Productivity Improvement in Manufacturing of Transmission Parts

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Abstract:
In current market scenario, two major challenges that companies face are unpredictable economic fluctuation and fierce competition. For this, companies have to adopt systematic methodology in their business model and Lean is one of the established methodologies which most of the companies prefer to implement. In the current situation, Lean strategies such as elimination of waste, debottlenecking and group technology provide major source for competitive advantage. This is mainly due to creation of flexibility in product volume and optimum utilisation of resources through lean strategies.

In this project, camshaft machining cell was taken for improving the productivity. The main objective was to increase the camshaft volume in two phases. The first phase of the objective was achieved by two routes which are elimination of waste through OEE improvement and debottlenecking through benchmark study. The OEE improvement was done by reducing scrap, cycle time reduction of bottleneck operation and reducing material waiting time. The six step methodology for problem solving was used for achieving the first phase of objective. The second phase of objective was achieved by optimum utilisation of resources through appropriate layout design and grouping of multi models in the given cells through Arena software.

The outcome of the project in first phase resulted in increase of camshaft production from 1067 to 1553 pieces per day with the benefit of OEE improvement of the cell from 80% to 88.4%. The second phase of the project results in increase of production from 1553 to 2655 pieces per day. These improvements resulted in meeting of customer demand requirement with better utilisation of resources.

Methodology used for improvement in camshaft productivity

Improvement in camshaft production - phase 1

Improvement in camshaft production - phase 2