

Experimental Characterization of Fatigue Crack Initiation of AA320 Alloy under Combined Thermal Cycling (CTC) and Mechanical Loading (ML) during Four Point Rotating and Bending Fatigue Testing Machine

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Abstract : Initiation of crack during fatigue of casting alloys are noticed mainly on the basis of experimental results. Crack initiation and strength of fatigue of AA320 are summarized here. Load sequence effect is applied to notify initiation phase life. Crack initiation at notch root and fatigue life is calculated under single & two-step mechanical loading (ML) with and without combined thermal cycling (CTC). An Experimental setup is proposed to create the working temperature as per alloy applications. S-N curves are plotted, and a comparison is made between crack initiation leading to failure under different ML with & without thermal loading (TL).

Keywords : fatigue, initiation, SN curve, alloy

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