

SEC 100*

User Guide



***Patents issued & pending in U.S. & other countries**



Technology to Safeguard our Precious Resources™

Microbial-Vac Systems® , Inc.

Sales & Customer Support Office

14621 S. 800 W. #100

Bluffdale, UT 84065

Contact Us at (877) 523-3962

www.m-vac.com

Warnings

The vacuum pump in the SEC is only intended to be used with an appropriately assembled M-Vac and Sampling Head. Do not attempt to use the vacuum created by the SEC for any other purpose. Doing so voids the manufacturers warranty and could lead to irreparable damage to the equipment.

Do not attempt to open the SRS pressure chamber door for any reason until the “Solution Pressurization” switch has been turned “Off” and the chamber is no longer pressurized. Failure to do so could lead to serious injury and damage to the SEC.

In the event the water trap and/or HEPA filter inside the back panel of the SEC should need to be emptied, make sure to unplug the power cord on the SEC from the power outlet. Failure to do so could lead to serious injury and damage to the SEC.

Do not run the vacuum pump inside the SEC under full vacuum (with no airflow) for extended periods of time. This will cause the system to overheat and may cause serious damage to the Equipment.

Do not spray off SEC with high pressure solution spray. The SEC housing is not leak proof. Electrical components inside the SEC may be damaged in the presence of moisture.

MS Kits, SRS bags, and SEC Extension tubing are disposable items. No attempts to disassemble, sterilize, reassemble, or refill for reuse should be made. Microbial-Vac Systems, Inc. is not responsible or liable for consequences of misusing disposable products.

Products manufactured and marketed by Microbial-Vac Systems, Inc. are protected by patents issued or pending in the United States of America and other countries. Microbial-Vac Systems, Inc. reserves the right to change the literature in this document at any time, without prior notice.

Table of Contents

PARTS OVERVIEW	4
SEC 100 (SUPPORT EQUIPMENT CASE)	4
MS KIT (M-VAC & SAMPLING HEAD)	5
SRS BAG	5
SYSTEM PREPARATION	6
SETTING UP TO COLLECT SAMPLES	6
REMOVING/REPLACING MS KIT	8
REPLACING SRS BAG	8
REMOVING/REPLACING SAMPLE COLLECTION BOTTLE	8
COLLECTING SAMPLES	9
SAMPLING HEAD POSITIONING/MOVEMENT	9
M-VAC ORIENTATION DURING SAMPLING	10
MAINTENANCE	11
END OF THE DAY	11
EMPTYING THE LIQUID TRAP	11
CHANGING THE EXHAUST HEPA FILTER	11
LONG TERM STORAGE	11
TROUBLESHOOTING	12
CONSUMABLE PRODUCT ORDERING INFORMATION	13
WARRANTY COVERAGE	14

Parts Overview

SEC 100 (Support Equipment Case)

