Title (en)

FLAT STEEL PRODUCT AND METHOD FOR MANUFACTURING

Title (de)

STAHLFLACHPRODUKT UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)

PLAT PRODUIT EN ACIER ET MÉTHODE DE FABRICATION

Publication

EP 3405593 A1 20181128 (DE)

Application

EP 16701442 A 20160120

Priority

EP 2016051109 W 20160120

Abstract (en)

[origin: WO2017125147A1] The invention relates to a reliably producible flat steel product based on an Fe3Al alloy and a method permitting the production of flat steel products of this type. The flat steel product is produced from a steel that consists of (in wt.%) Al: 12-20 %, Ti: 0.2-2 %, B: 0.1-0.6 %, and optionally at least one element from the group "Cr, C, Mn, Si, Nb, Ta, W, Zr, V, Mo, Ni, Cu, Ca, SEM, Co" in the following amounts: N: ≤ 0.1 %; Cr: ≤ 7 %; C: ≤ 0.15 %; Mn: ≤ 2 %; Si: 0.05-5 %; Nb, Ta, W: in total ≤ 0.2 %; Zr: ≤ 1 %; V: ≤ 1 %; Mo: ≤ 1 %; Ni: ≤ 2 %; Cu: ≤ 3 %; Ca: ≤ 0.015 %; SEM: ≤ 0.2 %; Co: ≤ 1 %, the remainder being Fe and unavoidable impurities, wherein the impurities include ≤ 0.03 % S and ≤ 0.1 % P. Here, for the Ti content % Ti and B content % B of the steel, it is the case that 0.33 ≤ %Ti/%B ≤ 3.75. At the same time, the structure of the flat steel products consists of 0.3-5 vol.% TiB2 precipitations, which are embedded in a structure matrix comprising at least 80 vol.% Fe3Al. The method according to the invention proposes casting a steel melt comprising the stated composition to form an intermediate product in the form of a slab, thin slab or a cast strip, hot-rolling said intermediate product at 1000-1300°C and a final hot-rolling temperature of at least 850°C to form a hot-rolled strip and finally winding the obtained hot strip at a winding temperature between room temperature and 750°C.

IPC 8 full level

C21D 6/02 (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/22** (2006.01); **C22C 38/28** (2006.01); **C22C 38/32** (2006.01)

CPC (source: EP US)

C21D 8/0226 (2013.01 - EP US); **C21D 8/0263** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 38/00** (2013.01 - EP US); **C22C 38/001** (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 38/22** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); C21D 2211/004 (2013.01 - EP US)

Citation (search report)

See references of WO 2017125147A1

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)

WO 2017125147 A1 20170727; CN 108603257 A 20180928; CN 108603257 B 20210226; EP 3405593 A1 20181128; EP 3405593 B1 20200520; US 2019032161 A1 20190131

DOCDB simple family (application)

EP 2016051109 W 20160120; CN 201680079664 A 20160120; EP 16701442 A 20160120; US 201616071566 A 20160120