

Title (en)

Free-cutting Ni-base heat-resistant alloy

Title (de)

Hochtemperaturfeste Nickelbasislegierung mit guter Zerspannbarkeit

Title (fr)

Alliage de nickel résistant à des températures élevées facilement usinable

Publication

**EP 1378578 B1 20071107 (EN)**

Application

**EP 02253902 A 20020605**

Priority

EP 02253902 A 20020605

Abstract (en)

[origin: EP1378578A1] A free-cutting Ni-base heat-resistant alloy excellent in the high-temperature strength and corrosion resistance was proposed. The alloy contains Ni as a major component, 0.01 to 0.3 wt% of C and 14 to 35 wt% of Cr, and further contains at least one element selected from Ti, Zr and Hf in a total amount of 0.1 to 6 wt%, and S in an amount of 0.015 to 0.5 wt%. The alloy has dispersed in the matrix thereof a machinability improving compound phase, where such phase contains any one of Ti, Zr and Hf as a major constituent of the metal elements, essentially contains C and either S or Se as a binding component for such metal elements. The alloy also satisfies the relations of  $WTi + 0.53WZr + 0.27WHf > 2WC + 0.75WS$  and  $WC > 0.37WS$ , where WTi represents Ti content (wt%), WZr represents Zr content (wt%), WHf represents Hf content (wt%), WC represents C content (wt%) and WS represents S content (wt%). This successfully suppresses the amount of free S residing in the alloy, which results in an improved machinability while preventing the hot workability from being degraded.

IPC 8 full level

**C22C 19/00** (2006.01); **C22C 19/05** (2006.01)

CPC (source: EP)

**C22C 19/053** (2013.01); **C22C 19/055** (2013.01); **C22C 19/056** (2013.01); **C22C 19/058** (2013.01)

Cited by

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