

عنوان مقاله:

Engine Base Plate Optimization for an Electric Vehicle Considering NVH Attribute

محل انتشار:

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خلاصه مقاله:

In the recent decades, increasing fuel cost and air pollution are caused Auto manufacturers to investigate a huge amount of resources on developing clean and more economic powers. Electric power is one of these type of the energies that provides many advantages in aspect of the economic and environmental points. Even though electric vehicles (EVs) reduce some of the concerns such as noise and vibration, but expectations of the costumers increase drastically in comparison with internal combustion engines (ICE). Therefore, acoustic engineers cope with more sever NVH targets for electric vehicle in comparison with conventional cars. The coupling of electric motor and gearbox can be identified as the main source of the noise and vibration in EVs such as ICE cars. To reduce the level of the vibration in the cabin, which is received by passengers, refinement of the E-powertrain or the paths of the vibration are known as two solutions. In this paper, engine base plate, as a path for transferred vibration, is optimized for an electric sedan car. To this end, 2 factors are chosen in as design variables. One of these factors is thickness which is surveyed in six levels and second parameter is bead pattern withfour levels. To find out optimum base plate structure, design of experiment method is applied. Finally, optimum structure for this component is proposed .consideringenhancement in vibration attribute

کلمات کلیدی:

Electric Powertrain; Vibration; Design of Experiment; Finite Element Method

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