

Title (en)

HOT-DIE NI-BASED ALLOY, HOT-FORGING DIE EMPLOYING SAME, AND FORGED-PRODUCT MANUFACTURING METHOD

Title (de)

HEISSGEPRESSTE LEGIERUNG AUF NICKELBASIS, WARMSCHMIEDEWERKZEUG DAMIT UND HERSTELLUNGSVERFAHREN FÜR GESCHMIEDETES PRODUKT

Title (fr)

ALLIAGE À BASE DE NI POUR FILIÈRE CHAUDE, FILIÈRE DE FORGEAGE À CHAUD L'UTILISANT, ET PROCÉDÉ DE FABRICATION DE PRODUITS FORGÉS

Publication

EP 3719153 A4 20210407 (EN)

Application

EP 18883639 A 20181129

Priority

- JP 2017228956 A 20171129
- JP 2018044012 W 20181129

Abstract (en)

[origin: EP3719153A1] Provided are a Ni-based alloy for hot die having a high high-temperature compressive strength and a good oxidation resistance and being capable of suppressing the deterioration in the working environment and the shape deterioration, a hot forging die using the Ni-based alloy for hot die, and a method for manufacturing a forged product using the hot forging die. The present invention provides a hot forging die comprising a Ni-based alloy for hot die comprising, in mass%, W: 7.0 to 15.0%, Mo: 2.5 to 11.0%, Al: 5.0 to 7.5%, Cr: 0.5 to 7.5%, and the balance of Ni with inevitable impurities, wherein at least 80% of a surface area of the Ni-based alloy for hot die is covered with an aluminum oxide layer. In addition to the composition, the Ni-based alloy for hot die may further comprise 7.0% or less of Ta and may further comprise one or two or more elements selected from Zr: 0.5% or less, Hf: 0.5% or less, rare-earth elements: 0.2% or less, Y: 0.2% or less, and Mg: 0.03% or less.

IPC 8 full level

C22C 19/05 (2006.01); **B21J 13/02** (2006.01); **C22F 1/00** (2006.01); **C22F 1/10** (2006.01)

CPC (source: EP US)

B21J 5/025 (2013.01 - US); **B21J 13/02** (2013.01 - EP US); **C22C 19/05** (2013.01 - EP); **C22C 19/057** (2013.01 - EP US); **C22F 1/10** (2013.01 - EP); **C22F 1/00** (2013.01 - EP)

Citation (search report)

- [X] WO 2017057453 A1 20170406 - HITACHI METALS LTD [JP]
- [A] JP S6250429 A 19870305 - HITACHI METALS LTD
- [AD] JP S60221542 A 19851106 - HITACHI METALS LTD
- [E] JP 6566255 B2 20190828
- [A] EP 0460678 A1 19911211 - KOBE STEEL LTD [JP]
- [A] WO 2014126086 A1 20140821 - HITACHI METALS LTD [JP]
- See also references of WO 2019107502A1

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)

EP 3719153 A1 20201007; **EP 3719153 A4 20210407**; **EP 3719153 B1 20240320**; CN 111433378 A 20200717; CN 111433378 B 20211008; JP 6646885 B2 20200214; JP WO2019107502 A1 20191212; US 2021023606 A1 20210128; WO 2019107502 A1 20190606

DOCDB simple family (application)

EP 18883639 A 20181129; CN 201880077444 A 20181129; JP 2018044012 W 20181129; JP 2019530836 A 20181129; US 201816767494 A 20181129