

¹DESIGN OF THE MOTOR VEHICLES FROM THE ASPECT OF HIGH STRENGTH STEELS APPLICATIONS

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Summary

Design of the motor vehicles from the aspect of high strength steels applications is considered in this paper. Specific problems of applications in motor vehicles are put in correlations to characteristics and properties of this steel grade. The nature, characteristics and properties of high strength steels are briefly discussed in the paper to establish the set of influential factors related to design of motor vehicles from the aspect of high strength steels applications. High-strength low-alloy steels are the materials with currently fastest growing share of application in motor vehicles. Those steels have significantly different characteristics from the characteristics of conventional steels that they replaced. The market demands that are put on design of motor vehicles even enlarge the usage of high strength steels in motor vehicles. The advantages of usage of this steel grade are put in correlations with particular mechanical design procedures which are required by those applications. The concrete tasks in design procedures of motor vehicles which are related to applications of those steels are recognized in this paper. It is concluded in the paper that applications of high strength steels in motor vehicles put new significant perspectives in design, but, also, brings some problems that must be solved in process of design of motor vehicles. The applications of high strength steels in the elements of motor vehicles provide many positive effects on affordability, safety, reliability and duration of exploitation period. The full advantages of applications of high strength steels in motor vehicles can be realized only by optimization of its design procedures due to specific characteristics and properties of high strength steels.

Key words: Design, motor vehicles, high strength steels

DIZAJN MOTORNIIH VOZILA SA ASPEKTA PRIMENE ČELIKA POVIŠENE JAČINE

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Rezime

U radu je razmatran dizajnan motornih vozila sa aspekta primene čelika povišene jačine. Specifični problemi vezani za ovu primenu stavljeni su u korelaciju sa karakteristikama i osobinama ove vrste čelika. Priroda, karakteristike i osobine čelika povišene jačine su ukratko razmatrane u radu da bi se ustanovio skup uticajnih faktora koji se odnose na dizajnan motornih vozila sa aspekta primene čelika povišene jačine. Nisko legirani čelici

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povišene jačine trenutno predstavljaju materijal sa najbržim rastom udela primene u motornim vozilima. Ovi čelici poseduju značajno različite karakteristike u odnosu na konvencionalne čelike koje zamenjuju. Tržišni zahtevi koji se postvljaju pri dizajnu motornih vozila čak uslovljavaju širenje upotrebe čelika povišene jačine. Prednosti primene ovih čelika su stavljenе u korelaciju sa konkretnim postupcima tokom dizajniranja koje zahteva ova primena. Konkretni zadaci u postupku dizajna koji se odnose na primenu ove vrste čelika su prepoznati u ovom radu. U radu je zaključeno da primena čelika povišene jačine otvara nove, zanačajne perspektive u dizajnu, ali takođe i donosi konkretne probleme koji se moraju rešavati tokom dizajniranja motornih vozila. Primenom čelika povišene jačine kod elemenata motornih vozila ostvaruju se mnogi pozitivni efekti u smislu dostupnosti, sigurnosti, pouzdanosti i trajanja perioda eksploatacije. Puna prednost primene čelika povišene jačine kod motornih vozila može se ostvariti jedino optimizacijom njihovog dizajna u odnosu na specifične karakteristike i osobine čelika povišene jačine.

Ključne reči: dizajn, motorna vozila, čelici povišene jačine