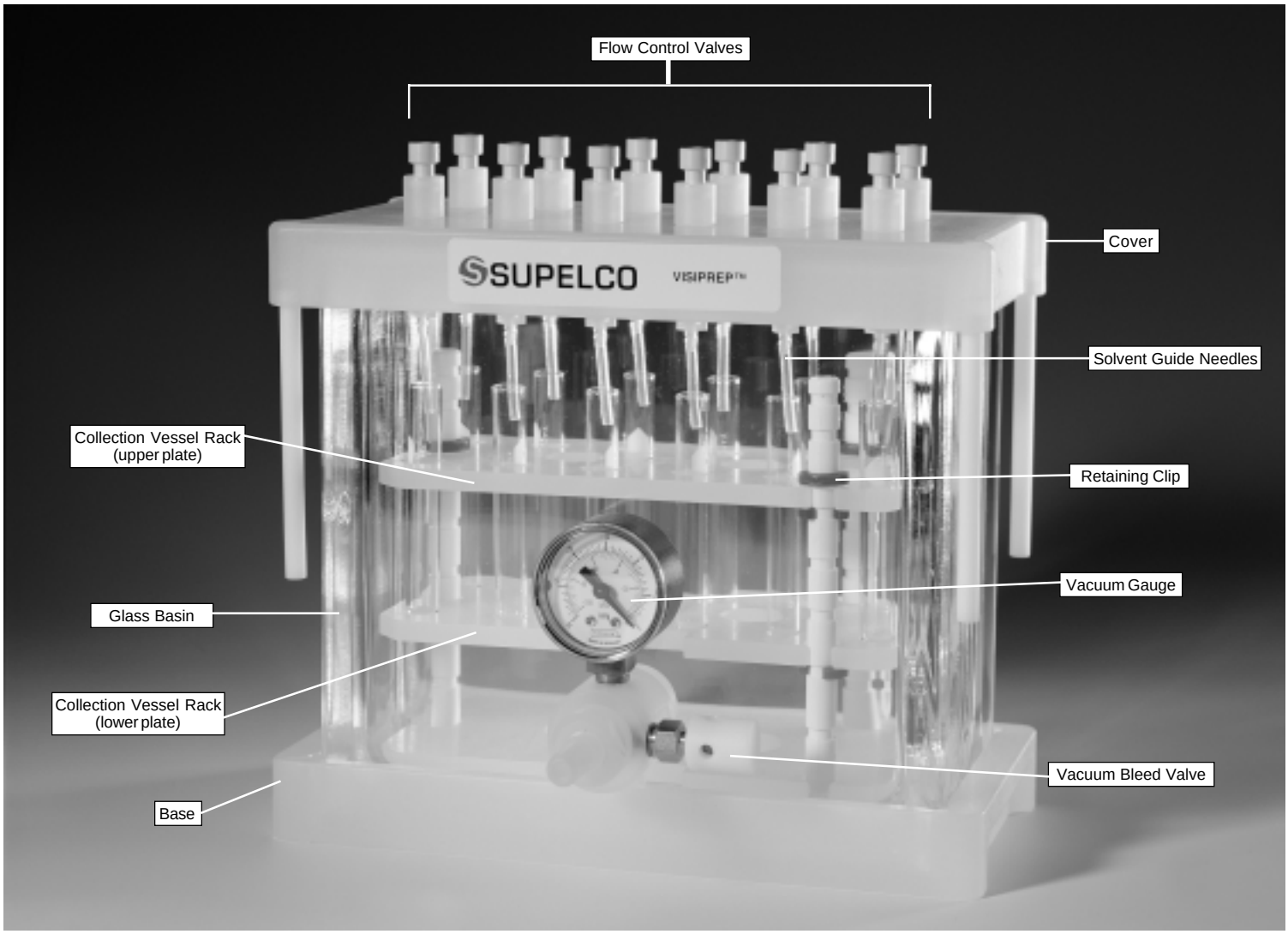
Your Visiprep Manifold is Fully Assembled.
Assembly Steps in this Instruction Sheet are for Replacement Purposes Only.
Please Review Table 1 - *Configurations of Collection Vessel Rack (Pg. 2)* Before Using Your Manifold.

