

ABSTRACT

PT.PINDAD is one of state-owned manufacturing companies which produce military and commercial products. To support the company's success, PT.PINDAD is committed to maintaining the quality of its products. That is realized by applying the quality control system for each production process and positioning Quality Department's representatives in each division. However, there are quality problems which experienced by one of the products from the Division of Foundry, Shoulder E Clip. Up to week 26 in 2009, the number of reject rate owned by Shoulder E Clip has over the 5% tolerance limit which is specified by Quality Department.

Based on these problems, researcher tried to make the proposal of improvements by using Six Sigma methods. Six Sigma refers to the effort of continuous improvement dramatically towards zero defect. This method aims to reduce the level of variation and defects in the production process, to produce products with better quality. Using Six Sigma methods, the root problems that cause defect products can be found, so that improvements can be done to avoid similar problems in the future. Researcher conducted four stages of Six Sigma, Define, Measure, Analyze, and Improve. Define phase is the determination of Six Sigma projects, the mapping process, and the formulation of the Critical to Quality (CTQ). In the measure phase, the measurements of process stability and the sigma value were taken in output level. In the analyze phase, researcher carried out the stability analysis, sigma-value analysis, and cause-effect analysis to identify causes factors of defects. In the improve phase, researcher carried out the proposal of defect's improvements and the priority of improvements which can be used as a reference by the company.

Four critical aspects that affect Shoulder E Clip's quality product (CTQ), such as dimensions, visualization, micro structure and mechanical properties of products was obtained based on the research's result. Sigma value of Shoulder E Clip for a period of week 2 up to week 26 in 2009 was amounted to 4.0411. There are four types of defects which have the largest contribution to generated the numbers of reject rate, which is Microstructure defective, Beku Dini , Blow Hole, and Inklusi Terak . Factors that cause the occurrence of these four defects are: operators did not comply with inspection standards, there is no standard for casting process, there is no standard for equipment's inspection, and the slag traps' system was't effective. The proposal of improvements which given by researcher based on the priority are : close supervision by Department of Quality, sanctions against operators who fail to carry out tests, creating standards for the casting process and inspection tools then socialized it to the operators, and the redesign of the gating system

Key words : defects, CTQ, six sigma