

“Design and Development of Pistonring Feeder Mechanism”

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ABSTRACT

Aditya Enterprises is engaged in manufacturing of piston rings. The demand of the piston rings are in mass quantity and also reduce operator fatigue and to improve the productivity.

The grinding of piston ring is done now on “DUPLEX GRINDING MACHINE”. The feeding of piston ring is done by operator manually. By this method production of piston rings is 3600 per shift which is very less compare to the company requirement.

While feeding of piston rings there is possibility of injury to workers hand and fingers due to sharp edges of piston rings. Due to repetitive work leads to operator fatigue.

Keyword *Single stroke mould design, Optimization in design and manufacturing, Increase productivity, Raw Material*

1. INTRODUCTION

At present days, automation is becoming important in manufacturing industries. Automation can be done by various techniques, such as Robots, FMS, Transfer Line, SPM's, etc.

Automation is mainly designed for specific jobs. In mass production Industries Automation plays an important role because, it gives higher productivity and accuracy.

An effort is taken to Design and Develop an Automatic Piston Ring Feeder attachment for Duplex Grinding Machine as per the requirement of company, “ADITYA ENTERPRISES”, which is a “Piston Ring Manufacturer”.

The Automation Ring Feeder Attachment perform its function automatically and also requires less labour, so Automatic Ring Feeder Attachment can increase the profitability of an organization.

The aim of the project is to take follow-up of development and manufacturing of the

“DESIGN AND DEVELOPMENT OF AUTOMATIC PISTON RING FEEDER MACHINE attachment”.

2. THEORETICAL BACKGROUND

DUPLEX GRINDER MACHINE SPECIFICATIONS:-

- Duplex Surface Grinder Machine Specially Used for All Types of Bearing Cap, Connecting Rod, Ring Washers, Sheet Metal Washers, Sir Clips, and Piston Rings etc.
- Job Grinding System by Through Feed Type.
- Wheel size 350×55×25mm.
- Job capacity maximum 100mm.
- Job feeding Attachment.
- Grinding wheel spindle mounted on 4 nos. precision bearing.



3. RESULT AND ANALYSIS

It has been seen that the production rate at the time annual feeding 3600 rings manufactured per shift. After the attachment the production rate is increase by 9 Time that is 35000 rings per shift.

Table No. 3.1

Production	March 2015 per shift	March2016 per shift	Difference
	3600	35000	29000

Due to this attachment it does not require any physical appearance of worker that means safety of the worker increases.

4. FUTURE SCOPE

- Increase in productivity by 10 Time, so the bottlenecking is in the process reduced.
- We achieved continuous feed rate.

- Very simple to operating fatigue is reduced.
- Maintenance work is made easy.
- It can grind wide sizes of rings.

5. REFERENCES

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