

Optimizer® ST2 Filter Manifold

Installation and use manual



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INTRODUCTION

The Optimizer® ST2 filter manifold is designed for use with Optimizer point-of-use (POU) liquid filters to minimize contamination risk when handling filter cartridges. Using Entegris' Connectology® technology, the Optimizer filter quickly connects and seals to the ST2 manifold, which enables rapid filter change-outs without tools or draining. By limiting hazardous chemical handling during installation, the filter manifold speeds up installation and reduces downtime while also increasing operator safety.

CAUTION: To reduce the safety risk of chemical leakage, carefully follow these instructions.

NOTE: The Optimizer ST2 filter manifold is designed and tested to be used with Entegris filters and flushing shell only. The warranty will be voided if it is used with non-Entegris products.

SPECIFICATIONS

Materials	Metal plates	Stainless steel
	Release tub	Polyacetal
	Connectors	PFA
	O-rings on manifold	OM: Kalrez®
Connections	Tube, Flowell® 60, Flowell 80EZ (See part number table for sizes.)	
Maximum operating conditions	Maximum operating pressure: 0.39 MPa (3.9 bar, 57 psi) at 25°C (77°F) Maximum operating temperature: 40°C (104°F)	

ORDERING INFORMATION

OPTIMIZER ST2 MANIFOLD

Quantity: 1 each/box

Tube Type (standard size)

Part number	Inlet/outlet	Vent port
AMVT442K1	12.7 mm (½") tube	6.35 mm (¼")
AMVT332K1	9.53 mm (⅜") tube	6.35 mm (¼")
AMVT222K1	6.35 mm (¼") tube	6.35 mm (¼")

Flowell 60 Elbow Type

AMVXL42KT	12.7 mm (½")	6.35 mm (¼")
AMVXL32KT	9.53 mm (⅜")	6.35 mm (¼")
AMVXL22KT	6.35 mm (¼")	6.35 mm (¼")

Flowell 80EZ Elbow Type

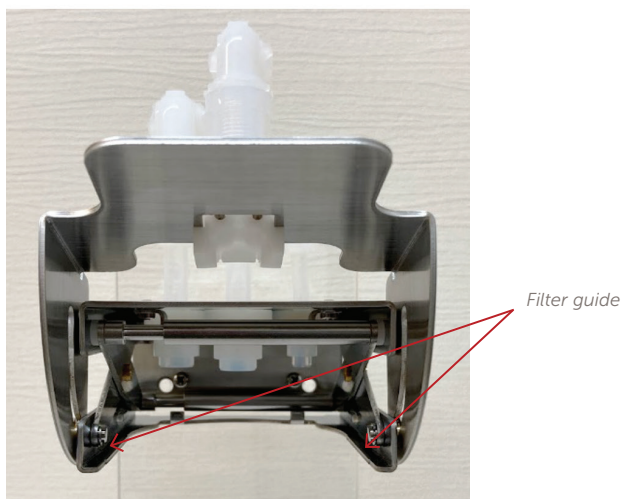
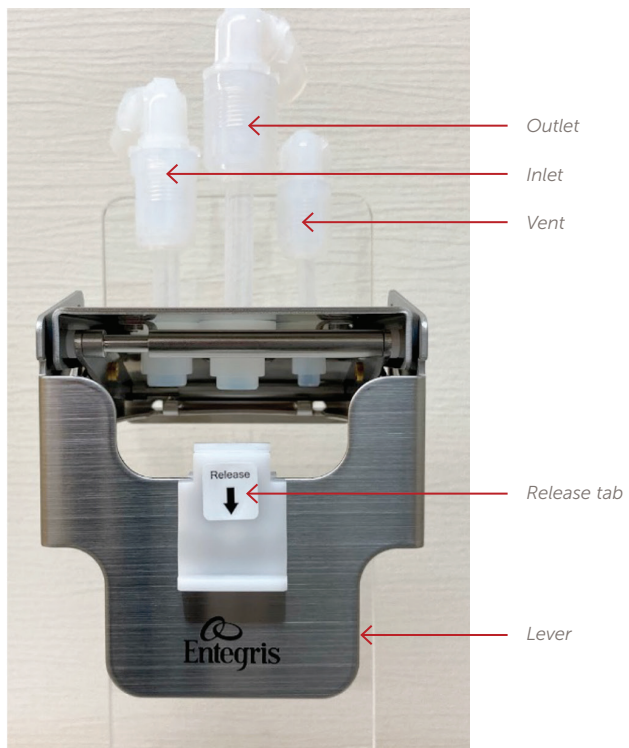
AMVZL42KT	12.7 mm (½")	6.35 mm (¼")
AMVZL32KT	9.53 mm (⅜")	6.35 mm (¼")
AMVZL22KT	6.35 mm (¼")	6.35 mm (¼")

Replacement O-ring

Part number	Description
10456J	Kalrez O-ring for ST2 manifold OM version, 10/bag

CAUTION: If higher pipeline tension is expected, it is recommended to use a double O-ring combination of the OM manifold and OF filter.

