

Title (en)  
Steel and process for manufacturing workpieces with high abrasion resistance

Title (de)  
Stahl und Verfahren zur Herstellung von Bauteilen mit hoher Abriebfestigkeit

Title (fr)  
Acier et procédé pour la fabrication de pièces à haute résistance à l'abrasion

Publication  
**EP 0739993 B1 19991201 (FR)**

Application  
**EP 96400737 A 19960405**

Priority  
FR 9505016 A 19950427

Abstract (en)  
[origin: EP0739993A1] An abrasion-resistant steel contains (by wt.%) 0.24-0.3 (pref. 0.24-0.27) C, 0-2 (pref. 0-1 Si) 0-2 (pref. 0-1) Al, 0-2 (pref. 0.3-1.6) Mn, 0-4 (pref. 0-2) Ni, 0-3 (pref. 0.5-1.8) Cr, 0-0.6 Mo and 0-1.2 W. The steel may also contain 0.005-0.005% B, at least one of Nb, V, Zr and Ti in amt. less than 0.3% and at least one of Se, Te, Ca, Bi and Pb in amt. below 0.1%, the rest being Fe. The following relationships also apply,  $4.6C + 1.05Mn + 0.54Ni + 0.66(Mo + W/2) + 0.5Cr + k \geq 1.6$ , where  $k = 0$  if the steel contains less than 0.0005% B and  $k = 0.5$  if the steel contains more than 0.0005% B and  $0.6\% \leq (Al+Si) \leq 2\%$ . To improve their abrasion resistance sheets of the steel are heated to above austenisation temp. (e.g. 900 degrees C) then cooled to 450 degrees C at more than 1 degrees C/s, further cooled to 200 degrees C over 50 s to 60 minutes (pref. 100 s to 30 minutes) and finally returned to ambient (below 250 degrees C) in less than 3 h. This gives the steel a martensitic or martensitic-bainitic structure contg. 5-15% austenite and a hardness of 400-500 HB.

IPC 1-7  
**C22C 38/44**; **C22C 38/54**

IPC 8 full level  
**C21D 6/00** (2006.01); **C22C 38/00** (2006.01); **C22C 38/44** (2006.01); **C22C 38/54** (2006.01); **C22C 38/60** (2006.01)

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**C21D 9/00** (2013.01 - KR); **C22C 38/22** (2013.01 - KR); **C22C 38/44** (2013.01 - EP KR US); **C22C 38/54** (2013.01 - EP US)

Citation (examination)  

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