

MILLIPORE

**Sterifil® Aseptic System and  
Sterifil 47 mm Filter Holder  
User Guide**

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M11239 Rev. H, 03/06

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## **Introduction**

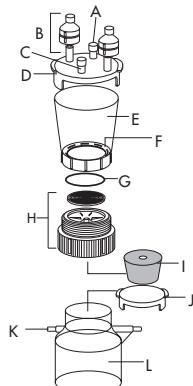
The Sterifil 47 mm aseptic system and Sterifil 47 mm filter holder are designed for vacuum filtration of liquids for particulate or biological analysis. They can be used for sterile filtration, bioburden monitoring, or enumeration of organisms in samples. The product is available in two configurations, the closed Sterifil aseptic filtration system and the separate Sterifil 47 mm filter holder with funnel. Both can be used for aseptic and non-sterile filtration.

The Sterifil aseptic system (Sterifil system) is a closed unit designed to protect the sample and filtrate from contamination. It consists of a funnel with cover, 47 mm filter holder and base with support screen, silicone stopper, and receiver flask with cover.

The Sterifil 47 mm holder with funnel (without receiver flask) is available separately for use with a standard 1 L vacuum filtering flask or multiple place manifold.

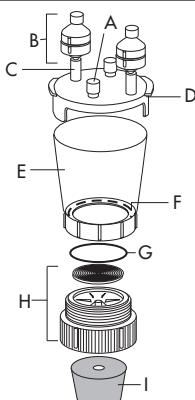
The following sections contain diagrams of the assembled Sterifil system and 47 mm holder, including the 13 mm Swinnex® holder needed for aseptic filtration.

## Diagram of the Sterifil System



| Part | Description                                      | Part | Description                               |
|------|--|------|---|
| A    | Rubber cap (qty 4)                               | G    | O-ring                                    |
| B    | Swinnex 13 mm filter holder<br>(sold separately) | H    | Filter holder base with support<br>screen |
| C    | Port   | I    | Stopper                                   |
| D    | Funnel cover                                     | J    | Receiver flask cover                      |
| E    | Graduated funnel                                 | K    | Side arm                                  |
| F    | O-ring groove                                    | L    | Receiver flask                            |

## Diagram of the 47 mm Sterifil Filter Holder



| Part | Description                 | Part | Description                            |
|------|-----------------------------|------|--|
| A    | Rubber cap                  | F    | O-ring groove                          |
| B    | Swinnex 13 mm filter holder | G    | O-ring                                 |
| C    | Port                        | H    | Filter holder base with support screen |
| D    | Funnel cover                | I    | Stopper                                |
| E    | Graduated funnel            |      |  |

## **Additional Equipment Required to Use the Sterifil System or Sterifil 47 mm Filter Holder**

- 47 mm filter appropriate for your application; see the Millipore product catalogue for options
- 0.2 µm, 13 mm hydrophobic filter (Durapore® membrane) for venting during aseptic filtration and filtration for microbial analysis
- Sterile or Milli-Q® grade water
- Ethanol, 70%
- Millipore filter forceps, hypodermic syringes (2), rubber gloves, non-absorbent cotton
- Kraft paper or Tyvek® material
- Plastic bristle brush, pipe cleaners, non-alkaline and non-abrasive cleanser
- Standard 1 L vacuum filtering flask or a filtering manifold; required only if using the Sterifil 47 mm filter holder

## Chemical Compatibility

This section lists the compatibility of the Sterifil system and 47 mm filter holder with certain chemicals: organic compounds, detergents and soap solutions, and general cleansers. These tables are based on technical publications, material suppliers' information, laboratory tests, and field evaluations. Because of variability in temperature, concentrations, exposure time, and other factors beyond Millipore's control, **use these tables as a guide only.**

