

ABSTRACT

CV. Era Langgeng Mandiri is a company engaged in fabrication and mechanics that implements a make-to-order production strategy, where the company will produce products according to client specifications. In one of the production processes, CV. Era Langgeng Mandiri still has not carried out the production process optimally, especially in producing sparepart mesh polynet. In the production of sparepart mesh polynet, there are defective products that exceed the tolerance limits set by the company. Based on production data for 18 months (July 2020 - December 2021), there are 13 months in which the percentage value of defect products exceeds the tolerance limit of 5%. Based on these data, from the 6 stages of the production process, namely the eva foam cutting process, wire mesh cutting process, PVC pipe cutting process, soldering wire process, assembly process, and finishing process, defective products most often occur in the eva foam cutting process. Therefore, we will design a proposed improvement in the eva foam cutting process in this study. To find the root cause of the eva foam cutting process, this study uses the Six Sigma method with the DMAI (Define, Measure, Analyze, Improve) approach. The analysis results using fishbone diagrams and 5 why's, found that the factors causing the occurrence of defect products in the eva foam cutting process, is cutting of eva foam didn't match with the pattern. From the root of the problem, the improvement priority was selected using the FMEA, and the highest RPN was 327 in the machine factor. The design that can be done for the root of the problem on the machine factor is the design of the eva foam cutting tool. The design is carried out using the Quality Function Deployment (QFD) method. The design of the proposed eva foam cutting tool is expected to minimize defect products that occur in the eva foam cutting process by as much as 80% of the number of previous defect products and increase process capability by measuring the current sigma level from 3,386 sigma to 3,593 sigma.

Keywords – Defect, Six Sigma, DMAI, Quality Function Deployment