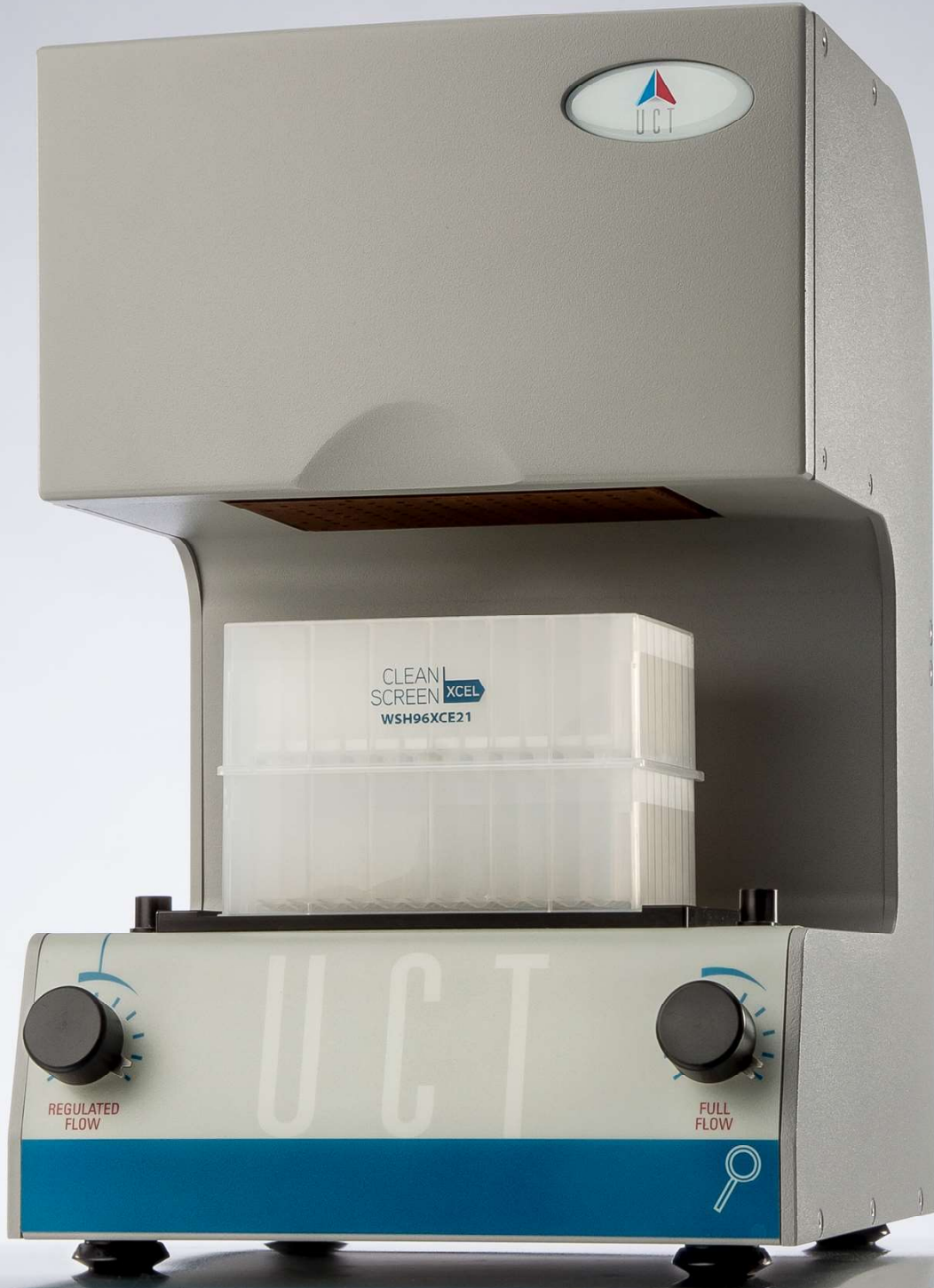


# 96 WELL PLATE POSITIVE PRESSURE MANIFOLD OPERATING INSTRUCTIONS



## 96 WELL PLATE POSITIVE PRESSURE MANIFOLD OPERATING INSTRUCTION

### Theory of Operation

The 96 Well Plate Positive Pressure Extraction Manifold (PPM) is a mechanical workstation that is used to facilitate the process of sample preparation using a 96 well plate. The PPM utilizes pressurized gas (i.e. compressed nitrogen or air) to move sample solvent through each SPE well at a controlled rate of flow. The PPM has two (2) adjustable regulators designed with restrictors to give users maximum control.

