

Liquid Handling Vacuum Pump

Cat. No. BT1805, BT1806, BT1807

OPENING CHECK	3
IMPORTANT SAFETY INFORMATION	3
MAINTENANCE	4
WARRANTY	4
INTRODUCTION	4
KEY FEATURES	4
NORMAL OPERATING CONDITIONS	4
TECHNICAL SPECIFICATIONS	5
OVERVIEW	5
STRUCTURE	6
INSTRUMENT INSTALLATION DIAGRAM AND DESCRIPTION	6
OPERATION	7
TROUBLE SHOOTING	8
TECHNICAL SUPPORT	9
APPENDIX A: LIQUID HANDLING VACUUM PUMP WIRING DIAGRAM	9

Thanks for choosing BT Lab Systems' Liquid Handling Vacuum Pumps. They come in three models: BT1805 (26L/min flow rate), BT1806 (35L/min flow rate) and BT1807 (42L/min flow rate). This operation manual describes the function and operation of the instrument. In order to use the instrument properly, please read this manual carefully.

OPENING CHECK

Please check the Instrument and Appendix with the packing list when you first open the instrument packing case. If you find there is something wrong with the Instrument and the Appendix, please contact the BT Lab Systems'.

IMPORTANT SAFETY INFORMATION

- Please read this operation manual carefully before using the instrument.
- This product is an indoor Instrument.
- These units are designed for laboratory use by persons knowledgeable in safe laboratory practices.
- The operator should never open or repair the instrument. Opening or repairing the instrument will void the guarantee and can cause accidents.
- The power plug should safeguard against an electric shock. The 3-pin plug supplied with the instrument should be matched with a suitable grounded socket.
- Before power on, guarantee the voltage used should be accordant to the voltage needed, and the rated load of electrical outlet should not lower than the demand. If the electric line is damaged, you should replace it with the same type. You should assure there's nothing on the electric line and you should not put the electric line in the ambulatory place. Hold the jack when you pull out the electric line, and don't pull the electric line.
- The instrument should be used in an area with low temperature, little dust, no water, no sunshine or hard light and with good air circulation. Do not use where there is corrosive gas or a strong magnetic field. Keep far away from central heating, camp stove and other hot sources. Do not put the instrument in a wet and dusty area. The vent on the instrument is designed for aeration. Do not wall up or cover the vent. The distance between each device should be more than 100cm when there is more than one instrument.
- Power off when not in use. If the instrument will not be used for a long period, unplug, and cover with a piece of cloth to protect it from dust.
- In case of the following, unplug the instrument at once and contact BT Lab Systems.
 - The instrument comes into contact with liquid
 - The instrument gets soaked or burned
 - The instrument emits an abnormal sound or smell
 - The instrument is dropped or the outer shell damaged

- The instrument functions abnormally.

MAINTENANCE

The instrument and the accessories should be cleaned with a cloth dampened by alcohol. If there are smudges on the instrument, clean it with a dry cloth.

WARRANTY

The instrument is warranted against defects in materials and workmanship for 1 year. If any defects occur in the instrument or accessories during this warranty period, BT Lab Systems will repair or replace the defective parts at its discretion without charge.

For any inquiry or request for repair service, contact your local BT Lab Systems office. Inform BT Lab Systems of the model and serial number of your instrument.

INTRODUCTION

The Liquid Handling Vacuum Pumps are mainly used for separation of culture fluid and culture tissue after biochemical culture, extraction of cell culture waste liquid, and suction of various waste liquids in the laboratory. Different flow specifications (BT1805, BT1806 and BT1807) are available to meet experimental needs. These serve as the best experimental assistants' indispensable for the laboratory aseptic workstation.

