Title (en)

High-strength Ni-based wrought superalloy and manufacturing method of same

Title (de)

Hochfeste Knett-Superlegierung auf Nickelbasis und Verfahren zur Herstellung

Title (fr)

Superalliage forgeable à haute résistance à base de nickel et procédé de fabrication

Publication

EP 2298946 A2 20110323 (EN)

Application

EP 10176855 A 20100915

Priority

- JP 2009212632 A 20090915
- JP 2010205741 A 20100914

Abstract (en)

An Ni-based wrought superalloy in accordance with the present invention includes: (a) from 0.005 to 0.2 mass% of C; (b) from 0 to 1 mass% of Si; (c) from 0 to 1 mass% of Mn; (d) from 10 to 24 mass% of Cr; (e) at least one of Mo and W, the total content expressed by "[Mo content] + 0.5×[W content]" being from 5 to 17 mass%; (f) from 1 to 2 mass% of Al; (g) from 0.5 to 3.5 mass% of Ti; (h) from 0 to 10 mass% of Fe; (i) at least one of from 0.002 to 0.02 mass% of B and from 0.01 to 0.2 mass% of Zr; and (j) the balance being Ni and inevitable impurities, the Ni content being from 48 to 80 mass%. Furthermore, the Ni-based wrought superalloy has a polycrystalline body including a plurality of grains, and an average size of the grains after a heat treatment is from 72 to 289 μm. Moreover, a plurality of granular precipitations precipitate along the grain boundaries of the Ni-based wrought superalloy after the heat treatment, and an average length of the granular precipitations along the grain boundary is from 0.5 to 2.5 μm in an arbitrary cross-sectional view of the polycrystalline body.

IPC 8 full level

C22C 19/05 (2006.01); **C22F 1/10** (2006.01); **F01D 5/28** (2006.01)

CPC (source: EP)

C22C 19/055 (2013.01); **C22C 19/056** (2013.01); **C22F 1/10** (2013.01)

Citation (applicant)

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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 SE SI SK SM TR

Designated extension state (EPC)

BA ME RS

DOCDB simple family (publication)

EP 2298946 A2 20110323; **EP 2298946 A3 20110928**; JP 2011084812 A 20110428; JP 5657964 B2 20150121

DOCDB simple family (application)

EP 10176855 A 20100915; JP 2010205741 A 20100914