

Title (en)

TOUGH BAINITIC HEAT TREATMENTS ON STEELS FOR TOOLING

Title (de)

SCHWERE BAINTWÄRMEBEHANDLUNGEN VON STÄHLEN ZUM PUNZEN

Title (fr)

TRAITEMENTS THERMIQUES BAINITIQUES RÉSISTANTS SUR DES ACIERS POUR OUTILLAGE

Publication

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Abstract (en)

[origin: EP2662460A1] The invention relates to a method that has been developed to obtain good toughness and homogeneous properties through heavy sections in tool steels or likely highly alloyed steels. The microstructure attained is mostly bainitic. The method is especially good for hot work tool steels in applications demanding heavy sections and very high toughness. The method consists on the application of a low temperature bainitic transformation to tool steels presenting a low enough martensite transformation temperature (Ms). Additionally or alternatively cementite is replaced from the bainite by other finer carbides, mainly mixed carbides containing elements with stronger affinity for carbon than iron. The method is especially simple if applied to steels with high contents of Si or Al (>1.3% and >0.4% respectively) where cementite growth is impaired. The method works also well for low cost plastic injection moulding and structural steels. Even some higher alloyed tool steels can benefit from the present method.

IPC 8 full level

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