

Product Data Sheet

Topic: Electrolyte Supply & Return Manifolds

Supply and Return Manifolds connect Membrane Electrode (ME) Cells with the Cell Circulation System (CCS). The CCS flushes excess acid ions from the electrolyte solution (either anolyte or catholyte) to keep the system in balance.

As an alternative to using field labor to fabricate and install them on site UFS offers shop-made PVC Supply and Return Manifold units in 10 foot lengths. This can reduce field labor and reduce installation costs.

The Supply Manifold pieces are predrilled & tapped with ¼" NPT at the same centers as the ME Cells installed on the ED tank sidewalls. The Return Manifold is predrilled to accept the Return Tubing. Each of the pipe ends are match marked, as are the PVC couplings, resulting in a professional look when finished.

The length of the Supply and Return Manifold is matched to the Power-On distance, with an extra typically ~0.5 m (2 ft) at the exit end and another ~1.5 m (5 ft) at the front end of the ED tank. This way if ME Cells are repositioned in the future, there will still be a manifold to connect to.

Advantages

- Shop made for consistency.
- Complete kit.
- Match marks for easy, quick alignment.

Features

- Supply Manifold includes a pressure gauge and a gauge placed at the termination of each branch. Also included is a siphon breaker located at the termination of each Supply Manifold branch.
- Return manifold includes a gooseneck vent to keep dirt from entering, as well to provide a means for oxygen to vent.

Properties

- Supply Manifold is made from PVC Schedule 80 material.
- The diameter of the Supply Manifold is selected in order to maintain an electrolyte velocity of 1.0 – 1.5 meters/sec (3-5 ft/sec).
- Return Manifold is made from PVC Schedule 40 material. The slope of this pipe must be at least 2% down in the direction of the electrolyte holding tank.
- The diameter of the Return Manifold is selected in order to ensure that it is never more than ¾ full, as estimated by a Manning Formula chart with N = 0.012 (or equivalent method).

Items Supplied By Others

- PVC piping between the starting point of the manifold piping and the Electrolyte Circulation System. The pipe where the two branches (one per side of the ED tank) come together is called the Main Trunk, and it should be sized one pipe size larger than the branch size (as provided by UFS, refer to the descriptions on the Bid for the pipe size for the Supply & Return manifolds).
- Provide a suitable support every 1.5 m (5 ft), such as strut channel, and clamp as required.



• Typical Industrial ED System Electrolyte Manifolds