



TYLER
Research Corporation
Biomedical Engineering



Product: LAMR-2C5PSF

Material: Polysulfone with silicone seals and stainless steel screws

The LAMR-2C5PSF is manufactured from Polysulfone, an advanced engineered thermoplastic polymer capable of withstanding a temperature range of -100°C to 150°C. The LAMR-PSF series biofilm devices may be safely sterilized using an autoclave provided instructions are followed carefully.

IMPORTANT:

Polysulfone is **NOT COMPATIBLE** with the following:

- Acetone
- Acetonitrile
- Benzene
- Chloroform
- Dimethylformamide (DMF)
- Dimethylsulfoxide (DMSO)
- Ethyl acetate
- Methyl ethyl ketone
- Methylene chloride
- Perchloroethylene
- Phenol
- Pyridine
- Sulfuric acid
- Toluene
- Trichloroethylene
- Xylene

Polysulfone has **LIMITED RESISTANCE** to the following:

- Acetate
- Ammonia
- Butyl acetate
- Carbontetrachloride
- Isopropanol

**Please note that the chemical lists are not exhaustive, but refer to the most commonly encountered laboratory chemicals*

Sterilizing LAMR-cassette series devices:

1. **IMPORTANT:** There is a natural tendency to over-tighten the manifold and cassette screws when assembling the device, and the added stress of autoclaving can lead to spalling and cracking of the threads. We recommend that the screws be tightened **only** until contact is first made with the O-rings prior to autoclaving. After autoclaving, the screws should be tightened **only** until surface to surface contact is made between the manifold halves and between the manifold and cassettes.
2. Attach silicone or vinyl tubing (3/8" or 10mm ID) to the inlet/outlet ports, fold and tape the ends of the tubing closed. Place the entire device in an autoclave bag or wrap in surgical towels and tape the package closed with an indicating tape.
3. Refer to the manual of the autoclave in use for proper loading techniques and correct positioning of the items to be sterilized. Sterilize at 121°C for 15 minutes.

LAMR-2C5PSF Assembly/Disassembly Instructions:

The LAMR-PSF cassette series biofilm systems are precision devices consisting of two polysulfone manifold halves, two polysulfone inlet/outlet nipples, stainless steel sockethead cap screws connecting the manifold halves, silicone O-rings, two Polysulfone cassette ports complete with ten rectangular Biostud ports (5 per cassette), and ten retainer screws, silicone seals and stainless steel screws. Assembly or disassembly of the LAMR-2C5 device for cleaning requires a 5/32" hex drive wrench and a #2 Phillips screwdriver.

Disassembly of the LAMR-2C5PSF

1. Use the Phillips screwdriver to remove the sixteen stainless steel screws (8 per cassette) from the body of the device. Once the cassette has been separated from the body of the device, the rectangular Biostuds can be ejected from their respective holders with sterile forceps and sent for analysis. *[The two cassettes each contain 10 spring-loaded subassemblies to hold the rectangular coupons firmly in their respective cavities. Under normal circumstances it should **NOT** be necessary to disassemble and clean these, but to do so, remove the screws with their O-rings from the top of the cassette, extract the elastomeric spring using a hemostat, and gently push the stainless steel ball out of the cavity. After cleaning, install the stainless steel ball, push the elastomeric spring into the cavity until it is flush with the outside surface, place the O-ring on the screw under the head and replace the screw to affect a seal.]*
2. Place the LAMR-PSF cassette device face down and use the 5/32" Hex drive to remove the eighteen stainless steel screws holding the two Polysulfone halves together. Once the screws have been removed, carefully separate the two halves and remove the Silicon O-ring.
3. If desired, remove the inlet/outlet nipples from the lower manifold by turning counterclockwise with a wrench (for routine cleaning and sterilization this step is not required).
4. Wash all components using mild detergent and water, and rinse with deionized water. Allow to dry before reassembly.

Assembly of the LAMR-2C5PSF

1. Lubricate all O-rings occasionally with silicone O-ring lube to promote sealing and prolong O-ring life. With the LAMR-PSF cassette base upright on a bench, place the large silicone O-ring in the groove surrounding the central channel. Align the top manifold and place it gently onto the base, being careful not to dislodge the O-ring. While holding the halves firmly together, turn the manifold over on the bench to expose the holes for the socket head cap screws. Using a 5/32" hex drive wrench, install and partially tighten the cap screws, leaving a 1mm gap between the top and base of the manifold. Then tighten the screws uniformly, still leaving a tiny gap (approximately 0.1mm) between the manifold halves. Finally, tighten them sequentially just to bring about surface-to-surface contact between the manifold halves. **DO NOT OVERTIGHTEN!** The O-ring is fully compressed and any tightening beyond surface-to-surface contact will simply stress the threads in the upper manifold, leading to cracking and structural failure.
2. If the inlet/outlet nipples were removed during cleaning, replace the O-rings in the grooves surrounding the thread and carefully screw them into the endport sockets only until surface-to-surface contact has been made to gently compress the retained O-ring. Again, **DO NOT OVERTIGHTEN** as this will simply lead to structural failure of the insert or manifold.
3. Carefully insert an edge of the rectangular biostud into one of the recesses in the cassette holder. Gently slide the biostud fully into the recess and over the two stainless steel balls. The leading and trailing biostud edges should align with the side walls of the holder if the biostud is to fit into the body of the manifold. Note that, because there are two tensioning assemblies in each coupon slot, it is also possible to populate each slot with two coupons measuring 3/4" x 3/4"
4. Place the cassettes in their respective ports and use the Phillips screwdriver to tighten the stainless steel screws into the body of the device. Be careful **NOT TO OVERTIGHTEN** the screws to avoid damaging the body of the device.