

Title (en)

METHOD AND INSTALLATION FOR THE PRODUCTION OF STEEL PRODUCTS HAVING AN OPTIMUM SURFACE QUALITY

Title (de)

VERFAHREN UND ANLAGE ZUM ERZEUGEN VON STAHLPRODUKTEN MIT BESTER OBERFLÄCHENQUALITÄT

Title (fr)

PROCEDE ET DISPOSITIF PERMETTANT DE PRODUIRE DES PRODUITS EN ACIER QUI PRESENTENT UNE QUALITE SUPERFICIELLE OPTIMALE

Publication

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Application

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Abstract (en)

[origin: WO2004108971A2] Disclosed are a method and an installation for producing steel products (1) having an optimum surface quality, especially extremely low carbon contents (UCL steel or IF steel), nitrogen contents, total oxygen contents, high-strength or stainless steel qualities. According to the invention, the liquid steel is cast into a thin slab (5a) from a process route (10, 11, 12, or 13) that is selected according to the desired final structure (9) based on an electric-arc furnace (2b), is descaled, cut into billets (15) having a partial length, optionally descaled once again, subjected to final descaling downstream from a holding furnace (16), milled in a finishing mill train (6a), rolled up in a rolling station (20) located downstream from the last finishing mill stand (19) or downstream from a cooling section (21), and the final structure (9) is adjusted in the cooling section (21) according to the desired steel quality by cooling on a run-out roller table (22), whereupon the rolling stock (1a) is completely rolled up in a second rolling station (23).

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C21C 7/10

IPC 8 full level

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See references of WO 2004108971A2

Citation (examination)

- DE 4133899 A1 19930415 - EKO STAHL AG [DE]
- JP S6178544 A 19860422 - KAWASAKI STEEL CO
- DE 19860570 C1 20001005 - SMS DEMAG AG [DE]
- ARVEDI G ET AL: "LATEST RESULTS FROM THE ARVEDI ISP TECHNOLOGY AND PROSPECTS FOR THE NEW ISP-ECR TECHNOLOGY// NEUESTE ERGEBNISSE DER ARVEDI-ISP-TECHNOLOGIE UND AUSSICHTEN FUER DAS NEUE ISP-ECR-VERFAHREN FUER ENDLOSES GIESSWALZEN", STAHL UND EISEN, VERLAG STAHL EISEN, DUSSELDORF, DE, vol. 123, no. 3, 17 March 2003 (2003-03-17), pages 57 - 65, XP001159537, ISSN: 0340-4803
- AMELING D ET AL: "THIN SLAB CASTING - HOT ROLLING IN THE EU//DUENNBRAMMENGIESSSEN - WARMWALZEN IN DER EU", STAHL UND EISEN, VERLAG STAHL EISEN, DUSSELDORF, DE, vol. 121, no. 12, 14 December 2001 (2001-12-14), pages 85 - 94, XP001103985, ISSN: 0340-4803
- FLEMMING G ET AL: "PRESENT AND FUTURE CSP TECHNOLOGY EXPANDS PRODUCT RANGE", AISE STEEL TECHNOLOGY, AISE, PITTSBURG, PA, US, vol. 77, no. 1, 1 January 2000 (2000-01-01), pages 53 - 57, XP000894193, ISSN: 0021-1559

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