

Title (en)
MANUFACTURING METHOD FOR HIGH-STRENGTH STAINLESS STEEL SEAMLESS PIPE FOR USE AS OIL WELL PIPING

Title (de)
HERSTELLUNGSVERFAHREN FÜR EIN NAHTLOSES ROHR AUS HOCHFESTEM ROSTFREIEM STAHL ZUR VERWENDUNG ALS ÖLBOHRROHR

Title (fr)
PROCÉDÉ DE FABRICATION D'UN TUYAU SANS SOUDURE EN ACIER INOXYDABLE À HAUTE RÉSISTANCE DESTINÉ À ÊTRE UTILISÉ COMME TUYAUTERIE DE PUIITS DE PÉTROLE

Publication
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Application
EP 13796392 A 20130530

Priority

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- JP 2013003411 W 20130530

Abstract (en)

Provided is a high-strength stainless steel tube for oil country tubular goods having a wall thickness of more than 25.4 mm and a high strength of a 110 ksi (758 MPa) grade yield stress or more with excellent toughness and excellent corrosion resistance. A steel material having a chemical composition containing, by mass%, C: 0.005% or more and 0.06% or less, Si: 0.05% or more and 0.5% or less, Mn: 0.2% or more and 1.8% or less, Cr: 15.5% or more and 18.0% or less, Ni: 1.5% or more and 5.0% or less, V: 0.02% or more and 0.2% or less, Al: 0.002% or more and 0.05% or less, N: 0.01% or more and 0.15% or less, O: 0.006% or less, and further containing one or more of Mo: 1.0% or more and 3.5% or less, W: 3.0% or less and Cu: 3.5% or less, in which the relational expressions $Cr+0.65Ni+0.60Mo+0.30W+0.55Cu-20C\geq 19.5$ and $Cr+Mo+0.50W+0.30Si-43.5C-0.4Mn-Ni-0.3Cu-9N\leq 11.5$ are satisfied, is made into a seamless steel tube by performing heating and hot rolling. The hot rolling is performed under conditions such that the total rolling reduction in a temperature range of 1100°C to 900°C is 30% or more. After the hot rolling has been performed, cooling is performed at a cooling rate equal to or more than an air-cooling rate, and, further, quenching-tempering is performed. With this method, a high-strength and high-toughness seamless steel tube having a strength of 110 ksi (758 MPa) or more and a toughness of 40 J or more in terms of vE- 10 despite having a thick wall and excellent corrosion resistance even in a high-temperature corrosion environment having a temperature of 230°C and containing CO₂ and Cl⁻ can be stably manufactured.

IPC 8 full level
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CPC (source: EP US)
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Cited by
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