UFS Corporation
Quickstart Installation Guide
XT/XL™ Membrane Electrode Cell

For

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Bulletin 994106
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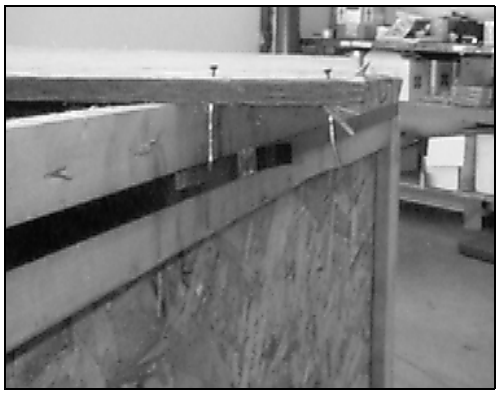
Safety

A safe work environment for our customers (their employees and outside contractors) is of utmost importance to UFS Corporation. All applicable OSHA and owner's safety requirements must be followed when performing any maintenance, inspection, repair, or testing on Electrodes and/or Electrode Systems. This includes, but is not limited to, the following safety regulations: Lockout/Tagout (Energy Control); Hazard Communication; Confined Spaces; Personal Protective Equipment; Electrical Safe Work Practices; Ergonomics and Material Handling; Accident Prevention Signs (Danger – Energized Equipment).

Before installing or working on the DC rectifier, Lockout/Tagout procedures are to be followed. Use a Splash Guard (UFSc PN 175101 or equal) on top of the Electrode Holder with ED tanks that do not have an enclosure wall surrounding the Electrodes.

On-going training of employees on ED equipment and system installation, operation, and maintenance of UFSc components is strongly recommended. MSDS (Material Safety Data Sheets) are provided for UFSc materials. Replacement or missing copies are available upon request from the UFSc Safety Coordinator.

Please read carefully before performing any work!



Unpack the Membrane Shells and Electrodes carefully!

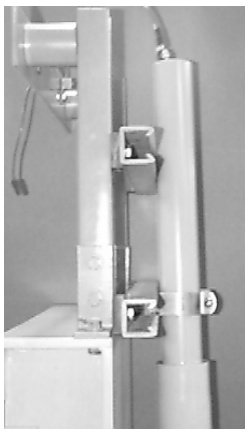
Remove any exposed nails or screws, which might cause damage.

Defects or damage must be reported to UFSc immediately. Items with manufacturing defects will be replaced free of charge by UFSc upon return of the defective item. **No items will be accepted without return authorization!**

Special Note for RuO Electrodes:
Use caution when handling. Remove all hand and wrist jewelry and wear the cotton gloves included with the shipment.

⚠ Make sure to circle the installation month and year on the label located at the top of the Membrane Electrode Cell.

Refer to installation layout drawings for proper placement.



Mount the Membrane Shell to the horizontal strut channels with two 2-piece clamps.

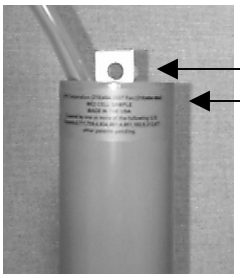
⚠ **Do not over-tighten clamps!**

Make sure each Cell has a 76.2 mm (3”) lateral clearance from any obstruction attached to or protruding through the ED tank wall.

Open Top Cells – Pull the excess supply tubing from inside the Electrode. Remove and discard the yellow sticker.

Low Profile Cells – Are pre-assembled at the factory. Take care when handling and support the Cell at the Cap and near the Bulkhead Fitting. Always install a fully assembled Low Profile XT/XL Cell.

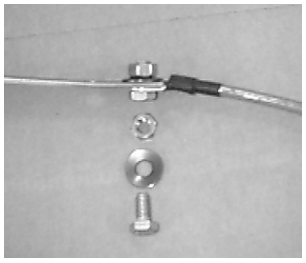
For Open Top XT/XL Cells Only:



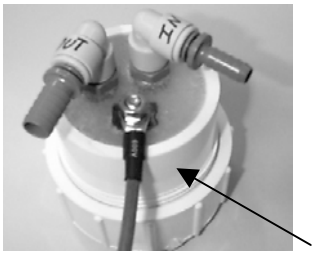
⚠ Lower the Anode into the Shell slowly. Do not drop it in!

