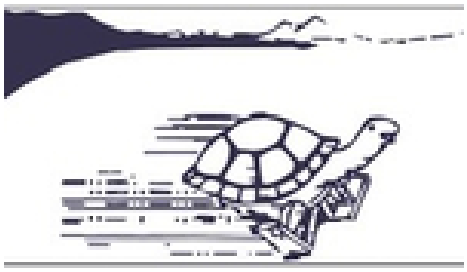

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Non-linear FEA of AA 5083 welded jonts for high-speed marine vehicles

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The AA 50843 aluminium alloy is widely used in high speed marine vehicles thanks to its peculiar properties, such as adequate strength, lightness and excellent welding properties and resistance to corrosion, sea water and salty athmospheres. The aim of this scientific work was to develop and validate a procedure, starting only from hardness measurements, to predict the elastic-plastic behaviour of AA 5083 welded joints under static loading using non-linear FEA analyses. The hardness measurements allowed identifying the different zones and to assess their different mechanical properties, which were considered in the finite element model. Finally, the finite element model results were validated experimentally, comparing the results with the measurements obtained by means of a full-field technique such as the Digital Image Correlation technique.

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