

DESIGN AND FABRICATION OF VIBRATING TABLE FOR SEPERATING OF NUTS USING DIFFERENT SIZES MESH

¹J.Manikandan, ²J.Hameed Hussain

¹Asst.Professor, ²Dean Engineering, ^{1,2}Department of Mechanical Engineering,
Bharath University, BIHER, Chennai-73.

¹manikandan.mech@bharathuniv.ac.in, ²deanengg@bharathuniv.ac.in

Abstract: According to the current situation, society of labor, salary, and for automatic operation, elimination of labor work is necessary for the future days. In current situation the water treatment plant uses these types of separator to separate the faces and unwanted material from the water. The vibrating table is fixed with the crank which moves the tray to vibrate it and act as a separator with the help of DC motor. Advantage is to obtain the easy separation of things according to mesh

Keywords: Vibrating Table, Food Processing Industries, Mineral Industries, Water Treatment, Plants or Any Of The Industries.

1. Introduction

Much research is going on to improve how to separate the things very fast and easily. Mostly the industries such as food processing unit, Mineral ore and sewage treatment plant. They have been continuously searching for the methods of separation in a easy and simplest way. The industries such above mentioned depends upon the vibration table like thing .[1-4]

2.1. Vibration table:

For the separation process in any unit or any type of industries such as the food processing industries, mineral industries, water treatment, plants or any of the industries. It is safely enough to handle because it is light weight as it is made of aluminum frames and has a greater range of separation of the things. In water treatment industry, the solids that exit the through the conveyer. Municipal and some of the industries the vibrating table is used for the classification of size of solid waste.[5-9]

2.2. DC motor

A DC motor is a machine that converts direct electrical power into mechanical work. Mostly all types of DC

motors have either electro-mechanical or electronic to alternatively change the direction of current flow in part of the motor. All types of motor has rotary motion, a linear motor directly induces forces and motion.[9-8]

3. Description of Components

3.1. Aluminum 'L' Angle Frame

It made from aluminum and it alloys plays a role in aerospace and are most important in other areas of transportation and in defined structural material. Aluminum alloys are used in engineering field and components which are light weight or it should be corrosion resistance is material. The strength and durability of aluminum alloys very broadly and practically by of heat treatment and manufacturing process.[11-10]

3.2. Roller Slides

Roller slides are also said a crossed roller slides. It is low friction with linear movement. It is non-motorized for equipment that works by inertia or by hand. Roller slides has better movement control. Materials used aluminum and the rods.[14]

3.3. Mesh

Mesh use to filter the nuts and made of metal, fiber/flexible –ductile materials. Nylon wire mesh filters are used in filtration mostly.[12-13]Used in the drum separator and trammel type separator.

3.5. Screws, Bolts and Nuts

Screws:-A screw is a typical fasterne made of metals and screwed of helical ridge called threads[28-30].

Bolts:-Bolt is externally threaded fastener designed for fitting in assembled parts, and intended normally to bet lightened or released through net through .

4. Assembly & installation

4.1 Assembly of Table

The vibrating table is placed on the wooden plank and bolted. The vibrating table shaft is connected to the DC motor through the gear [21-27].

4.2 Assembly of DC motor

DC motor is placed and bolted in a table frame. Shaft is [15] connected through the gear of a motor to the gear shaft. The entire unit is placed over the wooden plank.

5. Working principle

The working of the vibrating table mainly depends on converting rotary motion provided by D-C motor which runs either by 3-9volt battery or using 24v DC adapter which is used to convert AC to DC and applies current to the motor. [16-17] The motor is provided which different gears to provide the required motion as it rotates the shaft connected to the movable framing portion does back and forth motion as such the mesh attached to it when moves or slides separates the nuts of required size based on the size of mesh. [18-19] This process can be used for as many number of different sizes of nuts.

6. Benefits of motorized vibrating table

- The vibrating operation is simple.
- The current consumption is very low.
- It can be utilised for separation of mass produced different types of nuts in a singleturn and also other solid mixtures with different sizes of mesh involvement.
- Simple in construction and easy to use.
- It is compact in size and less weight.

7. Advantages

- (1) Different types of nuts can be separated which depends on mesh size used.
- (2) It can be used for paddy separation with the involvement of fan at the base of table.
- (3) Now days, separation of different sizes of solid material is need of howls, this project can be used for separation of different sizes of solid only by changing mesh of required size. [19]

8. Conclusion

Vibration table is plays on important role in today's mechanical field. Companies where mass production of nuts is done different sizes of nuts can be separated

easily. The project can be extended to continue separation of different sizes of nuts by involving series of mesh. by using this one can get rid of manual separation which is time consuming.

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