

Title (en)

CLOSED TRANSPORT FLUID SYSTEM FOR FURNACE-INTERNAL HEAT EXCHANGE BETWEEN ANNEALING GASES

Title (de)

GESCHLOSSENES TRANSPORTFLUIDSYSTEM ZUM OFENINTERNEN WÄRMEAUSTAUSCH ZWISCHEN GLÜHGASEN

Title (fr)

SYSTÈME DE FLUIDE DE TRANSPORT FERMÉ POUR L'ÉCHANGE THERMIQUE ENTRE DES GAZ DE RECUIT À L'INTÉRIEUR D'UN FOUR

Publication

EP 2791606 B1 20151028 (DE)

Application

EP 12806412 A 20121211

Priority

- DE 102011088634 A 20111214
- EP 2012075128 W 20121211

Abstract (en)

[origin: WO2013087648A1] Furnace (100) for heat-treating annealing material (102), wherein the furnace (100) comprises a sealable first furnace chamber (104) designed to receive and heat-treat annealing material (102) by thermal interaction of the annealing material (102) with a heatable or coolable first annealing gas (112) in the first furnace chamber (104), a first heat exchanger (108) which is arranged in the first furnace chamber (104) and is designed to exchange heat between the first annealing gas (112) and a transport fluid (116), wherein the first heat exchanger (108) is arranged within a housing section (120) of the first furnace chamber (104), which housing section (120) encloses the first annealing gas (112) inside the first furnace chamber (104), a sealable second furnace chamber (106) designed to receive and heat-treat annealing material (102) by thermal interaction of the annealing material (102) with a heatable or coolable second annealing gas (114) in the second furnace chamber (106), a second heat exchanger (110) which is arranged in the second furnace chamber (106) and is designed to exchange heat between the second annealing gas (114) and the transport fluid (116), wherein the second heat exchanger (110) is arranged within a housing section (122) of the second furnace chamber (106), which housing section (122) encloses the second annealing gas (114) inside the second furnace chamber (106), and a closed transport fluid path (118) which is operatively connected to the first heat exchanger (108) and to the second heat exchanger (110) in such a manner that thermal energy can be transferred between the first annealing gas (112) and the second annealing gas (114) via the transport fluid (116).

IPC 8 full level

F27B 11/00 (2006.01); **F27D 17/00** (2006.01)

CPC (source: EP US)

C21D 1/34 (2013.01 - EP US); **C21D 9/0006** (2013.01 - EP US); **C21D 9/677** (2013.01 - EP US); **F27B 11/00** (2013.01 - EP US); **F27D 17/004** (2013.01 - EP US); **C21D 1/26** (2013.01 - EP US); **F27D 2099/0065** (2013.01 - EP US)

Citation (opposition)

Opponent : LOI Thermprocess GmbH

- DE 102008005259 A1 20090730 - KRAMER CARL [DE], et al
- AT 507423 B1 20100515 - EBNER IND OFENBAU [AT]
- GB 497480 A 19381215 - JAMES MACDONALD, et al
- US 4247284 A 19810127 - MAYERS RICHARD R, et al
- US 2479102 A 19490816 - DAILEY JR WILLIAM H
- AT 508776 B1 20110415 - EBNER IND OFENBAU [AT]
- US 4480822 A 19841106 - MAURATELLI LUIGI [IT]
- DE B31215 B
- "Industrielle Thermoprozessanlagen - Teil 3: Sicherheitsanforderungen für die Erzeugung und Anwendung von Schutz- und Reaktionsgasen", NORM DIN EN 746-3: 1997 D, March 1997 (1997-03-01), pages 1 und 12, XP055297446
- "Sicherheitstechnische Empfehlungen für den Betrieb von Industrieöfen mit Schutzgasatmosphäre", ATW, April 1999 (1999-04-01), pages 1 und 2, XP055297442

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DOCDB simple family (publication)

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