

ABSTRACT

Convection X is a home industry engaged in clothing convection that focuses on the production of tops by implementing a make-to-order production system. The type of product that is the focus of this research is T-shirts because based on production data in the period July 2020 – September 2021, it shows a fairly high difference between the percentage of defective products produced and the percentage of tolerance for defective products. The average percentage of defective products in the production of T-shirts is 4.23%, while the percentage of tolerance for defective products is 2%. One of the problematic processes is the sewing process because there is still a process performance that does not meet the standard process requirements so that the resulting product does not meet the specifications of the company. In the root cause analysis, the process requirements that are not met are used fishbone diagrams, 5 Why's analysis, and FMEA. In improving the sewing process to minimize the factors that cause defects, a sewing needle holder is designed that is equipped with an alarm and sewing needle inspection feature so that the operator can use the appropriate sewing needle and carry out periodic inspections. To do the design, Quality Function Deployment (QFD) method is used. QFD is a product planning and development method that focuses on user needs as early as possible. In the implementation plan of the design of the sewing needle holder which is equipped with an alarm and sewing needle inspection feature, it is expected to minimize the occurrence of skip stitch and hole defects during the production process. In addition, the design of the proposed tool is also expected to minimize defects in the sewing process by 40.22% from the number of previous defective products and increase the sigma level value from 3.928 sigma to 4.151 sigma.

Keywords: *T-shirts, Defect, Sewing, QFD, Sewing Needles*