Title (en)

HIGH-STRENGTH, LIGHTWEIGHT AUSTENITIC-MARTENSITIC STEEL AND THE USE THEREOF

Title (de)

HOCHFESTER AUSTENITISCH-MARTENSITISCHER LEICHTBAUSTAHL UND SEINE VERWENDUNG

Title (fr)

ACIER AUSTENITIQUE-MARTENSITIQUE A RESISTANCE ELEVEE POUR CONSTRUCTION LEGERE ET SON UTILISATION

Publication

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Application

EP 06761728 A 20060628

Priority

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Abstract (en)

[origin: WO2007000156A1] The invention relates to a high-strength, lightweight austenitic-martensitic steel and the use thereof. The inventive lightweight steel is characterized by a chrome content of more than 0.5 % and less than 18 %, a silicon content of more than 1 % and less than 4 %, a manganese content of more than 2.5 % and less than 30 % and an aluminum content of more than 0.05 to 4 % and lies within an alloy range that is determined by the coordinates of four points (Cr_{equ}= 2; Ni_{equ} = 2), (Cr_{equ} = 2; Ni_{equ} =24), (Cr_{equ}=20; Ni_{equ} = 10) and (Cr_{equ} = 20; Ni_{equ} = 6.5), whereby the chrome and nickel equivalent is calculated from the chemical composition of the steel using the relations (1) and (2): Cr_{equ} = % Cr + % Mo + 1.5 % Si + 0.5 % W + 0.9 % Nb + 4 % Al + 4 % Ti + 1.5 % V (1), Ni_{equ} = % Ni + 30 % C + 18 % N + 0.5 % Mn + 0.3 % Co +0.2 % Cu - 0.2 % Al (2). The indications are in weight percent and the remainder substantially consists of iron and other elements usually present in steel (P, S). The inventive steel can be cold-formed, and is suitable for use as a material for hot- and cold-rolled sheets, strips and tubes, for non-flat semifinished products and non-flat products and retaining elements, for crash-relevant components and reinforcing structural components in the automobile industry, for expendable parts and as a material for weatherproof, corrosion resisting and stainless parts.

IPC 8 full level

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