

Alltech® Vacuum Manifold

Thank you for purchasing an Alltech® Vacuum Manifold! Our manifolds will help speed up your sample preparation by processing up to 24 samples simultaneously. This data sheet includes assembly and use information, as well as replacement part and accessory ordering information.

Assembly Instructions

Collection Rack Assembly

1. Find the bottom plate. This is the smooth one with three small, threaded holes.
2. Thread the three support posts into place on the bottom plate.
3. Add other plates as needed for your collection vessels by sliding them over the support posts. Secure the plates at the desired height by snapping retaining clips to the grooves on the support posts, under each plate.

Manifold Assembly

1. Set the glass block on a flat, level surface near your vacuum source.
2. If you are pulling through wash solutions or other liquid waste, you can insert a waste container (with the 12-Port Manifold) or simply pull the liquid waste directly into the empty glass block. If you are collecting individual eluants, insert an assembled collection rack with collection vessels into the glass block.
3. If desired, attach red outlet needles to the outlet ports on the underside of the lid to direct sample flow into collection vessels.
4. Place the manifold lid on the glass block, making sure the lid is fully seated along its gasket on the block's rim.
5. Attach the vacuum valve to your vacuum source with 3/8" i.d. tubing. See Notice.
6. Attach the stopcocks to the inlet ports on top of the manifold lid, and attach your sample devices to the stopcocks. Open the stopcock valves.
7. Add your first solution to the sample devices and start the vacuum. See Warning.
8. Continue with successive SPE extraction steps.
9. Use the valve on the vacuum gauge to make small adjustments to the vacuum level, or to bleed the vacuum to facilitate changing collection vessels.
10. When the samples are finished, turn off the vacuum. If using stopcocks, be sure to close them all before removing sample devices from the lid. Then, bleed the system through the vacuum valve prior to removing the lid. This will help prevent splash or spillage of the collected eluants.

NOTICE

When pulling wash solutions or other liquid waste directly into the glass block, you may want to use a liquid trap in between the manifold and your vacuum source. Direct ingestion of liquids will damage most vacuum sources. Refer to your vacuum source's User Manual for more information. Turn to "Tips and Troubleshooting" for a sketch of a simple liquid trap.

WARNING

Do not allow the vacuum level to exceed 20" Hg. Always wear safety glasses and other appropriate safety equipment when working with equipment under vacuum.

Using the Vacuum Valve

The Vacuum Gauge and Valve come installed on the vacuum manifold glass block. The valve is the circular part in front of the gauge, and can be rotated by hand. It is only for fine adjustments of the vacuum strength. It cannot be used to significantly increase or reduce the vacuum strength. It primarily functions as a bleed valve to release the pressure in the system prior to removing the lid. Use 3/8" i.d. tubing to connect the valve to your vacuum source.

Changing the Vacuum Valve

If the Vacuum Gauge and Valve need to be replaced, you can remove the old one by holding the part that projects into the glass block steady, and rotating the outer part.

Tips and Troubleshooting

Finding Vacuum Leaks

If your flow rate is slow or the vacuum strength is weak, there may be a leak somewhere in the system.

- A. Are you using all the ports on the manifold lid? Any unused ports should be capped with yellow inlet caps or with closed stopcocks.
- B. Check all tubing connections.
- C. Are all the stopcocks and sample devices firmly inserted in the lid ports? Twisting each slightly will seat them more firmly.
- D. Inspect the manifold lid's connection to the glass block: Is the lid securely seated along its gasket on the glass block rim? Is the gasket worn or torn, requiring replacement? Is the glass block damaged along its rim, preventing full contact with the gasket?
- E. If using a liquid trap between the manifold and vacuum source, check all connections. Traps made of side-arm flasks with rubber stoppers may have leaks around the stopper or the tubing running through the stopper. PTFE sealing tape or Parafilm® can help seal such leaks.

- F. Is the lid warped? This can happen to older lids after prolonged use, especially with harsh solvents.
- G. Are there any cracks or other damage to the glass block, vacuum gauge, or lid?
- H. Is your vacuum source functioning properly?

Proper Use of PTFE Needles

Unlike the polypropylene and stainless steel needles, PTFE needles are intended to provide an uninterrupted inert flow path through the manifold lid.

