POLYTECHS, INC.

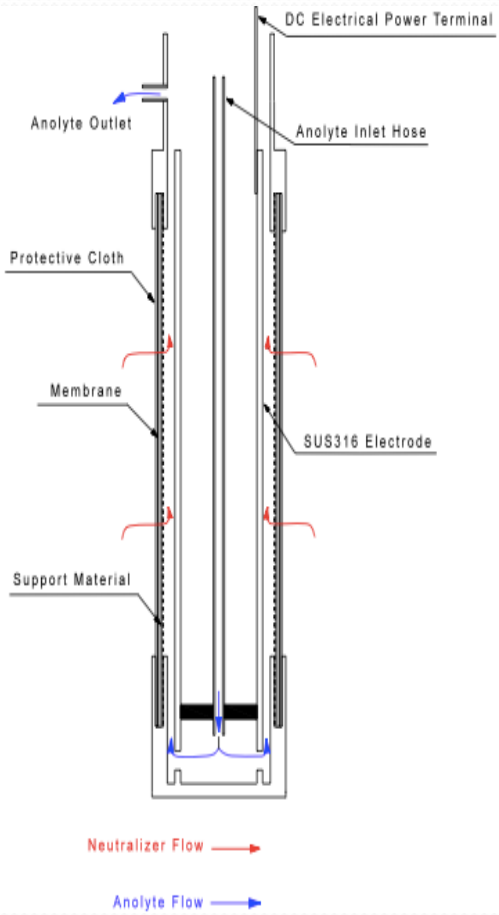
Tubular Membrane Electrode

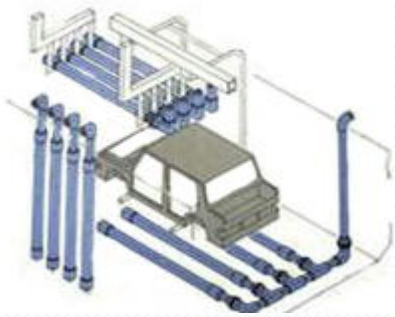
TECTRON

For better film quality, easy maintenance and outstanding customer service

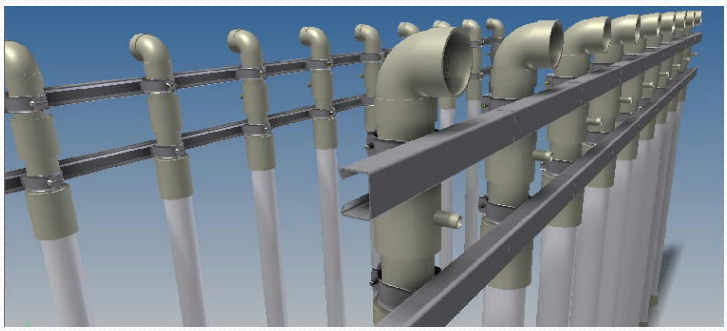
Tectron® was the first tubular type membrane electrode marketed in the cation electrodeposition industry. It is a mature product with over 30 years of continuous improvements. It is strong against electro resistance buildup and has a long product life, usually providing 5 ~ 8 years of stable usage.

Product Description

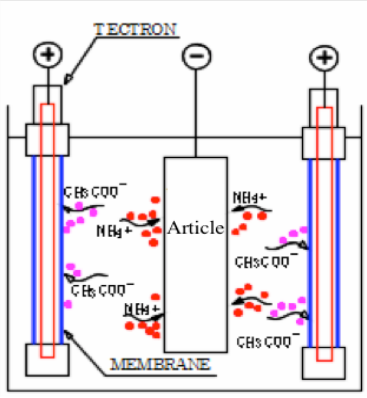




- Up to 10 meters in length can be manufactured. There are specific Tectron® configurations available where it can be installed horizontally, such as the floor of the ED tank or over the car body to obtain better and more even film thickness.
- Tubular form makes the cell withstand very high internal and external pressure. The weight is only 4kg/meter length, which makes for easy handling.
- Strength against electro resistance buildup results in long product life.
- Shell surface area: 0.21m^2/m
- Anode surface area: 0.15m^2/m

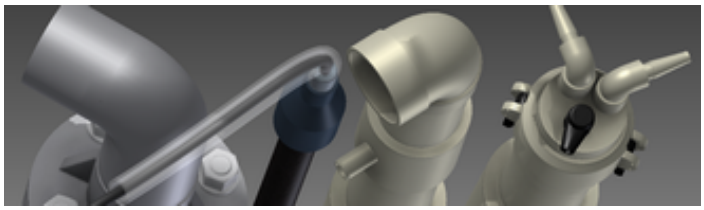


Tectron® Function



Electrodeposition is a method in which the paint solid is deposited to the articles as the paint solid is drawn by the polarity difference. With this method, an opposite electrode to the article is required. When installed in the ED tank, Tectron® functions as the opposite electrode.
Another very important function of Tectron® is to regulate the neutralizer (neutralizer acid for cation paint, neutralizer amine for anion paint) concentration in the paint bath. After a period of electrodeposition operation, an excess amount of neutralizer remains in the tank, which becomes the cause for undesirable finishing irregularities. Tectron® regulates the neutralizer concentration by steadily removing the acid from the ED tank.

