User Guide

Sterifil® Aseptic System, 250 mL

Cat. No. XX1104700

Sterifil® 47 mm Filter Holder, 250 mL

Cat. No. XX1104710

Sterifil® 47 mm Filter Holder, 500 mL

Cat. No. XX11J4750

Notice

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Introduction

The Sterifil® 47 mm Aseptic System and Sterifil® 47 mm Filter Holders with 250 or 500 mL funnels are designed for vacuum filtration of liquids for particulate or biological analysis. Based on membrane filter selection, the Sterifil® products can be used for a variety of applications including bioburden monitoring and enumeration of organisms in samples. Three configurations are available:

- 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 with support screen, silicone stopper, and receiver flask with cover. The system also includes two 13 mm Swinnex® filter holders for venting in both aseptic and nonsterile applications.

  NOTE: The funnel cover on the Sterifil® system and 250 mL Sterifil® filter holder has four female Luer ports that can be used for both sample introduction and venting. Any male Luer-compatible fitting (e.g., syringe, tubing adapter, valve, etc.) can be inserted into these ports.

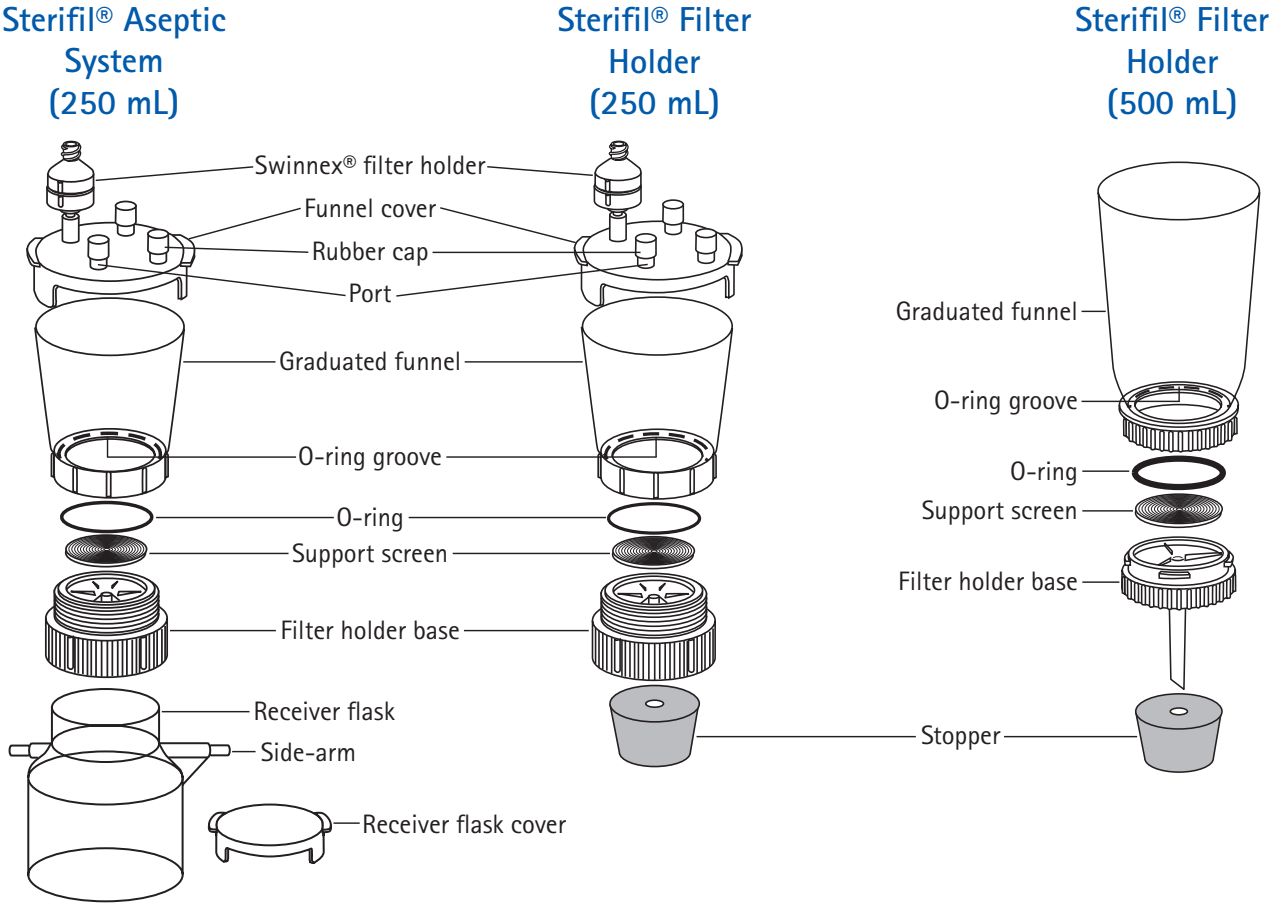
- The Sterifil® 47 mm Filter Holder (250 mL funnel size) has the same funnel configuration as the Sterifil® Aseptic System, but is designed to be used with a vacuum flask or manifold.