To use them, slide them through the ports from the top, and connect your sample device to the inlet of the PTFE needle. This will prevent your sample from coming into contact with the manifold lid or its components in any way, contacting only the PTFE interior of the needle.

Maintaining Flow When Samples Finish at Different Times

Many times, some samples will finish more quickly than others. Once the extraction solvent crosses through the SPE column into the collection vessel, it creates a "leak" that reduces the vacuum strength and consequently the flow for the remaining samples. To maintain the strongest possible flow for the remaining samples, close the stopcock valves on finished samples. If you are not using stopcocks, you can cap the tops of finished sample devices as they finish.

Building a Liquid Trap

When pulling wash solutions or other liquid waste directly into the glass block, you may want to use a liquid trap in between the manifold and your vacuum source. Direct ingestion of liquids will damage most vacuum sources. A simple liquid trap consists of a side arm flask, a stopper with a hole in the middle, and two pieces of tubing. When putting together and using this apparatus follow all appropriate safety requirements and recognized best practices for use of vacuum and hazardous chemicals.

Attach one piece of tubing from your vacuum source to the side arm of the flask. Insert the second piece of tubing into the hole in the stopper (sealing tape or film will help ensure a good vacuum seal). Insert the stopper in the flask, and connect the tubing to the vacuum manifold (see **Figure 1**). Liquids drawn through the manifold will collect in the flask and will not be directly ingested into your vacuum source. Disconnect and empty the flask as necessary.

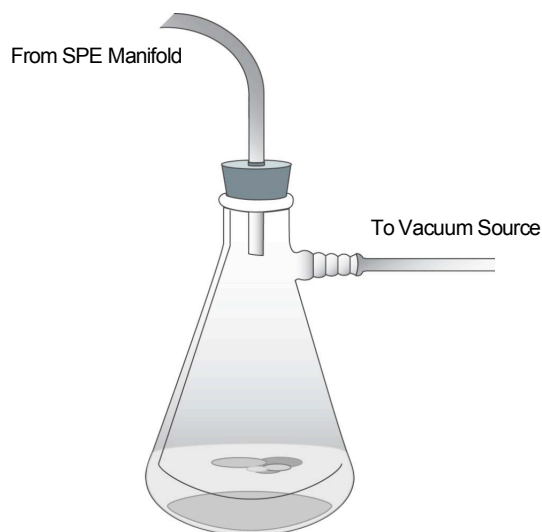


Figure 1 - Liquid Trap

Safety Procedures and Practices

- A. For operations requiring the use of laboratory glassware, use approved safety glass such as Pyrex, Kimax, or a suitable equivalent is required. Whenever possible minimize the potential hazards involved in the use of glassware by using items made of less fragile materials such as metal or plastic beakers, tubing, and connectors whenever possible.
- B. Carefully inspect all glassware before use. Broken, cracked or chipped glassware should be discarded immediately.
- C. When an operation involves subjecting glassware to pressure, vacuum, or heat use only glassware rated for such uses. Do not use the glassware beyond its design limits.
- D. Protect against injury from implosion of glassware used under vacuum by the use of plastic mesh, plastic dip, tape etc., around the glass pieces which are particularly vulnerable. A shield placed in front of such apparatus during use can also be used to afford protection.
- E. Properly support apparatus consisting of multiple pieces of glassware so that the weight of the apparatus and its contents is borne by the supports without placing strain on glass tubing or connections.

Using Drying Lid Attachments

Our Drying Lid Attachments for vacuum manifolds will direct a flow of air or nitrogen into the collection vessels to dry eluants prior to further analysis. In addition, the drying lid can be connected, via syringe adapters, to Extract-Clean™ SPE Columns to dry the packed beds before final elution (see **Figure 2**). Drying lids come complete with gasket, brass hose barb, male luer outlets on the underside of the lid, stopcocks, and support legs. The hose barb accepts 3/8" i.d. flexible tubing.

