INFLUENCE OF HEAT TREATMENT ON STATIC MECHANICAL PROPERTIES AND FATIGUE LIFE OF ADDITIVELY MANUFACTURED HIGH MANGANESE STAINLESS STEEL

Content

The purpose of this work is to determine the influence of heat treatment on the static mechanical properties and fatigue life of a high manganese stainless steel. The steel has a fully austenitic grain structure and is produced by laser powder bed fusion (PBF-LB/M). In order to investigate the issue of heat treatment, a literature review on heat treatment should first be conducted. Then, different heat treatments are carried out. Then, various tests, such as tensile and fatigue tests, should be performed. Metallurgical analyses such as hardness, grain analysis, and electron backscatter diffraction (EBSD) should be performed to fully evaluate the effects of heat treatment.

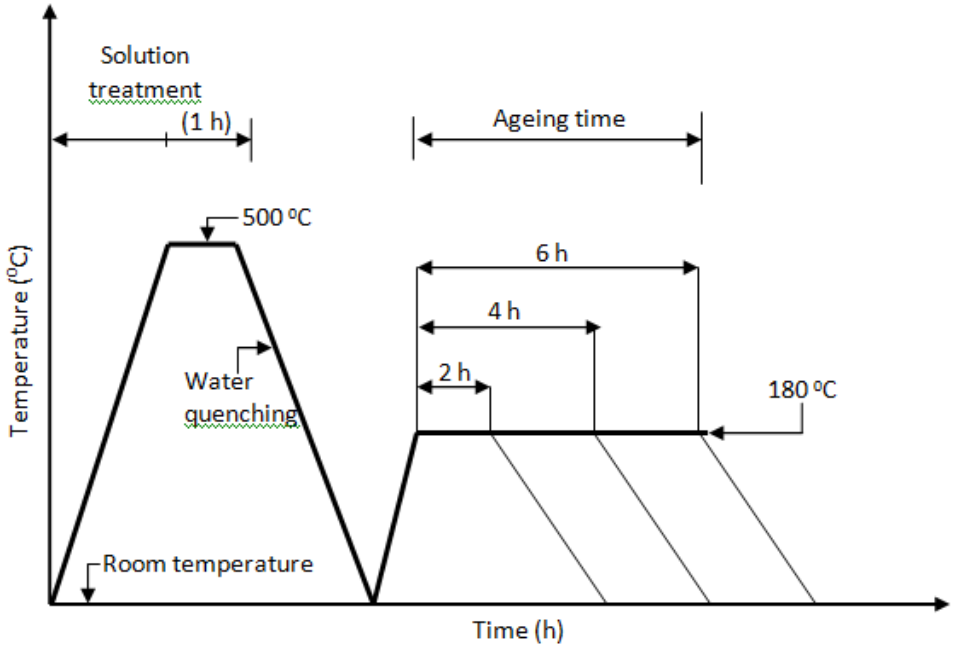

Figure 1: Schematic of heat treatment (from: 10.1088/1757-899X/539/1/012004)

Tasks

- Literature research on heat treatment
- Conducting static and dynamic tests
- Metallurgic analyses

Prerequisites

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