

# Chemlock<sup>®</sup> Filter Manifold

*Installation and use manual*



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## INTRODUCTION

Entegris' Chemlock® filter manifold is a dual filtration head made on the same PTFE chassis for a large array of chemistries, Figure 1. This revolutionary manifold allows multiple bowl assemblies to occupy less space compared to the same number of individual Chemlock PFA head/bowl assemblies. It is intended to be used retroactively with existing Chemlock PFA filtration systems. The design allows for expansion and reduction, and can be modified easily to meet customer-specific filtration needs. Contact Entegris for more information.

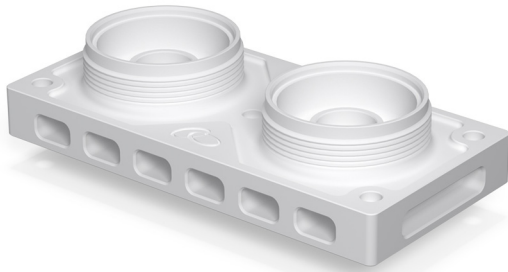


Figure 1. Chemlock filter manifold saves space and is easy to modify.

Our manifold offering includes 2-Up, 4-Up, and 6-Up configurations, Figures 2a, 2b, 2c. Each is available in a series or parallel plumbing orientation. This installation and use manual is for all Chemlock filter manifolds. Follow the instructions for your specific setup and skip ahead when instructed to do so.



Figure 2a. 2-Up manifold uses two Chemlock bowls and filters.

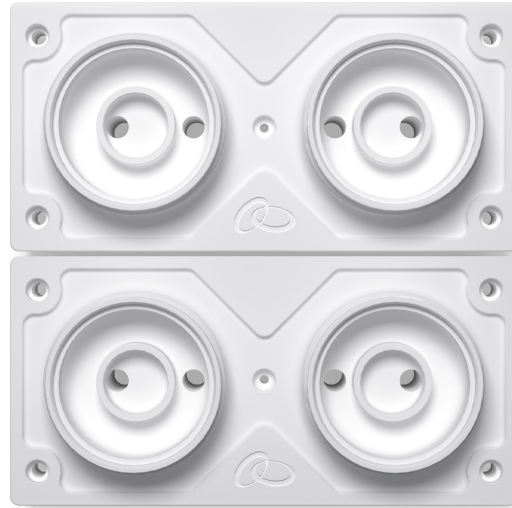


Figure 2b. 4-Up manifold uses four Chemlock bowls and filters.

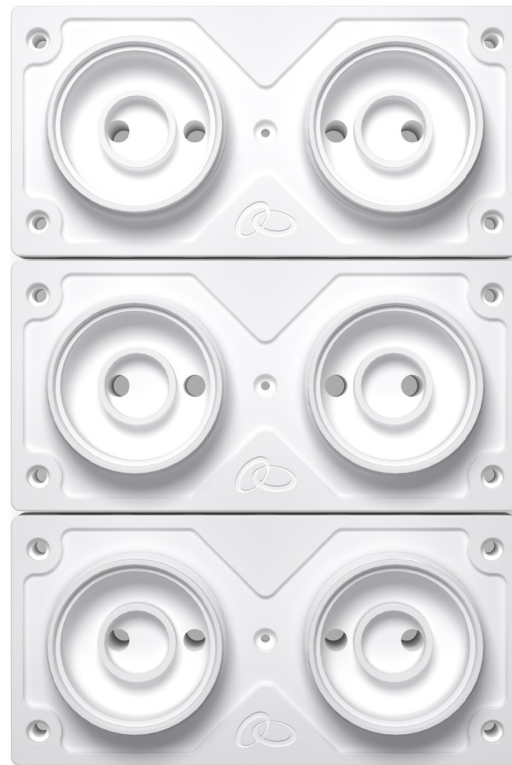


Figure 2c. 6-Up manifold uses six Chemlock bowls and filters.

## MOUNTING PROCEDURE

1. Orient the manifold with the Entegris logo facing upward as shown in Figures 2a, 2b, and 2c.
2. Mount the manifold using the four holes at the corners of each chassis. Figure 3a, 3b, and 3c provide mounting hole locations and dimensions.

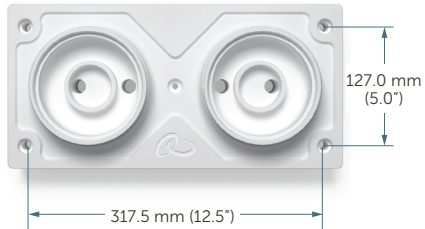


Figure 3a. Mounting hole dimensions for 2-Up configuration.

