



Vacuum Filters

User Manual

Model: VACFILTER50L



Original instructions

Read this manual before using the equipment

Retain this manual for future use

Purpose of manual

This manual enables safe and efficient use of the USA Lab 50L Vacuum Filter. This manual is part of the equipment and must be stored where it is accessible to operating personnel at all times.

The operating personnel must carefully read and understand this manual prior to beginning any work. The basic prerequisite for safe work is compliance with all safety instructions and operating instructions in this manual.

The local occupational safety regulations and general safety regulations for the area of application of the equipment also apply.

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1 Safety information

This section provides an overview of all safety aspects for the protection of people as well as safe and uninterrupted operation. Other task-related safety instructions are included in the specific sections.

1.1 Safety notices

The following safety notice formats are used in this manual. Safety notices are used at the start of sections or embedded in operating instructions.

Ensure you fully understand and comply with the notices in this manual.



DANGER

Risk of death!

Indicates a hazardous situation which, if not avoided, will almost certainly result in death or serious injury.



WARNING

Risk of serious injury or death!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Caution

Risk of injury!

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Notice

Indicates an important situation which, if not avoided, may seriously impair operations.

Additional information relating to the current section.

1.2 Intended use

The USA Lab 50L Vacuum Filter is a laboratory device designed for the separation of solids from liquids under reduced pressure. It is primarily used in biological, pharmaceutical, chemical, botanical, and food-related industries for solid-liquid separation, winterization, solvent clarification, material washing and drying, and liquid decontamination.

The system operates by drawing liquid through a filter medium held in a stainless steel funnel. A vacuum applied to the glass filter flask below creates a pressure differential across the filter medium; filtrate collects in the flask while retained solids remain in the funnel. The achievable filtration quality is determined by the filter medium selected by the operator.

This equipment is intended for laboratory-scale processing and is not designed for continuous industrial production or for use with substances outside its specified operating parameters. This is a vacuum-only vessel; it must never be pressurized.



WARNING

Danger due to misuse!

Misuse of the device can result in hazardous situations.

- Only operate the device if it is in an undamaged and working condition.
- Never deviate from the prescribed maintenance intervals.
- Only use parts that are specified in the technical data and approved for this device.
- Never modify the device without consulting the manufacturer.
- Never allow untrained personnel to operate the device.
- Never pressurize the filter flask or funnel for any reason.

1.3 General safety warnings



WARNING

Risk of serious injury or death!

Only use this equipment for its intended purpose.

Do not leave the equipment unattended while under vacuum.

Do not wear loose clothing, jewelry, hair, or any other articles that can be trapped by the equipment or contaminate the process.

Do not operate equipment if you are fatigued, emotionally stressed, or under the influence of drugs or alcohol.



WARNING

Risk of injury from glass implosion!

This equipment places a large glass vessel under deep vacuum. A flawed, scratched, or misused flask can implode and eject glass fragments.

Inspect all glassware before every use. Never pull vacuum on damaged glass.



WARNING

Risk of injury from lifting heavy objects!

Use proper lifting and transportation devices when moving equipment. Use two people when lifting the assembled unit.



WARNING

Risk of injury from trips or falls!

There is a risk of tripping on vacuum hoses. Ensure that hoses are routed safely and that they are not trapped or pinched during use.

Read the manual!

You must read this manual before starting work and operating this equipment.

Where required, you must use appropriate PPE when using this equipment.

Wear eye protection!

You must wear safety glasses. A face shield is recommended when operating at full vacuum or with aggressive solvents.

Wear gloves!

You must wear chemically appropriate gloves or hand protection.

Wear safe and protective clothing!

You must wear appropriate safe clothing, including a lab coat and sturdy footwear.

1.4 Safe operating area

A safe operating area around the equipment and work area should be maintained at all times. Non-operators and other persons should not approach the equipment or work area.

USA Lab recommends a safe area of at least 12-16" (300-400 mm) around the equipment.



Caution

Risk of damage to the equipment!

Always keep the operating area clean and organized to prevent injury or damage. Lock the casters before operation and keep the floor around the unit dry.

1.5 Safety warnings

The following warnings and notices are safety information specific to the Vacuum Filters.



WARNING

Risk of serious injury or damage!

