



# Vacuum Manifold



## Instruction Manual

Cat. No. Wel-Vac 200  
*For research used only*

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# INSTRUCTION MANUAL

## A. Introduction

Wel-Vac 200 series vacuum manifold is an anodized aluminum manifold that has been designed for vacuum filtration of 96-well filter plate and luer-ended spin column. Customer-design spacer block (optional) has been optimized to reduce adjustably the space between the receiver plate and filter plate, enables Wel-Vac 200 compatible with most of micro plate filter for collecting filtrate. A column adaptor board allows manifold to be used with spin columns with luer ends. The vacuum manifold and column adaptor board ensure fast, high-quality sample preparation in both formats, while maintaining the simplicity of handling associated with vacuum processing.

## B. Important Notice

1. Please discard the packing materials according to your local environmental protection policy.
2. This vacuum manifold is designed for non-corrosive filtration, any corrosive reagent could damage the instrument and shorten its usage life.
3. Use a properly grounded electrical outlet of correct voltage and current handling capacity. Failure to properly connect may create a fire or shock hazard.
4. Do not use it near flammable or combustible materials may cause the fire or explosion. The device contains components which may ignite these materials.
5. The instrument shall not be modified or altered in any way. Any modification or alteration will void the warranty, void the regulatory certifications and create potential safety hazard. We are not responsible for any injury or damage caused by using the instrument for any non-intended purpose, or modifying the instrument by any person who is not authorized.
6. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.

## C. Unpacking and checking

Before unpacking this instrument, please check first the packing case is complete without any damage. After unpacking, please check the accessories are complete as list also. If not, please reserve the serial number and packing case, and contact your local distributor immediately to claim support

### Wel-Vac 200

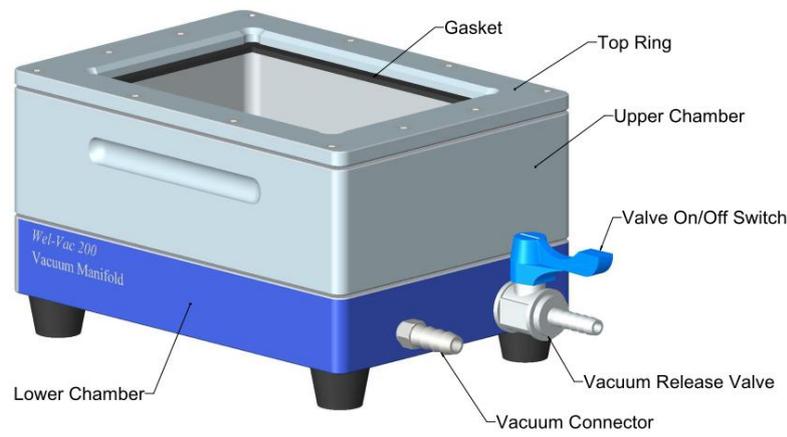
Vacuum Manifold .....	1
Spare O-ring .....	1
Spare gasket .....	1
Column adaptor board .....	1

### Wel-Vac 210-110

Wel-Vac 200 vacuum manifold .....	1
FAPMP 110 Vacuum Pump .....	1
Spare O-ring .....	1
Spare gasket .....	1

Luer connector .....	24	Column adaptor board .....	1
Snap rivet .....	24	Luer connector .....	24
Deep well (96x2.2ml) reservoir .....	1	Snap rivet .....	24
Allen wrench .....	1	Deep well (96x2.2ml) reservoir .....	1
Instruction Manual .....	1	Allen wrench .....	1
		Silicon tube .....	1
		Disc filter .....	1
		Instruction Manual .....	1

