



## CHEMLOCK® PFA AND PP FILTER HOUSINGS

*Installation and use manual*



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## Introduction


Entegris' Chemlock® PFA and PP housings offer a space-saving solution like no other cartridge filter housing available today. These revolutionary housings lock the cartridge into the bowl, allowing the bowl and cartridge to be removed as a single unit.

## Safety

Special considerations and precautions are included in the manual, as described below. Contact Entegris with any questions regarding the safe and proper use of your equipment.

-  **DANGER!** Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
-  **WARNING:** Indicates a potential hazardous situation that, if not avoided, could result in death or serious injury as well as irreparable damage to the equipment.
-  **CAUTION:** Indicates a potential hazardous situation that, if not avoided, could result in minor to moderate injury as well as minor to moderate damage to the equipment.

 **WARNING:** Only technically qualified personnel should install the housing.

 **WARNING:CHEMICAL HAZARDS DOUBLE-CONTAINMENT** is required when used with toxic and hazardous chemicals. All filter housings, filters and other pressurized vessels must be double-contained to prevent serious personal injury.



**SAFETY CLOTHING**, eye protection and safety apparatus appropriate for the liquids in use must be worn during component changeout and startup. Perform all operations with standard liquid handling procedures in accordance with all local codes for safety and ventilation.

## Specifications

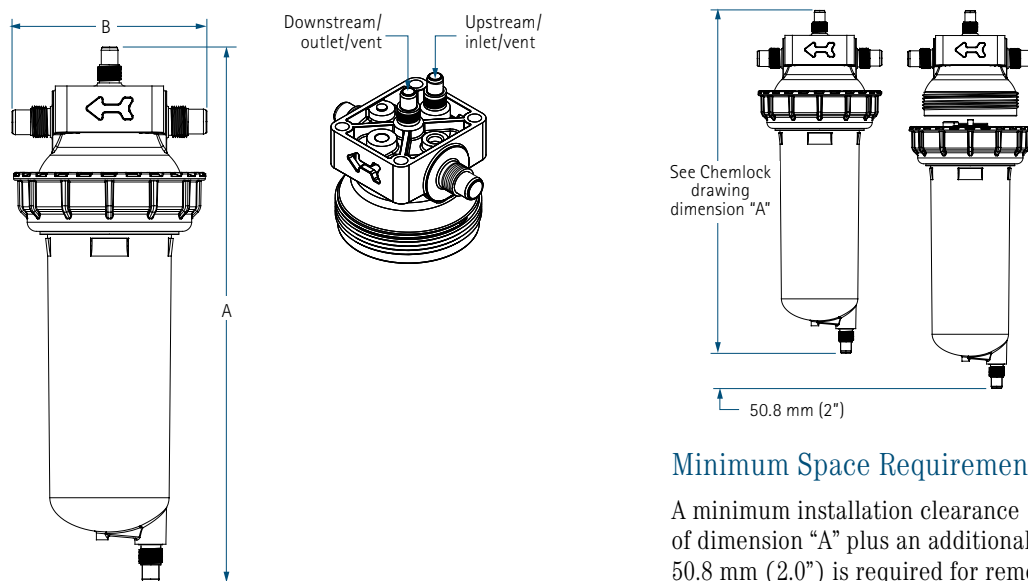
### PFA Housing

|                        |  |  |
|------------------------|--|--|
| Materials:             | Head, molded-on fittings, bowl, plugs                | PFA 440 HP or equivalent   |
|                        | O-ring   | E-FKM  |
|                        | Locking ring (nonwetted part)                        | PVDF or GFPP (glass-filled polypropylene)  |
|                        | Mounting hardware – nuts and bolts (nonwetted parts) | PVDF   |
| Fluid connections:     | See data sheet                                       |  |
| Cartridge connections: | Code 0 (dual 2-222 o-rings)                          |  |
| Operating conditions:  | Maximum inlet pressure                               | 0.3 MPa (3.0 bar, 43 psi) @ 100°C (212°F)<br>0.75 MPa (7.5 bar, 110 psi) @ 25°C (77°F) |
|                        | Maximum operating temperature                        | 100°C (212°F)  |

### PP Housing

|                        |   |   |
|------------------------|---|---|
| Materials:             | Head and bowl   | Polypropylene (PP)  |
|                        | O-ring  | 2-345 EPR   |
|                        | Locking ring  | PVDF (nonwetted part)   |
| Fluid connections:     | FNPT, Flaretek®, union, Rc, or see data sheet         |   |
| Cartridge connections: | Code 0, 2-222 o-ring and Chemlock cartridges with key |   |
| Operating conditions:  | Maximum inlet pressure                                | 0.14 MPa (1.4 bar, 20 psi) @ 90°C<br>0.69 MPa (6.9 bar, 100 psi) @ 25°C |
|                        | Maximum operating temperature                         | 90°C (194°F)  |

## Dimensions



### Minimum Space Requirements

A minimum installation clearance of dimension "A" plus an additional 50.8 mm (2.0") is required for removal and installation of Chemlock cartridges.

