

Title (en)

Water-cooled lid for a handling vessel for molten metal

Title (de)

Wassergekühlter Deckel für ein Behandlungsgefäß für Metallschmelzen

Title (fr)

Couvercle refroidi à l'eau pour un récipient de traitement pour métaux en fusion

Publication

EP 2380682 A3 20121024 (DE)

Application

EP 11155793 A 20110224

Priority

AT 6412010 A 20100421

Abstract (en)

[origin: EP2380682A2] The water-cooled lid (10) comprises two sub-elements, a flange (12) part element formed by sub-elements, an inner wall, cooling channels (15), and a central opening, where a lance is inserted through the opening of an inner wall of the treatment vessel. The lid is formed like a dome, where the ratio of internal clear height to inner light diameter of a flange of the lid is 0.2. The inner wall of lid facing the side of the molten metal is smooth and crease-free, and is formed without a gap. The cooling channels are arranged on outside of the inner wall. The water-cooled lid (10) comprises two sub-elements, a flange (12) part element formed by sub-elements, an inner wall, cooling channels (15), and a central opening, where a lance is inserted through the opening of an inner wall of the treatment vessel. The lid is formed like a dome, where the ratio of internal clear height to inner light diameter of a flange of the lid is 0.2. The inner wall of lid facing the side of the molten metal is smooth and crease-free, and is formed without a gap. The cooling channels are arranged on outside of the inner wall, where the surface temperature of the inner wall is 350[deg] C. The inner wall consists of sheet steel and copper. Cooling elements are applied on the existing copper sheet steel inner wall.

IPC 8 full level

B22D 41/00 (2006.01); **F27D 1/02** (2006.01); **F27D 1/12** (2006.01); **F27D 1/18** (2006.01)

CPC (source: EP US)

B22D 41/00 (2013.01 - EP US); **F27D 1/025** (2013.01 - EP US); **F27D 1/12** (2013.01 - EP US); **F27D 1/1808** (2013.01 - EP US)

Citation (search report)

- [XY] JP 2006214647 A 20060817 - SUMITOMO METAL IND
- [Y] DE 19747317 A1 19990429 - VACMETAL GMBH [DE]
- [A] JP H10170165 A 19980626 - DAIDO STEEL CO LTD
- [A] DE 69800856 T2 20020912 - TITANIUM HEARTH TECHNOLOGIES I [US]
- [A] JP H0734118 A 19950203 - SUMITOMO METAL IND
- [A] EP 0805325 A1 19971105 - DANIELI OFF MECC [IT]

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2380682 A2 20111026; EP 2380682 A3 20121024; AT 509787 A1 20111115; AT 509787 B1 20120915; CN 102233423 A 20111109; JP 2011224660 A 20111110; US 2011260378 A1 20111027; US 8603387 B2 20131210

DOCDB simple family (application)

EP 11155793 A 20110224; AT 6412010 A 20100421; CN 201110098781 A 20110420; JP 2011093291 A 20110419; US 201113084274 A 20110411