**D. Over View**



< figure.1 > Wel-Vac 200 Vacuum Manifold Over View

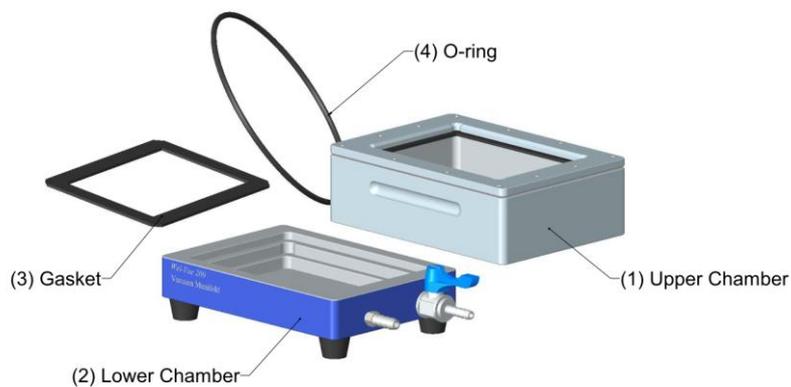


< figure.2 > Wel-Vac 210-110 Vacuum Manifold Over View

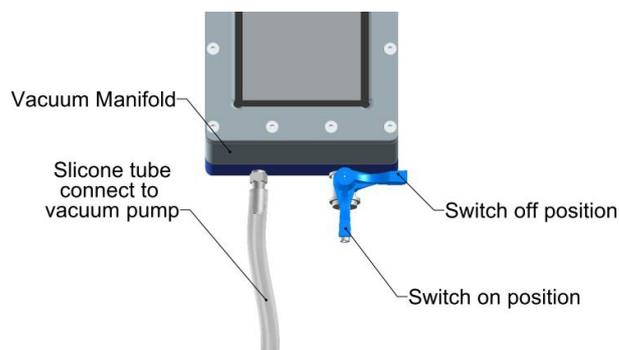
**Specifications:**

1. Material: Vacuum Manifold<Anodized aluminum>      Gasket<Ethylene propylene>      O-ring<Silicone>
2. Dimensions: 17.5 cm (L) x 13.3cm (W) x 10.5cm (H)
3. Weight: 2.68kg
4. Maximum Operating Vacuum: 71.10cm Hg (28 in Hg)

## E. Part View



< figure.3 > Wel-Vac 200 Vacuum Manifold Part View



< figure.4 > Valve On/Off Switch Position

## F. Installation

### Wel-Vac 200

1. Put the upper chamber(1) on the top of lower chamber(2). **(See figure 3)**

### Wel-Vac 210-110

2. Check voltage specified on nameplate on the vacuum pump. Make sure if it matches the line voltage in your location.
3. Install the pump in a clean, dust-less and ventilated area under 40°C.
4. Connect outlet of Wel-Vac 200(1) and inlet of FAPMP(2) vacuum pump with disc filter and silicon tube. **(See figure 2).**
5. The manifold is now ready for use.

## G. Operation

### I. Set the Vacuum Manifold to a Desired Vacuum before Filtration

**Important Notice:**

**Appropriate vacuum degree is a key point to get efficient extraction, you are recommend to set the system to the vacuum degree stated in your protocol of kit manual before filtration.**

1. Turn the vacuum release switch to Switch off position(3) (see Figure 2).
2. Place a 96- well micro plate on the gasket of upper chamber of the vacuum manifold.
3. Adjust the vacuum regulator(4) (anticlockwise) to open position.
4. Turn on the vacuum pump power.(5)
5. Adjust the vacuum regulator (clockwise)(4) to the desired setting.
6. Turn off the vacuum pump power and remove the micro plate. The vacuum manifold is now set at the desired setting.

