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The Nonlinear Research on Rotational Stiffness of Cuplock Joint

Authors : Liuyu Zhang, Di Mo, Qiang Yan, Min Liu

Abstract : As the important equipment in the construction field, cuplock scaffold plays an important role in the construction process. As a scaffold connecting member, cuplock joint is of great importance. In order to explore the rotational stiffness nonlinear characteristics changing features of different structural forms of cuplock joint in different tightening torque condition under different conditions of load, ANSYS is used to establish four kinds of cuplock joint models with different forces to simulate the real force situation. By setting the different load conditions which means the cuplock is loaded at a certain distance from the cuplock joint in a certain direction until the cuplock is damaged and considering the gap between the cross bar joint and the vertical bar, the differences in the influence of the structural form and tightening torque on the rotation stiffness of the cuplock under different load conditions are compared. It is significantly important to improve the accuracy of calculating bearing capacity and stability of the cuplock steel pipe scaffold.

Keywords : cuplock joint, highway tunnel, non-linear characteristics, rotational stiffness, scaffold stability, theoretical analysis
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