Title (en)

METHOD FOR THE MECHANICAL-THERMAL TREATMENT OF REDUCED-CARBON STEELS

Title (de)

VERFAHREN ZUR THERMOCHEMISCH-THERMISCHEN BEHANDLUNG VON KOHLENSTOFFREDUZIERTEN STÄHLEN

Title (fr)

PROCÉDÉ DE TRAITEMENT THERMOCHIMIQUE-THERMIQUE D'ACIERS À TENEUR RÉDUITE EN CARBONE

Publication

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Application

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Abstract (en)

[origin: WO2016169560A1] The invention relates to a process involving thermomechanical-thermal treatment of reduced-carbon steels having a carbon content of 0.1 to 0.4 per cent by weight, in which an edge zone of a workpiece, especially of a ball bearing part, has been case-hardened with respect to a core, characterized by the following method steps: a) carbonitriding the edge zone of the workpiece in a fixed case hardening depth with a carbon content between 0.6 and 0.9 per cent by weight and a nitrogen content of at least 0.1 per cent by weight and at most 0.5 per cent by weight of nitrogen at a temperature between 850°C and 1000°C, b) cooling and conducting an austenitization step at a material-dependent austenitization temperature between 850°C and 1000°C, c) treating the workpiece at the lower bainite stage at a bainitization temperature of 150°C and 250°C until attainment of a volume content of bainite of at least 50 per cent by weight, d) cooling the workpiece to room temperature after attainment of a volume content of bainite of at least 50 per cent by weight.

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