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Titolo	Strengthening and Joining by Plastic Deformation [[electronic resource]] : Select Papers from AIMTDR 2016 // edited by Uday Shanker Dixit, R. Ganesh Narayanan
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Disciplina	670
Soggetti	Manufactures Tribology Corrosion and anti-corrosives Coatings Engineering—Materials Manufacturing, Machines, Tools, Processes Tribology, Corrosion and Coatings Materials Engineering
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Nota di contenuto	Experimental Analysis on Mechanical Behaviour of Commercially Pure Copper Processed by Severe Plastic Deformation Via Equal Channel Angular Pressing -- Fatigue Life Enhancement of Thermally Autofrettaged Cylinders through Shrink-fit -- Development and characterisation of Fine-grained Aluminium for Micro Sheet Metal Forming Operation -- Forming Behaviour of Tri-ply Cladded Sheet Metal of Stainless Steels with Aluminium in Core -- Pulse Electromagnetic Cladding of Al-Tube on DP Steel Rod -- Effect of the Post Weld Heat Treatments on Mechanical and Corrosion Properties of Friction Stir Welded AA 7075-T6 Aluminium Alloy -- Influence of Rotational Speed on the Friction Stir Spot Welding of Polymer Core Sandwich Sheets -- Friction Stir Welding of HDPE Sheets: A Study on the Effect of Rotational Speed -- SiC and Al2O3 Reinforced Friction Stir Welded Joint of Aluminium Alloy 6061 -- Ultrasonic Spot Welding of Dissimilar Metals: Mechanical Behaviour and Microstructural Analysis --

Prediction of Critical Thinning during Self-Pierced Riveting of Sheets --
Distribution of Electromagnetic Field and Pressure of Single Turn
Circular Coil for Magnetic Pulse Welding using FEM.

Sommario/riassunto

This book focuses on strengthening and joining materials by means of plastic deformation, gathering extended research papers presented at the AIMTDR 2016 conference. Plastic deformation is used in materials processing to improve the strength of the material. For example, the rod/screw used to connect the cooker handle to the main body has to be strong and sustainable; such rods can be strengthened by plastic deformation (using multi-stage forming operations etc.). Similarly, joining by means of plastic deformation is highly valuable since it avoids the material and environmental degradation often caused by fusion welding processes. The book discusses various processing techniques in which plastic deformation is used to strengthen materials – e.g. in equal channel angular extrusion, autofrettage etc., or to join materials without melting them – e.g. in friction stir processing, riveting etc. Offering an extensive guide, the book includes chapters on roll bonding, equal channel angular pressing, autofrettage, friction stir processing/welding, magnetic pulse welding, and riveting – processes used to strengthen and join a variety of materials for lightweight applications and sustainable manufacturing. The contents of this book will be useful to researchers and practitioners alike. .
