

Title (en)  
FLAT STEEL PRODUCT AND METHOD FOR ITS PRODUCTION

Title (de)  
STAHLFLACHPRODUKT UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)  
PRODUIT PLAT EN ACIER ET SON PROCÉDÉ DE FABRICATION

Publication  
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Application  
**EP 22159990 A 20170928**

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• EP 22159990 A 20170928  
• EP 17780063 A 20170928  
• EP 2017074642 W 20170928

Abstract (en)  
[origin: WO2019063081A1] The invention relates to a bake hardening treatment of a suitable very high-strength flat steel product and to a method for producing such a flat steel product. The flat steel product consists of a steel that consists of (in wt%) 0.1-0.5% C, 1.0-3.0% Mn, 0.5-2.0% Si, 0.01-1.5% Al, 0.001-0.008% N, up to 0.02% P, up to 0.005% S and optionally one or more of the following elements: 0.01-1.0% Cr, 0.01-0.2% Mo, 0.001-0.01% B, and optionally a total of 0.005-0.2% V, Ti and Nb, the Ti proportion not being more than 0.10%, and, as the remainder, iron and unavoidable impurities. The flat steel product has a microstructure that consists of not more than 15 area % ferrite, not more than 5 area % bainite, at least 5 volume % residual austenite and at least 80 area % martensite, of which at least 75 area % is tempered martensite.

Abstract (de)  
Die Erfindung betrifft ein für eine Bake-Hardening-Behandlung geeignetes höchstfestes Stahlflachprodukt sowie ein Verfahren zur Herstellung eines solchen Stahlflachprodukts. Das Stahlflachprodukt besteht aus einem Stahl, der aus (in Gew.-%) 0,1 - 0,5 % C, 1,0 - 3,0 % Mn, 0,5 - 2,0 % Si, 0,01 - 1,5 % Al, 0,001 - 0,008 % N, bis zu 0,02 % P, bis zu 0,005 % S sowie optional aus einem oder mehreren der folgenden Elemente 0,01 - 1,0 % Cr, 0,01 - 0,2 % Mo, 0,001 - 0,01 % B sowie optional aus in Summe 0,005 - 0,2 % V, Ti und Nb, wobei der Ti-Anteil nicht mehr als 0,10% beträgt, und als Rest Eisen und unvermeidbaren Verunreinigungen besteht, und wobei das Stahlflachprodukt ein Gefüge aufweist, das aus nicht mehr als 15 Flächen-% Ferrit, nicht mehr als 5 Flächen-% Bainit, mindestens 5 Volumen-% Restaustenit und mindestens 80 Flächen-% Martensit, von welchem mindestens 75 Flächen-% angelassener Martensit ist, besteht.

IPC 8 full level  
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Citation (applicant)  
• US 2013240094 A1 20130919 - AKAMATSU SATOSHI [JP], et al  
• US 2017009315 A1 20170112 - SHIBATA KOSUKE [JP], et al

Citation (search report)  
• [I] JP 2016194138 A 20161117 - KOBE STEEL LTD  
• [A] WO 2016177763 A1 20161110 - THYSSENKRUPP STEEL EUROPE AG [DE], et al  
• [A] JP 2015224359 A 20151214 - JFE STEEL CORP  
• [A] WO 2017155263 A1 20170914 - POSCO [KR]  
• [A] T. FUKUSHIMA: "Recent technological progress in High speed continuous annealing", TRANSACTIONS ISIJ, vol. 25, 1 January 1985 (1985-01-01), pages 275 - 293, XP055490618

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