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Scaling of heat treatment behaviour of low alloy steels



Ashley Scarlett

AUTHOR OF POSTER:
Ashley Scarlett

INSTITUTION:
The University of Sheffield

OTHER AUTHORS:
Professor Eric J Palmiere, The University of Sheffield
Dr Daniel Cogswell, The University of Sheffield
Dr Matthew Dear, Rolls-Royce PLC

ABSTRACT:

There is currently a gap in knowledge between small scale laboratory heat treatments on metallic components, weighing a few grams, to that of large forgings weighing several hundred tonnes, and of the subsequent mechanical behaviour exhibited throughout low alloy steels. In order to better understand these differences in the two extremes, first a better understanding of the current methods used to model thermal profiles of large components is required. This work shows initial modelling results, thermocoupled Jominy end-quench tests and application of thermocoupled data to dilatometry heat treatments. Work is precursory to demonstrate changes in microstructure and material properties across modelling and small to meso-sized specimens throughout heat treatments.



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