



**CHEMGARD™ FILTER HOUSINGS**

*Installation and use manual*



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## Introduction


Chemgard™ filter housings are designed to meet high-purity standards for process fluids. The smooth surfaces of the Chemgard filter housings work well in environments where low particle contamination is essential, and the



durable torsion-free seal and leakproof design ensure reliable operation. Read this manual for instructions on how to install and use Chemgard filter housings, along with product specifications and ordering information.

## 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

### Chemgard PVDF

Materials:	Head and bowl	Polyvinylidene fluoride
	Locking ring	PVDF (nonwetted part)
	O-ring	2-345 Viton®
Fluid connections:	See data sheet	
Cartridge connections:	Code 0, 2-222 o-ring and Chemlock® cartridges with key	
Operating conditions:	Maximum static inlet pressure	0.3 MPa (3.0 bar, 43 psi) @ 100°C (212°F)
		1.0 MPa (10 bar, 145 psi) @ 25°C (77°F)
	Maximum operating temperature	100°C (212°F)

### Chemgard PP

Materials:	Head and bowl	Polypropylene
	Locking ring	PVDF (nonwetted part)
	O-ring	2-345 Viton
Fluid connections:	See data sheet	
Cartridge connections:	Code 0, 2-222 o-ring and Chemlock cartridges with key	
Operating conditions:	Maximum static inlet pressure	0.14 MPa (1.4 bar, 20 psi) @ 90°C (194°F)
		0.7 MPa (7 bar, 100 psi) @ 25°C (77°F)
	Maximum operating temperature	90°C (194°F)

### Chemgard In-line PFA Housings

Materials:	Head and bowl	Teflon® fluoropolymer PFA 440 HP or equivalent
	Locking ring	PVDF or GFPP (nonwetted part)
	O-ring	Encapsulated fluoropolymer (E-FKM)
Fluid connections:	See data sheet	
Cartridge connections:	Code 0, 2-222 o-ring and Chemlock cartridges with key	
Operating conditions:	Maximum static inlet pressure	0.3 MPa (3.0 bar, 43 psi) @ 100°C (212°F)
		0.75 MPa (7.5 bar, 110 psi) @ 25°C (77°F)
	Maximum operating temperature	100°C (212°F)

## Installation

### Facility Requirements

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

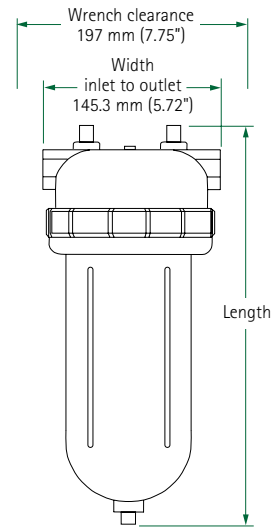
**NOTE:** To ensure proper tightness, use the Chemlock integrated torque wrench (part no. YY4600005) to tighten the housing. For E-FKM o-rings, tighten to 35 N•m. For all other o-ring types, set to 18.5 N•m.



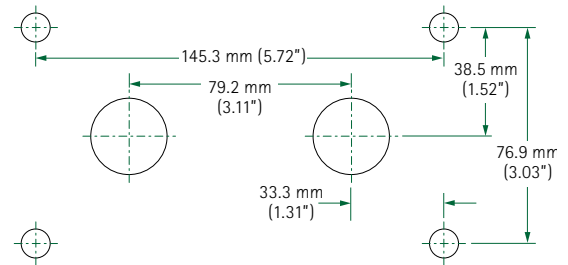
### PVDF Mounting Bracket Template

**NOTE:** For mounting bracket (part nos. YY4610190 or YY66BRACK). Mounting plate thickness **MUST NOT** exceed 0.9 cm (0.35"). For use with Entegris straps and bolts, (part no. YY3610180).

#### Chemgard PVDF Housing Assembly



#### Chemgard PVDF Mounting Template



Mounting template detail for reference only.  
Not shown to scale

### Mounting Procedure

#### PVDF Housing

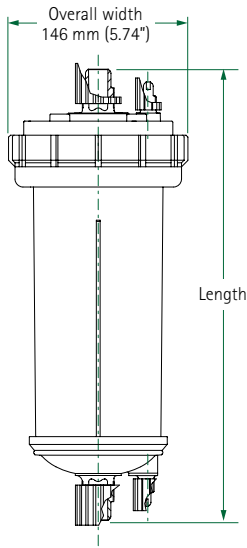
1. Install the mounting bracket upright or inverted.
2. Install the housing head on the mounting bracket. Use four 3/8-16 x 1" PVDF mounting screws.

### In-line Housings

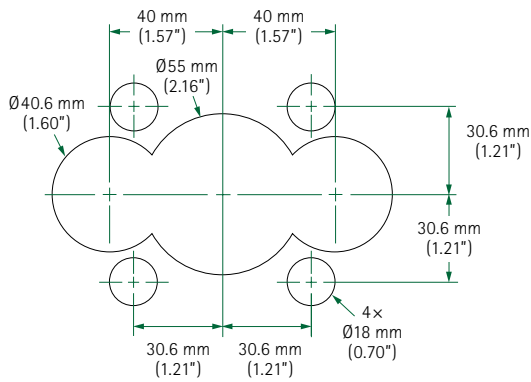
#### Minimum Space Requirements

All systems must have enough clearance below the bowl to allow for filter changeout. It is best to measure the length of the bowl and add enough room to enable easy changeout. Practice installing the bowl in a dry system to ensure sufficient space.

