

Title (en)

Process of measuring the frictional force between the strand and the mould at continuous casting

Title (de)

Verfahren zur Bestimmung der Reibung zwischen Strangschale und Kokille beim Stranggiessen

Title (fr)

Procédé pour déterminer les forces de frottement entre la lingotière et le lingot dans une installation de coulée continue

Publication

EP 1043096 B1 20040512 (DE)

Application

EP 00106592 A 20000328

Priority

DE 19915269 A 19990403

Abstract (en)

[origin: EP1043096A1] Strand skin friction is determined from data collected for regulating continuous casting mould oscillation. The friction between a strand skin and an oscillating continuous casting mould is determined by recording the pressure betw the two chambers of all the regulated double-acting hydraulic cylinders used as oscillation cylinders as well as the associated piston stroke positions with a predetermined measurement frequency and using the data for calculating the frictional force at ea instant.

IPC 1-7

B22D 11/16

IPC 8 full level

G01H 17/00 (2006.01); **B22D 11/053** (2006.01); **B22D 11/07** (2006.01); **B22D 11/16** (2006.01)

CPC (source: EP KR US)

B22D 11/053 (2013.01 - EP KR US); **B22D 11/16** (2013.01 - KR); **B22D 11/166** (2013.01 - EP US)

Citation (examination)

PATENT ABSTRACTS OF JAPAN vol. 010, no. 216 (M - 502) 29 July 1986 (1986-07-29)

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 1043096 A1 20001011; **EP 1043096 B1 20040512**; AT E266489 T1 20040515; CA 2303641 A1 20001003; CN 101391289 A 20090325; CN 1269271 A 20001011; DE 19915269 A1 20001026; DE 50006374 D1 20040617; JP 2000317596 A 20001121; KR 100704181 B1 20070406; KR 20000071539 A 20001125; MX PA00003247 A 20041028; US 6487504 B1 20021126

DOCDB simple family (application)

EP 00106592 A 20000328; AT 00106592 T 20000328; CA 2303641 A 20000331; CN 00105382 A 20000403; CN 200810091990 A 20000403; DE 19915269 A 19990403; DE 50006374 T 20000328; JP 2000098995 A 20000331; KR 20000017162 A 20000401; MX PA00003247 A 20000403; US 53930400 A 20000330