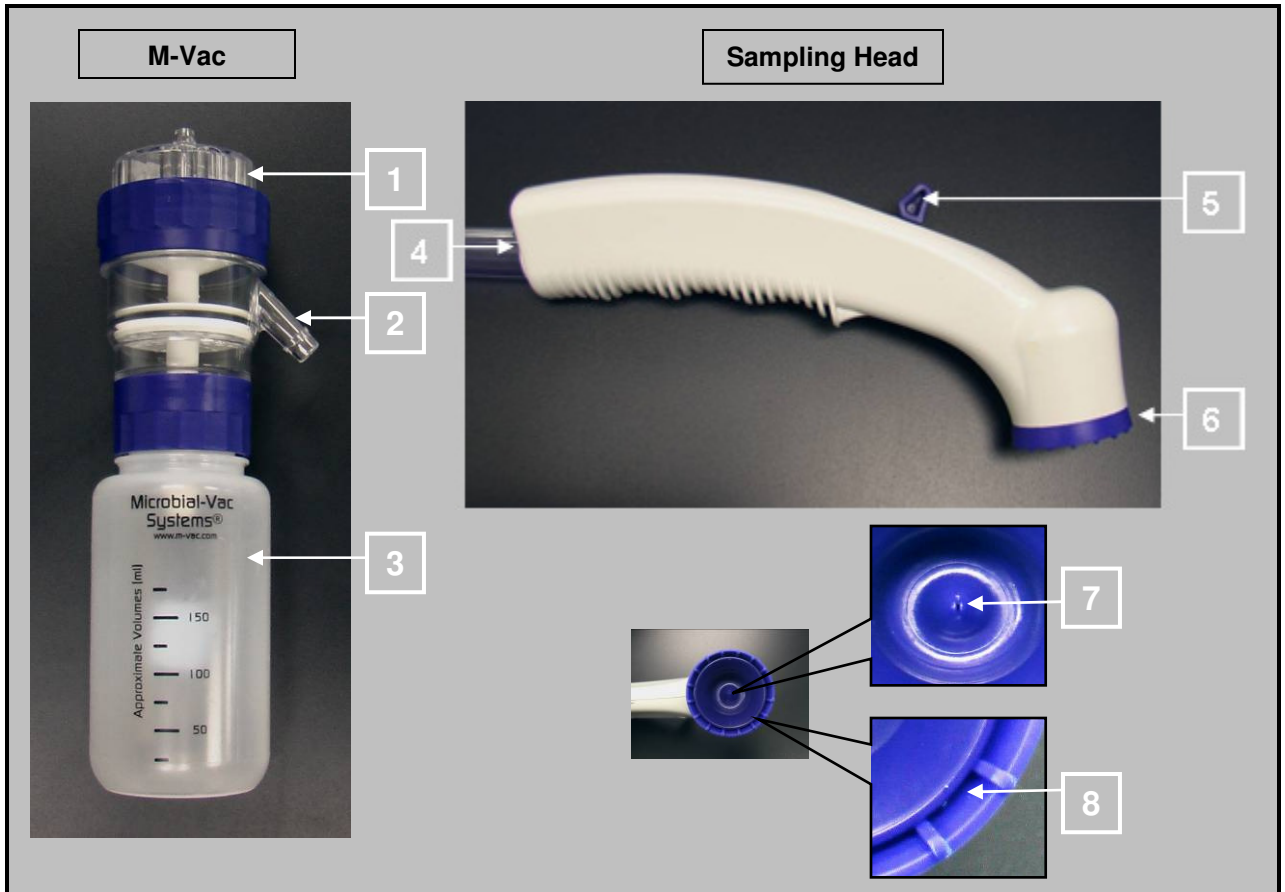


- 1** Hook for Hanging SRS Bag
- 2** Pressure Chamber Door
- 3** Notch for SRS Bag Port
- 4** Guide for Closing Pressure Chamber Door

- 5** Tension Knob
- 6** M-Vac Support Clip/Arm
- 7** Sampling Head Support Clip/Arm

- 8** Vacuum Power Switch
- 9** SRS Pressurization Switch
- 10** Main System Power Switch
- 11** Vacuum Tubing Quick Connect Port
- 12** Vacuum Pressure Gauge
- 13** Airflow Meter (Rotameter)

MS Kit (M-Vac & Sampling Head)



- 1** Lid
- 2** Hose Barb for Vacuum Line from SEC
- 3** Sample Collection Bottle

- 4** Tubing Port
- 5** Switch for SRS Flow Control
- 6** Flexible Surface Contact Ring
- 7** SRS Spray Nozzle
- 8** Vacuum Port

SRS Bag

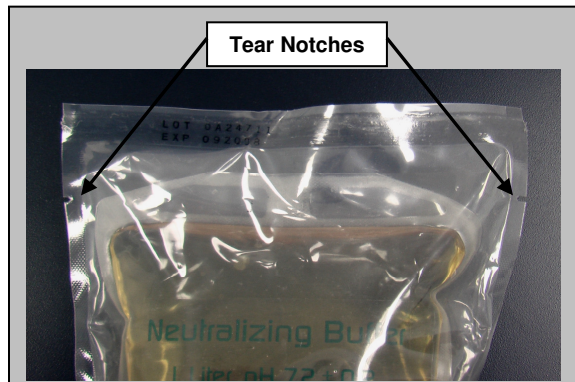


- 1** Hole for Hanging on SEC Pressure Chamber Door
- 2** Threaded SRS Exit Port
- 3** Breakaway Tip

