

Title (en)

ORIENTED ELECTRICAL STEEL SHEET AND MANUFACTURING METHOD THEREFOR

Title (de)

ORIENTIERTES ELEKTRISCHES STAHLBLECH UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

TÔLE D'ACIER MAGNÉTIQUE À GRAINS ORIENTÉS ET PROCÉDÉ DE FABRICATION DE CETTE TÔLE

Publication

EP 3395959 A4 20190102 (EN)

Application

EP 16879299 A 20161220

Priority

- KR 20150182839 A 20151221
- KR 2016014945 W 20161220

Abstract (en)

[origin: EP3395959A1] A method for manufacturing an oriented electrical steel sheet according to an exemplary embodiment of the present invention includes: providing a slab including, as wt%, Si at equal to or less than 4.0 % (excluding 0 %), C at 0.001 % to 0.4 %, and Mn at 0.001 % to 2.0 %, and including a balance including Fe and inevitably mixed and input impurities; reheating the slab; manufacturing a hot steel sheet by hot-rolling the slab; performing hot-rolled steel sheet annealing to the hot steel sheet; primarily cold-rolling the hot-rolled steel sheet annealed hot steel sheet; decarburization-annealing the cold-rolled steel sheet; secondarily cold-rolling the decarburization-annealed steel sheet; and finally annealing the cold-rolled steel sheet, wherein, regarding the finally annealed steel sheet, a size 2L of a magnetic domain existing in a grain is less than a thickness D of the steel sheet (2L < D).

IPC 8 full level

C21D 8/12 (2006.01); **C21D 9/46** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01)

CPC (source: EP US)

C21D 8/12 (2013.01 - EP US); **C21D 8/1261** (2013.01 - EP US); **C21D 8/1266** (2013.01 - EP US); **C21D 8/1272** (2013.01 - EP US);
C21D 9/46 (2013.01 - EP US); **C22C 38/004** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US);
C22C 38/06 (2013.01 - EP US); **C21D 8/1255** (2013.01 - EP US); **C21D 2201/05** (2013.01 - EP US); **C22C 2202/02** (2013.01 - US)

Citation (search report)

- [XA] US 2003116236 A1 20030626 - HAYAKAWA YASUYUKI [JP], et al
- [XA] US 4692193 A 19870908 - YOSHITOMI YASUNARI [JP], et al
- [XA] JP S5518511 A 19800208 - NIPPON STEEL CORP
- [A] JP 3438282 B2 20030818
- [A] KR 101141279 B1 20120504
- See references of WO 2017111432A1

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)

EP 3395959 A1 20181031; EP 3395959 A4 20190102; EP 3395959 B1 20200422; CN 108431244 A 20180821; CN 108431244 B 20220927;
JP 2019505671 A 20190228; JP 6622919 B2 20191218; KR 101675318 B1 20161111; PL 3395959 T3 20200921; US 2018371571 A1 20181227;
US 2022106657 A1 20220407; WO 2017111432 A1 20170629

DOCDB simple family (application)

EP 16879299 A 20161220; CN 201680075431 A 20161220; JP 2018532632 A 20161220; KR 20150182839 A 20151221;
KR 2016014945 W 20161220; PL 16879299 T 20161220; US 201616065072 A 20161220; US 202117554245 A 20211217