### SHIPPING CONTENTS

(1) 96 well plate Positive Pressure Manifold (UCT Part#: VMF96PPM)

### ACCESSORIES REQUIRED FOR OPERATION

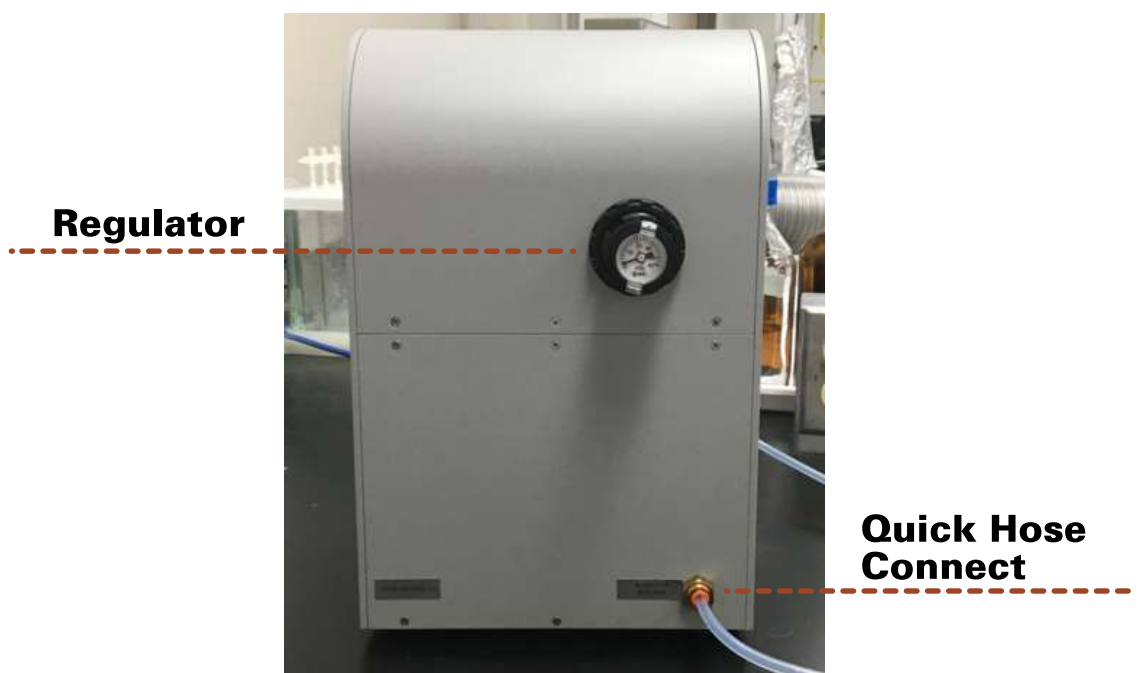
- ¼" O.D. plastic rigid tubing rated for a minimum of 80 to 100 psi.
- Clean Gas source (Nitrogen or Air) available at 65 to 75 psi.
- ¼" compression fitting for attachment to gas source.
- In-line gas filter (optional - suggested if using unfiltered compressed gas.)

### DESCRIPTION OF PPM UNIT & CONTROLS

**Dimensions of unit:** The positive pressure manifold is 9" wide, 9" deep, and 14" high.

**Quick Hose Connect:** This quick connect is located on the back of the unit and is used to connect the gas line to the unit.

**Regulator** – This knob is located on the back of the system. It regulates the total flow of gas entering the unit. The regulator should be set between 25 and 35 psi. Excess pressure is vented out of the instrument in order to avoid damage to the equipment.



