



Transverse shear and normal deformation theory for vibration analysis of curved bands

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A new laminate model is presented for the dynamic analysis of laminated curved bands. The collocation curved band is used to denote a cylinder panel in the plane strain state. The differential equations which govern the free vibrations of a curved band and the associated boundary conditions are derived by Hamilton's principle considering bending, shear and normal deformation of all layers. The author used a new iterative process to successively refine the stress/strain field in the sandwich curved band. The model includes the effects of transverse shear and rotary inertia. The iterative model is used to predict the modal frequencies and damping of simply supported sandwich curved band. The solutions for a three-layer curved band are compared to a three-layer approximate model.

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