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INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

Vol. 03, Issue 05, May 2023, pp : 294-295

e-ISSN : 2583-1062

Impact Factor : 5.725

PLC BASAED AUTOMATION IN FEEDING AND EJECTION SYSYTEM OF POWER PRESS

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ABSTRACT

A pneumatic feeder for punch presses and the like wherein a novel circuit and arrangement is incorpo rated in the feeder control system for causing the stock gripping means on the reciprocating feed slide to be released in response to the completion of each intermit tent stock feeding stroke of the slide. This circuit and control arrangement includes a fluid motor means that is controlled by a pilot operated supplementary valve means which in turn is controlled by an air jet means that is arranged and adapted to sense the arrival of the feed slide at a predetermined position.

Keywords:-Pneumatic actuator, frame, solenoid valve, compressor ,Sensor.

1. INTRODUCTION

The process of Automation is the use of Control System and Programmable controllers to reduce the need for human work in production of goods and services which are needed in factories and industries. Basically, a set of pre-defined jobs, executed sequentially and systematically with the help of hardware and software. Nowadays, automation is employed in every small and large industry. Manual control is quite hectic, as an operator periodically has to read the process and adjust the input accordingly. Whereas, an automatic control is quite convenient, as measurements and adjustments are done automatically on a continuous basis.

2. PROBLEM STATEMENT

a) Accident Prevention while loading unloading of material.
b) To increase the Production rate.
c) Save time.
d) Less man power.
e) Avoid injuries from power press machine.

3. OBJECTIVES

The objective of this project includes:

a) To increase the response time of the operation.
b) To reduce the operation time frame
c) To avoid the injury.
d) To achieve maximum production

4. METHODOLOGY

- Literature review
- Identification of the problem
- Finding solution of the problem
- Data collection
- Design of product
- Proximity sensor
- Control unit
- solenoid valve
- pneumatic actuator
- Market survey for required components
- Purchase of required components system
- Manufacturing and assembly
- Testing and experimentation on pneumatic Feeder and Ejection Assembly.
- Evolution of result of the project.

5. PRACTICAL IMPLICATIONS / APPLICATIONS

When the air feeder operates, the material is first feed by the feed roller, and then passes through the block wheel, moves the plywood, and fixes the plywood and finally is placed on the stamping die platform so that the upper die can punch it.

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6. RESULTS AND DISCUSSION

Now days almost all the manufacturing process is being atomized in order to deliver the products atthe faster rate. the manufacturing operation is being atomized for the following reasons.

- To achieve mass production
- To reduce man power
- To increase the efficiency of the plant
- To reduce the work load
- To reduce the production cost
- To reduce the production time
- To reduce the material handling

7. CONCLUSION

In conclusion, air feeders, also known as pneumatic feeders, are an essential component of power presses in the manufacturing industry. They offer several advantages over other types of feeding mechanisms, such as speed, safety, and cost-effectiveness. By using an air feeder, manufacturers can improve their production efficiency, reduce the risk of injury to their operators, and save on maintenance costs.

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