Generally, Electrodes project out the top of the neck approximately 20 mm (3/4"). If the Electrode projects further than this, it is not properly seated in the bottom of the Membrane Shell. Jiggle and twist the Electrode until it slips into place.

⚠ Maintain a minimal 25 mm (1") air gap between the exposed Electrode portion of cable/Electrode and a possible ground.



Open Top Cells – Using the 5/16" stainless steel nut, bolt, and compression washer set provided, connect the lug end of the cable lead to the Electrode Tab. Attach the other end to the bus bar.

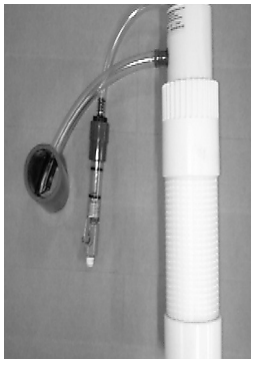


Low Profile Cells – Using the 5/16" stainless steel nut, bolt, and lock washer set provided, attach the lug end of the cable lead to the threaded stud on top of the Bulkhead Fitting. Attach the other end to the bus bar.

⚠ Maintain a minimal 25 mm (1") air gap between the exposed Electrode portion of cable/Electrode and a possible ground.

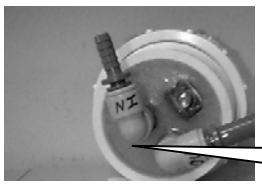
To reduce the number of connections, UFSc recommends ganging 3-5 cable leads together with a bolt-style copper lug.

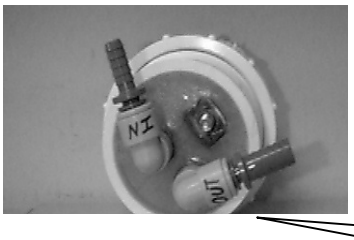
Select only clear PVC tubing, of correct I.D., to use for anolyte supply and return.



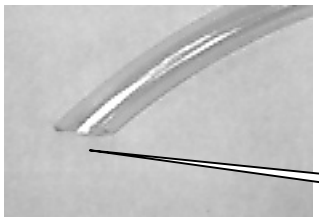
Open Top – Cut the anolyte supply tube attached to the Electrode to the appropriate length, leaving approximately 300 mm (12') of slack. Connect the tubing to the corresponding hosebarb on the supply manifold.

Low Profile – Connect the tubing to the appropriate hosebarb on the supply manifold and the inlet hosebarb of the Bulkhead Fitting.





Cut a length of anolyte return tubing that will not kink when installed, allowing for 25 mm (1") of insertion into return manifold. Cut one end at a 45° angle, inserting this end into the corresponding hole in the return manifold.



Cut the other end at 90° and lubricate the inside with a little water. For **Open Top Cells**, connect this end of the tubing to the cell overflow nozzle. For **Low Profile Cells**, connect this end of the tubing to the outlet hosebarb of the Bulkhead Fitting.

After all the Cells have been installed and the anolyte piping has been flushed, turn on the Anolyte Circulation System. Adjust the flow rate to each cell for approximately 0.81 lpm/sm (0.2 gpm/sf) of Electrode area. Minimum flow rate should be 1.5 lpm/cell (1/3 gpm).

Pressure at the termination of the anolyte supply manifold should not be greater than 0.5 bar (about 7 psi). Adjust the control valve on the discharge of the anolyte circulation pump accordingly.

Check each Cell and piping for leaks.

Post Installation Checklist

- ☐ Does the Membrane Shell hang plumb?
- ☐ Is the compression washer flat?
- ☐ Is the Electrode properly seated?
- ☐ Is the cable lead connected to the bus bar?
- ☐ Are the clamps over tightened?
- ☐ Is the supply tubing connected to the flow indicator?
- ☐ Is the return tubing connected to the overflow nozzle?

Refer to your Getting Started Package for more detailed information on your system. For further assistance contact your UFSc Sales and Service Engineer or paint supplier.