

Pneumatic Bending Machine

Prof. B. J. Vispute, Karvir Harsh Sandesh, Salave Tushar Sunil, Bharambe Goraksha Dattatray

Sandip Polytechnic, Nashik, India

Abstract: *In today's industrial landscape, the utilization of bending machines has surged. Bending processes find extensive applications in industries, encompassing tasks such as blanking and pressing. Various bending methods exist, with pneumatic and hydraulic bending being the most prevalent. However, pneumatic bending holds a distinct advantage over hydraulic bending. The foremost benefit of pneumatic bending lies in its remarkable speed, being ten times faster than hydraulic bending. This enhanced speed enables pneumatic bending machines to execute tasks swiftly and efficiently. Moreover, pneumatic bending machines offer exceptional flexibility, allowing placement in any desired position, including upside down, within a factory setting. Our project aims to design and fabricate a pneumatic bending machine capable of bending (0.3 to 1.00mm) thickness metal sheets. The primary goal is to introduce pneumatic sheet bending machines at construction sites, offering cost-effective solutions compared to existing bending machines while boosting stirrup productivity. The bending machine stands as a pivotal tool in sheet metal workshops, primarily serving bending purposes. The bending operation is facilitated by a punch exerting significant force on the workpiece clamped on the die. Furthermore, the bending machine is engineered to operate automatically, enhancing efficiency and ease of use.*

Keywords: Pneumatic system , Bending machine , Air compressor , Pneumatic cylinder , Solenoid valve , Bending die , Sheet metal bending , Pipe bending , Automation , Compressed air Control unit Industrial application , Force application , Cost-effective , High efficiency , Low maintenance Accuracy , Fabrication , Mechanical system , Industrial automation