

Fabrication of Grain Drier

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Abstract— We have seen the importance of rice cracking in edge method, exactness management of drying conditions is very important. This paper presents the Fabrication of grain drier wont to take away the wetness content from grains, post gather. The paper provides you the detail concerning the storage of the grains for very long time by removing wetness, which may adversely have an effect on the grains and its quality. If the wetness content is gift in the grain then it's not appropriate for very long time storage and further method. this method uses one economical moving arrangement for grains and several carriage encapsulated by duct having one body of water and outlet arrangement for dry air and body of water outlet arrangement for grains. The drying is achieved by permitting the warmth from heat chamber to flow on to the screw conveyor with the assistance of exhaust fans gift within the heat chamber. The limitation of natural sun drying or natural air drying that is time intense method.

Keywords: Heater, Grain Drier, Motor, Conveyor, Fan, Control Panel Drying Method

I. INTRODUCTION

India being a predominately agricultural based mostly country, wherever in seventieth of the population as farmers and observe agriculture for a living. Technological advancement ought to improvise so as to scale back the work load of a farmer and build their work a lot of mechanized and straightforward.

Drying is that the method of removing the wetness content from the grains of the crops when they need been harvested. After gather grains typically contain concerning twenty five to half-hour wetness content that isn't ideal to store them as they'll crystal rectifier to discoloration, spoilage, encourage development of molds, and increase the chance of attack from pests. It's going to result in decrease the germination rate just in case of rice seed. Delays in drying, incomplete drying or ineffective drying can cut back grain quality and end in losses. To preserve/store them for an extended time, they have to be dried to 14 July of wetness. It conjointly reduces gather losses, as well as head shattering and cracked kernels.

II. CONSTRUCTION

The summary of the heating sort screw driver rig style containing a screw conveyor inserted within associate ring-shaped heat pipe. The necessary dimensional properties as shown

The screw conveyor had a complete feathered length of 914 mm and both pitch and also the outer diameter were

152 mm. The clearance between the screw and also the barrel (inner wall of the inner tube) was 139 mm. It was created from 316-grade chrome steel to produce a decent corrosion resistance in dampish atmosphere .The screw was driven by a gear and motor assembly (high force dc motor) with a variable speed of 1–40 rpm

III. COMPONENTS

Name Of Component	Quantity	Specification
Screw Conveyor	Diameter 6 Inch Length – 3 foot	Move Semi-Solid Materials
Heating Elements	12 V 200W	NA
Exhaust Fan	1	NA
Electric Motor	1	Output power 250 watt 300 rpm
Pedestal Bearing	1	Model no UCP 205 Material Cast steel
Shaft	3 inch	Mild steel (Hollow Pipe)
Outer Chamber	1	Galvanized Iron

IV. CALCULATION:

Diameter of Screw Conveyor = 6 inch

Length of Screw Conveyor = 3 Ft.

Chamber Dimensions,

Length = 77.5 cm

Breath = 56.5 cm

Height = 91.5 cm / 3 Ft.

Torque:

$P = 2\pi nd/60$

P= Power= 250 watt

N = Speed = 100 rpm

T =?

