



ENVIRO

# VACUUM EXTRACTION MANIFOLD



OPERATING MANUAL



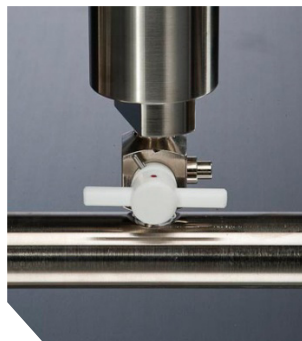
## Product Description

Manifolds are available in single, 3 and 6 station designs. The 3 and 6 multi-station manifolds allow the simultaneous processing of multiple samples. Up to six-cartridge extractions can be completed simultaneously with the ECUCTVAC6 manifold. Multi-station manifolds allow a single analyst to control multiple extractions increasing sample throughput, improving laboratory productivity. Multiple manifolds may be “daisy chained” together providing additional extraction capacity.

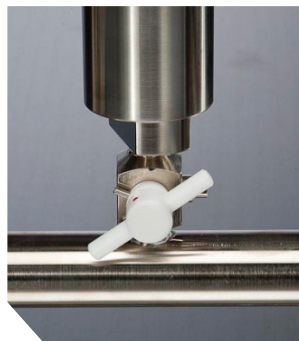
Vacuum manifolds are constructed from corrosion resistant stainless steel for durability. Each station is fitted with a 3-way valve that permits complete control of individual sample extraction. Samples can be independently controlled from 3 valve positions, a) vent to the atmosphere, b) opened to vacuum or c) isolate from the rest of the system (closed). The valve stopcock material is constructed from white polytetrafluoroethylene (PTFE) then mounted in a chrome-plated brass housing. The PTFE stopcock is fitted with stop-pins for assured proper vertical and horizontal positioning. Vacuum manifolds are designed for use with standard filtration glassware available from UCT. The drip tip tapered design of the glassware reduces dead volume and is sized to accommodate a variety of elution receptacles within the manifold such as K-D tubes, straight-wall vials, VOC or 40 mL vials.

## Stopcock Positioning

- With the stopcock in the side-to-side (horizontal) position the system is open to the atmosphere and the sample is closed to the vacuum source
- Moving the stopcock to a 45° position closes the extraction station to both vacuum and the atmosphere
- Placing the stopcock in an up/down (vertical) position, vacuum is directed to the extraction



Horizontal



45°



Vertical

## Instructions for Use of the UCT Extraction Vacuum Manifold System

This instruction set applies to the single, 3 and 6 station ECUCTVAC1, ECUCTVAC3, and ECUCTVAC6 vacuum manifolds.

1. Connect a vacuum source to the hose barb on the manifold using heavy walled vacuum tubing. This tube should run from a vacuum trap between the pump and the manifold. Gross vacuum pressure should be controlled by opening or closing the thumb screw on a ROCKER400 pump coalescing filter or by installing an optional relief valve (not included) between the manifold and vacuum source. Use the manifold valve stopcock for fine adjustment of vacuum pressure.
2. For collecting solvent during sorbent conditioning, insert a VOA or similar vial in the manifold below the glass cartridge adaptor (product code ECUCTADP). The vial should be tall enough such that the top edge of the vial extends over the drip tube of the glass adaptor. If necessary, place a septumless VOA vial cap in the bottom of the manifold neck to lift the vial into a height so that the drip tube of the glassware adaptor fits inside the vial opening. The cap will not interfere with either liquid or vacuum draw.



Insertion of a glass vial into the vacuum manifold



Drip tube inside top of vial

Once a collection vial has been inserted in the vacuum manifold, carefully place the glass cartridge adaptor on the manifold making sure the drip tip fits inside the vial. A variety of UCT universal solid-phase extraction cartridges may then be inserted into the cartridge adaptor.

To condition the cartridge turn the stopcock to to side-to-side position (off). Turn on the vacuum source. Add a small quantity of conditioning solvent according to use instructions provided with the specific cartridge use instructions then slowly turn the stopcock to the vertical position to draw a small amount through the cartridge. Turn off the vacuum to soak the solid-phase sorbent for a short time. Draw the remaining solvent into the collection vial using vacuum. Remove vial and properly dispose of solvent to waste.

## Sample Extraction

Multiple water samples may be processed at the same time. When extracting several water samples on the multi-station manifold, each sample may require a different time for filtration. Water with higher suspended solids content may draw more slowly than clear water samples. In order to prevent loss of vacuum once the fast filter samples are complete, the valve at that station can be closed to isolate that station from the entire system allowing vacuum to be directed only to the samples still requiring vacuum. The three-way valve allows the removal of one or more samples and the placement of clean collection vials without affecting the extraction at other positions.

1. Rinse, condition and equilibrate universal cartridge.
2. Open the valve stopcock to the vertical position.
3. Place a bottle holder on the cartridge.
4. Invert the sample bottle onto the bottle holder.
5. Turn on low vacuum.
6. Increase vacuum pressure until the sample passes through the cartridge at a fast drip.  
A slow drip is also acceptable.
7. As the cartridges load with analyte the drip rate will decrease. Increase vacuum pressure to increase drip rate. Decrease individual flow rates by turning the stopcock slightly clockwise.
8. Once sample has been extracted and while other stations are in operation, move the valve to the 45° (closed) position. This isolates the station from the rest of the system.
9. When all of the samples have passed through the cartridges, draw full vacuum through the cartridges to dry the sorbent. It may be necessary to tap the cartridges to remove droplets of water that collect in the base of the cartridge.
10. After drying, turn off the vacuum and open each valve to atmosphere (horizontal position) to release the vacuum.
11. Add a 40 mL vial to each position.
12. Open the stopcock (vertical position)
13. Add the first aliquot of eluent.
14. Turn the vacuum pressure to minimum and activate the vacuum for 1 second to saturate the sorbent with solvent.
15. After the appropriate soak time, collect the eluent by activating the vacuum for a few seconds.  
Avoid excessive vacuum use as it will blow air on the eluate.