### PFA Housing

| Inlet/Outlet   | Vent/Drain     | Dimensions    |                 |                 |
|----------------|----------------|---------------|-----------------|-----------------|
|                |                | B             | A (11" Housing) | A (20" Housing) |
| 3/4" Flaretek  | 1/4" Flaretek  | 156 mm (6.2") | 450 mm (17.7")  | 696 mm (27.4")  |
| 3/4" Flaretek  | 1/2" Flaretek  | 156 mm (6.2") | 434 mm (17.1")  | 681 mm (26.8")  |
| 1" Flaretek    | 1/2" Flaretek  | 168 mm (6.6") | 434 mm (17.1")  | 681 mm (26.8")  |
| 3/4" pipe      | 1/4" pipe      | 201 mm (7.9") | 416 mm (16.4")  | 663 mm (26.1")  |
| 3/4" pipe      | —              | 201 mm (7.9") | 398 mm (15.7")  | 644 mm (25.4")  |
| 3/4" NPT       | 1/4" NPT       | 134 mm (5.3") | 378 mm (15.0")  | 622 mm (24.5")  |
| 3/4" Super*    | 1/2" Super*    | 178 mm (7.0") | 431 mm (17.0")  | 683 mm (26.9")  |
| 1" Super*      | 1/2" Super*    | 156 mm (6.1") | 431 mm (17.0")  | 683 mm (26.9")  |
| 3/4" S300**    | 1/2" S300**    | 170 mm (6.7") | 431 mm (17.0")  | 678 mm (26.7")  |
| 1" S300**      | 1/2" S300**    | 152 mm (6.0") | 431 mm (17.0")  | 678 mm (26.7")  |
| 1" S300**      | 1/4" S300**    | 170 mm (6.7") | 438 mm (17.2")  | 686 mm (27.0")  |
| 3/4" S300**    | 1/4" S300**    | 152 mm (6.0") | 438 mm (17.2")  | 686 mm (27.0")  |
| 1" PrimeLock®  | 1/4" PrimeLock | 222 mm (8.7") | 444 mm (17.5")  | 694 mm (27.3")  |
| 3/4" PrimeLock | 1/4" PrimeLock | 212 mm (8.4") | 444 mm (17.5")  | 694 mm (27.3")  |

### PP Housing

|            |            |               |                |                |
|------------|------------|---------------|----------------|----------------|
| 3/4" FNPT  | 1/4" NPT   | 137 mm (5.4") | 396 mm (15.6") | 646 mm (25.4") |
| 3/4" flare | 1/2" Flare | 163 mm (6.4") | 450 mm (17.7") | 700 mm (27.5") |
| 3/4" Rc    | 1/4" Rc    | 137 mm (5.4") | 396 mm (15.6") | 646 mm (25.4") |
| 1" union   | 1/4" NPT   | 203 mm (8.0") | 396 mm (15.6") | 646 mm (25.4") |

\* Super Type Pillar® fitting

\*\* Super 300 Type Pillar fitting

# Installation

## Facility Requirements

Housing should be plumbed with ability to isolate both upstream and downstream flows as required for filter changeout.

## Mounting

### PFA Housing

Components are double-wrapped for cleanroom use. Handle components according to your cleanroom procedures.

### Suggested Mounting Method #1: Customer-supplied Mounting Plate

1. Use screws and nuts (part no. YY5600010) to secure the housing head to your equipment or facility mounting bracket (Figure 1).
2. The Chemlock PFA housing can be installed either bowl **UP** or bowl **DOWN**.

