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Study on the development of electromagnetic two speed gearbox for EV (Article)

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Abstract

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Electric drive vehicle uses one or more electric motors or traction motors for a propulsion. A multispeed electric vehicle (EV) transmission adds weight, complicacy, and friction reduce the vehicle traction efficiency. Among epicyclic transmission (ET) with a single motor gear shifter or manual transmission or automatic transmission (AT) and continuously variable transmission (CVT), the ET is a complex transmission because most of the driver doesn't know properly the transmission option. The efficiency of the gearbox is an important factor of the inverter and driving manner. The aim of this study is to develop of electromagnetic 2- speed gearbox (EM-2SGB), which would contribute on the reduction of the vehicle transmission losses from 15% to 5%. This proposed 2- speed gearbox would be able to improve the vehicle transmission shift quality and acceleration time in 250 ms to reach the speed of 35 km/h in 15% road gradient. The lighter and compact energy efficient EM-2SGB is expected to increase the vehicle overall performance about 25%. © BEIESP.

SciVal Topic Prominence

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Substances

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Author keywords

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