

ABSTRACT

Research is done at PT. XYZ which is the steel iron manufacturing company. Wire Rod Mill is one of its unit at PT. XYZ which produce Wire Rod Steel type SWRM8 5.5 mm. Wire Rod Steel SWRM8 5.5 mm have total product defects during the period of January 2017 to February 2018 of 9878 defective products of 115814 total products. The focus of this research is on the big defect that is less central defect that occurs in the Finishing Base Line (FBL) machine. Less center defects of the product Wire Rod Steel SWRM8 5.5 mm in Wire Rod Mill Unit PT. XYZ occurs because of roll entry position is not centered on the pass roll because there is no activity of maintaining the roll entry component periodicaly, the fault of one pass roll because there there is no activity of maintaining the pass roll component periodicaly, and the position between the upper pass roll is not parallel to the bottom pass roll because the operator install the pass roll precisely. This research uses Six Sigma method with Define, Measure, Analyze, Improve, and Control (DMAIC) approach. The stage determines the installation process on Wire Rod Mill Unit PT. XYZ by using SIPOC diagram and define the definition of product defect using Critical to Quality (CTQ). The measure stage is the stability measurement using p control chart so as obtain seven periods of stable data and process capability measurement so as obtain the average DPMO of 28753.03 and average Sigma Level of 3.39. Stage analysis was performed to analyze the cause of defects on the use of fishbone diagram and 5 Why's. The cause of less center defect are the position of roll entry not center to pass roll, shifting position of one pass roll, and position between top pass roll not parallel to bottom pass roll because operator less pecicelu mount the pass roll. The improvement stage is to provide repair solutions using FMEA. Repaired solutions are to minimize less center defect on Wire Rod Steel SWRM8 5.5 mm such as doing maintenance and replacement of pass roll component at once every 27 days and roll entry component at once every 28 days, make check sheet for maintenance activity, and make support tool for operator while installing pass roll to make it precise.

Keywords: Wire Rod Steel, Six Sigma, DMAIC, Less Center Defect, FMEA