**NOTE:** For filter compatibility, see the Millipore product catalogue or the instructions that come with the filter.

### Organic Compound Compatibility

| Organic Compound         | Recommendation       |
|--------------------------|----------------------|
| Acids                    | Recommended          |
| Alcohol                  | Limited applications |
| Alkalis                  | Recommended          |
| Aliphatic hydrocarbons   | Recommended          |
| Aqueous salt solutions   | Recommended          |
| Aromatic hydrocarbons    | Not recommended      |
| Chlorinated hydrocarbons | Not recommended      |
| Esters and ketones       | Not recommended      |
| Fluorocarbons            | Recommended          |

## Detergent and Soap Compatibility

| Detergents and Soaps | Recommendation |
|----------------------|----------------|
| Alconox              | Recommended    |
| Cascade®             | Recommended    |
| Emeral               | Recommended    |
| Ivory Snow®          | Recommended    |
| Joy®                 | Recommended    |
| SBS®-50              | Recommended    |
| Tide®                | Recommended    |

## Cleanser Compatibility

| Cleanser  | Recommendation       |
|---|----------------------|
| Carbon tetrachloride<br>(Use in well-ventilated areas.) | Limited applications |
| Heptane   | Limited applications |
| Lestoil® solution, 1%                                   | Limited applications |
| Kerosene  | Limited applications |
| Methyl, ethyl, and isopropyl alcohols                   | Limited applications |
| Mineral spirits   | Limited applications |
| Naphtha   | Limited applications |

## Assembling the Sterifil System or Filter Holder

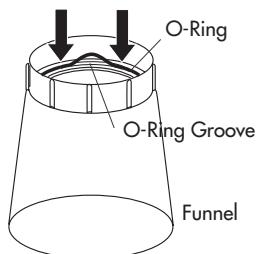
This section describes assembling the Sterifil aseptic system and 47 mm filter holder for aseptic and non-sterile filtration.

For aseptic filtration, you must autoclave the Sterifil system or filter holder. Follow these assembly steps before autoclaving the Sterifil system or filter holder. If you are using the Sterifil holder with a manifold or 1 L vacuum filtering flask, follow the autoclaving instructions provided with the product.

For non-sterile filtration, follow these steps to assemble the Sterifil system or 47 mm holder before filtration.

1. Unscrew the funnel from the base. Make sure the O-ring is in place in the funnel groove. If it is not in place, gently pull and stretch the O-ring one time around to make it pliable. Immediately press it into place with your fingers.

**CAUTION:** Do not over stretch the O-ring or it may not fit the groove.



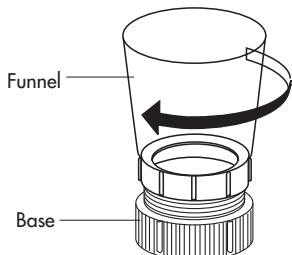
## Assembling the Sterifil System or Filter Holder, continued

2. Center a 47 mm filter on the filter holder support using smooth-tip sterile forceps. Be sure the filter completely covers the support screen. The Sterifil system or filter holder can be autoclaved with the filter in place.



3. Screw the funnel onto the base. Stop turning when you feel resistance.

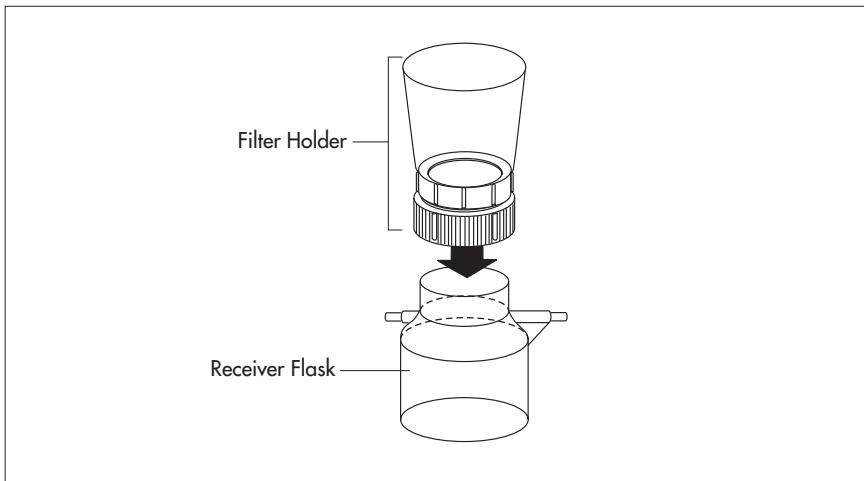
**CAUTION:** Over-tightening the funnel can tear the filter.



