

Title (en)
CONTINUOUS CASTING METHOD FOR STEEL

Title (de)
STRANGGIESSVERFAHREN FÜR STAHL

Title (fr)
PROCÉDÉ DE COULÉE CONTINUE DESTINÉ À L'ACIER

Publication
EP 3597328 A1 20200122 (EN)

Application
EP 17906929 A 20170425

Priority
JP 2017016326 W 20170425

Abstract (en)
In a continuous casting method including applying an AC magnetic field to in-mold molten steel, thereby creating a swirling and stirring flow in the in-mold molten steel, an appropriate AC magnetic flux density is provided in accordance with the submergence depth of a submerged entry nozzle and the distance from the surface of the in-mold molten steel to the location of the peak of the AC magnetic field to produce a high-quality strand. A continuous steel casting method according to the present invention is a continuous steel casting method including applying an AC magnetic field to in-mold molten steel via AC magnetic field generation devices, thereby creating a horizontal swirling and stirring flow in the in-mold molten steel, each of the AC magnetic field generation devices being placed on a back surface of a corresponding one of a pair of mold long sides, the AC magnetic field generation devices facing each other. A spacing between the mold long sides that face each other is 200 to 300 mm, a submerged entry nozzle has two discharge ports, each of the discharge ports having a discharge angle within a range of 5° in a downward direction to 50° in a downward direction, the AC magnetic field has a frequency of 0.5 Hz or greater and 3.0 Hz or less, and, in accordance with a location of a peak of the AC magnetic field, a submergence depth of the submerged entry nozzle and a magnetic flux density at the location of the peak of the AC magnetic field generated by the AC magnetic field generation devices are controlled to be within a predetermined range.

IPC 8 full level
B22D 11/115 (2006.01); **B22D 11/10** (2006.01)

CPC (source: EP KR)
B22D 11/103 (2013.01 - KR); **B22D 11/115** (2013.01 - EP KR); **B22D 11/122** (2013.01 - EP); **B22D 11/186** (2013.01 - EP)

Cited by
WO2024017662A1

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 3597328 A1 20200122; **EP 3597328 A4 20200422**; **EP 3597328 B1 20211117**; BR 112019022263 A2 20200519; BR 112019022263 B1 20220823; CN 110573271 A 20191213; CN 110573271 B 20211102; JP 6278168 B1 20180214; JP WO2018198181 A1 20190627; KR 102324300 B1 20211109; KR 20190127894 A 20191113; TW 201838744 A 20181101; TW I690377 B 20200411; WO 2018198181 A1 20181101

DOCDB simple family (application)
EP 17906929 A 20170425; BR 112019022263 A 20170425; CN 201780089980 A 20170425; JP 2017016326 W 20170425; JP 2017555415 A 20170425; KR 20197030941 A 20170425; TW 107107611 A 20180307