# Instructions

# Low Profile Closed Perfusion Chamber

ALA-MS-CPC-LP



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The low profile closed perfusion chamber is designed to fit where a standard microscope slide can fit. It allows for easy viewing with upright or inverted microscopes. The viewing port is 18mm. The recommended coverglass thickness is Number 1 and a quad profile o-ring is employed to provide maximum sealing surface and stability.

Samples can be cultured on the coverglass or cultured on smaller cover glass and placed inside. A regime that uses tissue slices can also be used.

The operational theory of this chamber is that solution is introduced through a single input and flows through the chamber and out through the point where the coverglass is pressed against the o-ring. The user can poke additional drain holes in the o-ring to guide the drainage or outflow to certain parts of the chamber, if such guided flow is necessary. Once the fluid exits the chamber, it collects on a small reservoir outside the chamber. If continuous perfusion is required, then a small suction tube is inserted in the hole(s) provided in the top section of the chamber and connected to a suction source, i.e. vacuum, syringe pump, or peristaltic pump, to remove the fluid.

O-ring	#19 Buna-quad profile
Coverglass	#1 25mm
Inlet tube	PE-10
Outlet (Suction) tube	1mm maximum OD (Any tube)
Material	316 Stainless Steel
weight	58g
Dimensions	(mm) 76.5L x 30.5W x 5.5H
Screws (knobs)	6-32 thread

#### Specification Table

Care should be taken to use the minimal pressure necessary to obtain perfusion. Keep in mind that the tighter the chamber is sealed, the more pressure will be necessary to push fluid out. The user will notice that the two cover glasses will move as the input pressure is activated. This movement may be detrimental for imaging as the sample may shift. This problem can be alleviated by insuring steady input pressure.

The chamber can also be used as a sealed chamber. Simply use a non-perforated o-ring and fill the chamber before placing the cover and sealing.

If it is necessary to capture all the effluent, or there are toxic substances involved, the user can add a second perfusion tube to the o-ring to act as an exit port. If the chamber is sealed tightly, the fluid will be forced to exit through the drainage tube. Such tube can be pushed through the o-ring at any point.

**Cleaning:** The entire chamber can be autoclaved. It can be washed with detergent and cleaned with a solvent if necessary. The o-ring may be sensitive to high heat and certain chemicals, but not salt solutions or weak acids and bases. When washing the metal parts, dry thoroughly, do not allow to air dry.

### **Chamber Set-up**



Utilize a 20ga needle through which can pass PE-10 tubing. Insert the needle through the wall of the o-ring as evenly in the middle between the profile as you can.





Withdraw the needle and then adjust the tubing so that only a few mm protrude into the chamber.

Alternatively if you want to perfuse the chamber from the middle out, the input tube can be adjusted so that the tip sits at the middle of the o-ring.

That way fluid will be deposited in the middle and always flow to the outside rather than from one side to the other.





## Loading the Chamber

Place the bottom coverglass in the chamber. Place the oring with the tubing on top of the coverglass and set the tubing in the groove provided.



Side wells where effluent collects



Place the top coverglass on the o-ring and then secure the top with the screws provided.

Adjust the screw tightness as necessary for the desired flow rate and head pressure.



Toughy Body adaptors (shown in blue) can be used to connect small tubes to syringes or other Luer fittings to adopt to larger size tubing.

The output tube is plugged into one of the two holes provided for withdrawal (see Arrow).

As fluid "leaks" out of the chamber, it is collected here.



Alternatively, an output perfusion tube can be added directly to the chamber by piercing the o-ring with a second PE-10 tube. Here the arrow shows an additional for removal of fluid directly from inside the chamber.

Warranty: 1 year parts and labor for manufacturer's defect. Limited to repair or replacement. Need help? <a href="mailto:support@alascience.com">support@alascience.com</a>, or Tel.: 631 393-6401 in the USA.