

Title (en)  
STEEL FOR MECHANICAL STRUCTURE EXCELLING IN STRENGTH, DUCTILITY AND TOUGHNESS AND PROCESS FOR PRODUCING THE SAME

Title (de)  
STAHL FÜR EINE MECHANISCHE STRUKTUR MIT HERVORRAGENDER FESTIGKEIT, BIEGBARKEIT UND HÄRTE SOWIE HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)  
ACIER POUR STRUCTURE MÉCANIQUE EXCELLENT EN MATIÈRE DE RÉSISTANCE, DUCTILITÉ ET TÉNACITÉ ET SON PROCÉDÉ DE FABRICATION

Publication  
**EP 1900838 A4 20090325 (EN)**

Application  
**EP 06780846 A 20060630**

Priority

- JP 2006313521 W 20060630
- JP 2005195739 A 20050705
- JP 2005326844 A 20051111
- JP 2006079070 A 20060322

Abstract (en)  
[origin: US2008017283A1] A steel for machine structural use with a better strength-ductility-toughness balance than maraging steel and applications thereof are provided. The steel for machine structural use with excellent strength, ductility, and toughness contains, in percent by mass, more than 0.30% to 0.5% of carbon, 1.0% or less of silicon, 1.5% or less of manganese, 0.025% or less of aluminum, 0.3% to 0.5% of molybdenum, and 0.0005% to 0.01% of boron, and the balance is iron and incidental impurities. The steel has a structure including at least 90% by volume of martensitic structure. The martensitic structure includes blocks having a size of 1.5 µm or less. Dissolved boron is contained in an amount of at least 0.0005% and is present at boundaries of prior austenite grains in a concentration at least 1.5 times that in the prior austenite grains.

IPC 8 full level  
**C22C 38/00** (2006.01); **C21D 9/40** (2006.01); **C21D 9/46** (2006.01)

CPC (source: EP KR US)  
**C21D 1/18** (2013.01 - KR); **C21D 9/46** (2013.01 - EP US); **C22C 38/00** (2013.01 - EP US); **C22C 38/02** (2013.01 - KR); **C22C 38/04** (2013.01 - KR); **C22C 38/06** (2013.01 - KR); **C22C 38/12** (2013.01 - KR); **C21D 2211/008** (2013.01 - KR)

Citation (search report)

- [XP] EP 1669469 A1 20060614 - JFE STEEL CORP [JP]
- [E] EP 1770181 A1 20070404 - JFE STEEL CORP [JP]
- [A] JP H02149645 A 19900608 - SUMITOMO METAL IND
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- [P] EP 1553197 A1 20050713 - JFE STEEL CORP [JP], et al
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DOCDB simple family (application)  
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