

FABRICATION OF AUTOMATIC PNEUMATIC RAMMING MACHINE

ABSTRACT-

Moulding is one of the important metals forming process in manufacturing components for various applications in industry. Casting of any size and shape can be made accurately. Automation in this field helps to improve the foundry environment and accuracy of the cast parts. Efficiency of moulding is affected by various parameters like permeability, collapsibility, adhesiveness etc. So it is a must to avoid defects in casting. The defects occur in sand castings post a great problem in foundry. On account of defects more than 10% castings are rejected. Even though skilled labor is employed for ramming operation, the packing of molding sand will not be even throughout the molding box. So we have selected the idea of fabricating “PNEUMATIC RAMMER”. This rammer is operated pneumatically. By using this rammer moulding sand will be packed evenly throughout the box.

KEYWORDS- Moulding, Ramming, Pneumatic

INTRODUCTION

The pneumatic rammer is used for ramming the sand uniformly around the pattern. It can be used even in small scale industries. To operate this rammer an air compressor is needed. A butt which is attached to the bottom of the piston rod does the operation of ramming. The pressure developed inside the cylinder reciprocates the piston and hence the butt. This rammer is handled by an operator just by moving it over the moulding sand. The butt rams the sand at places moved and the sand is uniformly rammed. This rammer reduces the ramming time and labor. Due to this the cost is reduced considerably. So this machine finds application in foundries

The compressed air goes to the flow control valve. The flow control valve is used to control the flow of air. It is adjustable one. We have to adjust the lever, so that the required pressurized air goes to the Solenoid Valve.

In our project, the solenoid valve is used as a direction control valve. This solenoid valve is controlled by the electronic control timing unit. The ramming time is varied by adjusting the timing (timer 555 IC) control of the electronic unit.

The compressed air goes to the pneumatic double acting cylinder. The ram is fixed at one end of the pneumatic cylinder. The compressed air pushes the pneumatic cylinder, so that the piston moves downward by giving air supply in one direction of pneumatic cylinder. The solenoid valve is changing the air flow in the opposite direction by the small time delay. In this time the pneumatic cylinder piston moves upward due to changing of the air flow direction. This air flow direction is controlled by the solenoid valve.

At work on

TECHNOFEST

At work as

TECHNOFEST