Title (en)

HIGH-CARBON COLD-ROLLED STEEL SHEET AND PRODUCTION METHOD THEREFOR, AND MECHANICAL PARTS MADE OF HIGH-CARBON STEEL

Title (de)

KALTGEWALZTES STAHLBLECH MIT HOHEM KOHLENSTOFFGEHALT, VERFAHREN ZU SEINER HERSTELLUNG UND MASCHINENTEILE AUS STAHL MIT HOHEM KOHLENSTOFFGEHALT

Title (fr)

TÔLE D'ACIER LAMINÉE À FROID À HAUTE TENEUR EN CARBONE ET SON PROCÉDÉ DE PRODUCTION, ET PIÈCES MÉCANIQUES EN ACIER À HAUTE TENEUR EN CARBONE

Publication

EP 3848477 A1 20210714 (EN)

Application

EP 19817932 A 20191108

Priority

JP 2019043828 W 20191108

Abstract (en)

Provided is a high carbon cold rolled steel sheet which can have good impact characteristics and hardness characteristics and excellent wear resistance after rapid cooling (quenching) treatment after short-time solution treatment and low-temperature tempering treatment (quenching and tempering treatment), has little decrease in secondary workability before the quenching and tempering treatment, and has a sheet thickness of less than 1.0 mm.The high carbon cold rolled steel sheet has a steel sheet chemical composition consisting of, by mass%, C: 0.85% to 1.10%, Mn: less than 0.60%, Si: 0.10% to 0.35%, P: 0.030% or less, S: 0.030% or less, Cr: less than 0.60%, Mn + Cr satisfying less than 1.0%, Nb: 0.005% to 0.020%, and the balance being Fe and inevitable impurities. Thereby, compared with conventional steel materials, there is little decrease in the secondary workability before quenching and tempering. In addition, by adopting a steel sheet structure with an average particle diameter of carbide of 0.2 to 0.7 (μm) and a spheroidization rate of 90% or more, even with a quenching and tempering treatment in such a short time as 3 to 15 min, it is possible to provide a machine part having excellent impact characteristics with an impact value of 9 J/cm², sufficient hardness characteristics in a range of 600 to 750 HV, and excellent wear resistance.

IPC 8 full level

C22C 38/00 (2006.01); **C21D 9/46** (2006.01); **C22C 38/26** (2006.01)

CPC (source: EP KR)

C21D 1/18 (2013.01 - EP); **C21D 1/25** (2013.01 - EP); **C21D 1/26** (2013.01 - EP); **C21D 1/32** (2013.01 - EP); **C21D 1/58** (2013.01 - EP); **C21D 8/0205** (2013.01 - EP); **C21D 8/0236** (2013.01 - KR); **C21D 8/0268** (2013.01 - EP); **C21D 8/0273** (2013.01 - KR); **C21D 9/26** (2013.01 - EP); **C21D 9/46** (2013.01 - EP); **C22C 38/02** (2013.01 - EP); **C22C 38/04** (2013.01 - EP); **C22C 38/12** (2013.01 - EP); **C22C 38/22** (2013.01 - EP KR); **C22C 38/24** (2013.01 - EP KR); **C22C 38/26** (2013.01 - EP KR); C21D 2211/004 (2013.01 - EP); C21D 2211/008 (2013.01 - EP); C21D 2261/00 (2013.01 - EP)

Cited by

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AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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BA ME

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DOCDB simple family (application)

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