

Analysis of Various Factors Affecting Hardness and Content of Phases Resulting from 1030 Carbon Steel Heat Treatment Using AC3 Software

Authors : Saeid Shahraki, Mohammad Mahdi Kaekha

Abstract : 1030 steel, a kind of carbon steel used in homogenization, cold-forming, quenching, and tempering conditions, is generally utilized in small parts resisting medium stress, such as connection foundations, hydraulic cylinders, tiny gears, pins, clamps, automotive normal forging parts, camshafts, levers, pundits, and nuts. In this study, AC3 software was used to measure the effect of carbon and manganese percentage, dimensions and geometry of pieces, the type of the cooling fluid, temperature, and time on hardness and the content of 1030 steel phases. Next, the results are compared with the analytical values obtained from the Lumped Capacity Method.

Keywords : 1030Steel, AC3software, heat treatment, lumped capacity method

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