

Title (en)

METHOD FOR PRODUCING A GRAIN-ORIENTED ELECTRICAL STEEL FLAT PRODUCT INTENDED FOR ELECTROTECHNICAL APPLICATIONS

Title (de)

VERFAHREN ZUM HERSTELLEN EINES KORNIORIENTIERTEN, FÜR ELEKTROTECHNISCHE ANWENDUNGEN BESTIMMTEN ELEKTROSTAHLFLACHPRODUKTS

Title (fr)

PROCÉDÉ DE FABRICATION D'UN PRODUIT PLAT EN ACIER ÉLECTRIQUE À GRAINS ORIENTÉS DESTINÉ À DES APPLICATIONS ÉLECTROTECHNIQUES

Publication

EP 2729588 A1 20140514 (DE)

Application

EP 12734890 A 20120704

Priority

- DE 102011107304 A 20110706
- EP 2012063039 W 20120704

Abstract (en)

[origin: WO2013004747A1] The invention relates to a method for producing a grain-oriented flat steel product for electrotechnical applications, in which a melt is cast into a strand, a thin slab is divided from the cast strand, the thin slab is heated and hot-rolled into a warm strip, the warm strip is cooled, coiled and cold-rolled into a cold strip, the cold strip undergoes decarburizing and nitriding annealing, an annealing separator is applied to the surface of the cold strip and the cold strip undergoes final annealing to obtain a distinctive cast texture. The working step of "decarburizing and nitriding annealing" is carried out in two stages, wherein the first annealing stage, which comprises heating the cold strip from a starting temperature to a first desired annealing temperature and keeping it at this desired annealing temperature, extends over a first time interval and the second annealing stage, in which the cold strip is heated to a second desired annealing temperature and is subsequently kept at this desired annealing temperature, extends over a second time interval. The first desired annealing temperature is 10 - 50 °C lower than the second desired annealing temperature and the duration of the first time interval is 30 - 70% of the overall duration of the annealing treatment comprising the first and second time intervals.

IPC 8 full level

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

CPC (source: EP US)

C21D 8/1205 (2013.01 - US); **C21D 8/1211** (2013.01 - EP US); **C21D 8/1222** (2013.01 - EP US); **C21D 8/1233** (2013.01 - EP US); **C21D 8/1255** (2013.01 - EP US); **C21D 8/1272** (2013.01 - EP US); **C21D 8/1277** (2013.01 - US); **C21D 8/1283** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/008** (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); **C22C 38/20** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US)

Citation (search report)

See references of WO 2013004747A1

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

DOCDB simple family (publication)

DE 102011107304 A1 20130110; BR 112014000185 A2 20170207; CN 103748240 A 20140423; EP 2729588 A1 20140514; EP 2729588 B1 20150506; JP 2014524978 A 20140925; KR 20140044892 A 20140415; RU 2014104074 A 20150820; US 2014261895 A1 20140918; WO 2013004747 A1 20130110

DOCDB simple family (application)

DE 102011107304 A 20110706; BR 112014000185 A 20120704; CN 201280033436 A 20120704; EP 12734890 A 20120704; EP 2012063039 W 20120704; JP 2014517790 A 20120704; KR 20147002935 A 20120704; RU 2014104074 A 20120704; US 201214130806 A 20120704