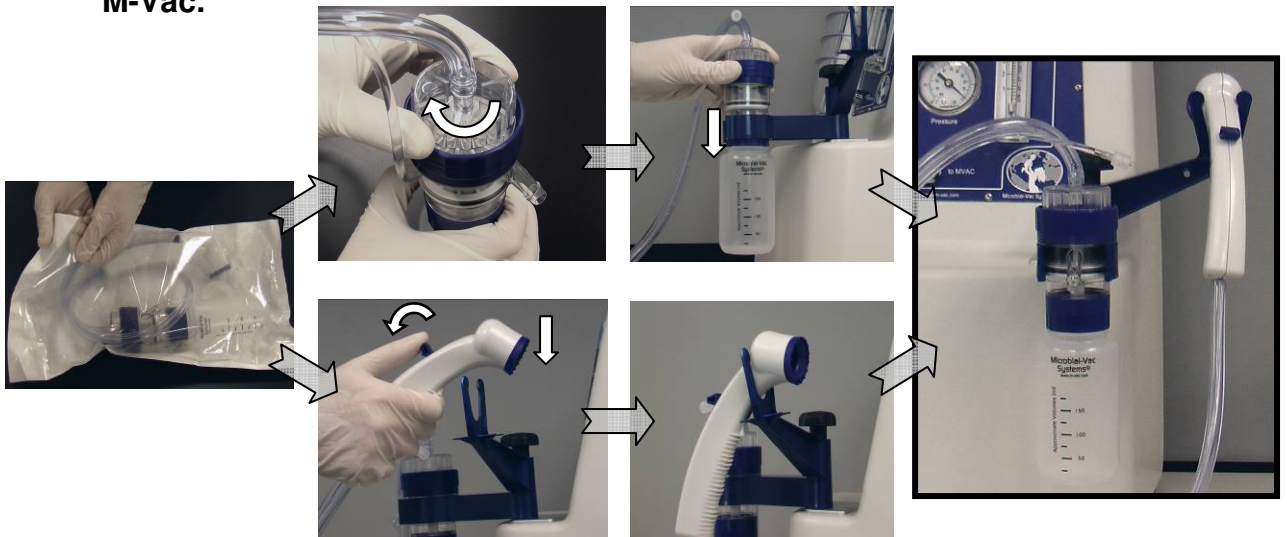
System Preparation

Setting up to Collect Samples

- 1 Remove over wrap from SRS bag by tearing straight across at the notches on the side of the over wrap (see figure below). Set bag aside until step 4.

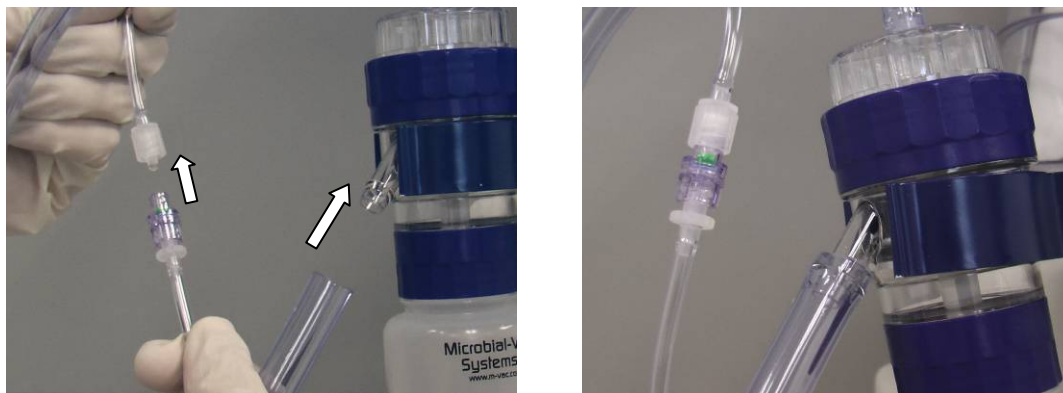


- 2 Remove MS Kit from pouch by peeling open and carefully placing the M-Vac and Sampling Head in their respective holders (See figure below.) **Turn "Off" switch on sampling head by pulling back with thumb and tighten the lid of the M-Vac.**