## Manifold Maintenance

Although vacuum manifolds are constructed of robust materials, it is highly recommended that the manifold be carefully rinsed with deionized water following each use. This is especially important when extracting acidified and/or salt-containing solutions. Effective rinsing will prevent corrosion on the metal portion of the manifold and premature failure of the manifold valve assemblies (product code ECUCTSC). Leakage from the third port on the 3-way valve indicates wear in the valve assembly. Leakage of liquids from the port can be prevented by attaching a PTFE syringe filter to the port.

The borosilicate glassware should also be washed after each extraction with water followed by a solvent rinse. It is recommended that glassware be rinsed carefully with the intended elution solvent prior to the cartridge conditioning step.

The 3-way PTFE stopcocks of each valve assemble are not interchangeable. Since the PTFE is soft and can take the shape of the original housing it came from, replacement to the original housing is necessary in the event of valve failure. This means that in the event of valve disassembly and cleaning, the stopcocks should not be mixed when reassembled. Ideally, the red threaded nut on the valve should be slightly released when the manifold is not being used for long periods.

The glass cartridge adapter should be removed from the manifold if the manifold will not be used for several hours. Changes in room temperature can cause the glass cartridge adapter to become stuck on the manifold station. If the adapter becomes stuck and is unable to be removed by conventional means, the adapter can be freed by soaking the adapter and station in a liquid nitrogen or dry ice solvent bath. Carefully remove the adapter and station from the bath and separate the two objects.

**Proper safety protocols should be followed whenever working with laboratory glassware or extremely cold liquids. Danger: Never use a heat gun on the glass cartridge adapter or personal injury may result.**

## UCT vacuum Manifold and Glassware Part List

Part number	Description	Units
ECUCTVAC1	1 station manifold	1
ECUCTVAC3	3 station manifold	1
ECUCTVAC6	6 station manifold	1
ECCG1420	47mm aluminum clamp	1
ECUC0502	90mm aluminum clamp	1
ECQSB47	47mm support base	1
ECQFN300	47mm 300ml funnel	1
ECQSB90	90mm support base	1
ECQFN1000	90mm 1000ml funnel	1
ECUCT47	47mm KEL-F screen	1
ECUCT90	90mm KEL-F screen	1
ECUCTADP	Glass cartridge adaptor (for use with UCT manifold)	1
ECUNIBHD	Bottle holder	1
ECROCKER400	Vacuum pump	1
ECBMADP	Universal cartridge adaptor (Compatible with JT Baker Manifold*)	1
ECUCTTRAP20	Waste trap	1

\*JT Baker® is a registered trademark of Mallinckrodt Baker, Inc.



VACUUM PUMP



Warning: Failure to maintain proper pumping efficiency will result in over-pressurization and possible damage to the system. Failure to maintain proper pumping efficiency will result in over-pressurization and possible damage to the system.

## PRICES AND TERMS

Our prices are subject to change without notice. The price in effect when we receive your order will apply. All prices are in US Dollars and are F.O.B. Lewistown, PA 17044. Terms of payment are net 30 days.

## MINIMUM ORDERS

We welcome all orders, therefore, we do not have a minimum order requirement. When ordering, please include your purchase order number, complete "Ship To" and "Bill To" address, catalog number, quantity, and description of product(s). Also include your name and a phone number where you can be reached should we have any questions concerning your order.

## SHIPMENTS

Normal processing is within 24 hours after receipt of an order. Unless special shipping requests have been made, our trained staff will send all orders by UPS Ground service. The appropriate shipping charges (freight & insurance costs) will be added to the invoice, unless otherwise instructed by the customer.

## SPECIAL PRICING

We offer special pricing for volume purchases and standing orders. These discounts apply to bonded phase extraction column purchases only. Please call a sales representative for more information on special pricing qualifications.

## RETURN POLICY

Our Quality Manager will handle all returns. Before returning merchandise, please call to obtain a return authorization number from the quality manager. We will need to know the reason for the return, date of purchase, purchase order number and invoice number in order to issue a return authorization number. Return merchandise must be received before a credit can be issued. Returns will not be accepted after 90 days. A restocking fee of 25% of the price paid, or a minimum of \$25.00 (whichever is greater) will be charged on all returns.

## WARRANTY

All products manufactured by UCT are guaranteed against defects in materials and workmanship for a period of 90 days after shipment. UCT will replace any items that prove to be defective during this time period.

The exclusive remedy requires the end user to first advise UCT of the defective product by phone or in writing. Secondly, the defective product must be returned within 30 days after proper approval from our Quality Manager. All returns must indicate the purchase order number, the lot number and the shipping date. UCT's total liability is limited to the replacement cost of UCT products.

This warranty does not apply to damage resulting from misuse.

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