



Advances in Friction-Stir Welding and Processing (Woodhead Publishing Series in Welding and Other Joining Technologies)

By M.-K. Besharati-Givi, P. Asadi

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Friction-stir welding (FSW) is a solid-state joining process primarily used on aluminum, and is also widely used for joining dissimilar metals such as aluminum, magnesium, copper and ferrous alloys. Recently, a friction-stir processing (FSP) technique based on FSW has been used for microstructural modifications, the homogenized and refined microstructure along with the reduced porosity resulting in improved mechanical properties. Advances in friction-stir welding and processing deals with the processes involved in different metals and polymers, including their microstructural and mechanical properties, wear and corrosion behavior, heat flow, and simulation. The book is structured into ten chapters, covering applications of the technology; tool and welding design; material and heat flow; microstructural evolution; mechanical properties; corrosion behavior and wear properties. Later chapters cover mechanical alloying and FSP as a welding and casting repair technique; optimization and simulation of artificial neural networks; and FSW and FSP of polymers.

- Provides studies of the microstructural, mechanical, corrosion and wear properties of friction-stir welded and processed materials
- Considers heat generation, heat flow and material flow
- Covers simulation of FSW/FSP and use of artificial neural network in FSW/FSP

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Advances in Friction-Stir Welding and Processing (Woodhead Publishing Series in Welding and Other Joining Technologies) By M.-K. Besharati-Givi, P. Asadi Bibliography

- Sales Rank: #5751216 in Books
- Brand: imusti
- Published on: 2014-11-07
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x 1.75" w x 6.14" l, .0 pounds
- Binding: Hardcover
- 796 pages

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Editorial Review

About the Author

Mohammad-Kazem Besharati-Givi is an associate professor at University of Tehran, School of Mechanical Engineering. He received his PhD degree from the University of Leeds in 1990. He is an expert in metal forming and welding, particularly FSW/FSP, and has published more than 50 ISI papers in the field of FSW/FSP.

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