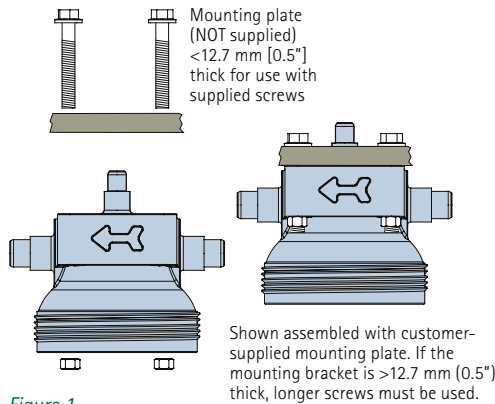
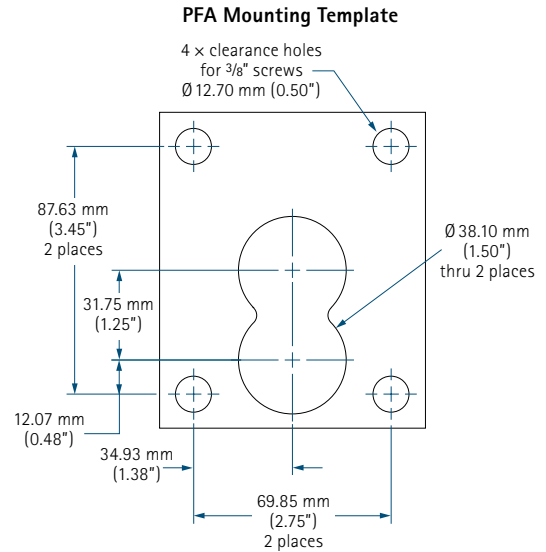


Figure 1.

### MOUNTING BRACKET TEMPLATE

Use Figure 2 as a guide for drilling holes into a customer-supplied mounting plate, when mounting the Chemlock PFA head.

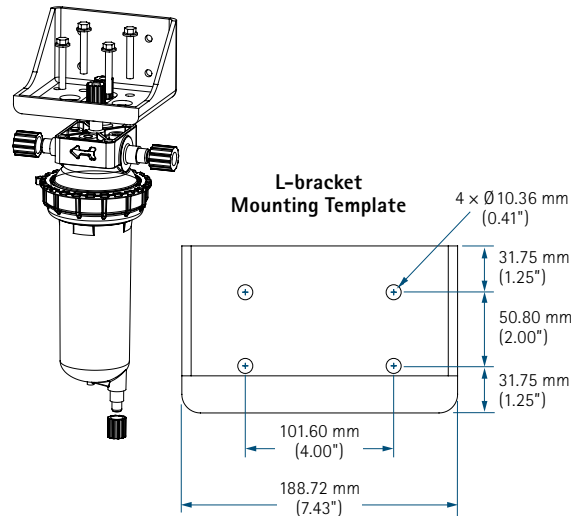


Mounting template detail for reference only. Not shown to scale

Figure 2. Chemlock PFA mounting template

### Suggested Mounting Method #2: L-bracket Mounting

1. Use screws and nuts (part no. YY5600010) to secure the housing head to the L-bracket (part no. YY4610190,) available from Entegris (Figure 3). The Chemlock PFA housing can be installed either bowl **UP** or bowl **DOWN**.



Mounting template detail for reference only. Not shown to scale

Figure 3.

**PP Housing**

Components are double-wrapped for cleanroom use. Handle components according to your cleanroom procedures.

**Suggested Mounting Method #1:  
Customer-supplied Mounting Plate**

1. The Chemlock PP housing head has four M12 × 1.75 threaded holes for mounting (Figure 4). Determine the length and type of bolts to secure the housing head to your equipment or facility mounting bracket. Bolts are not provided.
2. The Chemlock housing can be installed either bowl **UP** or bowl **DOWN**.

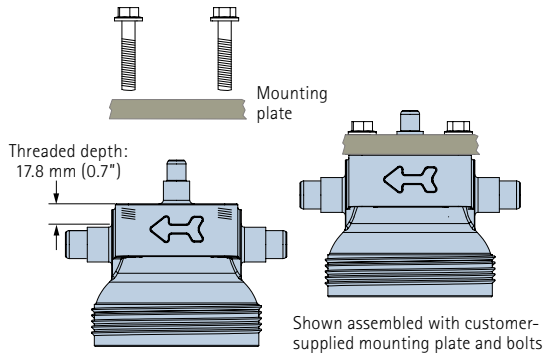


Figure 4.

**MOUNTING BRACKET TEMPLATE**

Use Figure 5 as a guide for drilling necessary holes into a customer-supplied mounting plate, when mounting the Chemlock PP head.