- Never exceed the rated vacuum of 0.098 MPa. This is a vacuum-only vessel.
- Never move the system while it is under vacuum. Fully vent the flask before repositioning the unit.
- Release vacuum before opening the discharge valve or lifting the funnel.
- Avoid thermal shock. Do not pour hot liquids into a cold flask.
- Always wear the required Personal Protective Equipment (PPE) when using the system.
- Follow all federal, state, and municipal laws, codes, and ordinances.



WARNING

Risk of fire or chemical hazard!

- Confirm your solvents are compatible with borosilicate glass, 304 stainless steel, and PTFE before use.
- If flammable or organic solvents are used, work in a well-ventilated area, clean spills immediately, and follow all fire safety precautions.
- Keep the unit away from open flames, heat sources, and corrosive gases.
- Review the Safety Data Sheet (SDS) for every chemical in your process.



WARNING

Risk of breakage or performance loss!

- Inspect all glassware before use. Do not use cracked, chipped, or damaged components.

- Clean all glassware before use; wipe glass parts gently with a soft cloth. Do not use hard objects.
- All gaskets must be cleaned and inspected regularly to prevent leaks and performance loss.
- Vacuum lines must remain unobstructed and free of hard bends. Attach hoses securely by rotating and pushing them onto the barbs.

**Notice**

Read the manual for any special operational instructions for each piece of equipment. All USA Lab authored manuals are typically included with each device as well as posted online at: <https://help.usalab.com/knowledge-base>.

1.6 Responsibility of the owner

The owner is the person who operates the equipment for commercial or business purposes or allows a third party to use the equipment and bears legal responsibility for the product during operation for the protection of the user, personnel or third party.

Owner responsibilities

The equipment is used for commercial purposes. The owner of the equipment is therefore subject to the legal responsibilities for occupational safety. In addition to the safety instructions in this manual, the applicable safety regulations as well as occupational safety and environmental regulations must be implemented for the area of application of the equipment.

This applies to the following:

- The owner must be informed of the applicable occupational safety regulations and conduct a risk assessment to identify any additional risks that may arise due to the special working conditions at the equipment location.
- This information must be implemented in the form of operating instructions for the operation of the equipment.
- The owner must clearly regulate and define the responsibilities for operation, troubleshooting, maintenance and cleaning.
- The owner must ensure that all persons who work with the equipment have read and understood this manual, and must train and inform personnel of hazards at regular intervals.
- The owner must provide personnel with the required protective equipment and must ensure that personnel wear the required protective equipment.
- The owner must ensure adequate ventilation of the installation site around the equipment and work area.
- The owner must ensure that the maintenance intervals described in this manual are observed and that required fire protection measures are always compliant and functional.

2 Hardware description

Before operating the equipment, you should be familiar with the location and names of all parts of the equipment. This will help you understand the operating procedures and assist with troubleshooting, if required.

2.1 Overview

The USA Lab 50L Vacuum Filter is a large-format Buchner filtration system designed for efficient solid-liquid separation under vacuum. Typical applications include winterization, solvent clarification, material washing and drying, and decontamination of process liquids in the pharmaceutical, chemical, biological, botanical, and food industries.

The system consists of a 304 stainless steel funnel mounted above a 50 L spherical filter flask made of GG-17 high borosilicate glass, supported by a stainless steel and aluminum alloy frame on locking casters. A vacuum source connected to the flask draws liquid through the filter medium in the funnel; filtrate collects in the flask while solids are retained above. Filtrate is drained through a glass and PTFE C-type discharge valve at the base of the flask.

Key features

- **Large-format filtration.** The Ø450 mm funnel accepts 45 cm filter paper, cloth, screen, or membrane, providing a large filtration surface for high-throughput processing.
- **Chemical-resistant construction.** GG-17 high borosilicate glass (expansion coefficient 3.3), 304 stainless steel, and PTFE wetted surfaces resist common lab solvents.
- **Glass and PTFE discharge valve.** The Ø45 mm flange discharge port uses a spherical convex interior and PTFE C-type valve core for easier draining of viscous filtrate and solids.
- **Mobile frame.** The stainless steel and aluminum alloy frame rides on locking casters so the assembled system can be moved as one unit.
- **Standardized connections.** Flange ports with PTFE gaskets and a 24# standard taper vacuum valve allow easy replacement and compatibility with common lab accessories.