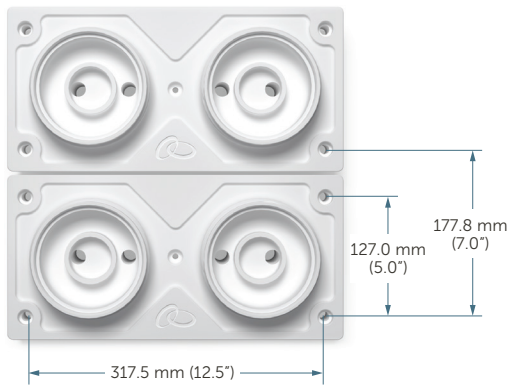


Figure 3b. Mounting hole dimensions for 4-Up configuration.

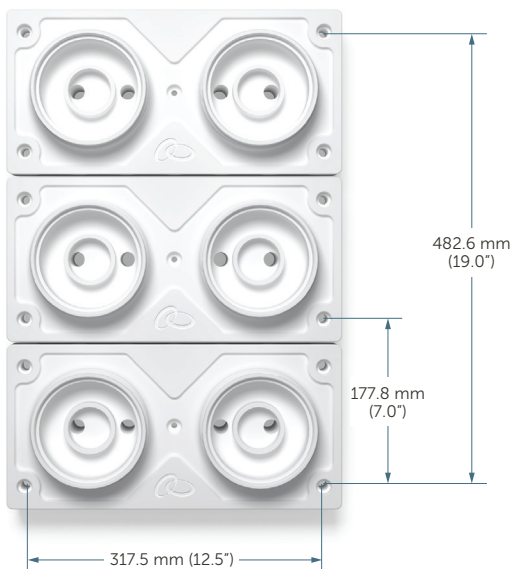


Figure 3c. Mounting hole dimensions for 6-Up configuration.

3. The four mounting holes are predrilled for  $\frac{3}{8}$ " diameter socket head cap screws. The holes are recessed for the cap screw to sit below the top surface and allow clearance for the Chemlock torque wrench.

**NOTE: Use a  $\frac{5}{16}$ " Allen wrench to install the  $\frac{3}{8}$ " screw.**

4. If mounting the manifold on a Chemlock filter manifold rack system, see Figure 4a. The system pivots to allow easy installation and access to the plumbing, Figure 4b.



Figure 4a. Manifold mounting rack system for 6-Up manifold.

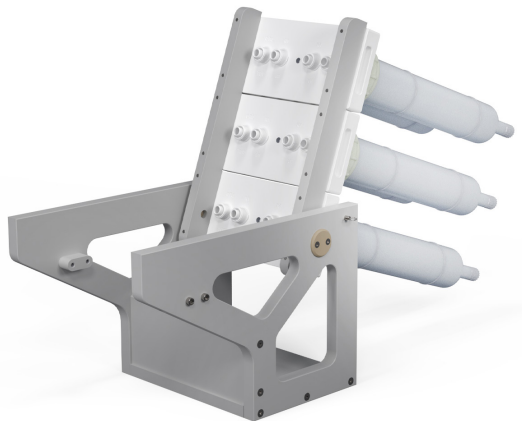


Figure 4b. Manifold rack system pivot feature allows easy access.

5. If using a rail or frame mount, the minimum clearance between the inner face of the rails to allow access for plumbing installation is 29.2 cm (11.5").

6. If using an Entegris rack system, the mounting holes will be predrilled and threaded for  $\frac{3}{8}$ "-16 (course) socket head cap screws.

**NOTE: Entegris recommends using stainless steel screws to avoid corrosion. We also recommend 2.25" to 3.5" bolts to provide a minimum 1" engagement to the manifold rack and a maximum that will not protrude from the rack.**

7. Secure and level the racking/mounting surface with sufficient capacity to hold 250 lbf of vertical load.
8. Always install the farthest manifold first, followed by the next nearest manifold, etc. until all manifolds are installed.
  - a. Begin by inserting a single bolt into one of the four holes and aligning with the mounting hole/rail. Do not tighten fully to allow wiggle room to install the other three bolts.
  - b. Leave all manifold mounting bolts slightly loose to ease plumbing installation.
  - c. Leave all bowls and filters off until plumbing is mounted to the manifolds' inlet and outlet ports.
9. If using the Chemlock filter manifold rack system, pivot the rack upwards, Figure 4b, and proceed to plumbing instructions.

