

Optimization of Material Properties and Heat Treatment of High-Grade Steel Castings

DIEKMANN Uwe

Metatech GmbH, Kamen,
Germany

In order to find the optimum balance of product performance, alloying and heat treatment costs, materials properties of steels as a function of chemical composition and processing are needed. The range of properties and parameters is big so that materials testing has to be complemented by simulation. JMatPro is a commercial software package which is based on CalPhaD and extended by various models which allow calculation of materials properties. It is now also used for the calculation of consistent material models which can directly be used by FEA-packages like Magmasoft and Deform HT. A typical high-grade steel for castings is the 1.4931-GX23CrMoV12-1 which was considered here.

Co-authors: **Jens Prehm**