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(54) **Carburizing and carbonitriding steel**

(57) 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.

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EUROPEAN SEARCH REPORT

 Application Number
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Place of search The Hague		Date of completion of the search 27 January 2009	Examiner Vlassi, Eleni
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