



Friction Stir Welding of Multilayered Steel

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AV Akademikerverlag Mrz 2014, 2014. Taschenbuch. Book
Condition: Neu. 220x150x7 mm. This item is printed on demand
- Print on Demand Neuware - Laminated compound materials
consisting of brittle and ductile layers are characterized by a
combination of high strength and ductility, which is
unreachable with conventional, monolithic steels. These
material properties are essential for the development of
prospective lightweight, fuel-efficient, and crash-safe vehicles.
As the modern production process in automotive industries
consists of a number of different production steps, including
various welding methods, proper weldability has become an
indispensable material characteristic. In case of high
strength/ductility multilayered steel, however, no successful
welding has been reported so far. In this study, therefore,
sheets of multilayered steel consisting of 15 alternating layers
of ductile SUS301 austenitic and brittle SUS420J2 martensitic
stainless steel were welded using the innovative friction stir
welding (FSW) process. With that approach, defect free welds
with excellent mechanical properties could be produced for the
first time. Furthermore, by using various high-end microscopy
techniques, a systematic correlation between the
microstructure evolution and the mechanical properties was
determined on a fundamental level. 124 pp. Englisch.

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Reviews

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