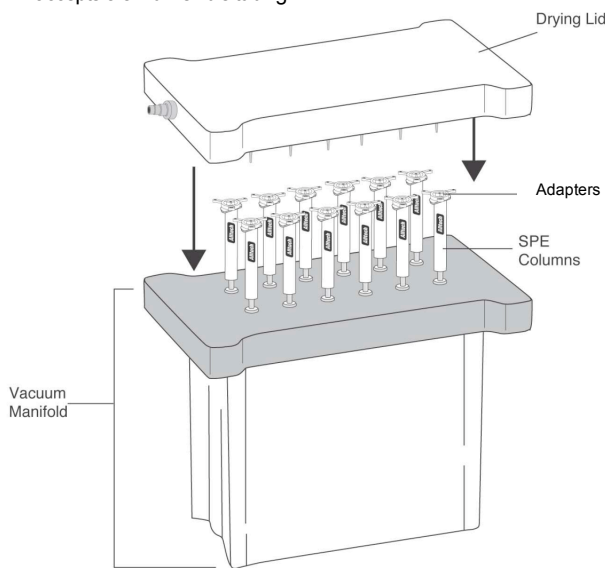


Figure 2 - Using the Drying Lid with SPE Columns

Adding Extra Sample Volume to Your SPE Devices

To increase the sample volume capacity, insert Syringe Adapters into the top of Alltech® Extract-Clean™ SPE columns and then connect an empty SPE reservoir. These versatile adapters will also accept 1/8" o.d. tubing to draw your sample through the SPE column directly.

Replacement Parts and Accessories

VACUUM MANIFOLDS		
	Qty	Part No.
12-Port Vacuum Manifold	ea	210351
16-Port Vacuum Manifold	ea	210016
24-Port Vacuum Manifold	ea	210224

OPTIONAL ACCESSORIES		
	Qty	Part No.
PTFE Needles	100	412410
PTFE Needles	500	412450
Valved PTFE Needles	25	411525
Valved PTFE Needles	50	411550
Stainless Steel Needles	12	212400
Stainless Steel Needles	16	210816
Stainless Steel Needles	24	210824
12-Port Drying Lid Attachment	1	212100
16-Port Drying Lid Attachment	1	212117
24-Port Drying Lid Attachment	1	212124
3/8" i.d., 7/8" o.d. Tubing for use with Vacuum Valve	10ft	6472
Syringe Adapters for 1.5, 4, & 8mL Extract-Clean™ SPE Columns	15	210705
Syringe Adapters for 15 & 25mL Extract-Clean™ SPE Columns	5	210707
Syringe Adapters for 75mL Extract-Clean™ SPE Columns	5	210709

REPLACEMENT PARTS				
	12-Port Part No.	16-Port Part No.	24-Port Part No.	Part No. for All Sizes
Glass Chamber	213212	210116	210124	—
Vacuum Gauge and Valve	—	—	—	212203
Polypropylene Lid, Gasket, & Stopcocks	212001	210216	211224	—
Complete Collection Rack	212518	210416	210424	—
Support Posts Only	—	—	—	410410 , 3/pk
Retaining Clips Only	—	—	—	212912 , 12/pk
Lid Legs	—	—	—	410510 , 4/pk
Inlet Caps	—	—	—	211234 , 50/pk
Polypropylene Needles	212412 , 12/pk	210916 , 16/pk	210924 , 24/pk	—
Waste Container	210033 , 2/pk	—	—	—
Male Luer Outlets, Polypropylene	—	—	—	212120 , 2/pk
	—	—	—	212320 , 24/pk
Female Luer Inlets, Polypropylene	—	—	—	212002 , 2/pk
	—	—	—	212302 , 24/pk
Gasket	212112 , 2/pk	210724 , 2/pk	210724 , 2/pk	—
Stopcocks	213112 , 12/pk	211521 , 16/pk	211524 , 24/pk	—

Warranty

Seller warrants that the Vacuum Manifold (the "Product") shall meet Seller's specifications for the Product in effect on the date of shipment (the "Specifications"). Seller also warrants that it will convey good title to the Products. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, NOT INCLUDED HEREIN INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Buyer assumes all risk and liability for results obtained by the use of the Products.

Neither Buyer nor Seller shall be liable to the other for special, indirect, punitive, consequential or any similar damages, even if such party has been advised of the possibility of such damages. Buyer's exclusive and sole remedy for any claim shall be, at Seller's option, a refund or credit of the amount of the price paid for the Products in respect of which damages are claimed, or, where applicable, cure of the defect or replacement of non-conforming Products with Products that meet the Specifications.

Shipments

All shipments are made F.O.B. Deerfield, IL.

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