

Topology Optimization of an Engine Mounting Bracket Using Finite Elements (Book Chapter)

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Abstract:

This project entitled topology optimization of an engine mounting bracket using the finite elements method focusing on an issue for engine mounting problem. The main objective for this project is to improve the performance of mounting bracket in term of vibration and design by using finite elements analysis (FEA) and topology method. The second objective is to develop 3D model of engine mounting backet. Finally, is to choose the best design of engine mounting with to have less of stress and magnitude. The purpose of an engine mounting bracket is to safely support the power-train system in all conditions. An engine mounting bracket is to properly balance the power pack (engine and transmission) on the vehicle chassis for good motion control as well as good isolation. A significant aspect of automotive research has always been to reduce the engine vibration and the dynamic forces transmitted from the engine to the body structure. In order to withstand these vibrations and have a smooth ride, automotive engineers face the challenge of designing mechanisms. The design of engine mounting bracket is built in SolidWorks and was analyzed and simulated by using FEA. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

ISSN: 18698433

DOI: 10.1007/978-3-030-93250-3_21

PUBLISHER: SCOPUS