

Title (en)
HIGH CHROMIUM MARTENSITIC HEAT-RESISTANT SEAMLESS STEEL TUBE OR PIPE WITH COMBINED HIGH CREEP RUPTURE STRENGTH AND OXIDATION RESISTANCE

Title (de)
HOCHCHROMHALTIGES MARTENSITISCHES, HITZEBESTÄNDIGES NAHTLOSES STAHLROHR MIT KOMBINierter HOHER ZEITSTANDFESTIGKEIT UND OXIDATIONSBESTÄNDIGKEIT

Title (fr)
TUBE D'ACIER SANS SOUDURE THERMO-RÉSISTANT MARTENSITIQUE À HAUTE TENEUR EN CHROME À RÉSISTANCE À LA RUPTURE EN FLUAGE ÉLEVÉE ET RÉSISTANCE À L'OXYDATION COMBINÉES

Publication
EP 3269831 B1 20201104 (EN)

Application
EP 16179114 A 20160712

Priority
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Abstract (en)
[origin: EP3269831A1] Martensitic heat-resistant steel for boiler applications with a unique combination of enhanced creep strength and excellent oxidation resistance upon high temperature exposure in steam containing environments., having the following melt analysis (in wt.-%): C: 0.10 to 0.16%, Si: 0.20 to 0.60%, Mn: 0.30 to 0.80%, P ≤0.020%, S ≤0.010%, Al ≤0.020%, Cr: 10.5 to 12.00%, Mo: 0.10 to 0.60%, V: 0.15 to 0.30%, Ni: 0.10 to 0.40%, B: 0.008 to 0.015%, N:0.002 to 0.020%, Co: 1.50 to 3.00%, W: 1.50 to 2.50%, Nb: 0.02 to 0.07%, Ti: 0.001-0.020%. The balance of the steel consists of iron and unavoidable impurities. The steel is normalized for a period of about 10 to about 120 minutes in the temperature range between 1050 °C and 1170°C and cooled down in air or water to room temperature, and then tempered for at least one hour in the temperature range between 750°C and 820°C. It exhibits martensitic microstructure with average δ -ferrite content of less than 5 vol.-%.

IPC 8 full level
C21D 8/02 (2006.01); **C21D 6/00** (2006.01); **C21D 8/10** (2006.01); **C21D 9/08** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/10** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01); **C22C 38/18** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/48** (2006.01); **C22C 38/50** (2006.01); **C22C 38/52** (2006.01); **C22C 38/54** (2006.01)

CPC (source: EA EP KR US)
C21D 6/002 (2013.01 - EA EP KR US); **C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/007** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/0226** (2013.01 - KR); **C21D 8/0263** (2013.01 - KR); **C21D 8/105** (2013.01 - EA EP KR US); **C21D 9/08** (2013.01 - EA EP US); **C21D 9/085** (2013.01 - EA EP KR US); **C22C 38/001** (2013.01 - EA EP KR US); **C22C 38/02** (2013.01 - EA EP KR US); **C22C 38/04** (2013.01 - EA EP KR US); **C22C 38/06** (2013.01 - EP US); **C22C 38/105** (2013.01 - EA EP KR US); **C22C 38/12** (2013.01 - EA EP KR US); **C22C 38/14** (2013.01 - EA EP US); **C22C 38/18** (2013.01 - EA EP US); **C22C 38/44** (2013.01 - EA EP US); **C22C 38/46** (2013.01 - EA EP KR US); **C22C 38/48** (2013.01 - EA EP KR US); **C22C 38/50** (2013.01 - EA EP KR US); **C22C 38/52** (2013.01 - EA EP KR US); **C22C 38/54** (2013.01 - EA EP KR US); **C21D 8/0226** (2013.01 - EA EP US); **C21D 8/0263** (2013.01 - EA EP US); **C21D 2211/005** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EA EP KR US)

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