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FRACTURE MECHANICS OF SPOT WELDED STEEL SHEETS OF EQUAL THICKNESS IN COACH_PEEL SPECIMENS

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Abstract : In the current paper, a numerical investigation based on finite element method has been constructed to analyze fracture mechanics of two L-shaped sheets welded with resistance welding. The fracture behaviour of the welded structure is considered with the assumption of a crack at the interface of welded sheets. The study has been treated as a linear elastic fracture mechanics problem in mixed mode, under plane stresses conditions. Computations was performed, using commercial FE software package ABAQUS. Modelling results highlight the dependence of the stresses intensity factors on key design parameters of spot welds such as nugget diameter, bent curvatures, sheet thickness, materials properties, and the applied load

Keywords : Finite element method; spot weld, Fracture mechanics; stresses intensity factor, mixed mode