

Title (en)
CASE-HARDENED STEEL AND CARBURIZED MATERIAL

Title (de)
EINSATZGEHÄRTETER STAHL UND AUFGEKOHLTES MATERIAL

Title (fr)
ACIER CÉMENTÉ ET MATÉRIAU CARBURISÉ

Publication
EP 2530178 A4 20170111 (EN)

Application
EP 11736785 A 20110126

Priority
• JP 2010015960 A 20100127
• JP 2011000413 W 20110126

Abstract (en)
[origin: EP2530178A1] The present invention provides a case hardening steel, comprising a component composition including C: 0.10 mass % to 0.35 mass %; Si: 0.01 mass % to 0.50 mass %; Mn: 0.40 mass % to 1.50 mass %; P: 0.02 mass % or less; S: 0.03 mass % or less; Al: 0.04 mass % to 0.10 mass %; Cr: 0.5 mass % to 2.5 mass %; B: 0.0005 mass % to 0.0050 mass %; Nb: 0.003 mass % to 0.080 mass %; Ti: 0.003 mass % or less; N: less than 0.0080 mass %; and balance as Fe and incidental impurities.

IPC 8 full level
C22C 38/00 (2006.01); **C21D 1/06** (2006.01); **C21D 6/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/32** (2006.01); **C22C 38/54** (2006.01); **C23C 8/22** (2006.01); **C23C 8/80** (2006.01)

CPC (source: EP KR)
C21D 1/06 (2013.01 - EP KR); **C21D 6/002** (2013.01 - EP KR); **C22C 38/002** (2013.01 - EP KR); **C22C 38/02** (2013.01 - EP KR); **C22C 38/04** (2013.01 - EP KR); **C22C 38/26** (2013.01 - EP KR); **C22C 38/28** (2013.01 - EP KR); **C22C 38/32** (2013.01 - EP KR); **C23C 8/22** (2013.01 - EP KR); **C23C 8/80** (2013.01 - EP); **C21D 1/25** (2013.01 - EP); **C21D 2211/004** (2013.01 - EP); **C21D 2211/008** (2013.01 - EP)

Citation (search report)
• [X] JP 2006299383 A 20061102 - KOBE STEEL LTD
• [X] JP 2008179849 A 20080807 - JFE BARS & SHAPES CORP
• [X] JP H117164 A 19990112 - ORIENT CHEMICAL IND
• [X] JP H1171564 A 19990316 - HITACHI CHEMICAL CO LTD
• See references of WO 2011093070A1

Cited by
EP2980242A4; AU2019287841B2; CN112292471A; AU2019287840B2; US11332817B2; US11332799B2; US11326220B2; US11512375B2

Designated contracting state (EPC)
AL 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 RS SE SI SK SM TR

DOCDB simple family (publication)
EP 2530178 A1 20121205; EP 2530178 A4 20170111; EP 2530178 B1 20181024; CN 102770570 A 20121107; CN 102770570 B 20150401; CN 104480399 A 20150401; CN 104480399 B 20190308; JP 2011174176 A 20110908; JP 2015096657 A 20150521; JP 5760453 B2 20150812; KR 101671133 B1 20161031; KR 20120099519 A 20120910; KR 20150038649 A 20150408; WO 2011093070 A1 20110804

DOCDB simple family (application)
EP 11736785 A 20110126; CN 201180011314 A 20110126; CN 201410635451 A 20110126; JP 2011000413 W 20110126; JP 2011014295 A 20110126; JP 2015012501 A 20150126; KR 20127020394 A 20110126; KR 20157006475 A 20110126