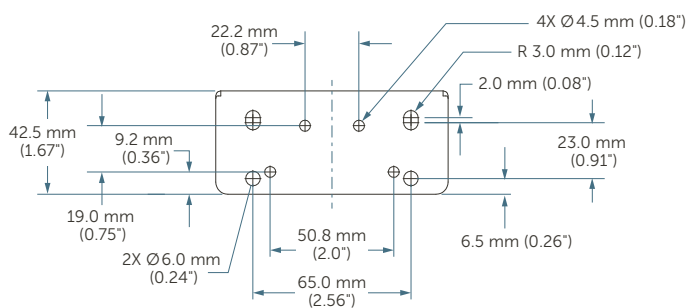
MANIFOLD AND FILTER PARTS



Manifold

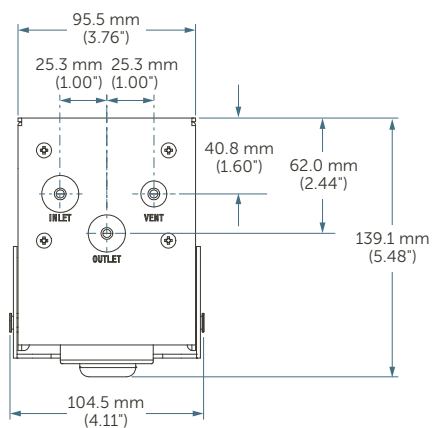
DIMENSIONS

MOUNTING PLATE (COMMON TO ALL TYPES)

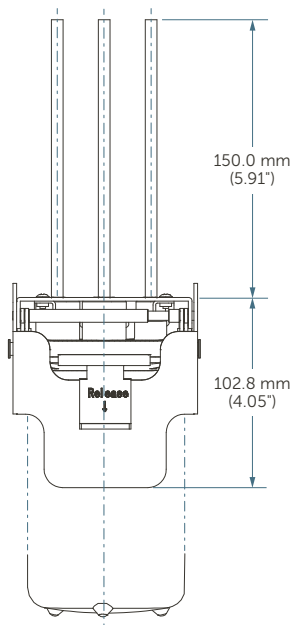


TUBE TYPE MANIFOLD (PART NUMBER AMVT***01)

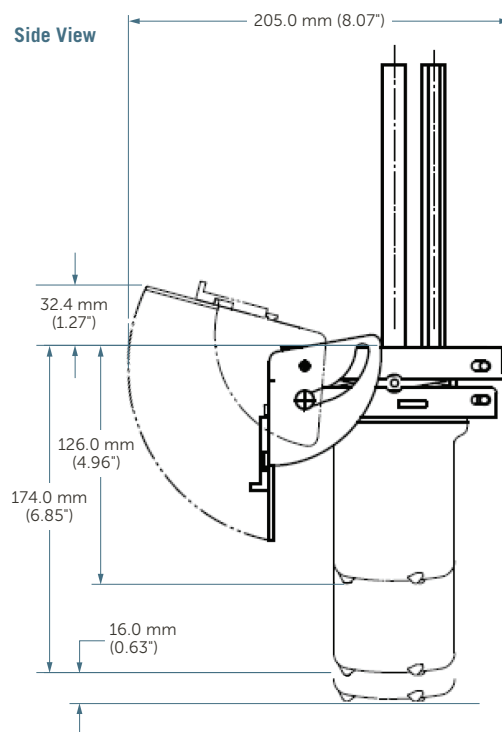
Top View

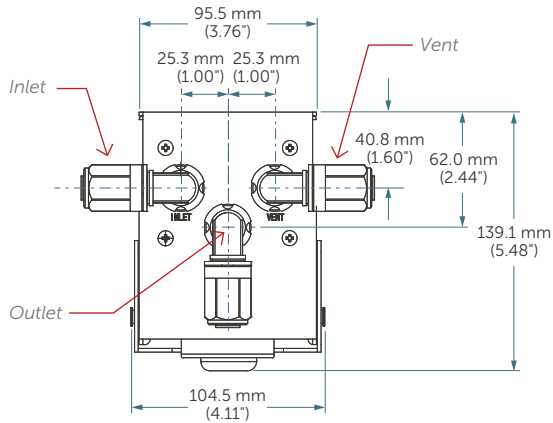
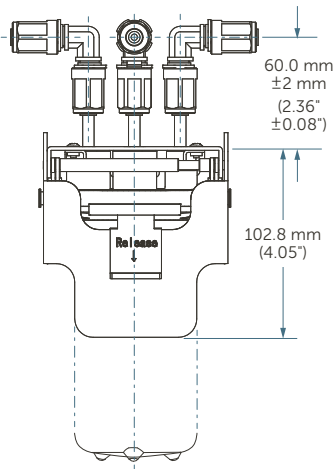
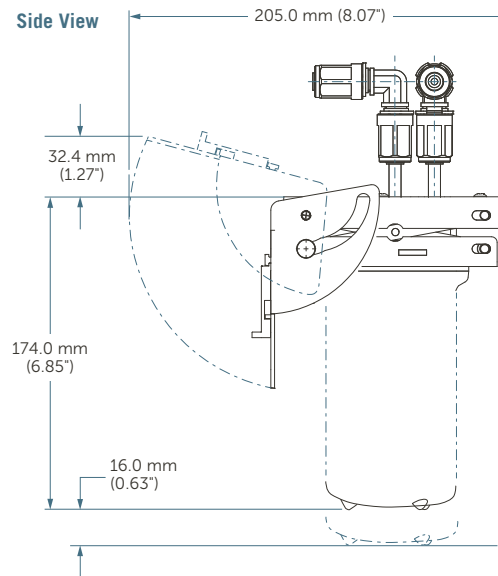


