

Bar Bending with Cutting Machine Use in Construction Department

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Abstract: Up to today bar cutting and bending is done either manually or by cutting and bending machines but these are having many drawback, less productivity. This project describes the cutting with bending of bar use in construction department. It is the new and simplest method of bar cutting with bending on single machine with bar feeding mechanism. In this research paper, a review of available methods & machines used for bending and cutting bar for stirrups making is presented.

Keywords: Stirrup making, bending operation, Cutting operation.

1. Introduction

The bending and cutting of straight reinforcement bars is still mainly done with hand operated machines. The demand of construction department is increasing for the construction of buildings. Stirrups a very important in the construction industry in the formation of reinforcement structure also called as shear reinforcement. The controls require humans to set turning angles and cut in approximate dimension and to select the appropriate pegs and pins for the turning table. There are various machines which are used for making stirrups which works on hydraulic and pneumatic. But those machines require storage tank or compressor which makes them heavy and immobile. Therefore, for portable machine, we are making rebar bending machine works on motor and microprocessor, which eliminates the need of storage tank or compressor. Here, the rod which we are cut in appropriate dimension and bending bar is square in cross-section.

2. Overview

Bar Cutting with Bending Machines are the devices which are used for cutting and bending purposes on the construction sites. Powered by hydraulic power, these machines are capable to cut the bars and bend the bars in a very extreme precision as per the requirement. With their reduced noise level, these equipment's can silently do the job in an excellent way. Optimum size and strength of the blades helps to do intensive cutting. By using this machine both time and money can be saved.

3. Information

In the automatic bar bending and cutting machine we have use three types of different mechanism's such as bar feeding mechanism, quick return motion mechanism and scotch yoke mechanism.



Fig. 1. Bar Cutting with Bending Machine

In which bar will be feed with the help of bar feeding mechanism. The cutting tool is mounted on the quick return motion mechanism after completion of 30 rotation of bar feeding mechanism the cutting tool has cut the bar and every 7 rotation of bar feeding mechanism it will bend the rod with the help of scotch yoke mechanism, hence to control the speed of motor we have use controller.

4. Conclusion

- In latest attempt a successful solution for the manual stirrup making is obtained.
- By using various mechanism we can able achieve both operation that is cutting and bending as a same time.
- The system can be handled by any operator very easily.
- Since it is cheap and simple design this machine can be sell to anywhere across the nation.
- Advance bar cutting and bending machine use for mass production. By using advance bar cutting and bending machine increases production rate and reduce labor cost.

5. Future scope

Operation for making stirrup is tedious and required continuous manual work to perform the bending operation. This

will minimize human efforts for less physical exertion of the operator. Adverse effect of repetitive work on human health is minimizing. Reduce the wastage of stirrup and this will reduce the cost of stirrup making activity. There is a scope to design the stirrup with safety standards and with ergonomic considerations which will help to avoid the incidents during manually stirrup making. Due to both operation at a same time because of that time saved with accurate work.

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