Safety features

- **Rated vacuum vessel.** The glass filter flask is designed for full vacuum service to 0.098 MPa and holds 0.095 MPa under a stationary vacuum state.
- **Secure glassware mounting.** The flask seats in a dedicated round mount in the frame and the funnel is secured by a flange clamp with PTFE gasket.
- **Locking casters.** Brake-equipped casters prevent unintended movement during operation.

2.2 Product views

The following figures show the assembled 50L Vacuum Filter and its major components.



Figure 1 - USA Lab 50L Vacuum Filter - assembled unit



Figure 2 - Product detail views

2.3 Main components

Table 1 - Main components

Component	Description
Stainless steel funnel	304 SS Buchner funnel, Ø450 × 250 mm (approx. 39 L), with perforated support plate (Ø4 mm holes)
Filter flask	50 L spherical GG-17 high borosilicate glass flask with three ports
Funnel connection port	Ø80 mm flange port with PTFE gasket (80 mm OD / 62 mm ID) and clamp
Vacuum port	24# standard taper vacuum valve with 12 mm OD hose barb (pagoda joint)
Discharge port	Ø45 mm flange port, spherical convex interior, glass + PTFE C-type valve, Ø20 mm bore
Frame	Stainless steel and aluminum alloy frame with locking casters

2.4 Application with ancillary equipment

To achieve optimal performance, the 50L Vacuum Filter is best used in combination with the following USA Lab peripheral products:

Vacuum Pump – USA Lab 6.5 CFM Vacuum Pump (included with the Turnkey configuration)

Provides reliable suction for most laboratory filtrations. The pump connects to the flask vacuum barb using 3/8" vacuum hose and the supplied JIC adapters.

Qualitative Filter Paper – USA Lab 45 cm filter paper in 2 µm, 11 µm, and 20 µm grades

Matched to the funnel diameter of this unit. See Section 4.2 for selection guidance.



Notice

A cold trap between the flask and vacuum pump is recommended when filtering volatile solvents. It protects the pump from solvent vapors and improves vacuum stability.

The Standalone configuration does not include a vacuum pump.

2.5 Filter unit identification

Record your order number and purchase date before installation. This information is needed for service, warranty claims, and technical support. Replacement glassware must be matched to the flask volume and port sizes listed in Section 8 Technical specifications.

2.6 Transport and storage

Transport



Important

Risk of damage due to improper handling!

The 50L Vacuum Filter contains precision glassware. To prevent breakage or misalignment, always transport the unit with care.

- Fully dismantle the glass flask and funnel before transport.
- Pack all components securely to avoid shock or vibration damage – the original packaging is strongly recommended.
- Avoid tilting, dropping, or subjecting the unit to sharp impacts during handling or shipping.
- After transport, inspect all glassware, gaskets, and fittings for cracks, chips, or leaks before reassembly.
- Any transit damage must be reported immediately to the carrier and USA Lab support.
- Retain all packing material for future transport or long-term storage.

Storage

To maintain the reliability and performance of the unit during extended storage periods:

- Store the device in a clean, dry, and climate-controlled environment.
- Whenever possible, keep the unit in its original packaging to protect sensitive components.
- Ensure that glassware is stored separately, supported, and cushioned to avoid breakage.
- Release the flange clamps slightly, leave the discharge valve cracked open, and cover the funnel to keep dust off the support plate.
- After storage, thoroughly check all gaskets, seals, and glassware for signs of wear or damage before returning the unit to service.
- Replace any damaged or compromised parts immediately with genuine USA Lab components to ensure safety and performance.

3 Installation and set up

Before operating the 50L Vacuum Filter, ensure that all components are present, clean, and ready for assembly. Proper preparation prevents damage and ensures safe operation.

- **Unpack completely:** Open the crate and verify that all parts listed in the packing slip are included.
- **Inspect components:** Carefully check all glassware, gaskets, and fittings for cracks, chips, or defects before assembly. Do not use damaged parts.
- **Clean and dry:** Ensure that every component, especially glassware and flange faces, is free from dust, debris, or moisture.
- **Prepare the workspace:** Place the unit on a stable, level floor area in a clean, well-ventilated laboratory environment.
- **Check utilities:** Confirm that your vacuum source meets the requirements listed in the technical specifications.



Important

- Never attempt to assemble or operate the unit without first inspecting the components and preparing the installation site.
- The funnel may contain packing material to prevent shipping damage. Remove it completely before use.

