

Title (en)  
Low-carbon free cutting steel

Title (de)  
Automatenstahl mit niedrigem Kohlenstoffgehalt

Title (fr)  
Acier de décolletage à bas carbone

Publication  
**EP 1335035 B1 20050420 (EN)**

Application  
**EP 03250686 A 20030203**

Priority  
JP 2002026368 A 20020204

Abstract (en)  
[origin: EP1335035A1] The invention provides a low-carbon resulfurized free cutting steel containing no lead and at least comparable in machinability to the conventional leaded free cutting steels. The steel consists of, by mass percent, C: 0.05 - 0.19 %, Mn: 0.4 - 2.0 %, S: 0.21 - 1.0 %, Ti: 0.03 - 0.30 %, Si: not more than 1.0 %, P: 0.001 - 0.3 %, Al: not more than 0.2 %, O (oxygen): 0.0010 - 0.050 % and N: 0.0001 - 0.0200 %, with the balance being Fe and impurities, the contents of Ti and S satisfying the relation (1) given below and the atomic ratio between Mn and S satisfying the relation (2) given below, and the steel containing MnS with Ti sulfide and/or Ti carbosulfide included therein:  $\frac{\text{Ti}}{\text{S}} \geq 1$  The steel may further contain, in addition to the above components, one or more elements selected from the group consisting of Se, Te, Bi, Sn, Zr, Ca, Mg and rare earth elements and/or from the group consisting of Cu, Ni, Cr, Mo, V and Nb.

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