Front View



Side View

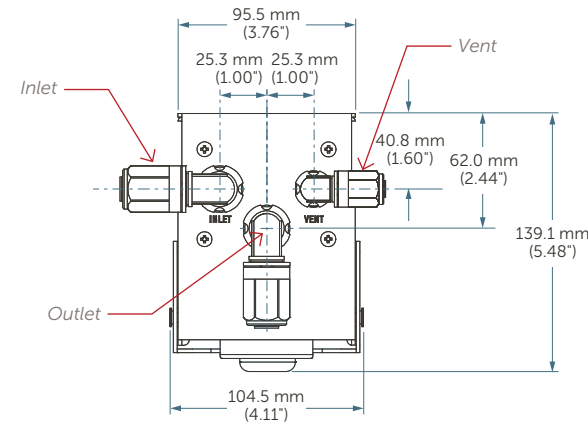


DIMENSIONS (CONTINUED)**FLOWELL 60 ELBOW TYPE MANIFOLD (PART NUMBER AMVXL22KT)****Top View****Front View****Side View**

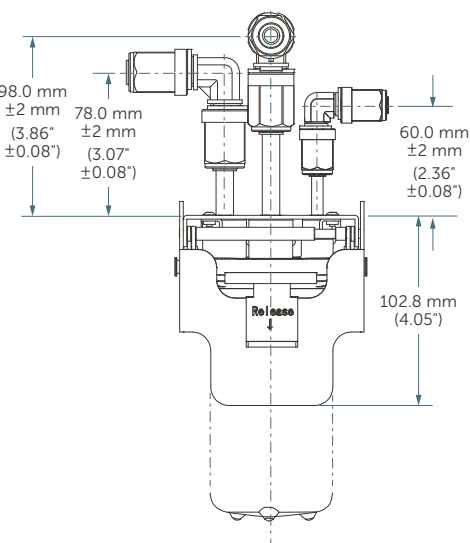
DIMENSIONS (CONTINUED)

FLOWELL 60 ELBOW TYPE MANIFOLD (PART NUMBER AMVXL32KT)

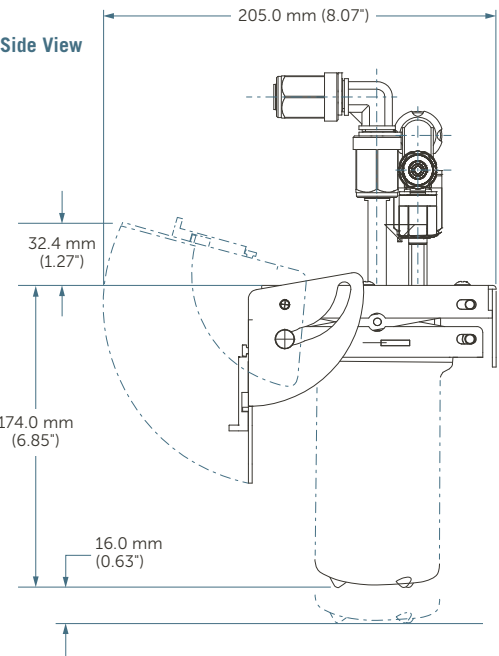
Top View

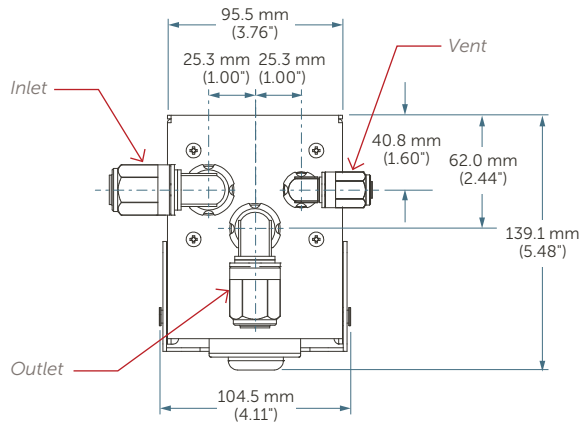
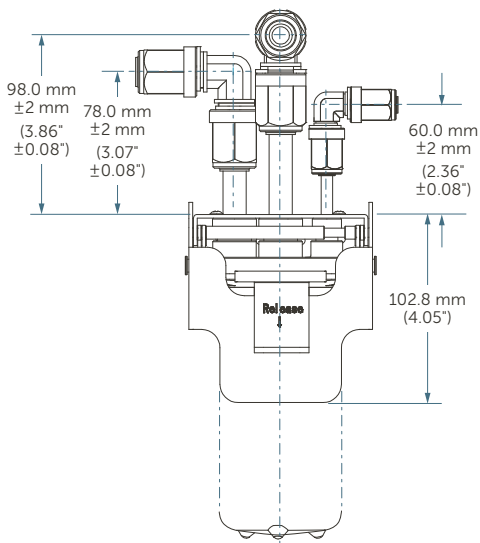
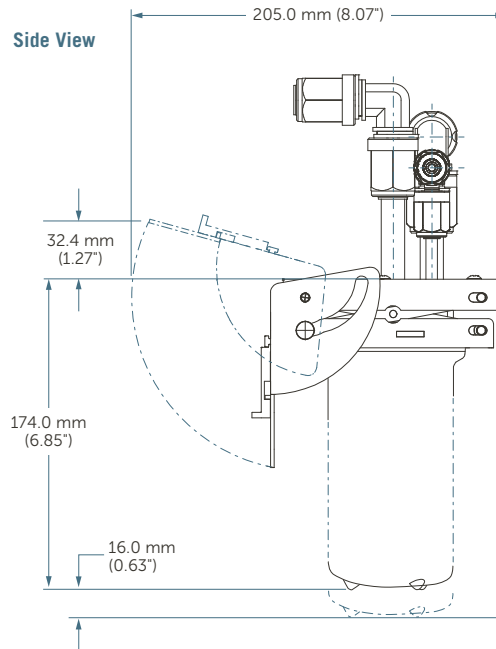