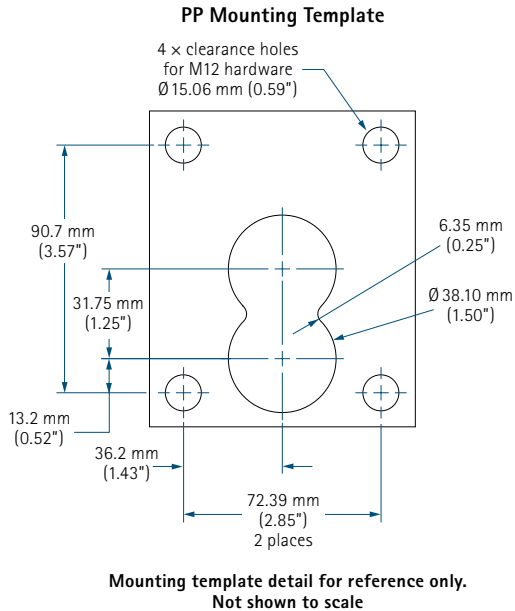


Figure 5. Chemlock PP mounting template

**Suggested Mounting Method #2:  
L-bracket Mounting**

1. Use screws and nuts to secure the housing head to the L-bracket (part no. YY66BRACK) (Figure 6). The Chemlock PP housing can be installed either bowl **UP** or bowl **DOWN**.

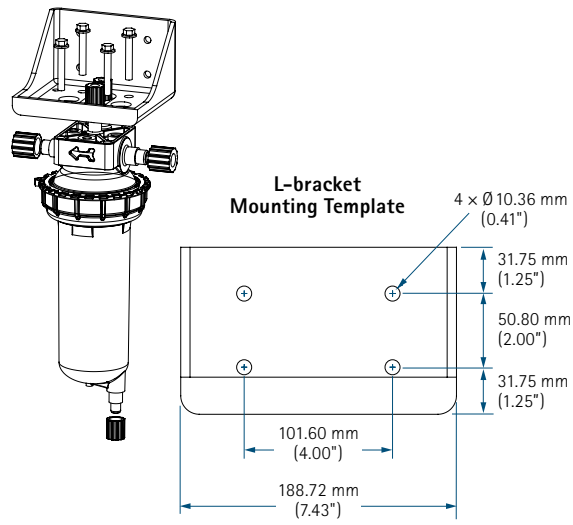


Figure 6.

## O-ring Installation and Removal

**CAUTION:** Replace the o-ring every time the housing is opened.

1. Verify that the o-ring is installed in the housing. If not, properly seat an o-ring into the housing bowl, as described below.
2. Prewet the housing o-ring with a fluid compatible with your process chemical (such as DI water, IPA, etc.) to aid in installation and ensure a proper seal.
3. For best results when using E-FKM o-rings, heat the o-ring to 60°C prior to installation. Heat the o-ring by immersing in hot water for 2 minutes, or by placing the o-ring 25 mm (1") below a 250-watt heat lamp for 1 minute. Install the o-ring while it is still warm.
4. For all housings, handle the o-ring with care. Insert the o-ring into the groove and push the o-ring securely and evenly in place. **DO NOT** roll or twist the o-ring.
5. To remove the old o-ring, slide the hook end of the housing wrench tool under the o-ring, then slide the tool around the bowl.

**CAUTION:** Use caution when removing the o-ring. Contacting the o-ring seal areas with the removal tool can damage the sealing surface.

To view a video showing correct procedures for o-ring replacement and housing installation, go to [www.entegris.com](http://www.entegris.com) in the Chemlock Housing section.



*Installation of the o-ring onto the Chemlock housing using clean gloves to minimize possibility of contamination.*



*Removal of o-ring from Chemlock housing using the hook on the housing wrench.*

### Install the Filter

Install a filter in the housing bowl and tighten the bowl to the housing head:

1. Cut open the bottom of the bag only.



2. To ensure cleanliness, hold the cartridge by the bag, and insert it into the housing bowl.



3. Using the end of the bag, the two finger tabs on the key can be used to turn the cartridge ¼ turn; then lock the cartridge in place.

**NOTE:** Lock the cartridge in place by turning it clockwise.



4. Attach and tighten the bowl to the housing head. The housing can be mounted in either a bowl **Up** or bowl **Down** position.



5. Adjust the torque setting to 45 N•m if using an E-FKM o-ring. For other o-ring types, 28.5 N•m.



Once set, twist the lever at the end of the wrench clockwise to **LOCK** the setting in place.





6. Tighten the housing ring until the torque wrench clicks. Stop and retighten until another click is heard.



7. Wait 5 minutes before continuing. After waiting 5 minutes, retighten the locking ring according to the previous step (#6.) You may see the locking ring move again. This is normal.
8. Reset the torque setting to 10 N•m for storage.



