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MULTI SPINDLE DRILLING MACHINE WITH INDEXING
MECHANISM

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The main objective of this process is to use the multi spindle drilling machine with indexing mechanism in real time application. However there are different types of mechanism available for carrying out different operations, this is useful for sliding of fixture 7° to 9° by using indexing mechanism. In olden times only the doubled headed spindle drilling machine is used for drilling. By using this mechanism we can use the machine as user friendly. By using this the production rate will be increased. Productivity depends upon many factors, one of the major factors being manufacturing efficiency with which the operation/activities are carried out in the organization. Productivity can be improved by reducing the total machining time, combining the operations etc. By designing and manufacturing of multi spindle drilling machine with indexing mechanism is attached. This project deals with design and development of multi spindle drilling with indexing mechanism for cycle time optimization of the work piece.

DESIGN AND ANALYSIS OF EROSION PROTECTION SHEILD FOR REHEATER TUBES IN BOLIER S

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In Ennore, thermal power plant was installed on 1970' s .It has a capacity of 340 MW at present. Out of which 2X60 MW & 2X 110 MW. The boilers are used to produce the steam in which, the flue gases are generated and it enters the reheater tubes area. As the flue gas has approximately 40% of ash content in it which hits the surface of the reheating tubes in boilers. This avalanche attack of flues gas on boiler reheater tubes causes erosion of the tubes at its bend near the goose neck area. So as to prevent the erosion tubes, erosion protection shields are erected. Our project focuses on the material which is most suitable for the hot zone atmosphere and based on the thermal boundary condition. The analysis is carried out in CFD software. The life span, cost effectiveness and mechanical properties of the material shield are determined.

DESIGN AND DEVELOPMENT OF GRAVITY CONVEYOR SYSTEM FOR HANDLING ASYMMETRIC COMPONENTS

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A gravity conveyor system is a common piece of mechanical handling equipment that moves materials from one location to another. Material handling plays an important role in manufacturing and logistics. Conveyors are especially useful in applications involving the transportation of heavy or bulky materials. Conveyor systems allow quick and efficient transportation for a wide variety of materials, which make them very popular in the material handling and packaging industries. Many kinds of conveying systems are available, and are used according to the various needs of different industries. Conveyors are able to safely transport materials from one level to another, which when done by human labor would be strenuous and expensive. They can be installed almost anywhere, and are much safer than using a forklift or other machine to move materials. they can move loads of all shapes, sizes and weights. Also, many have advanced safety features that help prevent accidents. Gravity conveyors are designed for most types of manufacturing and material handling systems. Gravity conveyor systems some of the most efficient in the industry, both mechanically and economically.

FABRICATION OF MOTORSPORT VEHICLE

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The aim of our project is to fabricate the roll cage and assembly of other component of motors port vehicle with improved driver's ergonomics safety and to achieve enhanced performance. The main objective is to attain the maximum performance by reducing the weight of the vehicle and at the same time providing high level of comfort to the driver. It is a small four wheeler run by low rpm engine. This report documents the process and methodology to produce a low cost motor sport vehicle(Go Kart). There is no suspension therefore chassis have to be flexible enough to work as a suspension and stiff enough not to break or give way on a turn. The material which is opted for chassis is AISI-1020, low carbon steel. The AISI-1 020 steel material has less weight and high load carrying capacity and also low cost.

DESIGN AND ANALYSIS OF AIR PRE-HEATER FOR EFFICIENCY IMPROVEMENT OF BOILER

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An Air pre-heater is a heat exchanger in which air temperature is raised by transferring heat from one media to another such as flue gas to atmospheric air. This device is not essential for operation of steam generator, but they are used in industries, where a study of cost indicates that money can be saved or efficient combustion can be obtained by their use. In this project, the design and analysis of Air pre-heater is done for a boiler in Madras Fertilizers Ltd. In the design, the length, diameter, thickness and number of tubes for the heat exchanger are calculated along with efficiency of boiler before and after the addition of the air pre-heater. The heat balance sheet is shown and 3D model is done in Inventor software. In analysis, we found temperature distribution, static pressure and velocity of flow through tubes for air pre-heater using CFD analysis software and finally the material selection and cost estimation for air pre-heater is done. The decision for its adoption can be made when the financial advantages is weighed against the capital cost of the air pre-heater.