

Title (en)

STEEL SHEET, MEMBER, AND METHOD FOR MANUFACTURING STEEL SHEET AND MEMBER

Title (de)

STAHLBLECH, ELEMENT UND VERFAHREN ZUR HERSTELLUNG VON STAHLBLECH UND ELEMENT

Title (fr)

TÔLE D'ACIER, ÉLÉMENT ET PROCÉDÉ DE FABRICATION DE TÔLE D'ACIER ET ÉLÉMENT

Publication

**EP 4372118 A1 20240522 (EN)**

Application

**EP 22875780 A 20220909**

Priority

- JP 2021160628 A 20210930
- JP 2022033945 W 20220909

Abstract (en)

Provided are a steel sheet having high strength, high ductility, excellent stretch flange formability, and good chemical convertibility; a related member; and methods for manufacturing them. The steel sheet has a chemical composition including specific amounts of C, Si, Mn, P, S, sol. Al, and N in mass%. The steel sheet has a specific ratio of the total of polygonal ferrite, upper bainite, retained  $\gamma$ , fresh martensite, tempered martensite, and lower bainite, and a specific ratio of a remaining microstructure. The steel sheet has a specific ratio of the number of fresh martensite grains and retained  $\gamma$  grains having an equivalent circular diameter of less than 1.2  $\mu\text{m}$ , and has a specific ratio of the number of fresh martensite grains and retained  $\gamma$  grains having an aspect ratio of 2.5 or more and an equivalent circular diameter of 1.2  $\mu\text{m}$  or more.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 9/46** (2006.01); **C22C 38/06** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR)

**C21D 1/20** (2013.01 - EP); **C21D 1/25** (2013.01 - EP); **C21D 1/76** (2013.01 - EP); **C21D 8/0205** (2013.01 - EP); **C21D 8/0226** (2013.01 - KR); **C21D 8/0236** (2013.01 - EP KR); **C21D 8/0263** (2013.01 - KR); **C21D 8/0273** (2013.01 - EP); **C21D 9/46** (2013.01 - EP); **C22C 38/001** (2013.01 - KR); **C22C 38/002** (2013.01 - EP); **C22C 38/005** (2013.01 - EP); **C22C 38/008** (2013.01 - EP KR); **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); **C22C 38/12** (2013.01 - EP); **C22C 38/14** (2013.01 - EP); **C22C 38/16** (2013.01 - EP); **C22C 38/32** (2013.01 - EP); **C22C 38/38** (2013.01 - EP); **C22C 38/42** (2013.01 - KR); **C22C 38/44** (2013.01 - KR); **C22C 38/46** (2013.01 - KR); **C22C 38/48** (2013.01 - KR); **C22C 38/50** (2013.01 - KR); **C22C 38/54** (2013.01 - KR); **C22C 38/58** (2013.01 - KR); **C22C 38/60** (2013.01 - EP); **C21D 2201/05** (2013.01 - EP); **C21D 2211/001** (2013.01 - EP KR); **C21D 2211/002** (2013.01 - EP KR); **C21D 2211/005** (2013.01 - EP KR); **C21D 2211/008** (2013.01 - EP)

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

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**EP 4372118 A1 20240522**; CN 118139997 A 20240604; JP 7294548 B1 20230620; JP WO2023053908 A1 20230406; KR 20240051975 A 20240422; WO 2023053908 A1 20230406

DOCDB simple family (application)

**EP 22875780 A 20220909**; CN 202280064097 A 20220909; JP 2022033945 W 20220909; JP 2022575217 A 20220909; KR 20247008876 A 20220909