

عنوان مقاله:

Experimental and Numerical Study of Crack Initiation Critical Load in Heat Affected Zone of Welded Structural Steel

محل انتشار:

بیست و پنجمین همایش سالانه مهندسی مکانیک (سال: 1396)

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خلاصه مقاله:

In this paper, a numerical model for studying fracture behavior of cracked welded plate was proposed. For this purpose, Heat Affected Zone (HAZ) is assumed to be a functionally graded medium. Numerical simulations were used to develop a model of fracture in two dimensions using commercial finite element package ABAQUS. Furthermore, experimental tests were carried out. To model the material properties, after metallography of specimens and identifying the HAZ, micro hardness test was conducted. Since the material properties, which were Young's modulus, fracture toughness, and Poisson ratio, were given for the parent metal and also the welded metal, an interpolation regarding hardness variation was used to predict properties in HAZ. Crack initiation condition within HAZ of V-welded joints was studied and the results were presented.

کلمات کلیدی:

Fracture Mechanics - Crack Initiation Angle - Functionally Graded Materials - Finite Element Method - Experimental Study – Heat Affected Zone

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