

INSTRUCTION MANUAL

Vacuum Filtration System

Model No.

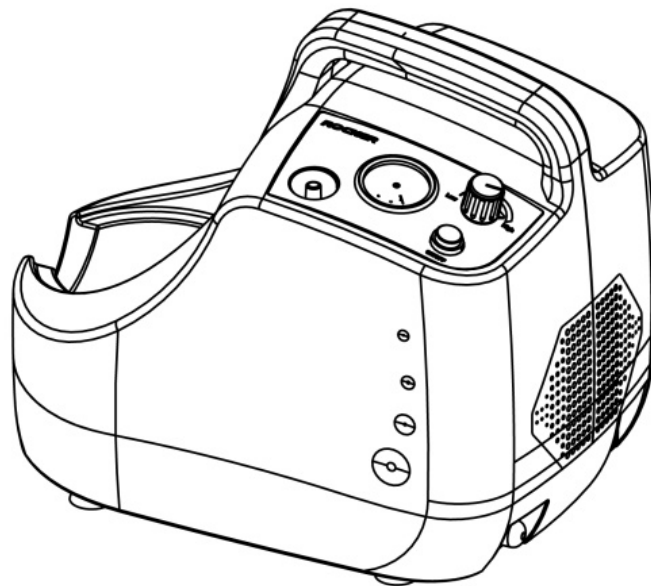
Lafil 300 - LF 30 / SF 10

Lafil 400 - LF 30 / SF 10 / LF 5a - 500

Lafil 300C - VF 12

Lafil 200 - VF 17

Tech support



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.

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 flammable or toxic material.
4. Never use instrument with chemical material, except for Lafil 300C.
5. The instrument 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, partially unscrew the vacuum regulator knob to vent to atmosphere.
6. The pump has a thermal protection device that automatically shuts-off when it becomes overheated.
7. Do not use any lubricant, which may damage the pump.
8. Filtration accessories, including overflow protection, are compatible with most low-concentration acids, alkalis, and organic solutions but not all. Refer to the chemical compatibility chart before using.
9. For any issues with instrument, please contact the manufacturer or service agent for assistance. Do NOT disassemble it improperly.
10. Please discard packing materials according to local regulations.
11. Visit the official website and the latest product guide for detailed information.

12. 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) Indoor use

** Before operation, check the compatibility of pump (including pump head, valve plates, piston seal, and diaphragm) and filtration apparatus materials with used medium.*

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.



Lafil 300 / 400 - LF 30



Lafil 300 / 400 - SF 10

| Model | Standard Package Includes: |
|-------------------------|---------------------------------------|
| Lafil 300 / 400 - LF 30 | Lafil 300 / 400, Oil Free Vacuum Pump |
| | LF 30, Filtration Set |
| | Silicone Tube |
| | Power Cord |
| | Instruction Manual |

| Model | Standard Package Includes: |
|-------------------------|--|
| Lafil 300 / 400 - SF 10 | Lafil 300 / 400, Oil Free Vacuum Pump |
| | SF 10, Stainless Steel Filtration Set |
| | Dragon 100, Torch Burner |
| | MCE Membrane, 47 mm, 0.45 μ m, 200 pcs |
| | Silicone Tube |
| | Power Cord |
| | Instruction Manual |



Lafil 400 - LF 5a - 500



Lafil 300C - VF 12

| Model | Standard Package Includes: |
|-------------------------|---|
| Lafil 400 - LF 5a - 500 | Lafil 400, Oil Free Vacuum Pump |
| | LF 5a, Spin-Lock Filter Holder (500 mL) |
| | Laboratory Glass Bottle, 500 mL |
| | Silicone Adaptor |
| | Silicone Tube |
| | Power Cord |
| | Instruction Manual |

| Model | Standard Package Includes: |
|-------------------|--|
| Lafil 300C - VF12 | Lafil 300C, PTFE Coated Chemical Resistant Vacuum Pump |
| | VF 12, Glass Filtration Set |
| | Silicone Adaptor |
| | Silicone Tube |
| | Power Cord |
| | Instruction Manual |



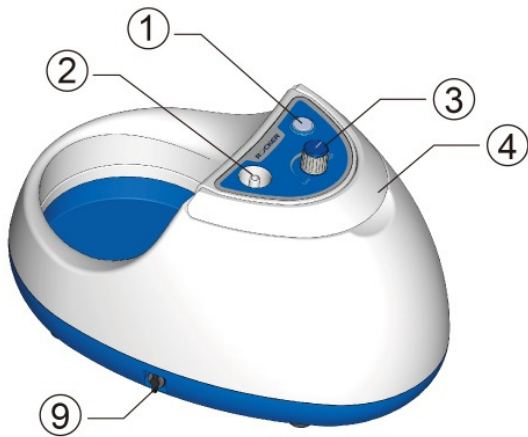
Lafil 200 - VF 17

| Model | Standard Package Includes: |
|-------------------|---------------------------------|
| Lafil 200 - VF 17 | Lafil 200, Oil Free Vacuum Pump |
| | VF 17, Glass Filtration Set |
| | Silicone Tube |
| | Power Adaptor |
| | Instruction Manual |