Front View



Side View

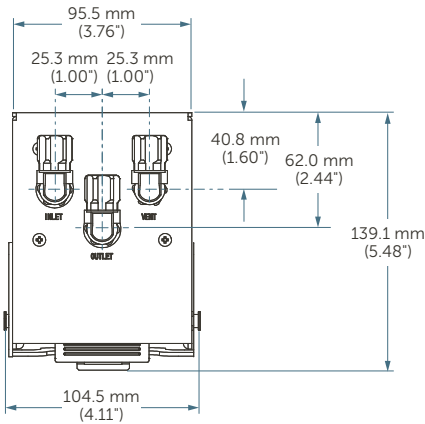


DIMENSIONS (CONTINUED)**FLOWELL 60 ELBOW TYPE MANIFOLD (PART NUMBER AMVXL42KT)****Top View****Front View****Side View**

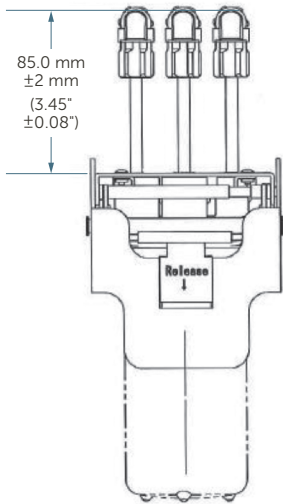
DIMENSIONS (CONTINUED)

FLOWELL 80EZ ELBOW TYPE MANIFOLD (PART NUMBER AMVZL22KT)

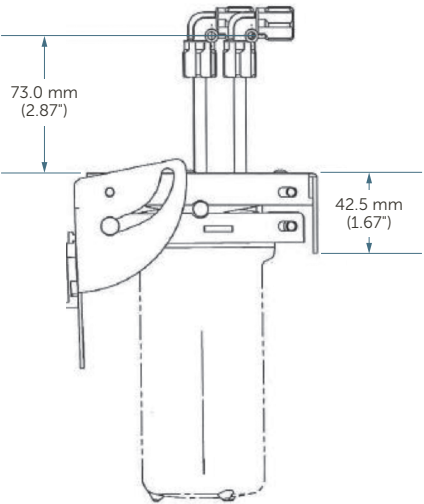
Top View

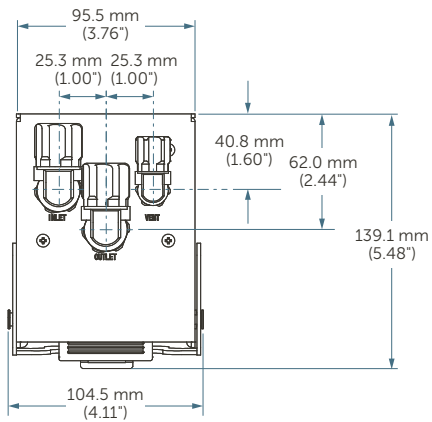
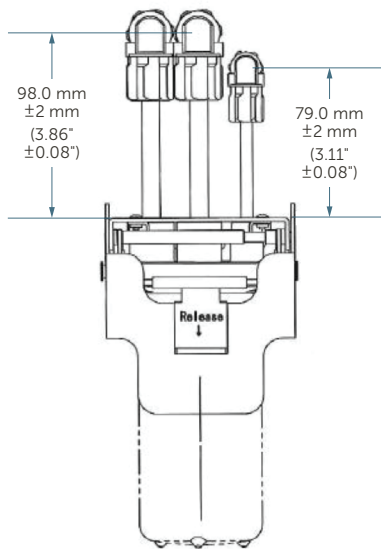
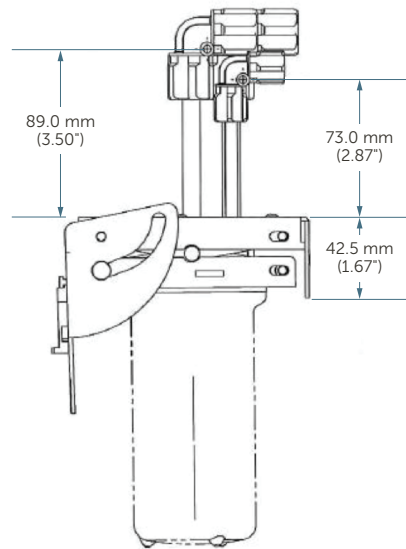


