Title (en)

MANUFACTURING OF HIGH STRENGTH AND HEAT RESISTANT ALUMINIUM ALLOYS STRENGTHENED BY DUAL PRECIPITATES

Title (de)

HERSTELLUNG VON HOCHFESTEN UND WÄRMEBESTÄNDIGEN DURCH DUAL-PRÄZIPITATE VERSTÄRKTEN ALUMINIUMLEGIERUNGEN

Title (fr)

FABRICATION D'ALLIAGES D'ALUMINIUM À HAUTE RÉSISTANCE MÉCANIQUE ET THERMIQUE RENFORCÉS PAR DES PRÉCIPITÉS DOUBLES

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Application

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Priority

SI 201700256 A 20170913

Abstract (en)

The present invention the Manufacturing of High Strength and Heat Resistant Aluminium Alloys Strengthened by Dual Precipitates relates to a high-strength and heat resistant aluminium alloy and a method for producing the same. The alloys possess 2.0-5.0 mass.% Mn; 0.001-2.0 mass.% Cr; 2.0-5.0 mass.% Cr + Mn; 0.001-0.5 mass.% V; 2.0-4.5 mass.% Cu; 0.001-0.9 mass.% Be; 0.05-0.5 mass.% Sc; and comprising of at least one element out of Zr, Y, Ti, Hf and Nb with a content of 0.001-0.4 mass.%; the balance being Al and inevitable impurities up to 0.5 mass.%. The alloys are cast with a cooling rate exceeding 100 K s -1 . The alloys can be plastically deformed before aging. Afterwards, they are aged at a first ageing temperature for a first predetermined time. Then they are subjected to the second ageing treatment at a second temperature for a second predetermined time to obtain a combination of icosahedral and L 12 precipitates. The alloys can be aged at a third ageing temperature for a third predetermined ageing time after being quenched from the second ageing temperature.

IPC 8 full level

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CPC (source: EP)

C22C 21/00 (2013.01); **C22C 21/12** (2013.01); **C22F 1/002** (2013.01); **C22F 1/04** (2013.01); **C22F 1/057** (2013.01)

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