**Raise / Lower Switch** - This switch is located on the right-hand side of the sample shelf. It is used to lower and raise the restrictor plate into proper position during sample preparation. Pressurized gas moves the plate up and down depending on the switch position.

**Dry / Full Flow Adjustment Knob** – This knob is located on the front of the base on the right hand side. This allows a generous flow of gas from the regulator to flow through the well plate. This function is used for drying the sorbent prior to sample elution. To adjust the gas flow turn the right hand knob counterclockwise to increase flow and clockwise to decrease the gas flow.

**Requested Flow Adjustment Knob** – This knob is located on the front of the unit on the left-hand side. This gauge is considered a 'fine adjustment' because it has a restrictor which will not allow excessive flow through the restrictor plate. The adjustment knob is used to regulate the flow during the sample load and analyte extraction portions of the procedure. To adjust, turn the knob counterclockwise to increase gas flow and clockwise to decrease the gas flow to the desired rate. The full flow function will override this function. It is important to make sure full flow is off when not in use.

The fine flow should be adjusted to obtain a flow rate between 1-2 mL/ minute. A flow rate of 1 mL/min is about 1 drop every 3 seconds. You can determine the drip rate looking at the base of the collection plate. You should be able to see the splash as each drip hits the bottom. With an aqueous sample solution this flow is generally achieved with the dial set between the 5<sup>th</sup> and 7<sup>th</sup> hash marks.

**On / Off Switch** - This switch is located on the left hand side of the sample shelf. The on and off switch cuts off pressure to the regulated flow. The pressure is always on when the restrictor plate is lowered. To ensure no flow is applied to the plate, turn both knobs all the way to the right before lowering the restrictor plate.



**On/Off Switch**



**Regulated Flow Knob**



**Raise/Lower Switch**

**Dry/Full Flow Knob**

## USING THE MANIFOLD FOR EXTRACTION

1. Connect the ¼" gas line to the back of the manifold (quick hose connect), adjust the pressure to between 65-75 psi from the gas source.
2. Adjust the regulator on the back of the unit to 30 psi.

### Optimizing Flow Rate

1. Turn both the regulated and full flow adjustment knobs clockwise until they will no longer turn.
2. Ensure the regulated flow switch is in the OFF position.
3. Place a 96 well plate on top of a 96 well waste collection plate or sample collection plate. The stacked plates should then be placed onto the black holder on the base of the PPM. **The collection plate and 96 well plate should be pushed back until it bumps into the back wall of the plate holder. This will ensure that the reservoirs are lined up under the holes of the restrictor plate.**
4. Slide the Raise/Lower switch to the lower position to lower the restrictor plate onto the 96 well plate.
5. Slide the regulated flow On/Off switch to the ON position.
6. Turn the regulated flow knob counter clockwise until samples start to drip through the plate at a rate of 1-2 mL/minute. A flow rate of 1 mL/min is about 1 drop every 3 seconds. You can determine the drip rate looking at the base of the collection plate. You should be able to see the splash as each drip hits the bottom. With an aqueous sample solution this flow is generally achieved with the dial set between the 5th and 7th hash marks.
7. When samples are completely through the plate, slide the On/Off switch to the OFF position, slide the Raise/Lower switch to the Raise position, and remove well plates.

### Sorbent Drying

1. Turn both the regulated and full flow adjustment knobs clockwise until they will no longer turn.
  2. Ensure the regulated flow switch is in the OFF position.
  3. Place a 96 well plate on top of a 96 well waste collection plate. The stacked plates should then be placed into the black holder on the base of the PPM. The collection plate and 96 well plate should be pushed back until it bumps into the back wall of the plate holder. This will ensure that the reservoirs are lined up under the holes of the restrictor plate.
  4. Slide the Raise/Lower switch to the lower position to lower the restrictor plate onto the 96 well plate.
  5. Turn the full flow adjustment knob counter clockwise about 1 full rotation.
  6. After sorbent drying is complete, turn the full flow adjustment knob clockwise until it will no longer turn. Slide the Raise/Lower switch to the Raise position, and remove well plates.
- All reservoir conditioning, sample loading, wash solvents, and elution solvents are applied off-line from the unit.

