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Modeling and Simulation of Drilling Process in Ti-6Al-4V, Al6061 Using Deform-3D Software

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Abstract: The drilling is an important process for the manufacturing of any products. In the present work the drilling process is carried out by finite element modeling and simulated with the help of DEFORM-3D software. The diamond drill bit tool is used for drilling of Ti-6Al-4V and Al6061 alloy material. The titanium alloy which is widely used in the field of biomedical applications, whereas the Al6061 aluminum alloy is mostly applicable in automotive and aerospace industries. The geometrical shape and input process conditions are same for both materials. According to the simulated results, it is observed that the Ti-6Al-4V material shows the maximum effective stress and temperature during the drilling process than Al6061 material, which may possibly be an effect of physical properties of Ti-6Al-4V material.
Keywords: Drilling Process, Ti-6Al-4V,Al6061 Deform-3D Software.

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