

Bubble Trap

Introduction:

Air bubbles in the fluidic flow can cause significant problems for many applications because the bubbles change the intrinsic physical properties of the microfluidic environment unexpectedly. They could increase the internal pressure abruptly in a fluidic/microfluidic system. It may lead to important shear force variations, resulting in changing the compliance of the system or blocking channels in small size. It is recommended to adding line bubble traps in the fluidic system to avoid and minimize the unintended introduction of bubbles into the fluidic flow stream.

PreciGenome inline bubble trap is able to remove bubbles in the fluidic flow stream with or without vacuum assistance. It effectively avoids blocking by air bubbles downstream in small size channels.



Benefits:

- ◆ Effective removal of air or gas bubbles
- ◆ Inert materials (PEEK™ body and PTFE membrane) for chemical resistance)
- ◆ Withstand pressure up to 30psi difference
- ◆ No dead volume
- ◆ Fitted to your volume application (internal volume: 25uL, 95uL or 300uL)
- ◆ Easy membrane replacing to avoid contamination
- ◆ Compatible with standard 1/4"-28UNF fitting

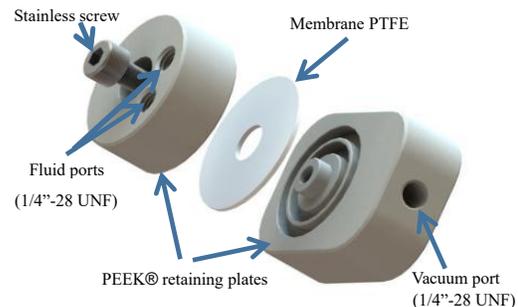
Operation Principle:

The Trap uses a micro-porous, hydrophobic PTFE membrane held between two PEEK™ plates. When a fluid stream containing bubbles flows through the unit, the bubbles are forced through the membrane as the pressure within the system is higher than atmospheric pressure outside. The hydrophobic properties of the membrane retain the aqueous fluid within the Trap.

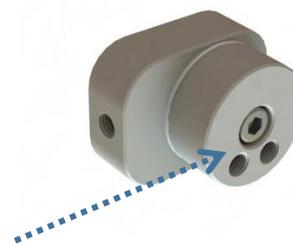


Because the membrane function depends on its hydrophobicity, the Trap is only suitable for use with aqueous systems and NOT with organic solvents.

Installation Instructions:



1. For optimal bubble removal the bubble trap should be mounted as shown in the Figure below.



A). this face should be vertical; B). two fluid ports should be positioned at the lowest point which facilitates removed bubbles (gas) move to the top portion of the air path.

2. Connect tubing to the 1/4"-28UNF female threaded fluidic ports. Inlet and outlet are interchangeable.

3. To obtain the maximum bubble/gas removal effect, a vacuum source can be connected to the vacuum port.

Membrane Replacement:



Do not disassemble the product until replacement of the membrane is required. Disassembly and reassembly without replacing the membrane is likely to result in leakage.

- 1). Unscrew the retaining stainless screw to separate the tap's components.
- 2). Replace the membrane with a new one.
- 3). Place a replacement membrane onto the half of the Trap that contains the fluid ports.



If text is present on the membrane, this must face away from the fluid ports

- 4). Assemble the two halves of the Trap together with the screw. Tighten the screw hand tight until a stop is felt (1.5Nm).
- 5). Flush the Bubble Trap if necessary.

Precautions:

1. Pressure: Pressure difference across the whole bubble trap should not be more than 30psi (vacuum needs to be considered if vacuum is applied). Pressure difference across the membrane needs to be large enough to get optimal bubble removal effect. If the pressure difference is not enough, either a vacuum from the vacuum port can be applied or users can create a back pressure in the fluid by adding fluid resistance at the outlet port.

2. Flow rate: the typical flow rates used in the bubble trap are between 0 to 2mL/min. To obtain optimal bubble removal effect, users should optimize flow rates.

3. Material compatibility: the bubble trap can only be used for aqueous fluids. If other liquids are used, chemical compatibility needs to be considered and thoroughly tested.

4. Cleaning after usage: the lifetime of the membranes strongly depends on the kind of fluid being used. For pure water, the lifetime may be several months or years. If buffer solutions are used, the life will be reduced and

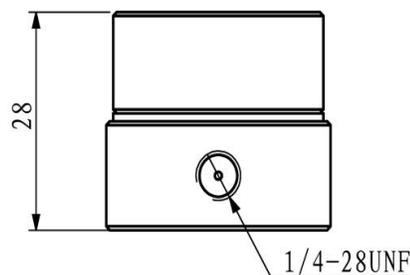
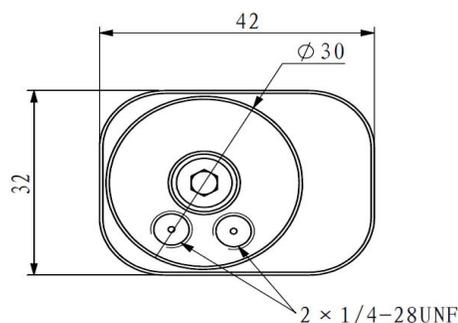
it is good practice to flush the unit with DI water after use to prevent salt crystals forming.

Specifications:

Body material	PEEK
Membrane material	PTFE
Threaded ports	1/4"-28 UNF
Internal volume	25uL, 95uL or 300uL
Inlet and outlet port diameter	3mm
Vacuum port diameter	2mm
Maximum pressure	30psi

Dimensions:

Unit: mm



PEEK™ is a Trademark of Victrex PLC

Please visit our website for more information.

<https://www.precigenome.com/bubble-trap>