Title (en)

MEDIUM MANGANESE COLD-ROLLED STEEL INTERMEDIATE PRODUCT HAVING A REDUCED CARBON FRACTION, AND METHOD FOR PROVIDING SUCH A STEEL INTERMEDIATE PRODUCT

Title (de)

MEDIUM-MANGAN-KALTBAND-STAHLZWISCHENPRODUKT MIT REDUZIERTEM KOHLENSTOFF-ANTEIL UND VERFAHREN ZUM BEREITSTELLEN EINES SOLCHEN STAHLZWISCHENPRODUKTES

Title (fr)

PRODUIT INTERMÉDIAIRE EN ACIER LAMINÉ À FROID MEDIUM MANGANÈSE AYANT UN TAUX DE CARBONE RÉDUIT ET PROCÉDÉ POUR LA FOURNITURE D'UN TEL PRODUIT INTERMÉDIAIRE EN ACIER

Publication

EP 3788176 A1 20210310 (DE)

Application

EP 19734427 A 20190704

Priority

- EP 18183501 A 20180713
- EP 2019067977 W 20190704

Abstract (en)

[origin: WO2020011638A1] The invention relates to a method for providing a medium manganese cold-rolled steel intermediate product having an improved fts value, the alloy of which comprises: - a carbon fraction (C) within the range 0.003 wt% < C < 0.12 wt%, - a manganese fraction (Mn) within the range 3.5 wt% < Mn < 12 wt%, - a silicon fraction (Si) and/or an aluminium fraction (Al) as alloy fractions, where Si wt% + Al wt% < 1, - optionally further alloy fractions, - optional microalloy fractions, in particular a titanium fraction (Ti) and/or a niobium fraction (Nb) and/or vanadium fraction (V), and - wherein the remainder of the alloy comprises iron (Fe) and unavoidable impurities of a melt, wherein the method comprises the following step which is carried out after the cold-rolling step: - performing an intercritical box annealing process at a maximum annealing temperature of 684 °C - (517 °C * the carbon fraction in wt%).

IPC 8 full level

C21D 6/00 (2006.01); **C21D 1/26** (2006.01); **C21D 9/46** (2006.01); **C21D 9/52** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01); **C22C 38/18** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/38** (2006.01)

CPC (source: EP KR US)

C21D 1/26 (2013.01 - EP KR); **C21D 6/005** (2013.01 - EP KR); **C21D 9/46** (2013.01 - EP KR); **C21D 9/52** (2013.01 - EP KR US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/12** (2013.01 - EP KR); **C22C 38/14** (2013.01 - EP KR); **C22C 38/18** (2013.01 - EP KR); **C22C 38/24** (2013.01 - EP KR); **C22C 38/26** (2013.01 - EP KR); **C22C 38/28** (2013.01 - EP KR); **C22C 38/38** (2013.01 - EP US); C21D 2211/001 (2013.01 - EP KR US); C21D 2211/003 (2013.01 - EP KR US); C21D 2211/005 (2013.01 - EP KR US); C21D 2211/008 (2013.01 - EP KR US)

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 3594368 A1 20200115; CN 112703257 A 20210423; CN 112703257 B 20220923; EP 3788176 A1 20210310; JP 2021531414 A 20211118; JP 7506668 B2 20240626; KR 20210057721 A 20210521; US 2022002847 A1 20220106; WO 2020011638 A1 20200116

DOCDB simple family (application)

EP 18183501 A 20180713; CN 201980040372 A 20190704; EP 19734427 A 20190704; EP 2019067977 W 20190704; JP 2021524107 A 20190704; KR 20217003539 A 20190704; US 201917258398 A 20190704