Title (en)

PROCESS FOR PRODUCING STEEL SHEET AND DEVICE FOR CONTINUOUSLY ANNEALING STEEL SHEET

Title (de)

VERFAHREN ZUR HERSTELLUNG VON STAHLBLECH UND VORRICHTUNG ZUM DURCHLAUFGLÜHEN VON STAHLBLECH

Title (fr)

PROCÉDÉ DE PRODUCTION DE TÔLE D'ACIER ET DISPOSITIF DE RECUIT CONTINU DE TÔLE D'ACIER

Publication

EP 3421625 A4 20190731 (EN)

Application

EP 16891479 A 20160225

Priority

JP 2016055601 W 20160225

Abstract (en)

[origin: EP3421625A1] The present method for manufacturing a high strength steel sheet having a tensile strength of 780 MPa or higher includes continuous annealing by heating a steel sheet having a predetermined chemical composition to 750°C to 900°C and holding the steel sheet in the temperature range for 0 seconds to 300 seconds, in which, during heating and holding, a hydrogen concentration in a furnace atmosphere is less than 10 volume%, when a temperature of the steel sheet is 700°C or lower, a furnace body average value is higher than -3.01 and lower than -0.07, when the temperature is higher than 700°C and 800°C or lower, the value is higher than -1.36 and lower than -0.07, when the temperature is higher than 800°C, the value is higher than -3.01 and -0.53 or lower, and a dew point is lower than -10°C.

IPC 8 full level

C21D 9/56 (2006.01); **C21D 6/00** (2006.01); **C21D 9/46** (2006.01); **C21D 11/00** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/08** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01); **C22C 38/16** (2006.01); **C22C 38/18** (2006.01); **C23C 2/02** (2006.01); **C23C 2/06** (2006.01); **C23C 22/12** (2006.01); **C23C 22/78** (2006.01)

CPC (source: EP KR US)

C21D 6/002 (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C21D 9/56** (2013.01 - EP US); **C21D 9/561** (2013.01 - KR); **C21D 11/00** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP US); **C22C 38/18** (2013.01 - EP US); **C22C 38/42** (2013.01 - KR); **C22C 38/48** (2013.01 - KR); **C22C 38/50** (2013.01 - KR); **C23C 2/0038** (2022.08 - EP US); **C23C 2/02** (2013.01 - EP US); **C23C 2/0222** (2022.08 - EP US); **C23C 2/0224** (2022.08 - KR); **C23C 2/06** (2013.01 - EP KR US); **C23C 2/40** (2013.01 - EP KR US); **C23C 22/12** (2013.01 - KR); **C23C 22/78** (2013.01 - KR); C23C 22/12 (2013.01 - EP US); C23C 22/78 (2013.01 - EP US)

Citation (search report)

- [X] JP 2011111673 A 20110609 - NIPPON STEEL CORP
- [X] JP 2011111675 A 20110609 - NIPPON STEEL CORP
- [A] US 2012186707 A1 20120726 - HIRASAWA JUNICHIRO [JP], et al
- [A] US 4268326 A 19810519 - IWAYAMA KENZO, et al
- See also references of WO 2017145322A1

Cited by

EP4177363A4; WO2021250450A1

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)

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DOCDB simple family (application)

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