

Title (en)

METHOD OF PRODUCING GRAIN-ORIENTED ELECTRICAL STEEL SHEET HAVING EXCELLENT IRON LOSS PROPERTIES

Title (de)

VERFAHREN ZUR HERSTELLUNG VON KORNIORIENTIERTEM ELEKTROMAGNETISCHEM STAHLBLECH MIT HERVORRAGENDEN KERNVERLUSTEIGENSCHAFTEN

Title (fr)

PROCÉDÉ DE PRODUCTION D'UNE TÔLE D'ACIER ÉLECTROMAGNÉTIQUE À GRAINS ORIENTÉS PRÉSENTANT D'EXCELLENTE CARACTÉRISTIQUES DE PERTE DE COEUR

Publication

EP 2757165 A1 20140723 (EN)

Application

EP 12832398 A 20120914

Priority

- JP 2011203349 A 20110916
- JP 2012073608 W 20120914

Abstract (en)

In the production of a grain-oriented electrical steel sheet by hot rolling a steel slab comprising C: 0.001#1/40.10 mass%, Si:1.0#1/45.0 mass%, Mn:0.01#1/40.5 mass%, sol. Al: 0.003#1/40.050 mass%, N: 0.0010#1/40.020 mass%, one or two selected from S and Se: 0.005#1/40.040 mass% in total, cold rolling, primary recrystallization annealing, and final annealing, a heating rate S1 between a temperature T1 (°C): 500+2 x (NB - NA) and a temperature T2 (°C): 600 +2 x (NB - NA) in a heating process of the primary recrystallization annealing is set to not less than 80 °C/sec, and an average heating rate S2 from the temperature T2 to 750 °C is set to 0.1#1/40.7 times of S1, whereby a grain-oriented electrical steel sheet having a low iron loss over a full length of a product coil is obtained. In the equations, NA represents N amount (massppm) precipitated after the final cold rolling and NB represents N amount (massppm) precipitated after the primary recrystallization annealing.

IPC 8 full level

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CPC (source: EP US)

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Cited by

EP2902508A4; EP2770075A4; US11145446B2; US9805851B2; US9290824B2; EP3653754A4

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