

ABSTRACT

Industrial sector in Indonesia at this time has driven a very rapid development in manufacturing technology. In overcoming the intense market competition the application of automation systems can be a solution to the chamfering process and inspection of stopper valve components on the Bench Lathe Machine SD-32A. In previous research there are no concepts and methods used to design the existing sorting machines, so there are several problems that are not standard components and the installation of components using adhesive have in inefficient assembly process result. Therefore, in this final project, improvements to the design of sorting machines are made so that designs that are initially complicated and inflexible become more efficient and simple. With the use of this method is known proposed design has a design efficiency 31.5% with a component count of 85 components while the reference design is 21.6% with the number of components of 116 components. It is known the total assembly time required for the proposal design are 714 seconds and the existing design need 996 seconds. Then based on the analysis of static structures with the method Finite Element Method (FEM) obtained maximum shear stress value, von-mises stress and maximum deflections for the component pillar sorting body and bottom base can be categorized securely because nothing crosses the critical limit or get failure.

Keywords: Bench Lathe SD-32A , DFA, Boothroyd Dewhurst, Design Eficiency, Automation