3.1 What's in the box

The following parts are included in the package, depending on configuration:

Table 2 - Packaging list - Standalone

Part	Amount
50L vacuum filter (funnel, flask, frame, clamps, discharge valve)	1 unit
Filter paper	Optional
Vacuum pump	Not included

Table 3 - Packaging list - Turnkey

Part	Amount
50L vacuum filter (funnel, flask, frame, clamps, discharge valve)	1 unit
6.5 CFM vacuum pump	1 unit
3/8" rubber vacuum hose	10 ft
3/8" FJIC to 3/8" FJIC adapter	1 piece
3/8" MJIC to 3/8" barb adapter	1 piece
Qualitative filter paper - 45 cm	1 pack (100 pieces)

3.2 Unpacking and positioning the vacuum filter

Proper unpacking and placement of the unit is essential to ensure safe installation and long-term reliability. Please read through the following guidelines before handling the unit.

Unpacking

- Place the shipping crate in a clean, open area with sufficient space to safely remove all components.
- Use appropriate personal protective equipment (PPE), such as cut-resistant gloves and safety glasses, when unpacking.
- Carefully remove all protective foam and wrapping materials. Avoid sharp tools that may damage the equipment or glassware.
- The frame, funnel, and glass flask are precision components and may be heavy or fragile. Always use two people to lift and move the equipment when necessary.
- Verify that all items listed in the packing slip are included. Report any shortages or damage to USA Lab immediately.
- Retain all original packaging for future storage or transportation.

Positioning

- Place the vacuum filter on a stable, level floor surface capable of supporting the full weight of the assembled and loaded system.
- Ensure there is adequate clearance around the unit for operation and service access; allow at least 12-16 inches (30-40 cm).
- Position the unit in a clean, dry, and climate-controlled laboratory environment, away from direct sunlight, corrosive fumes, and open flames.
- Confirm that the vacuum pump can be located within safe and convenient reach of the flask vacuum port.
- Lock all four casters once the unit is in position.



Notice

If you believe any parts are missing or damaged upon delivery, contact USA Lab Customer Support immediately. Retain all original packaging materials, as they are required should the unit need to be returned for service or repair. USA Lab is not responsible for providing replacement packaging for return shipments.

3.3 Assembly

The funnel ships mounted in its bracket; the clamp assembly and glass flask are packaged separately. Assemble the unit in the following order:

1. Unpack all components and inspect each piece for damage, paying close attention to the glass flask. If damage is found, contact USA Lab before proceeding.
2. Lock all four casters on the frame.
3. Lift the funnel in its mounting bracket and secure it high enough to allow the flask to fit into the round mount below.
4. Place the 50 L flask into the round mount on the frame.
5. Fit the rubber half of the flange clamp onto the neck of the flask.
6. Loosen the funnel bracket, lower the funnel into the flask opening, and secure the flange connection with the clamp. Confirm the PTFE gasket (80 mm OD / 62 mm ID) is seated evenly and centered.
7. Install the barbed vacuum valve into the offset port on top of the flask.
8. Assemble the glass and PTFE discharge valve onto the lower discharge flange and confirm it closes fully.



Caution

Glass stress!

Hand-tighten clamps only until secure. Excessive or uneven force may damage the glass and is the most common cause of vacuum leaks.

3.4 Vacuum leak check before first use

1. Connect your vacuum source to the barbed fitting (12 mm OD, fits 3/8" hose) on the offset port of the flask.
2. Close the discharge valve and cover the empty funnel opening, or seat a wetted filter paper (see Section 4.3).
3. Pull the system down to operating vacuum.
4. Isolate the vacuum source and monitor for 1 minute. If vacuum holds with minimal decay, the system is leak-tight.
5. If vacuum decays quickly, inspect the PTFE gasket seating, clamp tension, discharge valve, and hose connections, then repeat the test.

Uneven clamping and worn gaskets are the most common causes of vacuum leaks on this unit.

4 Operations

This section describes common tasks required for the operation of the Vacuum Filters.

4.1 General safety precautions



Danger

Risk of hazardous vapors!

- Always operate with volatile solvents in a fume hood or well-ventilated area.
- Never inhale vapors. Check Safety Data Sheets (SDS) for all solvents before use.
- If vapors escape from joints or fittings, immediately stop operation and inspect seals.



Warning

Risk of vacuum implosion!