Instructions for Assembling and Using Visiprep™ and Visiprep-DL Solid Phase Extraction Vacuum Manifolds◊

Catalog Nos. 57030-U, 57044, 57250-U, 57265



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Product Description

The Visiprep vacuum manifold enables analysts using Supelclean™ solid phase extraction tubes to simultaneously prepare up to 12 or 24 samples. The manifold consists of a chemical-resistant cover, gasket, and base, a glass basin, a vacuum gauge and vacuum bleed valve, 12 or 24 flow control valves, 12 or 24 replaceable solvent guide needles, and a rack for sample collection vessels (base, 5 support plates, support rods, retaining clips).

The Visiprep-DL (disposable liner) models virtually eliminate the possibility of contamination when consecutive samples are extracted in a manifold port. These models also are equipped with integral flow control valves, similar to those on the conventional Visiprep manifolds, but each valve on a Visiprep-DL manifold is designed to have an inexpensive, disposable Teflon® liner/solvent guide running through its length. This guide acts as a liner so that all surfaces that come in contact with a sample can be discarded and replaced following each extraction. A luer hub attached to the Teflon liner fits snugly into a matching slot on the flow control valve stem. As the SPE tube is turned about its axis, the valve pinches or releases the liner, stopping or starting the flow.

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Assembling the Vacuum Attachment Piece

Parts making up the assembly are described in Figure A.

1. Place the Teflon washer on the vacuum attachment rod.
2. Insert the vacuum attachment rod through the 1/2" hole in the glass basin. The solvent siphon tube should be inside the basin and pointing downward.
3. Slide the gauge attachment piece onto the vacuum attachment rod (Figure B). The vacuum gauge dial should face away from the basin.
4. Screw the retaining ring onto the vacuum attachment rod, with the beveled edge facing away from the basin. Align the gauge upright and carefully tighten with a wrench.

Assembling the Collection Vessel Rack

The collection vessel rack will hold a wide range of vessels. Rack configurations for specific containers are described in Table 1. Other configurations are possible.

The plates that make up the collection vessel rack are suspended from support rods (permanently attached to the base), using retaining clips. To install a clip, place the open end of the clip against the groove in the support rod and push until the clip snaps into place around the rod (Figure C). To remove a clip, push it away from the rod while pressing outward on each prong.

1. Install one retaining clip on each support rod, in a position for supporting the lower plate (see Table 1).
2. Set the lower plate (depressions on one surface, the other surface smooth) on the support rods.
3. Install retaining clips in the appropriate position to support the upper plate (see Table 1).
4. Set the upper plate on the support rods.
5. Install retaining clips above the upper plate.
6. Place the collection vessels in the rack, then place the rack in the manifold with the base cutout facing the vacuum gauge. The vessels are properly supported if the solvent guide needles extend about 1cm into the vessels when the manifold cover is in place.