- The Sterifil® 47 mm Filter Holder (500 mL funnel size) has no funnel cover and is for use with a vacuum flask or manifold.

The Sterifil® Aseptic System and 250 mL funnel Sterifil® 47 mm Filter Holder can be sterilized and used in aseptic filtration applications.

NOTE: The 500 mL funnel Sterifil® 47 mm Filter Holder is not designed for use in aseptic filtration applications.

Diagram of the Sterifil® Aseptic System and Sterifil® Filter Holders



Additional Equipment Required to Use the Sterifil® System or Sterifil® Filter Holders

- 47 mm filter appropriate for your application; see the product catalogue for options
- 13 mm hydrophobic Durapore® or Fluoropore™ 0.2 µm membrane filter for venting during aseptic filtration or 13 mm glass fiber filter for venting during nonsterile filtration.
- Sterile or laboratory grade water
- Ethanol, 70%
- Filter forceps (cat. no. XX6200006P), hypodermic syringes (2), rubber gloves, nonabsorbent cotton
- Autoclave pouch, autoclave paper, or nonwoven high density polyethylene (HDPE) material
- Standard 1 liter vacuum filtering flask (cat. no. XX1004705) or a filtering manifold (refer to Ordering Information); required only if using a 250 or 500 mL Sterifil® 47 mm Filter Holder
- Vacuum source, either house vacuum or a portable vacuum pump, and appropriate tubing.

  NOTE: If you are performing aseptic filtration and want to protect the downstream side of the filter from contamination when vacuum is relieved, a sterile filter and bleeder valve may be added to your the vacuum line. Contact Technical Service for additional information.

Chemical Compatibility

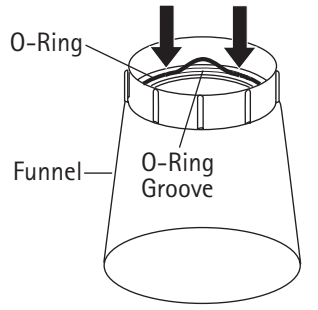
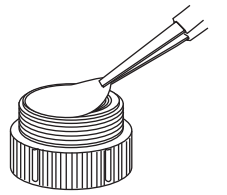
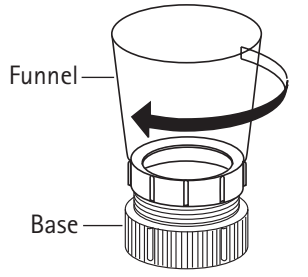
Do not use Sterifil® products with strong acids or bases (pH < 2 or > 10), ketones (including acetone), aromatic hydrocarbons (including toluene), halogenated hydrocarbons, dimethyl formamide, aliphatic esters, dimethyl sulfoxide, and polar aromatics.

For detailed chemical compatibility lists go to www.millipore.com and enter *chemical compatibility* in the search box. Compatibility of available filters can also be found here.

Assembling the Sterifil® System or Sterifil® Filter Holders

This section describes assembly of the Sterifil® system and 47 mm filter holders for both aseptic and nonsterile filtration.

