

عنوان مقاله:

Effect of Various Microstructures Obtained from Heat Treatment on Machinability Behavior of Ti-6Al-4V Alloy

محل انتشار:

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خلاصه مقاله:

Drilling test on cylindrical work-pieces was carried out to analysis effect of various microstructures resulting from heat treatment on the machinability of the Ti-6Al-4V alloy. Chip morphology plays a predominant role in determining machinability and wearing of a tool during the drilling of titanium alloys. For this purpose, Ti-6Al-4V was heat treated in three variant cycles then drilled by 2mm diameter drill at 18.8 m/s speed and 0.1 mm/rev feed rate. Results show that heat treatment can effect on hardness. The SEM results showed that by changing their phase and morphology obtained from diferent heat treatment cycle, the machining conditions change. Increasing hardness led to increases length of spiral chips that indicate easy drilling. At a lower depth of cutting, ribbon chips are more compacted in comparison with samples which have a lower hardness. Drilling temperature was increased by increasing deep hole. Samples with lower hardness had a higher temperature in drilling.

کلمات کلیدی:

Heat treatment, Machinability, Wear, Ti-6Al-4V alloy

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