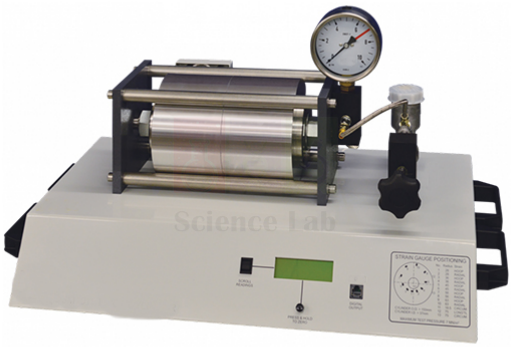
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Product Name :

Thick Cylinder

Product Code :

SLE/ETP/10



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Description :

Thick Cylinder (Product Code: SLE/ETP/10) is a self-contained, bench-mounting stress analysis apparatus used to investigate how radial and hoop stresses and strains vary through the wall of a pressurised thick-walled cylinder, in strength-of-materials laboratories. A core item of lab equipment for technical institutes, it carries ten strain gauges inside the wall so students can compare measured strains with theory. It is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, an OEM engineering lab equipment manufacturer, at its own factory in Ambala, India.

Specifications

Parameter	Detail
Type	Self-contained, bench-mounting experimental apparatus
Cylinder	Thick-walled aluminium cylinder held in a robust frame
Construction	Cylinder made in two halves, cemented together
Gauges inside the wall	Ten strain gauges at precise radii and orientation, in an eccentric shallow groove on one face of the joint; jointing cement fills the groove
Through-wall measurement	Radial and hoop strains
Wall-surface gauges	Strain gauges on the inner and outer walls measure longitudinal and circumferential strains
Pressurisation	Oil inside the cylinder, pressurised by the student with a hydraulic hand-pump
Product code	SLE/ETP/10
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the Thick Cylinder Apparatus Used For?

Hydraulic rams, high-pressure pipes and gun barrels have walls too thick for simple thin-wall formulas, because stress changes from the bore to the outside surface. Lamé's theory predicts that hoop stress is greatest at the bore and that radial stress falls from the internal pressure at the bore to zero at the outer surface. The Thick Cylinder lets students test that prediction directly.

Students raise the oil pressure in steps with the hand-pump, read the ten embedded gauges and the inner and outer wall gauges, and convert the strains to stresses. Plotting them against radius and overlaying the theoretical curves is a classic exercise in engineering lab equipment courses. Zero every gauge before pumping, let readings settle at each pressure step, and release pressure fully at the end of the session.

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