

Title (en)

HIGH-CARBON COLD-ROLLED STEEL SHEET AND METHOD FOR MANUFACTURING SAME

Title (de)

HOCHGEKOHLTES KALTGEWALZTES STAHLBLECH UND VERFAHREN ZU DESSEN HERSTELLUNG

Title (fr)

TÔLE D'ACIER À HAUTE TENEUR EN CARBONE LAMINÉE À FROID ET SON PROCÉDÉ DE FABRICATION

Publication

EP 3216889 B1 20181212 (EN)

Application

EP 16836913 A 20160719

Priority

- JP 2015160015 A 20150814
- JP 2016076330 A 20160406
- JP 2016071133 W 20160719

Abstract (en)

[origin: EP3216889A1] Provided is a high-carbon cold-rolled steel sheet having a thickness of less than 1.0 mm and capable of having good impact and hardness characteristics after a short solution treatment, and thereafter quenching and low-temperature tempering. A high-carbon cold-rolled steel sheet having a steel sheet chemical composition containing, in terms of mass%, C: 0.85-1.10%, Mn: 0.50-1.0%, Si: 0.10-0.35%, P: 0.030% or less, S: 0.030% or less, and Cr: 0.35-0.45%, and furthermore containing Nb: 0.005-0.020 mass% with the remainder being Fe and unavoidable impurities, having a steel sheet structure in which the average particle diameter (d_{av}) of carbide dispersed in the steel sheet is 0.2-0.7 (μm) and the spheroidization ratio is 90% or higher, and having a thickness of less than 1.0 mm. Mechanical characteristics having an excellent impact characteristic in which the impact value is 5 J/cm² or higher and a sufficient hardness characteristic within the range of 600-750 HV can thereby be manifested by a short solution treatment of 3-15 minutes, and thereafter quenching and low-temperature tempering.

IPC 8 full level

C22C 38/00 (2006.01); **C21D 1/18** (2006.01); **C21D 1/32** (2006.01); **C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 8/12** (2006.01); **C21D 9/46** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/18** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C21D 9/26** (2006.01)

CPC (source: EP KR)

C21D 1/32 (2013.01 - EP KR); **C21D 8/0226** (2013.01 - EP); **C21D 8/0236** (2013.01 - EP KR); **C21D 8/0247** (2013.01 - EP); **C21D 8/0268** (2013.01 - EP); **C21D 9/46** (2013.01 - KR); **C22C 38/00** (2013.01 - EP); **C22C 38/02** (2013.01 - EP); **C22C 38/04** (2013.01 - EP); **C22C 38/18** (2013.01 - EP); **C22C 38/22** (2013.01 - EP); **C22C 38/24** (2013.01 - EP); **C22C 38/26** (2013.01 - EP KR); **C21D 1/18** (2013.01 - EP); **C21D 9/46** (2013.01 - EP); **C21D 2211/004** (2013.01 - EP); **C21D 2211/008** (2013.01 - EP)

Cited by

EP3980571A4; EP3848477A4; EP4265776A4; WO2020246937A1

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 3216889 A1 20170913; **EP 3216889 A4 20171025**; **EP 3216889 B1 20181212**; CN 107208224 A 20170926; CN 107208224 B 20181109; JP 2017036492 A 20170216; JP 6089131 B2 20170301; KR 101953495 B1 20190228; KR 20170075783 A 20170703; TW 201712130 A 20170401; TW I591187 B 20170711; WO 2017029922 A1 20170223

DOCDB simple family (application)

EP 16836913 A 20160719; CN 201680008133 A 20160719; JP 2016071133 W 20160719; JP 2016076330 A 20160406; KR 20177014614 A 20160719; TW 105125451 A 20160810