<<FISITA 2012 世界汽车工 >

图书基本信息

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内容概要

《FISITA 2012世界汽车工程年会论文集和摘要集》主要内容包括：Multi-Coil High Frequency Spark Ignition to Extend Diluted Combustion Limits、Multiple Injection and Boosting Benefits for Improved Fuel Consumption on a Spray Guided Direct Injection Gasoline Engine、Gray Cast Iron Cylinder Head Thermal Mechanical Fatigue Analysis、Development of FAW 2.0 L Turbocharged Gasoline Direct Injection Engine、Faw V6 High Performance Gasoline Engine for Executive Class Car、Air System Proposal and Testing for a Downsized Two-Stroke Diesel Engine等。

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书籍目录

章节摘录

Research on Torque-Angle Tightening of High Strength Bolt in Internal Combustion Engine Wenfeng Zhan, Jian Wu, Fake Shao, Chuhua Huang Guangzhou Automobile Group Co., Ltd. Automotive Engineering Institute, China KEYWORDS - bolt, torque-angle tightening, elastic, plastic, elongation ABSTRACT Research and/or engineering questions/objectives： Torque-angle tightening is widely used in the internal combustion engine. Actually, torque-angle tightening is an indirect method of length measurement tightening, used to make the bolt's plastic elongation rate right after tightening. Usually, the bolt's plastic elongation after tightening could only be measured by experiments. We researched on how to calculate the plastic elongation of the bolt after tightening when both elastic and plastic elongations occur, considering the tolerance of the torque and angle-what is the most important point but never be mentioned in most ofthe research. Methodology： We calculated the bolt's preload and elongation after tightening based on the handbook of mechanical design on the assumption that all the elongation was elastic. At the same time we calculate the bolt's limited preload according to the VDI 2230 base on the material. Then we can work out the bolt's actual preload and plastic elongation and so on according to the two calculations mentioned above. All these were shown clearly in a figure. Finally we validated the calculation's result by experiments. Results： We found out a simple and efficient way to calculate the plastic elongation of the torque-angle tightening bolt, which was also proved coincident with the experiments. We can make sure the tighten method without the experiments, which was very useful when designing the high performance bolt connection. Limitations of this study： In order to calculate the stiffness of the bolt and boss exactly, we should use FEA method instead of conventional method , especially when the boss was more complicated than a simple cylinder. ……

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