- Inspect all glassware before use; do not operate with cracks, chips, star fractures, or visible defects.
- Never exceed the rated vacuum of 0.098 MPa.
- Always vent the flask to atmosphere before opening the discharge valve or lifting the funnel.



Warning

Excessive internal pressure!

- Never allow system pressure to exceed atmospheric pressure.
- Never use compressed gas to speed up draining or to blow down the filter cake.



Caution

Risk of injury!

- Do not move the unit while it is under vacuum. Lock the casters before starting.
- Keep the work area clear of foot traffic and route hoses so they cannot be snagged.

4.2 Selecting filter media

Filtration speed and clarity trade off against each other. Finer media produce clearer filtrate but filter more slowly. All three grades below are stocked by USA Lab in the 45 cm size this unit uses.

Table 4 - Filter paper selection

Grade	Speed	Recommended use
2 µm	Slow	Fine polishing, fine particulate removal, maximum clarity
11 µm	Medium	General purpose; most day-to-day filtration
20 µm	Fast	Coarse solids, high-throughput bulk separation

Filter cloth, screens, and membranes may also be used depending on your process. The funnel support plate accepts any 450 mm medium.

4.3 Seating the filter paper

1. Connect your vacuum source to the barbed fitting on the offset port on top of the flask and confirm the discharge valve is closed.
2. Place a 450 mm (45 cm) filter paper flat into the funnel, covering the perforated support plate completely.
3. Wet the filter paper with clean solvent matching the solvent in your solution.
4. With your vacuum source running, open the barb valve on the flask to begin depressurizing the vessel.
5. Watch the paper seat itself. Once it lies flat with no creases or channels, the system is ready to filter. Repeated wetting may be necessary to achieve a full seal.

4.4 Performing filtration

1. Pour or transfer your material into the funnel evenly across the filter surface. Avoid dumping in one spot, which can tear the paper or channel around the filter cake.
2. Maintain vacuum until liquid stops passing into the flask.
3. For washing, add wash solvent evenly over the retained solids and continue pulling vacuum.
4. Monitor the filtrate level in the flask throughout the run.



Important

Do not overfill!

The funnel holds approximately 39 L and the flask 50 L. Drain the flask before filtrate reaches the offset vacuum port. Pulling liquid into the vacuum line can damage your pump.

4.5 Draining the filter flask

1. Close the vacuum valve and shut down the vacuum source.
2. Vent the flask fully back to atmospheric pressure.
3. Place a suitable receiving container beneath the discharge port.
4. Open the discharge valve to drain filtrate. The spherical interior of the valve port helps solids and viscous material clear the outlet.
5. Close the discharge valve, and remove retained solids from the funnel as required.



Warning

Never open under vacuum!

Opening the discharge valve or lifting the funnel while the flask is under vacuum can cause sudden air inrush, splashing, and glass stress.

4.6 Optimizing filtration

For maximum throughput and consistent results:

- Match the media grade to the job. Step up to 11 µm or 20 µm paper when clarity requirements allow; use 2 µm only for final polishing.
- Filter in stages. For heavy solids loads, pre-filter through a coarse grade before polishing through a fine grade. A thick filter cake slows flow dramatically.
- Keep the cake even. Distribute material across the full filter surface so flow is not channeled through one region.
- Chill for winterization. When winterizing, keep the solution cold through the entire filtration; warming redissolves waxes and blinds the paper.
- Watch the vacuum level. Deeper vacuum is not always faster; excessive vacuum can compact the cake and pull fines through the media.
- Drain often. Do not allow filtrate to approach the vacuum port. Frequent draining also keeps headspace available for consistent flow.

5 Cleaning, Maintenance, and Servicing

5.1 Part maintenance

Regular cleaning and preventative maintenance are essential for ensuring long-term performance of the 50L Vacuum Filter. The following procedures can be carried out by the user. For issues beyond these operations, please contact USA Lab Service at support@usalab.com.



Important

Always vent the system to atmosphere and drain the flask before beginning any cleaning or maintenance work.

5.2 General maintenance schedule

- **After every run:** Drain the flask, remove the spent filter media, rinse the funnel, flask, and discharge valve with a compatible clean solvent, then wash with lab detergent and rinse thoroughly.
- **Weekly:** Inspect the PTFE gasket and rubber clamp liner for cuts, flattening, or solvent swelling. Check vacuum integrity (see Section 3.4).
- **Monthly:** Disassemble the discharge valve, clean the PTFE core, and check the flange faces for residue buildup. Check caster locks and frame fasteners. Check hoses for brittleness.
- **As needed:** Replace worn gaskets, damaged glassware, or cracked tubing.

