

Statistical Control of Forming Process

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A qualitative product must be obtained through a stable and repeatable process. In order to control a defining characteristic of the quality of a specific product, various specific methodologies have been developed in time. One of the most known methods of this kind is the statistical control of the process which provides users with a powerful and useful range of tools designed to ensure process stability and improve capacity by reducing variability.

The topic presents a software application designed to conduct a forming process by the statistical control method. The program analyzes a database of measured values of the traceability characteristics and identifies whether these values have a statistically normal distribution. In the affirmative case, the main statistical indicators of the considered sample are calculated: maximum and minimum values, amplitude, average value, median, dispersion, process control limits and process capability index. These statistics are displayed both numerically and graphically. By using the software, it is possible to track the process and, if exists the tendency to overcome the control limits, to change the process parameters that caused the change in the quality characteristics.

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The project proposes the achievement of a unitary vision on the new tendencies from the automotive and aerospace industries by researching the production chains and the afferent intelligent technologies. The researches take in view the new tendencies applied in the fabrication of the automotive and aerospace industries. The researches have also in view the development of new materials, the application of new digital technologies for the manufacturing of prototypes of parts made from new materials, the development of control and inspection algorithms for the carosery parts, the use of efficient technologies for the cutting procedures of parts made from special materials and not in the last case the minimization of manufacturing costs by using the design of simulation models of the manufacturing fluxes.