**عنوان مقاله:**

Numerical and Experimental Study on Ratcheting Behavior of Steel Cylindrical Shells with/without Cutout Under Cyclic Combined and Axial Loading

**محل انتشار:**

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**خلاصه مقاله:**

Ratcheting behavior of steel ۳۰۴L cylindrical shell under cyclic combined and axial loading are investigated in this paper, numerically. Cylindrical shells were fixed oblique at angle of ۲۰° and normal with respect to the longitudinal direction of the shell and subjected to force-controlled cycling with non-zero mean force, which causes the accumulation of plastic deformation or ratcheting behavior. Numerical analysis was carried out by ABAQUS software using nonlinear isotropic/kinematic hardening model. Numerical results compared to experimental data that was performed by an INSTRON ۸۸۰۲ servo hydraulic machine. Simulations show good agreement between numerical and experimental results. Also, the effect of length, angle of cylindrical shell and existence of cutout are studied with finite element method. Seen, the bending moment plays a strong role in increase of plastic deformation. It is observed that there is more plastic deformation for cylindrical shell under combined loading in comparison to cylindrical shell under uniaxial loading. Ratcheting behavior is sensitive to cutout and showed that creating the cutout increases the plastic deformation.

**کلمات کلیدی:**

Cylindrical shell, Numerical and experimental study, Cyclic combined and axial loading, Cutout

**لینک ثابت مقاله در پایگاه سیویلیکا:**

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