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Abstract

The purposes of the present work are to extend the previous energy-based model on the basis of strain energy density exhaustion and to estimate creep-fatigue endurance and accumulated damage using cycle-by-cycle concept in tension-hold-only tests. The nickel-based GH4169 superalloy at 650 °C is employed to fit material constants and to verify the prediction capacity of the present model under various loading conditions. The present model exhibits a higher accuracy than some existing models, especially for certain loading waveforms, where the half-life cycle cannot be considered as a

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