

Title (en)

A heat treatment method of a ni-based superalloy for wave-type grain boundary and a ni-based superalloy produced accordingly

Title (de)

Wärmebehandlungsverfahren einer Superlegierung auf Nickelbasis für Wellentyp-Korngrenze und entsprechend hergestellte Superlegierung auf Nickelbasis

Title (fr)

Procédé de traitement thermique d'un superalliage à base de nickel pour joint de grain en vague et superalliage à base de nickel obtenu par le procédé

Publication

EP 2138601 A1 20091230 (EN)

Application

EP 09007693 A 20090610

Priority

KR 20080056386 A 20080616

Abstract (en)

The present invention suggests a method of heat treatment of a Ni-based superalloy that improves resistance against creep, fatigue and stress corrosion cracking while being economical and easy, and a Ni-based superalloy produced by using the same. The method and the superalloy of the present invention include solution treatment at the high temperature region during a heat treatment process after manufacturing or final cold working fabrication. Immediately following the said solution treatment, the material is slowly cooled at 1#¼15°C/minute down to the intermediate temperature region for aging treatment. After the slow cooling stage, aging treatment is directly performed by holding it at the intermediate temperature region for the prescribed time. Lastly, the aging treatment is followed by air-cooling stage.

IPC 8 full level

C22F 1/10 (2006.01); **C22C 19/03** (2006.01)

CPC (source: EP KR US)

C22C 19/03 (2013.01 - EP KR US); **C22F 1/10** (2013.01 - EP KR US)

Citation (applicant)

KR 19990024668 A 19990406

Citation (search report)

- [X] FR 2768156 A1 19990312 - KOREA ATOMIC ENERGY RES [KR]
- [X] US 4795507 A 19890103 - NAZMY MOHAMED Y [CH]
- [X] DE 3813157 A1 19881215 - BBC BROWN BOVERI & CIE [CH]
- [X] JP H10237609 A 19980908 - JAPAN STEEL WORKS LTD
- [A] KR 20050004990 A 20050113 - KOREA MACH & MATERIALS INST
- [A] US 5846353 A 19981208 - NAZMY MOHAMED [CH], et al
- [A] EP 1591548 A1 20051102 - DAIDO STEEL CO LTD [JP], et al
- [A] JANG, J. ET AL: "Serrated grain boundary in Ni -Cr-Fe alloys", ADVANCES IN SCIENCE AND TECHNOLOGY (FAENZA, ITALY) , 24(INNOVATIVE MATERIALS IN ADVANCED ENERGY TECHNOLOGIES), 297-304 CODEN: ASETES, 1999, XP009124734

Cited by

CN103422038A; EP3530759A3

Designated contracting state (EPC)

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 SE SI SK TR

DOCDB simple family (publication)

EP 2138601 A1 20091230; JP 2009299187 A 20091224; KR 101007582 B1 20110112; KR 20090130663 A 20091224; US 2009308508 A1 20091217

DOCDB simple family (application)

EP 09007693 A 20090610; JP 2009140142 A 20090611; KR 20080056386 A 20080616; US 48459709 A 20090615