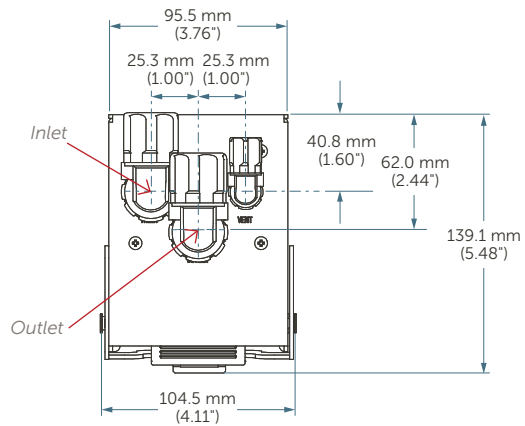
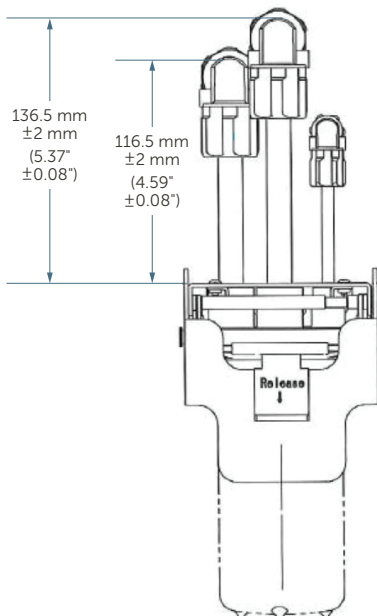
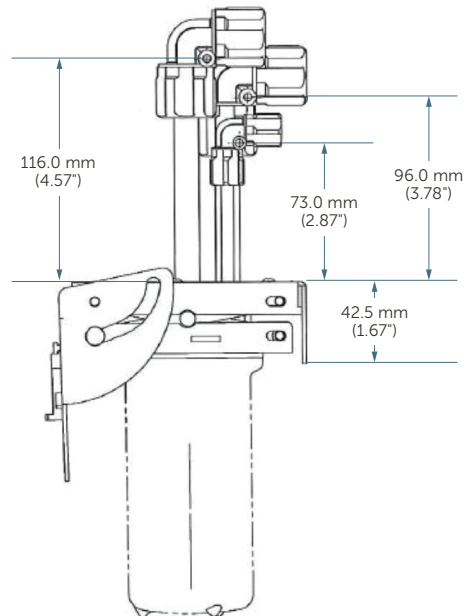
Front View







Side View






DIMENSIONS (CONTINUED)**FLOWELL 80EZ ELBOW TYPE MANIFOLD (PART NUMBER AMVZL32KT)****Top View****Front View****Side View**

DIMENSIONS (CONTINUED)**FLOWELL 80EZ ELBOW TYPE MANIFOLD (PART NUMBER AMVZL42KT)****Top View****Front View****Side View**


SAFETY INSTRUCTIONS

-  **WARNING:** Follow all safety and ventilation regulations and follow all gas and liquid handling procedures. Wear clothing and safety equipment appropriate for the gas and liquid used. Wear chemical-resistant work clothes and safety glasses while changing and setting up the filter.
-  **WARNING:** If you do not follow the precautions, the product may not perform properly or may not be covered by the product warranty.
-  **WARNING:** Do not disassemble the manifold product.
-  **WARNING:** Do not crush and do not expose the manifold to any shock or force such as hammering, dropping, or stepping on it.

PREPARATION FOR INSTALLING THE OPTIMIZER ST2 MANIFOLD


-  **CAUTION:** Before unpacking the product, make sure the product matches the model you ordered.
 -  **CAUTION:** Once opened, products may not be returned in some cases.
1. Determine the manifold mounting position and prepare the required mounting holes or conversion bracket.
-  **CAUTION:** Refer to the dimensions on pages 4 to 10 and secure the space required for replacing and installing the fitting.

2. Place the manifold on a vertical surface of sufficient strength so that the top of the manifold is horizontal. Use a level if necessary to ensure the manifold is level.

-  **CAUTION:** If the manifold surface is not horizontal or the strength is insufficient, the liquid may splatter when replacing the filter. Reinforce the installation surface as necessary.

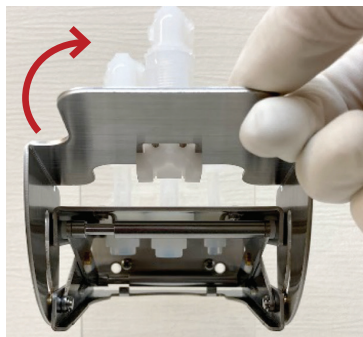
To minimize dripping when replacing the filter, it is recommended to install a stop valve on the vent and outlet lines with the shortest possible pipe length.

