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Stability of Square Plate with Concentric Cutout

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Abstract : The finite element method is used to obtain the elastic buckling load factor for square isotropic plate containing circular, square and rectangular cutouts. ANSYS commercial finite element software had been used in the study. The applied inplane loads considered are uniaxial and biaxial compressions. In all the cases the load is distributed uniformly along the plate outer edges. The effects of the size and shape of concentric cutouts with different plate thickness ratios and the influence of plate edge condition, such as SSSS, CCCC and mixed boundary condition SCSC on the plate buckling strength have been considered in the analysis.

Keywords : concentric cutout, elastic buckling, finite element method, inplane loads, thickness ratio
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