Title (en)

Steel material having improved fatigue crack driving resistance and manufacturing process therefor

Title (de)

Stahl mit verbesserter Ermüdungsfestigkeit und Verfahren zur Herstellung

Title (fr)

Acier avec une resistance en fatigue ameliorée et methode de production

Publication

EP 1312690 B1 20060809 (EN)

Application

EP 02025246 A 20021112

Priority

- JP 2001349220 A 20011114
- JP 2002134471 A 20020509

Abstract (en)

[origin: EP1312690A1] The present invention provides a structural steel material and a manufacturing process therefor, which makes it possible to perform material design using a quantitative assessment of fatigue resistance in steel materials which undergo cyclic softening. The steel material according to the present invention has a cyclic softening parameter of at least 0.65 and at most 0.95, the cyclic softening parameter being represented by the ratio (sigma 15/ sigma 1) of the stress at the maximum strain in the first cycle (sigma 1) to that in the 15th cycle (sigma 15) measured when a waveform of incremental and decremental cyclic loads is applied 15 times with a maximum tensile and compressive strain of +/-0.012, a frequency of 0.5 Hz, and the number of waves to the maximum strain being 12. The structural steel material comprises C: 0.02-0.20%, Si: at most 0.60%, Mn: 0.50 - 2.0%, Al: 0.003 - 0.10%, and optionally a small amount of one or more elements of Cu, Ni, Cr, Mo, V, Nb, Ti, B, and Ca, and has a value of carbon equivalent, Ceq, represented by the following formula of from 0.28 - 0.65: Ceq (%) = C + Si/24 + Mn/6 + Ni/40 + Cr/5 + Mo/4 + V/14. <IMAGE>

IPC 8 full level

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CN114993832A; RU2630721C1; CN113378385A; RU2633684C1; CN114411059A; RU2510424C1; RU2613269C2; CN102161148A; CN102127698A; WO2011150687A1; WO2012113118A1; WO2012113119A1

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