

Design considerations for racking metal products in electrochemical solutions

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Abstract

Electrochemical treatment is one of the most important processes used in completing and finishing the surface of the product to improve the aesthetic and phenotypic properties of it. This process gives a distinct impression to the consumer because of its high gloss, as it is sometimes used to prepare the surface of the product for electroplating.

Plating racks are also the starting point of any electrochemical processes, where the parts to be processed are suspended in suitable metallic units covered with a layer of plastisol to undergo degreasing, cleaning, painting, rinsing, drying and polishing cycles. It is preferable to use plating racks with large, complex or fragile parts, or which requires high-quality surface finishing. The best and most effective results can be achieved for electrochemical processes when plating racks are specifically created for each design of each part. Therefore, the design considerations of plating racks must be taken into account to ensure the success of the parts which require electrochemical processes, the good design of products plating racks in a way that suits the product shape improves treatment quality and reduces time and cost.

Statement of Problem

The research problem lies in the difficulty of suspending some geometrical shapes, especially spherical and cylindrical cylinders in electrochemical treatment solutions, because there are no specific design considerations for the plating racks used in the treatment process.

Purpose

It is an analytical study to know plating racks, their dimensions and the method of building them. Furthermore, it aims at knowing the process of arranging and suspending products on them in order to put design considerations for plating racks, and knowing the factors that affect the design and construction of plating racks and applications that require special plating racks.

Research Hypotheses

The development of design considerations for plating racks leads to:

- Facilitating the process of operating products in electrochemical solutions
- Obtaining excellent results for electrochemical processes through the optimal use of plating racks.

– Keywords

- Design considerations - Electrochemical treatment – Plating racks.