

عنوان مقاله:

Hot Spot Stress Determination for a Tubular T-Joint under Combined Axial and Bending Loading

محل انتشار:

فصلنامه بین المللی مهندسی صنایع و تحقیقات تولید، دوره 17، شماره 3 (سال: 1385)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Finite element analysis of a tubular T-joint subjected to various loading conditions including pure axial loading, pure in-plane bending (IPB) and different ratios of axial loading to in-plane bending loading has been carried out. This effort has been established to estimate magnitudes of the peak hot spot stresses (HSS) at the brace/chord intersection and to find the corresponding locations as well, since, in reality, offshore tubular structures are subjected to combined loading, and hence fatigue life of these structures is affected by combined loading. Therefore in this paper, at the first step, stress concentration factors (SCFs) for pure axial loading and in-plane bending loading are calculated using different parametric equations and finite element method (FEM). At the next step, the peak HSS distributions around the brace/chord intersection are presented and verified by the results obtained from the API RP2A Code procedure. Also the locations of the peak hot spot stresses which are the critical points in fatigue life assessment have been predicted.

کلمات کلیدی:

Finite Element Method, Hot Spot Stress, Tubular Joint, Stress Concentration Factor, Parametric Equations

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