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STRESS STATE ANALYSIS OF TRAILED VEHICLES SUPPORT STRUCTURES

This paper deals with determining stress picture for the elements of the support structure of a semitrailer. Particulars of formation of a discrete model and of defining characteristic regimes of calculation are explained. For determination of global response of constructions models formed by beam element method are used. open cross-section members. Knowledge of the stress picture of open cross-section member connections is necessary. For that purpose models of areas of interest are formed by flat element method and introduced. Special attention is paid to introduction of a network model into a global beam model, as an important aspect of subject considerations is the analysis of influence of weld location to the stress state picture of joint areas. Calculation of several versions resulted in concrete guidelines in respect to technology of manufacture, i.e. preparation of characteristic joints.

Key words: Finite element method, support structure, stress state.

ANALIZA NAPONSKOG STANJA NOSEĆE STRUKTURE PRIKLJUČNIH VOZILA

Problematika rada vezana je za utvrđivanje naponske slike stanja elemenata noseće strukture priključnog vozila (poluprikolice) primenom metode konačnih elemenata (MKE), a s ciljem smanjenja sopstvene mase. Značajan deo rada posvećen je predstavljanju metodološkog prilaza za sagledavanje naponskih stanja zone spojeva osnovnih nosećih elemenata (podužni, poprečni i ivični nosači), koje karakteriše otvoren poprečni presek i međusobno mimoilazne osame u prostoru. Objašnjene su specifičnosti formiranja diskretizovanih modela i definisanja karakterističnih proračunskih režima. Grafički su predstavljeni rezultati proračuna, a posebna pažnja u radu je posvećena sagledavanju uticaja lokacije vara na naponska stanja u zoni osnovnih nosača, sa posebnim osvrtom na mogućnost generalizacije izloženog prilaza i dobijenih rezultata.

Ključne reči: Metod konačnih elemenata, noseća struktura, naponsko stanje.