$250 = 2 \times 3.14 \times 100 \times T / 60$

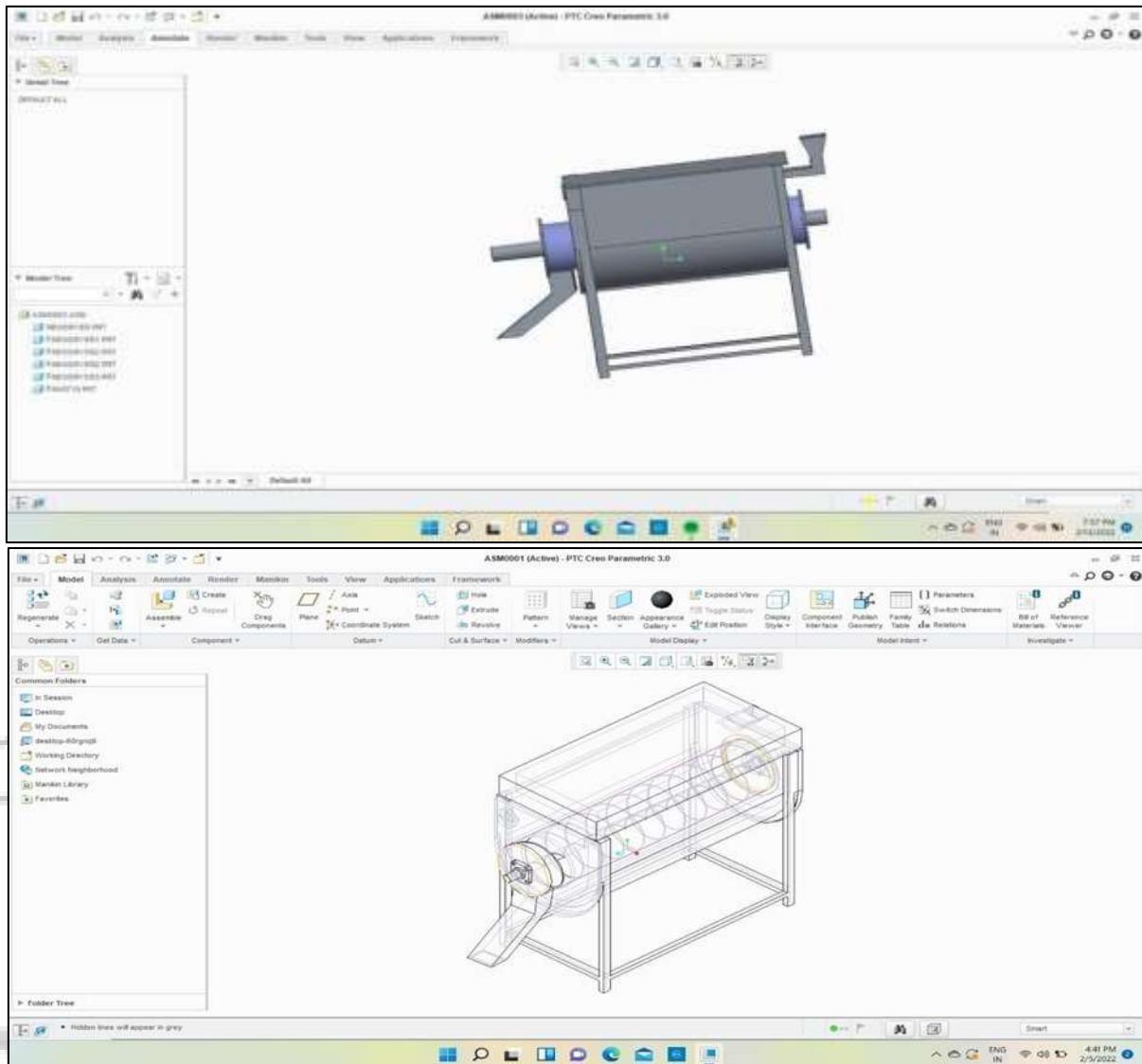
$15000 = 6.28 \times 100 \times T$

$15000 = 628 \times T$

$T = 23.88 \text{ N.M/S.}$

V. CAD DESIGN:

I simulate the design in CAD modelling software name CREO. The Graphical acquisition provides appropriate tools to design and analyze our idea.



VI. SIGNIFICANCE OF DESIGN OF GRAIN DRIER:

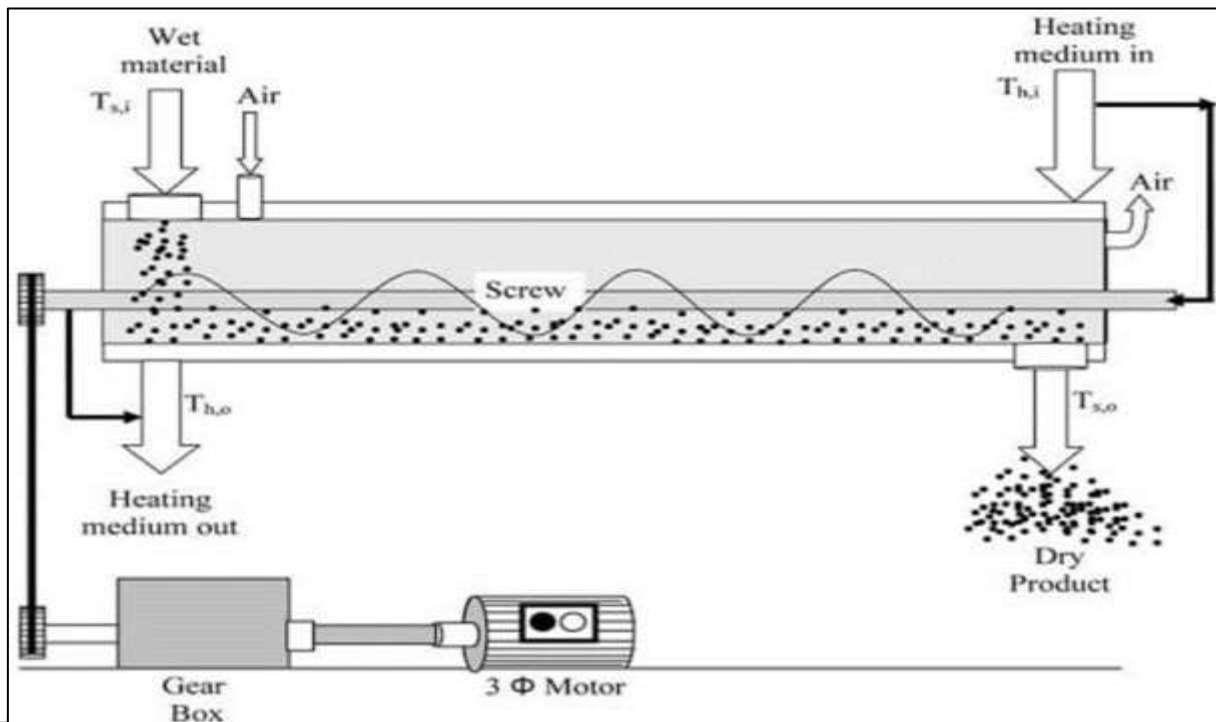
The purpose of storage is to produce the dried grain with protection against insects, molds, rodents and birds, and to stop wetness from re-entering the grain. But, if the drying isn't done properly, there will be losses despite however smart the storage is.

Technological advancements has caused tons of changes in our day to day life and that we are vastly grateful

for that. Similarly, the agricultural sector has been growing everyday either in its production or within the technological facet.

Natural sun drying technique would use the heat from the sun rays to dry the grains for a period of 10-15 days, which gets very tedious and monotonous. Making use of the same principle, in this paper it use the heat generated from a heating coil along with the exhaust fan, which there by produce sheet required to dry the grains as per the specifications and standard which is desire.

VII. PROPOSED DESIGN



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