If it is difficult to connect the tubing after installing the manifold, connect tubing before installing the manifold.

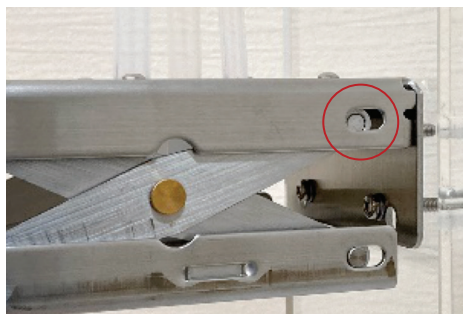
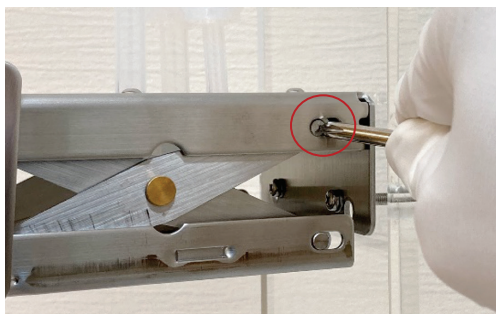
-  **CAUTION:** Make sure that no load is applied to the connector due to the weight or layout of the pipe. Insufficient sealing may result and chemical liquid leakage may occur.

INSTALLING THE OPTIMIZER ST2 MANIFOLD

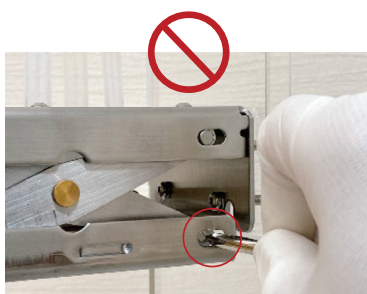
1. Raise the lever



2. Press the spring shaft with a thin object. The shaft will come off if you press both sides.



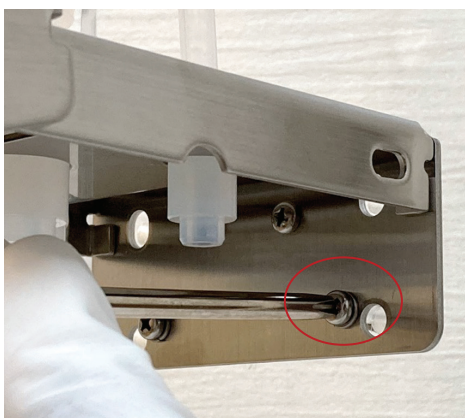
CAUTION: Do not press anywhere other than the designated spring shaft. The shaft may come off and an unexpected accident such as leakage may occur.



3. The lower part of the manifold opens to allow access to the tool mounting bracket.



4. Screw the manifold to the tool referring to the hole location on the mounting plate dimensional drawing found on page 4.



5. Return the lower part of the open manifold and push the shaft protrusions from both left and right sides to fit it on the upper part of the manifold.



6. Lower the lever to complete the installation.

Visually check to ensure the spring shafts are properly engaged in the holes.

If used without confirmation, the manifold may not work properly and may cause an unexpected accident such as leakage.



CAUTION: Make sure ALL spring shafts are properly engaged. If the tip of the spring shaft is embedded and/or the collar is visible (white part that surrounds spring shaft), the spring shaft is not properly placed.



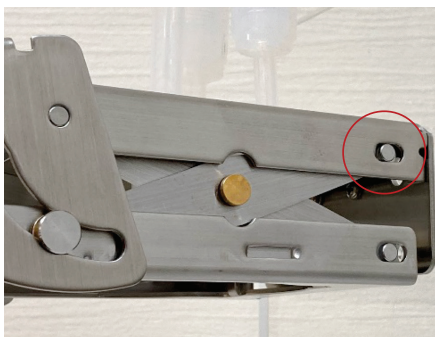
Good



Bad



Bad

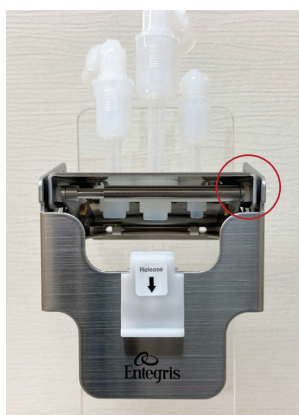


Good

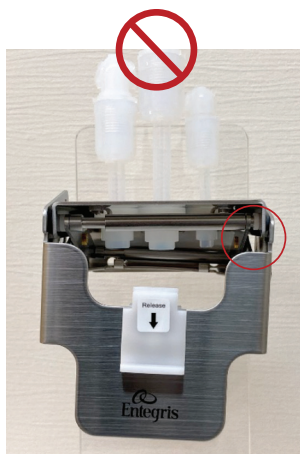


Bad

Make sure the lever is horizontally attached to the manifold. If the lever is tilted, the spring shaft may not be placed properly.



Good



Bad

⚠ CAUTION: Do NOT apply over 10 N/m of tubing tension to the manifold connectors. Improper tubing tension may cause an unexpected accident such as chemical leakage.