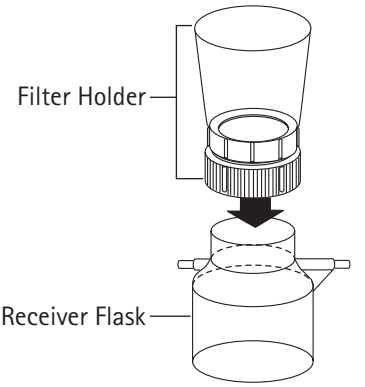
NOTE: For aseptic filtration, you must autoclave or sanitize the Sterifil® system or filter holder. Autoclaving can be done with the filter in place. When using the Sterifil® filter holder with a manifold or 1 L vacuum filtering flask, autoclave or sanitize the manifold or flask using a method appropriate for your application.

1. Unscrew the funnel from the base and turn the funnel upside down. Make sure the O-ring is in place in the funnel groove. If it is not, 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.	
2. Center a 47 mm filter on the filter holder support using smooth-tip forceps. Be sure the filter completely covers the support screen.	
3. Screw the funnel onto the base. Stop turning when you feel resistance. **CAUTION:** Over-tightening the funnel can damage the filter. **NOTE:** If you are going to autoclave the filter holder, tighten just until the threads engage, then fully tighten after autoclaving when components have cooled to room temperature.	

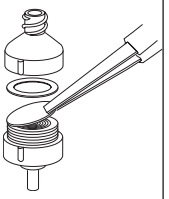
Assembling the Sterifil® System or Sterifil® Filter Holders, continued

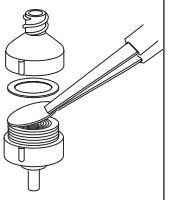
4. For the Sterifil® system, press the filter holder down onto the neck of the receiver flask. Twist the base to help seal it and make sure it sits evenly all the way around.

   For the Sterifil® filter holder, go to step 5.



Aseptic Filtration	Nonsterile Filtration
5. 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 nonabsorbent cotton.	If using the Sterifil® system, cover the short side-arm of the receiver flask with a rubber cap. **Optional:** For particulate-free venting, assemble and install a 13 mm Swinnex® filter holder as indicated in the next step. For the Sterifil® system, go to the "Using the Sterifil® System" section. For the Sterifil® Filter Holder, go to the "Using the Sterifil® Filter Holder with a Vacuum Flask and Manifold" section.
6. Use the Swinnex® 13 mm filter holder on the funnel cover as a vent filter to maintain aseptic conditions. Unscrew the Swinnex® filter holder cap from the base. Using forceps, place a 0.2 mm hydrophobic filter (Durapore® filter, cat. no. GVHP01300 or Fluoropore™ filter, cat. no. FGLP01300) on the base. Place the white silicone rubber gasket on the membrane filter. Screw the Swinnex® cap back onto the base. **NOTE:** If you are going to autoclave the Swinnex® filter holder, tighten just until the threads engage, then fully tighten after autoclaving when components have cooled to room temperature.	If required, use the Swinnex® 13 mm filter holder on the funnel cover as a vent filter to ensure that incoming air is particulate-free. Unscrew the Swinnex® filter holder cap from the base. Using forceps, place a glass fiber filter (cat. no. AP2501300) on the base. Place the white silicone rubber gasket on the glass fiber filter. Screw the Swinnex® cap back onto the base.





NOTE: One Swinnex® 13 mm filter holder typically provides adequate venting, but two can be used if required. Insert the second Swinnex® filter holder into one of the other cover ports.

Assembling the Sterifil® System or Sterifil® Filter Holders, continued

Aseptic Filtration	Nonsterile Filtration
7. Insert the Swinnex® 13 mm filter holder, Luer end down, into the funnel cover port. Push it into the port as far as it will go to seal. Place the rubber caps over the remaining ports. Continue on to "Autoclaving the Sterifil® System or Filter Holder for Aseptic Filtration".	Insert the Swinnex® 13 mm filter holder, Luer end down, into the funnel cover port. Push it into the port as far as it will go to seal. Place rubber caps over the open cover ports.

Autoclaving the Sterifil® System or Sterifil® Filter Holders

NOTE: Do not follow these steps if you plan to filter samples using nonsterile technique. See the "Using the Sterifil® System" or "Using the Sterifil® Filter Holder with a Vacuum Flask and Manifold" section.

The assembled Sterifil® system and Sterifil® filter holder can be autoclaved with the filter in place.

1. For the Sterifil® system: Pour 1 mL of laboratory grade or sterile water into the receiver flask. Wrap the system in an autoclave pouch, autoclave paper, or nonwoven HDPE material.

