

Title (en)

MARTENSITIC STAINLESS-STEEL SEAMLESS PIPE FOR OIL WELL PIPE AND PROCESS FOR PRODUCING THE SAME

Title (de)

NAHTLOSES ROHR AUS MARTENSITISCHEM NICHTTROTENDEM STAHL FÜR ÖLBOHRUNGSROHR UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

TUYAU SANS SOUDURE EN ACIER INOXYDABLE MARTENSITIQUE POUR TUYAU DE Puits DE PÉTROLE ET SON PROCÉDÉ DE PRODUCTION

Publication

EP 2172573 B1 20141210 (EN)

Application

EP 07829943 A 20071010

Priority

- JP 2007070209 W 20071010
- JP 2007172560 A 20070629

Abstract (en)

[origin: EP2172573A1] A seamless steel pipe for oil country tubular goods which simultaneously has a high strength of a 110 ksi grade of yield strength and a superior low temperature toughness and a method for manufacturing the same are provided. A quenching treatment is performed on a stainless steel seamless pipe having a composition which contains on a mass percent basis, less than 0.010% of C, 1.0% or less of Si, 0.1% to 2.0% of Mn, 0.020% or less of P, 0.010% or less of S, 0.10% or less of Al, 10% to 14% of Cr, 0.1% to 4.0% of Ni, 0.05% or less of N, and the balance being Fe and inevitable impurities in which after heating is performed to a heating temperature for quenching equivalent to or more than the Ac 3 transformation point, cooling is performed to a temperature range of 100 °C or less at a cooling rate equivalent to or more than that of air cooling; and following the quenching treatment, a tempering treatment is performed in which heating is performed to a tempering temperature in the range of more than 450 °C to 550 °C, and cooling is then performed. As a result, a martensitic stainless steel seamless pipe for oil country tubular goods is obtained which simultaneously has a high strength of a 110 ksi grade of yield strength and a superior low temperature toughness having a vTrs of -60 °C or less. In addition to the above composition, at least one selected from the group consisting of Cu, Mo, V, Nb, and Ti may also be contained.

IPC 8 full level

C22C 38/00 (2006.01); **B21D 3/00** (2006.01); **C21D 1/22** (2006.01); **C21D 6/00** (2006.01); **C21D 9/08** (2006.01); **C21D 9/14** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/40** (2006.01); **C22C 38/58** (2006.01); **C21D 8/10** (2006.01)

CPC (source: EP US)

C21D 1/22 (2013.01 - EP US); **C21D 6/004** (2013.01 - EP US); **C21D 9/08** (2013.01 - EP US); **C21D 9/14** (2013.01 - EP US); **C22C 38/004** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/40** (2013.01 - EP US); **C22C 38/58** (2013.01 - EP US); **C21D 8/105** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

Cited by

CN115572907A; WO2015153092A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

EP 2172573 A1 20100407; **EP 2172573 A4 20110518**; **EP 2172573 B1 20141210**; CN 101437973 A 20090520; CN 101437973 B 20120905; JP 2009007658 A 20090115; JP 5145793 B2 20130220; RU 2010102917 A 20110810; RU 2431693 C1 20111020; US 2010193087 A1 20100805; WO 2009004741 A1 20090108

DOCDB simple family (application)

EP 07829943 A 20071010; CN 200780000784 A 20071010; JP 2007070209 W 20071010; JP 2007172560 A 20070629; RU 2010102917 A 20071010; US 66509707 A 20071010