

عنوان مقاله:

Experimental Investigation and Analysis of Manufacturing Wind Turbine Blades Produced by Hydroforming of Aluminum Alloy AA5754

محل انتشار:

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خلاصه مقاله:

Development of new technologies and combined with creativity and innovation, plays the fundamental role in developing of any community's value. Thus, in this research the design and production of hydroforming device was introduced. One of the best and most efficient technologies in the world of metal forming is wind turbine blade producing with hydroforming method which seems as an innovative manner in this field. The aim of this paper is design a small wind turbine blade. Application of this blade is for spaces with size limitation and building large-scale wind turbines. The first step of design process involves choosing and determining the airfoil blade wind turbine, distributing along the radius, angle of the airfoil and chording length distribution along the radius. Turbine blades modeled in CATIA software and transferred to finite element software, ABAQUS. Critical blades points under the hydrostatic pressure have been identified and outputs such as displacement, Von Misses stress obtained from hydroforming simulation process. In the final stage, after ensuring the software outputs blade has been modeled and produced.

کلمات کلیدی:

Wind Energy, Hydroforming, Finite element method, Aluminum Alloy, Argon welding

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