

Title (en)
Carburizing and carbonitriding steel

Title (de)
Stahl zum Aufkohlen und Karbonitrieren

Title (fr)
Acier pour cémentation et carbonituration

Publication
EP 1167561 A2 20020102 (EN)

Application
EP 00125344 A 20001130

Priority
JP 2000193780 A 20000628

Abstract (en)
A carburizing and carbonitriding steel, comprising, in percent by weight, C = 0.10 to 0.30%, Si = 0.40 to 1.00%, Mn = 0.30 to 1.50%, P = 0.035% or lower, S = 0.005 to 0.050%, Ni = 0.00 to 1.00%, Cr = 0.30 to 1.50%, Cu = 0.01 to 0.50%, Mo = 0.00 to 1.00%, Al = 0.010 to 0.035%, Nb = 0.001 to 0.050%, N = 0.0050 to 0.0200%, and O = 0.0015% or lower, wherein the parameter expressed as Mo + Ni ranges from 0.30% to 2.00%, with the balance being Fe and unavoidable impurity elements. The steel further contains one or more elements of V = 0.01 to 0.50%, Ti = 0.005 to 0.050%, and B = 0.0005 to 0.0050%. As elements that improve machinability without severely affecting fatigue characteristics, the steel may further contain one or more elements of Pb = 0.01 to 0.09%, Bi = 0.04 to 0.20%, Te = 0.002 to 0.050%, Zr = 0.01 to 0.20%, Ca = 0.0001 to 0.0100%. The steel is improved in pitting fatigue strength and impact strength at the same time because of the need to reduce the size and weight of mechanical components and to achieve higher stress load levels.

IPC 1-7
C22C 38/00; **C22C 38/20**; **C22C 38/26**

IPC 8 full level
C22C 38/00 (2006.01); **C21D 9/28** (2006.01); **C21D 9/32** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/26** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/48** (2006.01); **C22C 38/60** (2006.01); **C23C 8/22** (2006.01); **C23C 8/32** (2006.01); **C21D 1/78** (2006.01)

CPC (source: EP)
C21D 8/005 (2013.01); **C21D 9/28** (2013.01); **C21D 9/32** (2013.01); **C22C 38/001** (2013.01); **C22C 38/02** (2013.01); **C22C 38/04** (2013.01); **C22C 38/06** (2013.01); **C22C 38/20** (2013.01); **C22C 38/22** (2013.01); **C22C 38/26** (2013.01); **C22C 38/42** (2013.01); **C22C 38/44** (2013.01); **C22C 38/48** (2013.01); **C22C 38/60** (2013.01); **C23C 8/22** (2013.01); **C23C 8/32** (2013.01); **C21D 7/13** (2013.01)

Cited by
FR2868083A1; EP1757711A3; EP2058560A4; US2014251507A1; US9777343B2; EP2816128A4; US8523722B2; US10272960B2; WO2005098070A3; WO2020178854A3; US10745772B2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

Designated extension state (EPC)
AL LT LV MK RO SI

DOCDB simple family (publication)
EP 1167561 A2 20020102; **EP 1167561 A3 20090304**

DOCDB simple family (application)
EP 00125344 A 20001130