

Title (en)  
COLD-ROLLED STEEL SHEET AND MANUFACTURING METHOD THEREOF

Title (de)  
KALTGEWALZTES STAHLBLECH UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)  
TÔLE D'ACIER LAMINÉE À FROID ET SON PROCÉDÉ DE FABRICATION

Publication  
**EP 4375389 A1 20240529 (EN)**

Application  
**EP 22845844 A 20220714**

Priority  
• JP 2021120895 A 20210721  
• JP 2022027703 W 20220714

Abstract (en)  
This cold-rolled steel sheet has a predetermined chemical composition, in which, in a case where a range of 1/8 to 3/8 of a sheet thickness from a surface in a sheet thickness direction is defined as a t/4 portion and a range of 20 μm from the surface in the sheet thickness direction is defined as a surface layer portion, a microstructure at the t/4 portion includes, by volume percentage, 0% or more and 10.0% or less of retained austenite and 90.0% or more and 100% or less of one or two of martensite and tempered martensite, a ratio of a dislocation density of the surface layer portion to a dislocation density of the t/4 portion is 0.80 or more, a ratio of a hardness of the surface layer portion to a hardness of the t/4 portion is 0.90 or more, and a tensile strength of the cold-rolled steel sheet is 1,310 MPa or more.

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

CPC (source: EP KR)  
**C21D 1/19** (2013.01 - EP); **C21D 1/25** (2013.01 - EP); **C21D 1/26** (2013.01 - EP); **C21D 8/0205** (2013.01 - EP); **C21D 8/0226** (2013.01 - KR); **C21D 8/0236** (2013.01 - EP KR); **C21D 8/0242** (2013.01 - EP); **C21D 8/0263** (2013.01 - EP KR); **C21D 8/0273** (2013.01 - EP); **C21D 9/46** (2013.01 - EP KR); **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); **C22C 38/04** (2013.01 - EP); **C22C 38/06** (2013.01 - EP KR); **C22C 38/08** (2013.01 - EP); **C22C 38/10** (2013.01 - EP); **C22C 38/12** (2013.01 - EP); **C22C 38/14** (2013.01 - EP); **C22C 38/16** (2013.01 - EP); **C22C 38/20** (2013.01 - EP); **C22C 38/22** (2013.01 - EP); **C22C 38/30** (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 - EP KR); **C22C 38/50** (2013.01 - KR); **C22C 38/52** (2013.01 - KR); **C22C 38/54** (2013.01 - KR); **C22C 38/58** (2013.01 - KR); **C22C 38/60** (2013.01 - EP); **C23C 2/02** (2013.01 - EP); **C23C 2/04** (2013.01 - KR); **C23C 2/06** (2013.01 - EP); **C23C 2/12** (2013.01 - EP); **C23C 2/26** (2013.01 - EP); **C23C 2/28** (2013.01 - EP); **C23C 2/40** (2013.01 - EP); **C21D 2211/001** (2013.01 - EP KR); **C21D 2211/008** (2013.01 - EP KR)

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Designated extension state (EPC)  
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**EP 22845844 A 20220714**; CN 202280049812 A 20220714; JP 2022027703 W 20220714; JP 2023536714 A 20220714; KR 20247001677 A 20220714; MX 2024000460 A 20220714