

Title (en)
HOT-ROLLED STEEL SHEET AND METHOD FOR MANUFACTURING SAME

Title (de)
HEISSGEWALZTES STAHLBLECH UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)
TÔLE D'ACIER LAMINÉE À CHAUD ET PROCÉDÉ POUR LA FABRIQUER

Publication
EP 2871254 A1 20150513 (EN)

Application
EP 13837646 A 20130911

Priority
• JP 2012201266 A 20120913
• JP 2013005388 W 20130911

Abstract (en)
There is provided a high-strength hot-rolled steel sheet having high low-temperature toughness and a low yield ratio that is suitable for a steel pipe material. The hot-rolled steel sheet has a composition that contains C: 0.03% to 0.10%, Si: 0.01% to 0.50%, Mn: 1.4% to 2.2%, P: 0.025% or less, S: 0.005% or less, Al: 0.005% to 0.10%, Nb: 0.02% to 0.10%, Ti: 0.001% to 0.030%, Mo: 0.01% to 0.50%, Cr: 0.01% to 0.50%, and Ni: 0.01% to 0.50%. The composition preferably has Moeq in the range of 1.4% to 2.2%. The hot-rolled steel sheet includes an inner layer having a microstructure that contains a main phase and a second phase, the main phase being bainitic ferrite having an average grain size of 10 μm or less, the second phase having an area fraction in the range of 1.4% to 15% and containing massive martensite having an aspect ratio of less than 5.0. The hot-rolled steel sheet includes an outer layer having a microstructure that contains a tempered martensite phase or a tempered martensite phase and a tempered bainite phase.

IPC 8 full level
C22C 38/00 (2006.01); **B21B 3/02** (2006.01); **C21D 8/02** (2006.01); **C22C 38/58** (2006.01)

CPC (source: CN EP KR US)
B21B 3/02 (2013.01 - CN KR); **C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/02** (2013.01 - CN KR); **C21D 8/0263** (2013.01 - EP US); **C21D 8/1222** (2013.01 - CN EP KR US); **C21D 8/1261** (2013.01 - CN EP KR US); **C21D 9/46** (2013.01 - EP US); **C22C 38/00** (2013.01 - CN); **C22C 38/001** (2013.01 - CN EP US); **C22C 38/002** (2013.01 - CN EP US); **C22C 38/02** (2013.01 - CN EP US); **C22C 38/04** (2013.01 - CN EP US); **C22C 38/06** (2013.01 - CN EP US); **C22C 38/42** (2013.01 - CN EP US); **C22C 38/44** (2013.01 - CN EP KR US); **C22C 38/46** (2013.01 - CN EP US); **C22C 38/48** (2013.01 - CN EP KR US); **C22C 38/50** (2013.01 - CN EP KR US); **C22C 38/54** (2013.01 - CN EP US); **C22C 38/58** (2013.01 - CN EP KR US); **C21D 2211/002** (2013.01 - CN EP US); **C21D 2211/008** (2013.01 - CN EP US)

Cited by
EP3147381A1; CN108495945A; EP3409803A4; WO2021124094A1; WO2021123877A1

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 2871254 A1 20150513; **EP 2871254 A4 20151118**; **EP 2871254 B1 20200624**; BR 112015005419 A2 20170704; CN 104619876 A 20150513; CN 104619876 B 20161221; IN 772DEN2015 A 20150703; JP 5605527 B2 20141015; JP WO2014041802 A1 20160812; KR 101702794 B1 20170203; KR 20150038747 A 20150408; US 2015232970 A1 20150820; WO 2014041802 A1 20140320

DOCDB simple family (application)
EP 13837646 A 20130911; BR 112015005419 A 20130911; CN 201380047480 A 20130911; IN 772DEN2015 A 20150130; JP 2013005388 W 20130911; JP 2014510588 A 20130911; KR 20157007700 A 20130911; US 201314428217 A 20130911