

Title (en)
HIGH-STRENGTH HIGH-TEMPERATURE ALLOYS FOR THERMAL POWER UNITS AND PROCESSING TECHNIQUE THEREFOR

Title (de)
HOCHFESTE HOCHTEMPERATURLEGIERUNGEN FÜR THERMISCHE LEISTUNGSEINHEITEN UND VERARBEITUNGSTECHNIK DAFÜR

Title (fr)
ALLIAGES HAUTE RÉSISTANCE DE HAUTE TEMPÉRATURE POUR UNITÉS THERMOÉLECTRIQUES ET TECHNIQUE DE TRAITEMENT ASSOCIÉE

Publication
EP 4148157 A1 20230315 (EN)

Application
EP 21800520 A 20210508

Priority
• CN 202010383732 A 20200508
• CN 2021092505 W 20210508

Abstract (en)
Disclosed are a high-strength superalloy for use in a thermal generating unit and a process of preparing the same, wherein the superalloy comprises by weigh percent constituents: C: 0.05%-0.08%, Cr: 14%-17%, Mn: <0.5%, Si: <0.5%, W: 1.0%-2.5%, Mo: 0.3%-2.0%, Ti: 2.0%-2.5%, Al: 1.0%-1.5%, B: <0.003%, Zr: <0.03%, Fe: 37%-48%, balance Ni. The pre-prepared alloy constituents are smelted in an arc furnace under a vacuum degree up to 0.5Pa; the ally is cogged with a deformation amount up to 70% at a temperature 200°C ~250°C above the Ni₃Al (γ') precipitation temperature, and hot rolled with a deformation amount up to 80% at a temperature 150°C ~200°C above the γ' precipitation temperature. The resulting alloy has an excellent high-temperature mechanical property at 650°C above.

IPC 8 full level
C22C 30/00 (2006.01); **B22D 27/00** (2006.01); **C21C 7/10** (2006.01); **C21D 1/00** (2006.01); **C21D 8/00** (2006.01); **C22C 1/02** (2006.01); **C22C 33/04** (2006.01); **C22F 1/10** (2006.01)

CPC (source: CN EP)
B22D 21/025 (2013.01 - EP); **B22D 27/00** (2013.01 - CN); **C21C 7/10** (2013.01 - CN); **C21D 1/00** (2013.01 - CN); **C21D 1/26** (2013.01 - EP); **C21D 1/78** (2013.01 - EP); **C21D 6/004** (2013.01 - EP); **C21D 7/13** (2013.01 - EP); **C21D 8/005** (2013.01 - CN); **C21D 9/0081** (2013.01 - EP); **C22C 1/023** (2013.01 - CN EP); **C22C 19/056** (2013.01 - CN EP); **C22C 30/00** (2013.01 - CN EP); **C22C 33/04** (2013.01 - CN EP); **C22C 38/00** (2013.01 - EP); **C22C 38/02** (2013.01 - CN EP); **C22C 38/04** (2013.01 - CN EP); **C22C 38/06** (2013.01 - CN EP); **C22C 38/44** (2013.01 - CN EP); **C22C 38/50** (2013.01 - CN EP); **C22C 38/54** (2013.01 - CN EP); **C22F 1/10** (2013.01 - CN EP); **C21C 7/10** (2013.01 - EP)

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

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4148157 A1 20230315; CN 111394638 A 20200710; CN 111394638 B 20211116; JP 2023522735 A 20230531; WO 2021223760 A1 20211111

DOCDB simple family (application)
EP 21800520 A 20210508; CN 202010383732 A 20200508; CN 2021092505 W 20210508; JP 2022564104 A 20210508