Figure A. Vacuum Gauge Assembly

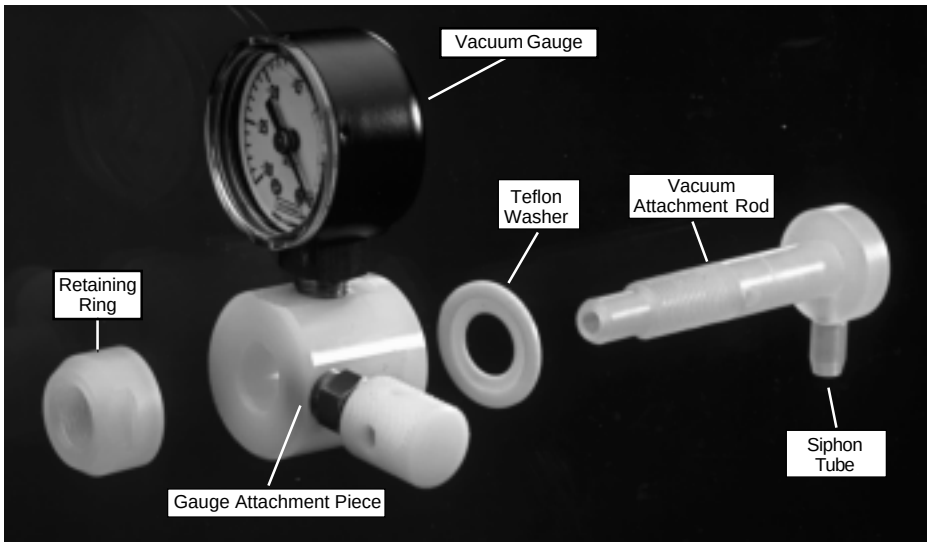

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Figure B. Installing the Vacuum Attachment Piece

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Figure C. Installing a Clip onto a Collection Vessel Rack Support Rod

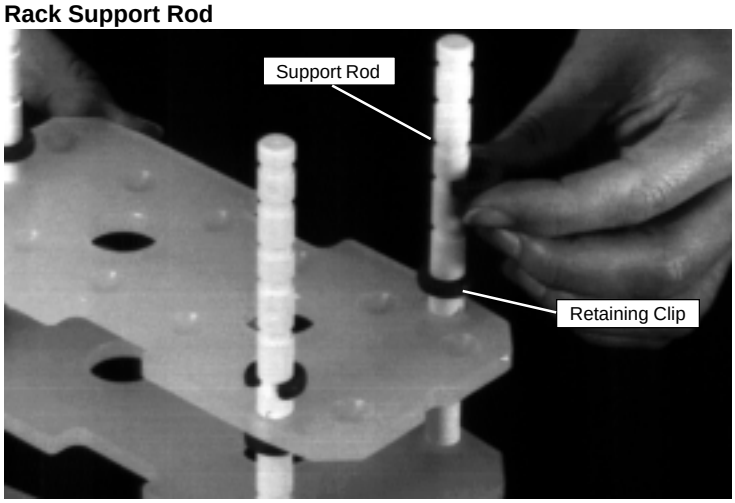

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Table 1. Configurations of Collection Vessel Rack

Collection Vessel Type	Lower Plate Arrangement (Clip Location)**	Upper Plate Used* (Clip Location)**
10 x 75mm tubes	depressions up (7)	Plate A (3,4)
16 x 100mm tubes	depressions up (7)	Plate C (3,4)
16 x 125mm tubes	depressions up (no clips)	Plate C (3,4)
12mm autosampler vials	flat side up (5)	Plate B (3,4)
17mm scintillation vials	flat side up (6)	Plate C (1,2)
volumetric flasks	lower plate not used	Plate D (1,2)

*Plate A - small holes; Plate B - medium holes; Plate C - large holes; Plate D - parallel slots
**Number of grooves from the top of the rod.

Connecting the Manifold to a Vacuum Source

1. Prepare a waste liquid trap by fitting a 1 liter filtration flask with a one-hole rubber stopper containing a short piece of glass tubing, or use our SPE Vacuum Pump Trap Kit (Cat. No. 57120-U). Place the trap in line between the manifold and the vacuum source.
2. Use vacuum hose to connect the vacuum attachment nozzle on the front of the manifold to the glass tubing in the stopper in the flask.
3. Connect the vacuum source to the vacuum attachment arm on the flask.

   A Visiprep manifold requires a vacuum of only 15" (38cm) mercury for operation. **The vacuum must not exceed 20" (50.8cm) Hg.**

Installing Solvent Guide Needles

1. Remove the manifold cover and install a solvent guide needle (conventional Visiprep models) or a stainless steel tubing guide (Visiprep-DL models) on the male luer fitting at the bottom of each flow control valve.
2. Ensure that each flow control valve is open by turning the valve stem one complete turn *counterclockwise.*

Inserting Disposable Valve Liners (Visiprep-DL models only)

1. Grasp a disposable valve liner by the tubing just below the hub and insert the end of the tubing into the hole in the center of a valve stem. Slowly push the tubing all the way through the valve.

