Title (en)

Continuous-casting crystalliser with increased heat exchange and method to increase the heat exchange in a continuous-casting crystalliser

Title (de)

Stranggiesskokille mit verbessertem Wärmeaustausch sowie Verfahren zur Erhöhung des Wärmeaustauschs einer Stranggiesskokille

Title (fr)

Cristallisoir de coulée continue ayant un échange de chaleur amélioré et procédé pour augmenter l'échange de chaleur d'un cristallisoir de coulée continue

Publication

EP 0686446 B1 20000816 (EN)

Application

EP 95107851 A 19950523

Priority

- IT UD940096 A 19940606
- IT US950014 A 19950206

Abstract (en)

[origin: EP0686446A1] Method to increased the heat exchange in the cooling and removal of heat from at least one sidewall of a crystalliser (11) employed in the continuous casting of billets, blooms or slabs (24), and associated with a mould (10), the crystalliser (11) cooperating externally with a box-shaped structure (13) creating cooling chambers (14), in which a cooling fluid circulates, and cooperating internally with the skin of the billets, blooms or slabs (24) being formed, the cooling chambers (14) containing intermediate walls (20) creating circulation channels (21) in cooperation with the outer surfaces (12) of the sidewalls of the crystalliser (11), at least one upper zone (34) being included in cooperation at least with the vicinity of the meniscus and with the portion below the meniscus (33) of liquid metal, a lower zone (26) being also included and beginning in the vicinity of the zone of separation of the forming skin from the inner surfaces (12) of the crystalliser (11) and extending towards the outlet of the crystalliser (11), in which method by acting on the cross-section and/or conformation of at least one longitudinal portion of at least one side of the cross-section of the circulation channels (21) and on the different pressures of the cooling fluid present between the inlet and outlet of that longitudinal portion of the circulation channels (21) a desired turbulence of the cooling fluid is created which is such as to increase the coefficient of heat exchange to a value greater than 40,000 W/m<2> K. Crystalliser for the continuous casting of billets, blooms or slabs (24), which is associated with a mould (10) and cooperates externally with a box-shaped structure (13) creating cooling chambers (14), in which a cooling fluid circulates, and cooperates internally with the skin of the billets, blooms or slabs (24) being formed, the cooling chambers (14) containing intermediate walls (20) creating circulation channels (21) in cooperation with the outer surfaces (12) of the crystalliser (11), there being included at least one upper zone (34) cooperating at least with the vicinity of, and with the part below, the meniscus (33) of liquid metal, and a lower zone (26) beginning in the vicinity of the zone of separation of the forming skin from the inner surfaces of the crystalliser (11) and extending towards the outlet of the crystalliser (11), the crystalliser (11) employing the method of one or another of the claims hereinebfore and including sidewalls of a thickness between 4 and 15 mm., at least part of at least one wall of the circulation channels (21) including elements (18) to disturb the flow of cooling fluid. <IMAGE>

IPC 1-7

B22D 11/22; B22D 11/04

IPC 8 full level

B22D 11/055 (2006.01); **B22D 11/22** (2006.01)

CPC (source: EP)

B22D 11/055 (2013.01); **B22D 11/22** (2013.01)

Citation (examination)

EP 0686445 A1 19951213 - DANIELI OFF MECC [IT]

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Designated contracting state (EPC)

AT BE DE ES FR GB IT SE

DOCDB simple family (publication)

EP 0686446 A1 19951213; **EP 0686446 B1 20000816**; AT E195450 T1 20000915; ES 2148375 T3 20001016

DOCDB simple family (application)

EP 95107851 A 19950523; AT 95107851 T 19950523; ES 95107851 T 19950523