## Assembling the Sterifil System or Filter Holder, continued

4. **For Sterifil holder, aseptic and non-sterile filtration:** Go to step 5.

**For the Sterifil system, aseptic and non-sterile filtration:** Press the filter holder down onto the neck of the receiver flask. Make sure it sits evenly all the way around. Twist the base to help seal it as shown:



## Assembling the Sterifil System or Filter Holder, continued

5. **For non-sterile filtration:** If using the Sterifil system, cover the short side arm of the receiver flask with a rubber cap. For the funnel and system, skip the remaining steps in this section and go to the “Using the Sterifil System” or “Using the Sterifil Filter Holder with a 1 L Vacuum Flask and Manifold” section.

**For aseptic filtration:** Close off the ports on the funnel cover with the rubber caps. If using the Sterifil System, close off the short side arm of the flask with a rubber cap. Plug the long side arm of the flask with non-absorbent cotton, then go to the next step.

6. Use the Swinnex 13 mm filter holder on the funnel cover to make sure incoming air is sterile. Unscrew its holder cap from the base. Using forceps, place a 0.2 mm hydrophobic filter (Durapore filter, cat. no. GVHP 013 00) on the base. Place a white silicone rubber gasket on the membrane filter. Screw the Swinnex cap back onto the base.

**NOTE:** Instead, a Swinnex-13 holder (with prefilter, cat. no. AP20 013 00) can be used after autoclaving.

7. Insert the Swinnex filter holder, Luer end down, into the funnel cover port. Push it as far as it will go to seal the port. Place the rubber caps over the remaining ports. Continue on to “Autoclaving the Sterifil System or Filter Holder for Aseptic Filtration.”

## Autoclaving the Sterifil System or Filter Holder for Aseptic Filtration

This section explains autoclaving the assembled Sterifil system and filter holder. Autoclave the Sterifil system and holder with the filter in place.

**NOTE:** Do not follow these steps if you plan to filter samples using non-sterile technique. See the “Using the Sterifil System” or “Using the Sterifil Filter Holder with a 1 L Vacuum Flask and Manifold” section.

1. **For the Sterifil System:** Pour 1 mL of deionized or sterile Milli-Q grade water into the receiver flask. Wrap the system with Kraft paper or Tyvek material.

**For the Sterifil Filter Holder:** Wrap the filter holder with Kraft paper or Tyvek material.

2. Autoclave the entire system for 30 minutes at 121 °C (250 °F) at 15 psig (pounds per square inch gauge).

**CAUTION:** To ensure accuracy of the autoclave cycle, follow the instructions that come with your autoclave and filter.

3. Proceed to the appropriate filtration section for your device.

## Using the Sterifil System

This section describes non-sterile and aseptic filtration using the Sterifil system after assembly. If performing aseptic filtration, complete these steps after autoclaving the system. Use aseptic technique for all methods where organisms are being recovered.

**▲ WARNING:** To avoid injury, do not use the Sterifil system or filter holder with flammable liquids. Instead, use the Millipore Hydrosol™ Stainless Filter Holder (Cat. No. XX20 047 20). Call your local Millipore office for details.

1. **For aseptic filtration:** Remove the absorbent cotton from the long side arm of the receiver flask. Cover the port with a rubber cap. Remove the rubber cap from the short side arm of the receiver flask. Attach the vacuum source.