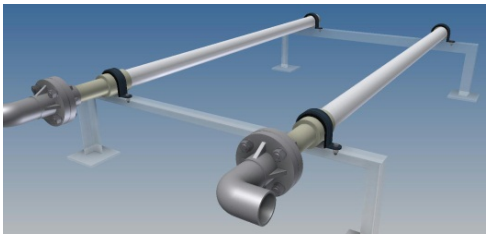
Tectron® Configuration Options



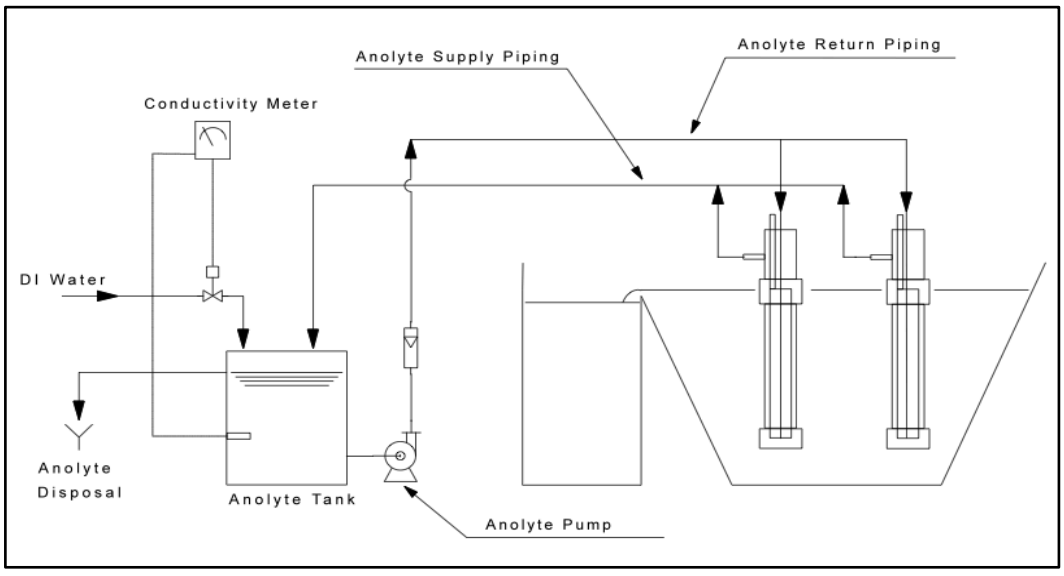
Complex shaped products such as an automotive chassis are difficult to evenly deposit film, usually resulting in film thickness differences between different surfaces. In these cases the side portion gets too much film thickness while the roof, bottom and internal surfaces do not get enough thickness. Tectron® is able to be placed horizontally at different levels of the ED tank and is able to reduce this film thickness differences.

Different types of configurations are selected depending on the mounting location. The available types are open type, closed type, and horizontal type.

- Closed type is selected when only little clearing space is available, or when regular anolyte overflow is difficult.
- Horizontal type can be used even when fully immersed. It can be placed in places conventionally not possible (such as on the bottom of the ED tank)