   For the Sterifil® filter folder: Wrap the filter holder in an autoclave pouch, autoclave paper, or nonwoven HDPE material.

2. Autoclave the entire system for 30 minutes at 121 °C, 1 bar (250 °F, 15 psi [pounds per square inch]) with slow exhaust.

   CAUTION: To ensure accuracy of the autoclave cycle, follow the instructions provided with the autoclave.

3. Allow Sterifil® system or filter holder to cool completely before use. If autoclaving was performed with the filter in place, fully tighten filter holder base and funnel and Swinnex® 13 mm filter holder.

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

Using the Sterifil® System

This section describes aseptic and nonsterile filtration using the Sterifil® system after assembly. If performing aseptic filtration, complete these steps after autoclaving/sanitizing 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 Hydrosol™ Stainless Filter Holder (cat. no. XX2004720). Contact Technical Assistance for more information.

Aseptic Filtration	Nonsterile Filtration
1. Remove the nonabsorbent cotton from the long side-arm of the receiver flask and attach to vacuum source using appropriate tubing.	Connect the long side-arm to a vacuum source using appropriate tubing.

Using the Sterifil® System, continued

Aseptic Filtration	Nonsterile Filtration
2. 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 rubber port cap on one of the ports with 70% ethanol. Then, pierce the needle directly through the rubber cap and inject the sample.	Remove the funnel cover, pour the sample into the funnel, and replace the cover.
3. Apply vacuum (maximum 27.5 in. [700 mm] Hg) to filter the sample. Make sure that the entire sample filters through by running the vacuum for an additional 30 seconds after the funnel appears empty. **NOTE:** The short side arm can be used as a pour spout to remove filtrate when filtering larger volumes of liquid.	
Aseptic Filtration	**Nonsterile Filtration**
NOTE: If required by your method, rinse the filter holder funnel by injecting or pouring sterile water into the funnel to completely filter any sample residue.	**NOTE:** If required by your method, rinse the filter holder funnel by pouring water into the funnel to completely filter any sample residue.
4. Turn off the vacuum. Seal any open ports with the rubber caps.	Turn off the vacuum and if required, seal any open ports with rubber caps.
5. Relieve vacuum by removing tubing at vacuum source or venting through accessory equipment bleeder valve (see NOTE under Vacuum source on page 2).	
6. Once vacuum pressure has been relieved, grasp the receiver flask firmly with one hand and pull the filter holder assembly up with a twisting motion to separate.	
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.	Unscrew the funnel from the base. Use forceps to remove the filter. Transfer filter to appropriate media or examine filtrate as required by your application.

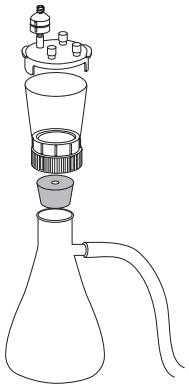
Using the Sterifil® Filter Holder with a Vacuum Flask or Manifold

This section describes aseptic and nonsterile filtration using the Sterifil® filter holder after assembly. If performing aseptic filtration, complete these steps after autoclaving/sanitizing the system. Use aseptic technique for all methods where organisms are being recovered.

⚠ **WARNING:** To avoid injury, do not use a Sterifil® filter holder with flammable liquids. Instead, use the Hydrosol™ Stainless Filter Holder (cat. no. XX2004720). Contact Technical Service for details.

Using the Sterifil® Filter Holder with a Vacuum Flask or Manifold, continued

1. Secure the assembled filter holder to a 1 liter vacuum filtering flask or to a manifold.



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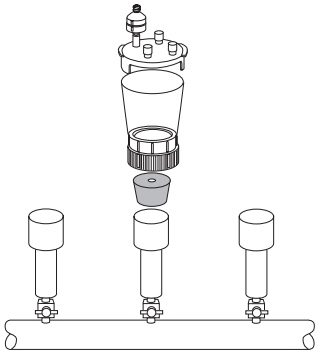

2. Connect the flask arm or manifold to a vacuum source using appropriate tubing.

Aseptic Filtration	Nonsterile Filtration
3. Lift the funnel cover aseptically, pour sample into the funnel, and immediately cover the funnel. **NOTE:** A sterilized hypodermic syringe can also be used to introduce the sample. Wipe the rubber port cap on one of the ports with 70% ethanol. Then, pierce the needle directly through the rubber cap and inject the sample.	Remove the funnel cover, pour the sample into the funnel, and replace the cover.

