PALL Laboratory

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User Guide

Pall Laboratory Manifold

For laboratory use. Not for use in a manner other than indicated.

Introduction

Application and Intended Use

The membrane filter (MF) technique is a method of analyzing samples for microbial contamination. An aqueous solution is pulled through a membrane filter and the filter is placed on microbiology growth media then incubated. After a prescribed incubation period, colony forming units (CFUs) are counted and reviewed for appropriate morphology.

Bioburden testing of filterable products is performed to determine the number of viable and reproducible microorganisms. By recovering the microorganisms on and in a membrane filter, sterilization effectiveness can be calculated and raw materials are released to assure that the product is not harmful to the intended recipient.

Detecting spoilage microorganisms is critical for food and beverages as they are responsible for the deterioration of the sensory quality, visual changes and potentially render the product harmful to the intended recipient. By using membrane filtration, the recovery and detection of the spoilage microorganisms will keep the contaminated items from reaching the market.

Monitoring for the compliance of drinking water standards via plate counting (filtering), determines if there are levels of pathogenic microorganisms in treated water or wastewater. These microorganisms include coliforms such as *Escherichia coli* (E. coli) and *Legionella* which are both classified as pathogens.

The Pall Laboratory Manifold is uniquely designed for an easy adaptability to your microbiological method for the filtration of aqueous solutions by MF technique. The manifold features convenient interchangeable parts, a coupling device for modular connection as well as an attachment to any standard laboratory vacuum system. Thus providing maximum processing while maintaining compliance to regulatory standards.

Regulatory References

”For filtration, mount receptacle of filter holding assembly on a …suitable device (manifold to hold three to six filter assemblies) such that a pressure differential (34 kPa to 51 kPa) can be exerted on the filter membrane.” - Standard Methods for the Examination of Water and Wastewater, 22nd Edition, 922B (f).

Ordering Information

VWR Cat. No.	Pall Part Number	Description	Pkg
516-1038	4889	3 Place Manifold base 3 Manifold Valves 1 End Cap 1 Hose Barb Cap	1 set/pkg
516-1039	4890	MicroFunnel™ Filter Funnel Adapter	3 ea/pkg
516-1040	4891	Sentino® Filter Funnel Adapter	3 ea/pkg
516-1041	4892	Standard Adapter	3 ea/pkg
516-1042	4893	Coupling Device for Manifold	1 ea/pkg
516-1044	4959	Elongated Standard Adapter	3 ea/pkg

Accessories and Spare Parts

516-1037	4878	Spare O-ring Kit	1 set/pkg
516-1043	4894	Manifold Valves	1 ea/pkg

Dimensions and Materials of Construction

Dimensions

Material Description	Length	Width	Height	Weight
3-Place Manifold (with end cap and hose barb cap)	437.1 mm (17.2 in.)	152.4 mm (6.0 in.)	99 mm (3.9 in.)	1.71kg (3.76 lb)
Coupling Device	34 mm (1.34 in.)	31.8 mm (1.25 in.)	31.8 mm (1.25 in.)	70 g (0.15 lb)
MicroFunnel Filter Funnel Adapter*			117 mm (4.6 in.)	2.35 kg (5.17 lb)
Sentino Filter Funnel Adapter with frit*			112 mm (4.4 in.)	2.28 kg (5.02 lb)
Standard Tulip Adapter*			128 mm (5.06 in.)	2.05 kg (4.53 lb)
Elongated Tulip Adapter*			170 mm (6.7 in.)	2.21 kg (4.87 lb)

Materials of Construction

Material Description	Material
Piping, all adapters, End Cap, Hose barb Cap and Coupling Device	316 L Stainless steel
Valve Assembly	316 L Stainless steel
Valve Locking Collar and Knob	6061-T6 Anodized Aluminum
Valve O-rings	Fluorocarbon elastomer
Adapter O-rings	Fluorocarbon elastomer
Tube O-rings	Silicone

**Includes the manifold*

Safety Precautions

To protect personal safety and ensure correct use of this equipment, be sure to read and understand this guide before use. Failure to operate follow the operating instructions could result in personal injury and/or damage to the manifold.

Any misuse of the Pall Laboratory Manifold which is not specified in this user guide may result in damage to the manifold, may cause personal injury, and will void the product warranty.

Use of personal protective equipment (PPE) is strongly recommended when preparing, operating and maintaining the Pall Laboratory Manifold. PPE may include items such as eye protection, hearing protection, sterile gloves, heat tolerant gloves, or chemically resistant gloves.

Preparing System for Use and Maintenance

The Pall Laboratory Manifold is constructed from 316L stainless steel and is provided non-sterile. It is recommended to follow the steps below to aseptically prepare the manifold for testing of microbiological samples:

1. Rinse the manifold and all the components of the manifold with deionized (DI) or purified water to remove any large debris on the exterior and interior.
2. Use autoclave paper or autoclave bags, ensure the components and manifold will be protected from non-sterile air when removing from the autoclave.
3. Place inside of an autoclave in a validated load pattern to maximize the sterilization of the manifold and components.
4. Autoclave the manifold and components at a temperature between 121 – 123 ºC (250 - 253 ºF) at 1.0 bar (100 kPa, 15 psi) for 15 - 20 minutes.
5. After autoclaving is complete, allow all pieces to cool to a safe handling temperature or use personal protective equipment (PPE) to remove. Carefully remove the manifold and components ensuring to maintain the integrity of the autoclave paper/wrapping.
6. Store sterile manifold and components in a secure location to prevent breach of protective wrapping until manifold and components are ready for testing.

