عنوان مقاله:

Evaluation of forging parameters on Al-7075 aircraft door bracket by simulation

محل انتشار:

سومین کنفرانس بین‌المللی آلومینیوم ایران IIAC2014 (سال: 1393)

تعداد صفحات اصل مقاله: 8

نویسندگان:

e barati - *Department of Material Engineering, Malek Ashtar University, Shahin Shahr, P.O. Box: 115/83145, Iran*

kh farmanesh - *Department of Material Engineering, Malek Ashtar University, Shahin Shahr, P.O. Box: 115/83145, Iran*

a soltanpour - *Department of Material Engineering, Malek Ashtar University, Shahin Shahr, P.O. Box: 115/83145, Iran*

خلاصه مقاله:

The purpose of this research is to achieve the optimal parameters for producing forged aluminium alloy 7075 aircraft door bracket by using finite element modelling (FEM) with commercial DEFORM-3D V6.1 and physical simulations with plasticine and Plexiglas dies. Also, forging speed has been examined as the main factor for controlling to produce a part without any defects. The results of Physical Simulation showed that the flow pattern has good agreement with the results of FEM that has been done based on the use of hydraulic presses with initial billet and dies temperatures 410 and 400 ° C, respectively, and different forging speeds 5, 10 and 15 mm/sec. distribution of effective strain rate, effective strain, effective stress, temperature , forging force and dies wear showed improvement the results in forging speed of 5 mm/sec. Processing map of Aluminium alloy 7075 also checked out at constant strain 0.5, indicated that thespecified area of the forged part is located in a safe area. Forging force in optimized forging speed 5 mm/sec showed that the forging process using a 1000-ton press can be done easily

کلمات کلیدی:

FEM; 7075 Alloy; Physical Simulation, forging speed