

Title (en)

Method and apparatus for foreseeing a break-out during continuous casting of steel with an oscillating mould

Title (de)

Verfahren und Vorrichtung zur Durchbruchfrüherkennung beim Stranggiessen von Stahl mit einer oszillierenden Kokille

Title (fr)

Méthode et appareil de prédiction de rupture en coulée continu d'acier avec une lingotière oscillante

Publication

EP 0885675 B1 20021030 (DE)

Application

EP 98110735 A 19980612

Priority

DE 19725433 A 19970616

Abstract (en)

[origin: EP0885675A1] The method includes a continuous and comparative measurement of operating parameters such as, for example, the temporal and spatial temperature distribution in the copper mould plates, and an analysis of the measured data. Two sets of measured data are combined with at least one further measurement series and are subjected to on-line analysis. The apparatus includes a measurement and analysis system with the following elements: a) at least one oscillations acceleration sensor (10.1-10.4); b) a number of temperature sensors (11) in the mould plates; c) a line camera (12) for detection of billet oscillation; d) a billet velocity sensor (13); e) assessment units (20-22); f) a central computer unit (30); g) a unit (31) for issuing an early warning signal.

IPC 1-7

B22D 11/16

IPC 8 full level

B22D 11/10 (2006.01); **B22D 11/108** (2006.01); **B22D 11/111** (2006.01); **B22D 11/16** (2006.01); **B22D 11/20** (2006.01)

CPC (source: EP KR US)

B22D 2/00 (2013.01 - KR); **B22D 11/053** (2013.01 - KR); **B22D 11/16** (2013.01 - EP KR US)

Cited by

CN110523941A; DE10108730A1; DE10108730C2; DE10312923B3; DE10312923B8; US8649986B2; WO2009149680A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

EP 0885675 A1 19981223; **EP 0885675 B1 20021030**; AT E226860 T1 20021115; DE 19725433 C1 19990121; DE 59806092 D1 20021205; DK 0885675 T3 20021125; JP H1177264 A 19990323; KR 19990006983 A 19990125; US 6179041 B1 20010130

DOCDB simple family (application)

EP 98110735 A 19980612; AT 98110735 T 19980612; DE 19725433 A 19970616; DE 59806092 T 19980612; DK 98110735 T 19980612; JP 16240898 A 19980610; KR 19980022280 A 19980615; US 9527498 A 19980610