

Title (en)
Free-cutting alloy tool steel

Title (de)
Automatenlegierungswerkzeugstahl

Title (fr)
Acier à outil en alliage de décolletage

Publication
EP 2154260 A1 20100217 (EN)

Application
EP 09009568 A 20090723

Priority
• JP 2008189726 A 20080723
• JP 2009091602 A 20090403

Abstract (en)
The present invention provides a free-cutting alloy tool steel containing, in terms of mass%: C: from 0.50 to 0.90%, Si: from 0.50 to 2.20%, Mn: 0.8% or more, Mn+0.08Cr: from 1.35 to 2.05%, Ni: from 0.01 to 0.30%, Mo+0.5W: from 0.01 to 0.50%, V: from 0.01 to 0.15%, S: from 0.03 to 0.15%, with the balance being Fe and unavoidable impurities, in which the contents of Mn and Cr satisfy the following relationship: Mn/Cr: from 0.10 to 0.23, and the contents of Mo, W and Mn satisfy the following relationship: (Mo+0.5W)/Mn: 0.55 or less.

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C22C 38/18 (2006.01); **B21D 37/01** (2006.01)

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C22C 38/02 (2013.01 - KR); **C22C 38/04** (2013.01 - KR); **C22C 38/18** (2013.01 - EP); **C22C 38/38** (2013.01 - KR)

Citation (applicant)
• JP H11131182 A 19990518 - DAIDO STEEL CO LTD
• JP 2002167644 A 20020611 - DAIDO STEEL CO LTD
• JP 2001234278 A 20010828 - DAIDO STEEL CO LTD
• JP 2008189726 A 20080821 - KAO CORP
• JP 2009091602 A 20090430 - MITSUBISHI ELECTRIC CORP

Citation (search report)
• [A] JP 2007197746 A 20070809 - DAIDO STEEL CO LTD
• [A] US 2005252580 A1 20051117 - SHIMIZU TAKAYUKI [JP], et al
• [A] WO 8903898 A1 19890505 - UDDEHOLM TOOLING AB [SE]
• [A] JP 2001020041 A 20010123 - HITACHI METALS LTD
• [A] JP 2001316769 A 20011116 - DAIDO STEEL CO LTD

Cited by
CN112639150A; WO2020161359A1

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AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

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