UNIVERSITI TEKNOLOGI MARA

PORTABLE HYDRAULIC BENDING MACHINE WITH VARIOUS TYPES OF SHAPE

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ABSTRACT

Sheet metal hydraulic bending machine is used to bend the sheet metal to get the required shape. For example, V-shape, and U-shape. The standard of existing bending machine for sheet metal is commonly placed at a single location which is fixed and there will be a limit for user to use the machine due to the machine location. So, to improve the existing design, the objective of this project is to create a portable hydraulic sheet metal bending machine which is very affordable and reasonable for the user. This project will show how detail the process to make the machine, such as final comprehensive design, cost-efficiency of material, product specifications and how to fabricate a new design of improvement for portable hydraulic sheet metal bending machine that will make the user become easier to complete the production. The expected result from this planning is the bender will function very well to withstand the forces which are applied to bend the sheet metal. The most important component for this project is the hydraulic jack because it is the main item that must function to bend the workpiece. In conclusion, this affordable and reasonable project will give a lot of benefit to the user because it is very easy to handle it, especially to those who have the bendingtask, such as college student and vocational also technical school.

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

A bending machine is a type of device that can shape different types of work pieces using a variety of materials. The ability of this machine to change the shape of the material and its great strength to adapt with various working situations are its two most notable features [1]. Vocational schools put more of an emphasis on teaching the skills necessary for a certain career. Vocational programmed put a strong emphasis on teaching and developing skills that may be used to entry-level and middle-skilled occupations that call for specialized applied knowledge. Besides, technical schools are more focused on teaching skills commonly needed by the business world and preparing students for entry into professional careers, most often engineering or technology [2]. So, bending machines are commonly used in technical and vocational schools and engineering colleges. In this project, the bending machine will be created as portable machine which more specifically is Portable Hydraulic Bending Machine with Various Types of Patterns. It is very useful, and the estimated price is also affordable for those who want to have this machine at their own workshop, company or also schools. This project is basically aimed for technical and vocational schools and engineering colleges. Even the target is for students, the specific type of workpiece for this project is sheet metal only which has a thickness below 6mm because the design cannot handle with plate due to size and stability and the most important aspect is about hydraulic press pressure from hand pump. Moreover, this concept is designed with a fluid power concept where a hydraulic press will be used in this machine as a force to bend the sheetmetal [3].