RESEARCH AND INVESTIGATION REGARDING THE IMPROVEMENT OF THE DIMENSIONAL PRECISION OF THE ENGINE INJECTED PLASTIC PARTS

Goal of the project

To transfer knowledge to the technical staff in order to improve the quality of their parts by understanding the geometrical product specification method (GPS) and the assumptions and risks that go along with each tolerance analysis method.

Short description of the project

- The first part of the project analyzed the geometrical product specifications method (GPS) and the ISO standards used for the engine plastic injection parts from the automotive industry.
- In the second part, according with project items the group of technical staff has been familiarized with statistical knowledge used in statistical process control, multi-Dimensional Tolerance Analysis (Manual and Automated Method) and Minimum-Cost Tolerance Allocation.

Project implemented by

Design Department, S.C. MAHLE Componente de motor S.R.L., Timişoara, Romania

Implementation period

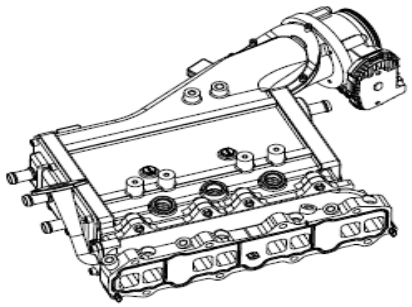
06.05.2014-30.05.2014

Main activities

- The technical staff, assisted by the research team analyzed the requirements for the parts and how to make drawings according to the ISO standards using the Geometrical products specifications method.
- Also, they made a tolerance analysis, that is the process of taking known tolerances and analyzing the combination of these tolerances at an assembly level.
- For the specific parts has been defined the process for analyzing tolerance stacks. It has shown how to set up a loop diagram to determine a nominal performance/assembly value and the techniques to calculate variation from nominal.

Results

Transfer of geometrical product specification, statistical knowledge and tolerance analysis methods to technical staff for improving the quality of technical documentation in the design phase and during the fabrication of the products.



Applicability and transferability of the results

The results of the project are applicable in the Mahle Company for improving the quality of their products and for increase the productivity. The experience accumulated with this project is very useful for monitoring and optimizing different products in other companies.

Financed through/by

S.C. MAHLE Componente de motor S.R.L., Timişoara, Romania

Research Centre

Integrated Engineering Research Center

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