

ABSTRACT

In the phase of the product development process, there are testing and refinement. This phase is done after detailed design such as shape, dimensions, material, and other product characteristics have been generated. In conducting the necessary testing of a sample to facilitate the work. The example referred to by the prototype. Prototype is a valuation or estimate of product based on the goals you want to approach. In a study entitled "Development of Detail Design Safety Flexible Gravity Conveyor Using Design For Assembly (DFA) Method" has been done designing tools that consider the ease in the manufacture, assembly, and also the costs required in the manufacture of products that ultimately the study resulted in a detail design such as shape, dimensions, material and other unique characteristics. The resulting design on such a prototype analytical research, using CAD software.

The design of this device has not been tested on strength and ability to withstand the load. Moreover, there are critical components such as handles and the bottom of the lower bar that needs to be reviewed because the two components appear small and fragile but have a level of interest in the functions is very high. Therefore, this study will focus on testing the strength of the structure of a tool that has been designed. Simulations were performed in this study is the Finite Element Method (FEM) based on the shape of parts and materials that have been produced. Finite Element Method allows engineers to analyze objects / products with complex geometri and composition of different materials, so as to solve dynamic problems.

The results were obtained Faktor of Safety of Safety Flexible Conveyor Gravity, which is said to be safe. Judging also the result of stress and displacement analysis stating that the tool can be applied to the real situation.

Keywords: *Faktor of Safety, Finite Element Method*