

**Title:** Uncertainties in power computations in a turbocharger test bench

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**Abstract**

Commonly, turbochargers have to be characterized in a specific test bench. Any experimental study have measurement uncertainties and errors which have to be considered separately. It is important to make an specific study of the importance of the different terms that contribute to measurement uncertainties and to sistematic errors. In this case a specific study of a turbocharger test bench uncertainties is presented using the law of the uncertainty propagation. Each parameter measured in the test bench contributes to these uncertainties. The type of each sensor is important to optimise the quality of the measure. A criterion to select the optimal sensors used to measure different parameters depending on the experimental study to perform on the test bench is presented, as well as to consider with more precision which sensor is capable to minimize the contribution of the uncertainty value that can affect the quality of the different parameters estimation as the power, the efficiency, etc.