

Stress-strained state of supports for energy construction

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Abstract

© Research India Publications 2015. In practice of construction of tangent towers, supports for wind-generator installations, supports for lighting equipment and the others it is used their different industrial designs that vary in cross-section, in particular. Support cross-section may be solid or lattice [1]. At the same time, the indicated types of cross-section can be realized with application of different profiles. The selection of the cross-section type is technical-an-economic problem on providing minimum steel consumption or the projected support cost. Support of variable cross-section for energy construction is studied for determining optimization of steel consumption in manufacturing [2, 3]. It is considered the balance of lightly conic rod by action of longitudinal force and bending moment, it has been obtained analytical expressions for determination component stress-strained state. Due to it, optimal parameters such as inclination angle of wall, thickness, number of edges have been obtained. For practical realization it is suggested the program «AutoRSS.02» for ECM. The results obtained on this program turned out to be quite reliable (convergence up to 1,4%). The fundamental advantage of the developed program is the solution of specific problem for design of the objects of energy construction, that is, stress-strained state of the supports with lightly conic cross-section and essential simplification of initial data input.

Keywords

Energy construction, Power transmission tower, Stress-strained state of variable cross-section rod, Support for wind generator installation, Variable cross-section rod