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**Liqui-Cel 4 x 28 Membrane Contactor**  
Assembly and Disassembly Instructions

**MEMBRANA**  
Underlining Performance

[www.liqui-cel.com](http://www.liqui-cel.com)

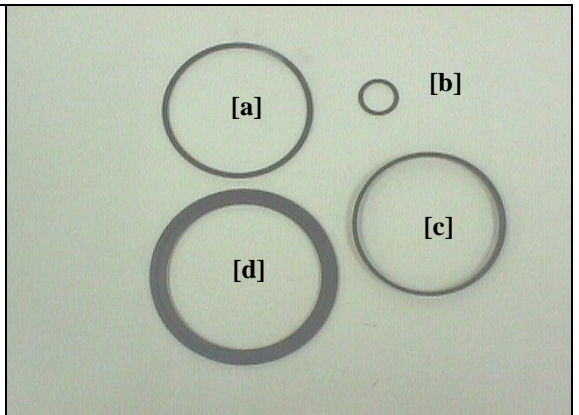
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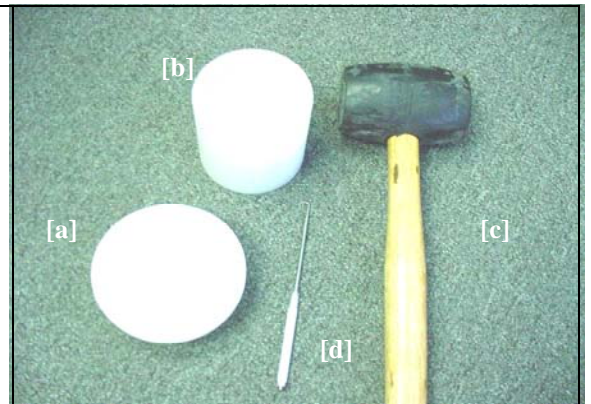
## Assembly Parts

- |                                   |   |
|-----------------------------------|---|
| <b>a) Outer Viton O-ring (2)</b>  | #238 o-ring used to seal water side (cartridge / housing seal).       |
| <b>b) Center Viton O-ring (4)</b> | #117 o-ring used to seal water side (cartridge / center nozzle seal). |
| <b>c) Retention Ring (2)</b>      | 9 mm diameter retention ring for outer o-ring.                        |
| <b>d) Viton Gasket (2)</b>        | 4 inch gasket (end cap seal).   |



## Assembly Tools

- |                                |  |
|--------------------------------|--|
| <b>a) Small Insertion Tool</b> | Used to support the cartridge during assembly / disassembly.     |
| <b>b) Large Insertion Tool</b> | Used to insert the cartridge and outer o-ring.                   |
| <b>c) Rubber Mallet</b>        | Used to tap insertion tool during o-ring assembly.               |
| <b>d) O-ring Pick</b>          | Used to remove the outer (shell side) o-ring during disassembly. |



The equipment illustrated above is required for the assembly or disassembly of a 4x28 Liqui-Cel Membrane Contactor with a stainless steel housing.

## Disassembly Procedure

- Using a 3/8" socket, remove the end cap clamps.



- Remove the end caps using a twisting, pulling motion. It may be necessary to lightly tap the gas elbow outward with a rubber mallet to loosen the end cap.



- Remove the gasket.

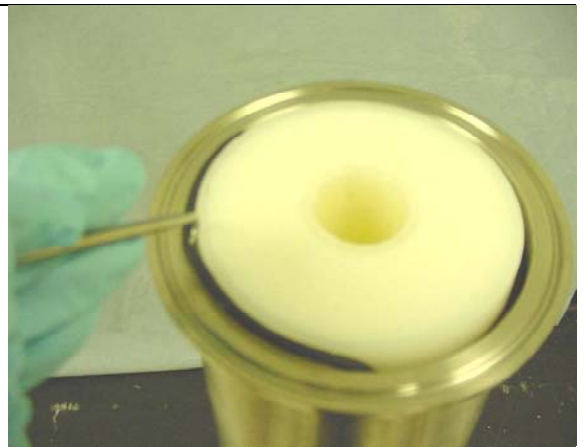


- Using the o-ring pick, remove the retention ring.

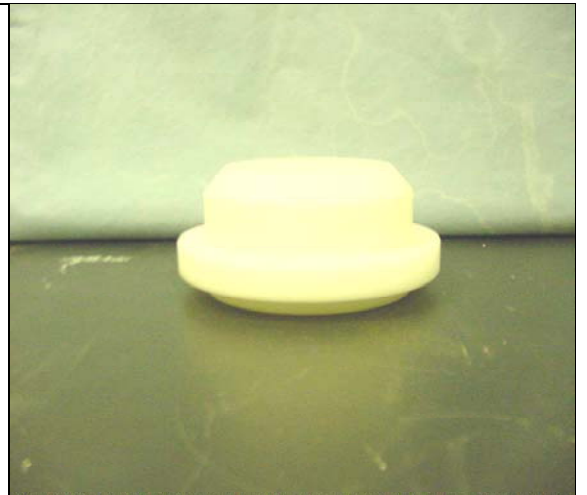


- Using the o-ring pick, remove the outer o-ring. Insert the pointed end of the pick into the o-ring and pull outward.