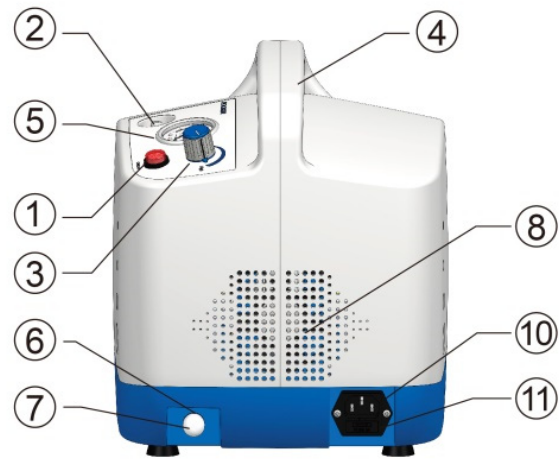
3. Main Part Diagram

(1) Vacuum Pump

Lafil 200



Lafil 300 / 300C / 400



| Item | Designation | Item | Designation |
|------|------------------|------|--------------------|
| 1 | Power Switch | 7 | PE Muffler |
| 2 | Inlet | 8 | Ventilation Outlet |
| 3 | Vacuum Regulator | 9 | DC Socket |
| 4 | Handle | 10 | AC Socket |
| 5 | Vacuum Gauge | 11 | Fuse Holder |
| 6 | Washer | | |

(2) Parts Material List

- Vacuum Pump

| Model | Material | | | |
|-----------------|----------------|--------------|--------------|-------------|
| | Pump head | Valve plates | Piston seal | Diaphragm |
| Lafil 200 | PPS | EPDM | - | EPDM |
| Lafil 300 / 400 | Aluminum alloy | FKM | PTFE complex | - |
| Lafil 300C | PTFE coated | FKM | - | PTFE coated |

- Filtration Apparatus

| Model | Material contacts with filtrates | |
|-------------|----------------------------------|--------------------|
| | Filter Holder | Receiver Bottle |
| LF 30 | PES, PC, PP | PC |
| SF 10 | SS316 | PC |
| LF 5a - 500 | PES, PC, PP | Borosilicate Glass |
| VF 12 | Borosilicate Glass | Borosilicate Glass |
| VF 17 | Borosilicate Glass | Borosilicate Glass |

- Listed material exclude parts not in direct contact with the filtrate, such as funnel lid and silicone stopper.
For material details of each part, please refer to the official website for the latest information.
- A PES vacuum bottle (197000-11) is available for LF 30 and SF 10.

4. Installation and Operation

(1) Installation

Assemble the filtration apparatus as shown below.

| Filtration Apparatus Installation | | | |
|-----------------------------------|-------|--|---------------|
| LF 30 | SF 10 | LF 5a - 500 | VF 12 / VF 17 |
| | | | |
| Support Base | | Overflow Protection | |
| | | | |
| LF 30 | LF 5a | Included in Filtration Apparatus: LF 30, SF 10 | |

(2) Operation

- A. Turn on the pump, block the inlet (2), and regulate the desired vacuum by vacuum regulator (3).
- B. Put the filtration apparatus in fence-like platform of Lafil vacuum pump.
 - Insert a silicone adaptor onto the bottom of laboratory glass bottle of LF 5a - 500 or VF 12 before installation to stabilize the filtration apparatus.
- C. Connect the filtration apparatus to pump inlet (2) using a silicone tube.
- D. Place the proper membrane in the filter holder, pour sample liquid and turn on the pump to start filtration.
 - A GL45 filtration adaptor (197100-65) is available for direct filtration into a laboratory glass bottle.
 - A continuous filtration kit for VF 12 (167210-36), and VF 17 (167210-35) is available.
- E. After filtration, turn off the pump and retrieve the membrane.

** Warning:*

Before operation, check the compatibility of pump (including pump head, valve plates, piston seal, and diaphragm) and filtration apparatus materials with used medium.



