# Análisis termodinámico de un disco de freno automotriz con pilares de ventilación tipo NACA 66-209 [

2018

text (article)

Analítica

Introduction: The braking system of a car must work safely and predictably in any circumstance, which implies having a stable level of friction, in any condition of temperature, humidity and salinity of the environment. For a correct design and operation of the brake discs, it is necessary to consider different aspects, such as geometry, type of material, mechanical resistance, maximum temperature, thermal deformation, resistance to cracking, among others. Objective: In the present work the analysis of the brake system from the pedal was carried out as the beginning of the kinetic and dynamic calculations of the constituent elements and in this way simulate the behavior of an automotive brake with NACA 66- 209 Methodology: The development of the investigation was carried out by means of the execution of a Finite Element Analysis (FEA) with the help of the SolidWorks Simulation Software, where the geometric model of the disk was carried out in order to identify the elements submitted to maximum temperature variations. Results: The results correspond to the results of the tests that were carried out with the numerical results, optimizing the geometry type of the aid to the fastest evacuation of calories disc brakes. Conclusions: These systems work in optimal conditions, that is to say: speed of 80 Km / h, in an environment of 22 C generating a braking temperature of 60.5 C. These values guarantee high levels of safety and operation compared to other types of geometries, in addition to being able to determine their operating conditions under different working conditions
Introduction: The braking system of a car must work safely and predictably in any circumstance, which implies having a stable level of friction, in any condition of temperature, humidity and salinity of the environment. For a correct design and operation of the brake discs, it is necessary to consider different aspects, such as geometry, type of material, mechanical resistance, maximum temperature, thermal deformation, resistance to cracking, among others. Objective: In the present work the analysis of the brake system from the pedal was carried out as the beginning of the kinetic and dynamic calculations of the constituent elements and in this way simulate the behavior of an automotive brake with NACA 66- 209 Methodology: The development of the investigation was carried out by means of the execution of a Finite Element Analysis (FEA) with the help of the SolidWorks Simulation Software, where the geometric model of the disk was carried out in order to identify the elements submitted to maximum temperature variations. Results: The results correspond to the results of the tests that were carried out with the numerical results, optimizing the geometry type of the aid to the fastest evacuation of calories disc brakes. Conclusions: These systems work in optimal conditions, that is to say: speed of 80 Km / h, in an environment of 22 C generating a braking temperature of 60.5 C. These values guarantee high levels of safety and operation compared to other types of geometries, in addition to being able to determine their operating conditions under different working conditions

**Título:** Análisis termodinámico de un disco de freno automotriz con pilares de ventilación tipo NACA 66-209 electronic resource]

**Editorial:** 2018

**Documento fuente:** INGE CUC, ISSN 2382-4700, Vol. 14, Nº. 2 (Julio - Diciembre), 2018, pags. 9-18

**Nota general:** application/pdf

**Restricciones de acceso:** Open access content. Open access content star



**Lengua:** Spanish

**Enlace a fuente de información:** INGE CUC, ISSN 2382-4700, Vol. 14, Nº. 2 (Julio - Diciembre), 2018, pags. 9-18