

Development of a Compact-class Range Extended Electric Vehicle

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Abstract

MAHLE has developed a dedicated Range Extender engine which has been focussed on meeting the requirements for a compact-class range-extended electric vehicle (presented in Aachen 2010). In order to enable development and refinement of the Range Extender system (e.g. NVH attributes of the engine), the module has now been installed into a demonstration vehicle as a next step. A current production gasoline engined compact-class car has been chosen as a donor vehicle and converted into a range-extended electric vehicle (REEV). The all-electric driveline specification has been developed to meet the performance criteria of the conventional donor vehicle, matching the acceleration and maximum speed capabilities. Also, a target electric only range has enabled the battery pack capacity to be specified. The resulting vehicle is intended to reflect likely, near to market, steps to further the wider adoption of electric vehicles in the compact-class passenger car segment.

This study gives details of the REEV vehicle developed, the Range Extender system integration and also presents results showing the fuel efficiency achieved during drive-cycle testing.