## PLUMBING INSTRUCTIONS

1. To ensure correct plumbing installation, carefully review the general plumbing layout based on the number of manifolds and the flow path chosen. It is important to make sure the plumbing chosen matches a configuration shown in Figures 5-10. If not, please contact Entegris.
  - a. The plumbing assemblies can be oriented as shown Figure 5-10, or rotated exactly  $180^\circ$  to face the opposite direction, however, if rotated, both inlet and outlet must flip, or they will interfere with each other.
  - b. When rotating the plumbing, disconnect the plumbing from the Chemlock filter manifold(s) and reinstall  $180^\circ$  from the original orientation.
  - c. All manifold inlet and outlets are  $\frac{3}{4}$ " PrimeLock® connections. All plumbing main inlets are  $1\frac{1}{4}$ " PrimeLock connections.

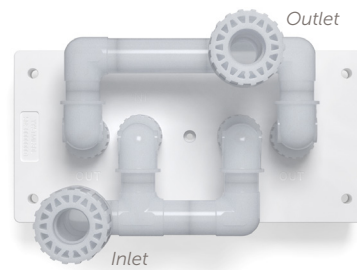


Figure 5. 2-Up filter manifold with parallel plumbing.

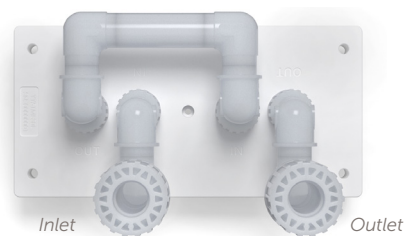


Figure 6. 2-Up filter manifold with series plumbing.

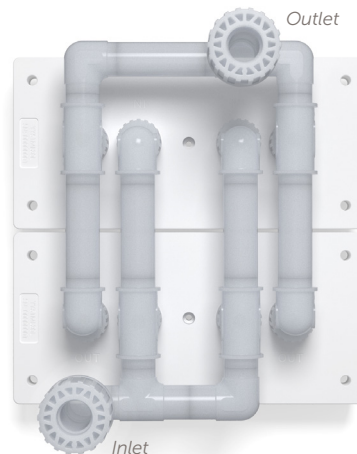


Figure 7. 4-Up filter manifold with parallel plumbing.

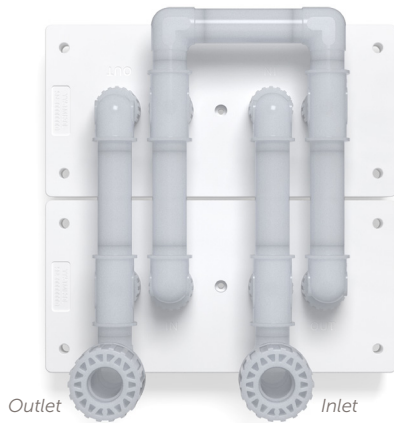


Figure 8. 4-Up filter manifold with series plumbing.

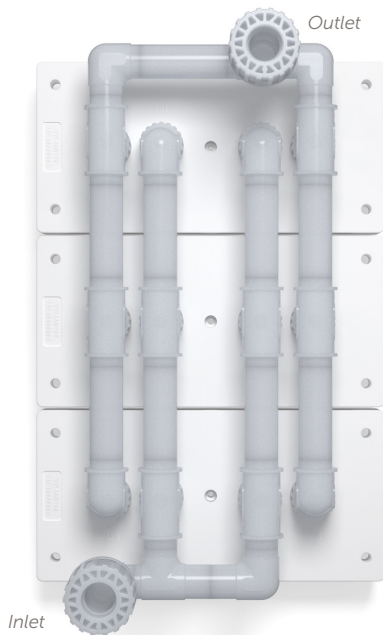


Figure 9. 6-Up filter manifold with parallel plumbing.

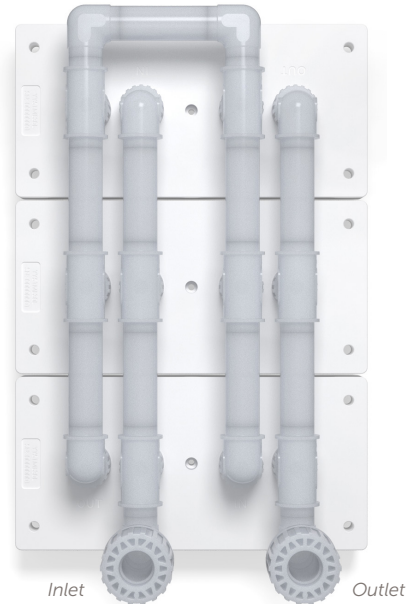


Figure 10. 6-Up filter manifold with series plumbing.

