

Title (en)

HIGH-CARBON HOT-ROLLED STEEL SHEET AND METHOD FOR PRODUCING SAME

Title (de)

HEISSGEWALZTES STAHLBLECH MIT HOHEM KOHLENSTOFFGEHALT UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

TÔLE D'ACIER LAMINÉE À CHAUD À HAUTE TENEUR EN CARBONE ET SON PROCÉDÉ DE PRODUCTION

Publication

**EP 3091098 A4 20170405 (EN)**

Application

**EP 15770102 A 20150326**

Priority

- JP 2014068737 A 20140328
- JP 2015001712 W 20150326

Abstract (en)

[origin: EP3091098A1] Provided is a high-carbon hot-rolled steel sheet whose raw material is B-added steel, with which it is possible to stably achieve excellent hardenability even if annealing is performed in a nitrogen atmosphere, and which has excellent workability corresponding to a hardness of 73 or less in terms of HRB and to a total elongation of 39% or more before a quenching treatment is performed. A high-carbon hot-rolled steel sheet having a chemical composition containing, by mass%, C: 0.20% or more and 0.40% or less, Si: 0.10% or less, Mn: 0.50% or less, P: 0.03% or less, S: 0.010% or less, sol.Al: 0.10% or less, N: 0.0050% or less, B: 0.0005% or more and 0.0050% or less, and one or more of Sb, Sn, Bi, Ge, Te, and Se in an amount of 0.002% or more and 0.030% or less in total, in which the proportion of the content of a solid solution B to the content of B is 70% or more, a microstructure including ferrite and cementite, in which the density of cementite in the ferrite grains is 0.08 pieces/ $\mu\text{m}^2$  or less, a hardness of 73 or less in terms of HRB, and a total elongation of 39% or more.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 1/32** (2006.01); **C21D 9/46** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR US)

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Citation (search report)

- [X] JP 2010255066 A 20101111 - JFE STEEL CORP
- [A] US 2013186526 A1 20130725 - NAKAMURA NOBUYUKI [JP], et al
- See references of WO 2015146173A1

Cited by

EP3901302A4; EP3901303A4; CN111655893A; EP3748030A4; US11359267B2

Designated contracting state (EPC)

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Designated extension state (EPC)

BA ME

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**EP 3091098 A1 20161109**; **EP 3091098 A4 20170405**; **EP 3091098 B1 20180711**; CN 106133170 A 20161116; CN 106133170 B 20171226; JP 6065120 B2 20170125; JP WO2015146173 A1 20170413; KR 101892524 B1 20180828; KR 20160138230 A 20161202; TW 201538744 A 20151016; TW I557239 B 20161111; US 2017121787 A1 20170504; WO 2015146173 A1 20151001

DOCDB simple family (application)

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