

Title (en)

Nickel base heat resistant cast alloy and turbine wheels made thereof

Title (de)

Hitzebeständige Nickeltgusslegierung und daraus hergestellte Turbinenräder

Title (fr)

Alliage de fonte à base de nickel résistant à la chaleur et roues de turbines de cette alliage

Publication

**EP 1462533 B1 20060531 (EN)**

Application

**EP 04006947 A 20040323**

Priority

- JP 2003080844 A 20030324
- JP 2004014921 A 20040122

Abstract (en)

[origin: EP1462533A1] Disclosed is a nickel-base super heat resistant cast alloy, from which turbine wheels of automobile engines can be manufacture by casting. The alloy consists essentially of, by weight %, C: 0.02-0.50%, Si: up to 1.0%, Mn: up to 1.0%, Cr: 4.0-10.0%, Al: 2.0-8.0%, Co: up to 15.0%, W: 8.0-16.0%, Ta: 2.0-8.0%, Ti: up to 3.0%, Zr: 0.001-0.200% and B: 0.005-0.300% and the balance of Ni and inevitable impurities, provided that,  $\text{\AA}\% \text{Al}\ddot{\text{U}} + \text{\AA}\% \text{Ti}\ddot{\text{U}} + \text{\AA}\% \text{Ta}\ddot{\text{U}}$ , by atomic %, amounts to 12.0-15.5%, that it contains gamma / gamma '-eutectoid of, by area percentage, 1-15%, that it contains carbides of, by area percentage, 1-10%, and that the "M-value" determined by the alloy composition is in the range of 93-98. The turbine wheels withstand temperature increase of exhaust gas.

IPC 8 full level

**C22C 19/05** (2006.01); **F01D 5/28** (2006.01); **F02B 39/00** (2006.01)

CPC (source: EP US)

**C22C 19/057** (2013.01 - EP US); **F01D 5/28** (2013.01 - EP US)

Cited by

CN110462078A; US11214852B2; US10385426B2; US9238853B2; US11761060B2; WO2018148110A1; EP3366794A1; EP3626846A1; WO2020115478A1

Designated contracting state (EPC)

DE FR

DOCDB simple family (publication)

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DOCDB simple family (application)

**EP 04006947 A 20040323**; CN 200410071474 A 20040324; DE 602004000997 T 20040323; JP 2004014921 A 20040122; US 80643904 A 20040323