

## Title (en)

THICK STEEL PLATE HAVING EXCELLENT LOW-TEMPERATURE TOUGHNESS AND MANUFACTURING METHOD THEREFOR

## Title (de)

DICKE STAHLPLATTE MIT AUSGEZEICHNETER TIEFTEMPERATURZÄHIGKEIT UND VERFAHREN ZU IHRER HERSTELLUNG

## Title (fr)

PLAQUE D'ACIER ÉPAISSE POSSÉDANT UNE EXCELLENTE RÉSISTANCE AU FROID ET SON PROCÉDÉ DE FABRICATION

## Publication

**EP 3730640 A4 20201028 (EN)**

## Application

**EP 18890536 A 20181214**

## Priority

- KR 20170178949 A 20171224
- KR 2018015950 W 20181214

## Abstract (en)

[origin: EP3730640A1] According to an aspect of the present invention, a thick steel plate having excellent low-temperature toughness comprises, by weight %, 0.03-0.06% of C, 0.1-0.2% of Si, 1.0-2.0% of Mn, 0.01-0.035% of Al, 0.015-0.03% of Nb, 0.001-0.02% of Ti, 0.1-0.2% of Ni, 0.002-0.006% of N, 0.01% or less (0% exclusive) of P, 0.003% or less of S, and the balance of Fe and other inevitable impurities, satisfies relationship formulas 1 and 2, and has a microstructure including, by area fraction, 50-70 % of polygonal ferrite and 30-50 % of acicular ferrite wherein the ferrite has an average grain size of 20  $\mu\text{m}$  or less. [Relationship formula 1]  $0.23 \leq [C] + [Si] + 10^{\sup} * \leq [Al] \leq 0.61$  wherein [C], [Si], and [Al] mean contents (weight %) of respective alloy components. [Relationship formula 2]  $1.35 \leq [Mn] + 2^{\sup} * \leq [Ni] + 10^{\sup} * \leq [Nb] \leq 2.7$  wherein [Mn], [Ni], and [Nb] mean contents (weight %) of respective alloy components.

## IPC 8 full level

**C22C 38/02** (2006.01); **C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/08** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01)

## CPC (source: EP KR)

**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); **C21D 9/46** (2013.01 - EP KR); **C22C 38/00** (2013.01 - EP); **C22C 38/001** (2013.01 - EP); **C22C 38/02** (2013.01 - EP KR); **C22C 38/04** (2013.01 - EP KR); **C22C 38/06** (2013.01 - EP KR); **C22C 38/08** (2013.01 - EP KR); **C22C 38/12** (2013.01 - EP KR); **C22C 38/14** (2013.01 - EP KR); **C21D 2211/003** (2013.01 - KR); **C21D 2211/005** (2013.01 - KR)

## Citation (search report)

- [I] WO 2017111526 A1 20170629 - POSCO [KR]
- [A] KR 20160147153 A 20161222 - DONGKUK STEEL MILL CO LTD [KR]
- [A] WO 2017111443 A1 20170629 - POSCO [KR]
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- See references of WO 2019124890A1

## 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 3730640 A1 20201028**; **EP 3730640 A4 20201028**; CN 111511950 A 20200807; JP 2021507118 A 20210222; JP 7064597 B2 20220510; KR 101999018 B1 20190710; KR 20190077196 A 20190703; WO 2019124890 A1 20190627

## DOCDB simple family (application)

**EP 18890536 A 20181214**; CN 201880082930 A 20181214; JP 2020534887 A 20181214; KR 20170178949 A 20171224; KR 2018015950 W 20181214