



UFS Corporation

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Technical Reference

Topic: Purchasing vs. Making Stainless Steel Electrodes

In an attempt to reduce equipment costs, some e-coaters make their own replacement electrodes. While this may seem ideal from an initial cost standpoint, there are some important reasons why purchasing replacement electrodes from UFS Corporation makes sense in the long run:

- **Type of Steel:** UFS Corporation uses only type 316L stainless steel in its Stainless Steel Electrodes. This steel is manufactured to have greater corrosion and heat resistance, which is necessary in applications like e-coat. UFS purchases its steel from reputable vendors who work with major steel mills.
- **Pre-Tested Steel:** All stainless steel used in our Electrodes have been tested and approved by a PPG Industries laboratory for resistance to corrosion. Each new heat is tested in an accelerated, simulated anolyte cell, and those that do not pass are not used.
- **Electrode Size/Length:** UFS carefully measures and cuts its electrode to exact specifications. Electrode pipes that are cut too short can cause premature erosion on the ends of the pipe; electrode pipes that are cut too long can block the effective functioning of the anolyte flow within the cell.
- **Electrode Tab:** The electrode tab is also made of 316L stainless steel, selected for its resistance to corrosion. The tab is cut and welded to exact specifications. An improper weld can cause a weak point that can easily be corroded. In addition, an improperly-sized hole in the top of the electrode tab can result in a weak electrical connection, which can impede the proper function of the cell.
- **Supply Tubing Configuration:** UFS Corporation runs its anolyte supply tubing inside the electrode. The supply tubing is connected to the electrode by means of a boot seal/c-ring assembly. This assembly is critical to the effective flow of the anolyte up the narrow gap channel between the electrode and the membrane shell. Improper installation of this supply line can decrease the effectiveness of the cell.

Even if after reading this, you still want to make your own 316L electrodes, UFS can supply you with everything except the pipe to make the job go quickly. UFS offers the following pre-engineered parts or kits:

Electrode Tabs

20 mm ($\frac{3}{4}$ ") standard width
32 mm ($1\frac{1}{4}$ ") for Low Profile Cells

Supply Tubing Kit

Boot Seal PC-Ring Assembly
Supply Tubing

For more information, call UFS at the phone number shown above.