

Design, Analysis and Manufacturing of Automatic Paneer Cutting Machine

Pramod B. Jadhav¹, Shubham S. Bhise², Chetan T. Thorat³, Ganesh S. Pawar⁴, Vikram A. Patil⁵
^{1,2,3,4,5}Student, Dept. of Mechanical Engineering, Jaywant College of Engineering & Management, Sangli, India

Abstract: There are so many small scale industries which cut the paneer manually. With manual cutting process there are chances of injury to the workers as well as it is time consuming process. Also manual paneer cutting operation does not cut the paneer into equal weight of pieces. Therefore, there is a scope for Automatic Paneer Cutting Machine. Purpose of this project is to design and manufacture the semi-Automatic low cost Pneumatic Paneer Cutting Machine for small scale industry.

Keywords: Double Acting Cylinder, Direction Control Valve, Paneer, Compressed Air.

1. Introduction

In small scale industries paneer is being cut manually. There are 3-4 workers works continuously in shift for cutting operation. By manual cutting operation more human efforts are required and cleanliness is not maintained. Also paneer shape and size will not be in uniform shape by manual cutting. Hence, our aim is to overcome this type of problems by manufacturing automatic pneumatic paneer cutting machine. Therefore, with the help of automatic paneer cutting machine we will able to reduce the cost, minimize human efforts and minimize the labor cost etc.

2. Objectives of the project

- To reduce time required for cutting.
- To reduce the labour cost.
- To cut the paneer in uniform shape and size.
- To reduce human efforts and human injury during the paneer cutting operation.

3. Proposed Work

Design, optimization and modeling of variable size pneumatic operated paneer cutting machine.

Specifications:

1. Function: Cutting of paneer with equal size and shape as per requirement.
2. Specification:
 - a) Type- Pneumatic operated
 - b) Labour- One person
 - c) General Information: The machine consists of a pneumatic circuit and cutting dies.
3. Analysis of different critical parts of the mechanism.
4. Selection of materials and drives.

A. Working Principle

Compressed air is supplied through pipeline and direction control valve controls the upward and downward movement of cutting blade. When paneer is mounted on machine table, special shape cutting blade moves in downward direction by using direction control valve and paneer cutting operation is performed as per requirement.

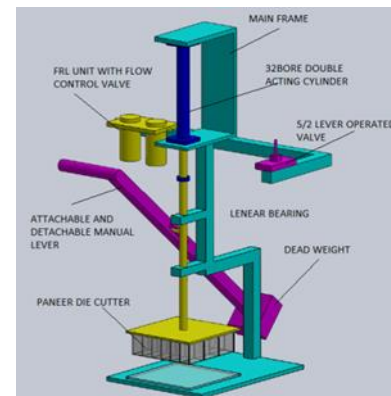


Fig. 1. Automatic Paneer Cutting Machine (3D)

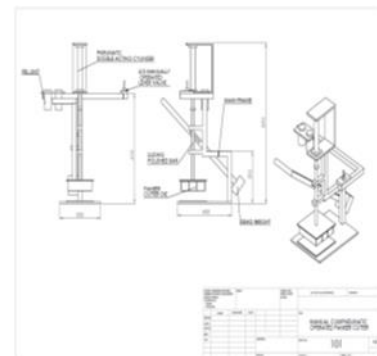


Fig. 2. Automatic Paneer Cutting Machine (2D)

4. Outcomes

- Reduce time required for cutting.
- Reduce the labour cost.
- Paneer of uniform size and shape.
- Reduce the human effort and accident during the cutting operation.

5. Conclusion

This paper presented an overview on manufacturing of automatic paneer cutting machine.

References

- [1] Gaurav Pradip Sonawne, Gaurav Shashikant Udgirkar, Shailesh Vijay Shirsath, Manish Sudhir Deshpande, "Design, analysis and manufacturing of hydro pneumatic press machine," 2004
- [2] S. R. Majumdar, "Pneumatic Systems: Principles and Maintenance," New Delhi Publication, Tata McGraw-Hill, 1995.