#### Chemgard In-line Housing Assembly



#### In-line Mounting Bracket Template



Mounting template detail for reference only.  
Not shown to scale

## Filter Changeout Instructions

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

**WARNING: CHEMICAL HAZARD**  
Perform all operations with standard liquid handling procedures in accordance with all local codes for safety and ventilation. You **MUST** wear appropriate clothing and safety apparatus for the liquids you are using. Wear chemical-resistant garments and eye protection during component changeout and startup.



**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.

1. Isolate and drain the housing. If necessary, allow the housing to cool to a workable temperature.
2. Use the housing wrench to remove the filter bowl, then remove the filter.



3. **OPTIONAL:** If you are using a hydrophobic filter, pre-wet the filter
4. Wet the filter o-ring with a wetting agent compatible with your process, then install the filter into the Chemgard head.

**CAUTION:** Push straight up to avoid damage to the o-ring and seal. **DO NOT** twist.



*Push straight up*

5. If necessary, remove the existing o-ring. Slide the o-ring removal edge 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.

6. Prepare the new housing o-ring for installation in the housing bowl:

**Kalrez® perfluoroelastomer, EPR or Viton fluoroelastomer o-rings:**

Pre-wet the o-ring with DI water or IPA.

**E-FKM o-ring:**

Heat the o-ring by immersing in hot water (50–60°C) for 2 minutes, or by placing the o-ring 25 mm (1") below a 250-watt heat lamp for 1 minute. Proceed to the next step while the o-ring is still warm.

**WARNING:** Use the correct o-ring type for your process. If necessary, consult Entegris Technical Service.

- Place the o-ring over the housing bowl and gently push the o-ring down into the groove. Use your fingers to gently press the o-ring into place.

**CAUTION:** DO NOT twist or roll the o-ring or leaking will occur.



*Press o-ring in place*

**8. IMPORTANT:**

If you are using an Entegris 10" filter in a 12" universal housing, you must install a spacer in the housing, prior to installing the cartridge. Drop the spacer into the bottom of the housing, or place the spacer on the end of the filter. (The spacer is NOT required for Guardian™ HPX, ATX; Etchgard™ HPX; Fluorogard® CF, ATX; and ProcessGard® CN and CR cartridges.)

- Slide the housing bowl over the filter and push so that the o-ring engages the housing head. Push the locking ring against the head to engage the threads, then hand-tighten.



*Push lock ring to engage threads*



*Hand-tighten*

**NOTE:** If this is not possible due to ergonomic constraints, the locking ring may be used to seat the o-ring.

- Place the bowl against the head and tighten the locking ring to hand-tight.
- Use the Chemgard/Chemlock wrench to tighten the locking ring and seat the o-ring. The head and bowl are self-aligning.
- Unscrew the locking ring and inspect the seal area to make sure the o-ring is seated in the head.
- Retighten the locking ring to hand-tight.
- Continue with step 10 to torque the locking ring to its seal specification.



10. To ensure proper tightness, use the Chemlock integrated torque wrench (part no. YY4600005) to tighten the housing. For E-FKM o-rings, tighten to 35 N•m. For all other o-ring types, set to 18.5 N•m.



**⚠ CAUTION: DO NOT exceed torque specifications.**

**11. IMPORTANT: For E-FKM o-rings:**  
If you have heated an o-ring, allow the housing to cool for 30 minutes, then re-tighten to the proper torque.

**⚠ WARNING: You must allow the o-ring to cool and then re-tighten the housing to prevent leaks.**

12. Leak test the housing:

- Close the drain.
- Open the downstream vent.
- Flow liquid through the inlet at low pressure (<1 L/min) until all the air is removed from the housing.
- Close the downstream vent.
- Increase inlet pressure to your system pressure.
- Flow at system pressure for five minutes as you check all seals for leaks.

If the housing leaks:

- Check the torque setting. If the leak persists, disassemble the housing and replace the bowl o-ring.

Check the locking ring torque for tightness if the housing is relieved of system pressure or if the system has been exposed to temperatures of 100°C or more.

**⚠ WARNING: DO NOT tighten or adjust the locking ring while the housing is pressurized or when the temperature exceeds 27°C.**

## Ordering Information

Part Number	Description
YY4600005	Chemlock integrated housing wrench
YY4600006	Chemlock housing wrench head
YY4610190	PVDF L-mounting bracket (for Chemlock and Chemgard PFA housings)
YY66BRACK	L-mounting bracket (can be used for mounting both Chemlock PP and Chemgard PP housings)
YY3610180	Mounting bolts and straps
YY5500005	PFA plugs, 1/4" NPTM, 4/pk
YY4510180	PFA cartridge o-ring adapter 2-222 to 2-118, 2/pk
YY4510140	10" PFA cartridge adapter (for 12" universal Chemgard bowl)
YY4622191	20" PFA cartridge adapter (for 22" universal Chemgard bowl)

*20" Chemgard" housings are compatible with all 20" cartridge filters and contain a cartridge adapter for use with Entegris cartridges. 12" housings contain a 10" cartridge filter adapter and are compatible with all 10" cartridges. 10" housings accommodate 10" cartridges up to 10.3".*

## 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

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