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Technical Reference

Topic: Low Profile TECTRON™ Cell

BACKGROUND

E-coat systems utilizing a vertical conveyor are popular because they require less floor space than a monorail system. Vertical conveyor systems, however, place special demands on the selection and operation of anode cells.

Anode cells usually require 125 mm to 225 mm (5" to 9") overflow clearance above the rim of the tank, enabling the anode cell's electrical connection to remain dry. Because of this, anode cell placement in vertical conveyor systems is a concern for designers and end-users.

The Low Profile TECTRON Cell is designed to meet this requirement by reducing the necessary working height to a minimum – barely more than the diameter of the return tubing.

PRODUCT DESCRIPTION

With the bulkhead fitting attached to its top, the Low Profile TECTRON Cell's clearance is less than 50 mm (2") above the rim of the tank. A compression gasket in the bulkhead fitting effectively seals anolyte in and paint out.

Connections through the bulkhead include: anolyte supply, anolyte return and an electrical connection. The main components of the Low Profile Cell can be replaced, including the Membrane Shell, Electrode, and the bulkhead fitting. Existing TECTRON Cell end-users can field-convert their present Cells to this configuration as well.

INSTALLATION DETAILS

Secure 1-5/8" square strut channels (steel or fiberglass) on 120 mm (4-3/8") centers to the inside of the tank wall. Make sure the top channel is flush with the rim. Drill the bottom side of each channel at 300 mm (one foot) intervals using a 13 mm (1/2") diameter drill bit to allow paint to escape. It is not necessary to bolt the strut channels through the liner of the tank wall. Hangers, welded to the rim, can be used to hand the strut channels over the side of the tank. Use clamps to attach the Cells to the strut channels (plastic clamps are recommended for long, trouble-free life because of the proximity to the paint). Use clear PVC tubing to connect both the anolyte supply and return lines to their appropriate manifolds (1/2" I.D. by 11/16" O.D. tubing is recommended). A 5/16"-18 x 5/8" stainless steel stud is the power connection.

TANK DESIGN CONSIDERATIONS

A tank freeboard at least 150 mm (6") long will keep paint from entering the lower strut channel. The anolyte return line should have no restrictions. The return manifold must be well-vented to allow entrained air and gas to escape, since the Cell itself is not vented to the atmosphere. A 150 mm (6") gap on either side of the e-coat tank is sufficient space to place manifolds and electric cables. Drip shields are not required with Low Profile Cells but are advised to keep Cells clean and provide protection from damage.