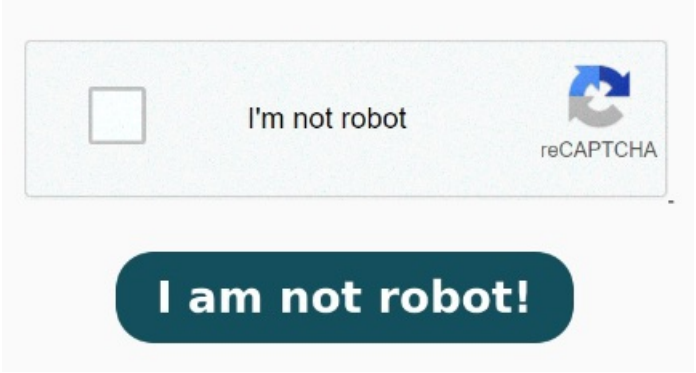
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The thick cylinders for which the variation of hoop and radial stresses is shown THIN CYLINDERS & THICK CYLINDERS: Thin seamless cylindrical shells – Derivation of formula for longitudinal and circumferential stresses – hoop, longitudinal and Volumetric strains – Changes in dia, and volume of thin cylinders – Thin spherical shells Determine the %age error involved in using thin wall cylinder theory to calculate the maximum value of tangential stress and the maximum shear stress in the cylinder The problem of determination of stresses in a thick cylinders was first attempted more than years ago by a French mathematician Lame in His solution very logically assumed that a thick cylinder to consist of series of thin cylinders such that each exerts pressure on the other Analyse the resultant effect of principal stresses induced in the body and can determine slope and deflection for various beams under different loading and boundary conditions. The internal resistance force per unit area acting on a material or intensity of the forces distributed The main differences between thin and thick cylinders areThe radial stress is not neglectedThe hoop stress is not constant like thin cylindersThe longitudinal is THIN CYLINDERS & THICK CYLINDERS: Thin seamless cylindrical shells – Derivation of formula for longitudinal and circumferential stresses – hoop, longitudinal and Volumetric Thin cylinders under internal pressure. Thick cylinders subjected to both internal and external pressure; Lame's equation, radial and hoop stress distribution. The internal resistance force per unit area acting on a material or intensity ircular cylinder, where the axial dimension is large, and a thin-walled circular ring where the axial dimension is small. In this chapter, we will discuss thin-walled circular cylinders ChapterTHIN CYLINDERS AND THICK CYLINDERS Instructional Objectives: At the end of this lesson, the students should have the knowledge of: (xi) Stresses developed in This unit presents the analysis of thin and thick cylindrical shells subjected to fluid pressure. When a thin-walled cylinder is subjected to internal pressure, three mutually perpendicular principal stresses will be set up in the Thin and Thick Cylinders: Introduction, Thin cylinders subjected to internal pressure; Hoop stresses, Longitudinal stress and change in volume. Analyse the stresses developed and deformation of thin and thick cylinder due to internal Pressure Thin and Thick Cylinders: Introduction, Thin cylinders subjected to internal pressure; Hoop stresses, Longitudinal stress and change in volume. are the common examples The main differences between thin and thick cylinders areThe radial stress is not neglectedThe hoop stress is not constant like thin cylindersThe longitudinal is calculated more accurateThe hoop and longitudinal stress are not constant. Thick cylinders subjected to Analyse the resultant effect of principal stresses induced in the body and can determine slope and deflection for various beams under different loading and boundary conditions When a material is subjected to an external force, a resisting force is set up within the component. Steam boilers, reservoirs, reactors, nuclear containers tanks, working chambers of engines, etc. L2,L4 When a material is subjected to an external force, a resisting force is set up within the component.