5.3 Cleaning the glassware

1. Vent the system, drain the flask, and release the flange clamps.
2. Wash the flask and discharge valve with lab detergent and warm water; rinse thoroughly with clean water or a compatible solvent.
3. Never use abrasive pads, brushes with metal cores, or hard objects on glass.
4. Do not clean glass with hydrofluoric-bearing agents.
5. Allow components to dry fully before reassembly.

5.4 Cleaning the funnel

1. Remove residual solids and spent media from the funnel.
2. Wash with lab detergent and rinse; the 304 stainless funnel tolerates standard lab sanitation practices.
3. Clear the perforated support plate holes of any lodged particulate.
4. Dry thoroughly to prevent water spotting before storage.

5.5 Inspecting and maintaining seals

Gaskets and seals are wear parts and should be checked regularly.

- Remove the PTFE flange gasket and the rubber clamp liner.
- Rinse in water or ethanol; dry with a soft cloth.
- Replace any seals showing cracks, flattening, or discoloration.
- Check glass contact surfaces for scratches or chips before reinstalling seals.



Notice

A tired gasket is the usual cause of slowly degrading vacuum. Keep spare gaskets on hand for uninterrupted operation.

6 Troubleshooting

This section outlines the most common issues encountered during operation of the vacuum filter. For each fault, possible causes and recommended corrective actions are provided. Always vent the system before servicing.

Table 5 - Troubleshooting for the Vacuum Filters

Issue	Possible Cause	Recommended Action
Vacuum not achieved	Gasket not seated / clamp uneven	Re-center the PTFE gasket and re-clamp evenly at both flanges
	Discharge valve open or leaking	Close fully; clean and inspect the PTFE core
	Hose or barb connection loose	Reseat hoses fully onto barbs; add hose clamps
	Pump under-sized or worn	Verify pump performance; switch to a properly rated vacuum pump
Vacuum decays over time	PTFE gasket or rubber liner worn	Inspect and replace worn seals
	Vacuum valve stem leaking	Inspect the 24# valve; clean and reseal
	Tubing cracked or brittle	Replace tubing with vacuum-rated hose
Slow filtration	Media too fine for the load	Step up to a faster grade (11 or 20 μm)
	Filter cake too thick	Filter in stages; pre-filter heavy solids
Solids in filtrate	Paper not sealed flat before loading	Re-wet and re-seat the paper; check for tears
	Media too coarse	Step down to a finer grade
Paper tears during run	Material poured too aggressively	Wet paper fully before pulling vacuum; distribute load evenly
Discharge valve leaks	Residue on PTFE core or flange faces	Disassemble and clean; inspect for scoring; confirm flange alignment
Liquid pulled into vacuum line	Flask overfilled	Drain the flask before filtrate reaches the vacuum port; add a cold trap

If a problem persists, stop the run and contact USA Lab support before continuing. Do not operate the system with a suspected glass defect under any circumstances.

7 Decommissioning, disassembly and disposal

7.1 Decommissioning the unit

When the vacuum filter is no longer in use or has reached the end of its service life, follow these steps to ensure safe shutdown and preparation for storage or disposal:

- **Drain all fluids:** Empty the filter flask and remove any residual solvents or solids from the funnel.
- **Vent and disconnect:** Vent the system to atmosphere and disconnect the vacuum source.
- **Disassemble glassware:** Carefully remove the flask and discharge valve and store or dispose of them as appropriate.
- **Clean the system:** Wipe down the funnel and frame and ensure no hazardous residues remain before moving or disposal.



WARNING

Risk of injury!

Only trained personnel should decommission the unit. Handle all glassware and fluids with appropriate PPE to prevent cuts or chemical exposure.

7.2 Disposal guidelines

Proper disposal of the vacuum filter is required to meet environmental and safety standards:

- **Fluids:** All solvents must be drained completely and disposed of in accordance with local environmental regulations and the applicable Safety Data Sheets (SDS).
- **Glassware:** Dispose of cracked or damaged glass as laboratory glass waste; intact glassware may be recycled if allowed by local regulations.
- **Metal components:** Stainless steel and aluminum parts can typically be recycled.
- **Filter media:** Dispose of spent filter media in accordance with the SDS for the materials filtered.



