



Research Details :

> MainPage

> About College

> Files

> Researches

> Courses

> Favorite Links

> Our Contacts

Visits Of this Page: 12



Research Title : *Rotating variable-thickness orthotropic cylinder containing a solid core of uniform-thickness*

Rotating variable-thickness orthotropic cylinder containing a solid core of uniform-thickness

Descriptipn : This paper presents accurate elastic solutions for the rotating variable-thickness and/or uniform-thickness orthotropic circular cylinders. The present circular cylinder may contain a uniform-thickness solid core of rigid or homogeneously isotropic material. Different cases of rotating cylinders of various cores are investigated. These cylinders include completely isotropic solid cylinder, uniform-thickness orthotropic cylinder containing an isotropic core, variable-thickness orthotropic cylinder containing an isotropic core, uniform-thickness orthotropic cylinder containing a rigid core, and variable-thickness orthotropic cylinder containing a rigid core. For all cases studied, exact elastic solutions are obtained and numerical results are presented. The results include the radial, hoop, and axial stresses and radial displacement of the five cylinder configurations. The distributions of displacement and stresses through the radial direction of the rotating cylinder are obtained and comparisons between different cases are made at the same angular velocity.

Research Type : Article

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