Continuous Manufacturing of Ultra Fine Grained Materials by Severe Plastic Deformation Methods

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Abstract: Severe plastic deformation techniques are top-down deformation methods which enable superior mechanical properties by decreasing grain size. Different kind severe plastic deformation methods have been widely being used at various process temperature and geometries. Besides manufacturing advantages of severe plastic deformation technique, most of the types are being used only at the laboratory level. They cannot be adapted to industrial usage due to their continuous manufacturability and manufacturing costs. In order to enhance these manufacturing difficulties and enable widespread usage, different kinds of methods have been developed. In this review, a comprehensive literature research was fulfilled in order to highlight continuous severe plastic deformation methods.

Keywords : continuous manufacturing, severe plastic deformation, ultrafine grains, grain size refinement

Conference Title : ICMARE 2017 : International Conference on Mechanical, Automobile and Robotics Engineering

Conference Location : Barcelona, Spain

Conference Dates : August 17-18, 2017