

Title (en)

High-strength, heat-resistant alloy for exhaust valves with improved overaging-resistance

Title (de)

Hochfeste hitzbeständige Legierung für Auslassventile mit verbessertem Widerstand gegen Überalterung

Title (fr)

Alliage à haute résistance mécanique et résistant aux températures élevées pour soupapes d'échappement ayant une résistance améliorée au surviellissement

Publication

**EP 1464718 A1 20041006 (EN)**

Application

**EP 04006427 A 20040317**

Priority

JP 2003073822 A 20030318

Abstract (en)

Disclosed is a heat resistant alloy for exhaust valves, in which Ni-content is constrained to at maximum 62% due to the material cost, while the strength is maintained equal or better to those of conventional alloys and the strength is kept even after use at high temperature for a long period of time. The alloy has the composition essentially consisting of, by weight %, C: 0.01-0.2%, Si: up to 1.0%, Mn: up to 1.0%, P: up to 0.02%, S: up to 0.01%, Ni: 30-62%, Cr: 13-20%, W: 0.01-3.00%, Mo: up to 2.0%, provided that Mo+0.5W: 1.0-2.5%, Al: 0.7% or higher and less than 1.6%, Ti: 1.5-3.0%, Nb: 0.5-1.5%, B: 0.001-0.010%, provided that  $\frac{\text{Ti}}{\text{Al}}$ : 1.6 or more to less than 2.0, and the balance of Fe and inevitable impurities. Optional components are I) at least one of Mg: 0.001-0.030%, Ca: 0.001-0.030% and Zr: 0.001-0.100%, II) Cu: up to 2.0%, and III) V: 0.005-1.00%.

IPC 1-7

**C22C 38/00**; **C22C 19/03**

IPC 8 full level

**F01L 3/02** (2006.01); **C22C 19/03** (2006.01); **C22C 19/05** (2006.01); **C22C 30/02** (2006.01); **C22C 38/00** (2006.01); **C22C 38/54** (2006.01)

CPC (source: EP US)

**C22C 19/056** (2013.01 - EP US)

Citation (search report)

- [XD] EP 0639654 A2 19950222 - HITACHI METALS LTD [JP], et al
- [AD] PATENT ABSTRACTS OF JAPAN vol. 009, no. 125 (C - 283) 30 May 1985 (1985-05-30)
- [AD] PATENT ABSTRACTS OF JAPAN vol. 009, no. 125 (C - 283) 30 May 1985 (1985-05-30)
- [AD] PATENT ABSTRACTS OF JAPAN vol. 007, no. 114 (C - 166) 18 May 1983 (1983-05-18)
- [A] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 13 30 November 1998 (1998-11-30)
- [A] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 23 10 February 2001 (2001-02-10)
- [A] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 12 29 October 1999 (1999-10-29)

Cited by

CN105899693A; CN104630597A; US7651575B2; WO2008007190A3; WO2015117584A1; US10870908B2; US11098389B2; WO2015117583A1; WO2015117585A3

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

**EP 1464718 A1 20041006**; JP 2004277860 A 20041007; JP 3951943 B2 20070801; US 2004184946 A1 20040923

DOCDB simple family (application)

**EP 04006427 A 20040317**; JP 2003073822 A 20030318; US 80305404 A 20040318