KEY FEATURES

- Pumping filter brackets are equipped on both sides of the instrument, easy to store and select the suction filter accessories.
- Standard equipped with multi-function suction filter handle and five kinds of suction head accessories (Cat # BT1803-A, BT1803-B, BT1803-C, BT1803-D, BT1803-E, BT1803-F) to meet more requirements of suction experiments.
- Sealed waste liquid bottle cap design, quick insertion sealing joint, convenient to get out of the fuselage bottle and clean up waste liquid.
- Normally open control mode and foot switch (Cat. # BT1803-G) control mode to meet experimental requirements.
- Waste liquid bottle, suction filter fittings and dish filter can all be used for autoclave sterilization.
- There is a liquid level protection switch in the waste liquid bottle to prevent the waste liquid from overflowing and being sucked into the pump chamber to ensure no troubles in suction filtration.
- There is a PTFE dish shape filter between the bottle and the pump to protect the environment from harmful gas pollution.
- The self-locking quick connector can be quickly and easily separated from the pipeline, which is convenient for safely cleaning the waste bottle.
- Built-in high-quality oil-free vacuum pump, no maintenance, low noise and long life.

NORMAL OPERATING CONDITIONS

Working Environment Temperature: 4°C ~45°C

Relative Humidity: ≤70%

Power: AC100V~230V, 50/60Hz

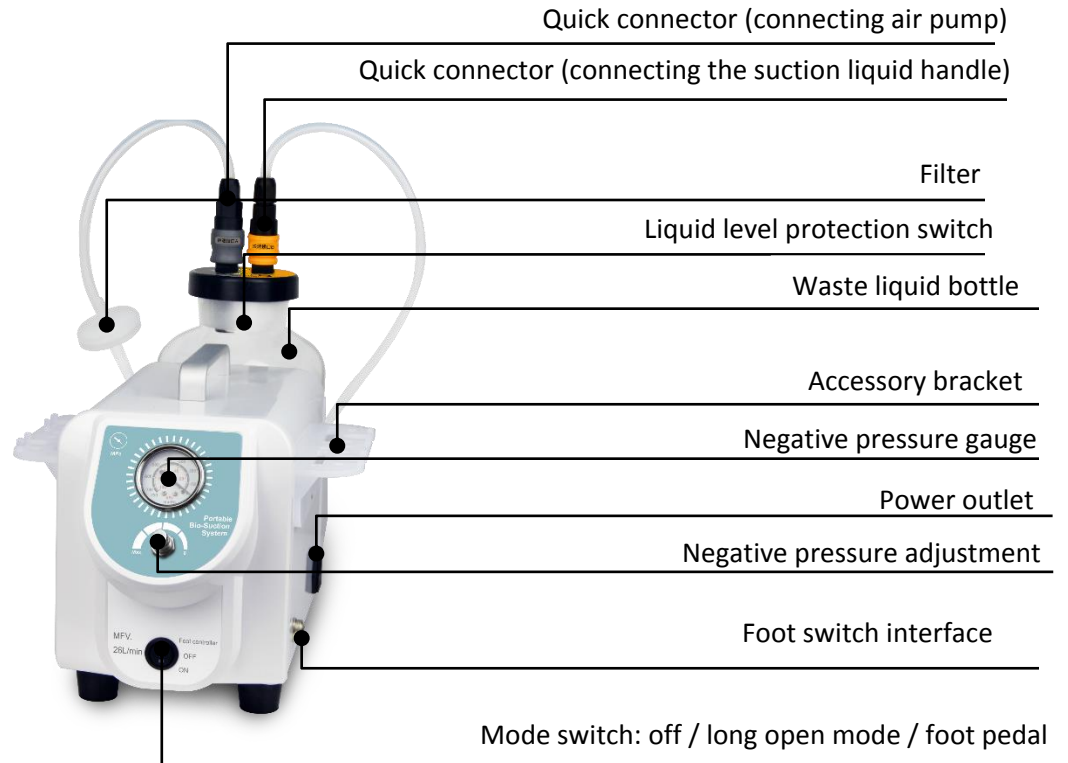
TECHNICAL SPECIFICATIONS

Model	BT1805	BT1806	BT1807
Max. flow rate	26L/min	35L/min	42L/min
Vacuum degree	-0.08Mpa	-0.08Mpa	-0.08Mpa
Vacuum display mode	Vacuum gauge	Vacuum gauge	Vacuum gauge
Negative pressure adjustment range	0~-0.08Mpa	0~-0.08Mpa	0~-0.08Mpa
Waste liquid bottle capacity	2500mL	2500mL	2500mL
Foot Switch	yes	yes	yes
Voltage	AC220V/AC110V 50/60Hz	AC220V/AC110V 50/60Hz	AC220V/AC110V 50/60Hz
Power	60W	140W	110W
Fuse	250V1A, φ5x20	250V1A, φ5x20	250V1A, φ5x20
Dimension (WxDxH)	248x475x350mm	248x475x350mm	248x475x350mm
Net Weight	7.8 kg	9.2 kg	9.2 kg

