Analisis respon dinamik bogie monorel = dynamic response analysis of monorail bogie

Siregar, Riduan Akbar, author

Abstrak

[ABSTRAK
Dalam penelitian ini objek yang dikaji adalah model baru bogie monorel tipe UTM 125 dengan menggunakan sistem suspensi tipe suspended, hasil rancangan dan produk nasional. Tujuan dari penelitian ini secara umum adalah untuk menganalisa karakteristik gaya dinamik dari tiap komponen poros dalam struktur bogie monorel dan secara khusus adalah untuk mengevaluasi tingkat kenyamanan gerak kendaraan monorel. Analisis dan simulasi numerik gerak kereta monorel dilakukan dengan menggunakan perangkat lunak Simwise® dan NumXL®. Penentuan tingkat kenyamanan kendaraan monorel berdasarkan pada standar ISO 2631 dan standar EN 12299:2009. Dari hasil analisa diketahui bahwa gaya dinamik pada arah lateral memberikan pengaruh terjadinya gerak rolling pada struktur carbody dan dari hasil evaluasi kenyamanan diketahui bahwa percepatan arah lateral paling besar terjadi pada struktur carbody yang berada di atas bogie. Secara umum dapat disimpulkan bahwa tingkat kenyamanan kendaraan monorel masih dalam kategori tidak nyaman, sehingga diperlukan penyempurnaan lebih lanjut terhadap sistem dan struktur bogie monorel.
<hr>
ASBTRACT
In this research the object being studied is a new type model of monorail bogie UTM 125 by using the suspended type of suspension system, which is designed as national product. The objective of this study in general is to analyze dynamic force characteristics for shaft components in monorail bogie structure and in particular is to evaluate the comfort level of monorail vehicle. Analysis and numerical simulation of monorail train movement is conducted by Simwise® and NumXL® softwares. The determination of the level of monorail car comfort is based on ISO 2631 standards and EN 12299:2009 the standards. From the analysis result has known that the dynamic force in lateral direction give significant effect to rolling motion in carbody structure and also from the comfort evaluation result has known that most of large lateral acceleration occurs on the part of carbody which located above the bogie structures. In general it can be concluded that the comfort level of the monorail vehicle still in the discomfort category, therefore need further refinement to system and structures of the monorail bogie.;In this research the object being studied is a new type model of monorail bogie UTM 125 by using the suspended type of suspension system, which is designed as national product. The objective of this study in general is to analyze dynamic force characteristics for shaft components in monorail bogie structure and in particular is to evaluate the comfort level of monorail vehicle. Analysis and numerical simulation of monorail train movement is conducted by Simwise® and NumXL® softwares. The determination of the level of monorail car comfort is based on ISO 2631 standards and EN 12299:2009 the standards. From the analysis result has known that the dynamic force in lateral direction give significant effect to rolling motion in carbody structure and also from the comfort evaluation result has known that most of large lateral acceleration occurs on the part of carbody

which located above the bogie structures. In general it can be concluded that the comfort level of the monorail vehicle still in the discomfort category, therefore need further refinement to system and structures of the monorail bogie., In this research the object being studied is a new type model of monorail bogie UTM 125 by using the suspended type of suspension system, which is designed as national product. The objective of this study in general is to analyze dynamic force characteristics for shaft components in monorail bogie structure and in particular is to evaluate the comfort level of monorail vehicle. Analysis and numerical simulation of monorail train movement is conducted by Simwise® and NumXL® softwares. The determination of the level of monorail car comfort is based on ISO 2631 standards and EN 12299:2009 the standards. From the analysis result has known that the dynamic force in lateral direction give significant effect to rolling motion in carbody structure and also from the comfort evaluation result has known that most of large lateral acceleration occurs on the part of carbody which located above the bogie structures. In general it can be concluded that the comfort level of the monorail vehicle still in the discomfort category, therefore need further refinement to system and structures of the monorail bogie.]