

Effect of Lamination Constitution on Buckling of Composite Laminated Cylindrical Shells under Hydrostatic Pressure

by

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(Received on Sep. 26, 2001, accepted on Dec. 19, 2001)

Abstract

Advanced fiber-reinforced laminated composite materials have been used for structural members in various fields, because of their high specific strength and stiffness. In general, laminated composite cylindrical shells behave differently from homogeneous orthotropic cylindrical shells due to their anisotropy and unsymmetric lamination. In the present paper, the buckling problems of carbon fiber/epoxy (CFRP) cross-ply and angle-ply laminated cylindrical shells under hydrostatic pressure are considered. That is, the effects of stacking sequence, number of layers, lamination angle, buckling modes and dimension of cylinders, on the buckling pressure are analysed by assuming the buckling patterns which satisfy the equilibrium equation based on the Flügge-type expressions.

Key words : *Structural analysis, Composite materials, Laminated cylindrical shells, Buckling strength, Hydrostatic pressure, Lamination constitution*

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