4. Apply vacuum (maximum 27.5 in. [700 mm] Hg) to filter the sample. Make sure that the entire sample filters through by running the vacuum for an additional 30 seconds after the funnel appears empty.

Aseptic Filtration	Nonsterile Filtration
NOTE: If required by your method, rinse the filter holder funnel by injecting or pouring sterile water into the funnel to completely filter any sample residue.	**NOTE:** If required by your method, rinse the filter holder funnel by pouring water into the funnel to completely filter any sample residue.
5. Turn off the vacuum. Seal any open ports with the rubber caps.	Turn off the vacuum and if required, seal any open ports with rubber caps.

6. Relieve vacuum by removing tubing at vacuum source or venting through accessory equipment bleeder valve (see NOTE under Vacuum source on page 2).

7. Once vacuum pressure has been relieved, grasp the vacuum filtering flask or manifold firmly with one hand and rock the filter holder assembly back and forth to separate.

Using the Sterifil® Filter Holder with a Vacuum Flask or Manifold, continued

Aseptic Filtration	Nonsterile Filtration
8. 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.	Unscrew the funnel from the base. Use forceps to remove the filter. Transfer filter to appropriate media or examine filtrate as required by your application.

Maintenance of the Sterifil® System or Sterifil® Filter Holder

Disassemble and clean the Sterifil® system or filter holder immediately after use to ensure optimum performance.

1. Disassemble the filter holder completely, carefully removing O-ring with forceps. Disassemble the 13 mm Swinnex® filter holder if used. Inspect all components for signs of damage. Debris embedded in surfaces can sometimes be dislodged without injuring the surface, but it is preferable to replace the damaged component.

   NOTE: To remove the membrane support screen (13 or 47 mm) for more thorough cleaning, insert a small diameter blunt probe through the outlet opening of the filter holder base and push the support screen out. Replacement support screens are available for the 47 mm filter holders. Refer to the Ordering Information section.

2. Clean all components thoroughly with a sponge, hot water, and a nonabrasive laboratory detergent. Scrub threaded parts, recesses, and orifices with a plastic bristle brush and use a pipe cleaner to remove contaminants from orifices.

   CAUTION: To avoid component damage, never use abrasive materials on any part of the filter holder.

3. Rinse all parts thoroughly with hot running water, then rinse several times with cold laboratory-grade water.

   CAUTION: Cleanser residue left on plastic surfaces can cause crazing or discoloration, especially with repeated autoclaving.

4. Allow the components to air dry while disassembled.

   CAUTION: Do not wipe dry with paper or cloth, as this leaves fibers and lint on the surfaces and also generates electrostatic forces that can attract more dirt. Filtered compressed air can be used to facilitate drying.

Specifications

Sterifil® filter diameter	47 mm
Sterifil® prefilter diameter	47 mm (membrane prefilter) or 42 mm (thick depth prefilter)
Swinnex® filter diameter	13 mm
Effective filter area	Sterifil® system: approximately 14.7 cm^2 (2.3 in^2) Sterifil® 250 mL filter holder: approximately 14.7 cm^2 (2.3 in^2) Sterifil® 500 mL filter holder: approximately 14.2 cm^2 (2.2 in^2) Swinnex® 13 mm filter holder: approximately 0.8 cm^2 (0.1 in^2)
Sterifil® funnel and bottle capacity	Sterifil® system funnel and bottle: 250 mL each Sterifil® 250 mL filter holder funnel: 250 mL Sterifil® 500 mL filter holder funnel: 500 mL
Dimensions (approximate)	Sterifil® system, 250 mL System height (with cap, excluding Swinnex® filter holder): 20.6 cm (8.1 in.) Filter holder height (with cap, excluding Swinnex® filter holder): 13.3 cm (5.2 in.) Filter holder diameter (with cap): 8.6 cm (3.4 in.) Receiver flask height (with cap): 9.4 cm (3.7 in.) Receiver flask diameter (excluding side-arms): 8.4 cm (3.3 in.)
	Sterifil® 250 mL filter holder Filter holder height (with cap, excluding Swinnex® filter holders): 13.3 cm (5.2 in.) Filter holder diameter (with cap): 8.6 cm (3.4 in.)
	Sterifil® 500 mL filter holder Height: 21.3 cm (8.4 in.) Diameter: 8.5 cm (3.3 in.)
Temperature limit	150 °C (302 °F)
Materials of construction	Sterifil® funnel, receiver flask, covers: Polysulfone Sterifil® filter holder base and support screen: Polypropylene Sterifil® O-ring and stopper: Silicone Port caps: Natural rubber Swinnex® 13 mm filter holder: Polypropylene Swinnex® 13 mm filter holder gasket: Silicone
Connections	Sterifil® system only: Side-arm ports on the receiver flask accept either 1/4 in. (6.4 mm) inner diameter tubing or male Luer connection (for vacuum and drain or vent). Sterifil® system and Sterifil® 250 mL funnel cover: Female Luer ports are used as aseptic inlets and for venting, and accept a male Luer connection or supplied rubber caps.
Pressure	Vacuum only, maximum 27.5 in. (700 mm) Hg

