

Yupa Tawan 2010: A Study of the Dimensional Effect on Dynamic Mechanical Behavior of Engine Mounts. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Mr. Chana Raksiri, D.Eng. 152 pages.

The objective of this research is to study the engine mount mechanical dynamic behavior such as the deformations, shapes and mechanical properties of composite rubber effect to engine mount deformation by finite element analysis. Consider the vibration absorption and measurement stiffness of engine mount model. The rubber hyperelastic material model using the strain energy function which is expressed by the Ogden model and the relaxation function was represented by a prony series $N=2$. The finite element models of engine mount to simulate the vibration frequency of 3 levels are 20, 35 and 50 hertz and the dynamic load is 1,200 N. In this research, the design of experiments was conducted to find the most appropriate parameter of the engine mount setting to the higher value of vibration absorption and stiffness of engine mount by using 2^3 Factorial Design to find the optimal factors values. Finally, the significant factors and optimize the parameters of engine mount dimension such as width is 58 millimeter and angle is 90 degree.

Student's signature

Thesis Advisor's signature