

Title (en)
STEEL PLATE FOR LINE PIPE, AND LINE PIPE

Title (de)
STAHLPLATTE FÜR EIN LEITUNGSROHR UND LEITUNGSROHR

Title (fr)
TÔLE D'ACIER POUR TUBE DE CANALISATION ET TUBE DE CANALISATION

Publication
EP 3026140 A4 20170308 (EN)

Application
EP 14829550 A 20140723

Priority
• JP 2013155063 A 20130725
• JP 2013155064 A 20130725
• JP 2014069471 W 20140723

Abstract (en)
[origin: EP3026140A1] A steel plate for a line pipe, the steel plate having a plate thickness of 25 mm or more comprising in terms of mass%: 0.040 to 0.080% of C, 0.05 to 0.40% of Si, 1.60 to 2.00% of Mn, 0.020% or less of P, 0.0025% or less of S, 0.05 to 0.20% of Mo, 0.0011 to 0.0050% of Ca, 0.060% or less of Al, 0.010 to 0.030% of Nb, 0.008 to 0.020% of Ti, 0.0015 to 0.0060% of N, and 0.0040% or less of O, a remainder consisting of Fe and unavoidable impurities, wherein a content ratio of Ca to S [Ca/S] is from 0.90 to 2.70, and a content ratio of Ti to N [Ti/N] is 2.20 or higher" wherein Ceq, which is defined by the following Formula (1), is from 0.380 to 0.480: $Ceq = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5$; and wherein: at a position of 1/4 of the plate thickness, a ferrite fraction (F1) is from 20 to 60% and a remainder is a structure of bainite; at a position of 1/2 of the plate thickness, a ferrite fraction (F2) is from 5 to 60% and a remainder is a structure of bainite or a structure of bainite and martensite; a ratio (F1/F2) of the ferrite fraction (F1) to the ferrite fraction (F2) is from 1.00 to 5.00; at a position of 1/4 of the plate thickness an average grain diameter of ferrite is from 2.0 to 15.0 μm , and at a position of 1/2 of the plate thickness the average grain diameter of ferrite is from 5.0 to 20.0 μm ; and the hardness at a position of 1/2 of the plate thickness is 400 Hv or less, and the length of MnS at a position of 1/2 of the plate thickness is 1.00 mm or less.

IPC 8 full level
B21B 1/38 (2006.01); **B21B 3/00** (2006.01); **C21D 8/02** (2006.01); **C22C 38/00** (2006.01); **C22C 38/14** (2006.01); **C22C 38/58** (2006.01)

CPC (source: EP)
C21D 8/02 (2013.01); **C21D 8/0205** (2013.01); **C21D 8/0226** (2013.01); **C21D 8/0263** (2013.01); **C21D 2211/002** (2013.01); **C21D 2211/005** (2013.01); **C21D 2211/008** (2013.01); **C22C 38/04** (2013.01); **C22C 38/12** (2013.01); **C22C 38/14** (2013.01); **C22C 38/58** (2013.01)

Citation (search report)
• [A] WO 2011027900 A1 20110310 - NIPPON STEEL CORP [JP], et al
• [A] WO 2009119570 A1 20091001 - SUMITOMO METAL IND [JP], et al
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• See references of WO 2015012317A1

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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 3026140 A1 20160601; **EP 3026140 A4 20170308**; **EP 3026140 B1 20180905**; BR 112015029358 A2 20170725; BR 112015029358 B1 20201201; CN 105143489 A 20151209; CN 105143489 B 20170308; JP 5748032 B1 20150715; JP WO2015012317 A1 20170302; KR 101709887 B1 20170223; KR 20150138301 A 20151209; RU 2623569 C1 20170627; WO 2015012317 A1 20150129

DOCDB simple family (application)
EP 14829550 A 20140723; BR 112015029358 A 20140723; CN 201480022395 A 20140723; JP 2014069471 W 20140723; JP 2014551471 A 20140723; KR 20157031046 A 20140723; RU 2015151179 A 20140723