

Title (en)

STEEL FOR BALL-CAGE TYPE UNIVERSAL JOINT RETAINER AND PRODUCTION METHOD THEREFOR

Title (de)

STAHL FÜR EINE KUGELKÄFIG-UNIVERSALGELENKHALTERUNG UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ACIER POUR DISPOSITIF DE RETENUE DE JOINT UNIVERSEL DE TYPE CAGE À BILLES ET SON PROCÉDÉ DE PRODUCTION

Publication

EP 4186990 A4 20240605 (EN)

Application

EP 21922314 A 20210905

Priority

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Abstract (en)

[origin: EP4186990A1] The present invention belongs to the technical field of special steel smelting, and relates to a steel for a cage of a ball-cage universal joint and a production method therefor. The steel comprises the following chemical ingredients by wt%: 0.10-0.25% of C, 0.20-0.40% of Si, 0.40-0.65% of Mn, 0.40-0.70% of Cr, 0.0003-0.0025% of B, 0.010-0.035% of Ti, 0.30-0.45% of Mo, 0.0050-0.0100% of N, $\leq 0.015\%$ of S, $\leq 0.025\%$ of P, $\leq 0.25\%$ of Ni, $\leq 0.30\%$ of Cu, 0.015-0.035% of Al, $\leq 0.0010\%$ of O, $\leq 0.04\%$ of As, $\leq 0.03\%$ of Sn, $\leq 0.005\%$ of Sb, $\leq 0.002\%$ of Pb, and the balance being Fe and unavoidable impurities. The microstructure of the steel is bainite, and the grain size of austenite $G \geq 6$. The production process comprises primary smelting of molten steel, refining of molten steel, vacuum degassing of molten steel, continuous casting, hot rolling and finishing. In the present application, the chemical ingredients are optimized, and the alloy costs are reduced. Furthermore, a hardenability similar to that of 20CrMnTi is achieved, the strength and toughness of the steel, manufactured by using the chemical ingredients combined with the production method, are better than the strength and toughness of 20CrMnTi, and the comprehensive performance meets the requirements of the steel for the cage of the ball-cage type universal joint.

IPC 8 full level

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Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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