Title (en)

Low-alloy heat-resistant steel, process for producing the same, and turbine rotor

Title (de)

Niedrig legierter Stahl, Verfahren zu dessen Herstellung und Turbinenrotor

Title (fr)

Acier faiblement allié, sa méthode de fabrication et rotor de turbine

Publication

EP 1091010 B1 20031022 (EN)

Application

EP 00308591 A 20000929

Priority

JP 28355199 A 19991004

Abstract (en)

[origin: EP1275745A1] In the field of CrMoV heat-resistant alloys for use in turbine rotors, in order to provide a low-alloy steel which has a toughness at the same level as conventional materials and has excellent high-temperature strength properties, particularly inhibition of creep embrittlement, and in order to provide a process for producing such a low-alloy steel and a turbine rotor in which such a low-alloy steel is used, trace impurities of phosphorus, sulfur, copper, aluminium, arsenic, tin, and antimony in a CrMoV heat-resistant alloy are reduced to specific levels or lower. In addition, trace impurities such as cobalt, niobium, tantalum, nitrogen, and boron are added to increase the creep strength according to a test using an unnotched test piece. In addition, according to the production process, quenching is carried out after heating to 1000 DEG C or higher so as to inhibit precipitation of pro-eutectoid ferrite phase.

IPC 1-7

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IPC 8 full level

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CPC (source: EP)

C22C 38/008 (2013.01); **C22C 38/42** (2013.01); **C22C 38/44** (2013.01); **C22C 38/46** (2013.01); **C22C 38/52** (2013.01); **C22C 38/60** (2013.01); C21D 1/18 (2013.01); C21D 9/38 (2013.01)

Cited by

CN113403530A; GB2364715B; GB2365022B; EP1594997A4; GB2386906A; GB2386906B; DE10244972B4; CN103882326A; EP1245689A3; CN113710827A; US6755920B2; US10752970B2; WO2004067783A2; US7537727B2

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