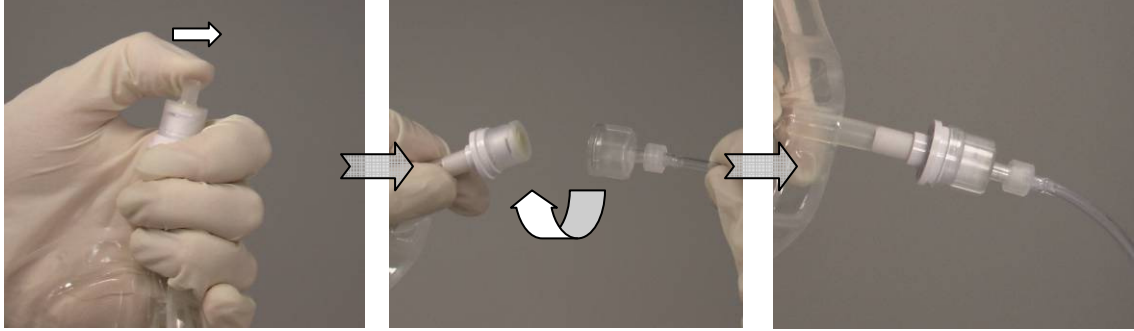


Caution!! Make sure the male fitting on the end of the solution line does not become contaminated

- 3 Open extension tubing by tearing at the notches on the side of the pouch. Attach check valve on solution line to the male fitting on the solution line at the M-Vac. Also attach vacuum side of tubing to hose barb on side of M-Vac.

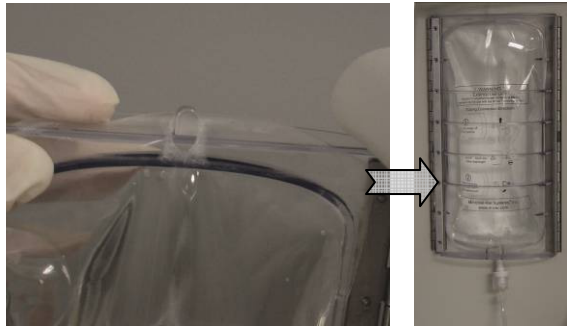


- 4 Aseptically break tip off SRS bag from step 1. Connect spiked fitting on the solution side of the extension tubing to the SRS bag.

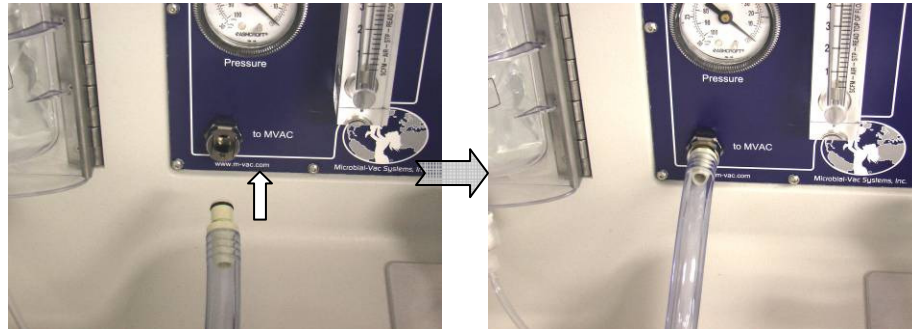


Caution!! To avoid contaminating solution line do not touch rubber diaphragm under tip of SRS Bag.

- 5 Hang SRS bag on hook at top of chamber door and close until door is locked shut by hinged latch. Turn Solution Pressurization switch to "ON".



- 6 Connect vacuum side of tubing to SEC by slipping quick connect fitting into opening on SEC labeled "to MVAC".



