

Title (en)

Process for hardness increasing and possibly for smoothing of work pieces and work pieces made by this process

Title (de)

Verfahren zum Aufhärten und ggf. Glätten von Maschinenbauteilen sowie nach diesem Verfahren hergestellten Maschinenbauteilen

Title (fr)

Procédé de durcissement et éventuellement de lissage de pièces de machine et pièces fabriquées selon ce procédé

Publication

EP 0601451 B1 20000823 (DE)

Application

EP 93119338 A 19931201

Priority

DE 4241527 A 19921210

Abstract (en)

[origin: EP0601451A1] A process for increasing the hardness and, if desired, smoothing of machine components by means of a beam such as, for example, a laser beam, an electron beam or an electric arc, which effects surface heating of the particular component, is characterised in that the particular component, which is present in the form of a chilled casting having a ledeburite microstructure or in the form of a steel component having a perlite microstructure, is treated at a high energy density, the surface layer being briefly heated either continuously or by repeated pulses up to the vicinity of the melting point, so that, in an edge layer, a diffusion of the carbon from the cementite lamellae of the ledeburite or of the perlite into the soft, interlamellar ferrite regions takes place. <IMAGE>

IPC 1-7

C21D 1/09

IPC 8 full level

C21D 1/09 (2006.01); **C21D 5/00** (2006.01); **C21D 9/30** (2006.01)

CPC (source: EP)

C21D 1/09 (2013.01); **C21D 5/00** (2013.01); **C21D 9/30** (2013.01); **C21D 2211/007** (2013.01); **C21D 2211/009** (2013.01)

Citation (examination)

Werkstatt und Betrieb, 123(1990)11, 875-877

Cited by

US11414718B2; EP0789084A1; GB2316097A; GB2316097B; CN104736290A; DE102009013839A1; WO0063890A1; WO2004003239A1; DE102007059299A1; DE102009009775A1; US6398881B1; WO9811262A1; US7592563B2; EP2335898A2

Designated contracting state (EPC)

DE ES FR GB SE

DOCDB simple family (publication)

EP 0601451 A1 19940615; **EP 0601451 B1 20000823**; DE 4241527 A1 19940616; DE 59310090 D1 20000928; ES 2151496 T3 20010101

DOCDB simple family (application)

EP 93119338 A 19931201; DE 4241527 A 19921210; DE 59310090 T 19931201; ES 93119338 T 19931201