ring would lead a poor airtight.
- B. Put the waste tray in lower chamber then put the upper chamber on the top of it.
- C. Put 96-well extraction plate or spin column adaptor board on gasket of upper chamber according to type of extraction kit.



Mini Spin Column x 24



Maxi Spin Column x 8



96-well Extraction Plate

- D. Switch on the pump, block the inlet of pump and regulate desired vacuum by adjusting vacuum regulator and switch the pump off.
  - ◆ Appropriate vacuum degree is a key point to get efficient extraction. We suggest setting the vacuum degree according to extraction protocol.
- E. Connected the vacuum connector of WelVac 200 manifold and inlet of Rocker 300 vacuum pump with high-pressure silicone tube.

## (2) Operation

- ◆ Before starting, please ensure the system is well installation.
- ◆ For extraction or purification kit, please follow the vacuum protocol in the manual of kit.
- ◆ WelVac 200 manifold can also be connected to a local stationary vacuum source with optional vacuum regulator (Cat.167310-06) to adjust vacuum degree.
- ◆ Please rinse the manifold according to [P.11 Maintenance](#) after every use.

A. Put the spin column adaptor board or 96-well extraction plate on gasket of upper chamber.

- ◆ If 96-well extraction well is used, please skip to step D.

B. Replace numbers of Luer stopper into connector on the spin column adaptor board according to number of spin column.

- ◆ Unused hold of column adaptor board should be blocked by Luer stopper(s).

C. Insert the spin columns firmly into Luer connectors.

- ◆ Same type of columns is recommended to avoid different flow rate.

D. Loading sample, switch on the vacuum pump and press lightly on the spin column board or 96-well plate to engage the vacuum seal.

E. After extraction, please switch off the vacuum pump and open the vent switch to release the vacuum and prevent from cross-contamination.

- ◆ Do NOT release the pressure by opening the corner of column adaptor board or plate to prevent deformation of gasket.
- ◆ Residual droplet on the spin column or 96-well plate can be removed by tapping the top of adaptor board before releasing the vacuum.

F. Remove the spin columns from column adaptor board and perform elution step by centrifugation to ensure Max. recovery.

G. Remove the upper chamber and waste tray and disposal of waste.

- ◆ 1200 mL PES vacuum bottle is optional for handling large number of samples.



WelVac 210 Assembly Diagram



With Optional 1200 mL Vacuum Bottle



## How to use : WelVac 200 / 210



<p><b>1</b></p>	<p><b>2</b></p>	<p><b>3</b></p>	<p>Put the upper chamber on the top of lower chamber with waste tray in it.</p>	<p>Connect the WelVac 200 and vacuum pump together with silicone tube. • Adjust the vacuum with pump regulator before operation.</p>	<p>Make sure the vent is <b>closed</b> and choose spin columns or 96-well plate for extraction.</p>
<p><b>4-1a</b></p>	<p><b>4-1b</b></p>	<p><b>4-1c</b></p>	<p>Place the column adaptor board on the gasket of upper chamber.</p>	<p>Replace the Luer stoppers with Luer connectors which the number is same as spin columns.</p>	<p>Insert the spin columns firmly to Luer connectors and load the samples.</p>
<p><b>4-2a</b></p>	<p><b>4-2b</b></p>	<p><b>4-2c</b></p>	<p>Load the samples and ready for extraction. • Every well should be filled to make sure no air leakage.</p>	<p>Place the 96-well plate on the gasket of upper chamber.</p>	<p>Remove column adaptor board or 96-well plate.</p>
<p><b>5</b></p>	<p><b>6</b></p>	<p><b>7</b></p>	<p><b>8</b></p>	<p>Turn on the vacuum pump, press lightly on column adaptor board or 96-well plate to <b>seal</b> the top ring and start extraction.</p>	<p>Discard the waste and clean WelVac 200 with paper towels.</p>

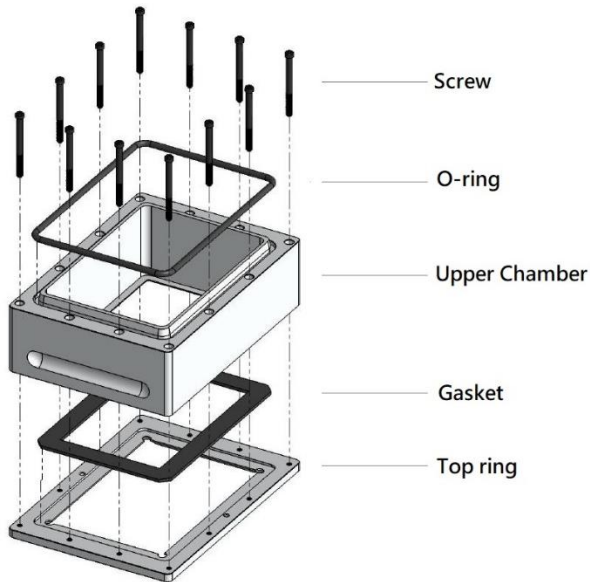
### (3) Replace O-ring and Gasket

#### 3.1 O-ring

- A. Remove existing O-ring from the bottom of the upper chamber.
- B. Ensure the new O-ring is free from dirt, debris, and particulate matter.
- C. Replace the new O-ring.