## MANIFOLD MAINTENANCE

- The manifold requires regular upkeep to preserve the full functionality of the unit.
- Daily cleaning of any solvent or spills (as needed) on any of the manifold surfaces is suggested. Use solvents such as Methanol, Water, or Iso-propanol to wash the surface of the manifold. It is recommended to use water first followed by an alcohol to help dry the unit.
- Ensuring clean air (free of oil, water, and particulates) is important for the manifolds proper function. The in-line air filter (UCT Part#: **VMFPPMRAF**) should be monitored for condensation or other contamination issues. If the filter looks worn or filled with water, replacement is required.
- It is recommended that the brown gasket (UCT Part#: **VMF96PPMGSK**) at the bottom of the restrictor plate be replaced every 6 months. Gasket Replacement:
  1. Lower the restrictor plate
  2. Turn off the gas to the manifold unit
  3. Using a 7/64" Allen Wrench loosen the 2 set screws on the right hand side of the restrictor plate. Turn the screws clockwise to loosen.
  4. Slide the entire restrictor plate forward until it comes free of the manifold.
  5. Ensure that the black o-ring on the top of the restrictor plate does not come loose or fall out.
  6. Peel the old gasket from the bottom of the restrictor base.
  7. Remove the backing from the new gasket.
  8. Line up the holes in the gasket with the holes in the base of the restrictor plate and stick the new gasket to the base; ensure that there are no wrinkles in the gasket.
  9. Slide the restrictor plate back into position. The black o-ring should be towards the rear of the manifold. Tighten the set screws.
  10. Turn the gas flow to the manifold back on.
  11. The manifold is now ready for use.

## REPLACEMENT PARTS AND ACCESSORIES:

Name	Part Number
• Installation Kit: <ul style="list-style-type: none"><li>- 25' of ¼" O.D. tubing</li><li>- 2 x ¼" compression fittings</li><li>- 1 in-line air filter</li></ul>	VMFPPMIK
• Replacement Restrictor Plate Gasket	VMF96PPMGSK
• 96 Well Plate Waste Collection Plate	WSH96WT
• 96 Well Sample Collection Plate	WSH96CP





## WARRANTY PROGRAM

After the initial 90 day period, a service agreement with UCT can be arranged.

### The service agreement will entail the following:

Upon the need for repair, the owner of the manifold will submit an open PO to UCT for repair. UCT will ship a 'temporary loaner' manifold (at no charge) to the customer to be used until their manifold can be repaired.

- The total cost of shipping to and from UCT's facility for the customer's manifold will be the responsibility of the customer
- The total cost of parts needed to repair manifold(s) will be the responsibility of the customer
- The total cost of shipping of the loaner manifold will be incurred by UCT
- UCT will perform a thorough inspection of the manifold which at minimum will include:
  - o Each position of the individual (4) plates of the PPM will be checked for flow through. If there is significant restricted flow to any of the sample positions, the plate will be cleaned and re-tested.
  - o The piston's lubrication will be checked to insure proper operation.
  - o The gaskets will be examined for wear or fracturing.
  - o The individual plates will be inspected for any loose screws holding the plates to the body of the manifold.

Any additional maintenance or repair beyond the scope of this agreement will be charged at the discretion of UCT, Inc.

## 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.

## SAFETY

This equipment, when used properly, is safe. Proper PPE, as determined by your organization, should be worn at all times while using this equipment. Proper handling techniques for chemicals and biological agents should be followed at all times.

Compressed gas or nitrogen is used to operate the equipment. Compressed gas or nitrogen tubing should be securely fitted and locked into the equipment to prevent the compressed gas or nitrogen tubing from loosening and potentially striking operator. Compressed gasses and equipment should be handled under proper ventilation to prevent oxygen displacement or toxic atmospheres.

Operators of this equipment must be aware of the possible pinch points. Pinch points are located on the restrictor plate, as it is raised and lowered and on the well waste plate and well collection plate points of connection.

## Contact Us

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