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Modelling and Product customization of PVC Coating Machine

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Abstract

In industrial markets, however, customization is nothing new, and has always been significant. Product customization has recently attracted interest due to the emergence of "mass customization" used the categories make-to-stock, make-to-order and engineer-to-order, which combines logistics design issues and notes that exceptions/specials" are the biggest problem in a make-to-stock environment. (Martin Spring et.al 2000)

A coating is a covering that is applied to the surface of an object, usually referred to as the substrate. The purpose of applying coating maybe decorative surface treatment, rust prevention and durability. Polyvinyl chloride coating technique is used in industries from last 40 years as a proven technology for surface coating. The advantages of this coatings are rust prevention anti-bacterial growth protection, better adhesion to steel surface, good scratch finish properties. The cost-effective technique for rust prevention and durability is need of today’s competitive engineering world. Many of the processes are used for surface treatment like surface plating, Powder coating, Painting, PVC coating. PVC Coating technique is used for coating mechanical components, construction applications, automobile applications, sports, electronic wires and cables. The advantage of this coatings are rust prevention, anti-bacterial growth protection, better adhesion to steel surface, good scratch finish properties.

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1. Introduction

A coating is a covering that is applied to the surface of an object, usually referred to as the substrate. The purpose of applying coating maybe decorative surface treatment, rust prevention and durability. The coating itself maybe an all-over coating, completely covering the substrate, or it may only cover parts of the substrate. For special applications where the durability of rust prevention is more than 30 years, PVC coating technique is used. Polyvinyl chloride coating technique is used in industries from last 40 years as a proven technology for surface coating. The advantages of this coatings are rust prevention, anti-bacterial growth protection, better adhesion to steel surface, good scratch finish properties. The degree of customization in a product line or line of services marketed is beginning to appear to be the most important product policy variable for industrial goods producers and many other types of companies (Shapiro, 1979). Customization involves an intimate connection between product design and manufacture. Product customization may be implicit in flexibility.

2. Problem Definition

Within the company, there is inherent need of present equipment mechanization i.e. the “Automated PVC coating machine” to coat the various components to increase their life span and surface finish quality. The conventional PVC coating machine is more time-consuming machine and bulky machine. Also, it requires more man power. So, that, the convectional PVC coated machine is not cost efficient machine for the coating of components. In process terms, problem solving results in a design specification. Conceptually, the solution realization process is “refracted” through the product architecture (e.g. Ulrich, 1995) and results in a particular customization type.

3. Solution

Therefore, to overcome these problems, we designed “Automated PVC coating machine” (Erickson, Kelvin T et.al1996) to coat the various component. by using this machine, we can coat the various components with in less time span, less man power, and less cost. so due to this machine production rate increases drastically as compared to conventional PVC coating machine. Along with that it also increases the surface finishing quality of components. (Petruzella, Frank D et.al 2005)

Mass customization relates to the ability to provide individually designed products and services to every customer through high process flexibility and integration. Mass customization has been identified as a competitive strategy by an increasing number of companies.

4. Objectives

1. The cost-effective technique for rust prevention and durability is need of today’s competitive engineering world.
2. For special applications where the durability of the rust prevention is more than 30 years, the PVC coating technique is used.
3. Increase hardness of the component.
4. Automatically operated hence time saver.
5. Labour reduction.
6. Rust prevention.
7. Increase production rate.

5. Modelling Of Components

5.1. Components:
1. SQ. Tube 100*100*8mm
2. Motor 5HP 1440 RPM
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