**For aseptic and non-sterile filtration:** Connect the long side arm to a vacuum source using a hose.

2. **For aseptic filtration:** Lift the funnel cover aseptically and pour the sample into the funnel. Cover the funnel immediately.

**NOTE:** A sterilized hypodermic syringe can also be used to introduce the sample. Wipe the cover port with 70% ethanol. Then, pierce the needle directly through the rubber cap on one of the ports.

**For non-sterile filtration:** Remove the funnel cover, pour the sample into the funnel, and replace the cover.

3. Apply vacuum to filter the sample. To make sure the entire sample filters, run the vacuum for an additional 30 seconds after the funnel appears empty.

**NOTE:** If required by your method, rinse the filter holder funnel by injecting (for aseptic filtration) or pouring sterile water into the funnel to completely filter any sample residue.

## Using the Sterifil System, continued

4. Turn off the vacuum. Remove the hose from the flask. Seal any open ports with the rubber caps.
5. Grasp the receiver flask firmly with one hand and rock the funnel and filter holder base back and forth to break the seal and relieve the vacuum.
6. Unscrew the funnel from the base. Use sterile forceps to remove the filter. Transfer filter to appropriate media or examine filtrate as required by your application.

## Using the Sterifil Filter Holder with a 1 L Vacuum Flask and Manifold

This section describes non-sterile and aseptic filtration using the Sterifil 47 mm filter holder after assembly. If performing aseptic filtration, complete these steps after autoclaving the system. Use aseptic technique for all methods where organisms are being recovered.

**▲ WARNING:** To avoid injury, do not use the Sterifil system or filter holder with flammable liquids. Instead, use the Millipore Hydrosol Stainless Filter Holder (Cat. No. XX20 047 20). Call your local Millipore office for details.

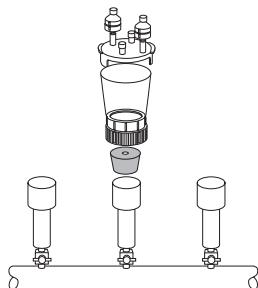
## Using the Sterifil Filter Holder with a 1 L Vacuum Flask and Manifold, continued

1. Secure the assembled filter holder to a 1 L vacuum filtering flask.



OR

Secure the assembled filter holder to a manifold.



## Using the Sterifil Filter Holder with a 1 L Vacuum Flask and Manifold, continued

2. Connect the flask arm or manifold to a vacuum source using a hose.
3. **For aseptic filtration:** Lift the funnel cover aseptically, pour sample into the funnel, and immediately cover the funnel. Make sure 13 mm Swinnex filters are in place.

**NOTE:** A sterilized hypodermic syringe can also be used to introduce the sample. Wipe the cover port with 70% ethanol. Then, pierce the needle directly through the rubber cap on one of the ports.

**For non-sterile filtration:** Lift the funnel cover, pour the sample into the funnel, and replace the cover.

4. Apply vacuum to filter the sample. To make sure the entire sample filters, run the vacuum for an additional 30 seconds after the funnel appears empty.

**NOTE:** If required by your method, rinse the filter holder funnel by injecting (for aseptic filtration) or pouring sterile water into the funnel to completely filter any sample residue.

5. Turn off the vacuum. Remove the hose from the flask. Seal any open ports with the rubber caps.
6. Grasp the receiver flask or manifold firmly with one hand and rock the funnel and filter holder base back and forth to break the seal and relieve the vacuum.
7. Unscrew the funnel from the base. Use sterile forceps to remove the filter. Transfer filter to appropriate media or examine filtrate as required by your application.

## Maintenance of the Sterifil System or Filter Holder

Immediately after use, disassemble the apparatus and clean the components to ensure optimum performance.

