

Title (en)

COLD ROLLED AND COATED STEEL SHEET AND A METHOD OF MANUFACTURING THEREOF

Title (de)

KALTGEWALZTES UND BESCHICHTETES STAHLBLECH UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)

TÔLE D'ACIER LAMINÉE À FROID ET REVÊTUE ET SON PROCÉDÉ DE FABRICATION

Publication

EP 3853387 A1 20210728 (EN)

Application

EP 19772880 A 20190917

Priority

- IB 2018057253 W 20180920
- IB 2019057795 W 20190917

Abstract (en)

[origin: WO2020058748A1] A cold rolled and heat treated steel sheet having a composition comprising of the following elements 0.13 % ≤ Carbon ≤ 0.18 %, 1.1 % ≤ Manganese ≤ 1.8%, 0.5 % ≤ Silicon ≤ 0.9 %, 0.6 % ≤ Aluminum ≤ 1%, 0.002 % ≤ Phosphorus ≤ 0.02 %, 0 % ≤ Sulfur ≤ 0.003 %, 0 % ≤ Nitrogen ≤ 0.007% and can contain one or more of the following optional elements 0.05% ≤ Chromium ≤ 1 %, 0.001% ≤ Molybdenum ≤ 0.5 %, 0.001% ≤ Niobium ≤ 0.1%, 0.001% ≤ Titanium ≤ 0.1%, 0.01% ≤ Copper ≤ 2%, 0.01% ≤ Nickel ≤ 3%, 0.0001% ≤ Calcium ≤ 0.005%, 0 % ≤ Vanadium ≤ 0.1%, 0 % ≤ Boron ≤ 0.003%, 0 % ≤ Cerium ≤ 0.1%, 0 % ≤ Magnesium # 0.010%, 0 % ≤ Zirconium # 0.010%, the remainder composition being composed of iron and unavoidable impurities caused by processing, the microstructure of said steel sheet comprising in area fraction, 60 to 75% Ferrite, 20 to 30% Bainite, 10 to 15% Residual Austenite, and 0% to 5% Martensite, wherein the cumulated amounts of Residual Austenite and Ferrite is between 70% and 80%.

IPC 8 full level

C21D 8/02 (2006.01); **C21D 9/46** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01)

CPC (source: EP KR US)

B21C 47/02 (2013.01 - KR US); **C21D 8/02** (2013.01 - EP); **C21D 8/0226** (2013.01 - KR US); **C21D 8/0236** (2013.01 - KR 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 - US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/18** (2013.01 - KR); **C23C 2/06** (2013.01 - US); **C23C 2/12** (2013.01 - US); **C21D 2211/001** (2013.01 - US); **C21D 2211/002** (2013.01 - US); **C21D 2211/005** (2013.01 - KR US); **C21D 2211/008** (2013.01 - US)

Citation (search report)

See references of WO 2020058829A1

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

DOCDB simple family (publication)

WO 2020058748 A1 20200326; BR 112021003583 A2 20210518; CA 3110629 A1 20200326; CA 3110629 C 20230314; CN 112689684 A 20210420; CN 112689684 B 20221209; EP 3853387 A1 20210728; EP 3853387 B1 20230510; ES 2946086 T3 20230712; FI 3853387 T3 20230615; HU E062231 T2 20231028; JP 2022501504 A 20220106; JP 7422143 B2 20240125; KR 102647462 B1 20240313; KR 20210061382 A 20210527; MA 53640 A 20220330; MA 53640 B1 20230531; MX 2021003290 A 20210513; PL 3853387 T3 20230710; UA 126725 C2 20230111; US 2022033925 A1 20220203; WO 2020058829 A1 20200326; ZA 202101225 B 20220126

DOCDB simple family (application)

IB 2018057253 W 20180920; BR 112021003583 A 20190917; CA 3110629 A 20190917; CN 201980059157 A 20190917; EP 19772880 A 20190917; ES 19772880 T 20190917; FI 19772880 T 20190917; HU E19772880 A 20190917; IB 2019057795 W 20190917; JP 2021515544 A 20190917; KR 20217011078 A 20190917; MA 53640 A 20190917; MX 2021003290 A 20190917; PL 19772880 T 20190917; UA A202102067 A 20190917; US 201917276240 A 20190917; ZA 202101225 A 20210223