The M-Vac® System is now ready to take samples

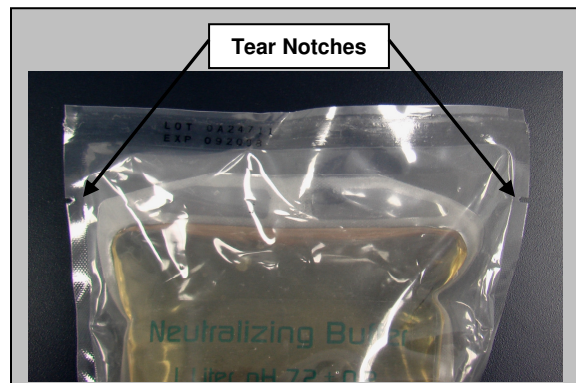


Removing/Replacing MS Kit

- 1 Depressurize the Solution Pressurization chamber by turning Solution Pressurization switch to “Off”.
- 2 Pull vacuum tubing off hose barb on the side of the M-Vac
- 3 Disconnect the solution line at the M-Vac by unthreading the luer fitting on the sampling head side of the check valve. **CAUTION:** Do not disconnect the luer fitting on the SEC side of the check valve. Doing so will allow SRS solution to flow from solution line.
- 4 Remove M-Vac and Sampling Head from their holders and discard.
- 5 Open new MS Kit and connect as in steps 2 – 3 in “Setting up to Collect Samples”.

Replacing SRS Bag

- 1 Depressurize the Solution Pressurization chamber by turning Solution Pressurization switch to “Off”.
- 2 Remove over wrap from new SRS bag by tearing straight across at the notches on the side of the over wrap (see figure below).



- 3 Open Solution Pressurization Chamber and remove used SRS bag from hook
- 4 Disconnect spiked fitting on solution line from threaded SRS bag port fitting. Discard old SRS bag.
- 5 Follow steps 4 – 5 in “Setting up to Collect Samples” for instructions on placement of new SRS bag.

Removing/Replacing Sample Collection Bottle

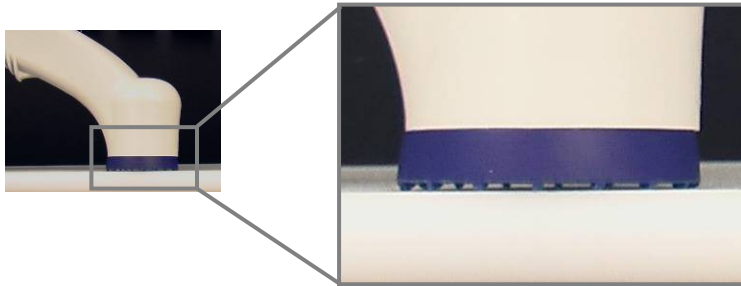
- 1 Turn Vacuum switch to Off.
- 2 To remove a sample collection bottle from the M-Vac, simply rotate the bottle counter-clockwise until the bottle is released from the M-Vac.
- 3 Place a lid on the removed bottle and tighten.
- 4 Place a new bottle on the M-Vac by placing the bottle up against the bottom of the M-Vac and rotate the bottle clockwise until it is firmly attached to the M-Vac.

Collecting Samples

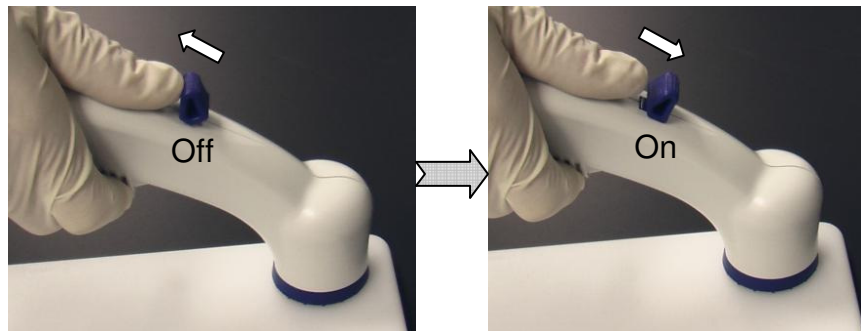
This section will give general guidelines for sampling surfaces with the M-Vac. End users will need to determine the best method for sampling their surface of interest. The procedures on pages 6 – 7 should be performed prior to following these procedures.

