

Title (en)

HIGH STRENGTH HOT-ROLLED STEEL SHEET HAVING EXCELLENT HOLE EXPANSION RATIO AND MANUFACTURING METHOD FOR SAME

Title (de)

HOCHFESTES WARMGEWALZTES STAHLBLECH MIT HERVORRAGENDEM LOCHAUFWEITUNGSVERHÄLTNIS UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

TÔLE D'ACIER LAMINÉE À CHAUD ET À HAUTE RÉSISTANCE AYANT UN EXCELLENT RAPPORT D'EXTENSION DES TROUS ET SON PROCÉDÉ DE FABRICATION

Publication

EP 3901307 A2 20211027 (EN)

Application

EP 19899564 A 20191218

Priority

- KR 20180165148 A 20181219
- KR 2019017979 W 20191218

Abstract (en)

A high strength hot-rolled steel sheet having an excellent hole expansion ratio according to an aspect of the present invention comprises, by weight %, 0.12% or more and less than 0.30% of carbon (C), 0.1-2.5% of manganese (Mn), 0.5% or less of silicon (Si) (not including 0%), 0.0005-0.005% of boron (B), 0.02% or less of phosphorus (P), 0.01% or less of sulfur (S), and the balance being iron (Fe) and unavoidable impurities, and comprises 95 volume% or more of martensite as a microstructure. And the product of the tensile strength (TS) and hole expansion ratio (HER) can be 30,000MPa% or greater.

IPC 8 full level

C22C 38/04 (2006.01); **C21D 8/02** (2006.01); **C22C 38/02** (2006.01); **C22C 38/14** (2006.01); **C22C 38/18** (2006.01)

CPC (source: EP KR US)

C21D 1/02 (2013.01 - EP); **C21D 1/18** (2013.01 - EP); **C21D 6/00** (2013.01 - EP); **C21D 6/005** (2013.01 - EP); **C21D 8/02** (2013.01 - EP);
C21D 8/0205 (2013.01 - EP); **C21D 8/0226** (2013.01 - EP KR US); **C21D 8/0263** (2013.01 - EP KR US); **C21D 9/46** (2013.01 - EP US);
C22C 38/00 (2013.01 - EP); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US);
C22C 38/14 (2013.01 - EP KR); **C22C 38/18** (2013.01 - EP KR); **C22C 38/28** (2013.01 - EP); **C22C 38/32** (2013.01 - EP);
C22C 38/38 (2013.01 - EP); **C21D 2211/001** (2013.01 - US); **C21D 2211/002** (2013.01 - US); **C21D 2211/005** (2013.01 - US);
C21D 2211/008 (2013.01 - EP KR US)

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 3901307 A2 20211027; EP 3901307 A4 20220427; CN 113195767 A 20210730; JP 2022513993 A 20220209; JP 7216356 B2 20230201;
KR 102209552 B1 20210128; KR 20200076239 A 20200629; US 2022074007 A1 20220310; WO 2020130614 A2 20200625;
WO 2020130614 A3 20200827

DOCDB simple family (application)

EP 19899564 A 20191218; CN 201980083649 A 20191218; JP 2021534941 A 20191218; KR 20180165148 A 20181219;
KR 2019017979 W 20191218; US 201917414743 A 20191218