

Title (en)

High-strength martensite heat resisting cast steel and method of producing the steel

Title (de)

Martensitischer Hochfester Hitzebeständiger Gussstahl und dessen Herstellungsverfahren

Title (fr)

Acier martensitique coulé thermorésistant à haute résistance et procédé de sa fabrication

Publication

**EP 1770184 A1 20070404 (EN)**

Application

**EP 06020146 A 20060926**

Priority

JP 2005283198 A 20050929

Abstract (en)

A high-strength martensite heat resisting steel which has long-time creep rupture strength required for steam temperature condition of 600 - 630 °C and toughness at room temperature, and which is suitable for use as a material of a steam turbine rotor shaft and as large-sized forged steel with an improvement of hot forgeability. A method of producing the steel and applications of the steel are also provided. The high-strength martensite heat resisting steel contains 0.05 - 0.20% by mass of C, 0.1% or less of Si, 0.05 - 0.6% of Mn, 0.1 - 0.6% of Ni, 9.0 - 12.0% of Cr, 0.20 - 0.65% of Mo, 2.0 - 3.0% of W, 0.1 - 0.3% of V, 2.0% or less of Co, 0.02 - 0.20% of Nb, 0.015% or less of B, 0.01 - 0.10% of N, and 0.015% or less of Al, (W/Mo) being 4.0 - 10.0.

IPC 8 full level

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Citation (search report)

- [XY] EP 0639691 A1 19950222 - TOSHIBA KK [JP]
- [XY] JP H09287402 A 19971104 - HITACHI LTD
- [XY] EP 0806490 A1 19971112 - HITACHI LTD [JP], et al
- [XY] JP H07118811 A 19950509 - HITACHI LTD
- [Y] EP 1067206 A2 20010110 - HITACHI LTD [JP]
- [A] EP 0210122 A1 19870128 - MITSUBISHI HEAVY IND LTD [JP], et al

Cited by

CN103071753A; CN109252098A; CN102989982A; US9297277B2; WO2019048230A1

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