

# INSTRUCTIONS FOR MODULAR INCUBATOR CHAMBER

## DESCRIPTION

The Modular Incubator Chamber (MIC-101) utilizes a surface-type seal where all portions of the O-ring are uniformly compressed by a glass reinforced V-retaining clamp for a reliable air tight seal. The cylindrical walls and semi-spherical top and bottom provide minimum gas flow resistance and no inherent dead space during initial purging. The chambers have an integrated stacking feature for storage during or after experimentation. All units are molded from high quality polycarbonate and will not break, crack or cloud with extended use.

## OPERATION

To facilitate ease of operation of the chamber please observe the following procedures :

### To Reassemble Chamber

1. Check all O-ring surfaces making sure they are free of any particles which could cause leaks. O-ring should be cleaned periodically (see cleaning instructions). If chamber leaks, first inspect O-ring and O-ring grooves, making sure they are clean and not damaged. If the chamber still fails to seal, check adjustment of the clamp; one or two turns of the threaded bolt are all that is necessary to tighten the clamp (see V-retaining clamp instructions).
2. Position trays in base making sure that they are seated properly.
3. Place lid on base.
4. Grasp clamp with left hand and center clamp at position where base and lid join. Left hand should be held firmly against clamp and chamber. Slowly close clamp handle with right hand making sure clamp is centered. Chamber is now ready to be purged with gas.

### To Open Chamber

1. Grasp chamber and V-retaining clamp firmly with left hand opposite clamp handle.
2. Place right hand firmly over clamp handle and

open slowly. The clamp can be easily removed from the chamber by extending the clamp to its full diameter. This can be accomplished by opening the clamp handle to its full extent.

3. Remove clamp.
4. Using both hands, remove the lid and trays. Always use both hands when handling lid, base, trays and the clamp, this will prevent accidental spills.

### To Gas the Chamber

1. Open both inlet and outlet ports (tygon tubing with white plastic clamps).
2. Attach inlet port tygon tubing to a source containing the desired gas mixture.

**CAUTION DO NOT PRESURIZE MIC-101. Both the inlet and outlet ports' clamps must be open during this procedure. The chamber may rupture under excess pressure.**

3. We have found that a rate of 40-50 liters/min completely purges chamber in 2 minutes (Maximum flow rate is 50 LPM). Since flow rates and experimental conditions vary, we recommend that each investigator determines the time and frequency of flushing. Flow meters are available from Embrient, Inc. The MIC-101 is designed to maintain constant gas levels for a minimum of 72 hours.
4. After chamber has been purged disconnect gas source.
5. To avoid pressurizing chamber, seal by closing **inlet clamp (white) first**. Then close outlet clamp. Clamps need only 4-5 clicks to seal tygon tubing.
6. Put Chamber at appropriate temperature either in a conventional continuous flow CO<sub>2</sub> incubator, a heat only incubator, or a warm room. If the chamber contains a large quantity of tissue culture plates, to remove any gases that may have been trapped in the media, we recommend re-flushing system after 1 hour of incubation.

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## HUMIDITY

The chamber must be humidified to prevent excessive evaporation of cultures. This can be accomplished by placing a petri dish with 10-20 ml of sterile water in the chamber.

## SEALING

The base and lid flanges are forced together by the V-retaining clamp. As torque is applied to the adjustable bolt of the clamp handle, an inward radial force is created in the V-retaining clamp. The cam-action of the handle has been adjusted at the factory to provide a reliable, air-tight seal. Clamp can be tightened or loosened by slightly loosening the nut and turning the bolt on the handle either clockwise or counter clockwise, respectively.

## V-RETAINING CLAMP

The large V-retaining clamp wedges the base and lid flanges together. As torque is applied to the adjustable bolt of the clamp handle, an inward radial force is created in the clamp. This force compresses the O-ring and forms the seal. The clamp has been pre-adjusted to provide a reliable, air-tight seal. If the clamp needs to be adjusted, loosen nut on handle with a 3/8" open end box wrench and to tighten turn the bolt clockwise.

## CLEANING

The chamber may be sterilized with either 70% ethanol, 5% formalin, sterilizing gas mixtures (when sterilizing with ethylene oxide the units should be placed in a vacuum chamber and degassed). The O-ring should be cleaned periodically to ensure a proper seal. When removing O-ring be careful not to scratch the O-ring groove. Wipe the O-ring with 70% Ethanol and a Kimwipe. Do not use silicon grease on O-ring.

**NOTE: CHAMBERS SHOULD NOT BE AUTOCLAVED**

## CHEMICAL RESISTANCE

Exposure to solvents such as strong acids, all bases and organic solvents (polycarbonate is soluble in aromatic and chlorinated hydrocarbons) should be avoided. Avoid prolonged exposure to alcohol. However, short term exposure to 70% ethanol is recommended for cleaning the Modular Incubator Chamber.

## GAS TANK VOLUME CONVERSION

80 cu. ft. gas tank = 2200 liters  
200 cu. ft gas tank = 5700 liters

## REPLACEMENT PART LIST

### Cat. No. Description

MIC-102	Lid (polycarbonate)*
MIC-103	Base (polycarbonate)* with O-Ring and Tubing Clamp
MIC-104	Tray (polycarbonate)*
MIC-105	Sealing Ring Clamp
MIC-106	O-Ring
MIC-107	Tubing Clamp with Tubing (10/bag)
HFS-2021	Air Filters (6/Pkg)
TUB-516	Tygon Tubing (3 Meters)

\*These parts are guaranteed for one year against defects, leaks and breakage. PLEASE DO NOT return any warranty items without written authorization.

**As we cannot anticipate nor control conditions of product application, we do not warrant suitability or favorable results. The MIC-101 and accessories are for research purposes only and not for human use.**

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