

Title (en)

METHOD FOR PRODUCING HIGH-STRENGTH SEAMLESS CR-NI ALLOY PIPE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES HOCHFESTEN NAHTLOSEN ROHRS AUS EINER CR-NI-LEGIERUNG

Title (fr)

PROCÉDÉ DE FABRICATION D'UNE CONDUITE EN ALLIAGE DE CR-NI SANS SOUDURE À RÉSISTANCE ÉLEVÉE

Publication

EP 2415883 A4 20170607 (EN)

Application

EP 10758614 A 20100329

Priority

- JP 2010055520 W 20100329
- JP 2009088737 A 20090401

Abstract (en)

[origin: EP2415883A1] A method for producing a high-strength Cr-Ni alloy seamless pipe, excellent in hot workability and stress corrosion cracking resistance, without causing the lamination during piercing-rolling, comprising: preparing an alloy billet that has a chemical composition comprising, by mass%, of C: 0.05% or less, Si: 1.0% or less, Mn: less than 3.0%, P: 0.005% or less, S: 0.005% or less, Cu: 0.01 to 4.0%, Ni: 25% or more and less than 35%, Cr: 20 to 30%, Mo: 0.01% or more and less than 4.0%, N: 0.10 to 0.30%, Al: 0.03 to 0.30%, O (oxygen): 0.01% or less, REM (rare earth metal): 0.01 to 0.20%, and the balance being Fe and impurities, and satisfying the following formula (1); hot working to make a seamless material pipe on the basis of a cross roll piercing process; subjecting a solution treatment; and cold working. $N \times P / \text{REM} \leq 0.10$ wherein P, N and REM in formula (1) represent the contents (mass%) of P, N and REM, respectively. The Cr-Ni alloy may further contain one or more of W, Ti, Nb, Zr, V, Ca and Mg.

IPC 8 full level

C21D 6/00 (2006.01); **C21D 8/10** (2006.01); **C22C 1/00** (2006.01); **C22C 38/00** (2006.01); **C22C 38/58** (2006.01)

CPC (source: EP US)

C21D 6/004 (2013.01 - EP US); **C21D 8/10** (2013.01 - EP US); **C22C 1/11** (2023.01 - EP US)

Citation (search report)

- [I] US 2003143105 A1 20030731 - BAHAR BABAK [SE], et al
- [I] JP 2009030153 A 20090212 - SUMITOMO METAL IND
- [AP] WO 2009044758 A1 20090409 - SUMITOMO METAL IND [JP], et al
- [A] JP H11302801 A 19991102 - SUMITOMO METAL IND
- See references of WO 2010113843A1

Cited by

EP4043590A4; EP3913103A1; CN113718134A; EP3202930A1; RU2731227C2; WO2017134184A1; US10774411B2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 2415883 A1 20120208; **EP 2415883 A4 20170607**; **EP 2415883 B1 20181226**; CN 102369300 A 20120307; CN 102369300 B 20130724; ES 2714371 T3 20190528; JP 4553073 B1 20100929; JP WO2010113843 A1 20121011; US 2012031534 A1 20120209; WO 2010113843 A1 20101007

DOCDB simple family (application)

EP 10758614 A 20100329; CN 201080014375 A 20100329; ES 10758614 T 20100329; JP 2010055520 W 20100329; JP 2010512446 A 20100329; US 201113245110 A 20110926