THERMAL EFFECT ON AXI-SYMMETRIC VIBRATIONS OF A CIRCULAR PLATE OF EXPONENTIALLY VARYING THICKNESS AND DENSITY

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Abstract

The object of this work is to study the effect of a constant thermal gradient on free axisymmetric vibrations of an orthotropic elastic circular plate of exponentially varying thickness. The governing differential equation of motion is solved by Frobenius method. The natural frequencies are obtained for an orthotropic circular plate with clamped and simply supported edge conditions, for various values of taper constant and temperature gradient. Transverse deflections of clamped and simply supported orthotropic circular plate for different modes and different values of taper constant and temperature gradient are shown graphically.