**Note: Wel-Vac 200 can be connected to local stationary vacuum source with optional vacuum regulator (Wel-Vac 007) fixed between each other for getting an appropriate vacuum degree.**

### II. 96-well plates extraction

1. Ensure that all surfaces of contact part (such as O-ring, and gasket) are free from dirt, debris.  
**Note: If the O-ring and gasket are not clean, you will not get a good seal.**
2. Remove the upper chamber of the vacuum manifold. The indentations on the sides of the manifold allow it to be easily removed.
3. Place appropriate spacer block into the lower chamber of the vacuum manifold if necessary.
4. If you want collect the eluates, place receiver plate / elution plate into the lower chamber of the vacuum manifold with appropriate spacer block.
5. If you want collect the retentate, place a waste tray into the lower chamber of the vacuum manifold or connect a waste bottle (Optional, Waste bottle, 1000ml) between the manifold and vacuum pump
6. Replace the upper chamber of the vacuum manifold.
7. Put the filter plate on the gasket located on the upper chamber of the vacuum manifold. Ensure that the gasket is clean.
8. Ensure that the valve on/off switch is in the off position (see Figure 3).
9. When ready to evacuate the filter plate, turn the vacuum pump power on. You may need to press lightly on the filter plate to engage the vacuum seal.
10. The wells will begin to evacuate/empty once the vacuum has been applied to the chamber.
11. If you need to adjust the vacuum pressure up or down, adjust the regulator of vacuum pump.
12. When all of the wells have been completely evacuated, switch the vacuum release valve to the off position,

then turn the vacuum pump power off to release the residual vacuum pressure that remains in the chamber and reduce the potential for cross-contamination and spraying of the filtrate.

**NOTE: Do not release the vacuum by pulling the corner of the plate as it will degrade the manifold gasket. You can also tap the top of the filter plate prior to removing it to release any hanging drops that may be attached to the outlet tips.**

13. Remove the filter plate and place it aside for further processing or dispose of it properly.
14. Remove the upper chamber of the vacuum manifold from the lower chamber of the vacuum manifold.
15. Remove the receiver plate from the lower chamber of the vacuum manifold and utilize the filtrate for further processing.
16. After use, rinse the Wel-Vac 200 vacuum manifold with water and either air dry or wipe with paper towels. Failure to rinse the vacuum manifold at the end of each use will cause the manifold to become cloudy and pitted.

**Note: If not resisted solvents of the vacuum manifold are spilled on the unit, rinse it thoroughly with water.**

### III. Spin columns extraction

1. Remove the upper chamber of the vacuum manifold. The indentations on the sides of the manifold allow it to be easily removed.
2. Place a waste tray into the lower chamber of the vacuum manifold or connect a waste bottle (Optional, Waste bottle, 1000ml) between the manifold and vacuum pump.
3. Replace the upper chamber of the vacuum manifold.
4. Insert the luer connector into the hole of the column adapter board. Ensure luer connectors are tightly secured.
5. Insert the required number of columns firmly into the luer connector of the column adapter board. Block any remaining luer connector with the provided snap rivet.

**Note: Must be the same type columns for avoiding flow rates of samples differ significantly to ensure consistent vacuum.**

6. Put the column adapter board on the gasket located on the upper chamber of the vacuum manifold. Ensure that the gasket is clean.
7. The manifold is now ready for column processing according to the vacuum protocol of the appropriate column purification kit.
8. Ensure that the valve on/off switch is in the off position (see Figure 3).
9. When ready to evacuate the spin column, turn the vacuum pump power on. You may need to press lightly on the column adapter board to engage the vacuum seal.
10. The columns will begin to evacuate/empty once the vacuum has been applied to the chamber.
11. If you need to adjust the vacuum pressure up or down, adjust the regulator of vacuum pump.
12. When all of the wells have been completely evacuated, switch the vacuum release valve to the off position,

then turn the vacuum pump power off to release the residual vacuum pressure that remains in the chamber and reduce the potential for cross-contamination and spraying of the filtrate.

**NOTE: Do not release the vacuum by pulling the corner of the plate as it will degrade the manifold gasket. You can also tap the top of the filter plate prior to removing it to release any hanging drops that may attach to the outlet tips.**

13. Remove the column of column adapter board and place it aside for further processing or dispose of it properly.
14. Remove the column adapter board and the upper chamber of the vacuum manifold.
15. Discard the liquid waste in the waste tray from the lower chamber of the vacuum manifold.
16. After processing of the samples, discard or sterilized the luer connector appropriately to avoid cross contamination.
17. After use, clean the Wel-Vac 200 vacuum manifold with water and either air dry or wipe with paper towels. Failure to rinse the vacuum manifold at the end of each use will cause the manifold to become cloudy and pitted.

