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研究论文

钼钨含量和热处理对一种高温钛合金拉伸性能的影响

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摘要:

研究了具有不同 β 相稳定化元素(Mo, W)含量的TMW--1($K\beta=5.5$)钛合金和TMW--2($K\beta=3.5$)钛合金, 经不同双重和三重退火处理后的室温和650°C高温拉伸性能。结果表明: 经适当的热处理, 在不损害室温塑性的情况下, TMW--1钛合金和TMW--2钛合金在650°C的拉伸性能均能达到近 α 钛合金在600°C的拉伸性能。为了保证合金650°C的拉伸性能, 合金中 β 稳定化元素(Mo, W)含量应使 β 稳定化系数 $K\beta$ 保持在3.0--3.5为宜。

关键词: β 稳定化元素, β 稳定化系数 K , 拉伸强度, 钛合金

Effect of (Mo, W) Content and Heat Treatment on the Tensile Properties of a High-temperature Titanium Alloy

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Abstract:

The tensile properties at room temperature and at 650°C of TMW-1 titanium alloy and TMW-2 titanium alloy, with different content of β -stabilizers (Mo, W), under different dual and ternary annealing, were studied. The results show that the tensile properties of TMW-1/2 titanium alloys at 650°C were equivalent to those of several near α alloys at 600°C, without reducing the room temperature ductility. In order to improve the tensile properties at 650°C, the content of β -stabilizers (Mo,W) should keep the coefficient of β -stabilizers at 3.0-3.5.

Keywords: β -stabilizers, the coefficient of β -stabilizers(K), the tensile strength, titanium alloy

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