World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:10, No:02, 2016

Effects of Operating Conditions on Creep Life of Industrial Gas Turbine

Authors : Enyia James Diwa, Dodeye Ina Igbong, Archibong Eso Archibong

Abstract : The creep life of an industrial gas turbine is determined through a physics-based model used to investigate the high pressure temperature (HPT) of the blade in use. A performance model was carried out via the Cranfield University TURBOMATCH simulation software to size the blade and to determine the corresponding stress. Various effects such as radial temperature distortion factor, turbine entry temperature, ambient temperature, blade metal temperature, and compressor degradation on the blade creep life were investigated. The output results show the difference in creep life and the location of failure along the span of the blade enabling better-informed advice for the gas turbine operator.

Keywords : creep, living, performance, degradation
Conference Title : ICAMAME 2016 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering
Conference Location : Barcelona, Spain
Conference Dates : February 15-16, 2016