Acceptable tubing tension

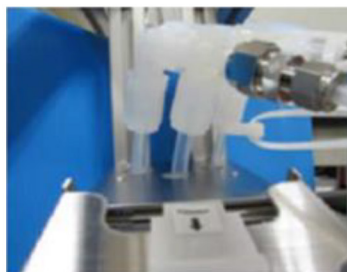
5 N/m

In/Out $\frac{3}{8}$ "
Vent $\frac{1}{4}$ "



Improper tubing tension
(risk of leakage)

10 N/m



In/Out $\frac{1}{2}$ "
Vent $\frac{1}{4}$ "



ATTACHING AND REMOVING THE FILTER

PREPARING THE LINE BEFORE REPLACING THE FILTER

Before replacing the filter, stop the flow of liquid on the upstream side with the downstream side of the filter open, so that the pressure inside the filter is not applied. It is recommended to purge the chemical with a safe fluid.

PREPARING THE FILTER TO BE REPLACED

Filters compatible with this product are double wrapped for use in cleanrooms.

Please handle the product according to the cleanroom procedure.

REMOVING THE FILTER OR FLUSHING SHELL

1. Raise the lever completely while lowering the release tab with your thumb.

CAUTION: If the lever is not raised enough, the filter may not pull out smoothly. Lift the lever completely until it stops, not doing so may cause damage to the manifold or filter.



CAUTION: When removing or attaching the filter or flushing shell, do not touch anywhere other than the lever. The shaft may come off and an unexpected accident such as leakage may occur. There is also a safety risk of getting your fingers caught in moving parts, resulting in injury.

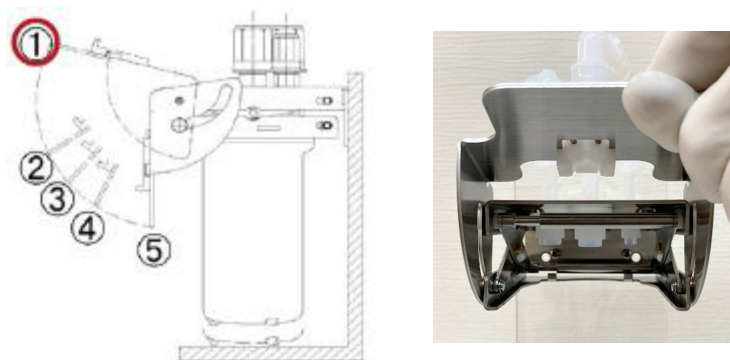


2. Grasp the filter or flushing shell tub and slowly pull out the used filter or flushing shell from the filter guide.

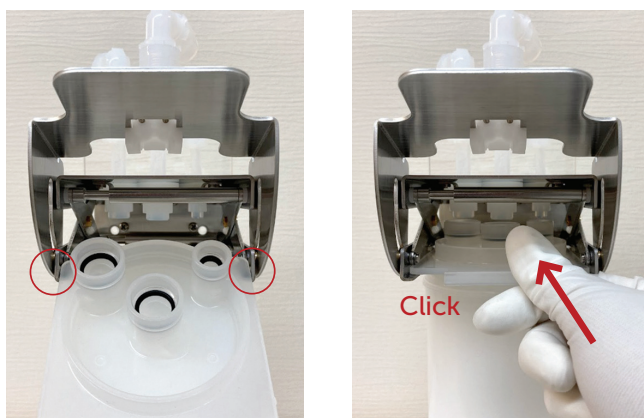


ATTACHING THE FILTER OR FLUSHING SHELL

1. Raise the manifold lever completely to the top.



2. Place the filter or flushing shell in the groove of the filter guide and push it in along the guide until you hear it click into place. (Though there may be some resistance, push the filter or flushing shell to the end.)

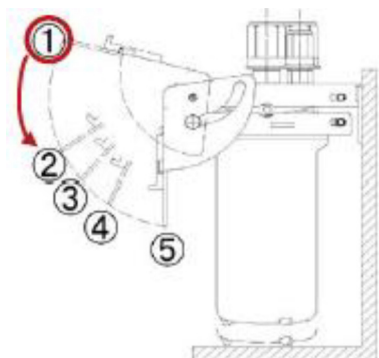


CAUTION: If the lever is not raised enough, the filter or flushing shell cannot be inserted along the filter guide.

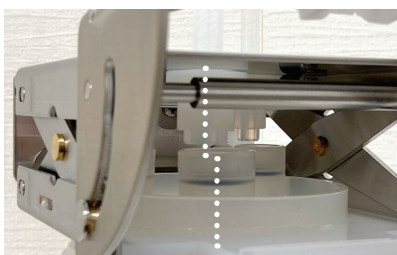
Remove the filter or flushing shell, lift the lever to the top, and install again.

If the filter or flushing shell is forcibly inserted while the lever is not completely raised, the manifold or filter may be damaged or chemical may leak.

3. Lower the lever to position 2. If you feel resistance stop lowering the level and confirm the filter is inserted completely.