   NOTE: Pushing too hard or too quickly can cause the tubing to bend or kink and make insertion more difficult. Rotating the tubing between your thumb and index finger will make insertion easier.
2. Align the valve liner hub so that its side flanges fit into the matching oval slot on the top of the valve stem. Press down on the top of the hub to seat the barb firmly in the valve.
3. Grasp the knurled portion of the valve seat with one hand and with the other hand insert the male luer fitting of an SPE tube into the hub of the valve liner. Holding the valve seat steady, press down on the SPE tube while turning in one direction, to firmly seat the tube in the hub.

   Repeat steps 1-3 for each SPE tube to be used.

Using the Manifold

1. Remove the collection vessel rack, then replace the manifold cover.
2. Open the vacuum bleed valve by turning counter-clockwise.
3. Solutions typically are added to the SPE tubes with the flow control valves closed. Close each valve by grasping the top of the SPE tube (previously installed on the valve) and turning it fully *clockwise.* To maintain proper vacuum, valves without SPE tubes also should be closed during the extraction process (turn the knurled valve stem clockwise). DO NOT OVERTIGHTEN the valves – this can damage the control mechanism.

   NOTE: In the Visiprep-DL models each valve, even those not being used for an extraction, should have a liner in it whenever the valve is turned fully closed. Although the valves can be closed without a liner, and the vacuum will be maintained, the life of the valves will be prolonged by installing a liner.
4. Turn the vacuum on at the source.
5. Add conditioning solvent to each tube.
6. Grasp the top of each tube and rotate the tube 1/4 turn *counterclockwise,* to partially open the flow control valve.
7. Slowly close the vacuum bleed valve until the gauge indicates a vacuum of 10" (25.4cm) Hg. As the solvent level in each tube nears the packing bed, rotate the flow control valve *clockwise,* to slow the flow. When the solvent in a tube reaches the packing bed, fully close the flow control valve.
8. Open the vacuum bleed valve.
9. If required by the method in use, add additional solvent and/or attach a filtration tube or reservoir to each tube. Repeat steps 7 and 8 to draw the added solvents through the packing bed.
10. Transfer the samples to the SPE tubes, filtration tubes, or reservoirs, as appropriate.
11. Close the vacuum bleed valve and open the flow control valves 1/4 turn. Using the bleed valve, adjust the vacuum to aspirate liquid through the SPE tubes at the desired flow rate. A dropwise flow usually is best, but rates up to 5mL/min are acceptable. **Do not exceed a vacuum of 20" (50.8cm) Hg.**
12. Open the vacuum bleed valve.
13. Add wash solution to the tubes. Partially close the bleed valve to aspirate the liquid through the tubes.
14. Open the vacuum bleed valve. Repeat step 13, if required.
15. Remove the manifold cover and place the collection vessel rack containing the collection vessels into the basin.
16. Replace the cover. Be sure each solvent guide needle extends approximately 1cm into the collection vessel.
17. Close the flow control valves.
18. Add the elution solvent to each tube, then close the vacuum bleed valve and open each flow control valve just enough to allow the eluate to flow dropwise through the tube.
19. Open the vacuum bleed valve. Repeat steps 17 and 18, if required. Do not remove the SPE tubes from the manifold cover before the vacuum is fully released, or eluate will splash onto the interior of the basin.
20. Remove the collection vessel rack. Dilute, evaporate, or analyze the samples as required.

Removing Disposable Valve Liners (Visiprep-DL models only)

1. Remove the manifold cover.
2. Use an adsorbent tissue or towel to wipe the end of each liner and stainless steel tubing guide.
3. Replace the cover.
4. Make sure all valves are open by turning each SPE tube one full turn *counterclockwise.*
5. Grasp the top of each SPE tube and slowly pull straight up, with a gentle rocking motion, BUT WITHOUT TWISTING, until the liner hub is free of the valve seat. If the valve is properly opened, the Teflon tubing should remain attached to the hub, and the liner and hub can be removed as a unit. Occasionally, the tubing may pull free from the hub. In these cases, remove the tubing from below.

