

## Title (en)

Continuous casting method and device for creating preliminary forms, in particular double-t preliminary forms

## Title (de)

Stranggiessverfahren und Vorrichtung zur Erzeugung von Vorprofilen, insbesondere Doppel-T-Vorprofilen

## Title (fr)

Procédé de coulée en continu et dispositif de production d'ébauches de profilés, notamment des ébauches de profilés en T doubles

## Publication

**EP 2226139 A1 20100908 (DE)**

## Application

**EP 09003346 A 20090307**

## Priority

EP 09003346 A 20090307

## Abstract (en)

During the continuous casting process, cooling water is introduced against the web and side flanges of the strand, and is removed from the curved region of the strand. The downwardly-flowing cooling water is ejected by deflection water jets from nozzles (21, 22). These are directed at the transitions between the web (4) of the I-beam and its flanges (5, 6). The jets force the water out and over the flanges, to be led away. Cooling water displaced or sprayed out from the inner curve, together with the jetted deflection water, is removed and led away by an interceptor (23). Deflection water nozzles are employed in the initial, still-vertical region of the curved strand guidance system. Where the guidance system has many components, the deflection water is introduced into the preliminary strand profile in the region between the first two of them. It is introduced approximately in the central zone of the curved strand guide at an angle of 0[deg] to 90[deg] , preferably about 45[deg] to the curve tangent in the strand. The nozzles lie in a common plane; this includes an angle of 0[deg] to 90[deg] with the curve tangent. The nozzles can be moved transversely back and forth relative to the side flanges of the strand. The additional cooling effect of deflection water is compensated by reduction in the amount of downwardly-flowing cooling water. To prevent sub-cooling of the strand, the deflection water is pre-heated. To control the deflection water temperature, the cooling of the strand is varied. An independent claim IS INCLUDED FOR corresponding continuous casting equipment.

## Abstract (de)

Bei einem Stranggiessverfahren zur Erzeugung von Vorprofilen, insbesondere Doppel-T-Vorprofilen, wird das hinunterfliessende Kühlwasser unter Einsatz von im wesentlichen auf den Übergang vom Steg (4) zum jeweiligen Flansch (5, 6) gerichteten Wasserdüsen (21, 22) mittels des über die Wasserdüsen (21, 22) zugeführten Umlenkwassers aus dem Innenbogen des Vorprofilstranges (3) über die Profilflanschen gedrängt und abgeführt. Hierdurch kann die durch herablaufendes Kühlwasser verursachte übermässige Kühlung im Innenbogen des Vorprofilstranges weitgehend vermieden werden.

## IPC 8 full level

**B22D 11/124** (2006.01)

## CPC (source: EP US)

**B22D 11/1248** (2013.01 - EP US)

## Citation (applicant)

EP 1497056 B1 20060524 - SMS DEMAG AG [DE]

## Citation (search report)

[X] DE 10143419 A1 20030320 - SMS DEMAG AG [DE]

## Citation (third parties)

Third party :

- FRICK J.W.: "USER BENEFITS OF MODERN AIR MIST NOZZLE AND SECONDARY COOLING SYSTEM TECHNOLOGY", 2002, pages 1 - 12, XP003031391
- ONISHI M. ET AL: "CONTINUOUS CASTING OF BEAM BLANKS", KAWASAKI STEEL TECHNICAL REPORT, 3 September 1981 (1981-09-03), pages 13 - 25, XP003031392
- FASTERT H.P. ET AL: "BEAM BLANK CASTING TECHNOLOGY", THE AISE STEEL FOUNDATION, 2003, pages 1 - 16, XP003031393

## Designated contracting state (EPC)

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 SE SI SK TR

## Designated extension state (EPC)

AL BA RS

## DOCDB simple family (publication)

**EP 2226139 A1 20100908; EP 2226139 B1 20160928**; CN 101823135 A 20100908; CN 101823135 B 20151125; JP 2010207913 A 20100924; JP 5639369 B2 20141210; KR 20100101052 A 20100916; RU 2010108240 A 20110910; RU 2528562 C2 20140920; US 2010270000 A1 20101028; US 8631854 B2 20140121

## DOCDB simple family (application)

**EP 09003346 A 20090307**; CN 201010129251 A 20100308; JP 2010048756 A 20100305; KR 20100019679 A 20100305; RU 2010108240 A 20100305; US 71799210 A 20100305