

Title (en)

THICK HIGH-TOUGHNESS HIGH-STRENGTH STEEL SHEET AND METHOD FOR MANUFACTURING SAME

Title (de)

DICKES HOCHROBUSTES HOCHFESTES STAHLBLECH UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

TÔLE D'ACIER ÉPAISSE DE HAUTE TÉNACITÉ ET DE HAUTE RÉSISTANCE, ET PROCÉDÉ DE FABRICATION DE CELLE-CI

Publication

**EP 3246426 A4 20180110 (EN)**

Application

**EP 16737217 A 20160115**

Priority

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Abstract (en)

[origin: EP3246426A1] A technique for achieving high surface toughness and high strength and toughness of the inner part of a steel plate is provided. A thick-walled high-toughness high-strength steel plate is manufactured from steel having a particular composition and casted under conditions where the cooling rate of a surface during solidification is 1 °C/s or less. The surface of the steel plate has a toughness (vE-40) of 70 J or more, and the steel plate has a thickness of 100 mm or more. The surface of the steel plate has high toughness, and the inner part of the steel plate has high strength and toughness.

IPC 8 full level

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CPC (source: EP KR US)

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Citation (search report)

- [L] EP 3120941 A1 20170125 - JFE STEEL CORP [JP]
- [L] EP 3135787 A1 20170301 - JFE STEEL CORP [JP]
- [L] EP 3222744 A1 20170927 - JFE STEEL CORP [JP]
- [XI] CN 102605280 A 20120725 - BAOSHAN IRON & STEEL
- [XA] JP 2011202214 A 20111013 - JFE STEEL CORP
- [XA] JP 2002256380 A 20020911 - SUMITOMO METAL IND
- [XA] JP H04285119 A 19921009 - NIPPON STEEL CORP
- [XA] CN 101962741 A 20110202 - BAOSHAN IRON & STEEL
- [XA] EP 2765210 A1 20140813 - JFE STEEL CORP [JP]
- [X] WO 2014141697 A1 20140918 - JFE STEEL CORP [JP]
- [A] JP 3333619 B2 20021015
- See references of WO 2016114146A1

Cited by

EP3988683A4

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