- d. Before installing any plumbing assembly, ensure each port on the bottom of all the Chemlock filter manifolds has a PrimeLock connection verification ring.

**NOTE:** Without a PrimeLock connection verification ring, a fitting can be installed incorrectly, allowing potential leaks. Visit our web site for a PrimeLock fitting introduction, <https://www.entegris.com/en/home/resources/reference-materials/videos/av-primelock-fitting-introduction.html>

- e. Install the plumbing components starting with the outer most pipe assembly, Figures 11 and 12.

**NOTE: The piping order is the same for 2-Up, 4-Up, and 6-Up configurations.**

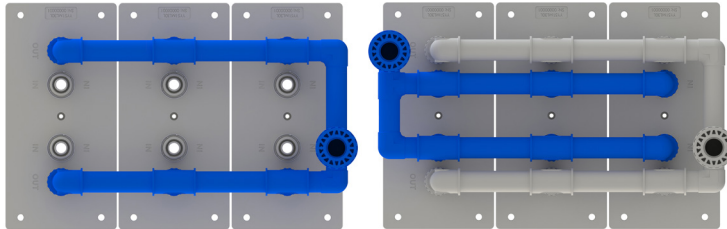


Figure 11. Assembly order for parallel plumbing configuration, left to right.

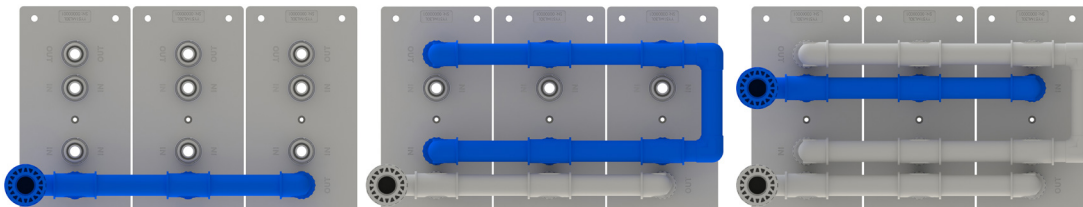


Figure 12. Assembly order for series plumbing configuration, left to right.

- f. Firmly insert each connection into its corresponding mate on the manifold and begin hand starting each PrimeLock fitting at each port to ensure no cross-threading occurs (approximately  $\frac{1}{2}$  to 1 rotation).

**NOTE: The Chemlock filter manifolds should not be anchored/tightened to the rack/rail system yet to allow some movement/wiggle room for installing the plumbing assemblies. Once the plumbing assemblies are fully installed, then the Chemlock filter manifolds can be secured tightly to their rack/rail system.**

- g. Hand tighten each fitting evenly, alternating ports during installation, i.e., approximately one turn at a time to avoid fully connecting any single PrimeLock fitting before starting another on the same plumbing assembly, Figure 13.

**NOTE: Installing the plumbing assembly evenly avoids putting unnecessary stress on the pipe and connections.**



- h. Repeat the cycle as follows: one turn fitting 1, one turn fitting 2, one turn fitting 3, one turn fitting 4, one turn fitting 5, and one turn fitting 6. Repeat until all the fittings are appropriately installed.



Figure 13. PrimeLock fitting installation example.

- i. Use the corresponding PrimeLock wrench (PWR-KIT), tighten the fittings until the PrimeLock connection verification rings are engaged. The manifold to plumbing ports are  $\frac{3}{4}$ " PrimeLock and the plumbing to machine ports are  $1\frac{1}{4}$ " PrimeLock connections.
- j. Repeat the plumbing installation steps for the remaining plumbing assemblies.
- k. After all plumbing is installed, proceed to bowl and filter installation.

## BOWL AND FILTER INSTALLATION

To ensure a leak-free seal, it is vital you follow the instructions from the Chemlock housing installation manual to properly finish this installation. <https://author-entegris-prod4.adobemebasic.com/editor.html/content/entegris-blueprint/en/home/resources/technical-information/chemlock-filter-housing-technical-information/chemlock-filter-housing-bowl-installation.html>

Congratulations on successfully installing the Chemlock filter manifold. Contact Entegris if you have questions.

### LIMITED WARRANTY

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#### Corporate Headquarters

129 Concord Road  
Billerica, MA 01821  
USA

#### Customer Service

Tel +1 952 556 4181  
Fax +1 952 556 8022  
Toll Free 800 394 4083

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