

Title (en)

STEEL MATERIAL, AND OIL-WELL STEEL PIPE FOR EXPANSION

Title (de)

STAHLMATERIAL UND ÖLBOHRSTAHLROHR ZUR EXPANSION

Title (fr)

MATÉRIAU EN ACIER ET TUYAU EN ACIER DE Puits DE PÉTROLE DESTINÉ À LA DILATATION

Publication

**EP 3202941 B1 20190227 (EN)**

Application

**EP 15847736 A 20150918**

Priority

- JP 2014198783 A 20140929
- JP 2015076739 W 20150918

Abstract (en)

[origin: EP3202941A1] There is provided a steel material having a chemical composition consisting, by mass percent, of C: 0.6-1.8%, Si: 0.05-1.00%, Mn: >25.0-45.0%, Al: 0.003-0.06%, P: #≦0.03%, S: #≦0.03%, Cu: 0.5-3.0%, N: #≦0.10%, V: 0-2.0%, Cr: 0-3.0%, Mo: 0-3.0%, Ni: 0-1.5%, Nb: 0-0.5%, Ta: 0-0.5%, Ti: 0-0.5%, Zr: 0-0.5%, Ca: 0-0.005%, Mg: 0-0.005%, REM: 0-0.01%, B: 0-0.015%, the balance: Fe and impurities, and satisfying  $0.6 < C - 0.18V < 1.44$ , wherein a metal micro-structure is consisting of an austenite single phase, a yield strength is 241 MPa or higher, and a uniform elongation is 40% or higher.

IPC 8 full level

**C22C 38/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/08** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01); **C22C 38/16** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/32** (2006.01); **C22C 38/38** (2006.01)

CPC (source: EP RU US)

**C21D 8/02** (2013.01 - EP US); **C21D 8/0205** (2013.01 - EP US); **C21D 8/0226** (2013.01 - EP US); **C21D 8/0236** (2013.01 - EP US); **C21D 8/0263** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/005** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP RU US); **C22C 38/20** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP RU US); **C22C 38/58** (2013.01 - RU); **C21D 2211/001** (2013.01 - EP US)

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 3202941 A1 20170809**; **EP 3202941 A4 20180418**; **EP 3202941 B1 20190227**; AR 101904 A1 20170118; AU 2015325693 A1 20170518; AU 2015325693 B2 20190131; AU 2015325693 C1 20190502; AU 2019200246 A1 20190131; BR 112017005537 A2 20171205; CA 2962210 A1 20160407; CA 2962210 C 20190416; CN 107075634 A 20170818; CN 107075634 B 20190319; ES 2721771 T3 20190805; JP 6213683 B2 20171018; JP WO2016052271 A1 20170525; MX 2017004134 A 20170530; RU 2017115020 A 20181105; RU 2017115020 A3 20181105; RU 2694391 C2 20190712; US 2017349982 A1 20171207; WO 2016052271 A1 20160407

DOCDB simple family (application)

**EP 15847736 A 20150918**; AR P150102979 A 20150917; AU 2015325693 A 20150918; AU 2019200246 A 20190115; BR 112017005537 A 20150918; CA 2962210 A 20150918; CN 201580052853 A 20150918; ES 15847736 T 20150918; JP 2015076739 W 20150918; JP 2016551945 A 20150918; MX 2017004134 A 20150918; RU 2017115020 A 20150918; US 201515513224 A 20150918