

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 μ 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
• See references of WO 2021149676A1

Designated contracting state (EPC)
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EP 4095272 A1 20221130; **EP 4095272 A4 20230726**; CN 115003839 A 20220902; JP 7364942 B2 20231019; JP WO2021149676 A1 20210729; KR 20220127894 A 20220920; MX 2022008976 A 20220811; US 2023065607 A1 20230302; WO 2021149676 A1 20210729

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