

Title (en)
METHOD FOR PRODUCING A GRAIN-ORIENTED FLAT STEEL PRODUCT

Title (de)
VERFAHREN ZUM ERZEUGEN EINES KORNIORIENTIERTEN STAHLFLACHPRODUKTS

Title (fr)
PROCÉDÉ DE PRODUCTION D'UN PRODUIT PLAT EN ACIER À GRAINS ORIENTÉS

Publication
EP 2675927 A1 20131225 (DE)

Application
EP 11761066 A 20110922

Priority
• DE 102011000712 A 20110214
• EP 2011066512 W 20110922

Abstract (en)
[origin: WO2012110111A1] The invention relates to a method for producing a grain-oriented flat steel product that is intended for the manufacture of parts for electrotechnical applications and has minimized magnetic loss values and optimized magneto-restrictive properties, said method comprising the work steps of a) providing a flat steel product, and b) laser-treating the flat steel product, wherein, in the course of the laser treatment, linear deformations, which are arranged with a spacing a, are molded into the surface of the flat steel product by means of a laser beam emitted by a laser radiation source with a power P. The method according to the invention for producing flat steel products is optimally suitable for the manufacture of parts for transformers. This is achieved in that the apparent power S_{1.7/50} of the flat steel product before and after the laser treatment (operation b)), determined at a frequency of 50 Hertz and a polarization of 1.7 Tesla, is measured, and in that the parameters of the laser treatment are varied in such a way that the difference between the apparent power S_{1.7/50} measured before and after the laser treatment is less than 40%.

IPC 8 full level
C21D 8/12 (2006.01); **H01F 1/147** (2006.01)

CPC (source: EP US)
C21D 8/1294 (2013.01 - EP US); **H01F 1/14775** (2013.01 - EP US); **H01F 41/00** (2013.01 - US); **C21D 2201/05** (2013.01 - EP US); **H01F 1/16** (2013.01 - EP US)

Citation (search report)
See references of WO 2012110111A1

Cited by
EP4365319A1

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 102011000712 A1 20120816; BR 112013019877 A2 20161011; BR 112013019877 B1 20180515; CN 103429767 A 20131204; CN 103429767 B 20150429; EP 2675927 A1 20131225; EP 2675927 B1 20190918; ES 2759823 T3 20200512; JP 2014512453 A 20140522; JP 5822243 B2 20151124; KR 101581878 B1 20151231; KR 20130114246 A 20131016; MX 2013009016 A 20140120; MX 367050 B 20190802; PL 2675927 T3 20200430; RU 2013138224 A 20150220; RU 2547377 C2 20150410; US 2014034193 A1 20140206; WO 2012110111 A1 20120823

DOCDB simple family (application)
DE 102011000712 A 20110214; BR 112013019877 A 20110922; CN 201180067569 A 20110922; EP 11761066 A 20110922; EP 2011066512 W 20110922; ES 11761066 T 20110922; JP 2013553809 A 20110922; KR 20137021149 A 20110922; MX 2013009016 A 20110922; PL 11761066 T 20110922; RU 2013138224 A 20110922; US 201113984308 A 20110922