

THICKNESS COMPARISON FOR BUCKLING ANALYSIS OF STIFFENED CIRCULAR PLATE SUBJECTED TO IN- PLANE LOADING

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ABSTRACT

In the present investigation Numerical Simulation of Analysis of Buckling of Stiffened Circular Plates Subjected to In-Plane Loading has been done. Circular plate of radius of 0.5m and thickness of 0.005m of the plate is held constant for all the cases that are studied. The boundary conditions considered are such that the plate is fixed and released in radial direction. Stiffened circular plates subjected to the above loads and boundary conditions are numerically simulated using ABAQUS 6.10 version. Stiffeners of various cross sections were placed at different locations of circular plate to investigate their effectiveness in order to make economical. In all the analysis, a circular plate with T, HAT and I-shaped stiffeners are used. The effect of positioning I, T and HAT shape stiffeners on thin walled circular plates was studied using numerical method. A circular plate with T, HAT and I-shape as such one stiffener, two stiffeners, and three stiffeners with varying thickness of stiffeners are used. Height of stiffener is taken as 0.01m is constant of them. Thickness of the stiffener is taken as 0.002m to 0.008m with an interval of 0.001m. HAT and I-shape have width stiffener are taken constant as 0.01m. It is found that introducing a stiffening ring would result in higher buckling load, Increased in the number of stiffeners, leads to increase in the strength.

KEYWORDS: Buckling Load, ABAQUS6.10, Stiffened Plate, Circular Plate