Sampling Head Positioning/Movement

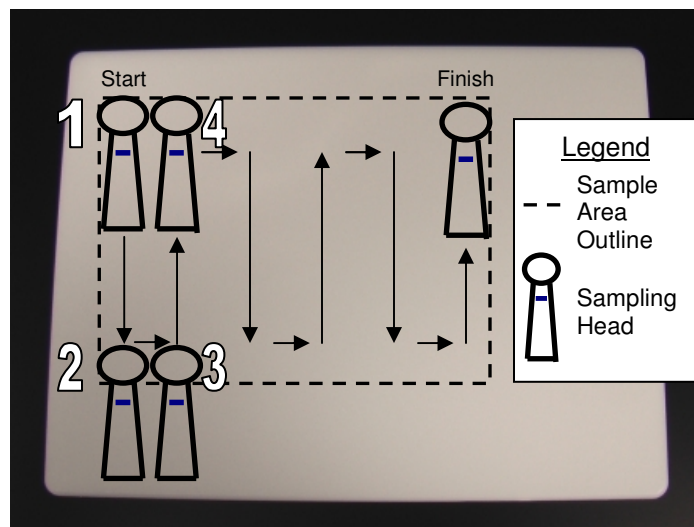
- 1 Turn the Vacuum switch on the SEC to On
- 2 Place the flexible surface contact ring on the surface such that all of the small extensions (feet) on the ring are touching the surface. This will maximize the air flow moving under the sampling head and allow for optimal SRS recovery.



- 3 With the sampling head properly positioned on the sampling surface, push the SRS flow control switch forward using your thumb and immediately proceed to step 4 below.



- 4 Begin moving the sampling head (backwards in the example provided below) while applying moderate pressure with the sampling head on the surface being sampled.



- Do not apply excessive force to the sampling head. It is not meant to be used as a scrubbing device. Doing so will wear out the feet on the surface contact ring.
 - The speed at which the sampling head is moved depends on the amount of area trying to be covered and the amount of liquid to be used. Do not move so fast that the sampling head does not have time to vacuum up the bulk of the SRS being sprayed on the surface. **A minimum of 25 ml and a maximum of 150 ml of SRS should be used to collect samples depending on the surface area to be covered.**
 - Always minimize the amount of area sampled while moving the sampling head sideways. When the sampling head moves sideways the SRS spray pattern does not effectively rinse the area being sampled which will lead to poor collection efficiency.
- 5** When the surface being sampled has been entirely covered, pull back on the SRS flow control switch to stop SRS flow and turn the Vacuum switch on the SEC to Off. It may be beneficial to place the sampling head on a known clean surface and spray/vacuum an additional 10 ml of SRS to flush the sampling head, tubing, and intake of the M-Vac to help maximize the efficiency of recovery. Remove the sample collection bottle as outlined on page 8. If more samples are to be taken with the current M-Vac, which should now be considered contaminated, place a new sample collection bottle on the M-Vac and repeat the steps in this section. If no more samples are to be taken, follow the steps under “End of the Day” on page 11.

M-Vac Orientation During Sampling

Always make sure the M-Vac is upright during sampling. Failure to do so will decrease airflow through the sampling head and reduce the performance of the M-Vac system. This is best accomplished by keeping the M-Vac in the clip on the SEC. If it is not possible to keep the M-Vac in the clip during sampling, be careful not to orient the M-Vac horizontal during sampling. See examples below.



Yes



Yes



NO

Maintenance

End of the Day

- 1 Unplug the SEC power cord from the electrical outlet.
- 2 Disconnect and discard all disposable items from the SEC.
- 3 Wipe down SEC with a suitable disinfectant such as 70% EtOH or 10% Hypochlorite. Common laboratory grade sanitizers are suitable for use on the SEC. The SEC is not compatible with high pressure spray cleaning. It should also not be submersed in liquid; doing so will void any applicable warranties.
- 4 For overnight storage, the SEC should be kept in a location where it will be safe from damage and contamination.

