

Special Issue Reprint

History, Developments and Trends in the Heat Treatment of Steel

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Steels and their heat treatment are still very important in modern industry because most industrial components are made from these materials. The proper choice of steel grades along with their suitable processing makes it possible to reduce the weight of the components, which is closely related to energy and fuel savings. This has decisive importance in branches such as the automotive, transport, consumer industries. A great number of novel heat- and surface-treatment techniques have been developed over the past three decades. These techniques involve, for example, vacuum treatment, sub-zero treatment, laser/electron beam surface hardening and alloying, low-pressure carburizing and nitriding, and physical vapour deposition. This Special Issue contains a collection of original research articles on not only advanced heat-treatment techniques—carburizing and sub-zero treatments—but also on the microstructure–property relationships in different ferrous alloys.

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