

## عنوان مقاله:

Evaluation of combined hardening model in ratcheting behavior of pressurized piping elbows subjected to in-plane moments

## محل انتشار:

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## خلاصه مقاله:

In this paper, the ratcheting behavior of carbon steel (ASTM A106B) and stainless steel (304L) elbows is studied under steady internal pressure and inplane external moments at frequencies typical of seismic excitations. The finite element analysis with the nonlinear isotropic/kinematic (combined) hardening model is used to evaluate ratcheting behavior of the elbows. Material parameters are obtained from several stabilized cycles of specimens that are subjected to symmetric strain cycles. The rate of ratcheting depends significantly on the magnitudes of the internal pressure, dynamic bending moment and material constants for combined hardening model. The results show that the maximum ratcheting occurs in the hoop direction at the crown. Also, the results show that initially, the calculated rate of ratcheting is large and then decreases with the increasing cycles. Also, the results obtained by using the combined hardening model gives acceptable adaptation in comparison with the other hardening models (AF and Chaboche hardening models); however, this model gives overestimated values comparing with the experimental data

## کلمات کلیدی:

Ratcheting, Pressurized elbow pipe, In-plane bending moment, Strain hardening, Finite element

## لینک ثابت مقاله در پایگاه سیویلیکا:

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