

ELASTIC-PLASTIC TRANSITION STRESSES IN A DISC HAVING VARIABLE THICKNESS AND POISSON'S RATIO SUBJECTED TO INTERNAL PRESSURE

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ABSTRACT

Elastic-plastic transitional stresses in an annular disc having variable thickness and variable poisson's ratio subjected to internal pressure has been derived by using Seth's transition theory. It is seen that thickness and poisson's ratio variation influence significantly the stresses and pressure required for initial yielding. The thickness variation reduces the magnitude of the stresses and pressure needed for fully plastic state. It is seem for fully plastic state that circumferential stresses is maximum at tehe outer surface.

Key words: Elastic-plastic, disc, thickness, pressure, stresses.