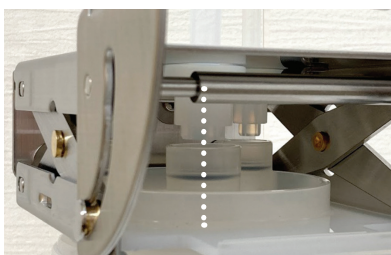


CAUTION: Do not lower the lever with the filter or flushing shell not fully inserted. The connector on the manifold may get damaged if it contacts the outer wall of the connection part of the filter or flushing shell. Make sure the filter or flushing shell is completely inserted to the end.



Incomplete insertion of filter/flushing shell

The manifold connection is not centered on the filter connection.



Complete insertion of filter/flushing shell

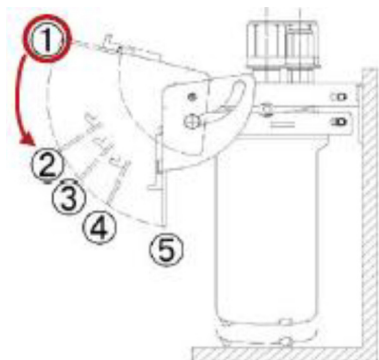
The manifold connection is centered on the filter connection.

CAUTION: When removing or attaching the filter or flushing shell, do not touch anywhere other than the lever. The shaft may come off and an unexpected accident such as leakage may occur. There is also a safety risk of getting your fingers caught in moving parts, resulting in injury.

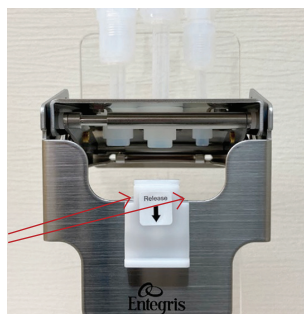
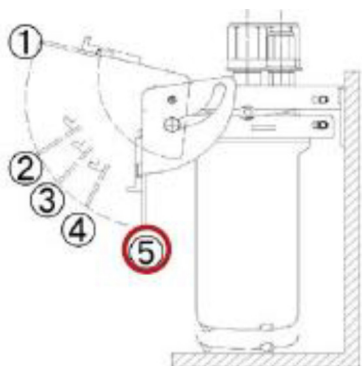


Slowly push the lever down from position 2 to position 5 in three steps (2 → 3 → 4 → 5).

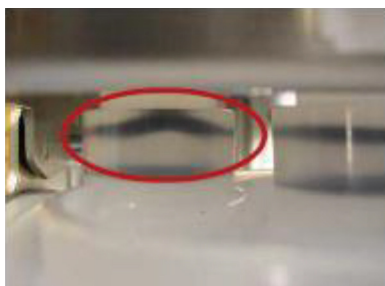
This procedure ensures the manifold connectors are inserted properly and prevents O-ring tilt and distortion.



4. Lower the lever until you hear a click from the release tab. Ensure no red mark is visible from the back of the release tab (shown with red arrows); this confirms the level is locked.



5. Ensure the O-rings are not tilted or distorted. If they are, please follow the Replacing O-ring procedure on page 22.



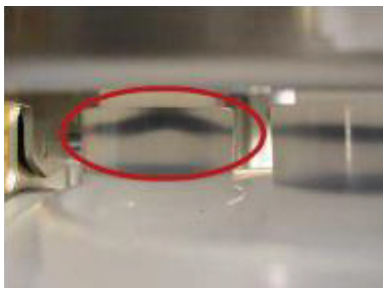
CAUTION: Make sure all the spring shafts are properly engaged. See page 14 for detailed check points. Make sure all the fittings and tubing are securely fastened before starting liquid flow.

FILTER STARTUP

1. Connect a suitable filter using the installation procedure described in this manual.
2. Start the liquid flow when the dispense pump or pressurized system is ready.
3. Open the valve on the filter vent line until liquid comes out and exhaust the air inside the filter and the pipelines.

REPLACING THE O-RINGS

1. Make sure the O-rings are not tilted or distorted.
2. If the O-ring is significantly tilted or distorted from the groove do not use it due to risk of chemical leakage.
3. Follow the steps in this manual to remove and install the filter again.
4. If re-installing the filter does not fix the O-ring position, follow the steps to replace the O-ring.



NOTE: For replacement O-ring ordering information refer to page 2.

REMOVING THE O-RINGS

- a) Grasp the far end of the connector and the O-ring with your thumb and forefinger.



CAUTION: Wipe away any chemical following safety guidelines before replacing the O-rings.

- b) Pull your thumb and forefinger nearside and push the O-ring out. Grasp the protruding part of the O-ring with your other hand, and push it down from above to remove it from the groove.



CAUTION: Do not use any sharp tool such as scissors, tweezers, or knife to remove O-rings as it may damage the connectors or O-rings.

ATTACHING THE O-RINGS

- c) Insert the O-ring into the O-ring groove on the connector first.
- d) Then slowly push the entire O-ring along the groove.



- e) After installation, make sure the O-ring is not twisted or tilted and is seated properly in the groove. Also ensure it is not contaminated with dust.



CAUTION: Make sure that O-rings are properly attached. Improper installation may cause chemical leakage.

LIMITED WARRANTY

Entegris' products are subject to the Entegris, Inc. General Limited Warranty. To view and print this information, visit entegris.com and select the [Legal & Trademark Notices](#) link in the footer. Entegris does not warrant any failure in the case of customers using unapproved foreign components.

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