

Title (en)
METHOD FOR PRODUCING FORGED TIAL COMPONENTS

Title (de)
VERFAHREN ZU HERSTELLUNG VON GESCHMIEDETEN TIAL-BAUTEILEN

Title (fr)
PROCÉDÉ DE FABRICATION DES COMPOSANTS EN TIAL FORGÉS

Publication
EP 2742162 B1 20151007 (DE)

Application
EP 12762523 A 20120809

Priority
• DE 102011110740 A 20110811
• DE 2012000804 W 20120809

Abstract (en)
[origin: WO2013020548A1] The invention relates to a method for producing forged components made of a TiAl alloy, in particular turbine blades. The components are forged and undergo a two-stage heat treatment after the forging process. The first stage of the heat treatment comprises a recrystallization annealing process for 50 to 100 minutes at a temperature below the β / α transition temperature, and the second stage of the heat treatment comprises a stabilization annealing process in the temperature range of between 800 °C to 950 °C for 5 to 7 hrs. The cooling rate during the first heat treatment stage is greater than or equal to 3 °C/sec, in the temperature range between 1300 °C to 900 °C.

IPC 8 full level
C22C 14/00 (2006.01); **C22F 1/18** (2006.01); **F01D 5/00** (2006.01)

CPC (source: EP US)
C22C 14/00 (2013.01 - EP US); **C22F 1/183** (2013.01 - EP US); **F01D 5/28** (2013.01 - EP US); **F05D 2300/174** (2013.01 - EP US)

Citation (opposition)
Opponent : Leistritz Turbinentechnik GmbH
• LAURA DROESSLER ET AL.: "Microstructure and Tensile Ductility of a Ti-43Al-4Nb-1 Mo-0.1 B Alloy", MATER.RES.SOC.SYMP.PROC., vol. 1128, 2009, pages 121 - 126, XP009165478
• MANFRED PETERS ET AL., TITAN- UND TITANLEGIERUNGEN, September 2002 (2002-09-01), Weinheim, pages 369 - 405, XP055298667, ISBN: 3-527-30539-4
• HELMUT CLEMENS ET AL.: "Design of Novel beta-Solidifying TiAl Alloys with Adjustable beta/B2-Phase Fraction and Excellent Hot-Workability", ADVANCED ENGINEERING MATERIALS, vol. 10, no. 8, 2008, Weinheim, pages 707 - 713, XP002612341
• LIMEI CHA ET AL.: "nanometer-scaled lamellar microstructures in Ti-45Al-7.5Nb-(0;0.5)C alloys and their influence on hardness", INTERMETALLICS, vol. 16, no. 7, July 2008 (2008-07-01), pages 868 - 875, XP022733484

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

DOCDB simple family (publication)
DE 102011110740 A1 20130214; DE 102011110740 B4 20170119; EP 2742162 A1 20140618; EP 2742162 B1 20151007; ES 2553439 T3 20151209; US 2014202601 A1 20140724; WO 2013020548 A1 20130214; WO 2013020548 A8 20130718

DOCDB simple family (application)
DE 102011110740 A 20110811; DE 2012000804 W 20120809; EP 12762523 A 20120809; ES 12762523 T 20120809; US 201214237929 A 20120809