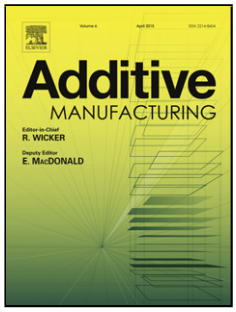

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The influence of post-production heat treatment on the multi-directional properties of nickel-aluminum bronze alloy fabricated using wire-arc additive manufacturing process

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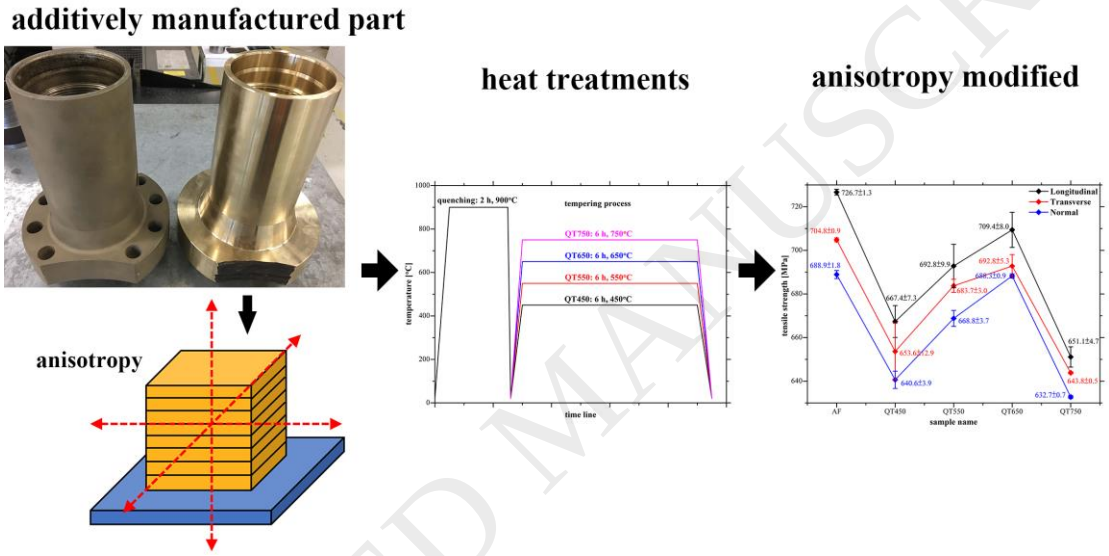
Graphical abstract



Highlights

- In this paper, the anisotropy in the nickel-aluminum bronze (NAB) component manufactured by WAAM process has been shown and investigated by different methods including material and mechanical tests.
- The quenching and tempering heat treatments have been used in this paper to reduce the anisotropy. Results have indicated that the quenching and tempering heat treatments can effectively reduce the anisotropy in the NAB component.
- Results have shown that the additively manufactured materials possess relatively better tensile performances.

Abstract

In this paper, a nickel-aluminum bronze alloy component is built using wire-arc additive manufacturing process. In order to investigate the influence of anisotropy introduced by the wire-arc additive manufacturing process, the layer-by-layer manufactured components with