Emptying the Liquid Trap

This is required when moisture has entered the SEC by way of the “Vacuum Tubing Quick Connect Port”. The trap is visible through window on back of the SEC.

- 1 Unplug the SEC power cord from the power outlet.
- 2 Unscrew the screws from the back panel of the SEC and remove panel.
- 3 Carefully reach into back of SEC, tilt bottom of the trap towards the opening and unthread clear bowl of water trap from the lid by rotating bowl counter clockwise.
- 4 Discard liquid in bowl following any applicable local and/or federal codes for disposal of potential contamination.
- 5 Chemically disinfect bowl, two floats, rubber ball and filter screen.
- 6 Reassemble bowl by placing filter in the center of the bowl. Next place two floats inside the filter. Finally, place rubber ball inside of filter on top of floats.
- 7 Replace bowl assembly by threading onto lid inside SEC.
- 8 Replace back panel of the SEC and secure all screws removed in step 2 of this section

Changing the Exhaust HEPA Filter

The HEPA filter on the vacuum exhaust should be replaced anytime there is reason to believe contamination is present in the vacuum exhaust. If the system is used appropriately the filter will most likely not need to be replaced often.

- 1 Unplug the SEC power cord from the power outlet.
- 2 Remove the screws from the back panel of the SEC and remove panel.
- 3 Carefully reach into the back of the SEC on the right side and disconnect HEPA filter from the upper coupling by pressing the release button.
- 4 Remove HEPA filter from holding clip by firmly pulling filter to the left (towards the opening on the back panel.)
- 5 Disconnect the lower coupler by rotating the filter ¼ turn counter clockwise.
- 6 To install a new HEPA filter, reverse steps 3-5.
- 7 Replace back panel of the SEC and secure all screws removed in step 2 of this section

Long Term Storage

- 1 Follow steps 1 – 3 in above section “End of the Day”
- 2 Store in a location where the SEC will be protected from extreme temperatures and potential damage from jarring or moisture.

Troubleshooting

Symptom	Possible Remedy
No airflow at the sampling head	Make sure the power cord is plugged into a 120 V AC outlet, the Main System Power switch is "On", and the Vacuum Power switch is "On"
	Check that the vacuum tubing between the SEC and M-Vac is attached to both of these items properly
	Check to make sure a sample collection bottle is attached to the M-Vac
	Make sure the sampling head, tubing, and M-Vac are not clogged with debris that could restrict airflow
	Look through the window on the back of the SEC and make sure the liquid trap is not full of liquid; if it is follow the instructions on page 11 under "Emptying the Liquid Trap"
SRS does not flow when sampling head switch is turned "On"	Make sure power is supplied to the SEC and the switched labeled "Solution Pressure" is "On"
	Check that all fittings on the solution line from the SRS bag to the sampling head are connected securely
	Make sure the SRS bag is not empty and the outlet tube is not pinched under chamber door or anywhere along the path to the Sampling head
	Remove the current bag of SRS and try a new bag of SRS in the pressure chamber
SRS solution remains on surface being sampled	Ensure the "Vacuum" switch is "On"
	Look to make sure the sample collection bottle is not filled to more than 150 ml
	Go back over the surface containing residual SRS being careful to keep the Flexible Surface Contact Ring flat on the surface while applying force on the surface with the sampling head
	Make sure the sampling head, tubing, and M-Vac are not clogged with debris that could restrict airflow
	If this M-Vac has been used multiple times, replace it with a new M-Vac/Sampling head and see if the problem persists
Moisture is in the vacuum tubing between the M-Vac and SEC	Make sure the M-Vac is not upside down or sideways during sampling
	Make sure the sample collection bottle is not filled to above 150 ml
	*If this M-Vac has been disassembled, sanitized, and reassembled, appropriately discard the MS Kit and contaminated SEC extension tubing and replace with new product
Sampling Head suctions down to sampling surface	Check the small elevations (feet) on the flexible surface contact ring. If the feet are worn off or down significantly install a new MS kit and begin sampling with a new unit

*MS Kits and other disposable items are recommended for single use only. Any attempt to disassemble, sterilize, and reassemble is strongly discouraged. Microbial-Vac Systems, Inc. is not responsible or liable for misuse of disposable products. End users who attempt such actions do so at their own risk.

