

Joining of Aluminum and Steel in Car Body Manufacturing

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Abstract : Zinc-coated steel sheets have been joined with aluminum samples in an overlapping as well as in a butt-joint configuration. A bi-metal-wire composed from aluminum and steel was used for additional welding experiments. An advantage of the laser-assisted bi-metal-wire welding is that the welding process is simplified since the primary joint between aluminium and steel exists already and laser welding occurs only between similar materials. FEM-simulations of the process were chosen to determine the ideal dimensions with respect to the formability of the bi-metal-wire. A prototype demonstrated the feasibility of the process.

Keywords : car body, steel sheets, formability of bi-metal-wire, laser-assisted bi-metal-wire

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