

Technical Reference

Topic: Fault tolerance in TECTRON™ Cell Installations

One benefit of having a cylindrically shaped anode cell rather than a box shaped anode cell is increased fault tolerance in your e-coat system. The TECTRON Cell is cylindrical. If one TECTRON Cell is shut down, there is only minimal loss of anode area and minimal stress on the other Cells.

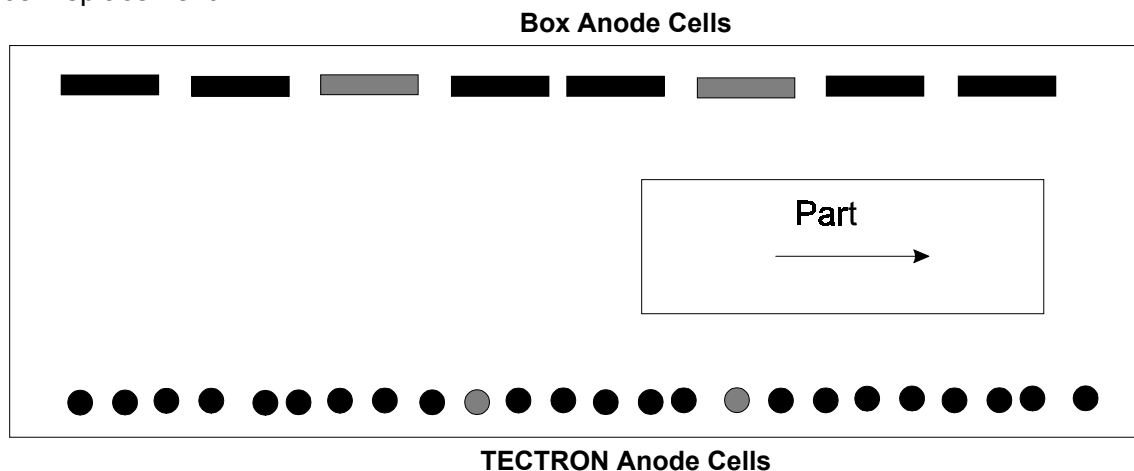
If one box anode cell is shut down for electrode or membrane replacement, its absence can cause film build problems. A greater percentage of stress on the remaining boxes creates a domino effect.

This can best be illustrated by examining the effect of a shut-down box cell vs. a shut-down TECTRON Cell in a typical e-coat line. In this example, approximately 300 SF of anode area will be required to paint the parts. The anode area is allocated at 150 SF per side, or 11 anode boxes per side vs. 40 TECTRON Cells per side. (See the figure below.)



If one box cell is shut down, approximately 10% of the anode area on that side becomes ineffective. If two boxes are down at the same time, 19% of the anode area becomes ineffective. If one TECTRON Cell is shut down, only 2.5% of the anode area on that side of the tank becomes ineffective. In addition, a TECTRON Cell can be replaced in less than 10 minutes, without lifting equipment. A box cell requires up to two hours and three persons to replace.

Conclusion

Anode cells can and do fail. Minimizing the effect of cell failure means the difference between scrapping the parts or expensive and time-consuming sanding and rework verses simple anode cell replacement.



Legend:

-  = normally operating cell
-  = shut-down cell