

Title (en)  
STEEL SHEET AND METHOD FOR PRODUCING SAME

Title (de)  
STAHLBLECH UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)  
TÔLE D'ACIER ET SON PROCÉDÉ DE PRODUCTION

Publication  
**EP 4095272 A4 20230726 (EN)**

Application  
**EP 21745006 A 20210119**

Priority  
• JP 2020008125 A 20200122  
• JP 2021001658 W 20210119

Abstract (en)  
[origin: EP4095272A1] There is provided a steel sheet including a chemical composition consisting of, in mass%: C: 0.14 to 0.60%, Si + Al  $\leq$  3.00, P  $\leq$  0.030%, S  $\leq$  0.0050%, N  $\leq$  0.015%, B  $\leq$  0.0050%, C  $\times$  Mn  $\leq$  0.80, Mn + Ni + Cu + 1.3Cr + 4(Mo + W)  $\geq$  0.80, 0.003  $\leq$  Ti + Zr + Hf + V + Nb + Ta + Sc + Y  $\leq$  0.20, Sn + As + Sb + Bi  $\leq$  0.020, Mg: 0 to 0.005%, Ca: 0 to 0.005%, REM: 0 to 0.005%, with the balance: Fe and impurities, and satisfying  $Ms = 546 \times \exp(-1.362 \times C) - 11 \times Si - 30 \times Mn - 18 \times Ni - 20 \times Cu - 12 \times Cr - 8(Mo + W) \geq 200$ , wherein a steel micro-structure includes, in volume %: martensite  $\geq$  85%, retained austenite  $\leq$  15%, and the balance: bainite, an average block size of martensite and bainite  $\leq$  3.0  $\mu$ m, an average axial ratio of martensite and bainite: 1.0004 to 1.0100, and a yield stress is 1000 MPa or more.

IPC 8 full level  
**C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR US)  
**C21D 1/25** (2013.01 - EP); **C21D 8/0205** (2013.01 - EP); **C21D 8/0226** (2013.01 - EP KR US); **C21D 8/0236** (2013.01 - KR US); **C21D 8/0263** (2013.01 - EP US); **C21D 8/0273** (2013.01 - KR US); **C21D 9/46** (2013.01 - EP KR US); **C22C 38/001** (2013.01 - KR US); **C22C 38/002** (2013.01 - EP US); **C22C 38/005** (2013.01 - EP); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/08** (2013.01 - EP); **C22C 38/12** (2013.01 - EP); **C22C 38/14** (2013.01 - EP); **C22C 38/16** (2013.01 - EP); **C22C 38/22** (2013.01 - EP); **C22C 38/24** (2013.01 - EP); **C22C 38/26** (2013.01 - EP); **C22C 38/32** (2013.01 - EP); **C22C 38/34** (2013.01 - KR); **C22C 38/38** (2013.01 - EP); **C22C 38/42** (2013.01 - EP KR); **C22C 38/44** (2013.01 - EP KR); **C22C 38/48** (2013.01 - EP); **C22C 38/50** (2013.01 - EP); **C22C 38/54** (2013.01 - EP); **C22C 38/58** (2013.01 - EP KR); **C22C 38/60** (2013.01 - EP); **C23C 2/40** (2013.01 - US); **C21D 2211/001** (2013.01 - KR US); **C21D 2211/002** (2013.01 - EP KR US); **C21D 2211/004** (2013.01 - EP); **C21D 2211/008** (2013.01 - EP KR US)

Citation (search report)  
• [I] WO 2016177420 A1 20161110 - THYSSENKRUPP STEEL EUROPE AG [DE], et al  
• [I] WO 2018108653 A1 20180621 - THYSSENKRUPP STEEL EUROPE AG [DE], et al  
• [I] JP 2016050343 A 20160411 - NIPPON STEEL & SUMITOMO METAL CORP

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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)  
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