Ordering Information

This section lists catalogue numbers for the Sterifil® Aseptic System, Sterifil® 47 mm Filter Holder (250 mL), and Sterifil® 47 mm Filter Holder (500 mL). See the Technical Assistance section for contact information. You can purchase these products on-line at www.millipore.com/products.

Product Description	Cat. No.	Qty/Pk
Sterifil® Aseptic System, 47 mm	XX1104700	1
Sterifil® 47 mm Filter Holder, 250 mL	XX1104710	1
Sterifil® 47 mm Filter Holder, 500 mL	XX11J4750	1

Replacement Parts

Glass fiber prefilter, 13 mm	AP2501300	100
Durapore® 0.22 µm hydrophobic filter, 13 mm	GVHP01300	100
Fluoropore™ 0.2 µm hydrophobic filter, 13 mm	FGLP01300	100
Swinnex® 13 mm Filter Holder	SX0001300	10
Swinnex® 13 mm silicone gaskets	SX0001301	100
Sterifil® filter holder base with support screen	XX1104702	1
Sterifil® funnel cover	XX1104703	1
Sterifil® funnel	XX1104704	1
Sterifil® receiver flask	XX1104705	1
Sterifil® receiver flask cover	XX1104706	1
Silicone O-ring (for XX1104700 and XX1104710 only) **NOTE:** Replacement O-ring for XX11J4750 is size P41 and can be purchased from a local O-ring supplier.	XX1104707	10
Port caps, rubber	XX1104711	100
Support screen for 47 mm filter holder	XX1104715	1
Stopper, size 8, with 9.5 mm (0.375 in.) hole, silicone	XX2004718	5

Accessories

Vacuum filtering flask, 1 liter	XX1004705	1
Filter forceps, stainless steel, blunt end	XX6200006P	3
Tubing, 3/16 in. (4.8 mm) ID x 4.6 ft (140 cm), silicone	XX7100004	1
Hand vacuum pump, polypropylene	XKEM00107	1
EZ-Fit® Manifold, 3-place, stainless steel (lower profile)	EZFITL0W03	1
EZ-Fit® Manifold, 6-place, stainless steel (lower profile)	EZFITL0W06	1
EZ-Fit® Manifold, 3-place, stainless steel (higher profile)	EZFITH0LD3	1
EZ-Fit® Manifold, 6-place, stainless steel (higher profile)	EZFITH0LD6	1
Filter Holder Manifold, 6-place, stainless steel	XX2504700	1
Filter Holder Manifold, 3-place, stainless steel	XX2504735	1
Filter Holder Manifold, 3-place, polyvinyl chloride	XX2604735	1

Ordering Information, continued

Chemical Duty Pump, 115 V, 60 Hz	WP6111560	1
Chemical Duty Pump, 100 V, 50/60 Hz	WP6110060	1
Chemical Duty Pump, 220 V, 50 Hz	WP6122050	1

Technical Assistance

For more information, contact the office nearest you. In the U.S., call 1-800-645-5476. Outside the U.S., go to our web site at 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.

Standard Warranty

The applicable warranty for the products listed in this publication may be found at www.millipore.com/terms ("Conditions of Sale").