

LS-DYNA Critical Involvement in Successful MSC Fatigue Analysis of Magnesium Stabilizer Clamp

Mingzhi Mao, Herbert Fackler, Chris Sweet, Glen Simonds, Danny (Jichen) Liu, John Jekl
Meridian Lightweight Technologies

Abstract

LS-DYNA's origins and core-competency lie in its well-known contact Algorithms, which is very powerful and functional. In order to simulate the details in the contact zones of bolt connection of the magnesium stabilizer clamp under its loading, LS-DYNA Quasi-Static Analysis was applied to produce reasonable displacement data for further linear stress analysis which is required by MSC Fatigue analysis. Compared to the real fatigue test, successful prediction using MSC Fatigue analysis has been achieved due to LS-DYNA key involvement whilst other codes' contact algorithms couldn't do the job. This new methodology is presented in this paper in details and would be very useful and helpful for similar applications.