

## Non-Homogeneity in a Thick Walled Rotating Circular Cylinder under Varying Pressure

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**Abstract :** The effect of pressure and temperature in non-homogeneous circular cylinder by taking non-homogeneity of material in terms of compressibility  $c=c_0r^{-k}$  has been observed. From the results, it could be seen that for  $K<0$ , high pressure is required in the initial yielding state than for the case  $K>0$ . Under thermal conditions for value  $K<0$ , lesser amount of pressure is required for initial yielding, and further, the amount keeps on decreasing with an increase in temperature. Curves are drawn between pressure and radii ratio for initial and fully plastic state with and without temperature conditions. Further graphs between stresses (hoop and radial) and radii ratio for fully plastic state with and without temperature conditions are also drawn and concluded that hoop stresses become minimum with the increase in temperature as compared to radial stresses.

**Keywords :** cylinder, elastic, plastic, copper, steel, stresses, pressure, load

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