Virtual Testing for Automotive Components & its Integration into the OEM´s Product Creation Process

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InDesA operates a suite of virtual test benches for automotive auxiliary components, such as fans, pumps, compressors and heat exchangers. The objective is to speed up design iterations by verifying CAD designs directly by virtual performance testing and without the need of building prototype components for physical bench testing.

As automotive components from suppliers are integrated into larger systems this is done within the OEM?s development process and software environment. Consequently the component?s performance data must be adapted to suit the requirements of other simulation approaches which can be based on one dimensional analysis, e.g. for large thermal systems.

Two examples will be presented where performance data obtained by virtual testing with STAR-CCM+ are further postprocessed to meet the requirements of systems analysis. The first example will demonstrate how to efficiently populate objects for one-dimensional systems analysis for an EGR cooler. A second example will show the acoustic analysis of an engine intake system with STAR-CCM+ and its use for acoustic design.

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