Tectron® Flow Diagram



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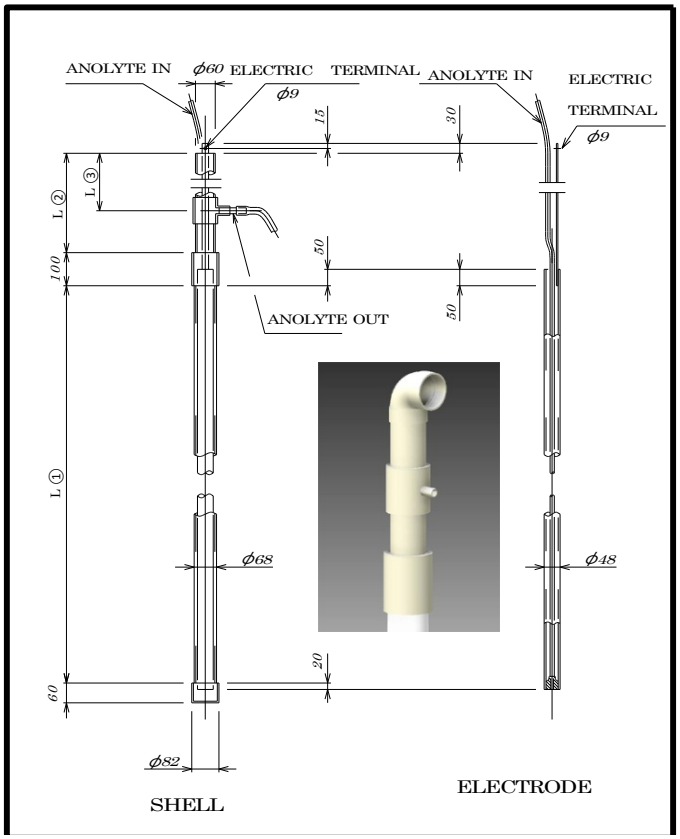
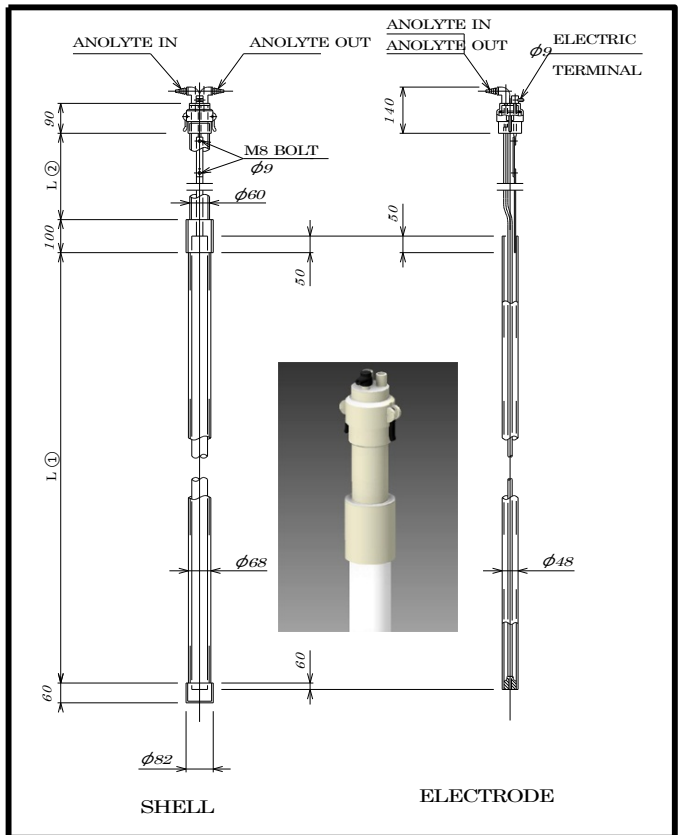
Tectron® Specifications

Membrane type	PT-AN	PT-CA	PT-LAN
Membrane type	anion-exchange	cation-exchange	neutral
Anode material type	SUS316	SUS316	PT-DSA
Acid Reduction rate	8～9μmol/C		< 0.5μmol/C
Amine Reduction rate		8～9μmol/C	< 0.5μmol/C
Water penetration initial	< 0.1cc/A・min	< 0.1cc/A・min	< 0.1cc/A・min
Water penetration after 1 year	< 0.1cc/A・min	< 0.1cc/A・min	< 0.1cc/A・min
usage	Acid reduction	Amine reduction	Low acid reduction and acid control
Product life	5～8years	5～8years	2～5years
Electrical resistance initial	0～10Ω・cm²	0～10Ω・cm²	0～10Ω・cm²
Electrical resistance after 1 year	0.1～3KΩ・cm²	0.1～3KΩ・cm²	0.1～3KΩ・cm²
Solvent loss initial	negligible	negligible	negligible
Solvent loss after 1 year	negligible	negligible	negligible

Open Type



Closed Type



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Anolyte Control System

The Anolyte Control System is critical part of the membrane electrode operation. When the process quantity increases, the anolyte conductivity increases. In order to maintain proper operation, the anolyte system must circulate the anolyte at an appropriate rate and discard the anolyte when necessary to keep the conductivity within the desired range.
The Anolyte Control System automatically controls the anolyte conductivity and incorporates all the necessary components, thus making the instruments selection and extra design work unnecessary.

Methods used for discarding the anolyte

1. Discard via the overflow mechanism. DI water supply valve opens when the upper conductivity level is detected.
2. Discard up to predefined surface level when upper conductivity limit is detected. Replenish DI water to the predefined upper surface level. Less amount of DI water is required than method No.1.

Type	AS100	AS200	AS300
Number of Tectron®	～10	～40	40～60
Anolyte pump power	0.2kW	0.4kW 0.75kW	0.75kW 1.5kW
Anolyte tank	100L	200L	300L
DI water supply valve	Motor valve	Motor valve	Motor valve
Conductivity meter	0～1000μS/cm	0～1000μS/cm	0～1000μS/cm
Anolyte flow meter	30L	50L 100L	100L 150L 200L

Anolyte Fungicide

- Fungicide in a powder form is placed in a mesh bag and dispenses the chemicals gradually through the water flow, allowing proper & consistent level of dispense rate with simple maintenance.
- The fungicide chemicals are used in ED paint and other adhesives. Even if accidently leaked into the ED tank, it will not affect the paint product finish and quality.
- The ingredients in this product are not listed on PRTR.
- This product does not contain VOC.

【Form】Placed in a navy blue colored mesh bag
Main ingredient: Isothiazolinone based fungicide
Bag size: 130mm×200mm
Weight: about 100g
Solubility: effective ingredients gradually dissolve (bag does not dissolve)

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