**Note: If not resisted solvents of the vacuum manifold are spilled on the unit, rinse it thoroughly with water.**

#### **IV. Replace the O-ring**

1. Remove existing O-ring from the bottom of the upper chamber.
2. Ensure that the O-ring is free from dirt, debris, and particulate matter.
3. Place new O-ring into place.

#### **V. Replace the Gasket**

1. With the allen wrench provided, remove the 12 screws located on the top portion of the upper chamber.
2. Separate the top ring from the top section of the upper chamber.
3. Remove the old gasket and clean the gasket pocket area of any dirt and debris.
4. Place the new gasket into the gasket pocket. Place the top ring back onto the top section of the upper chamber. Ensure that the alignment posts on the bottom section fit into the alignment holes in the top ring.
5. Replace the 12 screws of the upper chamber.
6. Lightly tighten the four corner screws with the allen wrench, then gently lock all 12 screws. Do not lock too tight to avoid top ring distortion and get a proper seal.

#### **H. Maintaining**

1. Thoroughly wash all manifold after each use with water to remove salts and buffers. Do not use solvents, abrasives or chlorine bleach when washing the manifold.
2. Store the manifold clean and dry, at room temperature.
3. Keep the manifold valve clean and dry to ensure optimal vacuum conditions.
4. Do not apply silicone or vacuum grease to the gaskets or any other part of the vacuum manifold. If gaskets

are damaged, please replace it.

5. Avoid exposing any part of the manifold to harsh chemicals.
6. Do not drop the vacuum manifold.

## I. Troubleshooting

### Insufficient negative pressure in vacuum manifold or vacuum pressure leak

Possible cause	suggestions
1. O-ring / Gasket leakage	Check to see that the O-ring and gasket are clean and not damaged.
2. Open vacuum regulator	Close vacuum regulator by adjusting the correct direction
3. chamber not seated properly	Ensure uniform contact between upper chamber and low chamber
4. 96-well plate or column adapter board not fully seated	Press down gently on plate or board to seal
5. 96-well plate or column leakage	Visually inspect the plates to see if there are cracks or nicks in the plastic.
6. Unused luer connector block leakage	Ensure all luer connector are tightly secured into each hole of column board and block unused luer connector with snap rivet.
7. Vacuum connector or tube leakage	Ensure that the vacuum connector and tube is not clogged or damaged.
8. Vacuum pump too weak	Change to a new vacuum source or vacuum sources need take longer time to generate sufficient vacuum.

## J. Ordering Information

Wel-Vac 210-110 Wel-Vac 210 (Wel-Vac 200 with FAPMP 110 vacuum pump, AC110V/60Hz)

Wel-Vac 210-220 Wel-Vac 210 (Wel-Vac 200 with FAPMP 220 vacuum pump, AC220V/50Hz)

Wel-Vac 210 Wel-Vac 200 micro plate vacuum manifold

FAPMP 110 Vacuum pump, AC110V/60Hz

FAPMP 220 Vacuum pump, AC220V/50Hz

Wel-Vac 001 O-ring and Gasket for Vacuum Manifold Wel-Vac 200

Wel-Vac 011 Spacer block set for Vacuum Manifold Wel-Vac 200

Wel-Vac 005 Deep well (96x2.2ml) reservoir

Wel-Vac 007 Vacuum regulator

Wel-Vac 008 Silicone tube (30cm)

Wel-Vac 012 Waste bottle (1000ml)

Wel-Vac 009 0.2um disc filter

Wel-Vac 002 Spin column adapter board

Wel-Vac 003 Luer connector

Wel-Vac 004 Snap rivet

