

Title (en)

SECONDARY COOLING METHOD AND DEVICE FOR CONTINUOUSLY CAST SLAB

Title (de)

SEKUNDÄRKÜHLVERFAHREN UND -VORRICHTUNG FÜR STRANGGEGOSSENE PLATTE

Title (fr)

PROCÉDÉ ET DISPOSITIF DE REFROIDISSEMENT SECONDAIRE POUR BRAME COULÉE EN CONTINU

Publication

**EP 3981526 A4 20220831 (EN)**

Application

**EP 20836144 A 20200706**

Priority

- JP 2019128853 A 20190711
- JP 2020026488 W 20200706

Abstract (en)

[origin: EP3981526A1] A secondary cooling method and apparatus for a continuously cast slab with which satisfactory surface quality of the cast slab can be ensured without impairing the productivity and without large additional energy cost. A secondary cooling method for a continuously cast slab is a method in which a cast slab 5 is cooled by spraying cooling water onto the cast slab 5 in a secondary cooling zone 7 so that the cast slab 5 is completely solidified in a section extending to an end of a horizontal zone 17. An upstream section of the horizontal zone 17 in a casting direction is set to serve as a strong water cooling section in which the cast slab 5 is cooled by spraying the cooling water under conditions such that the sprayed cooling water is in a nucleate boiling state at all positions in a width direction on a surface of the cast slab. A section of the horizontal zone 17 that is located downstream of the strong water cooling section in the casting direction and that extends to the end of the horizontal zone 17 is set to serve as a non-water-cooled section in which spraying of the cooling water is stopped. Accordingly, a surface temperature of the cast slab is increased in the casting direction in a region from an end of the strong water cooling section to the end of the horizontal zone 17, and the surface temperature of the cast slab is within a predetermined range at the end of the horizontal zone 17.

IPC 8 full level

**B22D 11/124** (2006.01); **B22D 11/22** (2006.01)

CPC (source: CN EP KR)

**B22D 11/124** (2013.01 - CN EP); **B22D 11/1246** (2013.01 - EP KR); **B22D 11/225** (2013.01 - CN EP KR)

Citation (search report)

- [E] EP 3932586 A1 20220105 - JFE STEEL CORP [JP]
- [E] EP 3998126 A1 20220518 - JFE STEEL CORP [JP]
- [XI] JP 2008212972 A 20080918 - JFE STEEL KK
- [XI] JP 2008254062 A 20081023 - NIPPON STEEL CORP
- See also references of WO 2021006254A1

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 3981526 A1 20220413**; **EP 3981526 A4 20220831**; CN 114096362 A 20220225; CN 114096362 B 20240625; JP 7060164 B2 20220426; JP WO2021006254 A1 20211216; KR 102638366 B1 20240219; KR 20220018556 A 20220215; TW 202108264 A 20210301; TW I753487 B 20220121; WO 2021006254 A1 20210114

DOCDB simple family (application)

**EP 20836144 A 20200706**; CN 202080050141 A 20200706; JP 2020026488 W 20200706; JP 2021530692 A 20200706; KR 20227000333 A 20200706; TW 109123328 A 20200710