Contact your sales representative if troubles remain following completion of above troubleshooting tips
 Call: (877) 523-3962 or email: sales@m-vac.com

Consumable Product Ordering Information

SRS



Type	Product #
Butterfield's Buffer	SRS1000-BB
Neutralizing Buffer	SRS1000-NB

MS Kit



Description	Product #
Sterile M-Vac & Sampling Head	MS Kit 100

M-Vac Extension Tubing



Length	Product #
5'	TB 05
10'	TB 10
15'	TB 15
20'	TB 20

Sample Collection Bottles



Type	Product #
Non Sterile	PB 100
	PB 100-10
	PB 100-25
Sterile	PB-S 100
	PB-S 100-20

**To order, call your Sales Representative
or call
(877) 523-3962 and ask for sales.**

Warranty Coverage

Microbial-Vac Systems, Inc. One Year Limited Warranty

Microbial Vac-Systems, Inc.'s (MSI's) warranty applies to the original purchaser, for products manufactured by or for MSI that can be identified by the MSI trademark, trade name or logo affixed to them.

MSI warrants this product as is to be free from defects and workmanship if properly used for a period of one (1) year, from the date of retail purchase or the date of delivery, designated by the purchaser or original user as determined by MSI.

This warranty only applies to the Support Equipment Case Model 100 (SEC 100). No other parts attendant to the use of the product are covered by this warranty.

This warranty does not cover nor is responsible for any samples collected.

This warranty is null and void if:

1. Purchaser fails to meet payment terms as defined in the customer invoice or purchase agreement;
2. Accident, misuse, abuse, neglect, tampering;
3. With prior authorization to return product, product insufficiently packaged and damaged in shipment;
4. Or any MSI serial or product numbers have been removed or defaced.

This warranty does not include failure due to:

1. Use with non-MSI products;
2. Failure to follow instructions relating to product use;
3. Storage;
4. Accident;
5. Misuse;
6. Natural or external causes;
7. Service, repairs or parts modification performed by non-MSI representatives or authorized technicians; and
8. Consumable parts, unless damage has occurred to a defect in materials or workmanship or the SEC 100.

Warranty Service "Valid Warranty Claim"

Purchaser shall attempt to remedy product malfunction by accessing and reviewing the Operator's Manual or online help resources (www.m-vac.com) before contacting MSI with any warranty claims.

Any defect during the warranty period shall be brought to the attention of your MSI representative or authorized service provider, noted in the user guide or online, with the following information:

1. SEC model number and serial number;
2. Purchasing customer names; and
3. Purchase date.

Purchaser may also make contact with the MSI personnel located at 14621 S. 800 W., #100, Bluffdale, Utah 84065 or call toll free (877) 523-3962 or by facsimile (801) 572-8174.

Under no circumstances shall any part of any products purchased from MSI be shipped to the above referenced address.

Upon contacting MSI personnel, MSI personnel or technicians will give you specific instructions regarding warranty assistance.

Within one (1) year from date of original purchase, upon contacting MSI personnel, MSI will exchange, repair or replace the product or parts with functionally equivalent parts, assuming transport costs back to the original purchaser, or refund of the purchase price of the SEC 100.

This warranty is effective for only ninety (90) days regarding labor expenses.

MSI only warrants the product for its intended use. Any misuse will void any warranty provisions set forth above.

TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS.

Except as provided in this warranty and to the extent permitted by law, MSI is not responsible for direct, special, incidental, or consequential damages resulting from any breach of warranty or condition, or under any other legal theory.

MSI specifically disclaims any representation that it will be able to repair or replace any product under this warranty or make a product exchange without risk of loss of the programs or data.

Questions regarding specific equipment use can be obtained at the Sales and Engineering Department, telephone number (877) 523-3962.