

## Static Analysis Of Steering Knuckle And Its Shape Optimization

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### Static Analysis Of Steering Knuckle

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The static strength test for steering knuckle is necessary to validate the component according to the application. Here, the steering arm static analysis of steering knuckle was done by using finite element analysis (FEA software) and experimental testing by using hydraulic actuators and fixtures.

### Static Analysis of Automotive Steering Knuckle ...

The steering knuckle is an essential component in All-Terrain Vehicle (ATV) which withstands alternating loads subjected to different conditions without affecting the vehicle performance. The main objective of the proposed work was to design and analysis the steering knuckle under static conditions

### Design and Analysis of Steering Knuckle at Diverse ...

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### Static Analysis Of Steering Knuckle And Its Shape ...

Keywords Steering knuckle component, Static Analysis, Material,and ANSYS WORKBENCH 15.0. INTRODUCTION. Steering knuckle is the critical component of the vehicle which is linked with suspension system. It allows steering arm to turn the front wheel and it also supports the vertical weight of the vehicle.

### Design and Analysis of Steering Knuckle Component - IJERT

savings. To apply loading on steering knuckle due to longitudinal reaction and vertical reaction and weight of vehicle and steering reaction. The design of the steering knuckle model prepare in CREO 2.0 and the static analysis is done in ANSYS WORKBENCH 15.0 consider the reaction .This result is verifying by compare with calculation.

### STRUCTURAL ANALYSIS OF STEERING KNUCKLE

Steering knuckle model of light utility vehicle (LUV) is modelled in solid works with existing dimension. This model is further used for process of optimization. The forces acting on the steering knuckle are due to forces created the tire due to static or dynamic conditions when vehicle is stationary or in running conditions. Analysis of ...

### Design and Analysis of Steering Knuckle for Electric ATV

Fig. 5. Meshed model of steering knuckle. Analysis - The static analysis was done by using ANSYS WORKBENCH 15. In the preprocessor, the element type solid 186was chosen for the knuckle component. Because of elasto-plastic nature of material, the result varies with linear analysis to nonlinear analysis. So in this -

### FATIGUE ANALYSIS OF AUTOMOTIVE STEERING KNUCKLE

Steering knuckle model of light utility vehicle (LUV) is modelled in solid works with existing dimension. This model is further used for process of optimization. The forces acting on the steering knuckle are due to forces created the tire due to static or dynamic conditions when vehicle is stationary or in running conditions. Analysis of ...

### Design Analysis and Optimization of Steering Knuckle Using ...

part of this study i nvolves modeling of steering knuckles and analysis of the stresses and displacement under actual load conditions. A CAD and FEA software; SolidWorks, is applied for modeling as well as for static analysis studies. Shape optimization is the second part of t his study, utilizing solid Thinking

### Design and Analysis of Steering knuckle component for ...

Keywords -Steering knuckle component, Static Analysis, Material,and ANSYS WORKBENCH 15.0. 3. 1. INTRODUCTION . Steering knuckle is the critical component of the vehicle which is linked with suspension system. It allows steering arm to turn the front wheel and it also supports the vertical weight of the vehicle.

### Design and Analysis of Steering Knuckle Component

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Static analysis of steering knuckle To observe maximum stresses and deformation of steering knuckle when different forces such as braking force, load transfer during acceleration and braking etc ...

### A REVIEW ON STEERING KNUCKLE ANALYSIS

A static analysis can, however, include steady inertia loads such as gravity and rotational velocity, and time - varying loads that can be approximated as static equivalent ... The analysis of the steering knuckle used for project shows that the maximum stress occurs for combined loading ...

### Topology optimization of Automotive Steering Knuckle using ...

The main objective of this paper is to reduce the weight of a steering knuckle by applying the topology optimization technique and minimized the mass of steering knuckle. Steering knuckle is an important component of the vehicle and it's connected to the suspension system. CAD Model of steering knuckle has been done in Catia V5. 3D model has been meshed in HYPERWORKS. Static analysis part ...

### Static Analysis and Topology Optimization of Steering ...

- The Steering Knuckle component is the most important part of vehicle which is connected to front wheel with the help of suspension system, wheel hub and these are also connected to steering system and brake to the chassis. The Steering Knuckle

### (PDF) Design and Analysis of Steering Knuckle Component ...

Raj RP, Palpandi K (2015) Static analysis and topology optimization of steering knuckle by using finite element method. Int J Innov Res Sci Eng Technol 4(13):220-227 Google Scholar 5.

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FINITE ELEMENT ANALYSIS OF THE STEERING KNUCKLE 5.1 Analysis Procedure 5.1.1 Static Analysis A static analysis calculates the effects of steady loading conditions on a structure, while ignoring inertia and damping effects such as those caused by time varying loads.A static analysis can, however, include steady inertia loads such as gravity and rotational velocity, and time - varying loads ...

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