1. Remove the cover from the funnel.
2. Remove the O-ring carefully, using forceps.
3. Clean all components with a sponge, hot water, and non-alkaline, non-abrasive cleanser. Remove stubborn residues on the insides of the holder, cover port, and flask side arms using a plastic bristle brush and pipe cleaner dipped in cleanser.

**CAUTION:** Do not use steel wool or any abrasive materials that can harm the components.

4. Rinse the components thoroughly with clean, laboratory-grade (Milli-Q system) water and then air dry.

**CAUTION:** Cleanser residue left on plastic surfaces can cause crazing or discoloration, especially with repeated autoclaving. Do not wipe the components dry with paper or cloth to avoid leaving fibers or lint on the surfaces.

## Product Specifications

**Funnel and receiver flask, covers for funnel and flask:** Polysulfone

**Caps to close off ports on funnel and receiver flask:** Rubber

**Sterifil filter size:** 47 mm diameter

**Sterifil O-ring, stopper:** Silicone

**Swinnex 13 mm filter holder:** Polypropylene

**Swinnex 13 mm gaskets:** Silicone

**Swinnex filter size:** 13 mm diameter

**Swinnex filtration area:** Approximately 13.8 cm<sup>2</sup>

**Temperature limit of Sterifil system or filter holder:** 150 °C (300 °F)

**Funnel and receiver flask capacity:** 250 mL

**Pressure:** Vacuum, only

**Connections:** Two side-arm ports on the receiver flask accept either 1/4 in. inner diameter tubing or male Luer connection (for vacuum and drain or vent), Sterifil system only. Four female Luer ports on the funnel cover are used as aseptic inlets and for venting, Sterifil system and sterifil filter holder.

**Sterifil filter holder dimensions:** 76 mm (3 in.) diameter

127 mm (5 in.) height

**Receiver flask dimensions:** 108 mm (4.25 in.) diameter

203 mm (8 in.) height

## Product Ordering Information

This section lists the catalogue numbers for the Sterifil Aseptic system and 47 mm Filter Holder. See the Technical Assistance section for information about contacting Millipore. You can also buy Millipore products on-line at [www.millipore.com/purecommerce](http://www.millipore.com/purecommerce).

| Part                                     | Catalogue Number |
|--|------------------|
| Complete Sterifil Aseptic System, 47 mm  | XX11 047 00      |
| Sterifil 47 mm filter holder             | XX11 047 10      |
| <b>Accessories</b>                       |                  |
| Swinnex 13 mm filter holders, 10/pk      | SX00 013 00      |
| Swinnex 13 mm gaskets, 100/pk            | SX00 013 01      |
| Glass Fiber 13 mm prefilters, 100/pk     | AP25 013 00      |
| Durapore Hydrophobic 13mm filter, 100/pk | GVHP 013 00      |
| Rubber caps 100/pk                       | XX11 047 11      |
| Sterifil holder base with support screen | XX11 047 02      |
| Sterifil filter support screen           | XX11 047 15      |
| Silicone stopper                         | XX20 047 18      |
| Silicone O-ring, 10/pk                   | XX11 047 07      |
| Funnel cover                             | XX11 047 03      |
| Funnel                                   | XX11 047 04      |
| Receiver flask cover                     | XX11 047 06      |
| Receiver flask                           | XX11 047 05      |
| Filter forceps                           | XX62 000 06      |

## **Technical Assistance**

For more information, contact the Millipore office nearest you. In the U.S., call **1-800-MILLIPORE** (1-800-645-5476). Outside the U.S., see your Millipore catalogue for the phone number of the office nearest you or go to our web site at [www.millipore.com/offices](http://www.millipore.com/offices) for up-to-date worldwide contact information. You can also visit the tech service page on our web site at [www.millipore.com/techservice](http://www.millipore.com/techservice).

## **Standard Warranty**

**Millipore Corporation** ("Millipore") warrants its products will meet their applicable published specifications when used in accordance with their applicable instructions for a period of one year from shipment of the products.

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