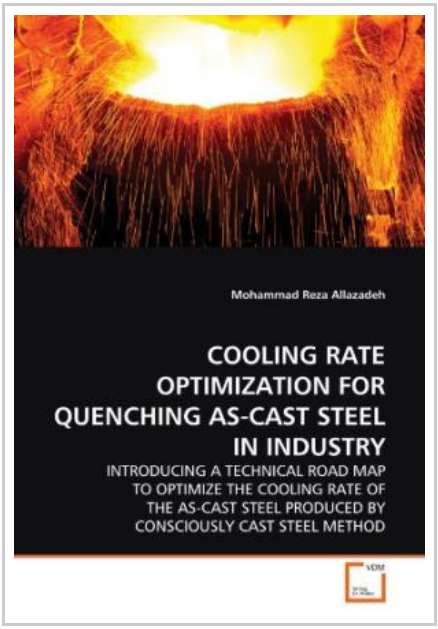

Cooling Rate Optimization for Quenching As-Cast Steel in Industry

By Mohammad Reza Allazadeh

VDM Verlag. Paperback. Book Condition: New. Paperback. 240 pages. Dimensions: 8.7in. x 5.9in. x 0.6in.The main objective of this book is to develop a method to define the optimum cooling rate for cooling continuously as-cast steel on industrial level. An FEM algorithm is introduced to simulate the cooling of as-cast steel from any temperature below the solidification temperature and to predict the generation of the stress concentration regions due to the thermodynamic strains during cooling a steel specimen with different cooling rates. The algorithm is capable of being customized to simulate the thermodynamic behavior of as-cast steel microstructure with any chemical composition and any casting geometry imposed to desired cooling method. The phase transformation simulations were based on the CCT diagram and, therefore, they were quasi-real models. A non destructive test(NDT) ultrasonic image analysis method is suggested for monitoring of the defects configuration modification in casting line production. A combination of the suggested FEM algorithm and post image processing of NDT ultrasonic images along with laboratory cooling experiments and microstructural analysis provide a guideline to estimate the optimum cooling rate for casting any grade of steel. This item ships from multiple locations. Your book may arrive from Roseburg,OR, La Vergne,TN....

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