Title (en)

A 7XXX SERIES ALUMINUM ALLOYS INGOT AND A METHOD FOR DIRECT CHILL CASTING

Title (de)

EIN BARREN AUS EINER ALUMINIUMLEGIERUNG DER SERIE 7XXX UND EIN VERFAHREN ZUM DIREKTEN KOKILLENGUSS

Title (fr)

LINGOT D'ALLIAGES D'ALUMINIUM DE LA SÉRIE 7XXX ET PROCÉDÉ DE COULÉE DIRECTE PAR REFROIDISSEMENT

Publication

EP 4076788 B1 20240515 (EN)

Application

EP 20842788 A 20201218

Priority

- US 201962951883 P 20191220
- US 2020065919 W 20201218

Abstract (en)

[origin: WO2021127378A1] Process control of intense stirring along a solidification front and adjustments in casting speeds during direct chill casting of 7xxx series alloys can decrease an ingot's cracking susceptibility. Intense stirring control is used to reduce the thickness of the solidification front, promote agglomeration of hydrogen gas rejected at the solidification front, remove impurities rejected at the solidification front, and improve grain size. Intense stirring control is used to operate at faster casting speeds without risk of increasing the thickness of the solidification front. Optional reheating during casting to promote dispersoid formation is used to generate a high-strength zone of dispersoid-strengthened solidified metal in the outer periphery of the ingot, which can further decrease the ingot's susceptibility to cracking.

IPC 8 full level

B22D 11/00 (2006.01); **B22D 11/049** (2006.01); **B22D 11/055** (2006.01); **B22D 11/10** (2006.01); **B22D 11/115** (2006.01); **B22D 11/18** (2006.01); **B22D 11/20** (2006.01)

CPC (source: EP KR US)

B22D 7/005 (2013.01 - US); **B22D 11/003** (2013.01 - EP KR); **B22D 11/049** (2013.01 - EP KR); **B22D 11/055** (2013.01 - EP KR); **B22D 11/10** (2013.01 - EP); **B22D 11/115** (2013.01 - EP KR); **B22D 11/182** (2013.01 - EP KR); **B22D 11/202** (2013.01 - EP KR); **B22D 27/02** (2013.01 - US); B22D 11/003 (2013.01 - US)

Designated contracting state (EPC)

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DOCDB simple family (publication)

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US 2020065919 W 20201218; BR 112022010563 A 20201218; CA 3163718 A 20201218; CN 202080088822 A 20201218; EP 20842788 A 20201218; JP 2022536647 A 20201218; KR 20227020246 A 20201218; MX 2022007478 A 20201218; US 202017757666 A 20201218