

Title (en)  
STEAM TURBINE ROTOR MATERIALS FOR HIGH-TEMPERATURE USE

Title (de)  
DAMPFTURBINEROTORMATERIALEN FÜR HOCHTEMPERATUR BENUTZUNG

Title (fr)  
MATERIAUX POUR ROUE DE TURBINE A VAPEUR, DESTINES A ETRE UTILISES A DES TEMPERATURES ELEVEES

Publication  
**EP 0896071 A1 19990210 (EN)**

Application  
**EP 97947913 A 19971212**

Priority  
• JP 9704580 W 19971212  
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• JP 22324397 A 19970820

Abstract (en)  
(1) A steam turbine rotor material for high-temperature applications consisting essentially of, on a weight percentage basis, 0.05 to 0.13% carbon, 0.01 to 0.1% silicon, 0.01 to 1% manganese, 9.5 to 11% chromium, 0.1 to 0.8% nickel, 0.1 to 0.3% vanadium, a total of 0.01 to 0.2% niobium and/or tantalum, 0.01 to 0.1% nitrogen, 0.01 to 0.5% molybdenum, 0.9 to 3.5% tungsten, 0.1 to 4% cobalt, 0.01 to 0.2% hafnium, and the balance being iron and incidental impurities; (2) a steam turbine rotor material for high-temperature applications as described in (1) above wherein nickel is eliminated therefrom; (3) a steam turbine rotor material for high-temperature applications as described in (1) or (2) above which further contains 0.001 to 0.01% boron; and (4) a steam turbine rotor material for high-temperature applications as described in (1), (2) or (3) above wherein part or all of the hafnium and/or part of the iron are replaced with 0.005 to 0.5% neodymium.

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