

Mechanical Joining by Material Flow

Mechanical Joining by Material Flow provides sought-after experimental information on process design, process modeling, and joint characterization techniques for students, researchers, and engineering professionals who want to learn about advanced joining systems for lightweight materials. Chapters cover mechanical joining by plastic deformation, including clinching and self-piercing riveting, and friction-based processes, such as friction stir welding to form a mechanical joint. Though these processes are mainly used to establish metallurgical bonding, their unique characteristics and the material flow they generate has led to an increased use of these techniques for joining difficult-to-weld materials. Other sections introduce innovative technologies developed based on material flow to meet existing industry needs to join materials with different structural properties in different scales or shapes. To furnish readers with a more usefully comprehensive coverage, the team of experts behind the book has included methodological principles as well as discussions on advantages, drawbacks, and future directions of each technique, alongside application examples and case studies.

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