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INFLUENCE OF PRESSURE, THICKNESS, AND DIAMETER ON RELIABILITY OF THIN CYLINDERS

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Abstract: Thin cylinders play an important role in chemical industry and engineering applications. In this paper, reliability analysis has been carried out for both ends closed and made with aluminum alloy of 2024-T6 thin cylinder by using MATLAB software. Reliability is obtained on the basis of probabilistic approach by considering material strength, pressure, thickness and inner diameter of cylinder as random variables. Stress and strength follow normal distribution. Resultant stress of the cylinder is taken in terms of circumferential stress, longitudinal stress by neglecting radial stress.

Keywords and Phrases: Thin cylinder- Reliability- Stress- Strength- Normal distribution- Pressure- Thickness- Inner diameter of cylinder- Mean- Variance.

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