Additional Precautions

Be sure that solvent levels in the sample collection vessels do not rise high enough to touch the ends of the liners or guides. This could lead to contamination of the next sample.

When using collection vessels with a small inside diameter (e.g., some 1mL autosampler vials), use a slow solvent flow rate (e.g., 1 drop/second) to ensure that all liquid is recovered in the vessel.

Vacuum in the manifold must not exceed 20" (50.8cm) Hg.

Do not interchange the flow control valve stems. To ensure a tight seal, each stem **must** be paired with its original body.

Spare Parts

12-Port Visiprep Manifold

Description	Catalog No.
Cover with 12 flow control valves, gasket	**57031-U**
Flow control valves (pk. of 2)	**57032**
Gaskets (pk. of 2)	**57033**
Glass basin	**57049**
Glass basin with vacuum gauge and valve	**57034**
Vacuum gauge and valve	**57035-U**
Solvent guide needles, stainless steel (pk. of 12)	**57036**
Solvent guide needles, Teflon (pk. of 12)	**57047**
Splash guard	**57045-U**
Collection rack (base plus 3 support rods, center plate, top plate with small holes, 12 clips)	**57037**
Rack for 16mm test tubes	**57039**
Rack for autosampler vials	**57040-U**
Rack for large scintillation vials	**57043**
Retaining clips (pk. of 12)	**57041**
Visidry™ Drying Attachment[#]	**57100-U**

24-Port Visiprep Manifold

Description	Catalog No.
Cover with 24 flow control valves, gasket	**57251**
Flow control valves (pk. of 2)	**57032**
Gaskets (pk. of 2)	**57254**
Glass basin	**57253**
Glass basin with vacuum gauge and valve	**57252**
Vacuum gauge and valve	**57035-U**
Solvent guide needles, stainless steel (pk. of 12)	**57036**
Solvent guide needles, Teflon (pk. of 12)	**57047**
Collection rack (base plus 2 support rods, center plate, top plate with small holes, 8 clips)	**57255**
Rack for 16mm test tubes	**57257**
Rack for autosampler vials	**57258**
Retaining clips (pk. of 12)	**57041**

12-Port Visiprep-DL Manifold

Description	Catalog No.
Cover with 12 flow control valves, gasket	**57029**
Flow control valves (pk. of 2)	**57028**
Gaskets (pk. of 2)	**57033**
Glass basin	**57049**
Glass basin with vacuum gauge and valve	**57034**
Vacuum gauge and valve	**57035-U**
Liner guide needles, stainless steel (pk. of 12)	**57027**
Disposable liners, Teflon (pk. of 100)	**57059**
Splash guard	**57045-U**
Collection rack (base plus 3 support rods, center plate, top plate with small holes, 12 clips)	**57037**
Rack for 16mm test tubes	**57039**
Rack for autosampler vials	**57040-U**
Rack for scintillation vials	**57043**
Retaining clips (pk. of 12)	**57041**
Visidry Drying Attachment	**57100-U**

24-Port Visiprep-DL Manifold

Description	Catalog No.
Cover with 24 flow control valves, gasket	**57266**
Flow control valves (pk. of 2)	**57028**
Gaskets (pk. of 2)	**57254**
Glass basin	**57253**
Glass basin with vacuum gauge and valve	**57252**
Vacuum gauge and valve	**57035-U**
Liner guide needles, stainless steel (pk. of 12)	**57027**
Disposable liners, Teflon (pk. of 100)	**57059**
Collection rack (base plus 2 support rods, center plate, top plate with small holes, 8 clips)	**57255**
Rack for 16mm test tubes	**57257**
Rack for autosampler vials	**57258**
Retaining clips (pk. of 12)	**57041**

Accessories for All Manifolds

Description	Catalog No.
SPE Vacuum Pump Trap Kit	**57120-U**
Test tubes, 10 x 75mm (pk. of 12)	**57042**

◊US Patent Nos. D289,861; 4,810,471; other patents pending.
[#]US Patent No. 4,810,471; other patents pending.

Contact our Technical Service Department
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