NOTE: The outer o-rings may be damaged during removal and should be discarded – DO NOT RE-USE.



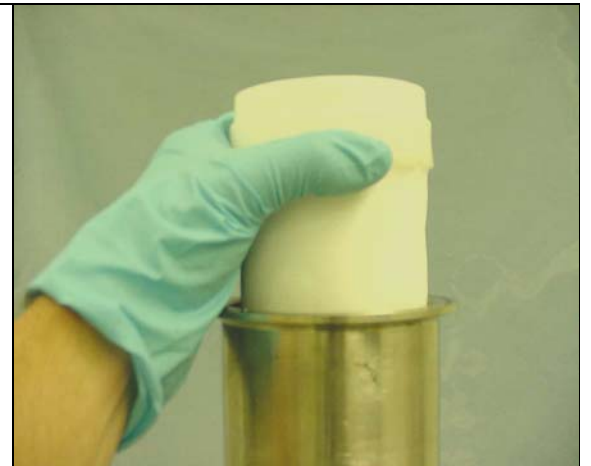
- Place the small insertion tool on a solid flat surface, with the beveled side pointing up.



- Flip the contactor over and rest on top of the small insertion tool.
- Repeat the previous 3 steps on the other end of the contactor.
- Once the outer o-ring is removed, the vessel should slide down over the cartridge. The cartridge will be supported by the small insertion tool.



- Carefully slide the cartridge out of the housing.
- NOTE: Be careful not to chip the potted edge of the cartridge.**



## Assembly Procedure

- Place the small insertion tool on a solid flat surface, with the beveled end pointing down.

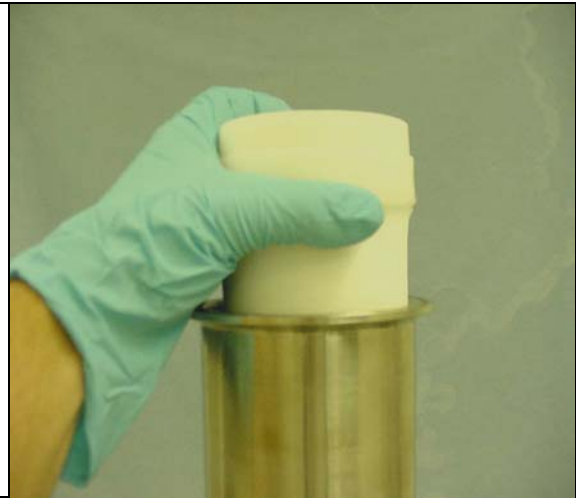
NOTE: The end with the 1/4" ridge should be pointing up.



- Rest the housing on the small insertion tool.



- Carefully insert the cartridge into the housing.



- Position an outer o-ring over the potted end.  
Note that the cartridge will be about 1/4" below the flanged surface of the housing.



- Place the large insertion tool over the end of the cartridge and outer o-ring.
- Tap lightly around the circumference of the insertion tool until the cartridge and outer o-ring move into the housing. (The small insertion tool will act as a stop.)





- Flip the housing over and rest back on the small insertion tool. Note that the cartridge protrudes approximately 1/4" from the flanged surface of the housing.

- Place an outer o-ring over the potted end of the cartridge.



- Place the large insertion tool over the end of the cartridge and outer o-ring. Tap lightly on the insertion tool until the cartridge is centered in the housing.

NOTE: Slightly more tapping force may be required during this procedure.



- Install a retention ring on one side of the contactor. Tap lightly with the rubber mallet if necessary.



- Install a gasket in the grooved end of the housing.



NOTE: Prior to inserting the end cap, check the integrity of the 2 small center o-rings. Replace if damaged or worn.

- Install the end cap using a twisting, pressing motion. Press evenly to prevent damage to the center o-rings. If the center o-rings are pinched, or otherwise damaged, they will not seal properly.
- Continue until the end cap is completely flush with the vessel.



- Install the clamps using a 3/8" socket.

Repeat the previous 4 steps for both ends of the contactor. Ensure that the gas ports are properly aligned before completely tightening the clamp bolts.



If you have any difficulty, have questions or need additional assistance with installing or removing the membrane cartridge, call your Membrana representative at (704) 588-8564



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PC-M178 4x28\_Rev.2\_ V-Band Assembly and Disassembly Instructions 9/02

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