OVERVIEW

This section mainly introduces the structure of the instrument, the functions of the operation panel, and preparations before starting the machine. When using the instrument for the first time, you should be familiar with this section before starting up.

STRUCTURE



Instrument installation diagram and description

- Connect the quick connector A to the quick interface A; connect the quick connector B to the quick interface B.
- Long hose connection suction handle; short hose connection vacuum pump (instrument) filter interface end



OPERATION

Notice before Operation

1. Be sure to confirm that the quick connector is connected correctly before use. The gray quick connector A with one end of the liquid level sensor should be connected to the filter.
2. When the filter is contaminated by the medium, the filter should be replaced. The filter is marked with the OUT-output port connected to the air pump, and the IN-inlet interface is connected to the quick connector A.
3. If the instrument fails and the pump does not work, check the fuse.
4. The waste bottle should retain a small amount of water for easy cleaning, but do not use any chemicals, disinfectants and detergents inside to prevent container leakage.
5. Place the instrument in a dry, clean, well-ventilated area and non-flammable environment.
6. If the power cord is damaged, it must be replaced by the manufacturer or its service agent or qualified personnel to avoid a hazard.
7. When the waste liquid bottle is about to be filled, please pour it out in time to avoid overflow, which may cause inconvenience and pollution.
8. Before stop working, make vacuum pump empty run for one minute, discharge the residual liquid in the path. If viscous liquid retention occurs, please use clean water to do a pipe cleaning.

9. In order to extend the life of the motor, the continuous operation of the vacuum pump should be less than 30 minutes. If the temperature is too high, turn off the power and restart after the temperature drops.
10. The vacuum pump cannot be started under negative pressure. When the start under negative pressure does not work, the internal negative pressure needs to be eliminated. It is recommended to unplug the quick connector and re-plug it.

Instrument Use

1. Place the vacuum pump on the operating table smoothly.
2. Turn on the power on/off switch.
3. Adjust the negative pressure adjusting knob to set the vacuum degree.
4. Use the suction handle to suck up the liquid.
5. After use, disconnect the instrument from the air pump and empty run for one minute to drain the residual and corrosive gases in the pump to avoid affecting the service life of the components inside the pump.
6. Turn off the power and stop working.

TROUBLE SHOOTING

Issues	Possible Causes	Solutions
Instrument does not operate when power is turned on.	No power	Check the power connection
	Bad fuse	Exchange the fuse (250V 1.5A Φ 5x20)
	Low voltage of power supply	Access standard voltage
	Motor is in thermal protection status	Wait till the motor temperature down to
	Pump inside has negative pressure	Restart after eliminating the negative pressure
Pump functioning properly, vacuum not working	Low temperature, membrane hard-shelled	Wait till the temperature raise to normal
	Check the for-gas leakage	Ensure the gas air tightness of each point
	Foreign matter on membrane of pump	Clean the membrane
	Broken membrane	Exchange the membrane
Pump functioning properly, pointer does not move. Pump at rest, pointer is not at 0.	Air outlet is plugged up	Clean the air outlet
	Broken negative pressure meter	Exchange the negative pressure meter

TECHNICAL SUPPORT

BT Lab Systems offers technical support for all of its products. If you have any questions about the product's use or, operation, please contact BT Lab Systems at the following:

E-Mail: info@BTLabSystems.com

APPENDIX A: LIQUID HANDLING VACUUM PUMP WIRING DIAGRAM

(This drawing is for reference only and is subject to change without prior notice)

