

STUDIES OF THE FRACTURE PARAMETERS OF COMPACT TENSION SPECIMENS MADE FROM WELD JOINTS OF THE MOTOR CASE

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Abstract

M250 grade maraging steel having high strength and toughness is currently being used for fabrication of rocket motor cases. ASTM-E399 standard is employed to predict the failure load of the thirty Compact Tension (CT) specimens drawn from the weld joints of the motor case to assess the quality of weld joints in rocket motor cases. In this paper, a sample of experimental data of weld CT specimens is examined to satisfy the ASTM-E399 standard. The relationship is obtained between the maximum failure load and the average crack length of weld Compact tension specimens. The comparison between the test and analytical failure load of weld CT specimens is presented. The application of Chi-Square test is employed first time as the acceptance criterion for the maximum failure load of weld CT specimens.

Key Words : *CT specimens, Fracture toughness, Maraging steel, Rocket motor case, Weld joints, Yield strength.*