Pall Laboratory recommends following the steps below on a monthly basis, at minimum, to disinfect the manifold for testing microbiological samples.

1. Rinse the manifold and all the components of the manifold with deionized (DI) or purified water in a sufficient volume to remove any large debris on the exterior and interior.
2. With the vacuum turned off, fill the manifold with approximately 155 mL of disinfectant of choice. The amount used should be enough to fill the manifold, valve stems and valve assembly. Please see disinfectant instructions to determine the amount of contact time.
3. After disinfectant hold, rinse manifold from the adaptor with DI or purified water. Manifold valves are to be removed from the manifold or left in the open position to allow for air drying.

Additional Recommended Cleaning Methods:

1. Spray manifold components with water solution of 5% bleach, wait 10 minutes and rinse with water.
2. Spray manifold components with water solution of 35% hydrogen peroxide, wait 10 minutes and rinse with water.
3. Spray manifold components with water solution of 70% IPA, wait 24 hours and rinse with water

The instructions above for disinfection and sterilization of the Pall Laboratory Manifold are the manufacturing recommendations however, Pall Laboratory advises to follow your internal procedures and risk assessments for disinfection and sterilization.

***NOTE:** The use of Micro90 cleaning solution is not recommended as this will remove the anodization of the aluminum components.

The o-rings used in the Pall Laboratory Manifold have been tested for normal wear and tear. Pall Laboratory recommends to change out all o-rings on an annual basis however, Pall Laboratory advices to follow your internal procedures and risk assessments.

NOTE: DO NOT PUT IN DISHWASHER

While the new Pall Laboratory Manifold (PN 4889) and its related accessories are easy to disassemble and clean, they should not be put into the dishwasher or exposed to the high alkaline detergents that are used in automatic dishwashers. The anodized aluminum of the Pall Laboratory Manifold end-stands, valve handles and locking hubs cannot hold up to the harsh alkaline conditions.

System Operation

When using the manifold for microbiological analysis, it is recommended to prepare the manifold as described in the “Preparing System for Use” section and assemble aseptically inside of a classified Laminar Flow Hood (LFH) or Biological Safety Cabinet (BSC).

1. Obtain manifold(s) and all components required to operate the manifold.
   a. 3 valves per manifold
   b. 3 adapters per manifold*
   c. 1 hose barb end
   d. 1 flat end cap
   e. 1 coupler kit (if using more than one manifold at a time)*

*Sold separately from Pall Laboratory Manifold

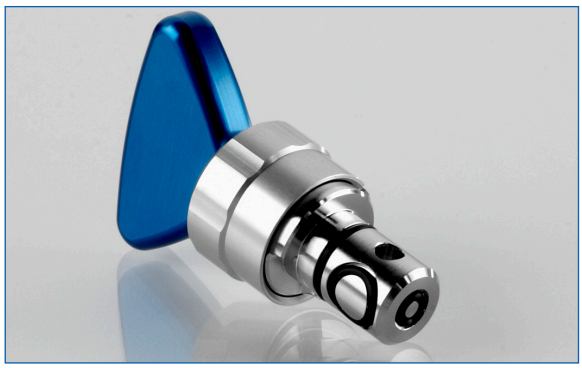


2. Slip on the end cap and hose barb end on either side of the manifold. Hose barb end should be closest to the vacuum source.





3. Locate groove at end of valve assembly, insert o-ring from bagged o-rings packaged in box along with valve assemblies. Repeat insertion of o-rings on the two remaining valves.



4. Insert a valve into the valve body until valve assembly stops. Ensure the cutout of the valve assembly is facing upwards and aligns with the pin.



5. Push the locking collar towards the valve body and rotate until bayonet fitting locks with the bottom pin.





6. Close the valve assembly by placing the knob in the horizontal position.



7. Repeat steps 3-5 for each additional valve.
8. Place appropriate adapter on each manifold. Adapter is chosen based upon the Pall microbiology device.



9. Place Pall microbiology device on adapter.



10. Turn on the vacuum source.



11. Aseptically pour the aqueous solution into the Pall microbiology device. Samples should be tested from cleanest to dirtiest as this will prevent cross-contamination by expected dirty samples.



12. Open the valve assembly by placing the knob in the vertical position.



13. Repeat steps 10-11 for the number of samples tested on the manifold.

14. When the aqueous solution has passed through the filter, close the valve assembly by placing the knob in the horizontal position.



15. Obtain the membrane as described by the Pall microbiology device and proceed accordingly for microbiological testing.
16. Remove spent Pall microbiology device from adapter and wipe with sterile 70% IPA or other approved disinfectant. Allow surface to dry before repeating steps 10-11.



17. After all testing is complete, tip the manifold towards the vacuum source to drain any remaining liquid then proceed as described in the “Preparing System for Use” section.

Troubleshooting

Problem	Corrective Action
O-rings are pinching during assembly/components not inserting properly	Allow manifold to return to room temperature after autoclaving
	Spray valve assembly with 70% IPA then assemble
	Replace O-rings
Fluid is not draining properly	Ensure Hose Barb cap is inserted with the hose barb at the bottom
	Verify tubing is not kinked or damaged
	Verify waste trap is not full
	Verify vacuum pump is functioning properly
Leaking of fluid at connection points	Verify all components are inserted correctly
	Replace O-rings
Fluid draining without vacuum turned on	Verify valve assembly is inserted correctly
	Spray valve assembly with 70% IPA then assemble
	Replace O-rings

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