#### 3.2 Gasket

- A. Remove the 12 screws located on bottom of the upper chamber by Allen wrench.
- B. Separate the top ring, remove the old gasket, and clean the top ring groove.
- C. Put the new gasket into the groove and put the top ring back. Please ensure that the bottom of the top ring groove is aligned cover gasket.
- D. Put the 12 screws and tighten screws at corners lightly and lock other screws back.
  - ◆ Do not lock too tight to distort the top ring and lead a poor vacuum.



## 5. Maintenance

1. The vacuum pump is not autoclavable. Please clean the surface by pure water, 75% ethanol or isopropanol (IPA).
2. Please clean the WelVac 200 vacuum manifold with water and either air dry or wipe with paper towels after every use.
3. Do not use this instrument with any chemicals include solvent, bleach or abrasives.
4. After finishing the experiment, please keep pumping the air for at least 2 minutes to withdraw the residual steam.
5. The filter cartridge of vacuum pump is used to absorb moisture and dust. Please replace the cartridge to maintain pumping efficiency when it becomes dirty or color-changing.
6. WelVac 200 and silicone tube are autoclavable, please clean and autoclave (121°C, 1 bar, 20 min) if needed.
7. O-ring(s), gasket, and silicone tube(s) are consumables, it is recommended to replace it as needed (aged or damaged) to ensure good operation.

### • How to reset the Prote™ protection device of the Rocker 300 Vacuum Pump

1. Remove the moisture trap (7) and filter cartridge (6) by rotating clockwise.
2. Disassemble the filter cartridge (6) to ensure the buoy is not closed.
3. Reinstall all components, filter cartridge and moisture trap back.

### • How to replace cartridge of the Rocker 300 Vacuum Pump

1. Please replace the cartridge when it becomes dirty or color-changing.
2. Please remove the moisture trap (7) by rotating it clockwise.
3. Replace the cartridge by the same way.

## 6. Troubleshooting

Problem	Reason and Solution
Vacuum pump failed to start	<ul style="list-style-type: none"> <li>• Loose plug → Reconnect plug to power supply.</li> <li>• Wrong voltage → Reconnect to power specified on name plate.</li> <li>• Vacuum exists → Release vacuum and restart the pump.</li> <li>• Switch is broken → Contact distributor for assistance.</li> </ul>
Poor vacuum	<ul style="list-style-type: none"> <li>• Improperly vacuum setting → Adjust the vacuum regulator.</li> <li>• Clogged muffler → Clean or replace a new muffler.</li> <li>• Unused Luer connector(s) → Replaced unused one by Luer stopper(s).</li> <li>• Opened vent valve → Close the vent valve.</li> <li>• Crack plates or adaptor board → Change a new one.</li> <li>• Dirty or damage O-ring and gasket → Clean or replace it.</li> <li>• Faulty vacuum gauge of pump → Replace a new gauge.</li> <li>• Air leakage → Replace or tighten the tubing or accessories that possible leaks.</li> </ul>

## 7. Ordering Information

195210-11(22)	WelVac 210, Microplate Vacuum Manifold System, AC110V, 60Hz (AC220V, 50Hz)
195200-00	WelVac 200 Microplate Vacuum Manifold
195200-42	Spin Column Adapter Board - PC (24 holes)
195200-46	Spin Column Adapter Board - Acrylic (24 holes)
195200-43	Luer Connector (25/pk)
195200-44	Luer Stopper (25/pk)
195200-45	Waste Tray
195200-35	Allen Wrench
195200-35	Allen Wrench
195200-60	Sealing Kit
167300-11(22)	Rocker 300, Vacuum Pump, AC110V, 60Hz (AC220V, 50Hz)
167301-06	Moisture trap / Vacuum regulator for Rocker 300 / 400 / 410
167301-07	Prote™ filter cartridge for Rocker 300 / 400 / 410
167300-42	Muffler (Air outlet) for Rocker 300 / 400 / 410
167300-62	Rocker 300 repair kit
167200-38	Silicone Tube, Ø 6 x 12 mm, 1 m

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