

Rolling of ingots of third-generation high-strength steels into sheets

Corresponding author:

Jiří Vrtáček, vrtacekj@rti.zcu.cz, University of West Bohemia, Regional Technological Institute

Co-authors:

Hana Jirková, Michal Peković, Ladislav Tříška

Abstract:

One of the essential branches of today's engineering production involves production of sheet stock by rolling. The majority of steel sheet stock is used in the automotive industry. In recent decades, this sector has been striving to reduce vehicle emissions. One of available solutions involves the use of advanced high-strength steels whose chemical composition and strengthening mechanisms make it possible to build the car body with thinner sheet blanks than before. Two advanced high-strength steels containing 0.2 wt. % carbon and additions of manganese, silicon and different levels of aluminium were used for rolling trials in which ingots were converted into 1.8 mm sheet by combined hot and cold rolling. This procedure was found to produce strengths in excess of 1000 MPa combined elongation of more than 15%.

Key words:

Hot and cold rolling, high strength steels, multiphase microstructure