### Housing Integrity Testing

Prior to usage, the piping system should be tested to check for leaks. Follow your facility leak checking protocols.

**WARNING:** IF SYSTEM IS SHUT DOWN, IT IS NECESSARY TO RETIGHTEN THE HOUSING (see previous steps) IN ORDER TO PREVENT LEAKS.

**CAUTION:** DO NOT tighten or adjust the plumbing at elevated temperatures (>100°C) as you may overtighten the fittings and create excessive stress and leakage either at elevated temperatures or during changes in system temperature.

**NOTE:** Yearly calibration of the wrench is recommended.

Include periodic seal integrity testing in your system's preventative maintenance schedule.

## Cartridge Removal

**WARNING:** Wear chemically-resistant garments and eye protection during cartridge changeout and startup.

1. Isolate and drain the housing. If necessary, allow the housing to cool to a workable temperature.
2. Use the housing wrench to loosen the housing ring.



3. Remove the bowl from the head.



4. Turn the cartridge key to unlock the cartridge from the bowl.



5. Lift the cartridge out of the bowl or tip the bowl to gently slide the cartridge out of the bowl.



To view a video showing correct procedures for o-ring replacement and housing installation, go to [www.entegris.com](http://www.entegris.com) in the Chemlock Housing section.

## Ordering Information

Chemlock cartridges are compatible with the Chemlock PFA and Chemlock PP housings. Cartridges can be ordered by adding either a “K” or a “Y” to the end of a standard cartridge catalog number, depending on the product family. Standard cartridges (without the key) are still available under their usual catalog number.

Any standard 10" Code 0 cartridge can be used with the universal Chemlock housing. Only Entegris' Chemlock cartridges can utilize the cartridge locking mechanism. Use of a Chemlock key or any other key with a third party cartridge shall void the warranty of the housing and may infringe one or more of Entegris' pending or issued U.S. and foreign patents. Such patents and warranty do not apply to use of third party cartridge without any key.

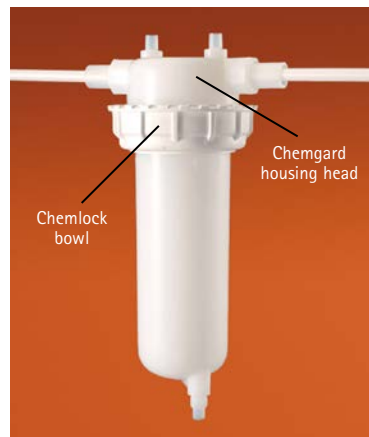
Refer to [www.entegris.com](http://www.entegris.com) for ordering information.

## Accessories

| Part Number | Description   |
|-------------|---|
| YY4600005   | Chemlock integrated housing wrench  |
| YY4600006   | Chemlock housing wrench head  |
| YY5600010   | Mounting hardware kit:<br>(4) PVDF $\frac{3}{8}$ " – 16 × 2.5" (63.5 mm) hex head cap screw<br>(4) PVDF nuts $\frac{3}{8}$ " – 16 |
| YY4610190   | PVDF L-mounting bracket (use for both Chemlock and Chemgard PFA housings)   |
| YY66BRACK   | PP L-mounting bracket (use for both Chemlock PP and Chemgard PFA housings)  |

### Chemlock bowls are easily retrofitted to Chemgard™ housings.

PFA Chemlock bowls are designed to fit with Entegris T-line PFA Chemgard heads. Also, Chemlock PP bowls are designed to fit with Entegris T-line PP Chemgard heads. An installed Chemgard housing may be retrofitted with a Chemlock bowl and cartridge. However, the Chemlock PFA and Chemlock PP are not interchangeable with each other.



## For More Information

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [www.entegris.com](http://www.entegris.com) and select the Customer Service link for the center nearest you.

## Terms and Conditions of Sale

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, *visit [www.entegris.com](http://www.entegris.com)* and select the Legal Notices link from the footer.

## Product Warranties

For Product Warranties, visit [www.entegris.com](http://www.entegris.com) and select the Legal Notices link from the footer.

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### ENTEGRIS, INC.

Corporate Headquarters | 129 Concord Road | Billerica, MA 01821 USA  
Customer Service Tel. +1 952 556 4181 | Customer Service Fax +1 952 556 8022  
In North America 800 394 4083 | [www.entegris.com](http://www.entegris.com)