Silicone Adaptor Assembly Diagram



Vacuum Filtration System Assembly Diagram

5. Maintenance

1. The vacuum pump is not autoclavable. Please clean the surface by pure water or 75% ethanol.
2. After finishing the experiment, please keep pumping the air for at least 2 minutes to withdraw the residual steam.
3. Filtration apparatus and accessories are autoclavable (121°C, 1 bar, 20 min). Please make sure to rinse the apparatus with pure water and separate each part before autoclave.
4. Do **NOT** autoclave the plastic parts, such as filter holder, with aluminum foil. It is always recommended to autoclave the funnels in autoclave bags.
5. Funnels, support base and membrane support of SF 10 are made of SS316 which can be fast sterilized by flame or autoclaved.
6. O-ring(s), silicone tube(s), muffler, valve plate(s), and diaphragm are consumables, it is recommended to replace them on a yearly basis or as needed to ensure good operation.
7. When replace fuse of Lafil 300 / 300C / 400, get the spare fuse from the fuse holder by a flathead screwdriver. (4A fuse for 110V; 1.5A fuse for 220V)

6. Troubleshooting

| Problem | Reason and Solution |
|-------------------------|--|
| Failed to start | <ul style="list-style-type: none"> • Loose plug → Reconnect plug to power supply. • Wrong voltage → Reconnect to power specified on name plate. • Faulty power adaptor → Replace a new one from manufacture. • Blown fuse → Replace a new fuse. • Vacuum exists → Release vacuum and restart. • Switch is broken → Contact distributor for assistance. |
| Failed to adjust vacuum | <ul style="list-style-type: none"> • Faulty vacuum regulator → Contact distributor for assistance. • Faulty vacuum gauge → Contact distributor for assistance. |
| Poor vacuum | <ul style="list-style-type: none"> • Improperly vacuum setting → Adjust the vacuum regulator. • Clogged muffler → Replace a new muffler. • Air leakage → Replace or tighten the tubing and accessories that possible leaks. |
| Low filtration speed | <ul style="list-style-type: none"> • Improperly vacuum setting → Adjust the vacuum regulator. • Air leakage → Replace or tighten the tubing and accessories that possible leaks. • Unsuitable membrane → Change an appropriate membrane. • Membrane is blocked → Replace a new membrane. |
| Others | <ul style="list-style-type: none"> • Contact distributor for assistance. |

Ordering information

| | |
|-----------------|---|
| 197200-01(02) | Lafil 200, Oil Free Vacuum Pump with AC100-240V adaptor, US plug (EU plug) |
| 197300-11(22) | Lafil 300, Oil Free Vacuum Pump, AC110V, 60Hz (AC220V, 50Hz) |
| 197400-11(22) | Lafil 400, Oil Free Vacuum Pump, AC110V, 60Hz (AC220V, 50Hz) |
| 197330-11(22) | Lafil 300C, PTFE Coated Chemical Resistant Vacuum Pump, AC110V, 60Hz (AC220V, 50Hz) |
| 197400-45 | PE Muffler (1/8 PT) of Lafil 300 / 400 / 300C |
| 197010-30 | LF 30, Filtration Set |
| 197010-50 | LF 50, Filtration Set |
| 197010-32 | SF 10, Stainless Steel Filtration Set |
| 197010-33 | SF 30, Stainless Steel Filtration Set |
| 167200-12 | VF 12, Glass Filtration Set |
| 167200-17 | VF 17, Glass Filtration Set |
| 197000-01 | LF 3, Spin-Lock Filter Holder (300 mL) |
| 197000-06 | LF 5, Spin-Lock Filter Holder (500 mL) |
| 200300-01(-P) | MF 3 (Pro), Magnetic Filter Holder (300 mL) |
| 200500-01(-P) | MF 5 (Pro), Magnetic Filter Holder (500 mL) |
| 180100-10/30/50 | SF 1 / SF 3 / SF 5, Stainless Steel Filter Holder (100 mL / 300 mL / 500 mL) |
| 180100-01/03/05 | SF Stainless steel funnel 100 mL / 300 mL / 500 mL |
| 180100-31 | Stainless steel support screen for SF Filter Holder |
| 167120-31 | Glass Filter Holder (300 mL) |
| 167210-36 | Continuous Filtration Kit for 300 mL Filter Holder (VF 12) |
| 167210-35 | Continuous Filtration Kit for 1000 mL Filter Holder (VF 17) |
| 197100-65 | GL45 filtration adaptor |
| 197000-11-PC | PC Vacuum bottle, 1200 mL |
| 197000-11 | PES Vacuum bottle, 1200 mL |
| 167200-38 | Silicone tube, Ø 6 x 12 mm, 100 cm |
| 177100-00 | Dragon 100, Torch Burner |
| 167100-20 | PALL A/E glass fiber membrane filter, 47 mm, 1 µm, 100/PK |
| 167100-52-1 | Whatman ME 25 (MCE) membrane, 47 mm, 0.45 µm, 100/PK |

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