



## Flow Patterns During Friction Stir Welding

NASA Technical Reports Server (NTRS), et al., M. Guerra



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# Flow Patterns During Friction Stir Welding

By M Guerra

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.Friction Stir Welding is a relatively new technique for welding that uses a cylindrical pin or nib inserted along the weld seam. The nib (usually threaded) and the shoulder in which it is mounted are rapidly rotated and advanced along the seam. Extreme deformation takes place leaving a fine equiaxed structure in the weld region., The flow of metal during Friction Stir Welding is investigated using a faying surface tracer and a nib frozen in place during welding. It is shown that material is transported by two processes. The first is a wiping of material from the advancing front side of the nib onto a zone of material that rotates and advances with the nib. The material undergoes a helical motion within the rotational zone that both rotates and advances and descends in the wash of the threads on the nib and rises on the outer part of the rotational zone. After one or more rotations, this material is sloughed off in its wake of the nib, primarily on the advancing side. The second process is an entrainment...



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