WARNING

Risk of serious injury or environmental harm!

Improper disposal of solvents or contaminated media can cause environmental contamination, injury, or legal penalties. Always follow local and national disposal requirements.

8 Technical specifications

Technical specifications of the Vacuum Filter are mentioned below.

Table 6 - Technical specifications

Model	VACFILTER50L
Configurations	Standalone / Turnkey
Filter flask volume	50 L, spherical
Flask material	GG-17 high borosilicate glass (expansion coefficient 3.3)
Maximum vacuum	0.098 MPa (holds 0.095 MPa static)
Funnel	304 stainless steel, Ø450 × 250 mm (approx. 39 L)
Funnel connection port	Ø80 mm flange; PTFE gasket 80 mm OD / 62 mm ID
Filter paper size	450 mm 45 cm 17.71"
Vacuum port	24# standard taper valve; 12 mm OD hose barb (3/8")
Discharge port	Ø45 mm flange; glass + PTFE C-type valve; Ø20 mm bore
Frame	Stainless steel and aluminum alloy; locking casters
Overall dimensions (W × D × H)	580 × 600 × 1530 mm (24" × 24" × 60")
Net weight	38 kg (84 lbs)
Packing	Wooden crate, 1470 × 620 × 700 mm
Packing weight	60 kg (132 lbs)

8.1 Ambient conditions

Table 7 - Ambient conditions

Parameter	Operating limits
Ambient temperature	5 °C to 40 °C (41 °F to 104 °F)
Relative humidity	Up to 80% (non-condensing)
Indoor use only	Designed exclusively for controlled laboratory environments

8.2 Component materials

Table 8 - Component materials

Component	Material
Funnel	304 stainless steel
Filter flask	GG-17 borosilicate glass
Discharge valve	Glass with PTFE core
Flange gasket	High quality PTFE
Frame	Stainless steel and aluminum alloy
Casters	Locking swivel casters

9 Spare parts

For replacement parts or consumables, please contact USA Lab Technical Support at tech@usalab.com or customer service at support@usalab.com.

- Only USA Lab-approved spare parts should be used to maintain performance, safety, and warranty coverage.
- Common wear parts include: glassware (filter flask, discharge valve), PTFE flange gaskets, rubber clamp liners, vacuum hoses, and filter media.
- Replacement 45 cm qualitative filter paper is available from USA Lab in 2 µm, 11 µm, and 20 µm grades.

10 Warranty

All USA Lab products are warranted to be free from defects in workmanship, materials, and mechanical function from the date of purchase, depending on the product line. For the 50L Vacuum Filter:

- **Filter unit:** One (1) year against manufacturing defects.
- **Glassware:** Three (3) days from delivery. Inspect on arrival and report damage immediately.

During the warranty period:

- **USA Customers** – Repairs and replacement parts will be covered in full or in part, including shipping charges.
- **International Customers** – Parts and repairs are covered in full, while the customer is responsible for shipping, labor, and customs duties.

Exclusions – This warranty does not cover:

- Damage caused by misuse, abuse, accidents, or improper operation, including over-vacuum, pressurization, or thermal shock.
- Unauthorized repairs or modifications.
- Normal wear items (glassware, gaskets, seals, hoses, filter media).
- Corrosion or damage resulting from use of incompatible chemicals.

10.1 Returns policy

USA Lab offers a 30-day return policy from the date of delivery. By purchasing from USA Lab, you agree to the following terms:

Non-Returnable Items

- Customized equipment (built-to-order).
- Consumables and solvents, including filter media.
- Pre-order cancellations (subject to a 10% non-refundable fee to cover banking and reservation costs).

Restocking Fees

- Standard restocking fee: 15% (applies to unused items in original packaging).
- Items returned without original packaging but in unused condition: 25% restocking fee.
- Used, damaged, or contaminated products (including those with stickers, resins, fluids, or botanical matter) are not eligible for return.

Return Process

- Customers are responsible for return shipping unless the product is deemed defective by USA Lab.

- Approved returns are refunded at the purchase price minus the restocking fee. Denied returns are not refunded.
- Glassware damage must be reported within 3 business days of delivery for replacement or refund.

For assistance with returns or warranty service, please contact support@usalab.com at USA Lab.



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