Rational designing the hatch edging thickness when constructing the spacecraft compartment

© T.V. Burnysheva, O.A. Shteynbrekher

Kemerovo State University, Novokuznetsk Institute Branch,
Novokuznetsk, 654041, Russia

In this paper we investigate the ways to improve the strength of the anisogrid composite lattice structures used in constructing spacecraft. We suggest a solution to the problem of rational designing the lattice shells with the regular rib structure imperfection. When choosing the thickness of the stepped edging of the lattice shell cutout we recommend to pay due consideration to the stress concentration reduction in the structural components near the cutout outer edging. It is shown that the solution should be sought with account for the edging mass from the tolerance region limited by the approximating functions of the stress concentration coefficients in the shell structural components. We obtained the values of the edging thickness that allow reducing the stress concentration in the structural components.

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Burnysheva T.V. (b. 1972) graduated from Kemerovo State University, Cand. Sc. (Eng.), Head of the Department of Informatics and Computer Engineering, Kemerovo State University, Novokuznetsk Institute Branch. Research interests include: numerical methods, mathematical modelling of statics, stability and dynamics of composite structures. e-mail: tburn@mail.ru

Shteynbrekher O.A. (b. 1990) graduated from Kemerovo State University, Assist. Professor, Department of Informatics and Computer Engineering, Kemerovo State University, Novokuznetsk Institute Branch. Research interests include: numerical methods, mathematical modelling of statics, stability and dynamics of composite structures. e-mail: olga_sht@mail.ru