عنوان مقاله:

Numerical and Experimental Study of Buckling of Rectangular Steel Plates with a Cutout

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خلاصه مقاله:

Steel plates are used in various structures, such as the structures of the deck and body of ships, bridges, and aerospace industry. In this study, we investigate the buckling and post-buckling behavior of rectangular steel plates having circular cutouts with two boundary conditions: first, clamped supports at upper and lower ends and free supports at other edges; second, clamped supports at upper and lower ends and simply supports at other edges, using finite element method (by ABAQUS software) and experimental tests(by an INSTRON servo hydraulic machine). In this research, in addition to the aspect ratio, the effect of changing the location of the cutout on the buckling analysis is investigated. The results of both numerical and experimental analyses are compared and showing a very good agreement between them.

کلمات کلیدی:

Buckling, Steel plates, Cutout, Experimental analysis, FEM